RECORD OF THE REGULAR MEETING OF THE BROOKLINE SCHOOL COMMITTEE HELD ON **THURSDAY, MARCH 19, 2020** AT 6:00 PM (REMOTE).

School Committee Members Present: Ms. Schreiner-Oldham (Chair), Ms. Federspiel (Vice Chair), Dr. Abramowitz, Ms. Charlupski, Ms. Ditkoff, Mr. Glover, Ms. Monopoli, Mr. Pearlman, and Ms. Scotto. Also present: Mr. Lummis, Ms. Normen, and Ms. Coyne.

Ms. Schreiner-Oldham called the meeting to order at 6:00 PM.

1. ADMINISTRATIVE BUSINESS

a. Consent Agenda

ACTION 19-23

On a motion of Ms. Charlupski and seconded by Ms. Federspiel, the School Committee VOTED UNANIMOUSLY (by roll call) to approve the items included in the Consent Agenda.

i. Acceptance of Gift: Exercise Equipment (Attachment A)
ii. Acceptance of Grants from the Massachusetts Department of Education and the Massachusetts Department of Housing and Community Development (Attachment B)
iii. Approval of Driscoll School Project Proprietary Item (Attachment C)

2. UPDATE ON SCHOOL DISTRICT CLOSING IN RESPONSE TO COVID-19 (CORONAVIRUS)

Mr. Lummis provided an update on the school district closing in response to COVID-19 (coronavirus), including the following: dissemination of guidance materials and resources; ongoing work and discussions with representatives of the Brookline Educators Union (BEU) on how best to provide meaningful, high-quality, and equitable educational experiences for children; medicine pick-up for families; free and reduced breakfast and lunch pick-up; chrome book distribution; cleaning of facilities; and staff participation on the Town's Emergency Task Force. Mr. Lummis expressed his appreciation to all staff members.

3. PRESENTATIONS AND DISCUSSIONS OF CURRENT ISSUES

a. Update on the FY 2021 Budget

Ms. Normen reported that the Finance Subcommittee met on March 17, 2020. At that meeting, Ms. Normen presented charts showing the FY 2019-FY 2021 Override Budget Reconciliation and the FY 2021 Preliminary Budget Reconciliation. The Subcommittee discussed the following: 1) the plan going forward to reconcile the FY 2021 Budget, including getting input from School Committee members on items they might want to restore, reduce, or increase and 2) uncertainty around the potential budgetary impact of COVID-19, both in terms of additional expenses and loss of revenues. Ms. Normen reported that she is tracking expenses related to the COVID-19 response, and will provide a report at the next School Committee meeting on March 26, 2020 at 5:00 PM (remote meeting).

b. Discussion and Possible Vote to Authorize the Chair to Sign the Massachusetts School Building Authority (MSBA) Pierce School Design Enrollment Certification

Mr. Lummis referred to his March 18, 2020 memo regarding the MSBA Pierce Project (Attachment D). In his memo, Mr. Lummis noted the following: The MSBA has been working in collaboration with the Public Schools of Brookline (PSB) since 2019 on the Pierce Building project. Since submitting the required documentation to the MSBA in late summer/early fall, the PSB and the MSBA have had multiple meetings regarding the enrollment projections of the district, the use and capacity of space in our K-8 schools, and the plans for Pierce school if we were to move ahead in partnership. At this time, the MSBA has produced an enrollment letter for the Pierce project that the Town of Brookline (School Committee, Town Administrator, and Superintendent) need to agree to in order to be presented to the MSBA Board in April and move forward into the feasibility phase. Mr. Lummis referred to the following documents: MSBA Projections-November 2019 (Attachment D), Cropper & McKibben Forecasts-February 2020 (Attachment E), and the Pierce MSBA Enrollment Letter/Design Enrollment Certification-March 2020 (Attachment F).

The MSBA does not project PreK-8 enrollment but rather K-8 enrollment. The determination of allowable space for PreK programming for the Pierce project will be established during the feasibility study phase of the MSBA process. The MSBA projects PSB K-8 enrollment to experience a "declining trend" over the next five years, and then remain steady through the 2029-30 school year. Similarly, the Cropper & McKibben report forecasts a stabilization of elementary enrollment (K-8) between 2020-21 and 2029-30 with the enrollment forecasts ranging from 5486 in 2020-21 to 5510 in 2029-30. Cropper & McKibben forecasts Pierce School K-8 enrollment to be 739 in 2029-30. The MSBA does not project school by school enrollment.

The MSBA methodology includes a modified grade to grade cohort survival methodology, birth data, female population data, and female population projections (fertility rates). Using this methodology, the MSBA projected a PSB average ten year K-8 enrollment of 5110 students. The MSBA adjusted this number to approximately 5190 K-8 students after receiving additional data from the PSB. The Cropper & McKibben methodology uses historical enrollment combined with population demographics, housing patterns, migration patterns, and birth rates to forecast enrollment. Using this methodology, Cropper & McKibben forecast a PSB average ten-year K-8 enrollment of 5497 students. The MSBA understands the historical enrollment growth of PSB, current building projects that will modify PSB K-8 schools (i.e., Driscoll), and that the class size goal for PSB is 18 students for Kindergarten and 21 students for grades 1-8 (note MSBA standard is 23 students per class for grades 1-8).

The MSBA's initial enrollment projections showed that, due to declining enrollment, replacing the Pierce School was not necessary. The PSB followed up and provided additional information about school utilization including our intent to bring BEEP classes back into our K-8 buildings and our district-wide programs. When

thinking future "big picture," PSB identified the following sections as ideal for PreK-8 schools. This is best-case scenario planning and includes sufficient capacity for all necessary BEEP classes. At this utilization, according to the MSBA, the enrollment capacity of all K-8 schools (except Pierce) is 4464 students - 5190 (MSBA projection) - 4465 (K-8 capacity except Pierce) = 725 students remaining for Pierce School. Enrollment of 725 students would indicate Pierce as a 4-section school.

Mr. Lummis stated that the School Committee needs to discuss whether a 4-section Pierce School is one they can support and whether 725 students is an enrollment number they agree to. While having this discussion, it is important to keep in mind a few factors. 1) Enrollment projections of the MSBA and those of Cropper & McKibben differ, yet they do both indicate district enrollment is stabilizing. 2) If Pierce hits the enrollment forecast of Cropper & McKibben in 5 years (788) when the Pierce project is complete, the school could increase class size to the MSBA standard of 23 (grades 1-8) as classroom spaces are going to be built based on that standard. Class sizes would likely thereafter decrease as the Cropper forecast decreases to 739 in 2029-30. 3) The District decided to apply to the MSBA for Pierce School for reasons beyond enrollment capacity. Pierce School was built in 1970. In Brookline, as in other communities, school buildings that have reached 40-50 years of age need a renovation or rebuild. The Pierce School does not meet current ADA standards. 4) The Driscoll project will be completed prior to the Pierce project and is going to be a 4 section school.

The District may need to consider changes to assignment zones between now and the time the Pierce project is completed. The MSBA is very clear on their enrollment projection methodology and have reviewed all documentation from Cropper & McKibben and the PSB Facilities and Operations team. Any additional questions or asks of the MSBA would put PSB in jeopardy of missing the April Board meeting and delaying the start of the Pierce project moving forward.

Members discussed whether to authorize the Chair to sign the MSBA Pierce Design Enrollment Certification. Some members expressed reservations (enrollment projections do not take into consideration a number of planned, but not yet approved, developments/conversions; members of the Pierce and greater community have not had adequate opportunity to comment on the proposed change from a five-section to four-section school; should have a comprehensive plan for the site). Some members expressed support for authorizing the Chair to sign the Certification (the district runs the risk of losing significant MSBA funds if the letter is not signed before March 25, 2020; four-section school would include space for additional programs; need to maintain a long-term, positive relationship with the MSBA; this is the first step in a long process).

ACTION 19-24

On a motion of Ms. Charlupski and seconded by Ms. Federspiel, the School Committee VOTED (by roll call), with 5 in favor (Ms. Federspiel, Dr. Abramowitz, Ms. Charlupski, Mr. Glover, and Ms. Monopoli) and 4 opposed (Ms. Schreiner-Oldham, Ms. Ditkoff, Mr. Pearlman, and Ms. Scotto) to authorize

the Chair to Sign the Massachusetts School Building Authority (MSBA) Pierce School Design Enrollment Certification (Attachment F).

c. Update on Interim Superintendent Search Process

Ms. Charlupski provided an update on the Interim Superintendent Search Process. The Superintendent Search Public Advisory Committee and the Superintendent Search Committee unanimously determined that it would be in the best interest of the Public Schools of Brookline (PSB) to suspend the Superintendent search and reopen it in the fall of 2020 with the intention of having a new Superintendent in place at the beginning of the 2021-2022 academic year. The School Committee established an Interim Superintendent Search Committee (Ms. Charlupski, Ms. Federspiel, Ms. Monopoli, and Mr. Pearlman), which met on March 17, 2020. Human Resources Director Lisa Richardson and Massachusetts Association of School Committees (MASC) Executive Director Glenn Koocher participated in the meeting.

The Screening Committee agreed on the following:

- That the search for a permanent Superintendent should be restarted in either late summer or early fall;
- As soon as possible, the district should post a notice for an Interim Superintendent, with the expectation that the selected person will start in July 2020;
- That all applications should go to the Director of Human Resources;
- To not include a deadline for applications; and
- That the notice should indicate 1) that the Interim Superintendent will not be considered as a candidate for the permanent Superintendent role; 2) that the Screening Committee intends to begin review of applications on April 9, 2020 and begin interviews the week of April 13, 2020; and 3) that the Screening Committee will likely conduct all interviews virtually.

The Screening Committee discussed outreach to potential candidates and where the notice could be posted (e.g., PSB Website, SchoolSpring, MASC Website, Massachusetts Association of School Superintendents (MASS) Website, diversity websites, and through School Leadership graduate programs). The next meeting of the Screening Committee will take place on April 9, 2020, at 5:00 PM (remote).

4. NEW BUSINESS

There was no new business.

5. PROPOSED EXECUTIVE SESSION

By unanimous roll call vote at 8:10 PM, the School Committee entered into Executive Session pursuant to Massachusetts General laws chapter 30A section 21(a) for the following purposes:
For Purpose 2, to conduct strategy sessions in preparation for negotiations with nonunion personnel (non-aligned personnel).

For Purpose 3, to discuss strategy with respect to collective bargaining with the Brookline Educators Union (BEU), Unit A, Unit B, and Paraprofessionals, because the chair declared that an open meeting may have a detrimental effect on the bargaining or litigating position of the public body. Ms. Schreiner-Oldham announced that the School Committee will not reconvene in open session at the end of the Executive Session. By unanimous roll call vote at 9:30 PM, the School Committee reconvened in public session for the purpose of adjournment.

6. ADJOURNMENT

Ms. Schreiner-Oldham adjourned the meeting at 9:30 PM.

Respectfully Submitted,

Robin E. Coyne, Executive Assistant
Brookline School Committee

THE PUBLIC SCHOOLS OF BROOKLINE
BROOKLINE, MASSACHUSETTS 02445

PHONE 617-730-2425

BENJAMIN LUMMIS
INTERIM SUPERINTENDENT OF SCHOOLS

MARY ELLEN NORMEN
DEPUTY SUPERINTENDENT
FOR ADMINISTRATION AND FINANCE

Request for Gift Acceptance

February 26, 2020

The School Department requires specific authorization for acceptance of gifts.

School Committee Action Requested: Please accept the following donation:

Donor	**Recipient**	**Amount**	**Reason**	**Account Number**
Jennifer & Geoff Hunt	BHS Health and Fitness Department	Exercise Equipment	Please see attached email.	NA

Motion: Accept the above listed gift for school department use.

Public Schools of Brookline

Donna Chisholm <donna_chisholm@psbma.org>

Fwd: Donation of Exercise Equipment - Zr8 Runner

Kelli McDermott <kelli_mcdermott@psbma.org> Wed, Feb 5, 2020 at 8:00 AM
To: Donna Chisholm <donna_chisholm@psbma.org>
Cc: Carlyn Zaniboni Uyenoyama <carlyn_uyenoyama@psbma.org>

Hi Donna. See email below that was sent to Anthony Meyer.
Thank you!
Kelli
---------- Forwarded message ---------
From: **Jennifer Hunt** [redacted]
Date: Tue, Jan 21, 2020 at 9:22 AM
Subject: Fwd: Donation of Exercise Equipment - Zr8 Runner
To: Anthony Meyer <anthony_meyer@psbma.org>

Hi Anthony,
Hope you had a nice long weekend. Sorry to bother you with this, but I just learned that Tina Bozeman is no longer with BHS. We'd like to donate a piece of exercise equipment to BHS. Can you let me know who I should speak with about it?

Thanks,

- Jennifer
[redacted]
Sent from my iPhone

Begin forwarded message:

From: Jennifer Hunt [redacted]
Date: January 4, 2020 at 11:54:01 AM EST
To: tina_bozeman@psbma.org
Cc: [redacted]
Subject: Donation of Exercise Equipment - Zr8 Runner

Hi Ms. Bozeman,

Our sons attend BHS ('21 and '23) and we are reaching out because we have a piece of commercial grade, home exercise equipment that we'd like to donate to BHS Health and Fitness Dept, if you feel it meets your needs.

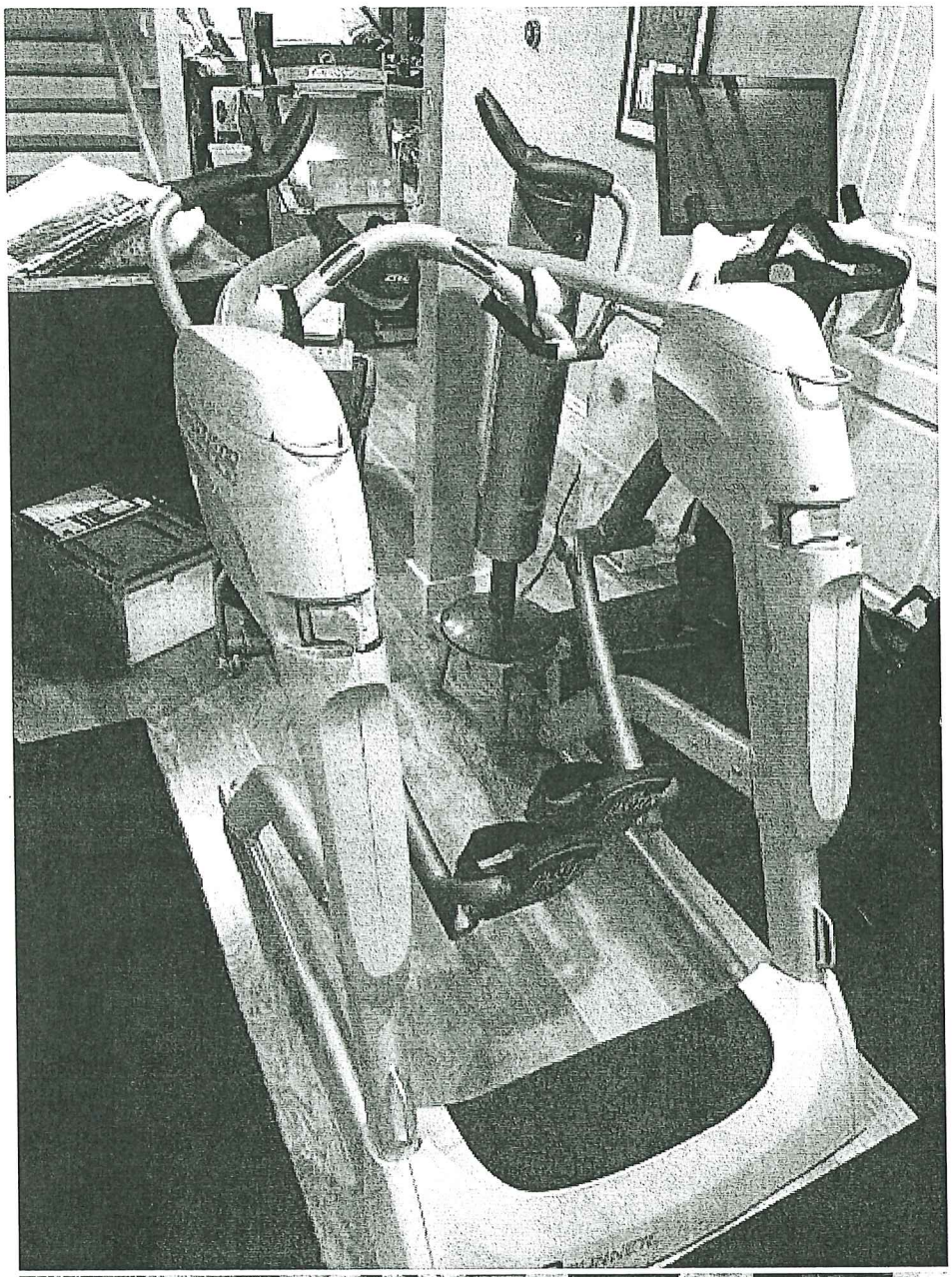
It is a Precor Octane ZR8 Zero Runner. A link to the specs and description is below, along with a few photos. It doesn't take up too much space and runs without electricity. It's only been used for ~100 miles and has nothing wrong with it - we just don't use it as we had hoped.

