# SCHOOL TECHNOLOGY SURVEY REPORT

## DECEMBER 2016

**ERIC L. ADAMS**
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## I. Introduction

Last year, my office launched our Code Brooklyn initiative, designed to bring computer science (CS) infrastructure and education to every Brooklyn school in the next seven years. We began with an ambitious goal of getting every Brooklyn school to take part in Code.org's Hour of Code during Computer Science Education Week in December. More than 400 district public schools, about 80 percent of such schools in Brooklyn, took part. Many of those schools participated in the Hour of Code for the first time and, amazingly, many students continue to use the free websites and practice coding on their own time.

More important than the beginning of any initiative is the follow-through. Following our initial engagement with schools, we asked them to fill out a technology survey that identified their existing technology infrastructure and computer science policies, in an effort to determine what is needed to bring full-time computer science to all of their students. This report outlines the results of that survey. More than one-third of schools contacted participated in the survey, providing a good overview to gauge where Brooklyn schools stand with respect to computer science readiness. It is critical to note that the numbers and statistics in this report are not an indictment of the schools themselves — they must work with what they have — but rather a message to all policy makers that we owe our students the tools and resources to engage the future. Ensuring that students have up-to-date equipment and instruction will be a constant challenge for New York City, but one we must undertake if we want our students, and our City, to thrive.

## II. Data

We asked schools a series of questions designed to identify their technology strengths and weaknesses. Among other things, we asked for information on Wi-Fi reliability, the number of laptops and tablets available at each school, whether each school has an established computer science curriculum, and whether each school has designated teachers trained to teach computer science (see Appendix for a complete survey).

## III. Measurement Criteria

In order to accurately identify where districts and schools stand with respect to technology availability and institutional support, we created a Wi-Fi graphic representation to measure the real-time status of schools' readiness. The categories measured are:

- Availability of equipment
- Existing infrastructure
- Existing curriculum coursework
- Professional development

Sufficient attainment in each category receives a Wi-Fi icon if they meet a minimum standard.

- For the equipment category, a school needs to have enough devices so that 50 percent of the students can have access to a device.[1]
- For infrastructure, a school must rate their Wi-Fi at four or better for a full icon. A three receives a half an icon.
- For curriculum, a school must use an established computer science curriculum to receive a full icon.
- For teacher training, there must be a trained computer science teacher on staff to receive a full icon.

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[1] See Brooklyn Borough President Eric L. Adams, Digital Learning (June 2016).

## IV. Responses

### Brooklyn:

Overall, 136 schools responded to the survey, representing approximately 100,000 Brooklyn students from across the borough at every grade level. Survey results indicated that there are sufficient laptops for about 20 percent of those students and enough tablets for about seven percent of Brooklyn students. Brooklyn schools as a whole rated their Wi-Fi access at 3.23 on a scale of one to five. Thirty percent of respondent schools use an established computer science curriculum, and 54 percent of school responses indicated the presence of a trained teacher who teaches or could teach computer science.

| District (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher |
|---|---|---|---|---|---|
| Brooklyn (280,000 ±) | 20% | 7% | 3.23 | 30% | 54% |
| 13 (22,010) | 11% | 5% | 3.38 | 17% | 50% |
| 14 (19,995) | 14% | 8% | 2.91 | 58% | 75% |
| 15 (32,630) | 34% | 9% | 3.20 | 30% | 70% |
| 16 (7,687) | 32% | 7% | 3.46 | 14% | 36% |
| 17 (24,497) | 26% | 8% | 3.18 | 18% | 45% |
| 18 (16,991) | 22% | 6% | 3.33 | 33% | 56% |
| 19 (24,062) | 26% | 11% | 3.08 | 33% | 58% |
| 20 (52,932) | 20% | 8% | 2.94 | 26% | 63% |
| 21 (36,565) | 36% | 8% | 4.00 | 33% | 44% |
| 22 (35,775) | 11% | 5% | 2.87 | 27% | 53% |
| 23 (9,952) | 22% | .2% | 4.00 | 33% | 33% |
| 32 (13,104) | 14% | 2% | 3.50 | 50% | 50% |

**District 13:** Bedford-Stuyvesant, Brooklyn Heights, Clinton Hill, Crown Heights, Downtown Brooklyn, DUMBO, Fort Greene, Gowanus, Park Slope, Prospect Heights, and Vinegar Hill

District 13 has a total enrollment of 22,010 students, of whom 4.2 percent are English Language Learners (ELLs) and 66.7 percent are living below the poverty line. The district has a 77.9 percent four-year (June) graduation rate.[2] One in ten District 13 students has experienced homelessness in the last five years.[3]

District 13 schools are below the borough average when it comes to laptops, with sufficient devices to reach 11 percent of their students at any given time, and below the borough average for tablets with sufficient devices to reach five percent of students. Their average Wi-Fi rating is above average at 3.38. There are established computer science curriculums in 17 percent of their schools, while 50 percent have trained computer science teachers. The schools that responded account for 10,300 students in the district.

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[2]Enrollment, ELL, poverty, and graduation rate statistics for all districts are available at http://schools.nyc.gov/AboutUs/schools/data/default.htm.

