

New York City Economic Development Corporation
New York City Council Environment Committee Hearing on Helicopters
James Katz, Chief of Staff
David Hopkins, Sr. Director of Aviation
Thursday, November 12th, 2015

James Katz:

Good afternoon, Chairman Constantinides and Councilmembers. I am James Katz, the Chief of Staff for the New York City Economic Development Corporation, and I am joined by David Hopkins, our Director of Aviation. We appreciate today's opportunity to discuss issues associated with our helicopters in New York City. We would like to provide an overview of the industry and the City's role in it, and then discuss the proposed legislation that is before you and our issues and concerns with it. We recognize the noise-related concerns raised by members of several affected communities, but we are also mindful of the fact that there are a number of people who make their livings in this industry. We are hopeful that the Council will see fit to work with us in partnership and find a sensible set of policy solutions that addresses these competing demands. But first, David will provide the overview and I will discuss the legislation.

David Hopkins:

Good afternoon Chairman Constantinides and Councilmembers. I am David Hopkins and I serve as the Director of Aviation at EDC. In that role I oversee policy and planning for the City's aviation assets. This includes administering the lease with the Port Authority of New York and New Jersey for LaGuardia and Kennedy airports as well as the two heliports owned by the City at E. 34th St. and at Pier 6 in Lower Manhattan.

The three heliports in Manhattan are critical components of our transportation infrastructure. In addition to E. 34th St. and Pier 6, the Hudson River Park Trust oversees the W. 30th St. heliport. The three heliports operate as a system, with the E. 34th St facility focused on corporate traffic and the W. 30th St. facility focused on charter and corporate traffic and the downtown heliport focused on tourism. The W. 30th St. heliport has 24 hour operations. The E. 34th St. facility is open from 8AM to 8PM on weekdays and is closed on weekends. The downtown facility is open for tours from 9AM to 7PM Monday through Saturday and from 9AM to 5PM on Sundays, with slightly longer hours for corporate and charter flights. The downtown heliport is also unique in that it is the only facility that can accommodate the President's helicopter. Last year there were about 75,000 total landings. Pier 6, which is the biggest facility, accommodated 58,000 of those.

The operator of the E. 34th St. heliport is Atlantic Aviation and the operator of the Pier 6 heliport is Saker Aviation. Both operators were competitively procured, and both pay rent to EDC. Under the terms of our agreements, EDC is responsible for the subsurface elements which require regular maintenance and the rent we receive helps keep these pier structures in good condition. Last year we received about \$2.9 million from downtown and over \$800,000 from E. 34th.

Direct heliport employment exceeds 50 people. But this is just one portion of the direct jobs associated with this industry, in which 219 people were employed at last count. (These numbers do not include any incremental employment created from the visitors who take the tours.)

It may also be useful to review the history of the long-standing tour helicopter industry in Manhattan. Tour activity used to be concentrated at E. 34th St. but was subsequently moved from the Eastside and split between downtown and W. 30th St. In 2010, tour flights were eliminated from W. 30th and since that time all the tour flights have been conducted from the downtown heliport. In early 2010, the increase in volume downtown led EDC to convene operators, the Federal Aviation Administration and local elected officials in revising the tour routes. Tours over areas such as Central Park were eliminated and two mandated tour routes established. Both left the downtown heliport via the Buttermilk Channel between Governors Island and Red Hook, then circled the Statue of Liberty before proceeding up the Hudson River. The shorter tour turned back south along the Hudson near the 79th St. boat basin and the longer tour continued across Manhattan about 155th to provide a view of Yankee Stadium.

Since these routes have been established, EDC has made a number of modifications. The biggest change occurred in January 2015 when the Yankee Stadium flyover was eliminated. The longer tour remained over the Hudson River to north of the George Washington Bridge. Now all of the designated tour routes are over water.

We also track complaints made about helicopters through the 311 system. Most of the complaints the City receives are not related to tour flights. Instead they tend to be helicopters that are hovering or are flying over other areas of the City. In 2014, 1299 complaints were made about helicopters through the 311 system. Only 162 of these related to tour operations. As a comparison, the City received 6,089,056 complaints to 311 in fiscal year 2015. I hope this overview has been useful. Now James will discuss the proposed legislation.

James Katz:

As currently drafted, the Administration does not support either piece of legislation. While mindful of the concerns that have been expressed, and will likely be expressed again today, about noise, we are also focused on the 219 direct jobs in this industry, which run the gamut from entry level service work to highly skilled pilots. We hope to work in close partnership with the Council to find better solutions to meet the competing demands of community impact and job preservation. We believe that while they may be well intentioned, as drafted, neither of the proposed pieces of legislation meets the second part of this test.

The legislation bans certain types of equipment. In one case helicopters meeting stage one, two or three noise standards would be banned. In the other those meeting stage one and two would be banned, but stage three helicopters would be allowed. In the first case, all tour helicopters would be prohibited from using the downtown facility, as there is no such thing as Stage 4. In the second case, almost all tour helicopters would be banned as well.

Given the fact that the Stage 3 standards were only adopted by the FAA last May, it is unclear if any helicopters in the tour fleet meet this new standard. Operators would be asked overnight to procure a new fleet, with no opportunity to amortize the large capital investment they have made in the current fleet. To give a sense of scale, one of these helicopters typically costs between \$2.3 and \$3.5 million, and companies typically finance them over terms of 7-10 years. Many of those financing arrangements are very likely mid-term right now. Put simply, these bans would put operators out of business.

Another concern we have about the legislation as drafted is the loss of control should the tour operations be eliminated from facilities controlled by the City. The FAA regulates the airspace, not the City. Our control of tour operations and their routing comes from the contractual relationship between the EDC and the helicopter operator. Stripped of the ability to fly from downtown, we fear that in response to a threat to their survival, tour operations will be established from locations near the City such as Hudson County NJ. If that happens, we have no say over the routes they take or the times they fly. We would have no ability to say, for example, that tour helicopters could not fly over Central Park. This is a power we retain presently in requiring all tours to fly over water. We would therefore submit to the Council that retaining this control is the best, and perhaps the only, way to achieve a strategy to mitigate noise effects.

A better approach that we could together explore would be to use our rights under the concession agreement to negotiate a meaningful reduction in volumes with the heliport operator and the tour operators. We understand that the affected residents and communities along the tour routes are seeking relief from the tour flights, and we would like to work in partnership with the Council to deliver that in a thoughtful way. Reducing the number of tour flights, and combining that with the recent change requiring all portions of all flights to be over water, would offer real relief to affected communities. The city would retain control over the industry, and the majority of the employees would get to keep their jobs. We believe that is the best policy outcome for all concerned.

Again I thank you for the opportunity to testify. David and I are available to answer any questions that you might have.



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Gale A. Brewer, Borough President

Gale A. Brewer, Manhattan Borough President
Testimony for the New York City Council Committee on Environmental Protection
November 12, 2015

My name is Gale A. Brewer and I am the Manhattan Borough President. I would like to thank Chair Constantinides and the members of the Committee on Environmental Protection for the opportunity to testify today.

Downtown Manhattan Heliport handled 56,085 sightseeing helicopter flights in 2014. It is no wonder that oppressive, disorienting helicopter noise has become an ever-present part of life for many of our constituents. As Council Member, I worked with the New York City Economic Development Corporation (EDC) and my colleagues at the Federal, State and City levels to come up with the helicopter sightseeing plan, released April 29, 2010, that eliminated short tours, banned flights over Central Park and the Empire State Building, and mandated a route above water whenever possible. I have also requested that the Federal Aviation Administration (FAA) require that helicopters prominently display their registration number in a large, legible font on the underside of the aircraft, much as city buses have their number on the roof.

That request was not honored, and to date there has been no significant mitigation of helicopter noise. In 2014 and 2015, "Shakespeare in the Park" organizers and theater-goers complained of non-stop helicopter noise during performances. Castle Clinton and Governors Island visitors spoke of how the incessant noise of low-flying tour helicopters spoiled their experiences. Manhattan Community Board 10, which covers Central Harlem, saw the number of 311 complaints on helicopter noise more than double from 2013 to 2014. Upper West Side and Lower Manhattan constituents have called or written about how their neighborhoods have become the "wild, wild west" because of incessant helicopter noise. I have even heard of stories of walls cracking and home decoration pieces falling off the wall because of vibration from low-flying helicopters. Anyone who spends time in Central Park can readily observe these extremely intrusive overflights, despite an explicit prohibition on operations over the park. You have a condition of noise pollution that seriously impacts millions of residents from Washington Heights to Battery Park City, as well as in Brooklyn and the Bronx, both day and night, and with the number, frequency and noise impact of the flights increasing year after year with no apparent concern by the FAA or other regulatory bodies.

I am testifying in support of Intro 858 and Intro 859, which will ban sightseeing helicopters from taking off and landing at New York City-owned heliports. These bills respond to the fact that the 2010 plan, which required sightseeing helicopters to transit the Hudson River at 1,500 feet or above, was held unworkable under current FAA regulations. Within the Hudson River Special Flight Rules Area (SFRA), which covers all of the Hudson River between Verrazano Narrows Bridge and Armstrong Tower in Alpine, New Jersey, all local area aircraft operations, including all sightseeing helicopters, must fly below 1,000 feet mean sea level (MSL). In effect, sightseeing helicopters may fly as low as they see fit, and FAA allows—and even requires—they to do so.

Helicopters are also held to a noise standard substantially more lax than that of the New York City Noise Code. Under Federal regulations, depending on certified maximum takeoff weight (MTOW), a Stage 3 helicopter is subject to noise limits ranging from 82 decibels (dB), measured at sound exposure level (SEL), up to 109 dB when on its approach to landing, expressed as effective perceived noise level in decibels (EPNdB). Whether it is 82 dB or 109 dB, helicopters are permitted to make noise at levels two or three times the 42 dB limit for background music or HVAC devices.

Meanwhile, helicopter industry groups, such as Eastern Regional Helicopter Council and Helicopter Jobs and Tourism Council, formerly known as Helicopter Matters, continue to reiterate that the elimination of this industry will lead to the loss of 200 jobs and \$30 million in annual tourism revenue. Instead of reining in its worst practices, this industry commissioned its own survey attempting to downplay its impacts vis-à-vis other quality-of-life complaints. At the same time, helicopter tour operators continue to advertise “private flight time and custom route” deals, such as a 30-minute, six-person tour for \$2,100 offered by one of the tour operators; these trips circumvent the sightseeing route regulations set forth in the 2010 plan.

Lastly, sightseeing helicopters are also a security issue. Our constituents all remember well how easy it was for terrorists to commandeer aircraft on 9/11, and that experience is conjured up every time they “hear the chop” above their home. Their fears are credible—almost anybody can buy a seat on a tour and get on a helicopter. Unlike scheduled commercial flyers, passengers on private, for-hire tours are only subject to the most basic security checks prior to take-off. New York City, especially Lower Manhattan, is a “9/11 community.” Many of us lost friends and loved ones, and the specter of so many helicopters flying around the World Trade Center site and much of our most critical infrastructure is deeply unsettling; that this activity occurs with little or no security oversight is an open invitation to those who would harm us.

Let us be clear: the impacts and risks of allowing helicopters to operate in a barely-regulated, wild west-like environment will continue to worsen unless we enact and enforce strong controls. Intro 858 and Intro 859 represent a solid step in that effort. The helicopter tours, in particular, are not essential to national air transportation, not aligned with the quality-of-life interest of our communities, not consistent with the Federal objective of a safe and efficient airspace for the most congested skies nationwide, and not a form of interstate or foreign commerce in any shape or form. Intro 858 is fully within the spirit of the Federal Airport Noise and Capacity Act of 1990, and I see no reason for the Secretary of Transportation to reject the Stage 3 sightseeing helicopter ban proposed in this bill; on the contrary, there are many clear, valid and prudent reasons to do so.

I applaud the sponsors of these two bills for their commitment to the regulation of the helicopter industry in a way that maximizes the safety, security, and quality-of-life of New Yorkers who live with its impacts every hour of every day. Historically, the City has prohibited the kinds of impacts on life and safety created today by helicopter overflights. Reasonable levels of peace and quiet, as well as public safety, should not come second to the profits of a few who now claim a right to sacrifice these essential qualities for personal gain.

Thank you again for the opportunity to testify, and I urge the Committee to vote in favor of Intro 858 and Intro 859.



FOR THE RECORD

State Senator Velmanette Montgomery

25th New York Senatorial District

Ranking Democratic Conference Member, Children & Families

Regarding Tourist Helicopter Regulation 11-12-2015

I very happily write today in support of the City Council's efforts to regulate or ban tourist helicopters.

City, State and Federal elected officials have been attempting to arrive at regulations for this remarkably resilient industry for the last 20 years. We have seen a pattern: the industry moans that any regulations are untenable; they remind us that tourist helicopters are a large segment of the City's gross (they are not); that there's something exciting about the sound of a flying lawn mower buzzing a significant portion of the population every 20 minutes (there is not); and at last the industry grudgingly accepts a new version of the same regulations we have been putting in place for the last 20 years but which the industry abandons after 3 months.

No more.

There is nothing in the City Charter that says one tiny industry has a trump card to deprive tens of thousands of people of their right to peace and quiet. I checked. All citizens have a right to the sky and a modicum of peace and quiet.

We regulate all types of pollution most effectively, including noise pollution. But nothing for this industry. They aren't even trying to be good neighbors! There are types of helicopters that have a significantly lower noise footprint: yes, they are more expensive, but you'd think if they really wanted to stay in business they would see the practicality of the investment.

But if they can't, they don't deserve to stay in business.

Thank you for your consideration.

Senator Velmanette Montgomery, 25th District

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THE SENATE
STATE OF NEW YORK

**JOINT TESTIMONY OF STATE SENATORS DANIEL SQUADRON AND BRAD
HOYLMAN REGARDING CITY COUNCIL INTRODUCTIONS 858 AND 859**

November 12, 2015

Our names are Daniel Squadron, and Brad Hoylman, and we represent the 26th and 27th Districts in the New York State Senate. The 26th District includes the Manhattan neighborhoods of Tribeca, Battery Park City, the Lower East Side, Chinatown, the Financial District, Greenwich Village, Little Italy, SoHo and the East Village and the Brooklyn neighborhoods of Greenpoint, Williamsburg, Vinegar Hill, DUMBO, Fulton Ferry, Brooklyn Heights, Cobble Hill, and Carroll Gardens. The 27th District includes Greenwich Village, Chelsea, Clinton/Hell's Kitchen, Upper West Side, Times Square, Columbus Circle, Midtown and the East Village.

We would like to thank Environmental Protection Committee Chair Councilmember Costa Constantinides for convening this hearing, and for the opportunity to testify on the ongoing need to ban tourist helicopters, as well as Councilmembers Menchaca, Rosenthal and Chin for sponsoring Introductions 858 and 859 on this issue.

Since 1997, nonessential tourist helicopters have become increasingly concentrated in a few neighborhoods in the city, centered in our districts. Under a 1997 decision by then-Mayor Giuliani, upheld by a 1998 court ruling, the East 34th Street Heliport eliminated tourist helicopter operations. Subsequently, in 2010, a lawsuit settlement also eliminated nonessential tourist helicopter operations from the 30th Street Heliport on the west side. Because of both of these developments, *all* tourist helicopter flights in Manhattan originate and conclude at the Downtown Manhattan Heliport.

In other words, downtown and the neighborhoods in the chop zone now endure the entire impact of tourist flights, even though only a fraction as much chop was unacceptable in other neighborhoods as far back as 1997.

This was a policy outcome that nobody thought a good idea. According to a *New York Times*' report on the 1998 court decision regarding the East 34th Street Heliport, the City intended to eliminate nonessential tourist helicopter operations at the Downtown Manhattan Heliport when they assumed control of it in 2005. In fact, the City's Heliport and Helicopter Master Plan of 1999, which helped make permanent the East 34th Street Heliport's nonessential tourist helicopter ban, said "Air tours, however, are not viewed as transportation and will not be supported at City-owned facilities." This is particularly significant given that the report was overseen by the Economic Development Corporation, who now operates the Downtown Manhattan Heliport.

As is clear from the long history of this issue, every neighborhood impacted by nonessential tourist helicopter noise has found it unacceptable and called for changes, as did the City administration and EDC itself through 1999.

What changed?

Certainly, the impact is still significant and burdensome.

In fact, the cost in and around New York Harbor of tourist flights being prohibited at the city's other heliports is higher than ever. Senator Squadron has long advocated for a Harbor Park -- a Central Park for the center of our city. A big part of our Harbor Park includes Brooklyn Bridge Park, Governors Island, and Hudson River Park, all of which have received enormous city and state investment, and inspiring growth in recent years. Unfortunately, as park users can attest to, nonessential tourist helicopters significantly diminish visitors' park experiences. We would be happy to host EDC, this committee and anyone else to a spring weekend on Governors Island. The chop is deafening and disturbing. It is clear that one cost of concentrating the entire impact of tourist flights in one community is that the City is compromising the experience of thousands park-goers at multi-hundred million dollar parks.

Along with Congressmembers Nadler and Velázquez and a long list of other colleagues, we have repeatedly raised concerns about the disproportionate and relatively recent concentration of tourist helicopters in certain parts of our city, many in our districts. Because of the route of helicopter tours, the impact continues from lower Manhattan, to Brooklyn Heights and Red Hook, and up Manhattan's west side. The distance between the districts of the bill's primary sponsors spans nearly 13 miles along the chop route. Last August, 20 NYC elected officials, led by Congressman Nadler, urged the Administration to ban tourist helicopters from the Downtown Manhattan Heliport including Congressman Velázquez, Borough Presidents Adams and Brewer, State Senators Hoylman, Montgomery, Savino, Assemblymembers Farrell, Jr., Glick, Gottfried, Ortiz, Rosenthal, Silver, and former Assemblymember Millman (who's successor, Assemblymember Simon, is also supportive), Councilmembers Chin, Johnson, Levin, Levine, Menchaca, and Rosenthal. This legislation is also co-sponsored by Public Advocate James, and Councilmembers Lander, Mendez, Rose, and Reynoso.

The fact that all tourist flights have now been shifted downtown is untenable.

Intros. 858 and 859 would require compliance with federal stage 3 noise limits from tourist helicopters departing city-owned heliports. Under the City's own Heliport and Helicopter Master Plan of 1999, which informed decisions including elimination of tourist helicopter flights from the East 34th Street Heliport under the Giuliani Administration, it was clear that the City did not support nonessential tourist helicopter operations at City-owned facilities. While this City Administration could unilaterally act to address these concerns, it has not moved forward.

These bills are so important because of the impact of tourist flights, and they so important because we have tried other solutions. In 2010, as the 30th Street Heliport settlement was finalized during the Bloomberg Administration, and the looming crisis was approaching, Senator

Squadron worked with Congressman Nadler and colleagues to secure new regulations, including changed flight paths, abolishing short flights, and increased city monitoring.

We have tried it, and it has not worked. By the Economic Development Corporation's own account, few, if any, violations have been issued. Until our office's recent intervention, the standard response to 311 complaints for helicopters included a request for helicopter tail numbers, an absurd requirement that caused many of our constituents to give up on reporting the noise at all.

We have heard concern from the City and industry that this could negatively impact jobs created by heliport operation. So let us be clear: we support continued operation of the Downtown Manhattan Heliport. We recognize that the Downtown Manhattan Heliport plays an important role in safety, press, emergency access, and resiliency. But as the City itself has acknowledged, air tours are "nonessential." Essential functions can continue downtown, just as they do elsewhere in the city today. This is about restricting nonessential tourist helicopters and the ensuing quality of life impacts.

Again, we thank Chair Constantinides for the opportunity to testify today, and thank Councilmembers Menchaca, Rosenthal and Chin for introducing this important legislation. Intros. 858 and 859 would have a significant impact on the quality of life for my constituents, and we urge their passage. It is time we finally stop the chop, once and for all.

Statement
Congresswoman Nydia Velázquez
NYC Council Committee on Environmental Protection Hearing on Tourist Helicopters
Thursday, November 12, 2015

I applaud Council Members Menchaca, Rosenthal, and Chin for putting forth these sensible proposals to reduce helicopter noise that disrupts my constituents from Red Hook, Brooklyn Heights, Governor's Island and Lower Manhattan. It is long past time to reinstate a ban on tourist helicopters over New York City.

Relentless helicopter noise is a quality of life issue for New Yorkers on both sides of the East River. Complaints of helicopter noise are constant. With tourism season and warm weather, the flow of helicopter complaints has increase dramatically. Helicopter noise is not just an in-flight problem. Each flying machine must warm up for a half hour on the ground — at full throttle — before it can safely take off. The blades make a strong reverberation that is felt across the river. Because the river is narrow and water amplifies the propellers' sound, Brooklyn residents are bothered by helicopters as they warm up to take off. There can be 12 helicopters in rotation on a good day.

These constant flights also raise serious safety concerns. *It is also clear that there are inadequate safety regulations for these tours.* The Federal Aviation Administration is only in charge of airspace above 1,500 feet, and does not log complaints about helicopter noise or urge pilots to avoid angering neighbors. Currently air traffic control cannot see any aircraft below 1000 feet as the city has many tall buildings and there is no ground radar. The FAA in fact discourages helicopters and small planes from flying any higher compounding the problem for residents. While the EDC manages the city's heliports, it does so with only recommended routes.

We have worked to find compromises on this issue, but have not addressed the core problems. I have attended numerous meetings with FAA Administrators, with the City EDC and all the local officials on the issue over many years. However, with the increase in tourism and helicopter traffic all focused at one facility, the Downtown Manhattan Heliport (due to the closure of the 30th Street Heliport on the West Side of Manhattan), the problem has been concentrated. The route from this Heliport follows down the very narrow Buttermilk Channel between Governor's Island and Brooklyn Heights/Red Hook before turning to the Statue of Liberty and then north. We have tried compromises on this issue, but the fact remains that the population density simply makes helicopter tours a bad fit for our community. Addressing this issue is a question of safety for helicopter users, as well as those on the ground.

The city's tourism would not suffer if there were no tourist helicopter rides -- in fact, the quality of life for those on the ground would improve and money would be spent in other ways. Tourists can find equally spectacular views of the skyline from the Brooklyn Bridge or the Brooklyn Heights Promenade without noise that disrupts the community. Again, I applaud Council Members Menchaca, Rosenthal, and Chin for these sensible proposals to reduce helicopter noise in our City.