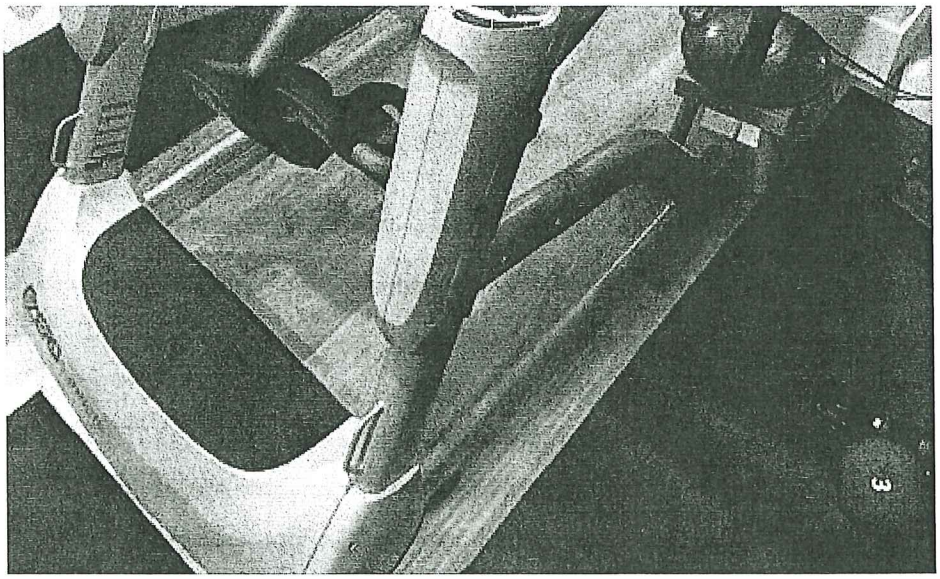
Please let us know if this is something that would be useful and we can figure out a time to bring it over.

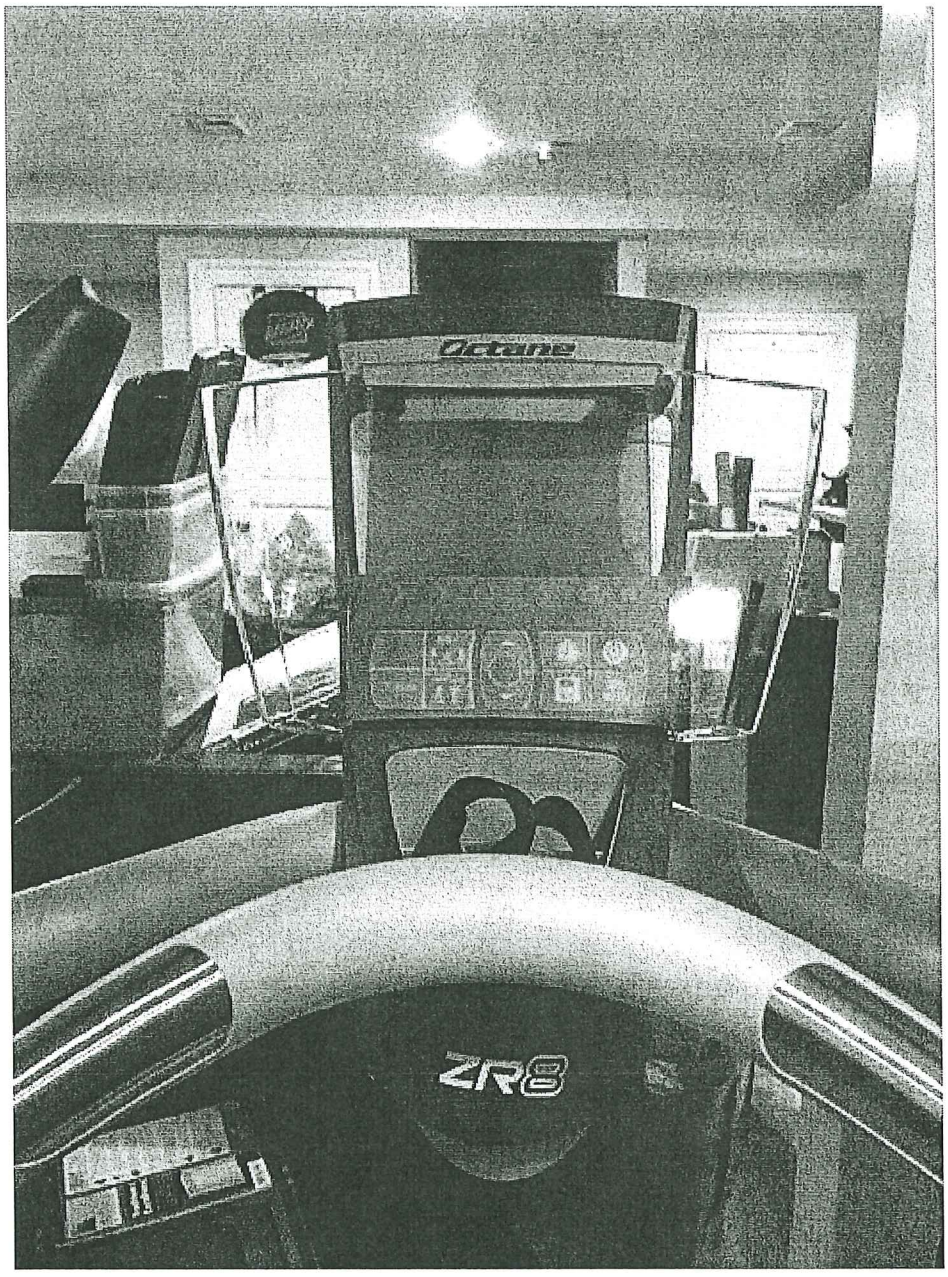
Thanks,
Jennifer & Geoff Hunt

https://www.precorhomefitness.com/octane-zr8-zero-runner/?matchtype=&network=g&device=c&adposition=1o1&keyword=&campaign=1581562064&adgroup=pla-296294991730&gclid=EAIaIQobChMIyZXqmZLQ3gIVS8DICh2g2A0XEAYYASABEgK7bvD_BwE

Sent from my iPhone






Octane
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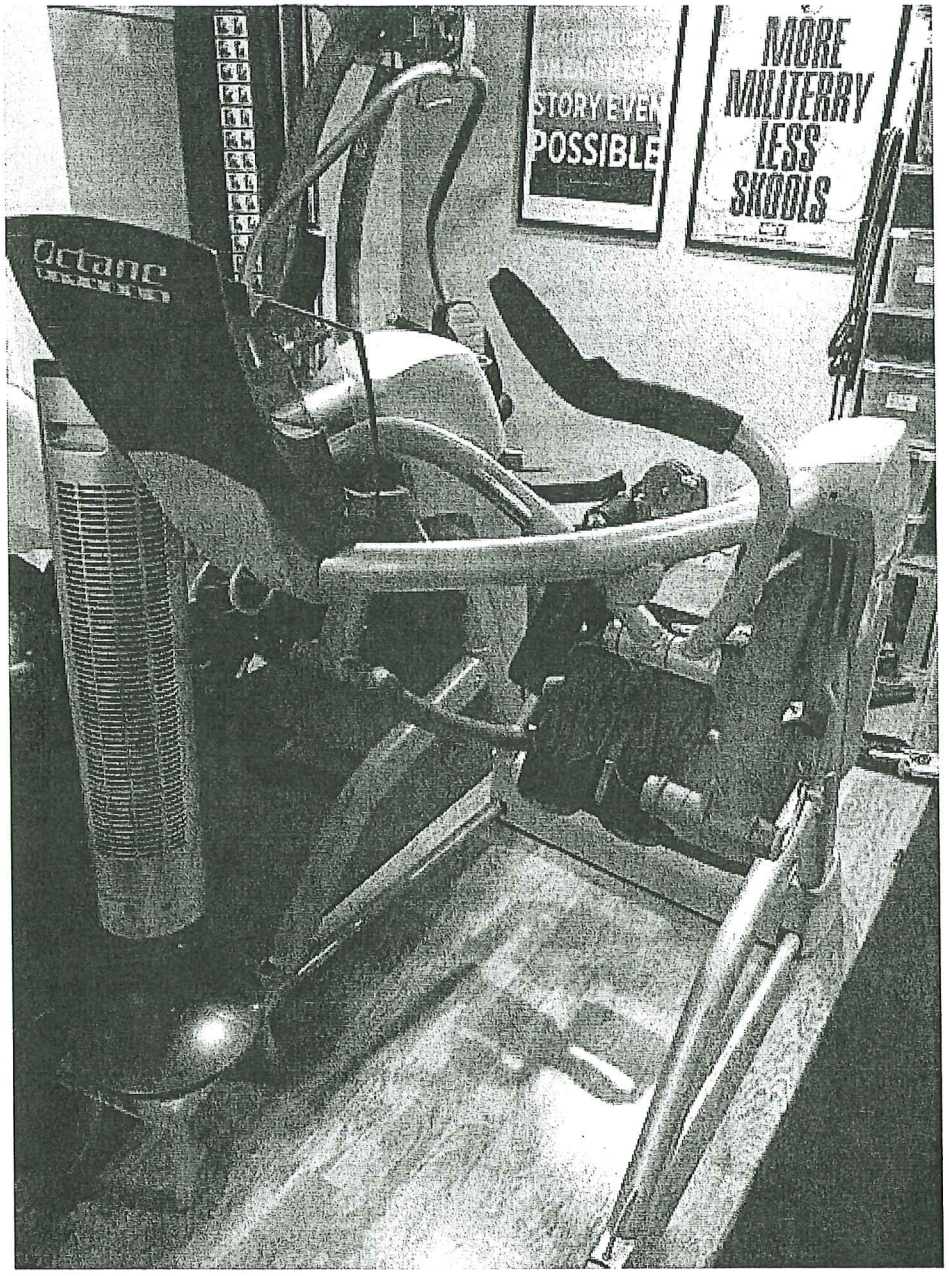

STORY EVEN
POSSIBLE
MORE
MUTTERRY
LESS
SKOOLS
Octane

THE PUBLIC SCHOOLS OF BROOKLINE
BROOKLINE, MASSACHUSETTS 02445

PHONE 617-730-2425
FAX 617-730-2108

BENJAMIN LUMMIS
INTERIM SUPERINTENDENT OF SCHOOLS

MARY ELLEN N. NORMEN
DEPUTY SUPERINTENDENT
FOR ADMINISTRATION AND FINANCE

Request for Grant Acceptance

February 26, 2020

Motion: School Committee Accepts the grant award as determined by the awarding authority for the grants listed below:

Source	Grant	Award	Assumption	FY20 Projected Balance/(Deficit)*	Account Number
MA Department of Education	ASOST 528	$840 – fiscal 2020 $480 – fiscal 2021	Steps to Success, Inc. invoiced for salary expenditures	$0	
MA Department of Education	ASOST 530	$620 – fiscal 2020 $990 – fiscal 2021	Steps to Success, Inc. invoiced for salary expenditures	$0	
MA Department of Housing and Community Development	Community Services Block Grant	$12,600 – fiscal 2020 $2,800 – fiscal 2021	Steps to Success, Inc. invoiced for salary expenditures	$0	

*Any deficit or balance will be the responsibility of the Superintendent to adjust. Grant managers should not assume that the operating budget will have funding available to cover any over expenditures of grant awards.

Grant Award Memo

To: Public Schools of Brookline
From: Steps to Success, Inc.
Date: December 31, 2019
Re: ASOST 528

This memo is to inform Public Schools of Brookline that Steps to Success, Inc. has been awarded an ASOST grant through the Commonwealth of Massachusetts' Department of Education in the total amount of $47,000. The terms of the award are to implement a Teen Advantage extended learning program at the Pierce/Lawrence Schools between January – June 2020, add a third classroom to the Summer Connections program, a career development program for rising 8th-9th graders in July 2020, and host an April vacation STEM camp for boys.

The grant award includes $840 in salaries for PSB STS EM Advisors through June 30, 2020 and an additional $480 in July-August 2020. PSB STS Advisors whose salaries are included in the project budget are being requested to refer and support students before and during the April vacation camp and the Summer Connections program (the 4 STS PSB Advisors in the elementary schools STS serves).

Steps to Success, Inc. will inform the PSB as to the frequency of requested MUNIS reports, in accordance with the State's reimbursement schedule.

We look forward to working in partnership with the district to bring this program to fruition on behalf of our students and families.

If you have any questions, please do not hesitate to contact Shoma Haque at shaque@stepstosuccessbrookline.org or 617-699-7915.

Grant Award Memo

To: Public Schools of Brookline
From: Steps to Success, Inc.
Date: January 28, 2020
Re: ASOST 530

This memo is to inform Public Schools of Brookline that Steps to Success, Inc. has been awarded an ASOST grant through the Commonwealth of Massachusetts' Department of Education in the total amount of $30,000. The terms of the award are to implement a service learning curriculum in the Teen Advantage extended learning program at the Lincoln and Coolidge Corner Schools between January – June 2020, and the Summer Connections program, a career development program for rising 8th-9th graders in July 2020.

The grant award includes $420 in salaries for 2 PSB EM Advisors at Coolidge Corner and Lincoln Schools and $200 for the Senior Director of Programs, between January 1 - June 30, 2020. In addition, between July 1-August 30, 2020, the grant award includes $840 for the 4 PSB EM Advisors at the Coolidge Corner, Lincoln, Lawrence, and Pierce Schools, and $150 for the Senior Director of Programs. Any staff whose salaries are included in the project budget are being requested to attend Partnership meetings between Brookline Housing authority, PSB, and STS, Inc. (the Senior Director of Programs) and refer and support students before and during the Teen Advantage and Summer Connections program (the STS PSB Advisors in the elementary schools STS serves).

Steps to Success, Inc. will inform the PSB as to the frequency of requested MUNIS reports, in accordance with the State's reimbursement schedule.

We look forward to working in partnership with the district to bring this program to fruition on behalf of our students and families.

If you have any questions, please do not hesitate to contact Shoma Haque at shaque@stepstosuccessbrookline.org or 617-699-7915.

Grant Award Memo

To: Public Schools of Brookline
From: Steps to Success, Inc.
Date: January 28, 2020
Re: Community Services Block Grant

This memo is to inform Public Schools of Brookline that Steps to Success, Inc. has been awarded a Community Services Block Grant through the Commonwealth of Massachusetts' Department of Housing and Community Development in the amount of $40,000. The terms of the award are to create a post-secondary pathway program for low-income BHS students who are not college-bound, to support them in the creation of a post-secondary plan.

The grant award includes $15,400 in salaries for PSB High School staff, including, but not limited to, PSB HS Advisors, with $12,600 allocated between October 1, 2019 – June 30, 2020 and $2800 allocated between July 1 – August 30, 2020. Any staff whose salaries are included in the project budget are being requested to help identify applicable resources and programs, identify students for the program, enroll at least 15 students, ensure student attendance, attend the workshops, and help achieve grant goals, e.g. ensuring at least 75% of those students have created a post-secondary plan by graduation.

Steps to Success, Inc. will inform the PSB as to the frequency of requested MUNIS reports, in accordance with the State's reimbursement schedule.

We look forward to working in partnership with the district to bring this program to fruition on behalf of our students and families.

If you have any questions, please do not hesitate to contact Shoma Haque at shaque@stepstosuccessbrookline.org or 617-699-7915.

TOWN of BROOKLINE
Massachusetts
BUILDING DEPARTMENT

Daniel F. Bennett
Building Commissioner

To: Select Board
School Committee
Building Commission

From: Anthony Guigli, Project Manager

Date: 3 March 2020

Re: New Michael Driscoll School Project
Request for Approval of Proprietary Item

M.G.L. c. 149 and 149a requires that material specifications for public bid construction projects be written to provide for full competition for each item of material required for construction. For every item specified, the specifications must either name a minimum of three brands of materials or provide a material description that can be met by at least three manufacturers or producers and must allow items equal to those named or described in the specifications.

However, if there are "sound reasons in the public interest" to restrict competition to one product, manufacturer or producer, the request to carry a proprietary item must be reasonably investigated and approved by the Awarding Authority. The decision must be stated in writing in the public records of the Awarding Authority or promptly given in writing by the Awarding Authority to anyone making a written request. The specifications also must notify the bidders that a proprietary product is required and must provide the general reason for the proprietary need and the date of approval by the Awarding Authority.

To comply with the requirements of M.G.L. c. 149 and 149a which govern the design and construction of the Driscoll School, the Project Team is requesting that the following item and manufacturer be proprietary.