[3]Homelessness data for all districts are available at: http://www.icphusa.org/index.asp?page=16&report=142&pg=265.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 054 (230) | 7 | 32 | 3 | No | No | 🛜 |
| PS 133 (691) | 12 | 4 | 3 | No | Yes | 🛜 🛜 |
| PS 256 (300) | 10 | 20 | 3/4 | No | Yes | 🛜 🛜 |
| PS 270 (141) | 21 | 0 | 3 | No | No | 🛜 |
| PS 287 (200) | 30 | 20 | 4 | No | No | 🛜 🛜 |
| PS/MS 282 (897) | 3 | 3 | 2 | No | Yes | 🛜 |
| MS 113 (405) | 7 | 3 | 3 | No | Yes | 🛜 🛜 |
| MS/HS 265 (454) | 30 | 7 | 4 | No | No | 🛜 |
| MS/HS 527 (470) | 47 | 21 | 4 | No | No | 🛜 🛜 |
| HS 419 (548) | 4 | 0 | 1 | Yes | Yes | 🛜 🛜 |
| HS 430 (5600) | 4 | 0 | 3 | Yes | Yes | 🛜 🛜 |
| HS 439 (364) | 110 | 34 | 4 | No | No | 🛜 🛜 |

**District 14:** Bushwick, East Williamsburg, Greenpoint, and Williamsburg

District 14 has a total enrollment of 19,995 students, of whom 10.5 percent are English Language Learners (ELLs) and 85.7 percent are living below the poverty line. The district has a 68.6 percent four-year (June) graduation rate. One in nine District 14 students has experienced homelessness in the last five years.

District 14 schools are below the borough average when it comes to laptops, with sufficient devices to reach 14 percent of their students at any given time, and above the borough average for tablets with sufficient devices to reach eight percent of students. Their average Wi-Fi rating is below average at 2.91. There are established computer science curriculums in 58 percent of their schools, while 75 percent have trained computer science teachers. Schools that responded account for 5,800 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 018 (198) | 13 | 15 | 5 | Yes | Yes | 🛜 🛜 🛜 |
| PS 059 (318) | 24 | 17 | * | No | No | 🛜 |
| PS 084 (748) | 3 | 20 | 2 | Yes | Yes | 🛜 🛜 |
| PS 132 (700) | 4 | 3 | 1 | Yes | Yes | 🛜 🛜 |
| PS 257 (678) | 7 | 1 | 2 | No | Yes | 🛜 |
| PS 297 (248) | 40 | 9 | 4 | No | No | 🛜 |
| PS 414 (585) | 14 | 5 | 2 | No | Yes | 🛜 |
| MS 577 (506) | 10 | 2 | 1 | No | No | 0 |
| HS 454 (260) | 38 | 12 | 4 | Yes | Yes | 🛜 🛜 🛜 🛜 |
| HS 474 (1000) | 12 | 2 | 3 | Yes | Yes | 🛜 🛜 🛜 |
| HS 477 (502) | 30 | 10 | 4 | Yes | Yes | 🛜 🛜 🛜 |
| HS 632 (115) | 43 | 26 | 4 | Yes | Yes | 🛜 🛜 🛜 🛜 |

* Denotes being upgraded

**District 15:** Boerum Hill, Brooklyn Heights, Carroll Gardens, Cobble Hill, Columbia Street Waterfront, Downtown Brooklyn, Fort Greene, Greenwood Heights, Park Slope, Red Hook, South Slope, Sunset Park, and Windsor Terrace

District 15 has a total enrollment of 32,630 students, of whom 15.9 percent are English Language Learners (ELLs) and 66.0 percent are living below the poverty line. The district has a 63.9 percent four-year (June) graduation rate. One in thirteen District 15 students has experienced homelessness in the last five years.

District 15 schools are above the borough average when it comes to laptops, with sufficient devices to reach 34 percent of their students at any given time, and above the borough average for tablets with sufficient devices to reach nine percent of students. Their average Wi-Fi rating is average at 3.2. There are established computer science curriculums in 30 percent of their schools, while 70 percent have trained computer science teachers. Schools that responded account for 9,100 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 001 (1281) | 12 | 8 | 3 | No | Yes | 📶📶 |
| PS 015 (460) | 17 | 7 | 3 | Yes | Yes | 📶📶📶 |
| PS 038 (550) | 5 | 0 | 3 | No | No | 📶 |
| PS 321 (1460) | 3 | 2 | 2 | Yes | Yes | 📶📶 |
| MS 051 (1125) | 4 | 0 | 3 | No | No | 📶 |
| MS 088 (1278) | 55 | 20 | 3 | No | Yes | 📶📶📶 |
| MS 821 (516) | 68 | 14 | 3 | No | Yes | 📶📶📶 |
| HS 656 (970) | 58 | 24 | 5 | No | Yes | 📶📶📶 |
| HS 667 (1320) | 68 | 8 | 3 | Yes | Yes | 📶📶📶📶 |
| HS 698 (160) | 169 | 0 | 4 | No | No | 📶📶 |

**District 16:** Bedford-Stuyvesant and Crown Heights

District 16 has a total enrollment of 7,687 students, of whom 4.1 percent are English Language Learners (ELLs) and 85.5 percent are living below the poverty line. The district has a 48.8 percent four-year (June) graduation rate. One in five District 16 students has experienced homelessness in the last five years.