Chris Vellios
Chief Operating Officer, Liberty Helicopters
President of the Board, Helicopter Tourism and Jobs Council

Testimony before the New York City Council
Committee on Environmental Protection
Intro. 858 and Intro. 859
November 12, 2015

Good afternoon. My name is Chris Vellios, and I am the Chief Operating Officer of Liberty Helicopters and President of the Board of the Helicopter Tourism and Jobs Council.

Liberty Helicopters is the largest and most experienced air tour company in NYC, flying visitors to our city for over 25 years. In that time, the air tour industry has undergone significant changes, often with the tour industry leading the charge to address concerns of local community groups, elected officials and neighbors. Among the changes we have voluntarily adopted are reductions in our hours of operation, route alterations, and the wholesale elimination of flights over specific parts of the City including the elimination of any tours up the East River, and the elimination of any flights over land. Air tour operators understand that satisfied neighbors and communities are key to us being able to best service our customers. We are an industry that is willing to make compromises and accommodations, as long as the safety of our passengers remains in the forefront of any operating decisions.

With Intros 858 and 859, the City Council is ignoring our years of being good partners to New York City, destroying our industry and the jobs of our employees. Make no mistake about it, these bills will destroy the air tour industry. The only helicopters being flown in the United States are stages one, two, and three, plus air tours are the only city-regulated helicopter flight in NYC. We are the only flights that operate within the parameters of a set hours of operation, set routes, and a contact point compliance system complete with fines to ensure we are not operating out of bounds.

We currently operate with the consent of the City of New York. When we made our agreements with both NYCEDC and the heliport operator in 2008, we did so with the understanding that New York City understood we would be operating under our agreement, safely and legally. Our fleets are financed, with this current operating agreement, as a basis for our business plans. The City Council banning our fleets from operating will render our companies unable to meet our financial obligations. This is a very heavy price to pay for what the City's data demonstrates to be a relatively small number of noise complaints. Less than half of one percent of 300,000 noise complaints to 311 last year were related to Helicopter Tour flights. In the absence of a clear public safety menace, the City Council should not consider wholesale elimination of legally run industries.

We will not be able to operate under this ban, effectively eliminating an industry which has had a presence in New York City since the 1960's. This legislation is a zero sum game. Air Tours generate millions of dollars directly for NYC and its core services, as well as millions more indirectly for local businesses, restaurants, hotels, and other tourism and travel offerings. We

SHOW THE WORLD New York City. We are often one of the first points of contact in this City for someone traveling from either a nearby state or distant country. Our customer service representatives are shining examples of the diversity of the City, with many by necessity being bilingual, trilingual, or perhaps even greater in fluency of other languages. The wholesale elimination of tours from the Downtown Manhattan Heliport returns nothing to the groups pushing for our demise, and starves many millions of dollars for its residents, and a public face proudly showcasing its beauty to the rest of the world. This is not an action a world class City should undertake. We ask you to please deal with us as partners, save the jobs of our employees, and keep available a beloved tourist attraction.



**The New York City Council
Committee for Environmental Protection
Public Hearing on Int. 858, Int. 859
November 12, 2015**

Good afternoon, my name is Lauren Cosgrove and I am here to provide testimony on behalf of the National Parks Conservation Association (NPCA), a 97-year old national parks advocacy organization that works to protect and enhance our national parks throughout the country. With over a million members and supporters nationwide, and 40,000 here in New York, NPCA is well aware of the challenges caused by low-flying helicopter tours in and around national parks, especially national parks of the New York/New Jersey Harbor.

Many New Yorkers recognize that peaceful quiet places, in our great city, are difficult to find and the places that do exist are highly valued by all. National parks provide a peaceful respite from the hustle and bustle of city life and allow New Yorkers to rest and reflect, learn about their culture and history, and enjoy places like Governor's Island and its beautiful waterfront views of our majestic City and its Harbor.

At Governor's Island, in addition to providing a place for rest and recreation, the National Park Service and Governor's Island Alliance offer a multitude of outdoor educational programs, artistic and cultural performances, tours of historic Fort Jay and Castle Williams, as well as many other types of public programs that enrich the visitor experience on the island.

However, the ability to facilitate effective national park programs has been significantly affected by the frequency and decibel level of helicopter tours. Helicopter tours fly directly over the island causing excessive noise and unnecessary commotion overhead. These disturbances are not only creating a negative impact on the visitor experience, but they are prohibitive to interpretive



programming, public performances and to any number of other activities taking place on Governor's Island. Interpretive National Park Rangers and educators alike are forced to halt guided tours while distracting helicopters fly above the island. Visitors appear alarmed by the ground-shaking noise and plug their ears for up to a minute until the noise fades. With more helicopter flights occurring, now more than ever before, this issue is concerning to NPCA, as we strive to protect and enhance the national park experience nationwide.

On behalf of the National Parks Conservation Association, we invite the New York City Council to consider Int. 858 and Int. 859 as one of the ways to protect the integrity and solitude of the national parks in the New York/New Jersey Harbor. In closing, NPCA would like to thank the City Council's Committee for Environmental Protection for hosting this hearing, and we especially appreciate Council Member ^{Manhaca} ~~Mendez~~ for sponsoring these bills and all of the City Council members here today in support of this legislation. We'd also like to acknowledge Congressman Nadler for his initial efforts in mobilizing the waterfront communities in both New York and New Jersey around this issue. Thank you for your support and consideration.

NEW YORK HARBOR FOUNDATION

November 12, 2015

Testimony of Murray Fisher, Executive Director

Re: New York City Council Hearing on Tourist Helicopters

For thirteen years, we have worked to create the New York Harbor School, and to make New York Harbor the best possible environment for teaching and learning in New York City. During our first seven years in Bushwick, our greatest challenge was simply getting to the Harbor. We travelled over an hour to expose our students to the kinds of exciting and rigorous on-water activities that would lead to marine science and marine technology jobs. To address this challenge of lack of decent access, in 2010 we moved to Governors Island, surrounded by New York Harbor.

Upon our arrival at Governors Island, our greatest challenge became how to stay connected to the rest of the city, and to the kids like those from Bushwick for whom this public school was founded. To create a network of feeder middle schools and a pool of Harbor-literate students for our state-of-the-art facilities on Governors Island, in 2014 we launched the Billion Oyster Project, a large-scale effort to mobilize students city-wide to restore their Harbor. We now have over 40 partner middle schools sending us motivated students who are curious about their harbor, and who are beginning to be comfortable using it as their classroom.

Remarkably now, one of the greatest threats to our current effort to enliven and restore New York Harbor for education comes from the air. Helicopter traffic from the downtown heliport severely diminishes our ability to do what Harbor School moved to Governors Island to do: teach and learn outside, on and around New York Harbor.

No one wants to have constant helicopter traffic directly over their heads. Nearly every neighborhood in New York City and along the Hudson River in New Jersey has outlawed tourist helicopters. As a result, the helicopters are left to fly over New York Harbor, making our waterways, which have taken decades to clean and make more accessible, once again less desirable places to be.

This is not an issue that affects only our students. The impact of the helicopter traffic from the downtown heliport is felt by locals and visitors who want to experience New York outside and on the water, and by all those whose lives and jobs bring them to the waterfront.

Despite the arguments of helicopter industry representatives, limiting helicopters' rights to fly over inland areas does not mean that the only people who can hear the noise are those on the water. Rather, the nature of noise pollution and the location of the heliport means that it is those on the waterfronts who are most affected: those householders and restaurant owners and park-goers who are taking advantage of the city's private and public commitment to the revitalization of its waterfront.

Investment in this revitalization has been significant. The city has, especially since the beginning of the Bloomberg administration, spent billions of dollars on the waterfront. Developers and public bodies alike

continue to push for the waterfront to be more fully activated. This commitment can be seen in the hundreds of millions of dollars that has been spent to draw New Yorkers to the water's edge at parks like Hudson River Park, Governors Island, and Brooklyn Bridge park. This investment has paid off: more and more people are getting out on our Harbor for recreation, for tourism, and for work. But in this moment of waterway revitalization for the city, the helicopter traffic is increasingly undermining the value of recreational areas for tourism and for local use.

This investment in the waterfront has not been from public sources alone. Real estate developers, too, have seen and embraced the potential for investing in New York's waterfront-- investments which we can only expect will dramatically plunge in value if a waterfront apartment in Brooklyn, for example, comes complete with a balcony-- and a constant soundtrack of helicopter noise that prevents prospective buyers or renters from enjoying it.

The City Council is now considering a bill to address this chronic noise pollution. All such decisions, of course, involve tradeoffs. In this case however, it is not a question of weighing the interests of tourism and private-sector investment against the interests of students and park-goers. It's rather a question of weighing the interest of one tiny sector of the waterfront tourism industry against the interests of the rest of that industry, as well as the interests of the developers, business owners, investors, residents, and-- yes-- public school students who are served by a thriving but peaceful waterfront.

We would welcome a visit to Harbor School by any of the tourist helicopter operators to see and hear the impacts themselves.

Murray Fisher
Executive Director, New York Harbor Foundation
Co-founder, Billion Oyster Project and New York Harbor School

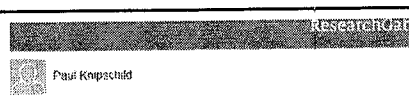
The Detrimental Health Impacts of Aircraft Noise on Adults and Children

Kambiz Merati, MD
Pathologist Physician and Clinical Informaticist

11/12/2015

- Effects on Adults:
 - Cardiovascular Diseases, including Coronary and Ischemic heart diseases
 - Hypertension
 - Psychiatric Ailments:
 - Generalized Anxiety Attacks
 - Anxiety Disorder, Not Otherwise Specified
- Effects On Children
 - Learning Impairment
 - Reading Comprehension
 - Decreased Recognition Recall
 - Poorer School Performance and Lower Grades

Adults

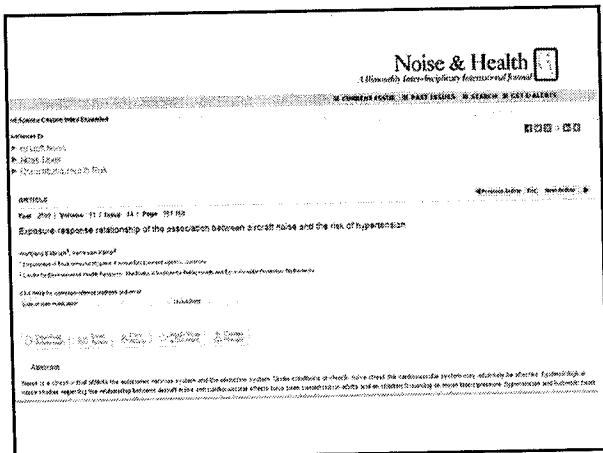


Article Medical Effects of Aircraft Noise: Community Cardiovascular Survey

Journal of Community Health and Environmental Health Practice, 2012, 17(4): 411-419
DOI: 10.1007/s10907-012-9418-7
© Springer 2012

ABSTRACT

Data of a community cardiovascular survey in the area around Schiphol airport (Amsterdam) were related to existing aircraft noise levels. Adults (50) (males and women, aged 25–84 years) were screened. Accordingly, the participants were divided into two groups: those living in areas with more noise (> 32 and those living in areas with less noise (< 26–31) aircraft noise. It appeared that in areas with more aircraft noise, more people were under medical treatment for heart disease and hypertension and – especially more women – took cardiovascular drugs. Moreover, in areas with more aircraft noise, in more people, high blood pressure and pathological heart shape were observed. The discrepancies that were found could not be explained by age, sex, smoking habits, height/weight and – as far as this could be checked – by socioeconomic differences. In areas with more aircraft noise, roughly 50% more people had cardiovascular impairment.



Meta-analysis of 89 studies

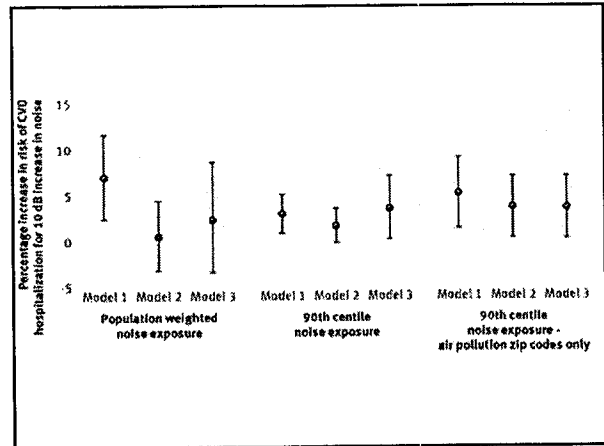
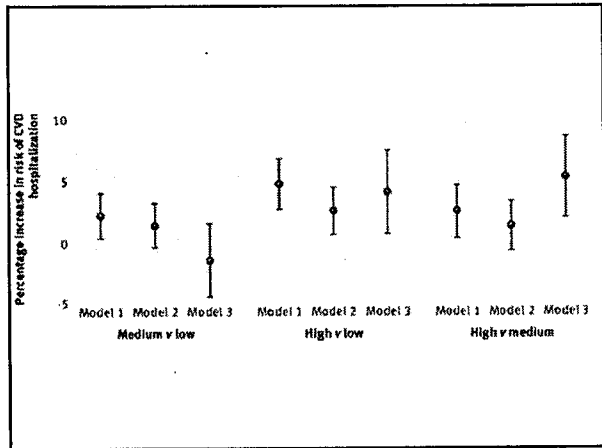
- Repeated studies performed around Schiphol airport in the Netherlands showing higher relative risks of use of cardiovascular medication as high as 1.8 for a noise level difference of approximately 10 dB(A).
- Regarding the prevalence of all cardiovascular diseases, including high blood pressure, a significant relative risk of 1.8 was found.
- A Swedish study carried out around Stockholm's major airport showed an exposure-response association between aircraft noise and high blood pressure found a relative risks ranging between 1.1 and 2.1 for noise levels between 'FBN' = 53 to 63 dB(A)

- **There is sufficient evidence for a positive relationship between aircraft noise and high blood pressure and the use of cardiovascular medication.**

Residential exposure to aircraft noise and hospital admissions for cardiovascular diseases: multi-airport retrospective study

- 2218 zip codes (779 with both fine particulate matter and ozone data) and 6,027,363 Medicare enrollees residing within the 45 dB contour level of the 89 airports.

The map shows the United States with 89 airports marked by black dots of varying sizes. A legend indicates that the size of the dot represents the population aged 65 years and over, with three categories: 50,000 (smallest dot), 100,000 (medium dot), and 1,000,000 (largest dot). A scale bar at the top left shows 0, 100, and 200 miles.



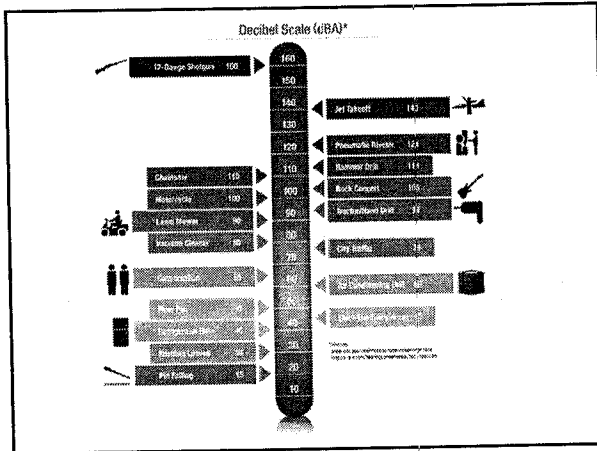
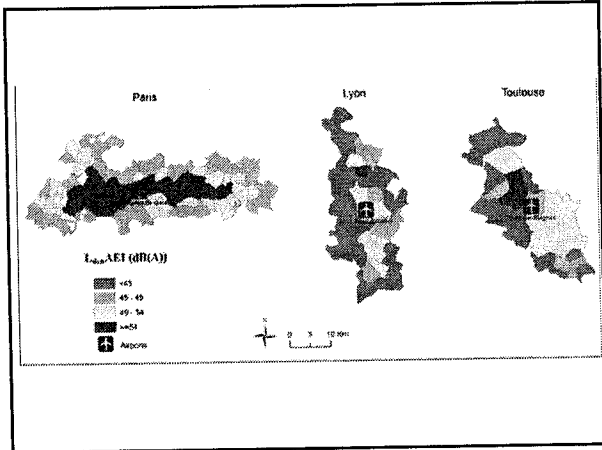
Epidemiological Research and Surveillance Unit in Transport, Occupation and Environment (UMRESTE), Université de Lyon, Lyon, Transport, Health and Safety Department of the French Institute of Science and Technology for Transport, Development and Networks (IFSTTAR), Bron, Université Lyon 1, UMRESTE, Lyon, France

- 161 communes of France with a population of 1.9 million people living close to Paris-Charles de Gaulle, Lyon-Saint-Exupéry, and Toulouse-Blagnac airports.

- Positive associations were reported between weighted average exposure to aircraft noise and mortality from Cardiovascular Disease, Coronary Heart Disease, and Myocardial Infarction.
- Controlling the socioeconomic status of the commune, demographic factors of the commune (such as age and gender of the inhabitants), exposure to toxic gases (NO₂, PM), and lung cancer mortality used as a proxy for smoking did not change the results.

Parameters	Cardiovascular disease	Coronary heart disease	Myocardial infarction	Stroke
	MRR (95% CI)	MRR (95% CI)	MRR (95% CI)	MRR (95% CI)
L ₅₀ AEP	1.18 (1.14-1.25)	1.24 (1.15-1.36)	1.25 (1.14-1.40)	1.02 (0.97-1.10)
Gender	1.04 (1.01-1.07)	1.00 (0.95-1.05)	1.03 (1.00-1.06)	1.01 (0.96-1.06)
Age (years)	1.31 (1.09-1.57)	1.10 (1.07-1.13)	1.08 (1.04-1.13)	1.15 (1.11-1.19)
Sex (female)	0.93 (0.90-0.96)	0.94 (0.89-0.99)	0.87 (0.81-0.93)	0.98 (0.91-1.05)
Depressive disorder	1.07 (1.03-1.10)	1.07 (1.01-1.13)	1.04 (0.95-1.10)	1.05 (1.01-1.10)
Lung cancer mortality	1.03 (0.99-1.07)	1.00 (0.95-1.04)	0.99 (0.91-1.07)	1.02 (0.98-1.07)

L₅₀AEP: grossly age- and gender-adjusted, and lung cancer mortality were unconditionally included in the models. MRR: per 10 dB(A) increase in L₅₀AEP



Children

PubMed
 A prospective study of noise effects on cognitive performance in school children.
 Authors: [unreadable]
 Title: A prospective study of noise effects on cognitive performance in school children.
 Journal: [unreadable]
 Year: [unreadable]

PubMed
 A prospective study of noise effects on cognitive performance in school children.
 Authors: [unreadable]
 Title: A prospective study of noise effects on cognitive performance in school children.
 Journal: [unreadable]
 Year: [unreadable]

Western London Study Group (2001)

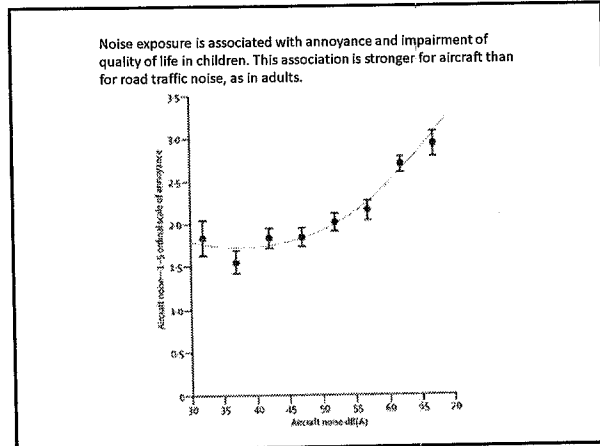
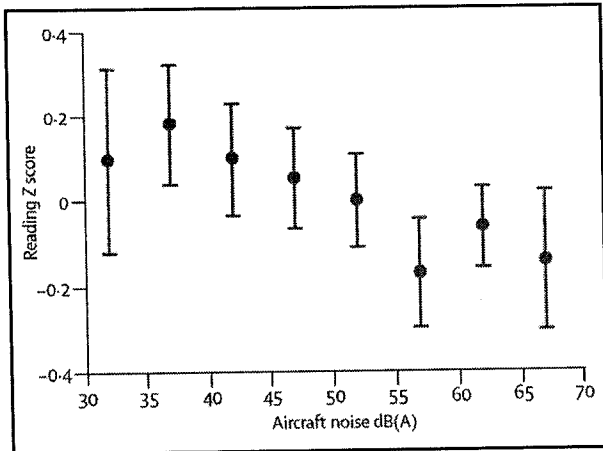
- Noise exposure was associated with impaired reading on difficult items and raised annoyance, after adjustment for age.
- Aircraft noise was weakly associated with hyperactivity and psychological morbidity.

PubMed search result for the paper: "A prospective study of some effects of aircraft noise on cognitive performance in schoolchildren." The snippet shows the title, author information, and a partial abstract.

LANCET website snippet showing the article title: "Aircraft and road traffic noise and children's cognition and health: a cross-national study". It lists the authors and the journal information.

Road traffic and aircraft noise exposure and children's cognition and health (RANCH): exposure-effect relationships and combined effects, *Lancet*, 2005:

- 2844 children from 89 schools from UK, Spain, and the Netherlands participated
- With respect to cognitive effects exposure to chronic aircraft noise was associated with a significant impairment in reading comprehension that was maintained after full adjustment for other socioeconomic variables.
- A 5 dB difference in aircraft noise was equivalent to a 2-month reading delay in the UK and a 1-month reading delay in the Netherlands.
- Exposure to aircraft noise was linearly associated with a significant impairment in recognition memory.
- The size of the effect did not differ by socioeconomic status.



