

**An Initial Report from the Quality of Life Subcommittee
ON THE IMPACT OF T.F. GREEN AIRPORT
ON QUALITY OF LIFE IN AIRPORT NEIGHBORHOODS
for the
20 Year Planning Group (SRC)
January, 2002**

Introduction

In August 2001 the Study Resource Committee (SRC) of T.F. Green's 20 Year Plan created a sub-committee to explore and determine what could be known about Green Airport's effect on the quality of life in surrounding communities. This exploration was designed to happen concurrently with other key components of the 20 year planning process including a forecast of the probable future market for air travel and the capacity of the air facilities at T.F. Green to meet that demand. Those who took the lead in advocating for a quality of life survey hoped that the 20 year planning process would examine not simply the airport's capacity for growth, but also the community capacity, if any, to sustain additional growth. It was hoped that it would be possible to provide some real data and analysis of the impact of the recent rapid growth at Green on the surrounding communities and, in the light of that, suggest what could, and could not be supported from the point of view of community health and well-being.

The sub-committee began its work, held two meetings and began preparing its report and initial recommendations to the whole planning group. Then came September 11, 2001. In short order, after those terrible events, the entire formal SRC planning process was indefinitely suspended.

September 11 has changed many things in the present and future. But it has not changed the past. The effects of rapid expansion of T.F. Green are still felt in the surrounding communities and can still be analyzed. The issues surrounding quality of life and community capacity to bear continued airport growth remain and are intensified. Whatever formal planning process emerges in the future will be forced to consider them.

The subcommittee's work was severely limited by time, by resources, and by the absence or lack of availability of needed research. The summary that follows is that of the Chair of the Subcommittee. While it is an attempt to fairly and completely represent the work and agreement of the committee, it does not claim to represent the detailed views of every member on every issue.

The purpose of our initial work and discussion

After discussion, the Sub-Committee of volunteers agreed on the following statement of purpose to govern our work:

Our task is to collect, discuss, and provide quality of life information and opinion to the SRC and RIAC regarding the impact of airport development and expansion on nearby airport communities and on R.I. as a whole, so that RIAC and the body public can better determine the capacity of airport neighborhoods to support development.

Our context: A community already stretched by development.

T.F. Green State Airport exists in a broad urban context including the communities of Warwick and Cranston and beyond.

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- These communities have already experienced an extremely rapid development of residential, commercial and industrial land. (One and a half times as much land has been developed in the last 40 years in R.I., as in the previous 325 put together).¹
- This rapid development in R.I. has been nine times faster than population growth.²

Any future airport development at T.F. Green will take place in an increasingly urban context which is already under enormous stress in terms of the migration of people and capital, cultural change, public resources, and community stability.

Development in Warwick during the past decade has largely been controlled, not by community based planning, but by market demand alone, or by the tension between market demand and community protest. According to many urban experts, planning by market demand is a self defeating process leading to the actual destruction of community culture, environment, and higher social costs.³

The airport exists in an ecological whole. For this reason it is sometimes extremely difficult to isolate the exact effect of the airport on air, traffic, and even noise.⁴ Nevertheless, the impact of the airport on air quality, traffic and noise is clearly present and substantial.⁵ Because the airport exists in the middle of homes, neighborhoods, schools, churches, recreational areas, small businesses, and health care facilities, any future airport development becomes a super-sensitive issue. The social fabric is already stretched thin, the highways are already clogged at key times of the day,⁶ and the social system (and the nervous systems of many residents), are already under considerable stress.

The inclusion of quality of life measurement in planning is extremely important to this particular airport. There are 26 schools with playgrounds and sports fields within a two mile radius of T.F. Green. Two of Warwick's high schools are directly in flight paths within a mile of a runway.⁷ Issues of air quality, traffic, noise, and potential accidents are immediately relevant.

Isolating Quality of Life Issues.

In our work on the SRC, subcommittee members quickly agreed that while quality of life is subjective, humans share many common understandings of what it means. Some quality of life indicators are difficult to measure exactly, but many are not. Few are any more difficult to measure than "customer satisfaction of airlines" and similar issues used in traditional airport planning every day. Furthermore, we found a wealth of examples from military, business and non-profit sources of methods for measuring such elusive qualities.