District 16 schools are above the borough average when it comes to laptops, with sufficient devices to reach 32 percent of their students at any given time, and at the borough average for tablets with sufficient devices to reach seven percent of students. Their average Wi-Fi rating is above average at 3.46. There are established computer science curriculums in 14 percent of their schools, while 36 percent have trained computer science teachers. Schools that responded account for 3,200 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 005 (230) | 9 | 0 | 5 | No | No | 📶 |
| PS 021 (610) | 8 | 0 | 3 | No | Yes | 📶📶 |
| PS 040 (312) | 10 | 0 | 3 | Yes | Yes | 📶📶📶 |
| PS 081 (330) | 1 | 0 | 3 | No | Yes | 📶 |

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 243 (268) | 4 | 7 | 4/5 | No | No | 📶 |
| PS 309 (233) | 129 | 11 | 4 | No | No | 📶 📶 |
| PS 627 (140) | 18 | 11 | 2 | No | No | 0 |
| PS 628 (221) | 14 | 29 | 4 | No | No | 📶 |
| MS 035 (165) | 115 | 0 | 4 | No | No | 📶 📶 |
| MS 267 (185) | 54 | 16 | 4 | No | No | 📶 📶 |
| MS 534 (87) | 92 | 80 | 3 | No | No | 📶 📶 |
| MS 681 (172) | 87 | 0 | 5 | Yes | Yes | 📶 📶 📶 📶 |
| HS 594 (200) | 12 | 0 | 3 | No | No | 📶 |
| HS 688 (135) | 19 | 0 | 1 | No | Yes | 📶 |

**District 17:** Crown Heights, East Flatbush, Flatbush, and Prospect-Lefferts Gardens

District 17 has a total enrollment of 24,497 students, of whom 9.2 percent are English Language Learners (ELLs) and 83.1 percent are living below the poverty line. The district has a 65.6 percent four-year (June) graduation rate. One in seven District 17 students has experienced homelessness in the last five years.

District 17 schools are above the borough average when it comes to laptops, with sufficient devices to reach 26 percent of their students at any given time, and above the borough average for tablets with sufficient devices to reach eight percent of students. Their average Wi-Fi rating is below average at 3.18. There are established computer science curriculums in 18 percent of their schools, while 45 percent have trained computer science teachers. The schools that responded account for 4,900 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 092 (472) | 42 | 0 | 4 | No | Yes | 📶 📶 |
| PS 316 (430) | 17 | 0 | 4 | No | No | 📶 |
| PS 770 (300) | 8 | 3 | 3 | No | No | 📶 |
| PS/MS 394 (590) | 7 | 4 | 3 | Yes | Yes | 📶 📶 📶 |
| MS 340 (204) | 44 | 74 | 3 | No | No | 📶 📶 |
| MS 484 (150) | 20 | 3 | 3 | No | No | 📶 |
| MS 722 (266) | 103 | 4 | 4 | No | No | 📶 📶 |
| MS/HS 533 (300) | 10 | 5 | 2 | No | No | 0 |
| HS 524 (414) | 36 | 7 | 3 | No | Yes | 📶 📶 |
| HS 539 (425) | 40 | 20 | 3 | No | Yes | 📶 📶 📶 |
| HS 600 (1349) | 15 | 4 | 3 | Yes | Yes | 📶 📶 📶 |

**District 18:** Canarsie and East Flatbush

District 18 has a total enrollment of 16,991 students, of whom 4.5 percent are English Language Learners (ELLs) and 79.3 percent are living below the poverty line. The district has a 58.1 percent four-year (June) graduation rate. One in nine District 18 students has experienced homelessness in the last five years.

District 18 schools are above the borough average when it comes to laptops, with sufficient devices to reach 22 percent of their students at any given time, and below the borough average for tablets with sufficient devices to reach

six percent of students. Their average Wi-Fi rating is above average at 3.33. There are established computer science curriculums in 33 percent of their schools, while 56 percent have trained computer science teachers. The schools that responded account for 5,100 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 208 (439) | 17 | 8 | 3 | Yes | Yes | 1 |
| PS 272 (500) | 11 | 0 | 4 | No | No | 1 |
| PS/MS 066 (850) | 21 | 13 | 2 | No | Yes | 1 |
| PS/MS 235 (1275) | 3 | 0 | 4 | No | No | 1 |
| MS 211 (600) | 33 | 3 | 4 | No | No | 1 |
| HS 563 (630) | 16 | 11 | 3 | Yes | Yes | 3 |
| HS 578 (208) | 72 | 24 | 3 | No | Yes | 3 |
| HS 589 (234) | 26 | 11 | 4 | Yes | Yes | 3 |
| HS 633 (422) | 71 | 0 | 3 | No | No | 2 |

**District 19:** Cypress Hills and East New York

District 19 has a total enrollment of 24,062 students, of whom 11.4 percent are English Language Learners (ELLs) and 86.7 percent are living below the poverty line. The district has a 55.1 percent four-year (June) graduation rate. One in six District 19 students has experienced homelessness in the last five years.

