

## City Council Hearing on the Proposed Noise Amendment to Section 24-220 of the Administrative Code of the City of New York, June 25, 2015

--Testimony of Professor Rebecca Bratspies, Professor of Law and Director of the CUNY Center for Urban Environmental Reform.

Thank you for holding this hearing today and for focusing on this vital issue of environmental protection.

Noise is far more than a nuisance! It is a serious threat to the health and welfare of all New Yorkers,<sup>1</sup> especially children.<sup>2</sup>

Noise in schools poses a particularly thorny problem. Being forced to learn in a noisy environment has a significant and negative effect on academic success.<sup>3</sup> For example, research has shown that an increase of 10 dB background noise in classrooms decreases word recognition performance in eight year olds who are learning English as a second language.<sup>4</sup> High levels of chronic, intermittent noise (like that associated with elevated subways or construction) impair children's reading comprehension and recognition memory.<sup>5</sup> Noise also limits children's ability to acquire and grow their expressive vocabulary.<sup>6</sup> A growing body of evidence shows that

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<sup>1</sup> Daniel Shepherd et al., *Exploring the Relationship between Noise Sensitivity, Annoyance and Health-Related Quality of Life in a Sample of Adults Exposed to Environmental Noise*, INT. J ENVIRON. RES. PUBLIC HEALTH 3580 (2010); Stephen A. Stansfeld & Mark P. Matheson, *Noise Pollution: Non-auditory Effects on Health*, 68 BRITISH MED. BULLETIN 243 (2003).

<sup>2</sup> Animal studies indicate that children are more susceptible to the health effects of noise, and that noise interferes with language acquisition. See WORLD HEALTH ORGANIZATION, GUIDELINES FOR COMMUNITY NOISE, Sections 3.2, 4.3.2 (1999).

<sup>3</sup> ERIC JENSEN, TEACHING WITH THE BRAIN IN MIND 82 (2d ed. May 2005).

<sup>4</sup> Peggy Nelson, Kathryn Kohnert & Sabina Sabur, *Abstract: Classroom Noise and Children Learning Through a Second Language*, 36 LANGUAGE, SPEECH, & HEARING SERVS. IN SCHS. 219-29 (2005), available at <http://lshss.asha.org/cgi/content/abstract/36/3/219>.

<sup>5</sup> *Road Traffic and Aircraft Noise Exposure and Children's Cognition and Health: Exposure-Effect Relationships and Combined Effects*, RANCH (2005), [http://www.wolfson.qmul.ac.uk/RANCH\\_Project/publications/FinalDraftGlossy\\_220405.pdf](http://www.wolfson.qmul.ac.uk/RANCH_Project/publications/FinalDraftGlossy_220405.pdf) (conclusions drawn from a study of the effects of airplane noise on 2000 school children).

<sup>6</sup> Kristine Grohne Riley & Karla K. McGregor, *Abstract: Noise Hampers Children's Expressive Word Learning*, 43 LANGUAGE, SPEECH, AND HEARING SERVS. IN SCHS. 325-37 (2012), available at <http://lshss.asha.org/cgi/content/abstract/43/3/325>.

noise does more than just make it harder for students to learn--it actually prevents children from acquiring speech recognition skills in the first place.<sup>7</sup>

In New York City, we have known for 40 years just how badly noise impairs student learning.<sup>8</sup> In 1975, Professor Arlene Bronzaft conducted a landmark study in an elementary school directly adjacent to an elevated subway. She documented that the reading skills of students in classrooms on the noisy side “lagged anywhere from 3 months to as much as 1 year behind their peers on the quiet side of the building.”<sup>9</sup> Construction noise creates comparable noise levels and has similar effects on learning.

Your Proposed Noise Amendment is vitally important to over one million New York City school children. While construction projects come and go, the negative effects on learning persist long after the noise ceases.<sup>10</sup> A child is only in third grade once. She has one opportunity to learn the age-appropriate math and reading skills. Noise pollution will reduce her ability to master those necessary skills. In this era of high stakes testing, the consequences of noise exposure can be devastating to a child and to her teacher. But, it gets worse. A child who has not mastered the third-grade curriculum starts fourth grade at a disadvantage, and the risk snowballs over time. No child deserves this fate.

More than a decade ago, the American National Standards Institute (ANSI) adopted “Acoustical Performance Criteria for Schools.” These standards emphasize the importance of minimizing distracting noise in the classroom and lay out the parameters of an appropriate educational environment. For classrooms, the standards limit the maximum exterior noise levels to **35 dB**.<sup>11</sup> The New York School Construction Authority currently sets a standard of 45 dB for new or renovated schools.

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<sup>7</sup> Eric JENSEN, *Teaching with the Brain in Mind* 88 (2d ed. May 2005). Twenty studies show external noise, like traffic and airport noise, can have a negative influence on children’s cognition. John Farley, *Gauging the Impact of Noise on Children’s Learning*, METROFOCUS, THIRTEEN.ORG (August 28, 2012) (quoting Dr. Charlotte Clark), <http://www.thirteen.org/metrofocus/2012/08/gauging-the-impact-of-noise-on-childrens-learning/>.

<sup>9</sup> Arlene L. Bronzaft & D. P. McCarthy, *The Effects of Elevated Train Noise on Reading Ability*, 7 ENV’T & BEHAVIOR 517-27 (1975); see also Elizabeth Jago & Ken Taner, *Research Abstract: Environmental Influence on Student Behavior and Achievement: Acoustical* (Apr. 1999), THE UNIVERSITY OF GEORGIA, <http://sdpl.coe.uga.edu/researchabstracts/acoustical.html>.