American Journal of Epidemiology
 Volume 163, Issue 10, October 2006

Primer on Omic Technologies
 Free special collection

Exposure-Effect Relations between Aircraft and Road Traffic Noise Exposure at School and Reading Comprehension: The RANCH Project

Charlotte Clark¹, Rosie Martin², Elise van Kempen³, Tamara Alford⁴, Jerry Head⁵, Hugh W. Davies⁶, Mary M. James⁷, Isabel Lopez Barrio⁸, Alan Mitchell⁹ and Yvonne A. Stansfeld¹

Report requests to Dr. Charlotte Clark, Centre for Research, Wolfson Institute of Preventive Medicine, East and The London, Queen Mary's School of Medicine and Dentistry, University of London, Mile End Road, London, E1 4NS United Kingdom (e-mail: c.c.clark@qmul.ac.uk)

Received March 24, 2006
 Accepted July 9, 2006

FICAN
 Federal Interagency Committee on Aviation Noise

Aviation Noise Issues

Effects of Noise on People

Noise affects people in a number of ways. Children can be harmed, sleep can be generally disrupted, auditory effects (hearing loss) and non-auditory effects (cognitive interference and physiological effects). Research has been conducted in the following specific areas:

- Hearing loss
- Physiological effects
- Irritability
- Speech interference
- Sleep interference and awakenings
- Effects on Learning

Aircraft Noise Modeling Tools

Federal agencies have developed a number of prediction models to evaluate aircraft noise impacts.

FICAN

FLIGHT INDUSTRY CHILDREN'S ADVISORY NETWORK

Dr. Alan S. Friedman, Chairman
 University of Maryland
 3000 University Blvd.
 College Park, MD 20742
 (301) 405-1100
 http://www.ficannet.org

- Increased failure rate (all high-school students, both test types) for aircraft noise levels above 40 db.
- Lower average test score (all subgroups).
 - Average-score improvement – between 7 and 9 percentage points-, when this type of noise exposure decreased by 5 percentage points

Proposed Mechanism of Learning Impairment induced by Aircraft Noise

- Children might adapt to noise interference during activities by filtering out the unwanted noise stimuli. This tuning out strategy might overgeneralize to situations where noise is not present, such that children tune out stimuli indiscriminately.
- This tuning out response is supported by the findings that children exposed to noise have deficits in attention, auditory discrimination, and speech perception.
- Teacher frustration and interruptions in communication between teachers and children could also be a mechanism for cognitive effects.
- Release of stress hormones and higher tone of sympathetic nervous system
- Increased cardiovascular load
- Some studies have shown that noise impairs both attention and recall.
- Others have showing that exposure to aircraft noise has been related to impairments of children's cognition in terms of reading comprehension, long-term memory, and motivation.

References:

1. Int Arch Occup Environ Health. 1977 Nov 29;40(3):185-90.
2. Am Psychol. 1980 Mar;35(3):231-43.
3. Environ Behav 1997;29: 638-56.
4. Psychol Sci. 1995;6: 333-38
5. Noise Health. 2000;2(8):1-8.
6. Psychol Med. 2001 Feb;31(2):265-77.
7. Psychol Med. 2001 Nov;31(8):1385-96.
8. Psychol Sci. 2002 Sep;13(5):469-74.
9. Psychol Med. 2001 Feb;31(2):265-77
10. Psychol Med. 2001 Nov;31(8):1385-96.
11. Applied Cog Psychol 2003;17: 895-914.
12. Psychol Sci. 2002 Sep;13(5):469-74.
13. Soc Psychiatry Psychiatr Epidemiol. 2005 Jan;40(1):24-6.
14. Lancet. 2005 Jun 4-10;365(9475):1942-9.
15. Noise Health. 2009 Jul-Sep;11(44):161-8. doi: 10.4103/1463-1741.53363. Review.
16. Noise Health. 2010 Oct-Dec;12(49):244-54.
17. BMJ. 2013 Oct 8;347:f5561. doi: 10.1136/bmj.f5561.
18. Noise Health. 2015 Sep-Oct;17(78):328-36. doi: 10.4103/1463-1741.165058.
19. <http://ficannet.org/findings>



The City of New York

Manhattan Community Board 1

Catherine McVay Hughes CHAIRPERSON | Noah Pfefferblit DISTRICT MANAGER

**New York City Council
Committee on Environmental Protection
Int. 859-2015 and Int. 858-2015 regarding sightseeing helicopters
City Hall Chambers, New York, NY
Thursday, November 12, 2015 at 1:00 p.m.**

Thank you, Committee on Environmental Protection for holding this important public hearing today and inviting our testimony. My name is Catherine McVay Hughes, and I represent Community District 1 in Lower Manhattan where I am Chair of Community Board 1. Community District 1 includes most of Manhattan below Canal Street and south of the Brooklyn Bridge, as well as Ellis Island, Governors Island and Liberty Island.

Our Financial District and Quality of Life Committees unanimously passed the following joint resolution which will come before our full board at our meeting on November 19, 2015 regarding the proposed legislation:

- WHEREAS: The New York City Council has proposed Int. No. 858 and Int. No. 859 to amend legislation regarding sightseeing helicopters; and
- WHEREAS: The Legislative findings and intent holds that, “The Council finds that there is significant noise pollution caused by the dozens of sightseeing helicopters operating daily from heliports owned by the city. The heliports used by sightseeing helicopters are near water which amplifies and carries the sound of those helicopters a further distance, and significantly disrupts the daily lives of city residents who live and work near the heliports or across the East River”; and
- WHEREAS: Further, the document states that, “A previous local law limited sightseeing tour operators to the stage 3 noise levels as determined by the federal aviation administration, however the Council finds that no current noise reduction measures will be acceptable to ensure the quiet repose of the affected communities. Therefore the Council finds that the prohibition on sightseeing helicopters needs to be extended to include helicopters that meet the stage 3 noise levels as well”; and
- WHEREAS: In June 2015, CB1 unanimously adopted a resolution (attached) calling for the elimination of helicopter tourism flights originating at the Downtown Heliport at Pier 6. CB1 continues to receive complaints regarding helicopters, which has been a contentious issue, especially since the consolidation of heliports to Pier 6 in 2010; now

THEREFORE
BE IT
RESOLVED

THAT: Community Board 1 supports legislation proposed by the City Council to further reduce noise caused by sightseeing helicopters that already meet current federal noise reduction standards.

COMMUNITY BOARD #1 – MANHATTAN
RESOLUTION

DATE: JUNE 23, 2015

COMMITTEES OF ORIGIN: FINANCIAL DISTRICT

BOARD VOTE: 37 In Favor 0 Opposed 0 Abstained 0 Recused

RE: Downtown Manhattan Heliport at Pier 6 and elsewhere in CB1

WHEREAS: The NYC Economic Development Corporation (NYC EDC) owns and leases Pier 6 to the Downtown Manhattan Heliport operator and estimates that there are 50,000 takeoffs and 50,000 landings for a total of 100,000 operations per year. Residents have seen up to 8 helicopters landing and taking off simultaneously in the restricted small area of Pier 6 making it one of the most heavily congested heliports in the country; and

WHEREAS: Community Board 1 (CB1) has long been concerned about the safety and quality of life (environmental) issues from helicopters landing and taking off from the Downtown Manhattan Heliport at Pier 6 in our densely populated district which has some of the tallest buildings in the country; and

WHEREAS: CB1 has repeatedly invited the NYC EDC to present statistics and to present their plans on how they will address safety concerns and minimize noise and air pollution from the Pier 6 heliport located on the East River on the edge of the Financial District and South Street Seaport districts; and

WHEREAS: In the past decade there has been a renaissance in Lower Manhattan and now that the East River Esplanade and Pier 15 have been built and with the positive transformations of both parks at The Battery and Governors Island, the Downtown Manhattan Heliport at Pier 6 negatively impacts the quality of life for residents, workers, visitors and students; and

WHEREAS: As part of a settlement agreement between Friends of Hudson River Park and the Hudson River Park Trust, Air Pegasus and Liberty Helicopters, Inc. to end flights at the 30th Street Heliport by April 2010 due to the tour helicopter's operational impact on the environment and quality of life, the tour helicopter industry has repositioned to operate from the Downtown/Wall Street Heliport where it has transferred the same negative environmental, quality of life and safety impact to all of Lower Manhattan (http://www.hudsonriverpark.org/assets/content/general/6.20.08-Heliport_Final_Release_June_20_2008.pdf); and

WHEREAS: CB1 is on the record by the passing of two resolutions: “Downtown Manhattan Heliport tour flights (July 2011) and “Tourist Helicopter Flights from the Downtown Manhattan Heliport” (October 2009) and has had numerous meetings with various agencies and elected officials over the years; and

WHEREAS: CB1 also gave testimony at a City Council hearing about Governors Island (May 20, 2014) which included the following section:

“Air quality and noise issues resulting from helicopters – City, State and Federal involvement must be achieved in order to determine a solution for the negative impacts caused by increased helicopter tourism both in Lower Manhattan and on Governors Island, specifically in regards to the heliport at Pier 6;” and

WHEREAS: The Downtown/Wall Street Heliport has absorbed 100% of the helicopter tour operations from the West Side Heliport as a result of a lawsuit settlement due to noise and other environmental impacts to the community. These same environmental impacts now impact lower Manhattan. Noise has increased exponentially both in lower Manhattan and the Brooklyn shoreline where the tour helicopters operate. This is in violation of 49 U.S.C. § 47101(a)(2) (“It is the policy of the United States... that aviation facilities be constructed and operated to minimize current and projected noise impact on nearby communities;” and

WHEREAS: The Helicopter Sightseeing Plan allows helicopter tour operators to fly over numerous “residential, educational, health and religious structures and sites and parks and recreation areas” in violation of FAA’s own rules. The FAA’s guidance to airports and airmen states that flights near noise sensitive areas must meet certain standards as well. The FAA’s Advisory Circular 91-36D Visual Flight Rules (VFR) Flight Near Noise-Sensitive Areas, states that “[e]xcessive aircraft noise...is particularly undesirable in areas where it interferes with normal activities associated with the area’s use, including residential, educational, health, and religious structures and sites, and parks, recreational areas...;” and

WHEREAS: The FAA’s Advisory Circular 91-36D standard is “[a]voidance of noise-sensitive areas, if practical, is preferable to overflight at relatively low altitudes. Pilots operating noise producing aircraft... over noise-sensitive areas should make every effort to fly not less than 2,000 feet above ground level (AGL), weather permitting.” However, the helicopter sightseeing plan allows helicopter flights as low as 900 feet, in violation of FAA’s own Advisory Circular. The AC also includes a further restriction that “the ground level of noise-sensitive areas is defined to include the highest terrain within 2,000 feet AGL laterally of the route of flight ...” We read that language to include buildings and other structures that the aircraft might be flying over; and

WHEREAS: The helicopter impacts not just CB1 residents. Residents came specifically for the Wednesday, June 3rd Financial District meeting from outside of CB1 including from the Manhattan Upper West Side, Brooklyn, Staten Island and New Jersey. They complained about how the current helicopter routes along the East River and Hudson River negatively impacted them at home and at work; now

THEREFORE

BE IT

RESOLVED

THAT: CB1 calls on the City Council to hold a hearing on helicopters in New York City, specifically Pier 6; and

BE IT

FURTHER

RESOLVED

THAT: CB1 urges that the relevant environmental agencies monitor both the noise levels and air quality during peak usage of the Pier 6 heliport; and

BE IT

FURTHER

RESOLVED

THAT: CB1 calls on our elected officials to significantly reduce the tourist and commuting helicopter traffic at Pier 6; now

BE IT

FURTHER

RESOLVED

THAT: CB1 urges that the Federal Aviation Administration (FAA) that controls the airspace fill in the regulatory loopholes in the regulation of the helicopters at Pier 6 and elsewhere in our district so that helicopter landings and takeoffs from Pier 6 and their route are minimized.

Robert Hullet-Kent
320 W. 76th
NY NY 10023

Page 1
(of 2 pages)

FOR THE RECORD

The Destructiveness of the Helicopter Tourist Industry in NYC

* { The destructiveness of the tourist helicopter industry in NEW YORK CITY should be understood on several levels: it is destructive of the environment in the pollution it discharges into the atmosphere and across parks and waterways; it measurably damages the health of the city's residents; it disrupts the natural beauty of the coast, skies and horizon; and it damages the home life of tens of thousands of this city residents constantly and daily. Scrutinized in terms of the concussive force inflicted by the helicopter engines and blades on the roofs, walls and windows of the residences they overfly, there would be legal grounds to prosecute these corporations for what amounts to a form of 'breaking and entry': For the helicopter traffic not only effectively takes possession of the common good of the skies over our heads—to which the inhabitants of this city have what is known as a 'natural right'—but insofar as the helicopter industry inflicts its own purposes on our private dwellings, breaches our living rooms and bedrooms with drastically concussive energy, it effectively claims possession of our private space as well. Consider: if a neighbor banged on our doors and windows with any comparable energy—as does the helicopter industry morning, afternoon and night in some neighborhoods—we would rightly call the police; and the police would respond with the force of law to protect us. This concussively sonic intrusion deprives us of the free, rightful and pleasurable use of our homes and residences which our laws explicitly protect.

A fair review would further recognize the perniciousness of this industry with regard to participation in the civic life of the city. For the many, many individuals—of which I am one—who have been subjected over the past decade to constant helicopter bombardment have also been obliged to experience a profound sense of the helplessness of our elected officials and of our system of government in dealing with the onslaught. What "democratic government" do we have, on what basis would one admire and want to participate in the civic life of this city, if one has been obliged to watch every elected official we now have in office—elected representatives on every governmental level, local, regional, interstate and national acting in concert and unanimously (with the *disgracefully* opportunistic exception of Mayor de Blasio)—FAIL AND FAIL AGAIN at finding redress for the damage this dangerously unregulated industry inflicts on our lives. What is "representative government," if these helicopter corporations prevail against thousands of complaints over the course of years?

What remains to be stated and has often been left out of the discussion of the dubious legitimacy of the helicopter industry is what a degraded and restricted idea of the many dimensions of this city's life this industry foists on visitors to the city. Yes, tourists can be excited by high altitudes, danger and speed—and, mostly, fleeced. But, who needs to be reminded that this is a city of incomparable art museums, history museums, museums of natural history, museums of all kinds as well as of extraordinary parks and gardens; it is a city of theaters, music halls, and memorials and a city of distinguished educational institutions as well. While barreling over all this while peering down at it through a helicopter window, what does anyone actually find out about it? Not to mention that instead of flying over our heads and buildings there are a lot of interesting people down

here to notice, possibly to meet, to converse with, to conceivably share purpose with—and if this doesn't happen much, this is not to say it shouldn't happen more. Again, who needs to be told: this is a city of hundreds of neighborhoods and of as many languages and cultures and architecture and places of prayer; it is a city of tremendous human achievement and, no less, of considerable poverty and suffering, struggle and crisis. This only begins to state what is truly here for visitors to find and learn about; this is what we want to help visitors discover, which they would find more substantially gratifying than any helicopter tour harnessed to their seats.

The expanse of this city is not to be treated as extreme scenery for a high power amusement park ride; we have Coney Island for that. If one needs to do something genuinely dangerous, try a bike ride for a trip down one of the avenues and reduce carbon emissions; if one simply needs to feel frightened, we have movie houses for that; and if to have a fine vacation one absolutely needs to be fleeced for a few minutes of strange pleasure, we probably have many alternatives for that at street level as well. There is plenty to do here and ways to spend money that are less generally destructive than what the helicopter industry currently inflicts on us. It would not be missed for long by anyone. Instead of what is now effectively a fenced off war zone of helicopter traffic on the Hudson in the vicinity of Battery Park, let's close the heliport, rebuild that part of the shore line and someday enjoy the sight of the river, tourists invited.

To conclude: The helicopter industry disrupts and damages the life of this city which those millions of us down here on ground level are seeking to make livable and meaningful; it hurts the environment; it hurts us; it hurts our children and families; it frightens our pets; it makes our probably already difficult lives still more difficult and tense; it deprives many of us of the reasonably calm residence, even of sleep, that we all require to have the energy simply to make a living and for the creative, ambitious and successful lives that we have sought out in coming to this city.

This has all been said and said again: Enough! Let's invoke good and responsible government, protect what is worth protecting and stop this dangerous and exploitative industry.

Robert Hullot-Kentor
November 10, 2015

TESTIMONY OF GUILLE MEJIA, MPH CHES

DIRECTOR, SAFETY & HEALTH DEPARTMENT, DISTRICT COUNCIL 37, AFSCME

IN SUPPORT OF

INT. NO. 858-2015 AND INT. NO. 859-2015

**AND ON THE HARMFUL EFFECTS OF HELICOPTER TRAFFIC AT
DOWNTOWN MANHATTAN HELIPORT ON NEW YORK CITY
EMPLOYEES' SAFETY & HEALTH**

The New York City Council

Committee on Environmental Protection

November 12, 2015

Good afternoon. My name is Guille Mejia, and I am the Director of the Safety and Health Department of District Council 37, AFSCME. On behalf of the 121,000 members and 50,000 retirees of District Council 37, the everyday heroes that make New York City run, I want to thank Chair Costa Constantinides and the members of the New York City Council for the opportunity to appear before you today.

District Council 37 is the City's largest public employee union, and I am here to speak on behalf of our members who are employed in over 1,000 job titles in dozens of city agencies and thousands of worksites throughout the five boroughs of New York. Nearly 700 District Council 37 members work for the New York City Department of Transportation (DOT) in the agency headquarters at 55 Water Street, an office building which is located directly across the FDR Drive from the Downtown Heliport.

Ever since DOT employees occupied offices at 55 Water Street, union members employed as Clerical Associates, Civil Engineers, City Planners and Project Managers, among other titles, have expressed concern about intermittent exposure to strong chemical odors in their office environment. In response to an information request from the union, DOT provided more than 1,200 employee complaints about odors and fumes that have been submitted to the agency's internal helpdesk.

The following are typical complaints:

- April 18, 2011 – "Staff are complaining today of headache and nausea associated with the heavy odor of fumes today on the South side of 55 Water St – 4th floor (water side). Thank you."
- September 27, 2012 – "Please note fumes are strong and a major portion of the occupants on the 5th floor are relocating to the enclaves."

- May 7, 2013 – “At 11:05 we had to leave our work area due to fumes and feeling sick. We returned at 11:35 and the fumes are still present. We are leaving work area again.”
- October 6, 2014 – “Please be advised that there is a strong smell of fumes/alcohol. I can’t pinpoint exactly what it is, and it is making me feel uncomfortable – irritating my eyes and nose. Please assist.”
- April 29, 2015 – “Last night after 5:30, fumes permeated the 6th floor. Perhaps from the helicopters. I developed a headache and was ill all evening. Still have remnants this morning. What can be done about this?”

The apparent source of these odors is engine exhaust from the dozens of helicopters taking off and landing each day at the Downtown Heliport. The exhaust is sucked into the air intakes for the building ventilation system at 55 Water Street, and then is circulated to the office spaces within the building. Based on the volume of complaints, the problem seems to be most acute on the 5th floor, although complaints have come from every DOT-occupied floor. We believe that other tenants at 55 Water Street and tenants of neighboring buildings may be experiencing similar problems.

Significant public resources have already been expended in an effort to address this situation. The issue has been discussed at several meetings of the joint Labor-Management Safety and Health Committee at DOT. The New York State Department of Labor’s Public Employee Safety and Health Bureau conducted two inspections in 2012 and 2013. NYC DOT has paid expert consultants to perform environmental sampling and to assess the design of the building’s ventilation system. NYC DOT has paid to retrofit charcoal filters and ionization devices onto the building’s ventilation system. Over two days last August, DOT management and labor representatives accompanied investigators from the National Institute for Occupational Safety and Health (NIOSH) on a comprehensive investigation of the occupied office spaces

and the building's mechanical spaces, and more than 30 DOT employees were interviewed by medical staff from the Centers for Disease Control.

Based on the activities outlined, it appears NYC DOT is making every reasonable effort to address this difficult problem. Unfortunately, our joint efforts have been hampered by the fact that the chemical components of the exhaust appear to be present at concentrations below any established permissible exposure limit. Most occupational exposure limits are calculated based on the average exposure over an 8-hour shift, and have remained unchanged for decades despite advances in understanding of the health effects of chemical exposures.

While the chemical concentrations may be below action levels, the exposure of DOT employees to helicopter exhaust is not harmless, as evidenced by the symptoms experienced by our members on any given day. Some members who are most sensitive have requested reasonable accommodations and have been relocated to other work locations. However, many members still assigned to work at 55 Water Street continue to complain about headaches and respiratory irritation. The long term health effects of these exposures are also of concern.

Eliminating sightseeing helicopter traffic from the Downtown Heliport will not completely solve this problem, but it will greatly reduce the exposures experienced by DC 37 members employed at the DOT headquarters. For this reason, DC supports adoption of Int. No 858-2015 and Int. No 859-2015.

Thank you.

**New York City Council Committee on Environmental Protection
Craig Abruzzo, Vice President of Stop the Chop
November 12, 2015**

Good afternoon, my name is Craig Abruzzo. I live at 187 Hicks Street, Apt. 6D in Brooklyn Heights with my wife and 2 children; Francesca who is 2 and Jasper who is 4 months old. I was born in Brooklyn, and raised in Queens, and have lived in Brooklyn Heights for the better part of the last 15. I am here today as Vice President of Stop the Chop to talk about the scourge of carpetbagger helicopter tours that clutter our skies.

First, I want to thank the New York City Council Committee on Environmental Protection and Chair Constantintides for this hearing on an issue that effects me, and countless other individuals and families in New York City.

Stop the Chop is a coalition of community groups, residents and neighborhood activists that are fighting to protect New York City from this plague of sightseeing helicopter tours. These tours not only produce excessive noise pollution but also bring with them a host of quality of life issues, which include health, environmental effects and safety concerns.

Over the past 5 years, there has been a steady increase of tourist helicopter traffic to the point where today there is a constant pounding of helicopter traffic seven days a week. The sheer number of flights is extraordinary. Between take offs, landing and idling copters, there is a constant din of noise. There are not many places you can go to avoid the incessant noise. At home, leaving our windows open on a beautiful day is not an option. Its as though we live in an episode of M*A*S*H, except without the laughter. It clearly is a distraction for our children as well, who often ask "what's that sound Daddy." Any outdoor activity in the neighborhood is also affected by the drone of these helicopters.