- <u>Rygan HPGX Geothermal Wells</u>
  Conventional closed-loop geothermal wells with U-bends are typically installed to depths of about 400 to 600 feet below ground surface. High-Performance Geo Xchange (HPGX) (aka RYGAN) closed-loop geothermal wells can be installed to deeper depths, and are more efficient then, conventional U-bends. They utilize proprietary high-strength, low-weight, low thermal resistance composite materials. The use of the RYGAN system will result in an increased capacity per well over a traditional U-bend well, which will decrease the total number of wells required and the overall footprint of the well field. Therefore, given the anticipated amount of space on site that will be available for the geothermal well field and the phasing of the project, the use of a RYGAN geothermal system is recommended for this project.

333 Washington Street, Brookline, Massachusetts 02445
Tel: (617) 730-2100 Fax: (617) 739-7542

It is requested that the Brookline Select Board vote to approve this item as proprietary at your next scheduled meeting on 10 March 2020 and make record of the vote so that the Designers can incorporate the required language into the specifications that are in progress. Thank you for your consideration.

Please call or email with questions, thanks.

Cc: D. Bennett

The Public Schools of Brookline
Town Hall
333 Washington Street, 5th Floor
Brookline, Massachusetts 02445
617.730.2401

Ben Lummis
Interim Superintendent

TO: School Capital Subcommittee
FROM: Ben Lummis, Interim Superintendent
DATE: March 18, 2020
RE: **MSBA Enrollment Letter, Pierce School**

The Massachusetts School Building Authority (MSBA) has been working in collaboration with the Public Schools of Brookline (PSB) since 2019 on the Pierce Building project. Since submitting the required documentation to the MSBA in late summer/early fall, PSB and the MSBA have had multiple meetings regarding the enrollment projections of the district, the use and capacity of space in our K-8 schools, and the plans for Pierce school if we were to move ahead in partnership. At this time, the MSBA has produced an enrollment letter for the Pierce project that the Town of Brookline (School Committee, Town Administrator, and Superintendent) need to agree to in order to be presented to the MSBA Board in April and move forward into the feasibility phase. The following highlights important information based on three important documents that will help the School Committee (and others) decide whether to sign the enrollment letter from the MSBA:

Document List:

MSBA Projections (November 2019)
Cropper & McKibben Forecasts (February 2020)
MSBA Enrollment Letter (March 2020)

Highlights:

- The MSBA does not project PreK-8 enrollment but rather K-8 enrollment. The determination of allowable space for PreK programming for the Pierce project will be established during the feasibility study phase of the MSBA process. (MSBA Letter pg. 1)

- The MSBA projects PSB K-8 enrollment to experience a "declining trend" over the next five years, and then remain steady through the 2029-30 school year. (MSBA Letter pg. 2)
    - Similarly, the Cropper & McKibben report forecasts a stabilization of elementary enrollment (K-8) between 2020-21 and 2029-30 with the enrollment forecasts ranging from 5486 in 2020-21 to 5510 in 2029-30. (Cropper pg. 28)

- Cropper & McKibben forecasts Pierce School K-8 enrollment to be 739 in 2029-30. (Cropper pg. 36)
    - The MSBA does not project school by school enrollment.

- The MSBA methodology includes a modified grade to grade cohort survival methodology, birth data, female population data, and female population projections (fertility rates). Using this methodology,

the MSBA projected a PSB average ten year K-8 enrollment of 5110 students. (MSBA Letter pg. 2; MSBA Projections pg. 6)
    - MSBA adjusted this number to approximately 5190 K-8 students after conversions and additional data presented from PSB. (MSBA Letter pg. 4)
    - The Cropper & McKibben methodology uses historical enrollment combined with population demographics, housing patterns, migration patterns, and birth rates to forecast enrollment. Using this methodology, Cropper & McKibben forecast a PSB average ten year K-8 enrollment of 5497 students. (Cropper pg. 28)

- The MSBA understands the historical enrollment growth of PSB, current building projects that will modify PSB K-8 schools (i.e. Driscoll), and that the class size goal for PSB is 18 students for Kindergarten and 21 students for grades 1-8. *Note MSBA standard is 23 students per class for grades 1-8. (MSBA Letter pg. 2).

- The MSBA's initial enrollment projections showed that, due to declining enrollment, replacing the Pierce School was not necessary. PSB followed up and provided additional information about school utilization including our intent to bring BEEP classes back into our K-8 buildings and our district-wide programs.

- When thinking future "big picture", PSB identified the following sections as ideal for PreK-8 schools (MSBA Letter pg. 3). This is best-case scenario planning and includes sufficient capacity for all necessary BEEP classes.
    - Baker: 3
    - CCS: 5
    - Driscoll: 4
    - Heath: 3
    - Lawrence: 3
    - Lincoln: 3
    - Runkle: 3

- At this utilization, according to the MSBA, the enrollment capacity of all K-8 schools (except Pierce) is 4464 students. (MSBA Letter pg. 4)
    - 5190 (MSBA projection) - 4465 (K-8 capacity except Pierce) = 725 students remaining for Pierce School. (MSBA Letter pg. 4)

- Enrollment of 725 students would indicate Pierce as a 4 section school.

Pierce Enrollment Decision:

The questions for School Committee to discuss is whether a 4-section Pierce School is one they can support and whether 725 students is an enrollment number they agree to. While having this discussion, it is important to keep in mind a few factors.

1. Enrollment projections of the MSBA and those of Cropper & McKibben differ, yet they do both indicate district enrollment is stabilizing.

2. If Pierce hits the enrollment forecast of Cropper & McKibben in 5 years (788) when the Pierce project is complete, the school could increase class size to the MSBA standard of 23 (grades 1-8) as classroom spaces are going to be built based on that standard.
    - Class sizes would likely thereafter decrease as the Cropper forecast decreases to 739 in 2029-30.

3. The District decided to apply to the MSBA for Pierce School for reasons beyond enrollment capacity.
    - Pierce School was built in 1970. In Brookline, as in other communities, school buildings that have reached 40-50 years of age need a renovation or rebuild.
    - School does not meet current ADA standards

4. The Driscoll project will be completed prior to the Pierce project and is going to be a 4 section school.
    - The District may need to consider changes to assignment zones between now and the time the Pierce project is completed.

The MSBA is very clear on their enrollment projection methodology and have reviewed all documentation from Cropper & McKibben and the PSB Facilities and Operations team. Any additional questions or asks of the MSBA would put PSB in jeopardy of missing the April Board meeting and delaying the start of the Pierce project moving forward.

MSBA Enrollment Projection – Brookline

Historic Enrollment Data (DESE)

YEAR	PK	K	1	2	3	4	5	6	7	8	9	10	11	12	K-12	K-8	9-12
1993-94	17	469	493	511	470	507	512	437	410	409	399	423	432	398	5,870	4,218	1,652
1994-95	0	420	517	496	507	468	508	482	413	391	425	409	432	437	2,320	4,202	1,703
1995-96	0	423	462	530	498	487	474	523	462	422	409	459	421	423	5,993	4,281	1,712
1996-97	0	422	493	480	513	501	481	459	482	455	442	410	442	406	5,986	4,286	1,700
1997-98	0	424	478	510	490	488	506	465	423	476	449	438	414	438	5,999	4,260	1,739
1998-99	0	428	449	458	510	495	486	498	463	425	458	436	415	401	5,922	4,212	1,710
1999-00	0	407	445	468	458	487	498	485	482	466	430	470	454	411	5,961	4,196	1,765
2000-01	0	404	431	464	463	483	473	498	472	480	487	455	477	441	6,028	4,168	1,860
2001-02	36	402	423	437	465	463	458	460	467	456	487	500	429	468	5,915	4,031	1,884
2002-03	210	430	430	414	424	453	447	463	455	462	471	492	470	417	5,828	3,978	1,850
2003-04	207	406	439	432	411	418	446	437	464	448	474	492	491	453	5,811	3,901	1,910
2004-05	208	418	430	456	426	421	414	455	401	465	455	485	476	473	5,775	3,886	1,889
2005-06	242	484	427	437	465	423	417	413	432	398	465	465	470	470	5,766	3,896	1,870
2006-07	253	549	496	423	452	452	435	406	416	425	421	474	467	467	5,883	4,054	1,829
2007-08	260	495	527	514	438	449	448	408	394	425	432	443	456	477	5,906	4,098	1,808
2008-09	249	552	516	556	539	452	444	444	409	387	445	432	443	450	6,069	4,299	1,770
2009-10	255	596	556	516	544	539	449	435	443	395	409	466	427	437	6,212	4,473	1,739
2010-11	262	545	618	572	532	527	532	445	424	448	402	428	460	431	6,364	4,643	1,721
2011-12	277	602	550	658	567	532	538	516	437	425	458	421	432	459	6,595	4,825	1,770
2012-13	276	666	633	539	651	574	517	549	492	446	436	479	416	432	6,830	5,067	1,763
2013-14	259	631	676	618	539	656	562	519	533	493	466	445	475	403	7,016	5,227	1,789
2014-15	264	685	645	685	620	530	634	541	506	507	494	478	431	473	7,229	5,353	1,876
2015-16	257	633	696	621	704	598	553	610	543	507	500	507	480	446	7,398	5,465	1,933
2016-17	262	582	627	678	633	677	584	549	576	531	500	509	492	479	7,417	5,437	1,980
2017-18	257	609	566	631	691	621	660	585	550	568	531	510	497	506	7,525	5,481	2,044
2018-19	251	603	615	574	645	680	605	665	571	545	554	542	489	499	7,587	5,503	2,084
2019-20	274	600	614	613	573	625	658	582	617	561	521	557	512	474	7,507	5,443	2,064

MSBA Enrollment Projection – Brookline

Historic Birth Data (MA Department of Public Health)

Maternal Age	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
10-14 Yrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-19 Yrs	0	7	10	9	9	0	6	9	6	12	0	6	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0
20-24 Yrs	39	32	24	44	48	36	23	29	32	18	27	15	14	28	24	18	25	23	20	13	18	23	16	16	7	14	0	0
25-29 Yrs	171	160	151	138	124	117	137	131	128	142	113	118	106	104	126	121	117	92	95	90	92	96	97	111	95	67	85	73
30-34 Yrs	243	271	246	231	269	250	251	260	255	284	242	278	267	292	338	319	264	324	303	295	295	324	318	318	346	297	263	260
35-39 Yrs	125	143	128	128	152	138	140	140	141	156	155	161	160	159	161	188	160	205	202	204	214	186	204	191	215	214	202	204
40-44 Yrs	37	36	46	33	23	41	42	34	32	41	45	35	46	52	40	40	43	42	37	58	51	55	44	48	47	56	43	47
Total Births	621	649	605	584	625	585	600	608	599	655	589	614	599	649	691	697	613	691	668	666	676	693	688	686	718	653	602	597

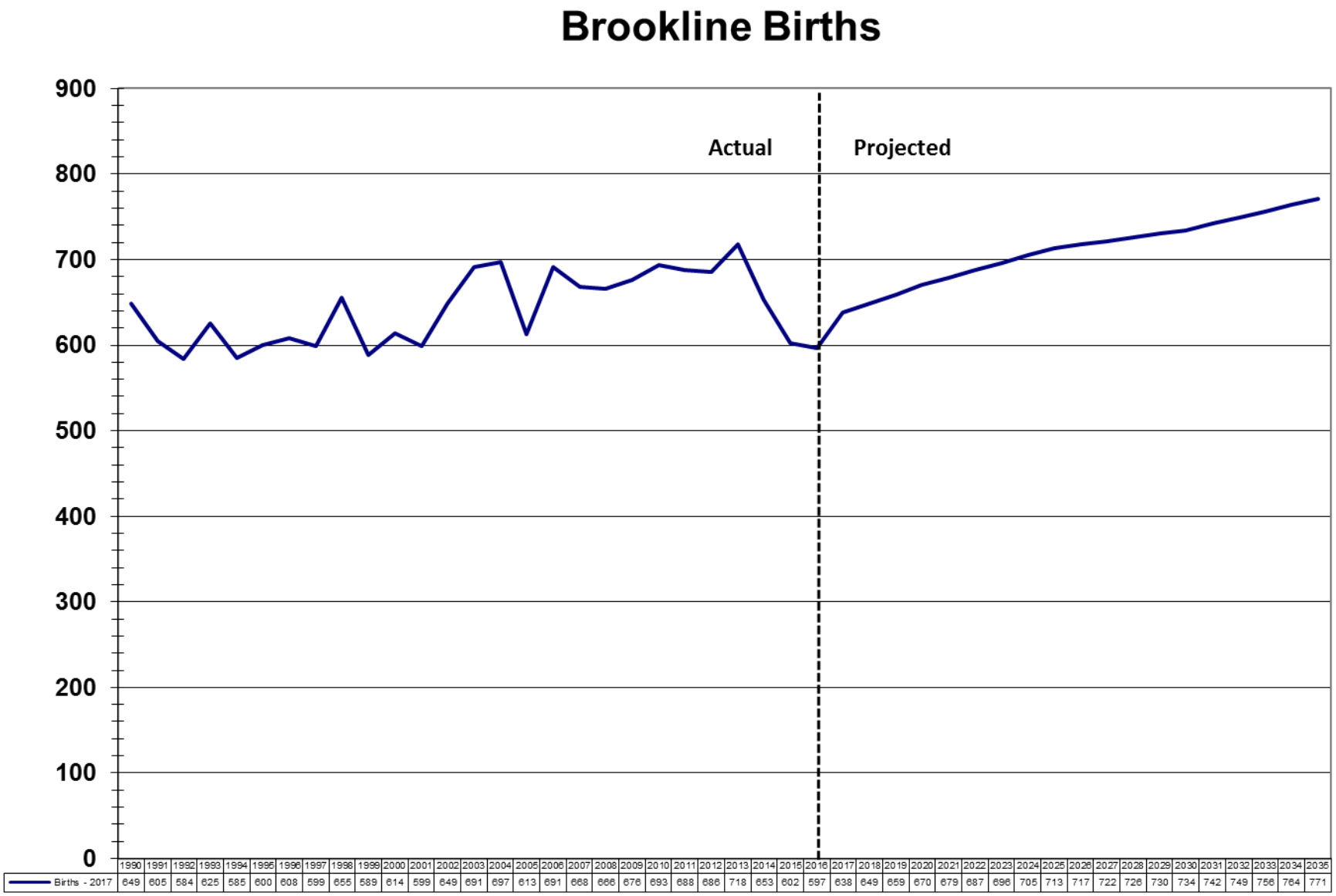
Female Population Data

	US Census Data			U Mass Donohue Institute					
Maternal Age	1990	2000	2010	2015	2020	2025	2030	2035	2040
10-14 Yrs	1,041	1,312	1,275	1,444	1,836	1,873	1,780	1,891	1,924
15-19 Yrs	1,396	1,382	1,468	1,523	1,698	2,106	2,049	1,946	2,089
20-24 Yrs	2,957	3,281	4,126	4,209	4,156	4,651	5,503	5,087	4,828
25-29 Yrs	3,739	4,044	3,940	4,312	4,392	4,226	4,777	5,468	5,062
30-34 Yrs	3,143	2,885	2,722	2,888	3,061	3,320	3,102	3,506	3,995
35-39 Yrs	2,525	2,379	2,224	2,440	2,748	2,927	3,245	2,995	3,378
40-44 Yrs	2,609	2,066	1,830	1,925	2,261	2,472	2,628	2,929	2,693
Total Females	30,648	31,275	32,278	33,937	36,156	38,551	41,043	42,578	43,726