Among the many areas affecting quality of life, subcommittee members agreed that the most serious are those affecting public health and safety. Therefore, our committee concentrated its brief time in its meetings on those issues. We choose to explore what is known, *and what could be known*, in as many

¹ **Costs of Suburban Sprawl and Urban Decay in R.I.: Executive Summary.** H.C. Planning Consultants, Inc. and Planimetrics, LLP, Grow Smart R.I., Dec. 1999, p ii.

² Ibid.

³ Ibid., 17.

⁴ One business representative on the committee discussed this in terms of an analogy: "I can't define pornography, but I know it when I see it." In other words, the difficulty in the task does not mean that nothing can be determined or known, or that no conclusions can be made.

⁵ The National Resources Defense Council reports that many airports rank among the top ten industrial air pollution sources in their cities. Jetliners create less pollution in terms of persons/per mile than cars, but on the other hand, also bring cars into airport communities.

⁶ R.I. Department of Transportation estimates an average of 40,000 automobiles travel on Post Road daily.

⁷ "Did You Know?", **Concerned Airport Neighborhoods Newsletter**, July 2001.

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areas as possible, beginning with the areas of health and safety that are so critical to the community. A huge amount of information was requested by the committee. *Most of that information was not received, or is not yet available.* A full understanding of the community's capacity to support T.F. Green is partially dependent on the goodwill of leaders at RIAC to develop and provide this information to the SRC and the public at large.

While frustrated at the lack of information available to the subcommittee, we were pleased to understand that in several areas RIAC, under its current leadership and board, has gone beyond what is legally required in both investigation of public health concerns and in the mitigation of at least one known problem (run-off of de-icing chemicals).

Air Quality Issues: Information needed.

Apart from aircraft falling from the sky, or willful acts of terror, the issue most needful of exploration with respect to quality of life for the surrounding communities is air quality. All involved in the subcommittee agreed on this. It is a point of concern, because Kent County's Ozone levels are high,⁸ and the Natural Resources Defense Council reports that airports in many cities are among the ten largest industrial polluters.⁹

Any analysis of community capacity to bear continued airport expansion must be based on a realistic understanding of whether or not air quality around the airport is being significantly impacted by aircraft and related increased automobile use in the vicinity.

There are two issues here. One is air quality about which some things are known. The other is particulate matter (small particles in the air such as engine fuel), which is not measured in ordinary atmospheric studies). To evaluate what is actually happening around Green, we of course, need information.

We have learned the following.

- Air emissions inventory at the airport will be updated, *but is not yet completed.*
- The subcommittee requested data of previous Master Plan data and EIS studies, *but did not receive them.*
- A toxins inventory should be done or near completion, *but has not yet been made available.*

Perhaps most troubling:

- Between 1990 and 2001, despite numerous public concerns about particulate matter falling on cars, walls and swimming pools, there was no measure by the airport of particulate matter, nor was there any apparent legal obligation of the airport to do so. RIAC's recent initiative to study these issues beyond legal requirements *is very important and is to be commended. However, the studies are not yet done.* Methodology of tests is still in planning stage and data won't be collected until 2002.

Hence, we are being asked to participate in a planning process without any data related to possible contamination of airport neighborhoods by particulate matter. While we must be careful in making negative assumptions regarding airport impact on air quality with respect to particulate matter in the general Warwick neighborhoods, the potential for harm, and the absence of hard data, make an understanding of community capacity to bear current or expanded conditions very difficult.

⁸ Kent County received an "F" from the American Lung Association for unhealthy ozone levels.

⁹ Natural Resources Defense Council, "Clean Air & Energy: FAQs on Airport Pollution, <http://www.nrdc.org/air/transportation/qairport.asp>

Noise: More than a nuisance.