<sup>10</sup> G. Evans & L. Maxwell, *Chronic noise exposure and reading deficits: The mediating effects of language acquisition* 29 ENV’T & BEHAVIOR 638-56 (1997) (finding that children in a noisy school burdened with airplane overflight noise displayed decreased reading skills when compared with similar children in a quiet school, even when both groups of students were tested in quiet conditions.).

<sup>11</sup> <http://www.asha.org/public/hearing/American-National-Standard-on-Classroom-Acoustics/>The American Academy of Audiology endorses these standards as ensuring that students can hear their teachers.

Students in existing schools deserve this same attention to the noise levels in their learning environment. That means protecting them from construction noise, from subway noise, and from traffic noise that exceeds 45 dB.

### **This Measure is Consistent With Federal Law**

Federal law guarantees each child “an appropriate learning environment.”<sup>12</sup> Whatever else an “appropriate environment” includes, it surely includes a school classroom quiet enough for her to hear the teacher and to think without distractions. In 1972, responding to the “growing danger to the health and welfare of the Nation’s population, particularly in urban areas” from “inadequately controlled noise,” Congress passed the Federal Noise Control Act.<sup>13</sup> This Act directed EPA to identify noise thresholds that should not be exceeded in order protect the public.<sup>14</sup>

EPA concluded that indoor noise levels above 45 dB cause annoyance and interfere with normal indoor activities.<sup>15</sup> EPA specifically indicated that noise levels above that threshold were not conducive to an educational setting.<sup>16</sup> **Thus, more than 40 years ago, EPA concluded that the maintenance of noise levels at or below 45 dBA in schools was necessary to protect the public from adverse health and welfare effects.**<sup>17</sup> The measure under consideration today will help give effect to this long-standing recognition of the burdens that noise places on learning.

Because the effects of noise on learning are so pervasive and negative, noise guidelines often focus on the need to mitigate noise in schools.<sup>18</sup> For example, the Federal Aviation Administration’s regulations on eligibility for assistance with noise-abatement measures recognize the danger to education from noise. The regulations indicate that noise insulation is specifically justified for schools because of the “substantial and disruptive effect” of noise.<sup>19</sup> This

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<sup>12</sup> 20 U.S.C. 1400 et seq (West 2013)

<sup>13</sup> 42 U.S.C.A. § 4901 *et. seq.* (West 2013).

<sup>14</sup> 42 U.S.C.A. § 4904.

<sup>15</sup> ENVIRONMENTAL PROTECTION AGENCY (EPA), 550/9-74-004, INFORMATION ON LEVELS OF ENVIRONMENTAL NOISE REQUISITE TO PROTECT PUBLIC HEALTH AND WELFARE WITH AN ADEQUATE MARGIN OF SAFETY (1974), *available at* <http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000L3LN.txt>.

<sup>16</sup> *Id.*

<sup>17</sup> *Id.* at 5-6.

<sup>18</sup> See WORLD HEALTH ORGANIZATION, GUIDELINES FOR COMMUNITY NOISE, Sections 3.2, 4.3.2 (1999); see also FED. AVIATION ADMIN., ORDER 5100.38C, which recognizes the importance of mitigating noise in “buildings used primarily for educational or medical purposes.”

<sup>19</sup> FED. AVIATION ADMIN., ORDER 5100.38C ch. 8.

measure is an appropriate step to regulate construction noise, akin to the FAA noise mitigation regulations.

### **This Measure is Consistent with Existing New York Standards**

In 2005, the New York City Council conducted an extensive overhaul of its Noise Code, after finding that “excessive and unreasonable and prohibited noises within the city...is a menace to public health.”<sup>20</sup> Pursuant to those revisions, the New York City Department of Environmental Protection released a series of recommended noise standards for elevated subways in 2010.<sup>21</sup> These recommendations explicitly state that noise in schools and preschools should not exceed 35 dB during teaching sessions. The noise burdens associated with construction and elevated subways are currently significantly above this recommended level.

### **This Measure Will Help Implement International Noise Standards.**

The World Health Organization has also addressed the question of how noise affects student learning and performance.<sup>22</sup> It recommends that to ensure that spoken messages are heard and understood in the classroom, the background sound levels should not exceed 35 dB during teaching sessions.<sup>23</sup> While the measure under consideration today sets a higher permissible noise level than the WHO recommends, it will still be an important step forward in protecting our children.

### **Conclusion**

We have known of the relationship between noise and impaired learning for four decades. Measures to protect children, like the bill under consideration today, are long-overdue. On behalf of the CUNY Center for Urban Environmental Reform, and as a parent with a child in a New York City School, I commend this Committee for focusing on this vital issue, and I urge the entire City Council to do the right thing to protect our children.

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<sup>20</sup> NYC DEP, A Guide to New York City's Noise Code, [http://www.nyc.gov/html/dep/pdf/noise\\_code\\_guide.pdf](http://www.nyc.gov/html/dep/pdf/noise_code_guide.pdf) (November 2011).

<sup>21</sup> The NYC DEP does not have authority to regulate the MTA, so these guidelines are in the nature of recommendations rather than binding legal obligations. Yet, even without binding effect, these recommendations are helpful for the City Council as it considers what is reasonable in a learning environment, and what students should be entitled to expect.

<sup>22</sup> WORLD HEALTH ORGANIZATION, GUIDELINES FOR COMMUNITY NOISE vii, 53 (1999).

<sup>23</sup> WORLD HEALTH ORGANIZATION, GUIDELINES FOR COMMUNITY NOISE, Section 4.3.2 (1999).