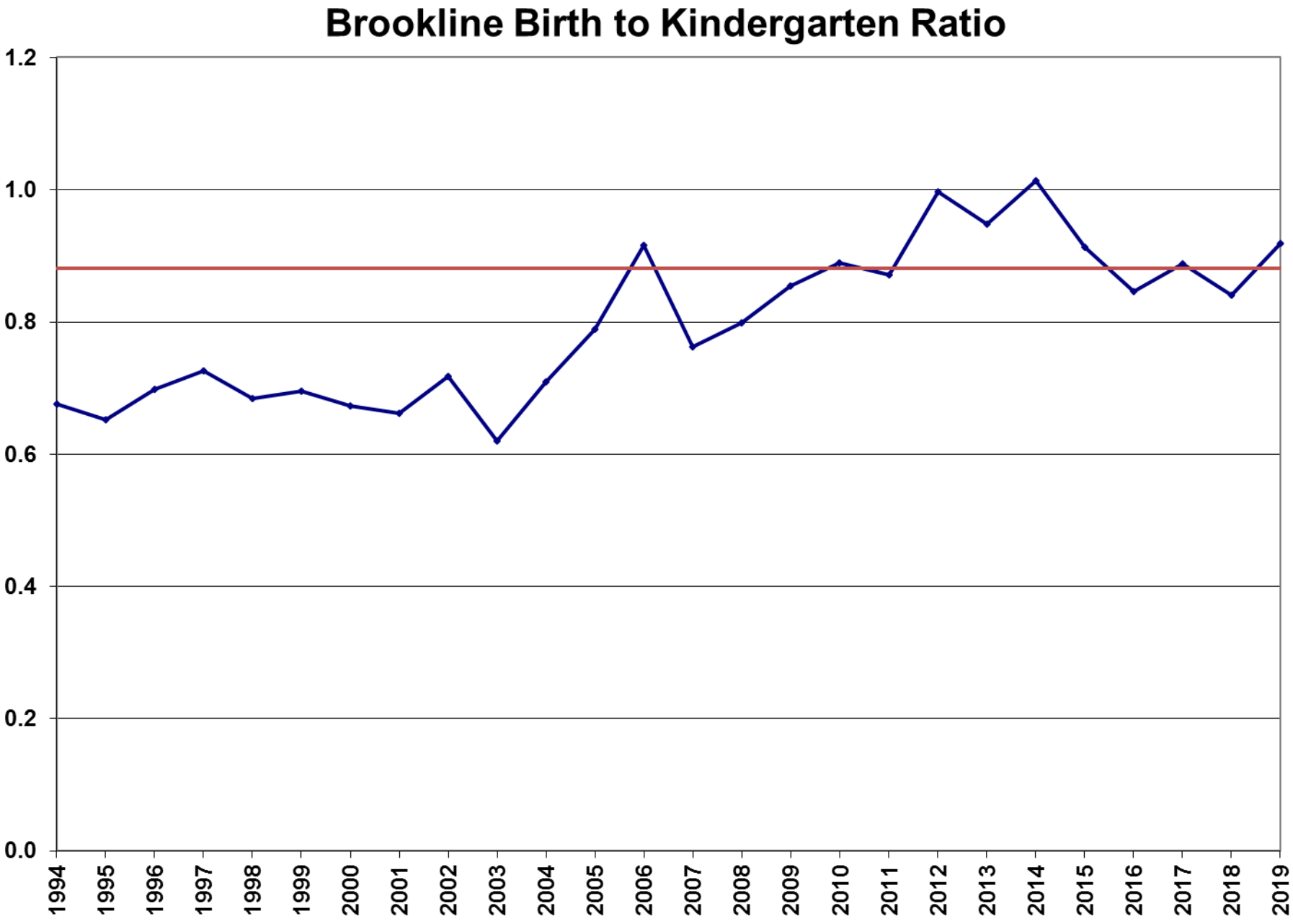
2014-2016 Avg Fertility Rate
0.00%
0.00%
0.11%
1.77%
9.61%
8.58%
2.55%
1.82%

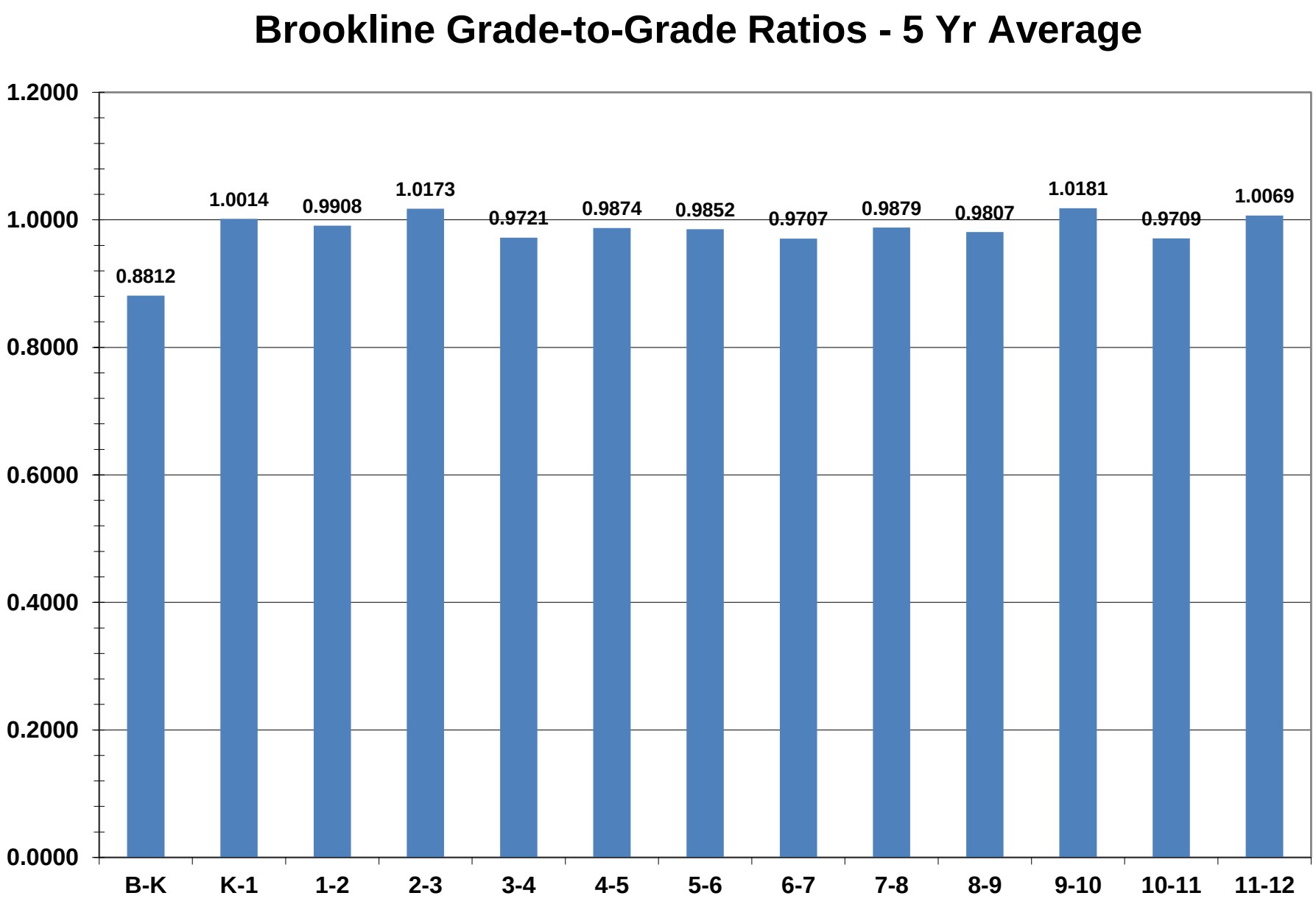
Birth Projections

Maternal Age	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
10-14 Yrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15-19 Yrs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20-24 Yrs	5	5	5	5	5	5	5	5	5	5	6	6	6	6	6	6	6	6	6
25-29 Yrs	77	77	78	78	77	77	76	76	75	77	79	81	83	85	87	90	92	94	97
30-34 Yrs	284	287	291	294	299	304	309	314	319	315	311	306	302	298	306	314	321	329	337
35-39 Yrs	220	225	230	236	239	242	245	248	251	257	262	267	273	278	274	270	266	261	257
40-44 Yrs	52	54	56	58	59	60	61	62	63	64	65	65	66	67	68	70	72	73	75
Totals	638	649	659	670	679	687	696	705	713	717	722	726	730	734	742	749	756	764	771



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Births - 2017	649	605	584	625	585	600	608	599	655	589	614	599	649	691	697	613	691	668	666	676	693	688	686	718	653	602	597	638	649	659	670	679	687	696	705	713	717	722	726	730	734	742	749	756	764	771

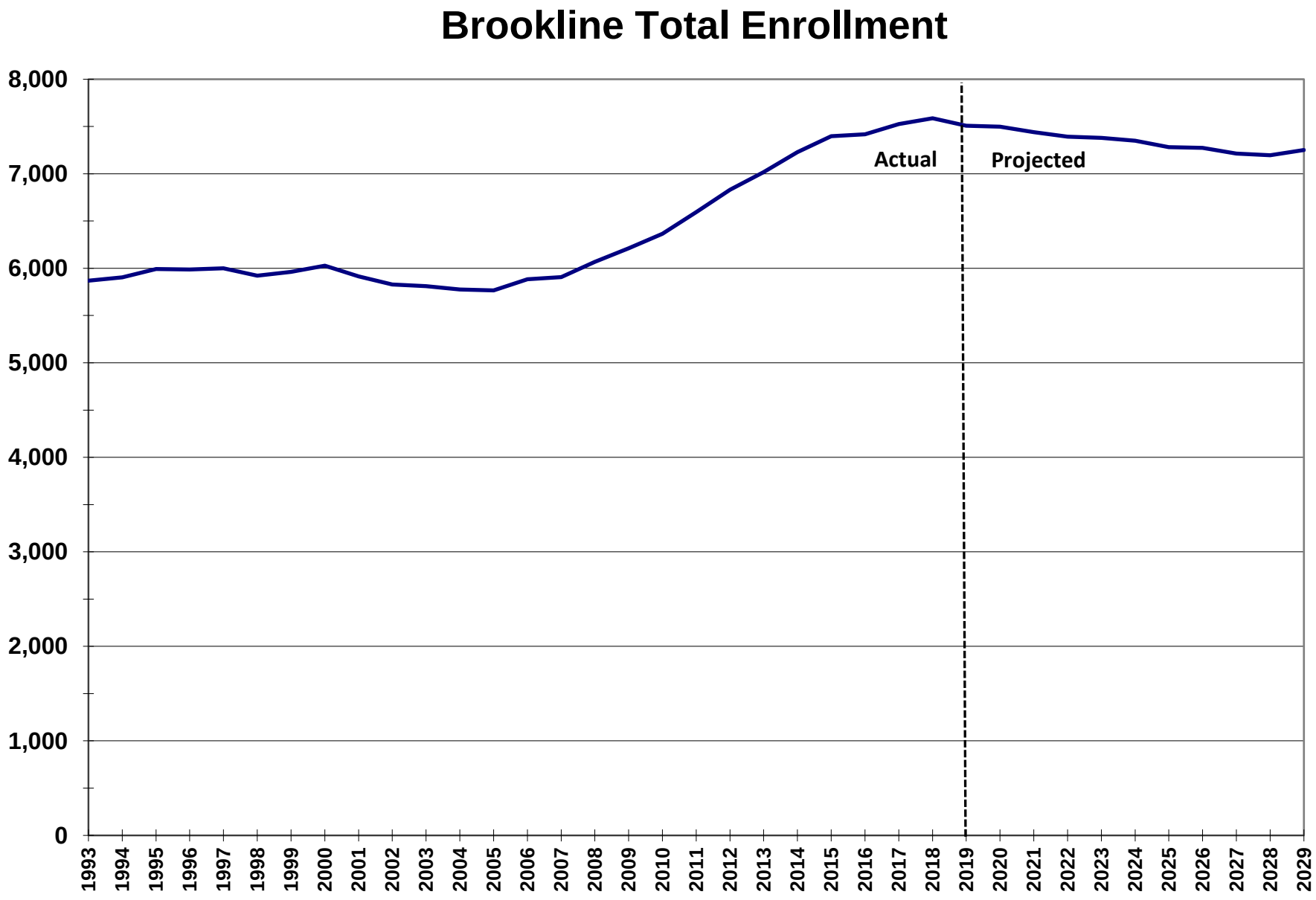

Brookline Birth to Kindergarten Ratio
1.2
1.0
0.8
0.6
0.4
0.2
0.0
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019

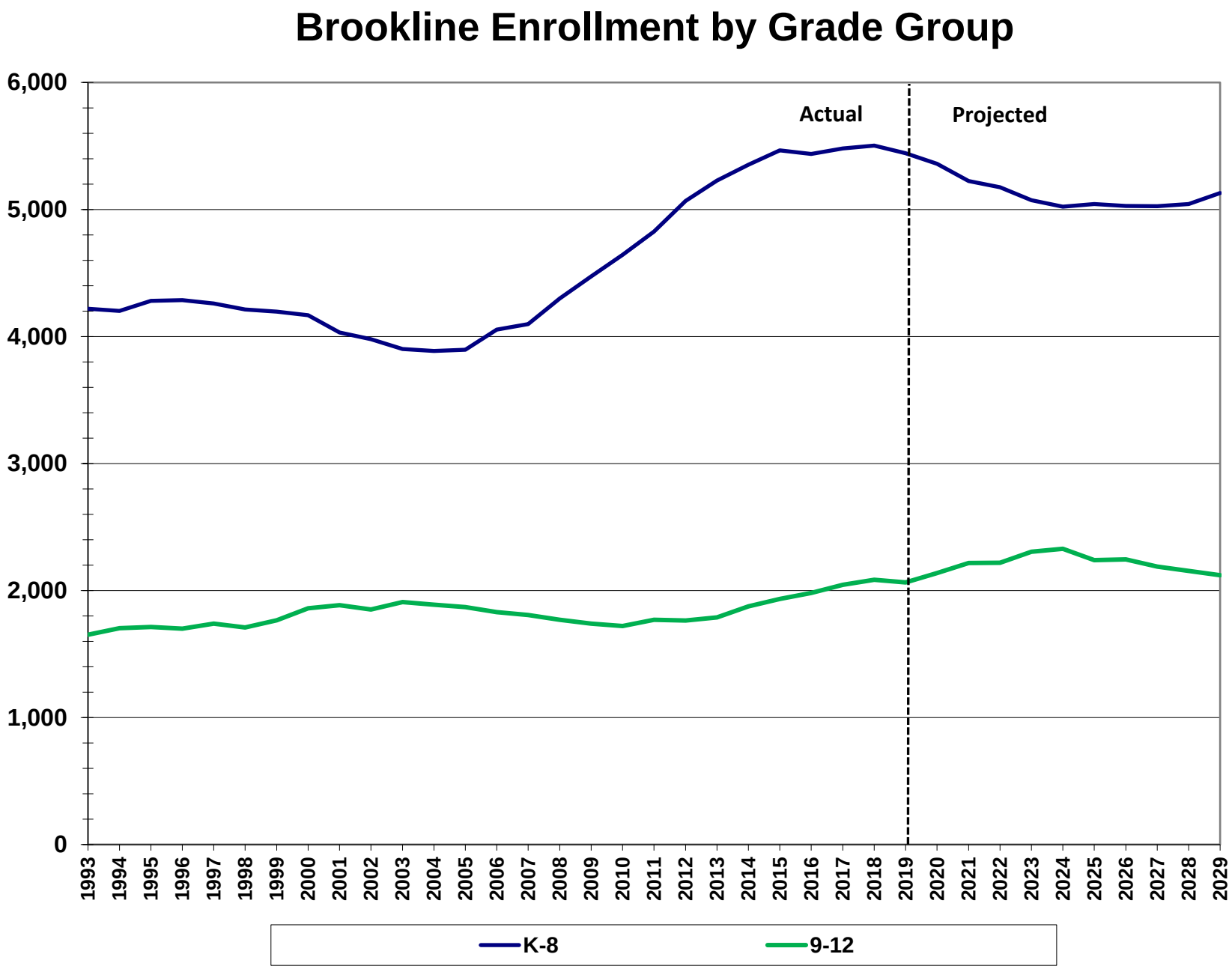

Brookline Grade-to-Grade Ratios - 5 Yr Average
1.2000
1.0000
0.8000
0.6000
0.4000
0.2000
0.0000
0.8812
1.0014
0.9908
1.0173
0.9721
0.9874
0.9852
0.9707
0.9879
0.9807
1.0181
0.9709
1.0069
B-K
K-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8
8-9
9-10
10-11
11-12