Noise can be much more than a nuisance issue. It can affect both health and economy. At T.F. Green, noise measures around the airport are generally averaged out over time. The FAA has agreed on 65 dnl as the threshold around which sound proofing will occur in nearby homes around airports. This is problematic. While the FAA identifies a dnl of 65 as the threshold noise level of aviation noise, the EPA identifies 55 dnl as a threshold level. These disparities, however, do not mean or suggest that no one is annoyed below these levels.¹⁰

The stakes in the battle to understand the impact of noise on the human person can be quite high. A 1993 study of persons over 75 living near L.A. International Airport, found rates of cardiovascular disease increased by 18%, and accidental deaths by 60%. Suicides doubled for people between 45 and 54, and approximately 60 more people died each year on average than away from the airport. A study of London's Heathrow Airport found significantly higher admissions to mental hospitals for those near the airport.¹¹

Humans don't experience sound as an average. Stress and damage is caused based on actual noise experienced. Noise experienced changes based on actual, not programmed, flight paths, atmospheric temperature, naturally occurring sound barriers such as trees, and other factors. Beyond this, noise does not have to be at 65 dnl to have an adverse effect on quality of life. Accordingly, the sub-committee sought information on the *exact and actual* noise patterns at T.F. Green, and also investigated the effectiveness of the noise remediation efforts for those most severely affected.

The subcommittee suggested that planners need to understand the actual scope of the noise problem. We attempted to discover the exact patterns of noise beyond the 65 dnl based on the same measurement system and methodology used to determine the 65dnl line around the airport. We also wanted to evaluate the location and intensity of neighborhood complaints. Again, information is needed. We learned the following:

- A RIAC spokesperson confirmed that information about a 60dnl line around the airport exists, but it could not be found or given to the committee in time for this report. Citing a "trust issue" *RIAC refused to agree to provide information on where thresholds lower than 60 existed.* Therefore we were unable to understand in an empirical way how large even an estimated "footprint" of the troublesome noise around the airport really is.
- We requested a mapping of community noise complaints which would be useful when compared with the mapping of various estimated noise levels in order to determine what communities were actually experiencing. *This information was not received.*
- We requested that the Warwick and Cranston surveys of more than a thousand persons be charted geographically, again to try to determine the interplay between noise and quality of life concerns. *However RICA determined that, while this mapping would be possible, it would be too expensive and time consuming.*
- Knowing that temperature affects the level of sound (with sound traveling better in hot air than in cold), we requested that the computer models of the 65dnl line be redrawn based on a different temperature which would reflect the summer months so that we could determine whether or not temperature was a significant issue related to noise. *Landrum and Brown were approached about this and refused assistance.*

¹⁰ "The Impact of Airport Noise on Residential Real Estate," *The Appraisal Journal*, July 2001, 315.

¹¹ W.C. Meecham, and N. A. Shaw, "Increase in Mortality Rates Due to Aircraft Noise," *Schriftenreihe des Vereins für Wasser-, Boden-und Lufthygiene* (ii, 1993), 428-441, cited in "Impact of Airport Noise. . .", 317.

Noise Remediation: Households in limbo.

We further noted concerns with respect to those most severely affected by noise who are within the current 65dnl line drawn around the airport. A very large number of families are in "limbo," having been promised a buy-out but not yet receiving assistance. This puts families in a no-win situation of not being able to plan to stay, but not being able to really move until the airport acts. We learned that only approximately 15% of homes scheduled for buy-outs have been acted on (bought, under contract, or offers made), leaving 225 families in limbo. We found no plans for sound buffers to replace houses which were razed in this program.

Approximately 2500 families were determined to be eligible for soundproofing. About 800 families are still awaiting the work. At the present rates, it will take at least four more years to complete this work. Even then, the issue will probably continue and shift due to new sound patterns based on new flight paths, engine technology, and possible reduction in satisfactory noise criteria by FAA.

The Rights of the Public and Broad Easements

The issue of noise has surfaced another concern for some regarding Quality of Life. Given the fact that a great deal is still to be discovered in terms of air quality and other possible environmental effects of T.F. Green on the surrounding community, there are questions around the issue of deed easements which are required for persons whose homes are being soundproofed. In the first easements, the homeowner agreed to hold the airport free of blame in terms of any future *noise issues*. But today, in order to receive noise relief, homeowners are required to sign new forms holding the airport harmless from future claims, not only regarding noise, but various other forms of air and environmental pollution including dust, particles, and fumes. The Quality of Life Subcommittee has now learned that Public Schools in Warwick will also now be asked to sign the broader easement forms in order to receive noise relief. The waiving of rights in these matters has a potential affect on quality of life of the residents.

Real Estate Values: Potentially Significant Impact

Warwick and Cranston areas immediately around the airport are largely middle and working class communities where home ownership often represents the major material asset of families. Hence, real estate values can have dramatic effects on family economics. In a long range sense, of course, they also affect tax valuation and the whole public economy.