District 19 schools are above the borough average when it comes to laptops, with sufficient devices to reach 26 percent of their students at any given time, and above the borough average for tablets with sufficient devices to reach 11 percent of students. Their average Wi-Fi rating is below average at 3.08. There are established computer science curriculums in 33 percent of their schools, while 58 percent have trained computer science teachers. The schools that responded account for 4,800 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 158 (618) | 15 | 5 | 3 | No | Yes | 2 |
| PS 213 (345) | 7 | 17 | 1 | Yes | Yes | 2 |
| PS 273 (367) | 10 | 34 | 4 | No | No | 1 |
| PS 290 (595) | 5 | 16 | 2 | No | Yes | 1 |
| PS 325 (255) | 16 | 16 | 3 | No | No | 1 |
| PS 328 (297) | 67 | 7 | 4 | Yes | Yes | 4 |
| PS 345 (653) | 8 | 0 | 2 | No | Yes | 1 |
| PS/MS 306 (585) | 2 | 0 | 3 | No | No | 0 |
| MS 218 (435) | 120 | 2 | 4 | No | No | 2 |

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| MS 760 (204) | 74 | 59 | 3 | Yes | Yes | 📶 📶 📶 📶 |
| HS 583 (200) | 30 | 15 | 4 | Yes | Yes | 📶 📶 📶 |
| HS 639 (330) | 18 | 3 | 4 | No | No | 📶 |

**District 20:** Bath Beach, Bay Ridge, Bensonhurst, Borough Park, Dyker Heights, Kensington, and Sunset Park

District 20 has a total enrollment of 52,932 students, of whom 23.1 percent are English Language Learners (ELLs) and 78.9 percent are living below the poverty line. The district has a 68.4 percent four-year (June) graduation rate. One in fourteen District 20 students has experienced homelessness in the last five years.

District 20 schools are at the borough average when it comes to laptops, with sufficient devices to reach 20 percent of their students at any given time, and above the borough average for tablets with sufficient devices to reach eight percent of students. Their average Wi-Fi rating is below average at 2.94. There are established computer science curriculums in 26 percent of their schools, while 63 percent have trained computer science teachers. The schools that responded account for 23,900 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 069 (850) | 28 | 0 | 3 | No | Yes | 📶 📶 |
| PS 105 (1760) | 35 | 7 | # | No | Yes | 📶 |
| PS 127 (522) | 17 | 0 | 3 | No | No | 📶 |
| PS 176 (1417) | 21 | 21 | 2 | No | Yes | 📶 |
| PS 179 (973) | 21 | 2 | 4 | No | Yes | 📶 📶 |
| PS 200 (1305) | 11 | 4 | 4 | Yes | Yes | 📶 📶 📶 |
| PS 205 (1182) | 42 | 16 | 1 | Yes | No | 📶 📶 |
| PS 264 (495) | 12 | 6 | 3 | No | Yes | 📶 📶 |
| PS 971 (373) | 11 | 8 | 3 | No | No | 📶 |
| PS/MS 104 (1235) | 21 | 9 | 3 | No | Yes | 📶 📶 |
| PS/MS 163 (600) | 30 | 13 | 3 | No | No | 📶 |
| PS/MS 180 (1200) | 44 | 4 | 3 | No | No | 📶 |
| PS/MS 229 (1200) | 22 | 0 | 4 | No | Yes | 📶 📶 |
| PS/MS 686 (518) | 40 | 5 | 2 | Yes | Yes | 📶 📶 |
| MS 062 (1204) | 21 | 5 | 3 | No | Yes | 📶 📶 |
| MS 187 (995) | 15 | 30 | 3 | Yes | Yes | 📶 📶 📶 |
| MS 227 (1290) | 7 | 12 | 3 | Yes | No | 📶 📶 |
| HS 490 (4402) | 10 | 5 | 2 | No | No | 0 |
| HS 505 (3300) | 5 | 5 | 4 | No | Yes | 📶 📶 |

# denotes no answer provided

**District 21:** Bensonhurst, Brighton Beach, Coney Island, Gravesend, Midwood, Sea Gate, and Sheepshead Bay

District 21 has a total enrollment of 36,565 students, of whom 15.2 percent are English Language Learners (ELLs) and 77.7 percent are living below the poverty line. The district has a 68.9 percent four-year (June) graduation rate. One in thirteen District 21 students has experienced homelessness in the last five years.