MSBA Enrollment Projection – Brookline

Base Enrollment Projections

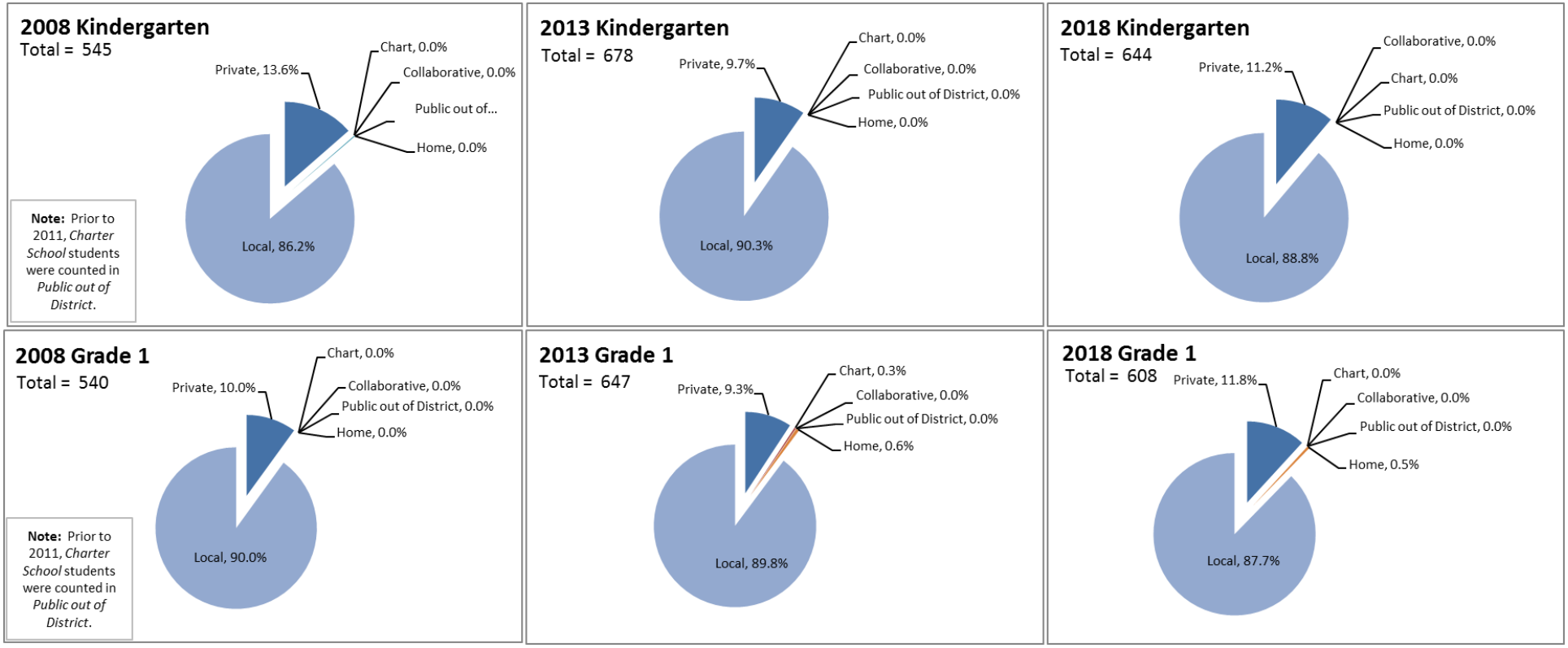
YEAR	K	1	2	3	4	5	6	7	8	9	10	11	12	K-8	9-12	K-12
1993	469	493	511	470	507	512	437	410	409	399	423	432	398	4,218	1,652	5,870
1994	420	517	496	507	468	508	482	413	391	425	409	432	437	4,202	1,703	5,905
1995	423	462	530	498	487	474	523	462	422	409	459	421	423	4,281	1,712	5,993
1996	422	493	480	513	501	481	459	482	455	442	410	442	406	4,286	1,700	5,986
1997	424	478	510	490	488	506	465	423	476	449	438	414	438	4,260	1,739	5,999
1998	428	449	458	510	495	486	498	463	425	458	436	415	401	4,212	1,710	5,922
1999	407	445	468	458	487	498	485	482	466	430	470	454	411	4,196	1,765	5,961
2000	404	431	464	463	483	473	498	472	480	487	455	477	441	4,168	1,860	6,028
2001	402	423	437	465	463	458	460	467	456	487	500	429	468	4,031	1,884	5,915
2002	430	430	414	424	453	447	463	455	462	471	492	470	417	3,978	1,850	5,828
2003	406	439	432	411	418	446	437	464	448	474	492	491	453	3,901	1,910	5,811
2004	418	430	456	426	421	414	455	401	465	455	485	476	473	3,886	1,889	5,775
2005	484	427	437	465	423	417	413	432	398	465	465	470	470	3,896	1,870	5,766
2006	549	496	423	452	452	435	406	416	425	421	474	467	467	4,054	1,829	5,883
2007	495	527	514	438	449	448	408	394	425	432	443	456	477	4,098	1,808	5,906
2008	552	516	556	539	452	444	444	409	387	445	432	443	450	4,299	1,770	6,069
2009	596	556	516	544	539	449	435	443	395	409	466	427	437	4,473	1,739	6,212
2010	545	618	572	532	527	532	445	424	448	402	428	460	431	4,643	1,721	6,364
2011	602	550	658	567	532	538	516	437	425	458	421	432	459	4,825	1,770	6,595
2012	666	633	539	651	574	517	549	492	446	436	479	416	432	5,067	1,763	6,830
2013	631	676	618	539	656	562	519	533	493	466	445	475	403	5,227	1,789	7,016
2014	685	645	685	620	530	634	541	506	507	494	478	431	473	5,353	1,876	7,229
2015	633	696	621	704	598	553	610	543	507	500	507	480	446	5,465	1,933	7,398
2016	582	627	678	633	677	584	549	576	531	500	509	492	479	5,437	1,980	7,417
2017	609	566	631	691	621	660	585	550	568	531	510	497	506	5,481	2,044	7,525
2018	603	615	574	645	680	605	665	571	545	554	542	489	499	5,503	2,084	7,587
2019	600	614	613	573	625	658	582	617	561	521	557	512	474	5,443	2,064	7,507
2020	530	601	608	624	557	617	648	565	610	550	530	541	516	5,360	2,137	7,497
2021	526	531	595	619	606	550	608	629	558	598	560	515	545	5,223	2,217	7,441
2022	562	527	526	606	602	599	542	590	622	547	609	544	519	5,175	2,218	7,393
2023	572	563	522	535	589	594	590	526	583	610	557	591	548	5,074	2,305	7,379
2024	581	572	558	531	521	581	585	572	520	572	621	541	595	5,022	2,329	7,350
2025	590	582	567	568	516	514	573	568	565	510	582	603	545	5,044	2,239	7,283
2026	598	591	577	577	552	510	506	556	561	555	519	565	607	5,028	2,245	7,273
2027	606	599	586	587	561	545	502	492	549	550	565	504	569	5,025	2,188	7,213
2028	613	606	593	596	570	554	537	487	486	539	560	548	507	5,043	2,154	7,197
2029	621	614	601	604	579	563	546	521	482	476	548	544	552	5,130	2,121	7,250
10 yr avg	616	624	619	616	602	584	556	525	503	486	488	468	460	5,244	1,902	7,147
5 yr avg	605	624	623	649	640	612	598	571	542	521	525	494	481	5,466	2,021	7,487
2 yr avg	602	615	594	609	653	632	624	594	553	538	550	501	487	5,473	2,074	7,547
5 yr proj	554	559	562	583	575	588	595	577	578	575	575	546	544	5,171	2,241	7,412
10 yr proj	580	579	573	585	565	563	564	551	553	551	565	550	550	5,112	2,215	7,328


Brookline Total Enrollment
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Actual
Projected
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029


Brookline Enrollment by Grade Group
6,000
5,000
4,000
3,000
2,000
1,000
0
Actual
Projected
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028
2029
K-8
9-12

MSBA Enrollment Projection – Brookline

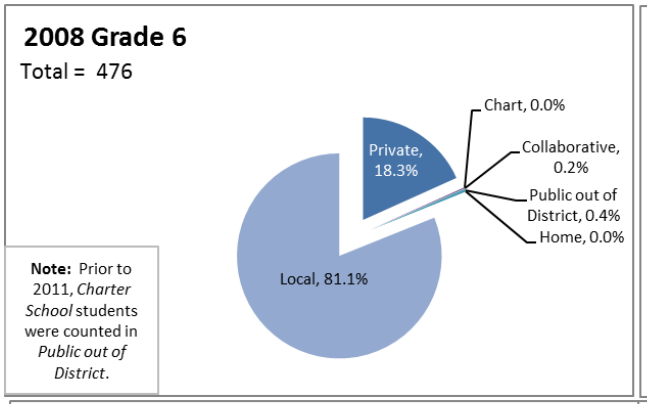
The following charts show the School Attending Children Profiles (indicating where all school-aged children that reside in the district attend school) at the typical transition grades for elementary school, middle school, and high school.

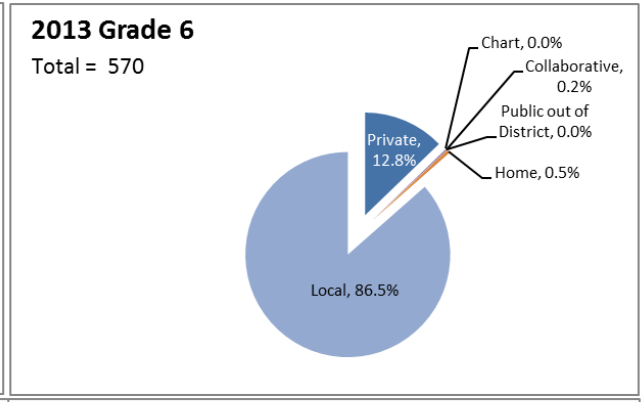


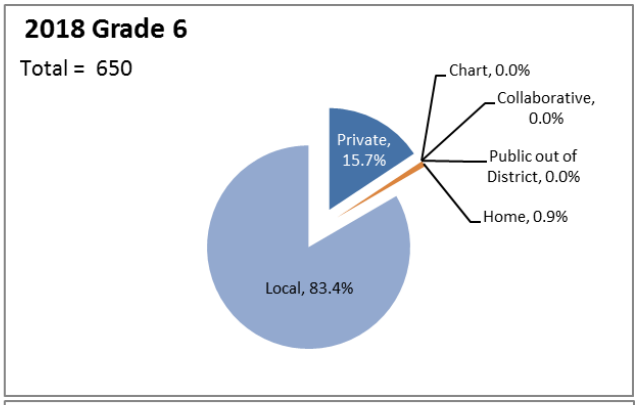
School Attending Children Profiles

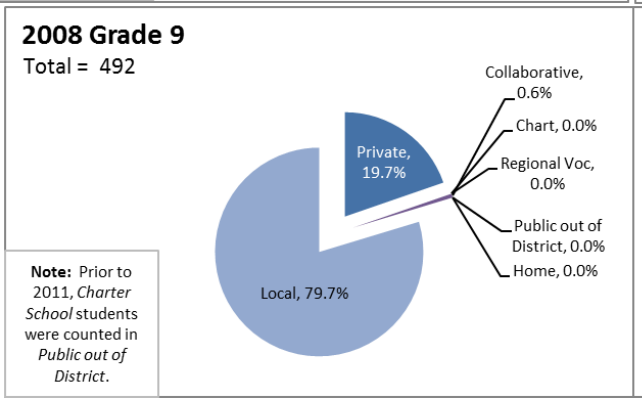
Grades K and 1

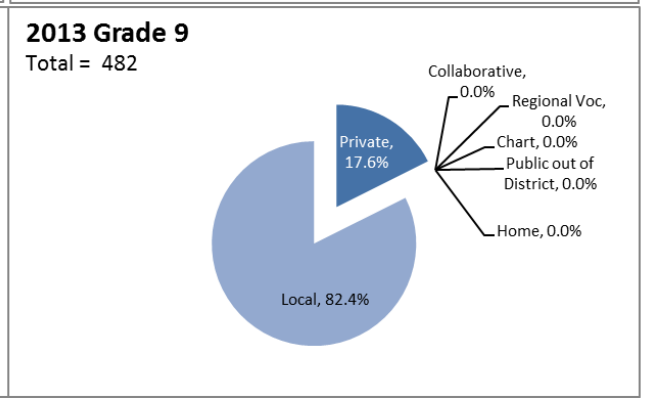
These profiles show the enrollment of all full-time students whose parents or legal guardians are residents of the city or town.

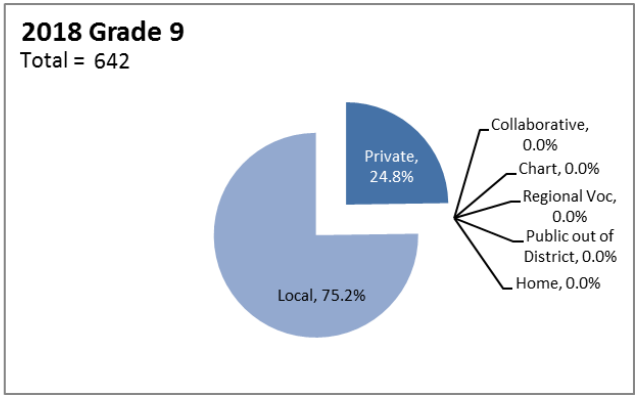












School Attending Children Profiles

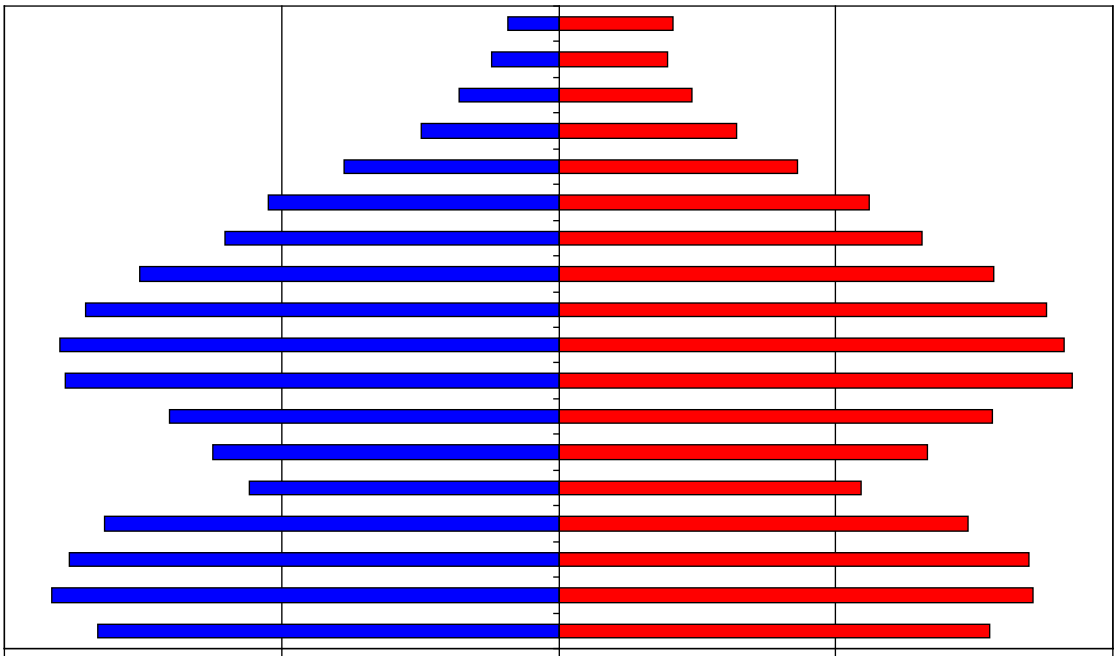
Grades 6 and 9

These profiles show the enrollment of all full-time students whose parents or legal guardians are residents of the city or town.

PUBLIC SCHOOLS of BROOKLINE

Public Schools of Brookline, MA

Demographic Study Report 2019



Cropper GIS

McKibben Demographics

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Executive Summary

1. The resident total fertility rate for the Brookline Public Schools over the life of the forecasts is below replacement level. (1.47 vs. the replacement level of 2.1)

2. Most in-migration to the district continues to occur in the 20-to-34-year-old age groups.

3. The 35-to-49-year-olds and their 0-to-14-year-old children continue to move to the outer suburbs. These population groups accounts for the largest segment of the district's out-migration flow and will increase steadily over the next 10 years. The second largest migration outflow is in the 70+ age groups.

4. The primary factors causing the district's enrollment to increase over the next 10 years are the increase in empty nest households turning over, and a sustained rate of in-migration of young households.

5. Changes in year-to-year enrollment over the next ten years will primarily be due to small cohorts entering and moving through the school system in conjunction with larger cohorts leaving the system.

6. The elementary enrollment (K-5) will steadily increase over the next five years school years and then stabilize

7. The median age of the district's population will decrease from 34.1 in 2010 to 33.6 in 2030.

8. Even if the district continues to have some amount of annual new housing unit construction over the next 10 years, the rate, magnitude and price of existing home sales will become the increasingly dominant factor affecting the amount of population and enrollment change.

9. Total district enrollment is forecasted to increase by 266 students, or 3.5%, between 2019-20 and 2024-25. Total enrollment will decrease by 35 students, or-0.4%, from 2024-25 to 2029-30.

INTRODUCTION

By demographic principle, distinctions are made between projections and forecasts. A projection extrapolates the past (and present) into the future with little or no attempt to take into account any factors that may impact the extrapolation (e.g., changes in fertility rates, housing patterns or migration patterns) while a forecast results when a projection is modified by reasoning to take into account the aforementioned factors.

To maximize the use of this study as a planning tool, the ultimate goal is not simply to project the past into the future, but rather to assess various factors' impact on the future. The future population and enrollment change of each school district is influenced by a variety of factors. Not all factors will influence the entire school district at the same level. Some may affect different areas at dissimilar magnitudes and rates causing changes at varying points of time within the same district. The forecaster's judgment, based on a thorough and intimate study of the district, has been used to modify the demographic trends and factors to more accurately predict likely changes. Therefore, strictly speaking, this study is a forecast, not a projection; and the amount of modification of the demographic trends varies between different areas of the district as well as within the timeframe of the forecast.

To calculate population forecasts of any type, particularly for smaller populations such as a school district, realistic suppositions must be made as to what the future will bring in terms of age specific fertility rates and residents' demographic behavior at certain points of the life course. The demographic history of the school district and its interplay with the social and economic history of the area is the starting point and basis of most of these suppositions particularly on key factors such as the age structure of the area. The unique nature of each district's and attendance area's demographic composition and rate of change over time must be assessed and understood to be factors throughout the life of the forecast series. Moreover, no two populations, particularly at the school district and attendance area level, have exactly the same characteristics.

The manifest purpose of these forecasts is to ascertain the demographic factors that will ultimately influence the enrollment levels in the district's schools. There are of course, other non-demographic factors that affect enrollment levels over time. These factors include, but are not limited to transfer policies within the district; student transfers to and from neighboring districts; placement of "special programs" within school facilities that may serve students from outside the attendance area; state or federal mandates that dictate the movement of students from one facility to another (No Child Left Behind was an excellent example of this factor); the development of charter schools in the district; the prevalence of home schooling in the area; and the dynamics of local private schools.