When trying to understand the impact of recent rapid airport development it is important to note that Warwick is one of five "ring cities" in R.I. and, despite having more waterfront than any other city in R.I., is the consistently lowest valued in terms of median real estate prices (currently \$29,000 below the R.I. average).¹²

During the period from 1986 to 1996 Warwick exhibited similar price increases in real estate as the state as a whole, with R.I. median homes increasing 32.5% on average and those in Warwick increasing by 31.2%.

The costal cities of Charleston and Warren increased 32%. However, during the most recent period of rapid expansion of the airport (1996-2001), median prices in R.I. have increased by 19.2% while those in Warwick have increased only 7.30%. Prices in Charleston increased by 60.5% and Warren by 26.5% in the same period. Further, anecdotal evidence of specific home sales in areas immediately around the airport shows actual decline in values.¹³

National published reports indicate a loss of as much as 29% in real estate value of homes near high noise airports. These are extremely troubling indicators. There may be a danger that working and middle class

¹² Research from R.I. realtors provided by subcommittee member Tony Longo.

¹³ Ibid.

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families are being "marooned" by falling prices around the airport (and unable to move out to other locations because of the falling values of their homes).

Further, *the loss of value of real estate surely must be factored into scenarios of the overall economic effect of increased airport development and potential liability. Actual studies are needed of real estate values of close-proximity neighborhoods to the airport. To the sub-committees knowledge no such studies exist, nor are any planned by RIAC.*

Education: Interruption and test scores.

While the educational resources and performance of a community are key components in any assessment of quality of life, the effect of the airport development on such resources, if any, is difficult (but perhaps not impossible) to measure. The sub-committee received information on scientific studies noted in American Teacher, linking noise to poor test scores in children's learning.¹⁴ The sub-committee learned that schools that have been "sound proofed" have not accepted air-conditioning, so windows must be open in warm weather. Most troubling, perhaps is a letter (see appendix) from a Warwick school principle that notes 30 over-flights in one school day which required an interruption of teaching in her school.¹⁵ While this letter does not rise to the level of a scientific study, we note that according to state figures, Warwick is at middle to low end of school performance in R.I. when adjusted for income.¹⁶

Again, we are unaware of any actual studies in Warwick of this important issue. Actual discussion and study of this issue seem merited.

Other Issues: Positive economic impact, questions on transportation, culture, community preservation & other Issues

The sub-committee did not have time, prior to the suspension of its work for detailed discussions in other areas of quality of life.

We note that the overall impact of the airport on the economy in terms of jobs has been positive, both for Warwick and for R.I. as a whole, including as many as 18,000 jobs and \$1.1 billion in annual economic activity for the New England region.¹⁷

Time did not permit detailed discussion of transportation, but we agreed that it was not only a key issue, but one that could be measured. It is clear that airlines (and *all* forms of mass transportation), lessen the need for automobiles. On the other hand, T.F. Green has clearly *increased* local automobile traffic. We would like to see data on increased traffic on local roads (and route 95), and on the effects of congestion.

Also, unresolved and undiscussed were issues relative to the loss of area culture, the replacement of local villages with commercial sprawl, possible loss of historic places or properties, and the presence or absence of planning for local neighborhood health.

Conclusions

We believe that our initial discussions and this partial report does demonstrate that quality of life and community capacity to support development can be measured and is important in any airport planning.

We note that within the positive aspect of economic development, there are many indicators of adverse effects by T.F. Green growth in terms of the quality of life on airport neighborhoods.

¹⁴ "Too much noise linked to poor test scores," *American Teacher*, October 1998, Volume 83, No. 2.

¹⁵ Letter by teacher Lynn Conti to Supt. Shapiro, June 10, 1999.

¹⁶ Annual reports of R.I. Department of Education

¹⁷ See R.I. Airport Economic Impact Study, Wilbur Smith Associates, 1998? There was no attempt in this report to evaluate jobs lost in local business due to airport growth, nor any attempt balance economic positives with increased liabilities by the State or public.

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We note that some potentially troubling effects (particulate matter, noise, real estate, etc.) have not been adequately studied.

We note that in at least one significant area, in air quality, the Airport Corporation has recently gone beyond legal requirements to develop public information, although that study has yet to be completed.