District 21 schools are above the borough average when it comes to laptops, with sufficient devices to reach 36 percent of their students at any given time, and above the borough average for tablets with sufficient devices to reach eight percent of students. Their average Wi-Fi rating is above average at 4.0. There are established computer science curriculums in 33 percent of their schools, while 44 percent have trained computer science teachers. The schools that responded account for 6,500 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 100 (750) | 1 | .5 | 3 | Yes | Yes | 📶📶📶 |
| PS 101 (894) | 34 | 22 | 4 | No | No | 📶📶 |
| PS 128 (438) | 28 | 7 | 4 | No | Yes | 📶📶 |
| PS 216 (696) | 39 | 17 | 3 | No | No | 📶📶 |
| PS 253 (970) | 28 | 5 | 5 | No | No | 📶 |
| MS 096 (652) | 37 | 5 | 5 | No | No | 📶 |
| MS 228 (1367) | 70 | 2 | 5 | No | Yes | 📶📶📶 |
| HS 348 (303) | 33 | 10 | 3 | Yes | Yes | 📶📶📶 |
| HS 620 (525) | 5 | 3 | 4 | Yes | No | 📶📶 |

**District 22:** Bergen Beach, Ditmas Park, East Flatbush, Flatbush, Flatlands, Georgetown, Gerritsen Beach, Manhattan Beach, Marine Park, Midwood, Mill Basin, and Sheepshead Bay

District 22 has a total enrollment of 35,775 students, of whom 9.6 percent are English Language Learners (ELLs) and 70.8 percent are living below the poverty line. The district has a 77.1 percent four-year (June) graduation rate. One in thirteen District 22 students has experienced homelessness in the last five years.

District 22 schools are below the borough average when it comes to laptops, with sufficient devices to reach 11 percent of their students at any given time, and below the borough average for tablets with sufficient devices to reach five percent of students. Their average Wi-Fi rating is below average at 2.87. There are established computer science curriculums in 27 percent of their schools, while 53 percent have trained computer science teachers. The schools that responded account for 18,400 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 139 (975) | 10 | 0 | 4 | No | No | 📶 |
| PS 152 (769) | 19 | 10 | 3 | No | No | 📶 |
| PS 193 (900) | 1 | .5 | 3 | No | Yes | 📶📶 |

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 195 (456) | 26 | 1 | 3 | No | No | 1 |
| PS 236 (585) | 5 | 5 | 3 | No | No | 1 |
| PS 254 (781) | 12 | 0 | 3 | Yes | Yes | 3 |
| PS 255 (920) | 12 | 10 | 2 | No | No | 0 |
| PS/MS 109 (700) | 7 | 7 | 2 | No | Yes | 1 |
| PS/MS 207 (1270) | 8 | 2 | 3 | No | No | 1 |
| MS 014 (550) | 9 | 5 | 3 | No | Yes | 2 |
| MS 234 (1993) | 15 | 10 | 3 | No | Yes | 2 |
| MS 240 (835) | 24 | 4 | 1 | Yes | Yes | 2 |
| HS 405 (3975) | 1 | 6 | 4 | Yes | Yes | 3 |
| HS 425 (3400) | 13 | 1 | 3 | Yes | Yes | 3 |
| HS 611 (330) | 67 | 33 | 3 | No | No | 2 |

**District 23:** Brownsville, Bushwick, East New York, and Ocean Hill

District 23 has a total enrollment of 9,952 students, of whom 4.5 percent are English Language Learners (ELLs) and 86.8 percent are living below the poverty line. The district has a 40.0 percent four-year (June) graduation rate. One in five District 23 students has experienced homelessness in the last five years.

District 23 schools are above the borough average when it comes to laptops, with sufficient devices to reach 22 percent of their students at any given time, and below the borough average for tablets with sufficient devices to reach .2 percent of students. Their average Wi-Fi rating is above average at 4.0. There are established computer science curriculums in 33 percent of their schools, while 33 percent have trained computer science teachers. The schools that responded account for 2,000 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS/MS 041 (498) | 30 | 0 | 4 | Yes | Yes | 3 |
| PS/MS 284 (544) | 13 | 0 | 4 | No | No | 1 |
| MS 392 (300) | 30 | 0 | 3 | Yes | Yes | 3 |
| MS 518 (193) | 16 | 0 | 5 | No | No | 1 |
| MS 664 (114) | 79 | 0 | 5 | No | No | 2 |
| MS/HS 697 (366) | 5 | 1 | 3 | No | No | 1 |

**District 32:** Bushwick

District 32 has a total enrollment of 13,104 students, of whom 18.2 percent are English Language Learners (ELLs) and 91.4 percent are living below the poverty line. The district has a 53.5 percent four-year (June) graduation rate.

One in six District 32 students has experienced homelessness in the last five years.

District 32 schools are below the borough average when it comes to laptops, with sufficient devices to reach 14 percent of their students at any given time, and below the borough average for tablets with sufficient devices to reach two percent of students. Their average Wi-Fi rating is above average at 3.5. There are established computer science curriculums in 50 percent of their schools, while 50 percent have trained computer science teachers. The schools that responded account for 3,100 students in the district.

| School (enrollment) | Laptops % | Tablets % | Wi-Fi 1-5 | Established CS Curriculum | CS Teacher | Connectivity Level 0-4 |
|---|---|---|---|---|---|---|
| PS 075 (442) | 2 | 0 | 2 | Yes | Yes | 📶 📶 |
| PS 086 (412) | 73 | 0 | 4 | No | No | 📶 📶 |
| PS 151 (326) | 15 | 1 | 4 | No | No | 📶 |
| PS/MS 384 (643) | 1 | 0 | 4 | No | No | 📶 |
| MS 383 (950) | 6 | 6 | 3 | Yes | Yes | 📶 📶 📶 |
| HS 552 (350) | 6 | 0 | 4 | Yes | Yes | 📶 📶 📶 |

## V. Recommendations and Conclusion

Although not every school responded to the survey, those that did provide an insightful view into a cross-section of Brooklyn's schools from elementary to high school. The results clearly indicate that policy makers and elected officials must do more to ensure our schools are prepared to meet the goals of Mayor Bill de Blasio's CS4ALL initiative, as well as prepared to provide the level of technology and instruction that is needed in a 21st century school.