Unless the district specifically requests the calculation of forecasts that reflect the effects of changes in these non-demographic factors, their influences are held constant for the life of the forecasts. Again, the main function of these forecasts is to determine what impact demographic changes will have on future enrollment. It is quite possible to calculate special "scenario" forecasts to measure the impact of school policy modifications as well as planned economic and financial changes. However, in this case the results of these population and enrollment forecast are meant to represent the most likely scenario for changes over the next 10 years in the district and its attendance areas.

The first part of the report will examine the assumptions made in calculating the population forecasts for the Public Schools of Brookline. Since the results of the population forecasts drive the subsequent enrollment forecasts, the assumptions listed in this section are paramount to understanding the area's demographic dynamics. The remainder of the report is an explanation and analysis of the district's population forecasts and how they will shape the district's grade level enrollment forecasts.

DATA

The data used for the forecasts come from a variety of sources. The Public Schools of Brookline provided enrollments by grade and attendance center for the school years 2016-2017 to 2019-2020. Birth and death data for the years 2000 through 2017 were obtained from the Massachusetts Department of Health. The net migration values were calculated using Internal Revenue Service migration reports for the years 2000 through 2017. The data used for the calculation of migration models came from the United States Bureau of the Census, 2005 to 2010, and the models were designed using demographic and economic factors. The base age-sex population counts used are from the results of the 2010 Census.

Recently the Census Bureau began releasing annual estimates of demographic variables at the block group and tract level from the American Community Survey (ACS). There has been wide scale reporting of these results in the national, state and local media. However, due to the methodological problems the Census Bureau is experiencing with their estimates derived from ACS data, particularly in areas with a population of less than 60,000, the results of the ACS are not used in these forecasts. For example, given the sampling framework used by the Census Bureau, each year only 800 of the over 26,000 current households in the district would have been included. For comparison 3,800 households in the district were included in the sample for the long form questionnaire in the 2000 Census. As a result of this small sample size, the ACS survey result from the last 5 years must be aggregated to produce the tract and block group estimates.

To develop the population forecast models, past migration patterns, current age specific fertility patterns, the magnitude and dynamics of the gross migration, the age specific mortality trends, the distribution of the population by age and sex, the rate and type of existing housing unit sales, and future housing unit construction are considered to be primary variables. In addition, the change in household size

relative to the age structure of the forecast area was addressed. While there was a slight drop in the average household size in the Public Schools of Brookline as well as most other areas of the state during the previous 20 years, the rate of this decline in the district has been forecasted to decrease slightly over the next ten years.

ASSUMPTIONS

For these forecasts, the mortality probabilities are held constant at the levels calculated for the year 2010. While the number of deaths in an area are impacted by and will change given the proportion of the local population over age 65, in the absence of an extraordinary event such as a natural disaster or a breakthrough in the treatment of heart disease, death rates rarely move rapidly in any direction, particularly at the school district or attendance area level. Thus, significant changes are not foreseen in district's mortality rates between now and the year 2029. Any increases forecasted in the number of deaths will be due primarily to the general aging of the district's population and specifically to the increase in the number of residents aged 65 and older.

Similarly, fertility rates are assumed to stay fairly constant for the life of the forecasts. Like mortality rates, age specific fertility rates rarely change quickly or dramatically, particularly in small areas. Even with the recently reported rise in the fertility rates of the United States, overall fertility rates have stayed within a 10% range for most of the last 40 years. In fact, the vast majority of year to year change in an area's number of births is due to changes in the number of women in child bearing ages (particularly ages 20-29) rather than any fluctuation in an area's fertility rate.

The resident total fertility rate (TFR), the average number of births a woman will have while living in the school district during her lifetime, is estimated to be 1.47 for the total district for the ten years of the population forecasts. A TFR of 2.1 births per woman is considered to be the theoretical "replacement level" of fertility necessary for a population to remain constant in the absence of in-migration. Therefore, in the absence of migration, fertility alone would be insufficient to maintain the current level of population and enrollment within the Public Schools of Brookline over the course of the forecast period.

A close examination of data for the Public Schools of Brookline has shown the age specific pattern of net migration will be nearly constant throughout the life of the forecasts. While the number of in-and-out-migrants has changed in past years for the Public Schools of Brookline (and will change again over the next 10 years), the basic age pattern of the migrants has stayed nearly the same over the last 30 years. Based on the analysis of data it is safe to assume this age specific migration trend will remain unchanged into the future. This pattern of migration shows most of the local out-migration occurring in the 35-49 and 0-9-year-old age groups as adults leave the area to outlying suburban areas. The second group of out-migrants is those householders aged 70 and older who are downsizing their residences. Most of the local in-migration occurs in the 20-to-34-year-old age groups (the bulk of the which come from areas within 50 miles of the Public Schools of Brookline) primarily consisting of younger adults.

As the Norfolk County area is not currently contemplating any major expansions or contractions, the forecasts also assume that the current economic, political, social, and environmental factors, as well as the transportation and public works infrastructure (with a few notable exceptions) of the Public Schools of Brookline and its attendance areas will remain the same through the year 2029. Below is a list of assumptions and issues that are specific to the Public Schools of Brookline. These issues have been used to modify the population forecast models to more accurately predict the impact of these factors on each area's population change. Specifically, the forecasts for the Public Schools of Brookline assume that throughout the study period:

a. The national, state or regional economy does not go into deep recession at any time during the 10 years of the forecasts; (Deep recession is defined as four consecutive quarters where the GDP contracts greater than 1% per quarter)
b. Interest rates have reached a historic low and will not fluctuate more than one percentage point in the short term; the interest rate for a 30-year fixed home mortgage stays below 5.0%;
c. The rate of mortgage approval stays at 2015-2019 levels and lenders do not return to "sub-prime" mortgage practices;
d. There are no additional restrictions placed on home mortgage lenders or additional bankruptcies of major credit providers;
e. The rate of housing foreclosures does not exceed 125% of the 2015-2019 average of Norfolk County for any year in the forecasts;
f. The district has at least 110 existing single-family home sales annually between 2019 and 2029;
g. The unemployment rates for the Norfolk County and the Boston Metropolitan Area will remain below 6.0% for the 10 years of the forecasts;
h. The intra district student transfer policy between "Buffer Zones" remains unchanged over the next 10 years;
i. The district has a transfer in of 200 Material Fee and 300 METCO students each year for the next 10 years;
j. The rate of students transferring out of The Public Schools of Brookline will remain at the 2015-16 to 2019-20 average;
k. The inflation rate for gasoline will stay below 5% per year for the 10 years of the forecasts;
l. There will be no building moratorium within the district;
m. The State of Massachusetts does not change any of its current laws regarding inter-district transfers, school vouchers or charter schools;
n. No new charter schools open in the district or

surrounding area in the next 10 years;

o. Businesses within the district and The Public Schools of Brookline area will remain viable;
p. The number of existing home sales in the district that are a result of "distress sales" (homes worth less than the current mortgage value) will not exceed 20% of total homes sales in the district for any given year;
q. Housing turnover rates (sale of existing homes in the district) will remain at their current levels. The majority of existing home sales are made by home owners over the age of 60;
r. Private school and home school attendance rates will remain constant;
s. The rate of foreclosures for commercial property remains at the 2014-2018 average for Norfolk County;
t. All currently planned, platted, approved and permitted housing developments are built out and completed by 2028. All housing units constructed are occupied by 2029;
u. In regards to the aforementioned assumption, the following building projects are included in the assumptions: The 420 Harvard/49 Coolidge project, 25 units completed by June 2020. The 384 Harvard (JCHE) project. 62 units, completed by August 2020. The 455 Harvard project. 17 units, completed by June 2020. The 136 Babcock project. 45 units completed by June 2021. The Residence of South Brookline-Hancock Village. 175 units completed by January of 2022.

If a major employer in the district or in the Greater Boston Metropolitan Area closes, reduces or expands its operations, the population forecasts would need to be adjusted to reflect the changes brought about by the change in economic and employment conditions. The same holds true for any type of natural disaster, major change in the local infrastructure (e.g., highway construction, water and sewer expansion, changes in zoning regulations etc.), a further economic downturn, any additional weakness in the housing market or any instance or situation that causes rapid and dramatic population changes that could not be foreseen at the time the forecasts were calculated.

The high proportion of high school graduates from the Public Schools of Brookline that attend college or move to urban areas outside of the district for employment is a significant demographic factor. Their departure is a major reason for the extremely high out-migration in the 18-to-24-year-old age group, and was taken into account when calculating these forecasts. The out-migration of graduating high school seniors is expected to continue over the period of the forecasts and the rate of out-migration has been forecasted to remain the same over the life of the forecast series.

Finally, all demographic trends (i.e., births, deaths, and migration) are assumed to be linear in nature and annualized over the forecast period. For example, if 1,000 births are forecasted for a 5-year period, an equal number, or proportion of the births are assumed to occur every year, 200 per year. Actual year-to-year variations do and will occur, but overall year to year trends are expected to be constant.

METHODOLOGY

The population forecasts presented in this report are the result of using the Cohort-Component Method of population forecasting (Siegel, and Swanson, 2004: 561-601) (Smith et. al. 2004). As stated in the **INTRODUCTION**, the difference between a projection and a forecast is in the use of explicit judgment based upon the unique features of the area under study. Strictly speaking, a cohort projection refers to the future population that would result if a mathematical extrapolation of historical trends. Conversely, a cohort-component forecast refers to the future population that is expected because of a studied and purposeful selection of the components of change (i.e., births, deaths, and migration) and forecast models are developed to measure the impact of these changes in each specific geographic area.

Five sets of data are required to generate population and enrollment forecasts. These five data sets are:

1. a base-year population (here, the 2010 Census population for the Public Schools of Brookline and its attendance areas);
2. a set of age-specific fertility rates for the district to be used over the forecast period and its attendance areas;
3. a set of age-specific survival (mortality) rates for the district and its attendance areas;
4. a set of age-specific migration rates for the district and its attendance areas; and;
5. the historical enrollment figures by grade.

The most significant and difficult aspect of producing enrollment forecasts is the generation of the population forecasts in which the school age population (and enrollment) is embedded. In turn, the most challenging aspect of generating the population forecasts is found in deriving the rates of change in fertility, mortality, and migration. From the standpoint of demographic analysis, the Public Schools of Brookline is classified as a "small area" population (as compared to the population of the state of Massachusetts or to that of the United States). Small area population forecasts are more complicated to calculate because local variations in fertility, mortality, and migration may be more irregular than those at the regional, state or national scale. Especially challenging is the forecast of the migration rates for local areas, because changes in the area's socioeconomic characteristics can quickly change from past and current patterns (Peters and Larkin, 2002).

The population forecasts for the Public Schools of Brookline were calculated using a cohort-component method with the populations divided into male and female groups by five-year age cohorts that range from 0-to-4 years of age to 85 years of age and older (85+). Age- and sex-specific fertility, mortality, and migration models were constructed to

specifically reflect the unique demographic characteristics of each of the attendance areas in the Public Schools of Brookline.

The enrollment forecasts were calculated using a modified average survivorship method. Average survivor rates (i.e., the proportion of students who progress from one grade level to the next given the average amount of net migration for that grade level) over the previous five years of year-to-year enrollment data were calculated for grades two through twelve. This procedure is used to identify specific grades where there are large numbers of students changing facilities for non-demographic factors, such as private school transfers or enrollment in special programs.

The survivorship rates were modified or adjusted to reflect the average rate of forecasted in and out-migration of 5-to-9, 10-to-14 and 15-to-17-year-old cohorts to each of the attendance centers in the Public Schools of Brookline for the period 2010 to 2015. These survivorship rates then were adjusted to reflect the forecasted changes in age-specific migration the district should experience over the next five years. These modified survivorship rates were used to project the enrollment of grades 2 through 12 for the period 2015 to 2020. The survivorship rates were adjusted again for the period 2020 to 2025 to reflect the predicted changes in the amount of age-specific migration in the district for the period.

The forecasted enrollments for Kindergarten and first grade are derived from the 5-to-9-year-old population of the age-sex population forecast at the elementary attendance center district level. This procedure allows the changes in the incoming grade sizes to be factors of forecasted population change and not an extrapolation of previous class sizes. Given the potentially large amount of variation in kindergarten enrollment due to parental choice, changes in the state's minimum age requirement, and differing district policies on allowing children to start kindergarten early, first grade enrollment is deemed to be a more accurate and reliable starting point for the forecasts (McKibben, 1996). The level of the accuracy for both the population and enrollment forecasts at the school district level is estimated to be ±2.0% for the life of the forecasts.

RESULTS AND ANALYSIS OF THE POPULATION FORECASTS

A number of general demographic factors will influence the growth rate of the Public Schools of Brookline during this period, and include the following:

a. The households that in-migrated in the last decade and have stayed in the district, will have mostly passed through prime childbearing ages by 2019, thereby reducing the overall proportion of the population at risk of having children;
b. The remaining population in childbearing ages (women ages 15-45) will have fewer children;
c. The locally born 18-to-24-year-old population, in prime childbearing ages, will continue to leave the area to go to college or to other urban areas, with the magnitude of this out-migration flow slowly increasing; and,
d. The district will experience an increase in housing stock, with 350 new units being built between 2020 and 2024, and;
e. The district will continue to have a large proportion of their housing units (particularly in the rental units) that are occupied by childless households in their 20s and 30s.

The Public Schools or Brookline will continue to experience significant in-migration (movement of new young families into the district) over the next 10 years. However, the size and age structure of the pool of potential in-migrants will change and the effects of the in-migration of families on population growth will be greatly offset by the continued steady growing out-migration of young adults as graduating seniors (both high school and college) continue to leave the district.

From 2020 to 2025, the district's total population is forecasted to increase by 880 or 1.5% to 61,450. From 2025 to 2030, the population is forecasted to continue to increase by an additional 640 persons or 1.0%. During the 10 years of this forecasts series, seven of the eight elementary attendance areas are forecasted to increase in population with the growth rates ranging from 0.3% in the Baker areas to 5.8% in the Coolidge Corner area (See Table 1 for population forecast results of each elementary attendance area for the period 2010 to 2020) The Lincoln area will see a slight decline over the decade, losing 100 people or -1.7%.

While all elementary areas will see some amount of gross in-migration, (primarily in the 24-to-39 age group,) all areas also will continue to see gross out-migration. This out-migration primarily will be young adults, 18-to-22 years old, as graduating high school seniors continue to leave the district to go to college or seek employment in other urban areas. Consequently, most of the attendance areas will experience a modest reduction in their average household size.

As stated in the ASSUMPTIONS and emphasized above, the impact of the high proportion of high school graduates that leave the district to continue on to college or to seek employment in large urban areas is significant to the size and structure of the future population of the district. Up to 70% of all births occur to non-college women between the ages of 20 and 34. As the graduating seniors continue leave the district, the number of women at risk of childbirth during the next decade declines. Consequently, along with the district's fertility rate being far below the replacement level, the relatively small number of non-college women in the district ages 20-29 will keep the number of births declining at a modest rate despite the district having a stable population (see the population pyramids in the Appendix C of this report for a graphic representation of the age distributions of the district and all of the attendance areas).

As a general rule of thumb, for every two high school seniors that leave the district, one new household must move into the district to replace the young adults that have left and

to replace their lost potential fertility. Over the course of the 10 year forecast period, the average number of graduating seniors will be approximately 540 per year and at least 75% of them will move out of the district within three years of graduation. Using the general rule, approximately 200 new families will be required to move into the district every year or 2,000 new families over the next 10 years to replace the graduating seniors and their lost fertility. It is forecasted that the impact of the increasing out-migration of young adults will continue to be mostly (but not completely) offset by new young family in-migration and that the total number of births will continue to decline slightly throughout the forecast period.

Another factor that needs to be considered is the birth dynamics of the last twenty years. An examination of national birth trends shows there was a large "Baby Boomlet" born between 1980 and 2000. This Boomlet was nearly as large as the Baby Boom of the 1950s and 1960s. However, unlike the Baby Boom, the Boomlet was a regional and not a national phenomenon (McKibben, et. al. 1999). Because Massachusetts did not have a Baby Boomlet, most of the expected enrollment growth will have to result from in-migration and not from an increase in the grade cohort size.

Clearly, the dominant factor that has affected the population growth rates of the Public Schools of Brookline over the last 20 years has been the number, pace and cost of new housing unit construction. However, the dynamics of this in migration flow are more complex than many realize. There is a common misconception that any changes in the economy, housing market or transportation system will have an immediate impact on the size of an area's population and the total impact of that change will be experienced immediately.

A second factor is the construction of rental units in the district. While it is true that the households moving into these new housing units bring many school age (particularly elementary) children into the district, they also bring many preschool age children as well. Consequently, the full impact of the growth in existing home sales and new home construction is not seen immediately in elementary enrollment as it takes three to seven years for all of the children to age into the schools. This "delayed demographic reaction" is a key issue when attempting to ascertain the impact and duration of enrollment change brought about by the new construction. This is a key issue since the number of births in the Public Schools or Brookline is insufficient to maintain current enrollment levels.