The Pierrepont Street playground, for example, which is adjacent to the promenade is ground zero, because of its proximity to the heliport and the surrounding buildings the noise seems to be amplified. Not only is it subjected to the take off and landing, but you can clearly hear the copters on the helipad idling, waiting to take off. This is the playground to which I take my 2 year old daughter. The constant roar of the tour copters is a huge distraction and quite often we have to stop talking to let a copter pass because it is too loud. It is hard to describe what the experience is like, but I would invite all of you to drop by the playground any day of the week (the flights fly SEVEN DAYS a week). What you will hear will shock you. It is hard to believe that these flights have been allowed to continue for so long.

As I stand in the playground, I cannot help but think of the reports I have read that cite the effects this constant noise can have on children. I now worry for my children and their development. These studies show that there is a unique quality to helicopter noise, and the constant din of these helicopters can cause developmental delays, learning disabilities, recognition memory issues, and increased cardiovascular stress. The thought

that my, and other's children, are effectively being hurt in some way by these helicopters everyday, and nothing is being done about them, is both shocking and hurtful to me.

These excessive sightseeing helicopters also cause health effects in adults, aside from the sleep deprivation we must endure. The excessive noise pollution can cause an increase in hypertension in adults which studies show is then medicated at a higher rate than those not subject to noise pollution at such a level.

Equally concerning is the shoddy safety history of the sightseeing tour industry. With the incredible volume of unregulated, daily flights it is only a matter of time before there is another accident. From 1997 to 2011 there were five accidents that resulted in upwards of ten fatalities and other serious injuries to the tourists in them. When I look out over the harbor it is incredible how many helicopters are in the air at any given moment.

There is also no security for passengers that get on those flights as well as no mandated TSA security scans and screenings for them prior to boarding. Passengers are checked for weapons with a wand but that is all. With unobstructed access to the pilots in these helicopters as well, the lax security and the buildings and monuments they fly around make these aircrafts prime targets for individuals with mal intent towards New York City.

Furthermore these excessive helicopters are helping to increase the emissions in our atmosphere and pumping cancer-causing agents into our air as they uselessly buzz around our homes and neighborhoods. At a time when the city is doing all it can to cut our emissions and be more environmentally friendly, we should eliminate these aircrafts and the negative effects they have on our atmosphere and green house gases.

Lastly, there is the laughable claim that the purveyors of the helitours make relating to their contribution to the New York economy. These carpetbaggers posit that their business contributes approximately \$30 million to the New York economy. This number is both disingenuous and cynical. Their math assumes that if not for the helitours, these tourists would not come to NYC. In addition to the amounts paid to take the tours, they try to take credit for the entire amount that any tourist spends in NYC and we can all agree that simply isn't true or fair accounting. While their exact economic contribution is unclear, I feel confident in saying that the tourists taking these sightseeing tours did not come to New York City exclusively for that tour.

Intros 858 and 859 will finally address this issue and eliminate these excessive aircrafts. By barring take off and landing by sightseeing helicopters that meet a stage 3 noise limit, which is about 82 decibels, from city owned helipads, the City Council will be helping the millions of New Yorkers that suffer through these tours annually. These companies did not reduce their noise pollution as they said they would in the past and now a complete elimination of them is the only option if the industry will not act in good faith.

Thank you again for the hearing today on this important issue. I look forward to the City Council resolving this issue and to making the city a safer, healthier, more environmentally friendly place for my and all children.

FOR THE RECORD

Good afternoon, my name is Margaret Dunlevy.

Thank you for the opportunity to testify today before the Committee on Environmental Protection.

I am here in support of intros 858 and 859 and banning the excessive sightseeing helicopter tours.

I recently retired and live on Riverside Drive. In my small one bedroom apartment, my main window, that is often open, looks out onto Riverside Park. Since I'm home during the day, and run in Riverside Park throughout the week, I am very aware of the many times these helicopters are flying overhead. This rotor racket and air pollution have seriously decreased the quality of life for both my husband, Steve, and me.

I'm sure none of you, nor the owners of the helicopters, nor anyone else, would like to live with loud helicopters flying over one's home many times throughout the day, 365 days a year.

Please stop these sightseeing helicopters and restore more clean air and quiet to the City we love.

RESOLUTION 892

Chairperson Constantinides, Committee Members and Council Members, thank you for allowing me to offer testimony in support of Resolution 892. I'm President of Queens Quiet Skies and Aviation Chair of Queens Community Board 7, which represent many of the communities being negatively impacted by noise from charter helicopters traveling between the East End of Long Island and Manhattan.

This afternoon you're going to hear testimony containing technical aviation terms and confusing data. The truth though, is that none of this is terribly difficult. It's merely about unwanted noise coming from companies doing business in New York City. While passengers may view the helicopters as a convenience, for communities under the flight path the helicopters are a nuisance. Passengers heading out East, depart Manhattan, arrive in the Hamptons and proceed to spend large sums of money on the East End. These charters while victimizing the communities below, provide little or no financial benefit to New York City. In addition, the charters are used solely for recreational travel.

Noise from helicopters will often be greater than that from large commercial planes. Helicopters will fly at lower altitudes, which puts the noise closer to the ground and at lower speeds, which results in the disturbance lasting longer. Helicopters can be thought of as oversized lawn mowers. However, there is a solution. The FAA must mandate an all-water route for charter helicopters traveling between Manhattan and the East End of Long Island.

I would like to end my testimony with a personal experience. Every year the FDNY holds a 9/11 Memorial Observance on Fort Totten. More than once the somber ceremony was disrupted by the jarring sound of charter helicopters above. Even while observing a moment of silence, helicopters shattered what was a time of reflection and remembrance. I'm sure those aboard the charters enjoyed their vacations.

Thank you.

Warren Schreiber

President, Queens Quiet Skies,

Aviation Chair, Community Board 7

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13-24 Bell Blvd, Bayside, NY 11360

Brian Tolbert
Manager of the Downtown Manhattan Heliport

Testimony before the New York City Council
Committee on Environmental Protection
Intro. 858 and Intro. 859
November 12, 2015

Good afternoon. My name is Brian Tolbert and I am the Manager of the Downtown Manhattan Heliport with Saker Aviation. I have worked in the helicopter industry in New York City for almost 30 years. I am a veteran of the United States Navy, a Bronx Resident, a homeowner, and the President of the Bronx River Homeowners Association. I am here on behalf of the employees of the Air Tour Industry in New York City. The City Council is putting at risk hundreds of good paying middle class jobs with the effort to ban helicopter sightseeing in NYC. As a city resident, I am particularly concerned with the City Council taking any actions which unilaterally decimate an entire safe and legal industry and put employees and their families at risk. I am asking this committee to please save our jobs, our families and our livelihoods.

Our industry is a diverse representation of the many faces of this city. Among the tour companies, we employ over 100 women, people of color, and veterans. We are your neighbors, customers, constituents, parents and classmates. Our mechanics and technicians and pilots are highly trained and offer our customers the highest levels of customer service and safety. The average job in our industry pays nearly \$6000 per year more than the average tourism sector job in the City. The employees also enjoy long tenures in their positions, with many employees with me at the heliport enjoying careers of more than 10 years with our companies.

The New York City skyline is one of the most recognizable sites in the world. There is tremendous demand for the experience we provide, and over 80% of those customers are from foreign countries. I don't understand why the City Council would want to limit a potential visitor's opportunities, especially as the City has a stated goal of drawing 10 million more visitors annually over the next several years. We interact with other sectors of the tourism economy, working collaboratively with concierges, other types of tour companies, and hotels to ensure visitors to New York City get the most out of their highly anticipated vacations, spend money with local businesses, and most importantly, leave determined to return to our great City. We generate millions of dollars for the local economy.

Banning the types of helicopters we fly will guarantee massive job losses. All of our companies fly these stages of helicopters. There is no way to see Intros 858 and 859 as anything other than an outright elimination of our services and careers. We are a reasonable industry and we ask that you work with us to seek a compromise which can satisfy local communities while saving our jobs.

Myself and my colleagues on this panel are happy to answer any questions you may have.

**Testimony of the Eastern Region Helicopter Council
Jeffery Smith, Vice President of Operations
New York City Council Hearing
Committee on Environmental Protection: Intros 0858-2015 & 0859-2015
November 12, 2015**

Good morning Chairman Constantinides and members of the New York City Council Committee on Environmental Protection. My name is Jeffery Smith and I am the Vice President of Operations and former Chairman of the Eastern Region Helicopter Council, the northeast's premier helicopter trade organization. For nearly 40 years, we have continuously promoted safety, professionalism, efficiency and community compatibility among our many helicopter and heliport related members. I am joined this morning by Robert Grotell, ERHC's Special Advisor.

I thank you for the opportunity to testify before you this morning regarding Intros 0858-2015 & 0859-2015, proposed local laws that combined will prohibit helicopter air tours at all New York City-owned heliports.

The Eastern Region Helicopter Council is deeply concerned and strongly objects to these two local laws that will eliminate a long-standing and thriving industry employing hundreds of people and seriously jeopardize the City's transportation infrastructure, of which the heliports play a vital role.

Helicopter air tours have been a key attraction in New York City for 50 years providing breathtaking views of the most beautiful skyline in the world. It is beyond comprehension that the City Council is pursuing such a misguided, draconian regulatory approach to what is an undefined issue. There are no city or federal noise standards being violated and only seven out of nearly 870,000 Manhattan households file air tour-related noise complaints with 311 on a monthly basis.

The City Council's proposed use of the FAA's Stage 3 noise standards is completely inappropriate since this metric was specifically designed for the development and manufacture of new helicopter designs. The FAA never intended Stage 3 levels to be used in a punitive manner. The FAA requires all helicopters under 75,000 pounds to meet Stage 2 requirements and the entire NYC helicopter air tour fleet is in full compliance with this standard. These two proposed local laws are unwarranted. Regulation should be the last resort, not the first.

In the past, when helicopter noise became an issue, ERHC worked with affected stakeholders including local elected officials and met cooperatively in an attempt to resolve concerns before they escalated to this level. This critical step in addressing quality of life concerns has been completely ignored by the New York City Council and for some unknown reason, this body has made the unsubstantiated determination that a complete ban of helicopter air tours is the only solution.

Before any solution can be implemented you have to first identify the problem. It is unclear to us and the entire aviation community what metric or standard is not being met by the helicopter air tour industry that necessitates a complete ban.

Sound levels generated by helicopter air tours are not in violation of the City's noise code since aviation noise is only regulated by the federal government through the Federal Aviation Administration. Sound levels generated by helicopter air tours do not exceed FAA enroute noise standards and guidelines since they simply do not exist. So why is the City Council calling for a ban? Tourism is one of the most important industries to the City of New York and helicopter sightseeing is a thriving business. Putting hundreds of hard working individuals out of work and shortchanging the City of New York of \$40 million in annual economic impact is totally unacceptable.

If enacted, these two bills will place the livelihoods of many pilots, mechanics, sales agents, customer service representatives, line crew, safety officers, administrative staff, managers and others in peril. The air tour industry provides good paying jobs to many military and law enforcement veteran pilots and mechanics. Additionally, the industry hires students directly out of local aviation schools, such as New York City's Aviation High School, providing job growth and development opportunities for young New Yorkers who are passionate about aviation. The air tour industry allows them to take advantage of tax payer funded vocational training and gain invaluable experience to further their careers. We cannot allow these jobs to be lost.

ERHC has a successful track record of working collaboratively with stakeholders on noise and community compatibility issues. We work closely with the helicopter operators, elected officials, community groups and residents, alike. Earlier this year without any fanfare and in response to noise concerns expressed by the City of New York and Council Member Levine, ERHC, in coordination with the tour operators, eliminated all Hamilton Heights and Yankee Stadium overflights.

ERHC continually reviews the two tour routes we developed in 2010 as part of the New York City Helicopter Sightseeing Plan and modifies them as needed to minimize noise sensitivities. We eliminated short tours, night tours, tour overflights of Brooklyn and specifically Red Hook by moving all Downtown Manhattan Heliport departures over the Buttermilk Channel. We eliminated all tour overflights of Governors Island by establishing a new arrival procedure into the heliport. We also worked with the FAA to increase the altitude of the tour routes as the tour aircraft fly up and down the Hudson River.

Time and time again, we work with the stakeholders to address noise sensitivities whenever possible. ERHC's two existing tour routes eliminated tour overflights of Central Park, the Empire State Building and other areas of Manhattan. These concerns were brought to us by the City as well as former Council Member and now Manhattan Borough President Gale Brewer.

Consistent with the city's sightseeing plan, Saker Aviation Services, the manager of the Downtown Manhattan Heliport, and the ERHC developed an ongoing tour route compliance monitoring program that reviews radar flight tracks of tour aircraft to ensure they are following the routes. And compliance has been nearly perfect over these last five years.

ERHC's tour modifications in conjunction with the compliance monitoring program successfully mitigated noise concerns and were all made within an existing voluntary framework that allows ERHC to quickly identify noise sensitivities and take decisive action.

Regulatory action is unwarranted and will decimate this industry. Without helicopter sightseeing, the Downtown Manhattan Heliport will become unprofitable and will most likely close, which in

turn will eliminate critically needed time-sensitive access to Lower Manhattan by law enforcement, government and many Fortune 500 corporations. Millions of dollars in rental revenue to the City will stop flowing. Should the heliport close, the city-owned East 34th Street Heliport cannot accommodate the resulting increase in traffic due to its physical size and operational cap imposed by the City Planning Commission.

Instead, let's work together to first identify and define the helicopter noise issues and then develop and implement practical and balanced solutions. The Eastern Region Helicopter Council therefore suggests that all the parties sit down together at everyone's earliest convenience to address the helicopter noise issue in a fair and equitable manner. Let's bring together residents, local elected officials, helicopter operators, heliport managers, ERHC officials and others to resolve this matter once and for all.

Our vast experience in working with communities and solving helicopter noise concerns throughout the area shows that it is through cooperation and open communications that community compatibility and quality of life issues are best addressed – not through needless and unwarranted legislation.

As such, the Eastern Region Helicopter Council requests that the New York City Council withdraw Intros 0858-2015 & 0859-2015 and instead work directly with the local helicopter industry to ensure that your specific noise concerns are resolved quickly and fairly.

We welcome the opportunity to meet with all the stakeholders and are committed to beginning this effort immediately.

Lastly, we encourage everyone with helicopter issues or concerns to contact the Eastern Regional Helicopter Council's noise complaint system at 800-319-7410 or via our noise complaint webform at flyneighborly.net. Constituents can also file their concerns with the city's 311 system.

I thank you again for the opportunity to testify before you this morning.



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www.CIDNY.org

Center for Independence of the Disabled, NY

FOR THE RECORD

November 12, 2015

New York City Council
Committee on Environmental Protection
Hearing on Reducing Noise Caused by Sightseeing Helicopters
Int. 0859

Susan M. Dooha, J.D.
Executive Director
Center for Independence of the Disabled, NY

Re:

Thank you for the opportunity to testify regarding the impact of noise caused by sightseeing helicopters flying over our communities. Those who benefit from tourist helicopter noise would urge you to consider only the jobs lost if helicopter flights are in any way curtailed. However, permitting high noise helicopter flights to continue comes with a cost as well. We strongly request that you consider the public health impact of the noise pollution caused by these ventures and the costs borne by our communities. We also invite you to consider the disparate impact of noise pollution on people who are hard of hearing and on people with other disabilities. We support Int. 0895.

The Center for Independence of the Disabled, New York (CIDNY) is a non-profit organization dedicated to ensuring full integration, independence and equal opportunity for all people with disabilities by removing barriers to the social, economic, cultural and civic life of the community. CIDNY, which has been in existence for over 37 years, reached approximately 15,000 New Yorkers in 2015, many of whom are hard of hearing. In New York City, there are 185,378 people who identify as hard of hearing or Deaf.

The World Health Organization ¹has considered the impact of noise pollution on people. They observe that hearing is essential for safety and well-being. They have documented the hearing damage produced by hours of exposure to significant noise. Hearing impairment correlates with lower levels of educational attainment and employment and higher levels of poverty than exist for people with no disability.

According to the National Institute for Occupational Safety and Health², workers with hearing loss are particularly affected by working in a noisy environment—like that produced by helicopter noise. The noise has an impact on their job safety, communication, stress and fatigue levels. The impact is so significant that it affects employability.

¹ http://www.medscape.com/viewarticle/554566_3

² <http://www.cdc.gov/niosh/mining/userfiles/works/pdfs/winwa.pdf>

Re:

People with mental disabilities who are exposed to noise pollution experience additional stress, increased social conflict, and other symptoms. It is also associated with higher mental health related admission rates. Children whose disabilities affect their performance in school are affected by noise pollution which results in learning and reading problems as well as social and emotional development.

We appreciate that New York is a busy place that attracts tourists from across the globe to enjoy our world class city. We welcome them. At the same time, we believe that the benefits of this particular attraction—noisy helicopter flights—is outweighed by public health, employment, education considerations. We simply cannot afford the public health impact and we cannot afford to further disadvantage people with disabilities.

Thank you for your consideration of our concerns.

Richard Wortman, Professor Emeritus of History, Columbia University

FOR THE RECORD

Helicopters on Riverside Drive and in Riverside Park

Helicopters have become a major daily nuisance in my neighborhood. I live on Riverside Drive and 113th Street and they come by my windows most of the day. I have good windows that keep out the noise, but if I open them in nice weather I hear helicopters droning by, often drowning out the stereo or TV. Sometimes, I exit the front door to the accompaniment of their grinding engines.

In the park, the situation is even more bothersome. I generally walk or run in the park in early afternoon and after mid-day for a half-hour or so, and at least a dozen helicopters will pass overhead, some in the distance, though the noise makes seem nearby, some overhead, pretty low. At times I hear and see three or four at once in skies above. It seems that the park and the near river front is a favorite flight path for them.

The enjoyment of the peace and beauty of the park becomes very difficult then. The helicopters' sound is unnerving: it is not a blare or a hum, but one of relentless grating, rising in volume, like a dive bomber about to strike. They could be effective instruments of torture. They make a lovely area set aside for rest and recreation feel like the extension of an airport.

The fact that wealthy tourists can treat their families to the view, or can find in them a short cut denied to all but the most affluent, while millions below bear the mental cost, seems an injustice worthy of recognition and serious attention. Some helicopter flights are obviously necessary for public security and emergencies, but turning them into items of convenience and leisure for the few does not make sense.

I want to thank the City Council for taking up this issue and for the legislation from Councilmembers Menchaca and Rosenthal that will put an end to this unsafe and unnecessary industry. I urge you to pass intros 858 and 859 and end the sightseeing helicopter assault on New York City.



BROOKLYN
HEIGHTS
ASSOCIATION

55 Pierrepont Street, Box 17D Brooklyn, NY 11201 (718) 858-9193 info@thebha.org www.thebha.org

FOR THE RECORD

Brooklyn Heights Association Statement Before a Hearing of the New York City Council Committee on Environmental Protection Re: Tourist Helicopters November 12, 2015

My name is Peter Bray. I am the Executive Director of the Brooklyn Heights Association, a 105 year old civic association dedicated to protecting and improving the quality of life of the residents and merchants of Brooklyn Heights.

On behalf of the BHA, I want to express my appreciation to the Committee on Environmental Protection for this hearing on legislation to regulate sightseeing helicopter operations in New York City and to call upon the Committee to approve Intro. 858-2015 and Intro 859-2015.

Helicopter noise is an incessant problem for residents of Brooklyn Heights and an ongoing and increasing source of complaints to the BHA from the community. As far back as April 2010, the Brooklyn Heights Blog surveyed the community on this issue. Of the 137 responses that were received, 86.6% reported being disturbed by helicopter noise over Brooklyn Bridge Park, the Brooklyn Heights Promenade and surrounding areas. The Promenade and the park are also major tourist destinations, so this problem affects visitors as well as residents and impairs their experience of one of New York City's major sights. Nearly as many respondents - 86.1% - indicated that they were aware that helicopter traffic was increasing and the problem was becoming worse. And nearly 57% indicated that they were bothered by helicopter noise inside their own homes. Given the increasing number of people who work from home, the problem impairs their professional and personal lives.

With the closing of the West 30th Street Heliport in 2010, all sightseeing helicopter operations in New York City were moved to the Downtown Manhattan Heliport, directly across the East River from the Heights. Since then, the problem has only become much worse. On some days, there are upwards of 300 flights a day from this heliport. Helicopters land and take off once every two minutes during peak periods. Since 2002, helicopter flights have increased by 600% to almost 60,000 operations annually in 2012 according to the FAA. These numbers are likely even higher now.

New Yorkers do not expect to live in a noise-free environment. They recognize that helicopter operations for emergency services and for the business community are essential to the health, safety and economic well-being of the city. However, there is nothing essential about the tourist helicopter industry. It serves a relative few but imposes an enormous cost on the quality of life of millions of city residents. While tourists have many options when they visit New York, affected city residents have no choice but to be disturbed by the constant noise generated by this industry.

We are grateful to all the City Council Members who have introduced the two bills and endorsed their passage. We call upon the Committee to approve both bills and to send them to the full City Council with a message, loud enough to be heard over the drone of these helicopters, that they impose an unacceptable burden on the citizens of New York and their operations have to be eliminated.

Thank you for this opportunity to testify today.

Testimony of Vincent J. Montalbano
New York City Council Environmental Protection Committee Hearing of
November 12, 2015
Regarding Tourist Helicopter Regulation

Honorable members of the Committee. The problem of unrestricted helicopter flights over our City's landmass is not new. Sightseeing, news, traffic, charter, and other helicopters have for many years used the North Shore of Staten Island (which is *my community*) as a short-cut from their New Jersey bases to New York City and points on Long Island. But in 1999, then Congressman Vito Fossella, and the late Assemblywoman Betty Connelly got the FAA to issue a letter stating that "... it is our intention to publish a new helicopter route map, on which the existing route of concern to you will be deleted and a new route around the south side of Staten Island will appear in its place." This new route was entirely over water, thus mitigating this constant disturbance of our communities. The helicopter industry agreed to these changes.