We note that much information that exists or which could be developed from existing data, and which is needed to evaluate impact on quality of life, has yet to be released to the SRC, or has been refused outright by RIAC staff or consultants.

This preliminary report is submitted with the hope that a holistic model of planning can, at long last, emerge which will benefit the total health of the community.

A personal note

I would like to thank subcommittee members Wayne Schuster, RIAC, Beth Collins, R.I. Economic Policy Council, Raleigh Jenkins, Concerned Airport Neighborhoods, David N. Spengler, Thrifty Car Rental, Tony Phillips, Governor's office, Tony Longo, and Gerry Flynn, for their quick but hard work. Bringing diverse views to the subcommittee, all members engaged in discussion in a spirit of cooperation and mutual respect. I hope I have fairly and correctly reviewed the data and discussion which we summarized together. Special thanks to Subcommittee member Raleigh Jenkins for assisting me with the final draft of this report, and to Wayne Schuster for working to answer our many questions, and to RIAC for providing space to meet and refreshments.

Rev. Duane Clinker
Chairperson of the Quality of Life Sub-Committee

Too much noise linked to poor test scores

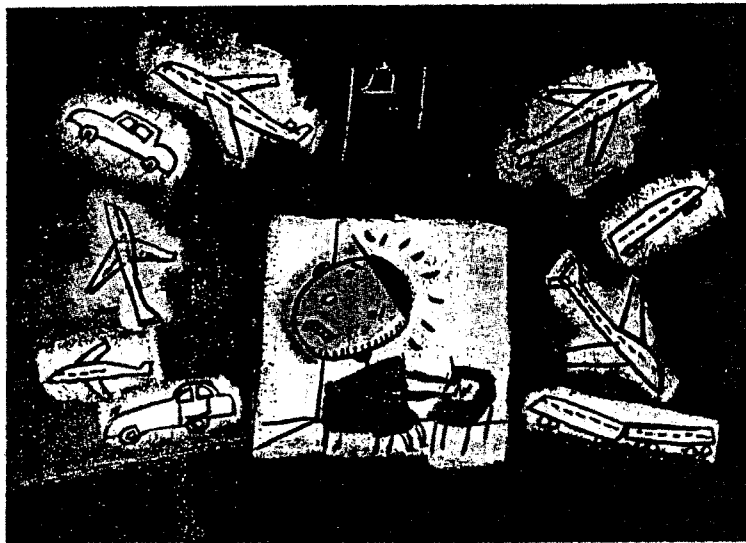
Is your school in a "noisy neighborhood"—near railroad tracks, an airport, heavy traffic or constant construction? If so, all that unwanted noise may be more than just an annoyance; it may be contributing to lower academic performance.

In a 1997 article in *Hearing Rehabilitation Quarterly*, Dr. Arline L. Bronzaft, professor emeritus at Lehman College-CUNY, writes that excessive noise both at home and near school could have an impact on

children's learning. In a 1975 study she conducted with D. B. McCarthy in a New York City elementary school located next to train tracks, she compared the reading scores of students in classrooms on the noisy side of the school with students in classrooms on the quiet side of the school. Students in the second, fourth and sixth grade on the noisy side performed poorer than their counterparts on the quiet side of the building.

The results led to complaints by parents and local officials both to the city's transit authority and to the board of education. The transit authority consequently installed rubber pads on the tracks, and acoustic ceilings were installed in the noisy classrooms. These modifications led to a drop in the decibel level in the classrooms, and in 1981, Bronzaft conducted a similar study and found that children on both sides of the school were reading at the same level.

Although the negative effects that a noisy environment may have on students' academic performance have not been proven conclusively, evidence such as this test and several more recent studies is strong. A study by Gary Evans published this year in *Psychological Science* compared reading scores of students attending a school located near a major New York airport and also below its flight path with the scores of students attending a school in a quiet neighborhood. The students in the school near the airport also lived near the airport—environments in which there was chronic



aircraft noise. The reading results for the students in the environment with chronic aircraft noise indicated "significant deficits in reading as indexed by a standardized reading test administered under quiet conditions." Other studies conducted at schools near airports in New York City and Los Angeles by K.B. Green (1982) and Sheldon Cohen (1980), respectively, show similar findings.