Of additional concern are the issues of the district's aging population and the growing number of "empty nest" households, particularly in the Heath attendance area. For example, after the last school age child leaves high school, the household becomes an "empty nest" and most likely will not send any more children to the school system. In most cases, it takes 20 to 30 years before all original (or first time) occupants of a housing area move out and are replaced by new, young families with children. This principle also applies to children leaving elementary school and moving on the middle school. Households can still have school age children in the district's school, but also in effect be "empty nest" of elementary age children.

Note as well the stability in the median age of the population in the Public Schools of Brookline and all of its attendance areas (see population forecasts in the appendix for the median age for each forecast year for the district and each elementary attendance area). The district as a whole will see the median age of its population in a range of from 34.1 in 2010 to 33.6 in 2030. Unlike the vast majority of school districts in the United States that will experience a significant increase (anywhere from 2.5 to 4.5 years) in their median ages over the next 10 year, the Public Schools of Brookline will not. The factors that are causing this stabilization in the median age are the presence of a college and young professional population (ages 20-34) that tend to move into the district in their early 20s and leave by their mid-30s, and the construction of new rental housing units that will primarily attract households in their 20s and 30s.

However, even while the district as a whole continues to attract some new young families, many areas of the district that have concentration of single family, owner occupied housing units will experience "empty nesting". It should be noted that many of these "childless" households are single persons and/or elderly (See Table 4). Consequently, if many of these housing units "turnover" and attract households of similar characteristics, they will add little to the number of school age children in the district. Furthermore, many of the empty nest households will "down size" to smaller households within the district or the immediate area (this trend is tied directly to the number of "elder housing units" built in the district or adjacent towns). In these cases, new housing units may be built in an areas (age restricted), yet there is no corresponding increase in school enrollment.

There are several additional factors that are responsible for the difference between growth in population and growth in housing stock and existing home sales. Included among these factors are people buying new "move up" or retirement homes in the same area or district, (an important point since the children in move up homes tend to be of middle or high school age); children moving out of their parents homes and establishing residence in the same area; the increase in single-individual households; and divorce, with both parents remaining in the same area.

One final and important issue, although the district's population will stay fairly stable over the next 10 years, the distribution of the population (and that of the school age population) will change significantly. With the combination of the new rental housing being built in the Baker area and the prevalence of existing housing units "turning over" (particularly in the Heath area) the distribution of the district's population and school age students will shift south over the next 10 years.

RESULTS AND ANALYSIS OF ENROLLMENT FORECASTS

Elementary Enrollment (K-8)

The total K-8 elementary enrollment of the district is forecasted to increase from 5,442 in 2019-20 to 5,463 in 2024-25, a rise of 21 students or 0.4%. From 2024-25 to 2029-30, elementary enrollment is expected to grow by 47 students to 5,510. This will represent a 0.9% increase over the five-year period. Five of the eight elementary attendance areas will experience a net decrease in enrollment over the next ten years (see Appendix A, Table 5).

The reason for this increasing, if choppy, pattern in the elementary enrollment over the next ten years is the convergence of the effects of three factors, all reaching their peak influence roughly by 2026. The building of new housing units, (mostly rental) that will attract young households that have or will have children, the year to year variations of cohort sizes in the elementary grades, and the turnover of households that currently empty nest. Each of these factors will contribute in part to the growth in elementary enrollment until 2027.

The building of at least 350 new rental housing units over the next five years will have a significant impact on the enrollment patterns of the district. In fact, it is one of the major reasons that the Baker, Coolidge Corner and Heath attendance areas show a net enrollment increase over the next 10 years. However, it is important to note that there is a disconnect between the population increase that is a result of these new building and the impact on enrollment change. While these new units will have many children living in them (Children per households) the K-8 student yield (school age children per household) is much smaller. Appendix E, Table 2 shows the student yield per household for selected apartment complexes in the district. Note that in all four examples, the average student yield per unit is .62 or less. The number of children per household in each of these examples would undoubtable be greater than 1.

Secondly, over the last several years, one of the main reasons growth rate in the elementary enrollment was increasing was due to the fact that the number of children entering kindergarten and 1st grade was slightly increasing and the number of students leaving elementary school after completing 5th grade was smaller. This trend will continue over most of the next eight years. From 2015-16 to 2019-20 the incoming 1st grade cohorts will average 626 students in size whereas the outgoing 8th grade cohorts have averaged on 537. Over the last 3 years in the incoming 1st grade class averaged 598 while the outgoing 8th grade averaged only 558. As long as this imbalance continues (and it is forecasted to do so for most of the next eight years) there will be increase in the elementary grades. After 2019-20, this trend continues. Over the next eight years the first grade cohorts will average about 632 students and the outgoing 8th grade cohorts will average 572 students. For the next 5 years, the aforementioned number of in-migrating young families will be at a level that is sufficient to keep the total elementary enrollment growing, although this trend alone will not be enough to keep the elementary enrollment increasing. A key point in regards to the impact of cohort size in the district is the fact that the "breakeven point" for the 8th grade cohorts is approximately 575. Years where the district has more that 575 8th grade students moving on the high school, there will be a decline in elementary enrollment the next year.

The third factor is the rise of the number of empty nest households in the district. In 2010 the district had 32.5% of their households headed by people ages 35-54 (The ages the majority of people have school aged children). The district's proportion of households in these age groups has dropped over the last ten years as people aged and the households became empty nest. This trend will continue for at least the next 10 years as empty nest households will become the dominate household type in the district. Fortunately, the large bubble of empty nest households that were in the district over the last 10 years will reach their 70s during the life of these forecasts. Post 70 year old households are the stage of life when are most likely to downsize, allowing new young families with children to move in. Consequently, areas that have a large number of owner occupied single family homes will see a rise in the number homes "turning over" and begin to see school age children from these homes. Attendance areas such as Baker and Heath will be the primary (but not exclusive) beneficiaries of this trend.

The demographic factors that will become the most influential over the next 10 years are the growth rate of empty nest households in the attendance areas, the number and rate of existing homes sales, the rate and magnitude of existing housing unit "turn over", the size and type of new rental housing units, the number of new home sales, the relative size of the elementary and pre-school age cohorts and each area's fertility rate. Each of these factors will vary in the scale of their influence and timing of impact on the enrollment trends of any particular elementary area.

As the area becomes more dependent upon existing home sales to attract new families (and no prospect of new housing units being built), the overall elementary enrollment trend of the district will decline. Areas such as Lincoln will see their elementary enrollments slowly decline. Thus, the best primary short- and long-term indicator for enrollment change in most of the attendance areas will be the year-to-year rate of housing turnover. If the total fertility rates of all the attendance areas remain at their current low levels (and they are forecasted to do so) they will ensure that enrollments will continue to see slowing growth (stabilization) even if the levels of net out-migration are greatly reduced.

Additionally, sub-areas that are characterized by the relatively high percentage of rental housing units and large concentrations of young adults tend to have more stable population distribution and enrollment trends. In Brookline, the Lawrence area is a good example of this trend. In these cases, young adults or the newly married, move to these areas and establish households. Because the population is in prime child bearing ages, these areas also have both a high absolute number of births and a higher than the district average birth

rate. Later, as family size increases, these families often move to single family homes--usually to (relatively) moderately priced single family homes in other parts of the school district or the surrounding area. However, in the case of Lawrence, unlike areas like this in other districts, the key intervening variable is what proportion of the rental housing units are occupied by college students. If the number of housing units in the area occupied by college students increases or decreases, then there would be an inverse effect on enrollment.

High School Enrollment (9-12)

Enrollment at the high school level is forecasted to grow from 2,064 in 2019-20 to 2,309 in 2024-25, an increase of 245 students or 11.9%. After 2024-25, the high school enrollment trend will begin to stabilize. The net result for the five-year period 2024-25 to 2029-30 will be a decrease of 82 students to 2,227 and a rate of decrease of -3.6%.

The aforementioned effects of changes in cohort size on elementary enrollment are also affecting the growth patterns of the high school population. The difference is that the current "wave" of larger cohort sizes (presently in the elementary grades) will begin to reach 9th grade in every year until the 2024-25 school year. Over the next five years, the larger sized grade cohorts that are in the middle school and elementary grades will enter high school. Until these larger sized cohorts of students pass through the high school grades, there will be growth in the enrollment at the district's high school, most likely ending in 2024. After that point, high school enrollment will begin to stabilize. It should be noted that the large drop in high school enrollment that will occur in the 2025-26 and 2027-28 school years are a result of the large 12th grade graduating classes that left the year before (these are the district's current 7th and 5th grade classes), not do to any major demographic changes.

It is important to remember that the vast majority of this future high school enrollment growth will be a result of students aging into those grades. Specifically, students who already live in the district (and not in-migration of students ages 14 to 18) will be the primary cause of the forecasted increase in high school enrollment. Additionally, as was mentioned earlier, these forecasts represent the demographic changes that will affect high school enrollment. Any changes in the district's student transfer policy and/or changes in special high school level programs will need to be added or subtracted from the forecast result

High school enrollment is the most difficult of all the grade levels to project. The reason for this is the varying and constantly changing dropout rates, particularly in grades 10 and 11. For these forecasts, the dropout rates at the high school grades were calculated for each grade level over the last five years. These five-year averages were then held constant for the life of the forecast. The effects of any policy changes dealing with any school's dropout rates, program placement or reassignment of former students to new grade levels will need to be added or subtracted from the forecast results. The rate of the Public Schools of Brookline 8th grade students that choose to attend high school in private or out of district public school schools is also held constant the average rate of the last five years.

REFERENCES

McKibben, J.
The Impact of Policy Changes on Forecasting for School District. Population Research and Policy Review, Vol. 15, No. 5-6, December 1996

McKibben, J., M. Gann, and K. Faust.
The Baby Boomlet's Role in Future College Enrollment. American Demographics, June 1999.

Peters, G. and R. Larkin
Population Geography. 7th Edition. Dubuque, IA: Kendall Hunt Publishing. 2002.

Siegel, J. and D. Swanson
The Methods and Materials of Demography: Second Edition, Academic Press: New York, New York. 2004.

Smith, S., J. Tayman and D. Swanson
State and Local Population Projections, Academic Press, New York, New York. 2001.

Appendix A: Supplemental Tables

Table 1: Forecasted District Total Population Change, 2010 to 2020

	2010	2015	*2010-2015 Change*	2020	*2015-2020 Change*	*2010-2020 Change*
BAKER	6,120	6,210	*1.5%*	6,230	*0.3%*	*1.8%*
COOLIDGE CORNER	10,993	11,320	*3.0%*	11,600	*2.5%*	*5.5%*
DRISCOLL	5,977	6,160	*3.1%*	6,270	*1.8%*	*4.9%*
HEATH	4,531	4,540	*0.2%*	4,620	*1.8%*	*2.0%*
LAWRENCE	8,977	9,130	*1.7%*	9,270	*1.5%*	*3.3%*
LINCOLN	6,001	6,040	*0.6%*	6,030	*-0.2%*	*0.5%*
PIERCE	9,370	9,460	*1.0%*	9,550	*1.0%*	*1.9%*
RUNKLE	6,761	6,830	*1.0%*	7,000	*2.5%*	*3.5%*
DISTRICT TOTAL	**58,730**	**59,690**	***1.6%***	**60,570**	***1.5%***	***3.1%***

The two key variables in the Table 2 are the percent of households with under 18 population (both preschool and school age) and the mean household size. The table also shows how much each attendance area deviates from the district average. In the case of percent with under 18 population, while the district overall has 24.2% of the households with children (the US average is 34.6%), the attendance areas range from a high of 40.2% in Baker to a low of 17.8% in Lawrence. For mean household size, the district is at 2.27 (The US average is 2.58) with the attendance areas ranging from a high of 2.76 in Heath to a low of 2.05 in Lawrence.

Table 2: Household Characteristics by Elementary Area, 2010 Census

	HH w/ Pop Under 18	% HH w/ Pop Under 18	Total Households	Household Population	Persons Per Household
BAKER	927	42.0%	2,206	6,008	2.72
COOLIDGE CORNER	998	20.5%	4,860	10,865	2.24
DRISCOLL	537	19.3%	2,778	5,941	2.14
HEATH	491	36.1%	1,359	3,746	2.76
LAWRENCE	748	17.8%	4,205	8,638	2.05
LINCOLN	703	25.4%	2,762	5,987	2.17
PIERCE	968	23.3%	4,149	9,097	2.19
RUNKLE	699	25.2%	2,772	6,570	2.37
DISTRICT TOTAL	**6,070**	**24.2%**	**25,091**	**56,852**	**2.27**

Table 3 shows the number of households aged 35-54 (the ages where most people have school age children), the number of householders over the age of 65, and housing tenure (home owners versus renters). For the 35-54 household group the district average is 32.5% (the US average 43.7%) with a range of 44.0% in Baker to 28.2% in Lawrence. Households over the age of 65, which in most case are empty nest households that have no school age children in them, are the ones most likely to "turnover" in the next ten years with the new occupants that do have children. The district has 20.1% of the households over 65 (the US average is 17.5%) with the attendance areas ranging from 30.0% in Heath to 17.8% in Runkle. Home ownership tends to be strongly correlated with age structure and the number of school age children. The district has 48.8% of their households in owner occupied housing units (the US average is 68.9%). The attendance areas range from a high of 80.2% in Heath to a low of 38.0% in Coolidge Corner.

Table 3: Householder Characteristics by Elementary Area, 2010 Census

	Percentage of Householders aged 35-54	Percentage of Householders aged 65+	Percentage of Householders Who Own Homes
BAKER	44.0%	22.6%	68.7%
COOLIDGE CORNER	28.5%	19.7%	38.0%
DRISCOLL	29.2%	16.7%	40.5%
HEATH	38.5%	30.0%	80.2%
LAWRENCE	28.2%	18.0%	41.7%
LINCOLN	35.7%	23.0%	49.7%
PIERCE	33.6%	20.3%	43.7%
RUNKLE	32.1%	17.8%	62.4%
DISTRICT TOTAL	**32.5%**	**20.1%**	**48.8%**

Table 4 shows the distribution of single person households in the district. This variable tends to be strongly correlated with housing tenure as most single people live in rental units. The district has 33.4% of its households that are single person (the US average is 16.2%) the attendance areas range from a high of 40.2% in Lawrence to a low of 19.4% in Baker.

Table 4: : Percentage of Households that are Single Person Households and Single Person Households that are over age 65 by Elementary Area, 2010 Census

	Percentage of Single Person Households	Percentage of Single Person Households and are 65+
BAKER	19.4%	8.4%
COOLIDGE CORNER	34.1%	12.0%
DRISCOLL	37.7%	8.8%
HEATH	20.0%	11.1%
LAWRENCE	40.2%	9.8%
LINCOLN	37.8%	13.1%
PIERCE	35.3%	12.0%
RUNKLE	28.2%	6.7%
DISTRICT TOTAL	**33.4%**	**10.4%**

Table 5: Elementary Enrollment (2019) Compared to Forecasted Enrollment of Elementary Areas (2024, 2029)

	2019	2024	2019-2024 Change	2029	2024-2029 Change	2019-2029 Change
BAKER	750	824	*9.9%*	881	*6.9%*	*17.5%*
COOLIDGE CORNER	888	979	*10.2%*	1,042	*6.4%*	*17.3%*
DRISCOLL	601	546	*-9.2%*	530	*-2.9%*	*-11.8%*
HEATH	524	562	*7.3%*	611	*8.7%*	*16.6%*
LAWRENCE	679	662	*-2.5%*	651	*-1.7%*	*-4.1%*
LINCOLN	576	543	*-5.7%*	519	*-4.4%*	*-9.9%*
PIERCE	842	794	*-5.7%*	739	*-6.9%*	*-12.2%*
RUNKLE	582	553	*-5.0%*	537	*-2.9%*	*-7.7%*
DISTRICT TOTAL	**5,442**	**5,463**	***0.4%***	**5,510**	***0.9%***	***1.2%***

Table 6: Age Under One to Age Ten Population Counts, by Year of Age, by Elementary Area: 2010 Census

	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years
BAKER	71	74	72	77	102	78	116	120	120	104	91
COOLIDGE CORNER	120	121	118	133	106	93	108	96	98	96	78
DRISCOLL	73	55	63	54	56	59	56	49	46	44	42
HEATH	35	34	43	52	61	54	53	62	61	50	63
LAWRENCE	101	94	82	92	75	75	66	59	73	63	58
LINCOLN	71	63	65	71	67	63	70	64	61	61	65
PIERCE	134	107	123	107	88	95	93	72	85	93	78
RUNKLE	78	69	83	68	54	81	82	76	65	70	75
DISTRICT TOTAL	**682**	**617**	**648**	**653**	**609**	**598**	**644**	**599**	**609**	**581**	**548**

Table 7 is a calculation of the district proportion of children enrolled in each grade compared to the number of children counted in each age category in the 2010 Census. The calculation for the 2010 enrollment is used as a base. The percentages in 2010 by age group are all less than 100% as no school district has all of the children living in the district enrolled in public schools (the other are in private schools, charters, home schooled, etc.).