That blessed quiet lasted only about three years when the combination of Mayor Bloomberg's laissez-faire business attitude, the arrogance of the helicopter industry, and the inflated value of the Euro versus the dollar, led to what is now unrestricted mayhem in the sky. As a recent retiree, I now witness that mayhem on an *hourly basis* over my house every day of the week. Helicopters flying literally no more than 200 feet above my rooftop; Helicopters flying no more than a quarter mile from each other, in opposite directions! Helicopters roaring over my neighborhood, several times an hour through most of the daylight hours. It is truly an affront to our peace and quiet.

But, the City has the power to control some of these flights, namely the tourist helicopters. And, this was affirmed by a Federal Court in 1998 after the City moved to reduce helicopter traffic at the 34th Street heliport by nearly 50 percent; and to ban weekend flights. The same power can surely be applied to **the tourist helicopter operators who receive the privilege of being a concessionaire** at the Downtown Manhattan Heliport. Intro's 858 & 859, and Reso. 892 are good approaches as well; but more *can* and must be done.

My request for my Staten Island community is simple. **Make the helicopter operators once again honor their 1999 agreement so that every one of their helicopters, that fly back & forth between their New Jersey base and the Downtown Heliport, fly entirely over a water route; either to the north of Staten Island over the Kill Van Kull, or to the south over the Raritan and New York Bays.** And furthermore require that, after the SI Wheel is in operation, any qualified flights taking tourists to see this world wonder (!) stay off-shore in the bay and not stray over any Staten Island communities that are near the Wheel.

I have visited two world-class cities in the last six years – Rome and London. In neither city did I see any helicopters flying sight-seers over the Coliseum the Forum, Westminster Abbey, or even the London Wheel! So we should keep **our City's claim** to that kind of world-class status in mind, as we consider whether to continue to allow this rude intrusion into the life of our citizens.

Thank you.



U.S. Department
of Transportation

Eastern Region

Federal Aviation
Administration

Federal Building #111
JFK International Airport
Jamaica, New York 11430

MAY 18 1999

The Honorable Vito J. Fossella
Member of Congress
4434 Amboy Road, 2nd Floor
Staten Island, NY 10312

Dear Congressman Fossella:

This is in response to your April 7, 1999 letter requesting a follow-up meeting to our April 6, 1999 meeting in Staten Island regarding helicopter noise.

* Please note that it is our intention to publish a new helicopter route map, on which the existing route of concern to you will be deleted and a new route around the south side of Staten Island will appear in its place. Although this publication process will take approximately six months, the Eastern Region Helicopter Council is currently encouraging and will continue to encourage, its helicopter pilot members to request approval for and take alternate routes other than the one over Staten Island. However, please understand that should a helicopter pilot request any route that is safe and legal, including the existing Staten Island route at issue, FAA air traffic controllers are required to approve the request.

We will notify you when the map is published. Given the above, please let me know whether you would still like to arrange a meeting.

Sincerely,

Arlene B. Feldman
Regional Administrator

448
8400



Testimony for the City Council Committee on Environmental Protection
Re: City Council Bills Int 858 & 859
November 12, 2015

The Governors Island Alliance has just completed its 2015 season. Roughly 450,000 visitors and dozens of arts and performing arts groups, community organizations, nonprofit programmers, children's day camps and tens of thousands of tourists came to enjoy this unique environment of open space, recreation, culture and arts, history, education and environmental programs. They come for a day away from the hustle and bustle of the city, away from the cars and buses and noise and pollution, to an Island escape that's only a 5-minute ferry ride from Brooklyn and Manhattan. For a round-trip ticket that is less than the cost of a subway ride, every New Yorker can travel to this island refuge. (And often times, it is completely free.)

This treasure to the City of New York includes a National Historic Monument run by the National Park Service, a federally designated National Historic District, the Urban Assembly Harbor School high school, a GrowNYC Urban Farm, the Earth Matter island composting program, the Lower Manhattan Cultural Council, the Children's Museum for the Arts, dozens of small local arts and performance organizations, and myriad opportunities for families and children to bike, skate, scooter and stroll, all in a car-free environment. Governors Island attracts visitors from all over the city and the world: roughly 25% each come from Brooklyn and Manhattan, 75% from New York City as a whole, and almost 10% from foreign countries. Given its idyllic setting in the middle of New York Harbor and its one-of-a-kind opportunity as an urban getaway, Governors Island should be a unique refuge of peace and quiet. But unfortunately that is far from the case.

Most days on Governors Island the constant drone of tourist helicopter flights above and around the island is all that can be heard. Originating at the Downtown Heliport from just north of the Battery Maritime Building, home of the Governors Island ferry, the flights arrive and depart with astounding frequency - more than one a minute beginning at 9:00 in the morning nearly every minute of each and every day that the sun is shining. The impact to the Island's visitors -- tourists and New Yorkers alike -- and to the students and teachers at the Harbor School, as well as to the performers, musicians, artists, park rangers, historic tour guides, urban gardeners, volunteers and island staff cannot be overstated. It is the single most noxious environmental impact on the island, which, according to sound monitoring done by the Alliance, frequently reaches decibel levels that are the equivalent of having a rock concert right next door. Often, I cannot count to ten without another helicopter buzzing overhead.

Most New Yorkers cannot afford the price of taking one of these "helitours", which charge \$175 for just 15 minutes. Nor do most New Yorkers have summer homes to escape to - to connect with nature and decompress from the stresses of big city living. They depend on the city's parks and open spaces to provide solace, access to nature, places for recreation and the chance to recharge their batteries. Wisely, the City and State have invested more than a billion dollars in new waterfront parks over the past 15 years. These investments have brought millions of New Yorkers and visitors to formerly derelict areas to enjoy the harbor and the city's magnificent waterways as never before. They provide our citizens with a summer getaway without actually getting away... and they are completely free. These democratic spaces deserve to be protected. It is remarkably short-sighted to allow a non-essential industry like helicopter tourism, which serves so few and is accessible only to the well-to-do, to destroy a billion dollars worth of tax payers' investment in our city -- an investment in public infrastructure and open space that benefits not only all New Yorkers but also the more than 50 million visitors who come to enjoy the city each year.

The Governors Island Alliance is determined to work together with the Council to eliminate these flights. Nothing could make a bigger difference in safeguarding the public and improving the economic development prospects of the Island and its future. Governors Island and its visitors deserve no less than the treatment given to Central Park several years ago when it was experiencing the same scourge and the helicopters flying over the park were banned. And the five million tourists who travel annually to visit our Harbor Parks and National Monument, to the Statue of Liberty and Ellis Island, to the Historic Battery and Governors Island -- who come from all over the world to experience these waterfront gems and historic sites -- sites that represent the best of New York City and this country -- they also deserve to enjoy their visits without having them ruined by the relentless helicopter noise, which drowns out both the natural and man-made wonders of the Harbor.

Respectfully submitted,
Connie Fishman, Executive Director
Governors Island Alliance

Governors Island Alliance
55 Exchange Pl. #405
New York, NY 10005
646-832-3367

**TESTIMONY OF KLARI NEUWELT
ON BEHALF OF COMMUNITY BOARD 7/MANHATTAN
IN SUPPORT OF NEW YORK CITY COUNCIL INTROS 858-2015 AND 859-2015
NOVEMBER 12, 2015**

I am Klari Neuwelt, Chair of the Parks & Environment Committee of Community Board 7/Manhattan. CB7 has been fielding complaints from our constituents since the prior millennium about helicopter noise disturbing the quality of life in our neighborhood. The noise, particularly from sightseeing helicopters, as well as the air pollution, has been a major continuing concern for CB7. I am testifying on behalf of CB7, as well as personally, in support of Intros 858- and 859-2015.

Sightseeing helicopters, in particular, serve a very small number of well-off tourists. They provide revenues to a miniscule portion of our business community. On the other hand, they daily disturb and disrupt the quality of life of many thousands of regular New Yorkers, including those who live or work on the Upper West Side.

Most of Riverside Park, a green urban gem that borders the Hudson River, is in the CB7 District. Noise from helicopters disturbs the peace in Riverside Park, as it does in the surrounding neighborhood. For our many residents who have outdoor space as part of their homes, the seemingly constant helicopter noise is equally disturbing. Limiting sightseeing helicopters to a fly pattern over the river, even if enforceable, provides no real benefit to our residents because of the way that the noise carries onto the adjacent land.

CB7, and our elected officials, have grappled with the problem for well over a decade, without success. It is time to stop the noise, and the air pollution. The proposed limitations on sightseeing helicopters would not resolve all of the noise and pollution concerns posed by helicopter traffic over Manhattan, *and the other boroughs*, but curbing sightseeing flights as these intros propose to do would certainly appear to be very beneficial.

Testimonial supporting bills 858-2015 and 859-2015

Good afternoon.

All day, every day, those of us who live and work on the Upper West Side are bludgeoned with noise from tour helicopters.

It is reported that over 300 of these tour helicopters pass overhead each day. That is 30 an hour, or, one every other minute. They shatter the peace all day long, flying over our neighborhoods.

They can be heard slowly approaching, rumbling through their long slow arc overhead, and slowly departing, closely following each other in an endless noisy stream.

It took me decades of effort to be able to live and work on the Upper West Side. I cherish my neighborhood and my life there. I chose my small apartment expressly because it was in a quiet, residential neighborhood.

Now, the racket of tour helicopters bounces off the walls of nearby buildings, and slams through my apartment and my ears. Now, as I work in my office, tour helicopters spew a huge amount of noise overhead, not to mention toxic air pollution. Now, on my one day off a week, I cannot rest in my own place; I have to leave my neighborhood to get away from the incessant din of helicopters.

Tour helicopters should not be driving New Yorkers out of their homes and offices! Here are a few decibel statistics: An idling motorcycle registers at 70 decibels. An accelerating motorcycle registers at 80 decibels. A jackhammer is 100 decibels. And a helicopter is 105 decibels. Each additional ten decibels means that the noise is twice as loud.

Their noise is everywhere! By its nature, noise spreads. This ceaseless, overbearing racket pervades the entire Upper West Side.

We who live here, work here, and raise our families here: we are the heart of the city. We pay substantial taxes to be here.

These helicopters are not “normal city sounds.” They make excessive noise, they are a daily torment, and they are derailing our quality of life.

The bottom line is this: to withstand noise is extremely stressful. Ultimately, bearing that continuous level of stress will damage people’s health. This is an assault by noise, and it must stop.

We need you, our elected representatives, to stand up for us and pass these bills to stop the noise.

Thank you.

Cheré Campbell



November 12, 2015

Councilmembers
New York City Council

RE: Banning Tourist Helicopters in Lower Manhattan

Dear Members of the New York City Council:

As the Director of Earth Matter NY, an educational nonprofit organization that operates a Compost Learning Center year-round on Governors Island, I wish to testify to the enormously negative impact of the noise from tourism helicopters that fly around lower Manhattan and across New York Harbor.

Governors Island is a New York City gem, a unique destination for residents and visitors who wish to enjoy the open space, artwork and performances, or just unwind with their friends and families under the trees or in hammocks. But the potential for bucolic rest, cultural enjoyment and relaxation is ruined by the frequent and excessive noise of the helicopters taking off, flying along Buttermilk Channel, and coming in for a landing.

In 2009, Earth Matter found a home on GI, to promote our mission of encouraging neighborhood participation and leadership in composting. We created our Compost Learning Center to assist us with this mission. Year round, we host thousands of participants - visiting school children, groups of adults interested in learning about composting and reducing New York City's waste, apprentices, many hundreds of people who visit the Center during public open hours each season, and our staff and volunteers who work there daily. When helicopters fly nearby, all these people are subjected to a level of noise that truly rattles the nerves and hurts the ears. People standing right next to each other need to shout to be heard.

The problem is far beyond "unpleasant and intrusive." Exposure to this level of noise is stressful, wrecks the feeling of being "in nature" on the island, is detrimental to our programming, and drastically reduces the quality of the Governors Island experience. Tomorrow, during our weekly Friday volunteer and training program when we are hosting Pace University's Environmental Justice class, we will have to pause, minimally, 6 times in our 10 minute introduction and orientation session at the beginning of the day.

Considering the long-term investment the City is making in improving the grounds, facilities and activities on Governors Island to create an unparalleled destination for residents and tourists alike, and considering the very damaging effect of the noise from these helicopters, I feel they should be banned.

I am grateful to the City Council for examining this important issue. I am hopeful that soon visitors to the Island and everybody at Earth Matter's Compost Learning Center can enjoy a peaceful experience.

Sincerely,

Marisa DeDominicis
Marisa DeDominicis

ADDRESS

Earth Matter NY
179 Rivington Street #4A
New York, NY 10002

WEB

www.EarthMatter.org

Marisa DeDominicis
Director

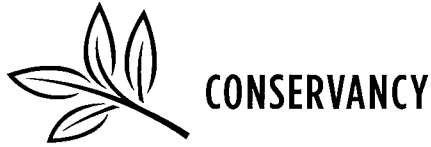
PHONE

917-447-7256

EMAIL

marisa@earthmatter.org

Earth Matter NY – encouraging
neighborhood participation and
leadership in composting since 2009 .



**Testimony Regarding Bills to Ban Sightseeing Helicopters
Presented to NYC Council's Committee on Environmental Protection
at City Hall on 12, 2015**

Good afternoon. I am Richard Loyd, representing Brooklyn Bridge Park Conservancy, and I am here today to testify in favor of the two bills to ban sightseeing helicopter flights from using City-owned property.

Tourist helicopters are now operating seven days a week from the Downtown Manhattan Heliport, with approximately 300 flights every day. The constant din of helicopters has become the unwelcome soundtrack of Brooklyn Bridge Park. Earlier this year, we were filming a short promotional video in the park, and were unable to shoot for more than 30 seconds at a time because of the steady stream of helicopters. The unsettling part of this is that we didn't notice the noise at first—we had become used to the relentless aircraft uproar.

A park should be a quiet place—a haven where we can get away from the more aggressive sounds of the city. Speaking about the helicopters in a 2011 *Daily News* article, Michael Van Valkenburgh, the designer of Brooklyn Bridge Park said, "We have started to build a park that everyone seems to like quite a lot, at considerable public investment, and the noise is horrendous and disturbing."

Four years later, the volume of tourist helicopters is worse than ever. Last month's opening of a new section of park at the end of Pier 6—which is directly across the water from the heliport—has made our constituents even more aware of the continuous roar of tourist helicopters.

They have reached out to us to voice their displeasure. On behalf of our neighbors and park visitors from around the world, we applaud City Council Members Carlos Menchaca, Helen Rosenthal and Margaret Chin for introducing these bills, and strongly support the ban to stop sightseeing helicopters from using City-owned property.

Thank you.

Good afternoon,

My name is Ann Ellis. I live in the Washington Heights neighborhood of Manhattan. Thank you for the opportunity to testify today before the City Council Committee on Environmental Protection on this important issue.

My windows are about 5 blocks east of the Hudson River. I can see and hear the tourist helicopters going by, they are loud even from this distance. I called 311 recently about the noise and they informed me that these flights are only allowed to fly over the river, not over land. Yet these helicopters continue to fly inland over the West Side Highway and apartment buildings.

The noise is immensely noticeable when you are walking in the Heather Garden in Ft. Tryon Park. Sometimes I will see them fly one after another only about a minute or so apart. Governors Island suffers as a result of the helicopters too. I was on Governors Island for an event this summer and the helicopters were so low and extremely loud, that it sounded like a war zone. New Yorkers go to parks for the tranquility, to escape their cramped apartments and hectic city. But what is tranquil about the roar of a helicopter engine as you're trying to read a book, teach an outdoor class, or even give a tour of the park to a tourist?

I am also disturbed about the various ways these helicopters affect other NYC residents. For example, parents say the noise adversely affects their children at home and in school. Veterans have also said that the sound of the helicopters can trigger PTSD and bring individuals back to the war zone they were once in.

All in all, it is not necessary to fly up and down the Hudson River to enjoy and appreciate our city, there are buses, boats, cabs and bicycles at tourists' disposal for sight seeing. There are great films that show you the overhead view of Manhattan or better yet, visit the Empire State Building for a view of the city.

It's time these tourist helicopters were banned to protect the quality of life and safety of New York City residents. I urge the Council to pass intros 858 and 859.

Thank you.

CITY COUNCIL: NEW YORK CITY

In The Matter Of

HELICOPTER NOISE
and
TELEVISION BROADCAST
INTERFERENCE

November 12, 2015
Testimony of
Demosthenes Matsis

I, DEMOSTHENES MATSIS, reside at 302 West 90th Street, off West End Avenue, in the County of Manhattan on the fourth floor of a five story brownstone building. My television receiver and interior antenna are located 40 feet above the street and 3 miles from the Empire State Building television broadcast transmission antenna, which is mounted 1,350 feet above the ESB [see annexed AntennaWeb.org/Stations, page 1]. <http://www.antennaweb.org/Address.aspx>

MULTIPATH TV INTERFERENCE FROM HELICOPTERS

Although the CBS and NBC TV transmit Over-The-Air digital television signals with healthy Noise Error Margins (NM dB) of 73.9 dB and 72.8 dB [see the annexed TVFool.com-Signal Analysis Report, pgs 1-8], http://tvfool.com/?option=com_wrapper&Itemid=29&q=id%3d8e0399c8eee823

my reception of CBS and NBC television programs is severely distorted with video pixelation, audio dropout, and video collapse and blackout whenever sightseeing helicopters fly up the Hudson River toward and within 1,200 feet of my TV receiving antenna. The TV signal reflections bouncing off the helicopter body last twenty to thirty seconds and cannot be corrected by reorienting my receiving antenna since the interference changes with the helicopter's flight movements. My TV video image and audio reception does not recover until the helicopter moves away from my antenna and DTV decoder box, that is, when the broadcaster's transmission is no longer negated by the helicopter's reflected signals.

AIRPLANE MULTIPATH INTERFERENCE WITH TV SIGNALS

In 2003, analysts in Thailand examined the phenomenon of multipath interference on a television broadcast system when an airplane, at an altitude of 3,000 meters (8,230 feet), flew over the television signal path of a transmitter 230 meters (637 feet) high.

http://2003.iccas.org/Full_Paper/airp_ICCAS2003_5%2819%29.pdf

The analysts observed that both the transmitter's direct signal and the signal reflected from the airplane arrived at the Rx (television receiver) antenna at different times, and that the reflection phase differences made great fluctuations in the signal strength received.


The TV broadcast signal noise margin strength [NM (dB)] was so negatively affected by the airplane reflection of the TV signal that it resulted in fading, sometimes collapse, and distortion of the picture on the TV screen.

The witness helicopters flew into the transmitted TV signal, not above it, and the witness experienced more severe helicopter multipath interference with his TV reception.

RELIEF REQUESTED

- (1) The City Counsel should prohibit the operation of sightseeing helicopters in the City of New York;
- (2) The witness encourages New York City Residents to file a Sightseeing Helicopter Multipath Interference Complaint with the FCC, by online, by telephone or by mail:

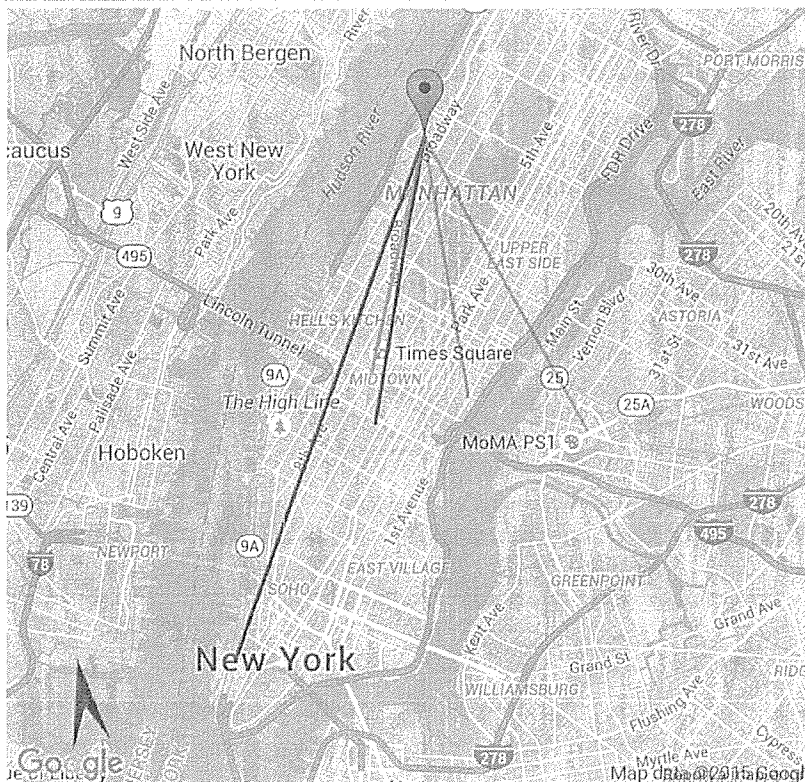
Federal Communication Commission
Consumer and Governmental Affairs Bureau
Consumer Inquiries and Complaints Division
445 129th Street S.W.
Washington, DC 20554



Demosthenes Matsis

302 West 90th Street New York, NY 10024

Up to 44 channels from 16 over-the-air stations may be received at this location.

Stations	Antenna
WJLP-DT 33.1 IND RF Channel: 3 2 miles at 192°	 Yellow
WKOB-LD 2.1 DAY RF Channel: 2 3 miles at 170°	 Green
WABC-DT 7.1 ABC RF Channel: 7 6 miles at 200°	 Red
WCBS-DT 2.1 CBS RF Channel: 33 3 miles at 189°	 Red
WFUT-DT 68.1 TFA RF Channel: 30 3 miles at 189°	 Red
WNET-DT 13.1 PBS RF Channel: 13 6 miles at 200°	 Red
WNYW-DT 5.1 FOX RF Channel: 44 3 miles at 189°	 Red
WNYZ-LP 6 IND RF Channel: 6 4 miles at 151°	 Red
WPIX-DT 11.1 CW RF Channel: 11 6 miles at 200°	 Red
WWOR-DT 9.1 MNT RF Channel: 38 3 miles at 189°	 Red
WXTV-DT 41.1 UNI RF Channel: 40 3 miles at 189°	 Red
WNBC-DT 4.1 NBC RF Channel: 28 6 miles at 200°	 Blue
WNJU-DT 47.1 TEL RF Channel: 36 6 miles at 200°	 Blue
WNYE-DT 25.1 IND RF Channel: 24 2 miles at 192°	 Blue
WPXN-DT 31.1 ION RF Channel: 31 6 miles at 200°	 Blue
WASA-LD 24.1 EST RF Channel: 25 2 miles at 192°	 Violet



TV Signal Analysis Results 

Here are the results for your location. The transmitter database was last updated on June 28, 2015. For more information about these plots and how to interpret them, please check out the [Signal Analysis FAQ](#).