Current City capital rules prohibit the purchase of tablets using Resolution A funding, putting City schools at a disadvantage for improving their technology infrastructure and availability. At a recent New York City Department of Education (DOE) hearing on the Smart School Bond Act, DOE representatives acknowledged an exception for purchasing tablets using this funding source.

To advance the goals of CS4ALL and address infrastructure challenges, I recommend the following key actions:

• DOE should actively encourage full participation of schools in Hour of Code.
• The New York City Office of Management and Budget (OMB) should make Resolution A funding available for the purchase of tablets.
• The New York State Legislature should pass A9557, a bill authorizing the commissioner of education to conduct a study regarding computer science curriculum within the state at all public and private schools offering instruction to kindergarten through 12th grade.
• The New York State Legislature should introduce legislation to create a teacher certification program for computer science.

Our efforts must reflect the importance of technology in our children's futures and in the economy we are building. More than that, we also need to recognize the powerful tool that technology can be in the classroom. Our students should always be as close as possible to the cutting edge in their classrooms. We recognize the size and scope of that mandate, but a large-scale challenge is not insurmountable if our focus is on what is best for our students and our collective future.

**Appendix A:**

Code Brooklyn Computer Science Readiness Principal Survey

The following survey will help Brooklyn Borough President Eric L. Adams gauge the readiness of Brooklyn schools overall, and your school specifically, for computer science education. In particular, this survey is a critical tool to identify new ways in which the Brooklyn borough president can support you and connect you with resources.

(A reminder that February 7, 2016 is the deadline for Borough President Adams' Reso-A funding applications. )

*** PLEASE NOTE: THIS SURVEY IS INTENDED ONLY FOR SCHOOL PRINCIPALS ***

**School Information:**

What is the name of the school for which you are the principal? *Required

What is your school's ATS/DBN number?
(e.g., "13K282" for "PS/MS 282 Park Slope" starts with your school district number.)

What is your school's total enrollment? *Required

What is your name? *Required

What is your email address?

Infrastructure at your school

On a scale of 1-5, 5 being the best, how would you rate Wi-Fi at your school?
 5 - Very Reliable
 4
 3
 2
 1
 No Wi-Fi at Our School
 Other:

How many working laptops do you have at your school?

How many working tablets do you have at your school?
Are there any hardware and/or equipment issues that you think we should know about at your school?

Do you have wireless Internet? Do you have a way for non-DOE employees to access the network?

Does your school have a responsible use policy for the network and computers? *Required

Yes

No

Don't Know

Other:

**Computer Science Curriculum:**

Is your school part of the Software Engineering Pilot (SEP)? *Required

Yes

No

Is your school part of the iZone?

Yes

No

Does your school use established computer science curricula to teach computer science? *Required
(Examples include Advanced Placement Computer Science, Exploring Computer Science, etc.)

Yes

No - We offer computer science but do not use an established existing curriculum

N/A – We do not offer computer science yet at our school

Other:

What type of computer science or coding programs, if any, is your school presently doing?

If you have computer science/coding at your school, which students take it?

**Community Engagement and External Support:**

Does your School Leadership Team and/or your PTA/PTO/PA help with Reso-A applications? *Required

Yes

No

N/A - Never Applied for Reso-A

Other:

Other than Hour of Code Week, does your school have volunteers and/or professionals come in to talk about computer science, coding, and/or software engineering to your students? *Required

Yes

No

Other:

Has your school ever hosted events related to computer science?
Examples include hackathons, adult education about computer science, weekend teacher CS professional development, etc. *Required

Yes

No

**Computer Science Professional Development:**

How many teachers at your school have been trained to teach computer science?
Optionally, list the curricula in which they were trained (e.g., Exploring Computer Science, Code.org, etc.)

Are there any teachers at your school who we should contact about specific computer science professional development (PD) opportunities and PD funding/scholarships?

Please include name(s) and email(s), if you have. Also, feel free to list types of PD opportunities that you think are most needed.