Supporting these correlations are the proven physical effects of excessive noise. In a 1986 article in the *Harvard Medical School Health Letter*, Bronzaft writes that excessive sound has been shown to damage hair cells within the inner ear, which affect the brain's ability to decode the sound. Physiological effects are also correlated with excessive noise, including a rise in blood pressure, a change of heart rate or rhythm, a temporary rise in blood cholesterol or excessive secretion of certain hormones. Knowing

that the noise cannot be prevented or avoided can increase the severity of these reactions.

Bronzaft has several recommendations to combat the effects of noise. Good discipline and smaller classes are a start, she says. Furthermore, "teachers need to be cognizant of the noise in the interior of their classroom...and bring it to the attention of authority—such as the principal or the union," says Bronzaft. Proper planning and use of technology can prevent many future noise problems, but often these possibilities and resulting problems are overlooked. Activism is essential to correct such neglect, she says. "Teachers and students are entitled to an atmosphere in their class that is conducive to learning."

For more information, visit the Web sites of the Council on the Environment of New York City, www.cenyc.org or the League for the Hard of Hearing, www.lhh.org/noise.

AMERICAN Teacher

DEMOCRACY IN EDUCATION / EDUCATION FOR DEMOCRACY

The AMERICAN TEACHER (ISSN 0003-1380) is published eight times a year—September; October; November; December/January; February; March; April; and May/June by the American Federation of Teachers, 555 New Jersey Avenue, N.W., Washington, DC 20001-2079. Telephone: 202/879-4400. <http://www.aft.org> AOL—Keyword: AFT

Periodical postage paid at Washington, D.C., and additional mailing offices.

POSTMASTER: Send address changes to AMERICAN TEACHER, 555 New Jersey Avenue, N.W., Washington, DC 20001-2079.

AMERICAN TEACHER is mailed to all AFT teacher and paraprofessional members. Annual subscription price: \$2.50 (included in membership dues and available only as a part of membership). For others: \$12/year.

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Poor kids hurt most by 'summer learning gap'

Would year-round schooling for disadvantaged students help close the achievement gap with their middle-class counterparts?

A recent study by Karl Alexander and Doris Entwistle, sociologists in the Johns Hopkins University

into two groups, "less affluent" and "more affluent."

The results of these comparisons show significant differences between the two groups. During the school months, the two groups performed similarly, with the less affluent group showing greater gains than the more affluent group. But the results from

June 10, 1999

Dear Mr. Shapiro,

I am writing this letter to report my concerns over the negative effects the airport noise have on instruction and student achievement. The airport noise interrupts the teaching process and the learning process. This constant interference is creating an undesirable learning environment at Robertson School.

There is an extremely high number of jets that land and take off over the school. A volunteer recorded for two days the number of flights that interrupted the teacher's lesson and student learning activities in a classroom. On Wednesday, June 2nd, flights were recorded from 8:50-2:10. There were 24 flights on that day that disrupted the classroom. The recording of flights continued on the following day, June 3rd. There were 30 flights from 8:15-2:15 that were noisy enough to interfere with learning and teaching. If the class is interrupted for one to two minutes for each flight, students are missing 30 to 60 minutes of learning time a day or 3 to 6 hours a week.

This sampling shows the volume of air traffic that is impacting student achievement at Robertson School. This excessive noise that teachers and students are exposed to on a daily basis creates a very distracting environment which is not conducive to learning. Attached to this letter is an article, "Too Much Noise Linked To Poor Test Scores". This article refers to studies which have been conducted whose results indicate that students situated in classrooms with a quiet environment performed better on tests than students whose classrooms are near airports or train tracks. How does the airport noise impact our students abilities to concentrate and successfully complete tests?

Students and teachers are being held accountable to meet new high standards. Students have the right to be educated in a school that does not have noise distractions which make them lose their focus. Each student has the right to reach his/her full academic potential without the disturbances of the airport noise. Students and teachers have to temporarily stop what they are doing until the jet passes over the school. Robertson School houses many students with learning disabilities. There is also a large population of children with attention deficit disorder. These children are easily taken off task by the noise from the jets.

It is necessary to correct this problem that students and teachers are faced with at Robertson School. It is a shame that the airport noise is preventing the school from having the appropriate atmosphere where learning can thrive.

Sincerely,

Lynn Conti