If you would like to share these results with others, this page can be referenced as:
http://www.tvfool.com/?option=com_wrapper&Itemid=29&q=id%3d8e03199c0c251e

To ask for help from other TV Fool members, post this link in a thread [HERE](#).

To start over, [click here](#).

- Current database:
- All channels ([save image](#))
 - Only Digital ([save image](#))
 - Only Analog ([save image](#))

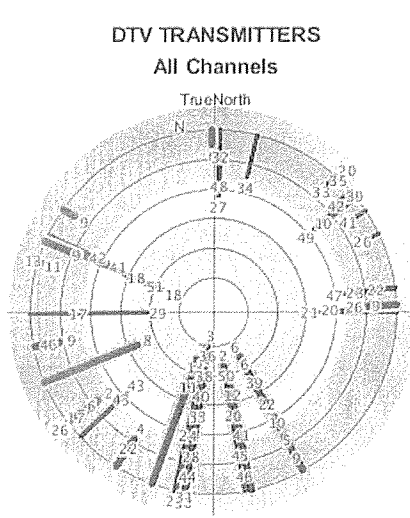
These reports show what should be on the air now according to the latest FCC database.

- Pending* applications included:
- All channels ([save image](#))
 - Only Digital ([save image](#))
 - Only Analog ([save image](#))

*These are speculative reports that include pending applications filed with the FCC. This lets you see the effect of planned upcoming transmitter changes, but note that things may change by the time the FCC finishes processing these applications.

HINT: You can see additional details about each transmitter by clicking on them in the table below.

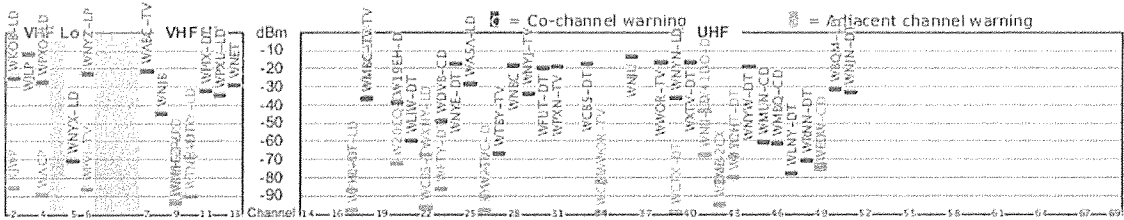
If you notice any errors or omissions in the database, please report them [HERE](#) so that they can be corrected in future runs.



Search Criteria
 Address: exact
 new york, NY
 Postal code 10024
 Height: 80.0 ft.
 db datecode
 201506290913

Call sign	Channel	Real (Virt)	Netwk	NM(dB)	Pwr(dBm)	Path	miles	True Azimuth
WJLP	3 (3.1)			79.2	-11.7	LOS	2.5	192° (205°)
WNJU	36 (47.1)	TEL		77.3	-13.6	LOS	3.0	189° (202°)
WWOR-TV	38 (9.1)	MYN		74.4	-16.4	LOS	3.0	189° (202°)
WXTV-DT	40 (41.1)	Un1		74.3	-16.5	LOS	3.0	189° (202°)
WCBS-DT	33 (2.1)	CBS		73.9	-17.0	LOS	3.0	189° (202°)
WNYE-DT	24 (25.1)	Ind		73.7	-17.2	LOS	2.5	192° (205°)
WNBC	28 (4.1)	NBC		72.8	-18.0	LOS	3.0	189° (202°)
WNYW-DT	44 (5.1)	FOX		72.1	-18.5	LOS	3.0	189° (202°)
WPXN-TV	31 (31.1)	ION		71.9	-19.0	LOS	3.0	189° (202°)
WFUT-DT	30 (68.1)	Te1		71.5	-19.4	LOS	3.0	189° (202°)
WABC-TV	7	ABC		69.5	-21.3	LOS	5.7	200° (212°)
WNYZ-LP	6 (6.1)			68.3	-22.6	LOS	3.5	150° (163°)
WKOB-LD	2 (42.1)			65.6	-25.3	LOS	2.7	170° (183°)
WMBC-TV	18 (63.1)	Ind		65.0	-25.8	LOS	12.8	293° (306°)
WPXO-LD	4 (34.1)			63.0	-27.8	LOS	3.0	189° (202°)
WASA-LD	25 (24.1)			62.9	-28.0	LOS	2.5	192° (205°)
WNET	13	PBS		61.5	-29.3	LOS	2.7	200° (212°)
WBQM-LD	50			59.3	-31.6	LOS	2.7	170° (182°)
WPXI-DT	11 (11.1)	Cw		58.6	-32.3	LOS	5.8	200° (212°)
WNJN-DT	51 (50.1)	PBS		58.1	-32.8	LOS	12.8	293° (306°)
WNYJ-TV	29 (66.1)			57.4	-33.4	LOS	14.6	260° (282°)
WPXU-LD	12			56.4	-34.5	LOS	2.1	168° (181°)
WNYZ-LP	6			55.9	-35.0	LOS	3.5	150° (163°)
WNYN-LD	39 (39.1)			54.8	-36.0	LOS	3.5	150° (163°)
WMBC-TV	18	Ind		54.8	-36.1	LOS	3.0	189° (202°)
WMBC-TV	18	Ind		53.9	-37.0	LOS	12.8	293° (306°)
W19EH-D	20			52.4	-38.4	LOS	2.7	170° (183°)
W4100-D	41 (60.1)	HSN		48.0	-42.9	LOS	2.1	168° (181°)
WNJB	8 (58.1)	PBS		46.2	-44.7	LOS	30.1	247° (260°)
WDVB-CD	23 (23.1)			42.3	-48.6	LOS	3.0	189° (202°)
WLIW-DT	21 (21.1)	PBS		30.9	-60.0	1Edge	27.5	99° (163°)
WMUN-CD	45			30.5	-60.4	LOS	2.7	170° (183°)
WMBO-CD	46			29.6	-61.2	LOS	2.7	170° (182°)
W19BY-TV	27 (54.1)	Ind		24.3	-66.6	2Edge	48.2	9° (15°)
WKNY-LD	22			23.5	-67.3	LOS	3.5	150° (163°)
WNJJ-LD	41 (41.1)			23.1	-67.8	LOS	35.7	293° (308°)
WNJT-DT	43 (52.1)	PBS		22.8	-68.0	LOS	51.3	227° (240°)
WNYX-LD	10			22.5	-68.4	LOS	3.5	150° (163°)
WNYX-LD	5			20.5	-70.4	LOS	3.5	150° (163°)
WRNN-DT	48 (48.1)	Ind		20.0	-70.9	2Edge	48.1	9° (15°)
W20CQ-D	20			18.7	-72.2	LOS	27.0	85° (102°)
WEBR-CD	49			17.8	-73.0	LOS	3.0	189° (202°)
WEDW	49	PBS		15.3	-75.5	1Edge	53.3	51° (63°)
W19NY-DT	47 (55.1)	Ind		13.4	-77.5	1Edge	56.1	83° (95°)
W43CH	43 (43.1)			10.8	-80.0	LOS	51.3	227° (240°)
WWOR-TV	34	MYN		8.7	-82.2	LOS	12.0	14° (26°)
W42CX	42 (42.1)			8.1	-82.7	LOS	35.7	293° (308°)
WYXX-LD	9			6.3	-84.6	LOS	3.5	150° (163°)
KJWP	2 (2.1)			5.5	-85.3	2Edge	84.2	233° (245°)
W19VT-TV	6 (6.1)	ABC		4.9	-85.9	2Edge	84.4	233° (246°)
W19FTY-DT	23	Te1		4.7	-86.2	2Edge	54.1	82° (95°)

www.tvfool.com



The Signal Analysis Report lists the broadcasters in your area, ranked from strongest to weakest, according to 3D propagation modeling of the location and height (optional) that you entered. The background color of each transmitter in the table is color coded as follows:

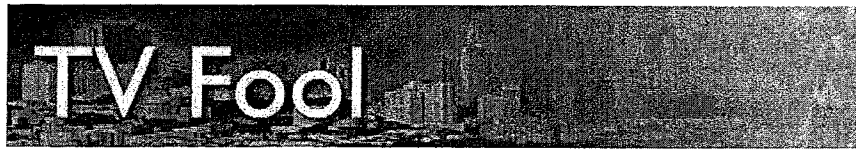
Background color	Estimated signal strength
Green	An indoor "set-top" antenna is probably sufficient to pick up these channels
Yellow	An attic-mounted antenna is probably needed to pick up channels at this level and above

Background color	Estimated signal strength
Red	A roof-mounted antenna is probably needed to pick up channels at this level and above
Grey	These channels are very weak and will most likely require extreme measures to try and pick them up

Please understand that this is a simulation and can only be treated as a rough approximation. Reception at your location is affected by many factors such as multipath, antenna gain, receiver sensitivity, buildings, and trees - which are *not* taken into account. Your mileage may vary.

For additional details, go [here](#).

To start over, [click here](#).



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RF SIGNAL DETECTION GUIDE

Get Secret To RF Signal Detection. Download RF Signal Detection Guide.



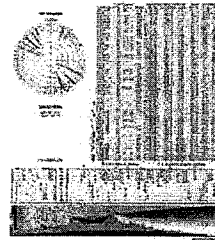
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TV Signal Analysis FAQ

General

What is a Radar Plot report?
 How are these plots generated?



How to Read the Signal Analysis

What does all the information in the table mean?
 What are co-channel and adjacent channel warnings?
 What is shown on the radar plot?
 Can I use this to aim my antenna?
 What is shown in the graph along the bottom?

RF SIGNAL DETECTION GUIDE

analog.com

Get Secret To RF
 Signal Detection.
 Download RF
 Signal Detection
 Guide.



General

What is a Radar Plot report?

These are compact summary reports about your local TV stations that can be download, printed, or shared. If you want to ask others for advice regarding antenna setup or reception issues, this is a great way to share information about your TV environment so that everyone can see what your dealing with.

The report contains vital information about every transmitter in your area, including things like signal strength, distance, direction, broadcast channel, callsign, network affiliation, and more. There's enough information here to address questions like what kind of antenna do you need (small, medium, or large), which frequency bands you need (VHF, UHF), and whether or not you'll need to detect stations coming from multiple directions. Printed copies of the reports can come in handy when picking a location to install your antenna or when aiming your antenna.

If you're seeking help, these reports can be posted to most online forums or sent via email. There are many helpful people online that can help interpret these reports. Your exact location will be obscured in the reports so that you can share this information without giving away your privacy.

How are these plots generated?

These plots are generated from the FCC's database of all licensed broadcasters. The signal strength from each of the broadcasts is analyzed for your location using 3D propagation modeling algorithms, and the results are summarized in the plot and table. Transmitter power, terrain obstructions, Earth

curvature, and your antenna height (if specified) are already factored into the report.

How to Read the Signal Analysis

The Signal Analysis Report lists the broadcasters in your area, ranked from strongest to weakest, according to 3D propagation modeling of the location and height (optional) that you entered. The background color of each transmitter in the table will be color coded as follows:

Background color	Estimated signal strength
Green	An indoor "set-top" antenna is probably sufficient to pick up these channels
Yellow	An attic-mounted antenna is probably needed to pick up channels at this level and above
Red	A roof-mounted antenna is probably needed to pick up channels at this level and above
Grey	These channels are very weak and will most likely require extreme measures to try and pick them up

Digital channels are listed with blue text while analog channels are listed with violet text.

Please understand that this is a simulation and can only be treated as a rough approximation. Reception at your location is affected by many factors such as multipath, antenna gain, receiver sensitivity, buildings, and trees - which are *not* taken into account. Your mileage may vary.

What does all the information in the table mean?

The columns of the table are:

Call sign	These are the call letters that the FCC uses to uniquely identify broadcasters.
Channel	This is the broadcast channel for the station. For most digital channels, two channel numbers are listed. In the world of digital TV, the broadcast channel is usually aliased to a different channel to match a corresponding analog channel (e.g., a broadcast on channel 30 might appear as channel 4.1 to the user). However, since antenna selection really depends on the broadcast channel, it is more important to pay attention to the first number.
Network	This indicates the network affiliation of each broadcaster. The network names have been abbreviated as follows: PBS: Public Broadcasting Service ABC: American Broadcasting Company NBC: NBC Universal CBS: CBS Broadcasting, Inc. Fox: Fox Broadcasting Company CW: The CW Television Network MyN: MyNetworkTV Uni: Univision Tel: TeleFutura TEL: Telemundo Azt: Azteca America

Rf Signal Detection Guide

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	<p>ION Television Ind: Independent</p>
NM(dB)	<p>This is the predicted Noise Margin (NM) of each channel "in the air" at your location, specified in dB. You must add/subtract any gains/losses you get from your antenna, building penetration, amps, cables, splitters, and other factors present in your situation. Hypothetically speaking, you need to end up with an NM value above 0 in order to pick up a station.</p>
Pwr(dBm)	<p>This is the predicted signal power of each channel at your location, specified in dBm. Note that the relationship between NM and Pwr depends on the type of signal being detected. Analog stations require more power than an equivalent digital station to achieve the same level of NM.</p>
Path	<p>This indicates the path travelled by the signal to get from the transmitter to your location.</p> <p>LOS: Line-of-sight 1Edge: Single edge diffraction 2Edge: Double edge diffraction Tropo: Tropospheric scatter</p>
Dist	<p>Distance from your location to the transmitter, specified in miles statute miles.</p>
Azimuth	<p>Azimuth direction for the transmitter (0=North), relative to true north. The numbers have been color coded according to the transmitter direction for easier identification of channel clusters. Transmitters coming from approximately the same direction will have similar colors, matching the colors in the outer ring of the radar plot.</p> <p>Magnetic north readings are also provided for easy compass pointing. When using a compass for orientation, the "North" end of the needle should point to the red colored "N" on the radar plot. You can use the magnetic north azimuth values (in parentheses) to aim your antenna via compass.</p>

The most important number to pay attention to is the Noise Margin, in the "NM(dB)" column, for each of your local channels. These values tell you if you are above or below the detection threshold for each station and by how much. Since these values represent the amount of signal "in the air" at your location, you need to have enough margin to account for building penetration, cable loss, splitters, tuner sensitivity, and other factors specific to your setup. If you take the initial NM value for a given channel, add your antenna gain, subtract all the other system losses, and still end up with a value above 0, then you should be able to detect that channel.

Another way to think about Noise Margin is that it's the total amount of noise or signal degradation that you can endure before the signal drops into an unusable state. Things like building penetration, cable loss, and splitters are just a few examples of things that might eat away at your available Noise Margin. If the Noise Margin ends up below zero after accounting for all the losses in your setup, then the channel is probably no longer watchable.

Antenna gain is the only quantity that should ever be ADDED to the NM value. Most antennas will specify their gain in dBd or simply dB, and this is the value that should be used. If an antenna's gain is specified in dBi units, then you need to subtract 2.15 in order to get the equivalent value in dBd units. If an antenna has a built-in amp, the extra gain from the amp SHOULD NOT be included as part of the antenna gain (this actually subtracts from the Noise Margin as we'll see next). Only the raw intrinsic gain of the physical antenna should be added to the Noise Margin.

Be aware that amps and pre-amps will actually cause you to lower your Noise Margin. No matter how much gain an amp or pre-amp claims, it will

actually reduce your Noise Margin by the amount listed as the Noise Figure (NF) in its specs. High quality consumer-grade amps usually have a Noise Figure of around 2-3 dB. Lower quality amps or ones that do not specify a noise figure at all will probably have a Noise Figure of around 6-10 dB. This is true for both stand-alone amps as well as antennas with built-in amps. This Noise Margin degradation is caused by limited efficiency of the electronics at the input of the amp prior to the signal being boosted. The primary benefit of the amp is to overcome further NM degradation from "downstream" losses (e.g., long cable runs, splitters, tuners with poor sensitivity, etc.). In other words, you suffer the amp's Noise Figure degradation once, and can usually ignore most of the other losses that occur after it.

The green, yellow, and red color coding is provided as an easy way to estimate your chance of success based on what other people typically achieve. In approximate terms, these ranges are broken down as follows:

Green (indoor) corresponds to channels with an NM of about 35 or higher. This is typical NM needed to deal with building penetration losses, poor gain of a small form-factor antenna, limited sensitivity of the TV's tuner, plus significant padding to handle random signal degradation (e.g., people walking by, severe multipath, interference, etc.).

Yellow (attic) corresponds to channels with an NM of about 15 or higher. An attic installation usually consists of a slightly larger antenna and possibly a pre-amp to overcome any cable or splitter losses that follow. With higher antenna gain, less building penetration, and generally lower signal degradation, an attic installation will have a better chance of pulling in those slightly weaker stations.

Red (outdoor) corresponds to channels with an NM of about -5 or higher. With an antenna on a mast or on the roof, there will be fewer instances of signal degradation / multipath and there will be no building loss at all. It is actually possible to use a very high gain antenna to pull in a channel with a negative initial NM value and raise it a usable level. For the weakest channels, it is important to use a high quality pre-amp so that cable losses and other components don't rob you of the precious NM gain from the antenna.

NOTE 1: If you are going to compute the detailed gains and losses of your RF signal path, please remember to leave yourself several dB of spare NM as a buffer against random signal degradation. Although it is theoretically possible to get a channel at 0 dB NM, this would probably result in a very unpleasant viewing experience because random signal fluctuations will probably cause the signal to dip below the threshold quite often and result in drop-outs, macro-blocking, or other artifacts. A pad of 5 to 10 dB will usually clean things up.

NOTE 2: If you live very close to some transmitters, you might see a few of the values in the "Pwr(dBm)" column highlighted in red if power levels get a bit high. This is a warning that such high power levels might be enough to cause overload problems on some amps and receivers if you're not careful.

What are co-channel and adjacent channel warnings?

Co-channel interference is when two different transmitters are broadcasting on the same channel and interfere with each other. In the U.S., thousands of broadcasters are sharing channels 2 through 69, so naturally, each channel must be shared by multiple broadcasters. When the FCC assigns channels to broadcasters, it tries to keep same-channel broadcasters as far apart from each other as possible to minimize interference. Even so, there are many areas that are "in between" broadcasts on the same channel. Depending on the severity of the interference, the direction of the transmitters, and the type of antenna being used, the end-

user might see both, one, or neither of the channels in places where two channels collide. The co-channel warning indicator is placed next to channels in the table that are potentially at risk of having a co-channel interference problems. It does not mean that you will necessarily have problems, but it's just something to watch out for.

Adjacent channel interference has more to do with your receiver. Some tuners are built with very poor adjacent channel rejection. That means that if you are trying to watch a weak channel with a very strong signal on an adjacent channel, the tuner can't pick out the weaker channel because the strong one is drowning it out. This type of scenario might occur if you happen to live right next to a TV transmitter. Channels from the nearby transmitter will be much stronger than channels from distant transmitters, and the difference might be enough to prevent you from receiving those channels that happen to have strong channel neighbors. Most receivers have good adjacent channel rejection and are not very susceptible to this kind of problem, but in case you do have this problem, a warning indicator is placed next to channels at risk of having this kind of interference.

What is shown on the radar plot?

This is called a "radar" plot because of its strong resemblance to a standard radar (radio detection and ranging) display. Your coordinates are represented by the point at the center of the plot. The bars show the direction, signal strength, and channel number of the local TV signals in a compact visual way. If you enter a different location, the directions and lengths of the bars would change to show the conditions at that point.

The bars "originate" at the outer edge of the plot like they are reaching over the horizon. Each bar on the plot represents a transmitter's output. Longer bars represent stronger signals reaching your location. The direction of each bar represents the direction of the transmitter relative to your location. The number next to each bar is the broadcast channel number for that station. Note that the virtual channel number for digital channels are unimportant when choosing and aiming antennas.

Some of the bars are also drawn thicker and with a yellow outline. This is done to distinguish channels that are in the VHF band as opposed to the UHF band. Since UHF channels and VHF channels require different types of antennas for proper reception, it is important to know which type(s) of antenna(s) you need to use and where to point them.

Can I use this to aim my antenna?

Yes. If you are using an indoor antenna, this report will help identify which side of your home is facing the transmitters. Larger antennas, especially those installed in the attic or outside, need to be aimed more accurately for best reception. This report can tell you the precise direction of each transmitter relative to your location.

The top of the radar plot points due north, exactly as you'd see it on a map. If this plot was placed over a map of your location and properly aligned to north, then each of the bars would point directly at the transmitters they represent. The exact direction for each transmitter is also listed under the azimuth column on the table. Azimuth is measured starting

with 0° pointing due north and increasing in a clock-wise direction until reaching 360° at north again. In other words, north is 0°, east is 90°, south is 180°, west is 270°, and you end up back at north when you reach 360°.

Note: This plot (and maps in general) are referenced to true north, however, most people would use a compass to find their orientation. Depending on your location, there can be a difference of several degrees between true north and magnetic (compass) north. A red "N" is drawn on the plot to indicate the direction of magnetic north. If you are using a compass to orient yourself, the compass needle will be pointed toward this "N" and you can see where the transmitters are located relative to that.

The exact azimuth values relative to magnetic north are also provided in the table of transmitters. For more information about the Earth's magnetic field, see the <http://www.ngdc.noaa.gov/> web site.

What is shown in the graph along the bottom?

This is a "power spectrum" graph showing the relative signal strengths of each of the stations in their respective channel slots. This is a quick way to tell how many channels are in the VHF / UHF bands and can also help visualize some of the co-channel and adjacent channel interference issues. Each short horizontal bar represents the predicted signal strength of a broadcaster at your location. Each bar is labeled with the call sign of the station that is broadcasting.

Some of the markers might be drawn in a semi-transparent color. This is an indication that the station being represented might be buried by another transmitter due to co-channel interference.