**Appendix B:**

**District 13:**

| Responded: | Did Not Respond: | |
|---|---|---|
| PS 054 | PS 003 | MS 596 |
| PS 133 | PS 008 | MS 691 |
| PS 256 | PS 009 | Urban Assembly HS - Music/Art |
| PS 270 | PS 011 | Urban Assembly Unison |
| PS 287 | PS 020 | Brooklyn Community HS |
| PS/MS 282 | PS 044 | Urban Assembly Law and Justice |
| MS 113 | PS 046 | Academy of Arts and Letters |
| MS/HS 265 | PS 056 | Acorn Community HS |
| MS/HS 527 | PS 067 | Brooklyn Academy HS |
| Science Skills Ctr. HS | PS 093 | Bedford Stuyvesant Preparatory HS |
| Brooklyn Tech HS | PS 282 | Bedford Academy HS |
| Brooklyn International HS | PS 305 | George Westinghouse CTE HS |
| | PS 307 | Brooklyn HS for Leadership |
| | MS 266 | Benjamin Banneker Academy |
| | Satellite East MS | City Polytech HS |
| | Satellite West MS | |

**District 14:**

| Responded: | Did Not Respond: | |
|---|---|---|
| PS 018 | PS 016 | MS 126 |
| PS 059 | PS 017 | IS 318 |
| PS 084 | PS 023 | School for Urban Environment (MS) |
| PS 132 | PS 031 | MS 582 |
| PS 257 | PS 034 | Juan Morel Campos (MS/HS) |
| PS 297 | PS 050 | Lyons Community School (MS/HS) |
| PS 414 | PS 110 | Young Women's Leadership (MS/HS) |
| MS 577 | PS 120 | Automotive HS |
| Green School HS | PS 147 | Brooklyn Latin HS |
| PROGRESS HS | PS 196 | Brooklyn Preparatory HS |
| School for Legal Studies HS | PS 250 | El Puente Academy – Peace and Justice |
| Frances Perkins Academy | PS 319 | Foundations Academy HS |
| | PS 380 | HS for Business, Enterprise, and Tech |
| | PS/IS 157 | Williamsburg HS - Architecture and Design |

## District 15:

**Responded:**

PS 001
PS 015
PS 038
PS 321
MS 051
MS 088
MS 821
HS 656
HS 667
HS 698

**Did Not Respond:**

| | |
|---|---|
| PS 010 | PS 295 |
| PS 024 | PS 516 |
| PS 029 | PS 676 |
| PS 032 | IS 136 |
| PS 039 | MS 442 |
| PS 058 | New Voices Academic/Creative Arts |
| PS 094 | MS 447 |
| PS 107 | Park Slope Collegiate (MS/HS) |
| PS 118 | School for International Studies (MS/HS) |
| PS 124 | Secondary School-Collab. Studies (MS/HS) |
| PS 130 | Brooklyn Frontiers HS |
| PS 131 | Brooklyn School for Global Studies |
| PS 146 | Cobble Hill School of American Studies |
| PS 154 | Khalil Gibran International Academy |
| PS 169 | Millennium Brooklyn HS |
| PS 172 | Secondary School for Journalism |
| PS 230 | Secondary School for Law |
| PS 261 | West Brooklyn Community HS |

## District 16:

**Responded:**

PS 005
PS 021
PS 040
PS 081
PS 243
PS 309
PS 627
PS 628
MS 035
MS 267
MS 534
MS 681
HS 594
HS 688

**Did Not Respond:**

| | |
|---|---|
| PS 025 | New Eagle Academy at K455 |
| PS 026 | Research and Service High School |
| PS 028 | |
| PS 262 | |
| PS 308 | |
| PS 335 | |
| PS 636 | |
| MS 057 | |
| MS 385 | |
| MS 584 | |
| Boys and Girls HS | |
| Brooklyn HS for Law and Technology | |
| Frederick Douglass Academy IV | |
| Nelson Mandela High School | |

## District 17:

**Responded:**

PS 092
PS 316
PS 770
PS/MS 394
MS 340
MS 484
MS 722
MS/HS 533
International HS at Prospect Heights
HS for Service & Learning
Clara Barton HS

**Did Not Respond:**

| | |
|---|---|
| PS 006 | Parkside Preparatory Academy |
| PS 012 | MS 334 |
| PS 091 | MS 352 |
| PS 138 | MS 353 |
| PS 161 | MS 354 |
| PS 167 | MS/HS 382 |
| PS 181 | MS/HS 531 |
| PS 189 | MS/HS 590 |
| PS 191 | Academy for Health Careers |
| PS 221 | Academy of Hospitality & Tourism |
| PS 241 | Brooklyn Academy-Science & Environment |
| PS 246 | Brooklyn Institute for Liberal Arts |
| PS 249 | Brooklyn School for Music & Theatre |
| PS 289 | Brownsville Academy High School |
| PS 375 | HS for Global Citizenship |
| PS 397 | HS for Public Service |
| PS 398 | HS for Youth & Community Development |
| PS 399 | Pathways in Technology Early College HS |
| PS 532 | Science, Technology, and Research HS |
| PS 705 | W.E.B. Dubois Academic HS |
| MS 06 | |

## District 18:

**Responded:**

PS 208
PS 272
PS/MS 066
PS/MS 235
MS 211
It Takes a Village Academy
Brooklyn Bridge Academy
Arts & Media Preparatory Academy
HS for Medical Professions