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The Analysis of the Airplane Flutter on Low Band Television Broadcasting Signal

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Abstract:

The paper studies effect of quasi-periodic or airplane flutter phenomenon on television broadcasting signal. Airplane flutter is a very important problem. It causes the receiving antenna to receive both direct signal by the Tx (Transmitter antenna) and reflected signal scattered by the airplane with phase delay. The sum of two signals results in fading, sometime collapse and distortion of picture on TV screen. We performed measurement and modeling this phenomenon on TV signal when the airplane flew across and range Tx and Rx (Receiver antenna).

The frequency 60.75MHz (Aural frequency of CH3) is used under tests. A single scatter multipath model is introduced. It is used to duplicate some of the measured data and show the dependence of power variation on the airplane fluttering. The fluctuation of the airplane flutter phenomenon was calculated to be around 2-4dB. The Yaki antenna is used for improving airplane flutter problem because it can make high gain and high directivity.

Keywords: Airplane flutter, Quasi-periodic, Interference on TV signal.

I. INTRODUCTION:

The interference occurred on television broadcasting system when the airplane flies over the path between TV transmitter and TV receiver. This is called "airplane flutter" problem.

This phenomenon is caused by multipath of signal, when both direct and reflected signals arrive at the Rx antenna at different time. It's difference from multipath caused by reflected signal from the buidings. The airplane movement causes scattering angle change at all time. The phase differences between direct and reflected signals make great fluctuations in receiving signal power. The phenomenon occurs in both VHF and UHF frequency [1] [2] as we can observed in the place near the airport.

The measurement and simulation of airplane flutter in Thailand when the airplane flies across Tx

and Rx was reported [2][3]. Stacker antennas were used to solve this problem near an airport in Japan [7] [8][9] because it receives less vertical signal than other antennas since reflected signal by airplane is usually received in upper direction. There are reports of the propagation of UHF and L-band from balloon to mobile van moving along the ground [4]. The simulation of multipath fading for analog and digital television transmission in broadcasting channel was reported [5]. This result shows changes in phase delay, adding a variable Doppler shift to the multipath signal. This can particularly damage digital systems, when delay spread cause blocks of data to overlap, and result in inter-symbol-interference. In analog systems, periodic signal cancellation, notches in amplitude across the signal spectrum will occur where a change in delay results in destructive phase addition.

This paper shows the measurements and simulation of signal strength fluctuation caused by airplane when it flies across and range of Tx and Rx antennas, at altitude of airplane about 3000m above ground.

II. EXPERIMENT:

Measurement Setup: The measurement parameters are on Table 1. We performed measurement at Nakornnayok province and KMITL. The CH3 has 60kW output power with 230m of antenna height. At the receiving point we used ANRITSU WI-208 field strength meter with standard dipole 4m above ground.

Table 1. Measurement parameters

CH3 Transmitting antenna height	230m
Output power	60kW
Receiving antenna height (Standard dipole)	4m
CH3 Frequency (Aural freq.)	60.75MHz
Distance from Tx to Rx (KMITL)	45km
Distance from Tx to Rx (Nakornayok province)	120km
Airplane	Boeing747
Airplane's altitude	3000m
Airplane's speed	360km/h
Field strength meter	Anritsu(WI-208)

The field strength of CH3 was recorded when the airplane flew over the observation point. The distance from CH3 Nongkam, Bangkok to KMITL is about 45km. The Boeing747's airplane usually flies across Tx and Rx antennas at altitude about 3000m with speed about 360km/h. At Nakornayok province the airplane flew in range Tx and Rx antennas with same altitude and speed. The Figure 1 shows airplane routes for Nakornayok and KMITL.

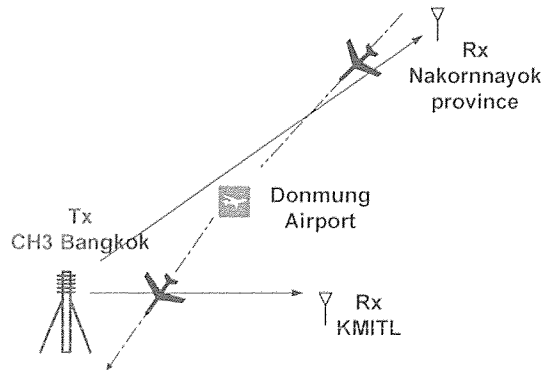


Figure 1. The airplane flew range at Nakornayok measure point and flew across at KMITL measure point.

Measurement Results:

At Nakornayok measure point, as the airplane was preparing to landing at Donmung airport, it moved past Rx antenna in the range of Tx and Rx antennas. The signals from Tx antenna arrive at the Rx antenna in two paths. First, direct signals that can receive about 20dBuV/m and second, reflected signal scattered by the airplane when it flew past the Rx antenna. The maximum of signal strength was around 2dB with about 30 seconds duration time.

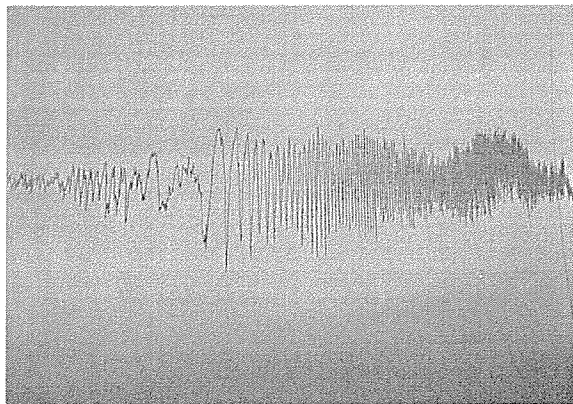


Figure 2. Signal strength and fluctuation at Nakornayok province. The maximum signal fluctuation was 2dB and duration time was about 30sec.

At KMITL measure point, the airplane took off from Donmung airport and flew across the Tx and Rx with speed of 360km/h and altitude about 3000m. The direct signal can receive about 40dBuV/m. The reflected signal scattered by airplane when the airplane moving past it can make signal strength fluctuate maximum around 4dB and the duration time 20sec. The duration time is shorter than at Nakornayok province. Fig.3 shows the airplane flutter pattern at KMITL. The airplane was at altitude 3000m and speed 360km/h.

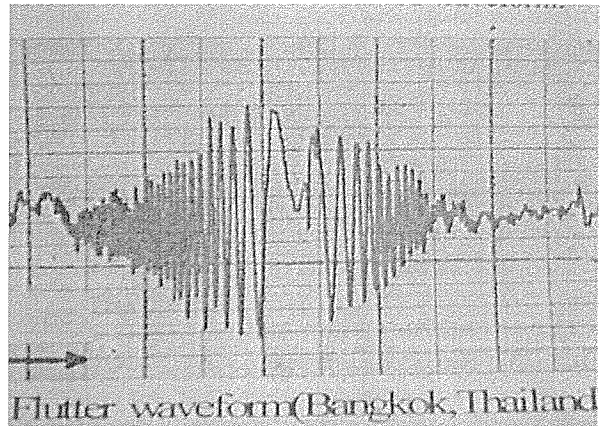


Figure 3. The airplane flutter pattern was received at KMITL. The maximum signal fluctuation was 4dB.

Bistatic Radar Equation:

Bistatic radar Equation is used for bistatic target RCS, denote by σ_B . It is used for accurate prediction scatter of signal strengths. The radar cross section (RCS) of a scattering object is defined as the ratio of the power density of the signal scattered in the direction of the receiver to the power density of the radio wave incident upon the scattering object. We assume that the bodies of aircraft equal ellipsoid for easier calculation and one widely accepted approximation for the ellipsoid back scattered RCS is given in Equation (1) by [6].

$$\sigma = \frac{\pi b^4 c^2}{(a^2 (\sin \alpha)^2 + c^2 (\cos \alpha)^2)^2} \quad (1)$$

σ = Radar cross section scattering (m^2)

a and b = ellipsoid width (m)

c = ellipsoid length (m)

α = The scattering angle (m)

Range, Cross range and Doppler shift of the airplane:

Airplane moving into the direction between Tx and Rx antenna as at the Nakornayok province is called "range pattern" shown in Fig. 4.

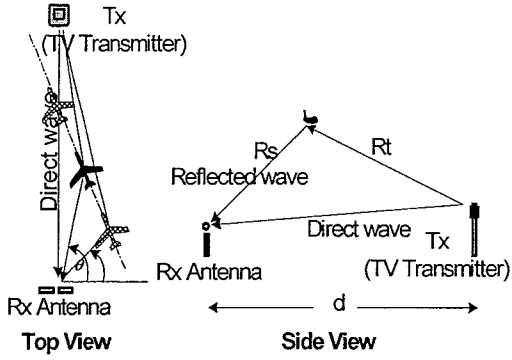


Figure 4. The airplane moved into the direction of Rx and Tx antennas at Nakornayok measure point, it is called “range pattern”.

Consider an airplane moving at a constant velocity V_{air} , along a path segment having length d between point Tx and Rx, it reflected signals from Tx as illustrated in Fig. 4. The airplane has very slant angle; the θ angle can vary from $0-180^\circ$ when it moved past Rx antenna and toward the Tx antenna. The phase change in the received signal due differences in path length and apparent change in frequency or “Doppler shift”, is given by f_d [6], as in Equation (2).

$$f_d = \frac{V_{air}}{\lambda} \cdot (\pm) \cos \theta \quad (2)$$

where

θ = Angle between airplane and arrival of the wave to Rx antenna (degree)

V_{air} = velocity of airplane (m/h)

λ = Wave length (m)

Equation (2) relates the Doppler shift to the airplane velocity and the spatial angle between the direction of airplane and the direction of the arrival of the wave to Rx antenna. As can be seen from equation (2) that if the airplane moves toward the direction of the arrival of wave to Rx antenna. The Doppler shift will be positive, the (+) plus sign (i.e., the apparent received frequency increased when $\theta = 0$ to 90 degrees) and if the airplane moves away from the direction of arrival of the wave to Rx antenna. The Doppler shift will be negative, (-) the minus sign (i.e., the apparent received frequency is decreased when $\theta = 90$ to 180 degrees).

The case of at KMITL is the “cross range pattern” is occurred when the airplane moved across between Tx and Rx antenna in Fig.5. In this case, the airplane moved in the direction perpendicular to the direction of arrival of the transmitted signals. The θ can vary from $0-180$ degrees. The Doppler shifts also occurred in this case.

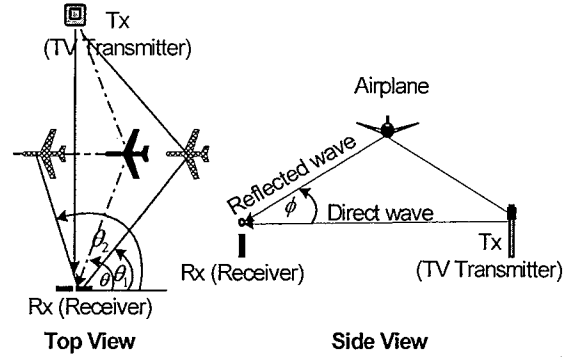


Figure 5. The airplane moved across Tx and Rx antennas at KMITL measure point. The θ can vary from 0 to 180 degrees and assume ϕ is nearly constant.

In this case θ vary from $0-180$ degrees. The θ_1 vary from 0 to 90 degrees the frequency decreased when the airplane moved toward the line-of-sight between Tx and Rx antennas, the (+) plus sign in Eq. (2). The θ_2 vary from 90 to 180 degrees the frequency increased when the airplane moved far away from the line-of-sight, (-) minus sign in Eq. (2).

Figure 6 shows Doppler shift frequency versus θ angle from 0 to 180 degrees respect the direction of the arrival of the wave to the Rx antenna. When the airplane make 0 and 180 degrees of θ angle. The Doppler shift frequency (f_d) is maximum at around 20 Hz; the Doppler shift is 0 Hz when the airplane makes θ angle at 90 degree.

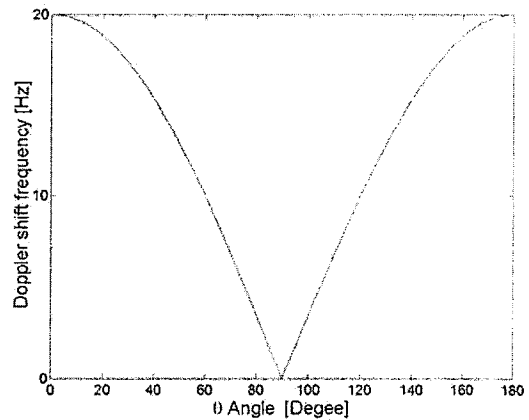


Figure 6. Doppler shift frequency vs θ angle of airplane respect the direction of the arrival of the wave to the Rx antenna from 0 to 180 degrees.

III. SIMULATION:

Airplane flutter behavior can be described by a simple multipath scattering. The model has been formulated with the objective of increasing the

understanding of some of the measured signal behavior and also for predicting effects for which no experiments have yet been carried out.

The Rx antenna can receive both direct and reflected waves scattered by airplane. That is the vector sum of two waves constituting the received signal. Fig. 7 is for simplicity of the numerical evaluation of the model modify from [4], the assumptions are that 1) there is only 1 scatter, 2) RCS of the airplane is based on ellipsoid, and 3) the receiving antenna is standard dipole.

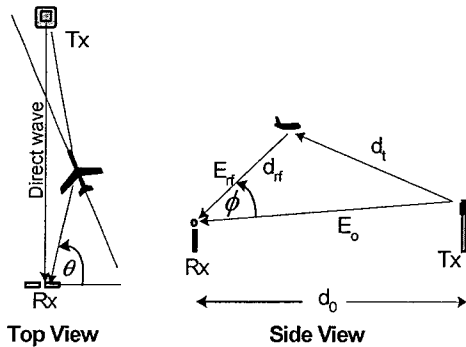


Figure 7. The geometry used for the derivation of a simple single scatter model of the airplane flutter.

It is then easy to derive the formula for the received electric field strength E_r as Equation (3).

$$E_r = E_0 + \frac{1}{D_r} \cdot \sigma \cdot e^{(j\omega_0 t - \beta)} \cdot e^{[j\frac{V_a}{\lambda}(\cos\phi + \theta)]} \quad (3)$$

Where

E_0 = line of sight field strength

$$= \frac{\sqrt{30 P_o D_t}}{d_o}$$

P_o = the power radiate by the transmitting antenna

D_t = directivity gain of transmitting antenna

D_r = directivity gain of receiving antenna (dipole)

$$= \frac{\cos\left(\frac{\pi}{2} \cos\phi\right)}{\sin\phi}$$

$\omega_0 = 2\pi f$

β = phase shift

$$= \frac{2\pi}{\lambda}$$

σ = bistatic radar cross section (m^2)

λ = wave length (m)

V_a = velocity of airplane (m/sec)

d_0 = path length between Tx and Rx antennas (m)

The results from both actual measurement and the model are similar, data measured on Fig.2 at Nakornnayok and Fig.3 at KMITL compared to the simulation results Fig. 8 and 9 respectively.

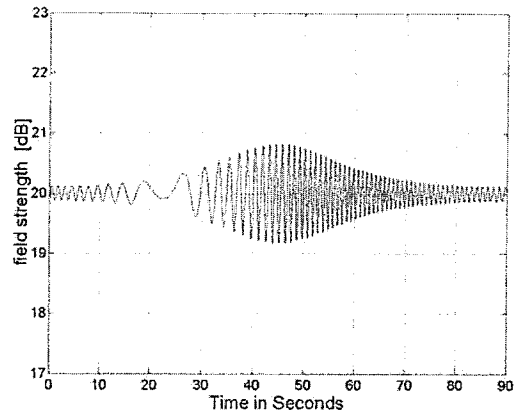


Figure 8. Simulation of airplane flutter at Nakornnayok province. Airplane moving range from Tx to Rx antennas.

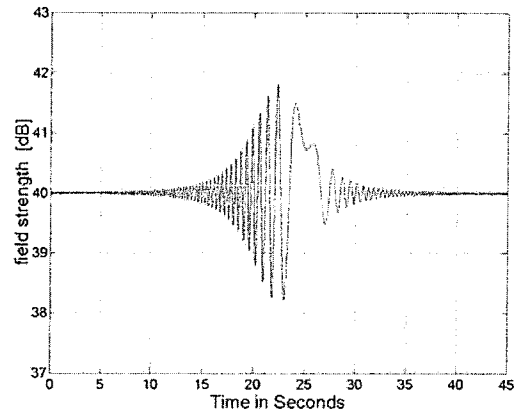


Figure 9. Simulation of airplane flutter at KMITL. The airplane moved cross between Tx and Rx antennas.

At Nakornnayok, The model predicted high frequency fluctuation before the airplane past Rx and low frequency fluctuation after that. The maximum fluctuation was 2dB and duration time was 30sec. At KMITL measure point, the model shows double Doppler shift when the airplane moved forward and far away from the line of sight as it make a θ_1 and θ_2 reference to the line of sight, the maximum fluctuation was 4dB and duration time was 20sec.

IV. DISCUSSION:

The fluctuation of signal strength is due to phase differences between direct and reflected waves. There are sum and subtract of signal vectors due to the airplane movement. It also changes reflected angle. Thus the signal level is changed at all time. The speed of the airplane, reflected angle and Doppler shift on reflected wave are results in change of frequency modulation. Doppler shift will be positive or negative depends on whether the airplane moved toward or away from the Rx station. The strength of fluctuation depends on the altitude of the airplane, the distance

between Tx to Rx antennas, the angle and distance between Rx to airplane. The duration time depends on the direction of the airplane. The long duration time will occur when the airplane moves in range of Tx and Rx.

Problem Improvement:

The gain and directivity offered by an array of elements represent a worthwhile improvement both in transmitting and receiving. For the receiving antenna, the directivity reduces the strength of signals coming from the directions not favored, and so helps discriminate against a good deal of interference.

The Yagi antenna is used for improving the airplane flutter problem because it high directivity and high gain. Several independent investigations of the properties of multi-element Yagi antennas have shown that the gain of the antenna expressed as a power ratio is proportional to the length of the array, provided the number, lengths and spacing of the elements are chosen properly.

The directivity D of antenna is given by the ratio of the maximum power density to its average value over a sphere. By Karus [11] to allow an approximate calculation of gain in Eq(4):

$$D = \frac{41,000}{\theta_{HP}^\circ * \phi_{HP}^\circ} \tag{4}$$

D = approximate directivity (dimensionless)

θ_{HP}° = half power beam width in one principal plane, deg

ϕ_{HP}° = half power beam width in other principle plane, deg

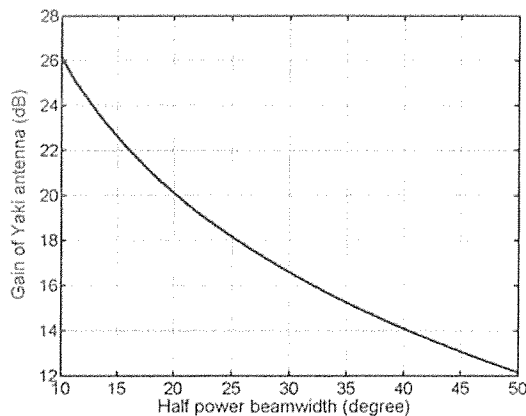


Figure 10. Gain in decibels over isotropic as a function of the half power beam width in the Yagi antenna.

The results of calculation are shown in terms of the half power beam-width (HPBW), Figs 10. In this case the antenna consists of a driven element, one reflector and series of directors properly spaced and tuned.

Thus, If the antenna is to have a gain of 18dB Fig 10 shows that the 25 degree of half power beam-width

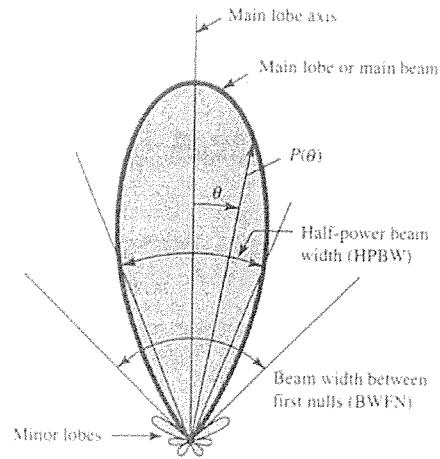


Figure 11. The half power beam width of Yagi antenna

The field pattern can present in polar coordinates, and, to show the minor lobes in more detail. If the pattern is symmetrical, the three-dimensional pattern is a figure of revolution of Fig.11 around the main-lobe axis similar to the pattern in Fig. 12.

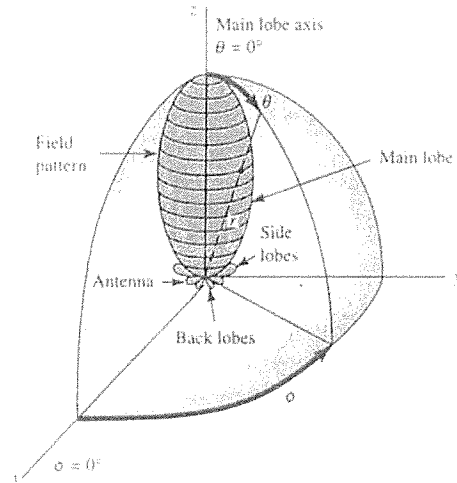


Figure 12. The antenna field pattern width coordinate system.

V. CONCLUSIONS:

This paper studies the signal fluctuation by airplane scattering signals to Rx antenna. The paper discussed one way of measuring and simulation of some patterns of airplane flutter. The different locations and directions of Boeing747 airplane are under tests. At Nakornnayok measure point the maximum signal fluctuation is around 2dB and duration time of 30 seconds. It has lower fluctuation but longer duration time than at KMITL due to

distance between Tx antenna and the airplane, and its movement in range of Tx and Rx. The model is based on multipath scattering. It has been formulated to duplicate some measured data.

From the experiment results, the interference at KMITL was higher than at Nakornayok but with shorter duration time. The difference of the effect between the places is due to flying pattern of the airplane. This problem can be improved by using the high gain or high directivity antenna because it can reduce the interference signal scattered by the airplane.