**Did Not Respond:**

| | |
|---|---|
| PS 114 | MS 588 |
| PS 115 | MS 598 |
| PS 135 | MS 763 |
| PS 219 | Academy for Conservation & Environment |
| PS 233 | Brooklyn Generation School |
| PS 244 | Brooklyn Theatre Arts HS |
| PS 268 | Cultural Academy for the Arts & Sciences |
| PS 276 | East Brooklyn Community HS |
| PS 279 | HS for Innovation in Advertising & Media |
| IS 068 | Kurt Hahn Expeditionary Learning School |
| IS 285 | Olympus Academy |
| MS 366 | Urban Action Academy |
| MS 581 | Victory Collegiate HS |

**District 19:**

| Responded: | Did Not Respond: | |
|---|---|---|
| PS 158 | PS 007 | MS 452 |
| PS 213 | PS 013 | MS 654 |
| PS 273 | PS 065 | MS 661 |
| PS 290 | PS 089 | MS 662 |
| PS 325 | PS 108 | MS 663 |
| PS 328 | PS 149 | MS 678 |
| PS 345 | PS 174 | Academy for Young Writers |
| PS/MS 306 | PS 190 | East New York Family Academy |
| MS 218 | PS 202 | Spring Creek Community School |
| MS 760 | PS 214 | Academy of Innovative Technology |
| Multicultural HS | PS 224 | Cypress Hills Collegiate Preparatory School |
| Brooklyn Lab School | PS 346 | FDNY HS for Fire & Life Safety |
| | PS 557 | HS for Civil Rights |
| | PS 677 | Performing Arts & Technology HS |
| | IS 171 | The School for Classics |
| | MS 292 | Transit Tech CTE HS |
| | MS 311 | Urban Assembly-Collaborative Healthcare |
| | IS 364 | W.H. Maxwell CTE HS |
| | | World Academy for Total Community Health |

**District 20:**

| Responded: | Did Not Respond: | |
|---|---|---|
| PS 069 | PS 048 | MS 223 |
| PS 105 | PS 102 | MS 259 |
| PS 127 | PS 112 | MS/HS 609 |
| PS 176 | PS 160 | New Utrecht HS |
| PS 179 | PS 164 | HS of Telecom Arts & Technology |
| PS 200 | PS 170 | |
| PS 205 | PS 185 | |
| PS 264 | PS 186 | |
| PS 971 | PS 192 | |
| PS/MS 104 | PS 204 | |
| PS/MS 163 | PS 229 | |
| PS/MS 180 | PS 247 | |
| PS/MS 229 | PS 310 | |
| PS/MS 686 | PS 503 | |

MS 062

MS 187

MS 227

Fort Hamilton HS

FDR HS

PS 506

PS 682

PS 748

PS/IS 030

MS 201

## District 21:

**Responded:**

PS 100

PS 101

PS 128

PS 216

PS 253

IS 096

IS 228

HS for Sports Management

William E. Grady CTE HS

**Did Not Respond:**

PS 090

PS 095

PS 097

PS 099

PS 121

PS 153

PS 177

PS 188

PS 199

PS 209

PS 212

PS 215

PS 225

PS 226

PS 238

PS 288

PS 329

IS 098

IS 239

IS 281

IS 303

Brooklyn Studio Secondary School

Kingsborough Early College School

Abraham Lincoln HS

Edward R. Murrow HS

Expeditionary Learning School

International HS at Lafayette

John Dewey HS

Liberation Diploma Plus

Life Academy HS for Film & Music

Rachel Carson HS for Coastal Studies

## District 22:

**Responded:**

PS 139

PS 152

PS 193

PS 195

PS 236

PS 254

PS 255

PS/MS 109

PS/MS 207

MS 014

MS 234

**Did Not Respond:**

PS 052

PS 119

PS 134

PS 194

PS 197

PS 198

PS 203

PS 206

PS 217

PS 222

PS 245

PS 315

PS 326

PS 361

MS 078

MS 278

IS 381

Brooklyn College Academy

Leon M. Goldstein HS for the Sciences

Professional Pathways HS

Sheepshead Bay HS

MS 240

Midwood HS

James Madison HS

Origins HS

PS 251

PS 269

PS 277

PS 312

## District 23:

**Responded:**

PS/MS 041

PS/MS 284

IS 392

MS 518

MS 664

Teachers Preparatory HS

**Did Not Respond:**

PS 073

PS 150

PS 156

PS 165

PS 178

PS 184

PS 298

PS 327

PS 401

PS 446

PS 599

PS/IS 137

PS/IS 155

PS/IS 323

MS 363

MS 522

MS 668

MS 671

MS/HS 644

Aspirations Diploma Plus HS

Brooklyn Collegiate HS

Brooklyn Democracy Academy HS

Frederick Douglass Academy VII HS

Metropolitan Diploma Plus HS

## District 32:

**Responded:**

PS 075

PS 086

PS 151

PS/IS 384

Academy of Urban Planning HS

**Did Not Respond:**

PS 106

PS 116

PS 123

PS 145

PS 274

PS 299

PS 376

PS 377

PS/IS 045

MS 162

MS 291

IS 347

IS 349

MS 383

MS 562

MS/HS 554

Academy for Environmental Leadership

Brooklyn School for Math & Research

Bushwick Community HS

Bushwick Leaders HS Academic Excellence

Bushwick School for Social Justice

EBC HS for Public Service – Bushwick