VI. REFERENCES

- [1] N. Leerarui and N. Heammakorn, H. Sakurada and Y. Moriya, "*The Quasi Periodic Phenomenon on Wireless Communication*,"
- [2] K. Takagi, Y. Moriya, H. Sakurada and N. Leelarui, "*Simulation of Quasi Periodic Fluctuation Caused by Aircraft Scattering Phenomenon*," Proc. of ISAP2000. pp.1023-1026. 2000.
- [3] K. Takagi, N. Leelarui, N. Hemmakorn, H. Sakurada and Y. Moriya, "*Simulation and Application of Quasi Periodic Fluctuation Caused by Aircraft Scattering Phenomenon*," 2000 Asia-Pacific Symp. on Broadcast. and Commu. (APSBC'2000), KMITL, Thailand, pp.186-191, Dec. 21-23, 2000.
- [4] W.J. Vogel and U. S. Hong, "*Measurement and Modeling of Land Mobile Satellite Propagation at UHF and L-band*," IEEE antenna and propagation trans., vol.36, no.5, pp.707-719, May 1988.
- [5] M. L. Bucher, "*Simulation of Multipath Fading/Ghosting for Analog and Digital Television Transmission in Broadcast Channels*," IEEE broadcast. trans., vol.38, no.4, pp.256-262, Dec 1992.
- [6] Bassem R. Mahafza, "*Radar Systems Analysis and Design Using MATLAB*," Chapman & Hall/CRC, 2000.
- [7] J. I. Glaser, "*Bistatic RCS of Complex Objects Near Forward Scatter*," IEEE aerospace and electronic trans., vol.AES-21, no.1, Jan 1985.
- [8] Ito and Ohta, "*Estimation of Fluttering of Field Intensity Caused by Aircraft and its Disturbance to Television Reception*," ITE Journal, vol.40, no.9, pp, 899-905, 1986.
- [9] Nishihara, Endo, Hidaka and Takahashi, "*Investigation and Countermeasures for TV Reception Interference by Aircraft*," IEICE Technical Report EMCJ97-8.
- [10] H. Miyazawa, "*Evaluation and Measurement of Airplane Flutter Interference*," IEEE Transactions on Broadcasting, vol.35, no.4, pp. 362-367, Dec. 1989.
- [11] Kraus and Fleisch, "*Electromagnetic with applications*," McGraw-Hill, 1999.



Federal Communications Commission

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Interference with Radio, TV and Telephone Signals

Interference occurs when unwanted radio frequency signals disrupt your use of your television, radio or cordless telephone. Interference may prevent reception altogether, may cause only a temporary loss of a signal or may affect the quality of the sound or picture produced by your equipment. The two most common causes of interference are transmitters and electrical equipment.

Transmitter interference

Communication systems that transmit signals capable of generating interference include amateur radios, CBs and radio and television stations.

Design flaws such as insufficient filtering and inadequate shielding or frayed or corroded wires may make equipment susceptible to transmitter interference.

To determine whether the interference is caused by a transmitter or electrical equipment, unplug one household electronic component at a time to see if you can isolate any electrical interference source.

If your equipment is reacting to nearby transmitters such as an amateur radio or CB, you will have interference only when the radio operator is talking and you will be able to hear only half of the conversation. If this is the case, you may be able to verify the interference source if you see an antenna mounted on a nearby house or car.

Cordless telephones use radio frequencies and have no protection from interference. If you are experiencing interference on your cordless phone, you should contact the equipment manufacturer for assistance.

Electrical interference and your TV

Electrical interference appears on the audio and video portion of television programming. Short bursts of interference may be caused by hair dryers, sewing machines, electric drills, doorbell transformers and garage door openers. If the pattern is on continuously, it may be caused by equipment that is in use full time, such as aquarium heaters and fluorescent lighting.

Electrical interference may be caused by power lines or electrical equipment in your home. Interference caused by your power company's electrical equipment is normally continuous and your power company should be notified.

A simple method of determining the location of electrical interference is by using a portable AM radio tuned to a quiet frequency at the lower end of the dial. You should hear static or a buzzing sound as you get close to the source of the interference. The closer you get, the more intense the static will be.

If you cannot locate the interference source in your own house, check with your neighbors to see if they also experience interference. The source may be in their home.

If you cannot determine the source of the electrical interference, contact the customer service department of your local power company. Most power companies will investigate the problem and take steps to correct it.

Filing a complaint

The FCC has established rules to reduce interference. You have multiple options for filing a complaint with the FCC:

- File a complaint online
- By phone: 1-888-CALL-FCC (1-888-225-5322); TTY: 1-888-TELL-FCC (1-888-835-5322)
- By mail (please include include your name, address, contact information and as much detail about your complaint as possible):

Federal Communications Commission
Consumer and Governmental Affairs Bureau
Consumer Inquiries and Complaints Division

445 12th Street, S.W.
Washington, DC 20554

Accessible formats

To request this article in an accessible format - braille, large print, Word or text document or audio - write or call us at the address or phone number above, or send an email to fcc504@fcc.gov

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[Interference with Radio, TV and Telephone Signals \(pdf\)](#)

Updated: December 31, 2014

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Phone: 1-888-225-5322
TTY: 1-888-835-5322
Videophone: 1-844-432-2275
Fax: 1-866-418-0232
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Privacy Policy	FCC Digital Strategy
Moderation Policy	Open Government Directive
Website Policies & Notices	Plain Writing Act
Required Browser & Plug-ins	2009 Recovery and Reinvestment Act
FOIA	RSS Feeds & Email Updates
No Fear Act Data	Disability Rights

Dear Council Members,

Thank you for your service and the opportunity to speak today. My name is Rhonda Waggoner. I've lived on the Upper West Side for almost 40 years - my home is now a bunker in a war zone that offers little refuge from the thunderous roar and shaking vibrations caused by helicopter tours that start shortly after 9am and continue until darkness.

The great thing about this painfully obvious nightmare is that you don't have to take my word for it, or read multiple studies linking noise to stress-related illnesses. Simply go outside and walk to the Hudson River to witness multiple (7-10) helicopter tours in the air simultaneously, and to hear the astonishing disturbance that destroys wellbeing, obliterates conversation and tranquil sounds of nature (birdsong, leaves rustling, etc), and creates a continuous disruption that lasts up to 12 torturous hours!

Please act to end the needless suffering caused by helicopter tours. We will never get back the lost days huddled in our homes, or fully recover from damages to our health, but we can finally stop this nonsense, and begin to heal.

Respectfully yours,

Rhonda J. Waggoner

* located at the epicenter of
helicopter tours turning at
79th Street.



United States Department of the Interior

NATIONAL PARK SERVICE
Governors Island National Monument
10 South Street
New York, New York 10004-1921

IN REPLY REFER TO:

A3815 (GOIS)

November 17, 2015

Mr. Costa G. Constantinides, Chair
The New York City Council
Committee on Environmental Protection
City Hall
New York, NY 10007

Dear Chairman Constantinides:

I appreciate this opportunity to inform you about the impacts of sightseeing helicopters. The National Park Service (NPS) administers a network of sites consisting of 10 national parks and 22 locations in New York City and northern New Jersey. One of these sites, Governors Island National Monument, is located in the northern section of Governors Island and is included within the National Historic Landmark District (NHL) and the Landmarks Preservation Commission Historic District. The Monument was established to preserve and protect Castle Williams and Fort Jay, both of which are on the National Register of Historic Places, and to interpret them and their role in the defense of New York Harbor and the nation. The purpose is also to educate the public about the evolution of coastal defense and military communities, the harbor's rich history and ecology, and reflect upon the tragic events of September 11, 2001.

The impact of sightseeing helicopters has been an issue of concern for the NPS, especially following the closure of the mid-town heliport in 2010. This issue has been raised in previous statements to the Committee on Waterfronts during updates about Governors Island (May 21, 2014, February 25, 2013, November 30, 2011, and December 17, 2010). We are pleased to see that the City Council is now addressing this very important matter.

NPS has specific management policies that mandate the protection and restoration of important park resources, including natural and cultural soundscapes. In the 2006 NPS Management Policies, 5.3.1.7 Cultural Soundscapes Management states:

Culturally appropriate sounds are important elements of the national park experience ... The Service will prevent inappropriate or excessive types and levels of sound (noise) from unacceptably impacting the ability of the soundscape to transmit the cultural and historic resource sounds associated with park purposes.

The National Historic Preservation Act provides further guidance and authority for the agencies with respect to historic property such as the Statue (36 CFR 800.5 (a)(1)):

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

One of the compelling qualities of Governors Island is its relative isolation from the daily bustle of the surrounding boroughs. That said, while the din of the City is an expected component of the Island's soundscape, the noise from over 47,000 annual commercial air tour overflights, in addition to commuter and other helicopter flights, is a significant intrusion into the visitor experience at the Monument as well as the rest of Governors Island. Although charted routes are not supposed to pass directly over the Monument, a significant number of helicopter flights fly overhead and cause significant disruptions of outdoor activities and NPS interpretive services.

In 2014, flight observations on Governors Island revealed flights of one every two minutes or less on many Fridays and weekends. There were several instances where multiple helicopters took off within 30 seconds of one another. On at least one occasion there were 20 flight deviations within one hour where helicopters flew directly over the Island. Several of these flight deviations were so frequent that multiple deviations occurred within one minute. This is not an exaggeration. I can personally attest to the impact and frequency having stood on the parade grounds of Fort Jay during our Civil War living history programs, the rooftop of Castle Williams on numerous group tours, the moat of Fort Jay with all of the incoming 9th graders from the Stephen T. Mather High School for Building Arts and Landscape Management this past August 24th, and on the Fort Jay courtyard for the Day of Service volunteer event this past September 11th. Teachers had to stop numerous times during their program because it was impossible for the students to hear the instructions and be heard during the activities; living history specialists had to pause repeatedly during their programs for the public; and the address to volunteers was overshadowed by the backdrop of helicopter flights. These are just some of the instances where visitors, partners, students, and volunteers were impacted by the noise from the sightseeing helicopters.

These intrusions also impact special events and permitted activities such as art, music, and exhibit installations. Our ability to present interpretive programs and fulfill the NPS mission is severely compromised due to these air tours. Guided and self-guided tours of Fort Jay, Castle Williams, and the NHL are central to the visitor experience. NPS staff and volunteers have to interrupt programs repeatedly while air tours pass overhead because they cannot be heard by the visitors. When visitors reach the rooftop of Castle Williams ready to take in the outstanding view of New York Harbor and see the story of coastal defense unfold before them, they cannot believe the level of noise and frequency of the helicopters. When helicopters fly overhead, sound levels on the rooftop increase 10-20 decibels over ambient levels with peak levels as high as 79 to 85 decibels based on sound level measurements taken by our staff in 2014 and 2015. These sound levels exceed the Environmental Protection Agency's speech interference threshold of 52 decibels for speaking in a raised voice to an audience at 10 meters, which is representative of the types of programs conducted by NPS staff. Visitors have expressed their dissatisfaction and

frustration to me, park staff, and on the Monument's Visitor Survey Card, which is distributed in July for visitor feedback.

We commend the New York City Council for addressing this important issue and hope that your proceedings result in remedying this situation. Continuation of these impacts threatens the future of Governors Island as a unique recreational, interpretive, educational, and artistic venue for the country and the residents of New York City.

Sincerely,

Patti Reilly
Superintendent
Governors Island National Monument

**THE COUNCIL
THE CITY OF NEW YORK**

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I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

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Name: Ray Adams

Address: _____

I represent: private citizen

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Hon Anne Simon

Address: 341 Smith St

I represent: NYS Assembly, 52nd AD

Address: _____

**THE COUNCIL
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Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

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Date: _____

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Name: Daniel Wiley

Address: _____

I represent: Congresswoman Velázquez

Address: 16 Court St B NY 11241

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**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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Date: 11/12/15

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Name: Susan Chin

Address: 125 Barclay Street NY NY 10007

I represent: Political Action, DC37

Address: _____

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THE CITY OF NEW YORK**

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I intend to appear and speak on Int. No. 0859 Res. No. _____

in favor in opposition

Date: 11-12-15

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Name: Susan Doolia

Address: 841 BROADWAY #301 NY 10003

I represent: Center for Independence of the Disabled

Address: see above

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Mike Campbell

Address: 248 Snydan Rd,

I represent: New York Helicopter

Address: Pier 6, Downtown Manhattan

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THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Congressman Nadler

Address: _____

I represent: _____

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: _____

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Name: DALY

Address: 25th Ave

I represent: SD 26

Address: Lower Manhattan 15K

**THE COUNCIL
THE CITY OF NEW YORK**

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Date: 11/12/15

(PLEASE PRINT)

Name: Norm Sutaric

Address: 23-30 32 St Astoria 1109

I represent: Myself

Address: _____

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**THE COUNCIL
THE CITY OF NEW YORK**

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in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: James Cohen

Address: 35 W. 83 St, NY NY 10024

I represent: _____

Address: _____

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Appearance Card

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in favor in opposition

Date: _____

(PLEASE PRINT)

Name: JAMES KATZ

Address: CHIEF OF STAFF

I represent: NEW YORK CITY ECONOMIC DEVELOPMENT

Address: 110 WILLIAM STREET NYC CORPORATION

**THE COUNCIL
THE CITY OF NEW YORK**

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in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: David Hopkins

Address: 3 Peter Cooper Rd. #4-A NY, NY 10010

I represent: NYCEDC

Address: 110 William St. NY, NY 10038

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Name: Manhattan BP Gale A. Brewer

Address: 7 Centre St., 19th FL. South

I represent: _____

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: JESSICA WALKER

Address: _____

I represent: PARTNERSHIP FOR NEW YORK CITY

Address: One Battery Park Plaza NY, NY

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Michells Ketter 1st Vice Pres

Address: 169 Borefield Blvd.

I represent: DC37 / CIVIL SERVICE TECHNICAL

Address: 125 Barclay St NY GUILD LOCAL 375

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THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858 Res. No. 859

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: PETER BRAY
Address: 55 PIERREPONT ST, BROOKLYN, NY 11201
I represent: BROOKLYN HEIGHTS ASSOC.
Address: 55 PIERREPONT ST, BKLYN, NY 11201

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858-2015 Res. No. 859-2015

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Klari Newell
Address: 330 W 72nd St NY NY 10023
I represent: Community Board 7/Manhattan
Address: 250 W 87th St NY, NY

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 0858/15 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Luz Fleura
Address: 604 W. 162nd St. NY NY 10032
I represent: Liberty Helicopters
Address: 424 W. 33rd St. NY NY 10001

THE COUNCIL
THE CITY OF NEW YORK

Same Panel
(A)

Appearance Card



I intend to appear and speak on Int. No. _____ Res. No. _____

Helicopters in favor in opposition

Date: Nov. 12, 2015

(PLEASE PRINT)
Name: Catherine McVay Hughes

Address: CBH

I represent: 1 Centre Street

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Same Panel
(A)

Appearance Card



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HELICOPTERS in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: PATRICK KENNEL

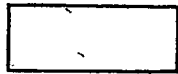
Address: 80 JOHN ST APT 5I 10038

I represent: _____

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card



I intend to appear and speak on Int. No. 8581859 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: MARISA DE DOMINICIS

Address: 179 RIVINGTON ST 4A

I represent: EARTH MATTER NY GOVERNORS ISLAND

Address: 10 SOUTH STREET SLIP 7

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 0858/59 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: ROBERT CROTELL
Address: 690 MAIN ST PONT JEFFERSON NJ
I represent: EASTERN REGION HELICOPTER COUNCIL
Address: _____

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THE CITY OF NEW YORK**

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in favor in opposition

Date: _____

(PLEASE PRINT)
Name: Richard Loyd
Address: Brooklyn Bridge Park Conservancy
I represent: _____
Address: _____

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THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 0858/59 Res. No. 2015

in favor in opposition

Date: 11-12-15

(PLEASE PRINT)
Name: JEFFERY SMITH
Address: 71 Inwood Ave (down) 07465
I represent: EASTERN Region Helicopter Council
Address: Summit

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THE CITY OF NEW YORK**

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in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: WARREN SCHREIBER

Address: 13-24 BELL BLVD, BAYSIDE, NY 11361

I represent: QUEENS COMMUNITY BOARD 7

Address: FLUSHING, QUEENS

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: _____

(PLEASE PRINT)

Name: Richard Wortman

Address: 410 Riverside Dr #9

I represent: _____

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858, 859 Res. No. _____

in favor in opposition

Date: Nov. 12, 2015

(PLEASE PRINT)

Name: Chere Campbell

Address: 220 West 29 Street NYC 10011

I represent: _____

Address: _____

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**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: JEFFREY J SMITH

Address: 29 MOIRROO PLACE

I represent: BROOKLYN HEIGHTS LEAGUE/MYSELF

Address: SAME AS ABOVE

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858 Res. No. 859

in favor in opposition

Date: 12 NOV. 2015

(PLEASE PRINT)

Name: ROBERTO GAUTIER

Address: 140 CADMAN PLAZA WEST, 23K
BROOKLYN NY 11201

I represent: MYSELF, NEIGHBORS & FAMILY

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: November 11, 2015

(PLEASE PRINT)

Name: Lauren Cosgrove

Address: 256 West 36th Street - 12th Floor

I represent: National Parks Conservation Association

Address: 256 West 36th Street - 12th Floor

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**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858 + 859 Res. No. 892

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: Vincent Montalbano

Address: 13 Highview Ave. Staten Island

I represent: _____

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: Joseph J Chin

Address: 3 Hanover Square #12 F

I represent: Myself and my family

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: _____

(PLEASE PRINT)
Name: Adrian Benepe

Address: Trust for Public Land

I represent: _____

Address: _____

◆ Please complete this card and return to the Sergeant-at-Arms ◆

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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in favor in opposition

Date: _____

(PLEASE PRINT)
Name: Rhonda Waggoner

Address: _____

I represent: ME / Stop the Cheating

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

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in favor in opposition

Date: _____

(PLEASE PRINT)
Name: Margaret Donlevy

Address: 202 Riverside Drive NYC 10025

I represent: myself + my husband

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. 892

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: Daniel Bronoff

Address: 152-55 11 Ave

I represent: _____

Address: _____

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**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. 892

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: GEORGE MITSOPoulos

Address: 148-17 9th AVENUE, WHITESTONE, NY 11357

I represent: WE LOVE WHITESTONE CIVIC ASSN

Address: P.O. BOX 29, WHITESTONE, NY 11357

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858+859 Res. No. _____

in favor in opposition

Date: _____

(PLEASE PRINT)

Name: JIM HARRINGTON

Address: 6925 47th DR, B'KLYN, N.Y. 11209

I represent: MYSELF

Address: SAME AS ABOVE

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: 11-12-15

(PLEASE PRINT)

Name: MICHAEL ROTH

Address: 6 EAST 110th PLZ S NY 10037

I represent: NEW YORK HELICOPTER

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____
 in favor in opposition

Date: _____

(PLEASE PRINT)

Name: JOE WISNIEWSKI
Address: 2048th ST 4^F WOODHOLM
I represent: STOP THE CHIP
Address: NYC

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

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 in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Beth Holden
Address: 435 CONVENT AVE, NYC 10031
I represent: MYSELF
Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/59 Res. No. 2015
 in favor in opposition

Date: 11-15-2015

(PLEASE PRINT)

Name: DEMOTHEUS MATSIS
Address: 302 WEST 90 ST, NYC, 10024
I represent: SELF
Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

in favor in opposition

Date: _____

(PLEASE PRINT)
Name: Phil Konigsberg
Address: 23-25 Bell Blvd Bay Terrace

I represent: _____

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: Brian Tolbert

Address: _____

I represent: Downtown Manhattan Helipad / Saker Aviation

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)
Name: Chris Vellios

Address: _____

I represent: Liberty Helicopters

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Sam Goldstein

Address: _____

I represent: Helicopter Tourism & Jobs Council

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Ron Ricciardi

Address: _____

I represent: Saker Aviation

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858 Res. No. 859

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: F. Seidenbaum

Address: 19 Christopher St 10014

I represent: myself

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

Name: Marisa DeDominicis (PLEASE PRINT)

Address: _____

I represent: Earth Matters

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

Name: Richard Wortman (PLEASE PRINT)

Address: _____

I represent: UNs resident

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

Name: Rhonda Waggoner (PLEASE PRINT)

Address: _____

I represent: resident

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15.

Name: Patti Rielly (PLEASE PRINT)

Address: _____

I represent: Governors Island National Monument.

Address: Park Services

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15.

Name: Lauren Cosgrove (PLEASE PRINT)

Address: _____

I represent: National Parks Conservation Association

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15.

Name: Margaret Dunlavy (PLEASE PRINT)

Address: _____

I represent: resident

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

Name: Connie Fishman (PLEASE PRINT)

Address: _____

I represent: Governors Island Association

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

Name: Adrian Benepe (PLEASE PRINT)

Address: _____

I represent: Trust For Public Land

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

Name: Daniel Watts (PLEASE PRINT)

Address: _____

I represent: Brooklyn Heights Association

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/21/5.

Name: Murray Fisher (PLEASE PRINT)

Address: _____

I represent: Harbor Foundation

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: _____

Name: Roberto Gaudier (PLEASE PRINT)

Address: _____

I represent: Brooklyn Residents

Address: _____

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: _____

Name: Dr. Kambiz Merati (PLEASE PRINT)

Address: _____

I represent: doctor w/ Stop the Chop.

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15

(PLEASE PRINT)

Name: Dwan Dooka

Address: _____

I represent: Exec. Director, Center for Independence of

Address: the Disabled.

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11-12-15

(PLEASE PRINT)

Name: Sarah Sweeney

Address: 187 Pinehurst Ave. #5J NY NY 10033

I represent: Stop The Chop

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15.

Name: Craig Abruzzo (PLEASE PRINT)

Address: _____

I represent: Stop the Chop.

Address: _____

Please complete this card and return to the Sergeant-at-Arms

**THE COUNCIL
THE CITY OF NEW YORK**

Appearance Card

I intend to appear and speak on Int. No. 858/859 Res. No. _____

in favor in opposition

Date: 11/12/15.

Name: Ann Ellis (PLEASE PRINT)

Address: _____

I represent: resident, Manhattan -

Address: _____

Please complete this card and return to the Sergeant-at-Arms