For example, the 6-year-olds in 2010 are in first grade. The 618 students enrolled represents 96% of the 644 6-year-olds counted in the census. The next rows up are the enrollment for the year 2011. These 6-year-olds are now 7 years old and in second grade. The 658 second grade students in 2011 represents 102.2 % of the 644, total population in that age cohort. That means the district experienced a 6.2 percentage point increase (in-migration) of children born in 2004. The top row compares the 2019 enrollment by grade. The 6-year-old cohort in 2010 is now in 10th grade. The 557 students enrolled is 86.5% of the cohort total from 2010.

Note that consistently the district tends to attach students in grades kindergarten through four in all age groups over the decade. This reparents the in-migration of young households with school age children. Conversely, note that in most years and age cohorts, the district number of students (and proportions) declines after grade four. This represents the out-migration of households from the district.

Table 7: Comparison of District Resident Enrollment by Grade with 2010 Census Counts by Age, 2010-2019

2010 Census	Under 1 year	1 year	2 years	3 years	4 years	5 years	6 years	7 years	8 years	9 years	10 years	11 years	12 years	13 years
Public Schools of Brookline Total	**682**	**617**	**648**	**653**	**609**	**598**	**644**	**599**	**609**	**581**	**548**	**528**	**520**	**509**
2019 Grade	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**					
2019 Enrollment	624	657	582	618	561	521	557	512	474					
% of Census Counts by Age	91.5%	106.5%	89.8%	94.6%	92.1%	87.1%	86.5%	85.5%	77.8%					
2018 Grade	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**				
2018 Enrollment	645	680	605	665	571	545	554	542	489	499				
% of Census Counts by Age	94.6%	110.2%	93.4%	101.8%	93.8%	91.1%	86.0%	90.5%	80.3%	85.9%				
2017 Grade	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**			
2017 Enrollment	631	691	621	660	585	550	568	531	510	497	506			
% of Census Counts by Age	92.5%	112.0%	95.8%	101.1%	96.1%	92.0%	88.2%	88.6%	83.7%	85.5%	92.3%			
2016 Grade	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**		
2016 Enrollment	627	678	633	677	584	549	576	531	500	509	492	479		
% of Census Counts by Age	91.9%	109.9%	97.7%	103.7%	95.9%	91.8%	89.4%	88.6%	82.1%	87.6%	89.8%	90.7%		
2015 Grade	**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
2015 Enrollment	633	696	621	704	598	553	610	543	507	500	507	480	446	
% of Census Counts by Age	92.8%	112.8%	95.8%	107.8%	98.2%	92.5%	94.7%	90.7%	83.3%	86.1%	92.5%	90.9%	85.8%	
2014 Grade		**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2014 Enrollment		685	645	685	620	530	634	541	506	507	494	478	431	473
% of Census Counts by Age		111.0%	99.5%	104.9%	101.8%	88.6%	98.4%	90.3%	83.1%	87.3%	90.1%	90.5%	82.9%	92.9%
2013 Grade			**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
2013 Enrollment			631	676	618	539	656	562	519	533	493	466	445	475
% of Census Counts by Age			97.4%	103.5%	101.5%	90.1%	101.9%	93.8%	85.2%	91.7%	90.0%	88.3%	85.6%	93.3%
2012 Grade				**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2012 Enrollment				666	633	539	651	574	517	549	492	446	436	479
% of Census Counts by Age				102.0%	103.9%	90.1%	101.1%	95.8%	84.9%	94.5%	89.8%	84.5%	83.8%	94.1%
2011 Grade					**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
2011 Enrollment					602	550	658	567	532	538	516	437	425	458
% of Census Counts by Age					98.9%	92.0%	102.2%	94.7%	87.4%	92.6%	94.2%	82.8%	81.7%	90.0%
2010 Grade						**K**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
2010 Enrollment						545	618	572	532	527	532	445	424	448
% of Census Counts by Age						91.1%	96.0%	95.5%	87.4%	90.7%	97.1%	84.3%	81.5%	88.0%

Appendix B: Population Forecasts

Brookline Public Schools

Total	2010	2015	2020	2025	2030
0-4	3,209	3,140	3,080	3,190	3,130
5-9	3,031	3,450	3,310	3,480	3,490
10-14	2,606	2,870	3,290	3,120	3,320
15-19	2,817	2,760	3,020	3,360	3,340
20-24	6,618	6,280	6,300	6,740	6,640
25-29	6,949	7,030	6,740	6,890	7,230
30-34	5,079	5,220	5,200	5,110	5,380
35-39	4,201	4,000	4,080	4,030	4,080
40-44	3,495	3,530	3,380	3,350	3,360
45-49	3,325	3,210	3,310	2,920	2,930
50-54	3,218	3,250	3,160	3,230	2,870
55-59	3,366	3,130	3,170	3,080	3,160
60-64	3,322	3,110	2,900	2,880	2,820
65-69	2,259	3,020	2,810	2,540	2,540
70-74	1,587	1,950	2,660	2,430	2,190
75-79	1,239	1,330	1,650	2,270	2,070
80-84	1,087	1,010	1,090	1,340	1,850
85+	1,322	1,400	1,420	1,490	1,690
Total	58,730	59,690	60,570	61,450	62,090
Median Age	34.1	34.1	34.4	33.9	33.6

Births	3,020	2,970	2,890	2,920
Deaths	2,120	2,210	2,360	2,540
Natural Increase	900	760	530	380
Net Migration	120	150	300	240
Change	1,020	910	830	620

Differences between period Totals may not equal Change due to rounding.

Baker Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	396	360	350	420	360
5-9	538	480	460	540	560
10-14	463	530	460	430	520
15-19	410	420	480	340	360
20-24	232	250	240	310	220
25-29	247	240	270	320	360
30-34	296	260	250	340	360
35-39	435	310	270	270	360
40-44	496	440	310	290	290
45-49	479	500	450	310	290
50-54	454	480	510	440	310
55-59	488	440	470	500	440
60-64	409	470	430	410	440
65-69	247	390	450	360	350
70-74	176	230	360	370	300
75-79	159	160	200	300	300
80-84	107	130	130	160	240
85+	89	120	140	150	190
Total	6,120	6,210	6,230	6,260	6,250
Median Age	40.4	42.9	45.3	42.8	40.4

Births	250	220	200	210
Deaths	220	250	290	320
Natural Increase	30	-30	-90	-110
Net Migration	50	60	120	90
Change	80	30	30	-20

Differences between period Totals may not equal Change due to rounding.

Coolidge Corner Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	598	600	570	630	630
5-9	491	580	580	670	710
10-14	386	480	560	560	650
15-19	429	400	490	580	580
20-24	2,039	1,870	1,840	2,090	2,030
25-29	1,480	1,580	1,410	1,450	1,720
30-34	963	930	1,030	920	1,010
35-39	813	780	750	810	720
40-44	530	720	680	530	610
45-49	538	520	710	460	320
50-54	466	530	520	700	460
55-59	503	460	520	510	690
60-64	488	480	440	500	490
65-69	334	450	440	380	450
70-74	243	300	390	390	330
75-79	216	190	240	330	330
80-84	191	170	160	190	270
85+	285	280	270	260	270
Total	10,993	11,320	11,600	11,960	12,270
Median Age	30.4	30.8	31.7	30.0	29.5

Births	620	600	590	610
Deaths	380	380	390	410
Natural Increase	240	220	200	200
Net Migration	90	90	110	100
Change	330	310	310	300

Differences between period Totals may not equal Change due to rounding.

Driscoll Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	300	320	330	330	350
5-9	254	350	330	340	330
10-14	201	240	330	310	330
15-19	182	180	210	310	290
20-24	735	710	830	860	830
25-29	1,029	930	940	1,080	1,060
30-34	653	710	530	540	760
35-39	418	410	400	230	300
40-44	342	320	330	320	160
45-49	314	340	320	330	320
50-54	295	310	330	310	320
55-59	301	290	300	330	300
60-64	291	280	250	270	300
65-69	197	260	240	230	240
70-74	117	170	230	210	200
75-79	120	110	150	200	190
80-84	108	100	90	120	170
85+	118	130	130	140	150
Total	5,977	6,160	6,270	6,460	6,600
Median Age	32.2	32.5	31.6	30.0	30.7

Births	320	320	320	340
Deaths	190	200	210	230
Natural Increase	130	120	110	110
Net Migration	40	50	50	40
Change	170	170	160	150

Differences between period Totals may not equal Change due to rounding.

Heath Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	226	210	240	270	280
5-9	281	340	330	360	380
10-14	296	250	320	290	320
15-19	467	440	400	440	500
20-24	414	420	380	350	360
25-29	240	320	340	330	310
30-34	153	210	270	380	300
35-39	216	190	240	310	420
40-44	267	210	200	240	310
45-49	288	270	210	200	230
50-54	337	280	260	210	200
55-59	307	330	280	260	200
60-64	284	270	290	230	210
65-69	216	250	240	240	180
70-74	150	170	210	180	190
75-79	112	130	150	180	160
80-84	102	90	110	120	140
85+	175	160	150	150	160
Total	4,531	4,540	4,620	4,740	4,850
Median Age	39.4	37.1	35.6	34.3	34.6

Births	180	210	230	250
Deaths	210	210	220	220
Natural Increase	-30	0	10	30
Net Migration	60	60	100	90
Change	30	60	110	120

Differences between period Totals may not equal Change due to rounding.

Lawrence Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	444	430	420	400	410
5-9	335	460	430	430	410
10-14	284	320	440	410	410
15-19	354	330	360	500	460
20-24	1,141	1,100	1,080	1,260	1,250
25-29	1,356	1,340	1,300	1,320	1,460
30-34	987	960	940	810	910
35-39	639	640	600	510	460
40-44	506	530	530	470	400
45-49	446	440	480	470	420
50-54	404	440	440	470	450
55-59	471	390	430	420	460
60-64	518	430	370	390	400
65-69	364	470	390	320	350
70-74	250	320	420	340	280
75-79	159	220	280	370	300
80-84	164	130	180	230	300
85+	154	180	180	210	260
Total	8,977	9,130	9,270	9,330	9,390
Median Age	32.9	33.0	33.2	32.1	31.6

Births	410	400	370	390
Deaths	300	320	350	390
Natural Increase	110	80	20	0
Net Migration	50	50	60	50
Change	160	130	80	50

Differences between period Totals may not equal Change due to rounding.

Lincoln Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	336	330	310	300	280
5-9	319	350	330	320	300
10-14	294	290	330	310	310
15-19	304	310	310	330	320
20-24	459	420	410	410	410
25-29	582	580	520	500	490
30-34	509	520	520	470	460
35-39	482	450	470	480	420
40-44	428	410	400	410	420
45-49	350	370	370	340	370
50-54	361	350	360	360	340
55-59	358	350	330	350	350
60-64	379	320	320	310	320
65-69	265	340	280	280	270
70-74	191	220	300	250	250
75-79	126	170	190	260	210
80-84	109	110	130	160	210
85+	151	150	150	170	200
Total	6,001	6,040	6,030	6,010	5,930
Median Age	37.0	37.4	38.0	38.8	39.7

Births	320	300	290	270
Deaths	230	240	260	280
Natural Increase	90	60	30	-10
Net Migration	-60	-50	-50	-40
Change	30	10	-20	-50

Differences between period Totals may not equal Change due to rounding.

Pierce Elementary Zone

Total	2010	2015	2020	2025	2030
0-4	558	530	510	490	490
5-9	439	540	510	490	470
10-14	374	410	520	490	470
15-19	302	360	400	510	490
20-24	880	840	900	850	950
25-29	1,147	1,180	1,140	1,150	1,100
30-34	971	960	1,000	990	1,000
35-39	771	780	780	840	830
40-44	550	530	540	570	630
45-49	518	430	400	430	470
50-54	509	490	400	370	410
55-59	490	490	480	380	370
60-64	509	450	450	440	360
65-69	358	460	400	410	400
70-74	293	310	400	360	360
75-79	230	230	250	340	300
80-84	197	190	190	200	280
85+	274	280	280	280	290
Total	9,370	9,460	9,550	9,590	9,670
Median Age	35.1	34.5	34.0	34.1	34.3

Births	540	520	500	490
Deaths	380	380	390	400
Natural Increase	160	140	110	90
Net Migration	-60	-60	-50	-50
Change	100	80	60	40

Differences between period Totals may not equal Change due to rounding.

Runkle Elementary Zone

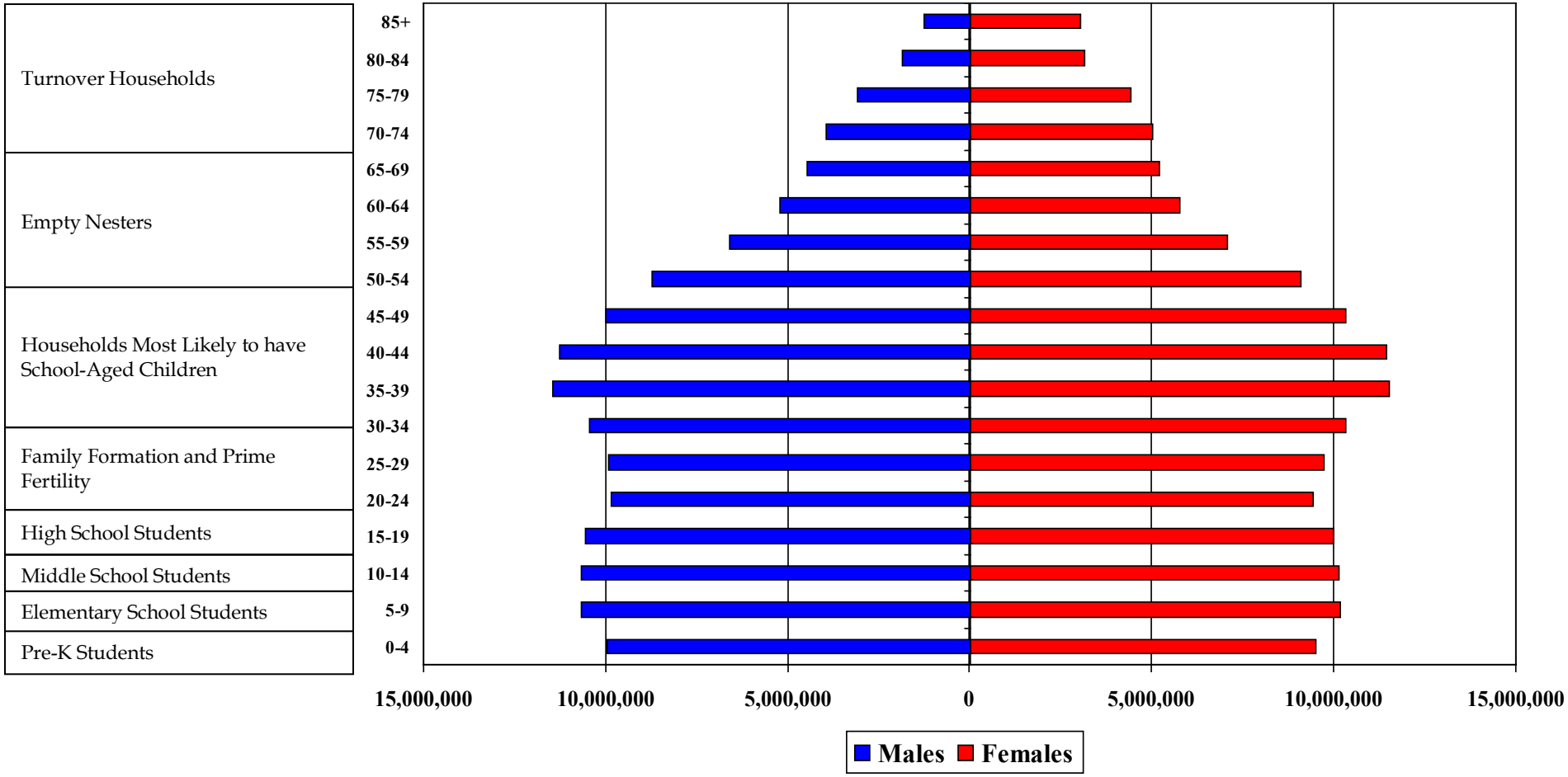
Total	2010	2015	2020	2025	2030
0-4	351	360	350	350	330
5-9	374	350	340	330	330
10-14	307	350	330	320	310
15-19	369	320	370	350	340
20-24	719	670	620	610	590
25-29	869	860	820	740	730
30-34	546	670	660	660	580
35-39	427	440	570	580	570
40-44	375	370	390	520	540
45-49	393	340	370	380	510
50-54	392	370	340	370	380
55-59	448	380	360	330	350
60-64	443	410	350	330	300
65-69	278	400	370	320	300
70-74	168	230	350	330	280
75-79	117	120	190	290	280
80-84	109	90	100	160	240
85+	76	100	120	130	170
Total	6,761	6,830	7,000	7,100	7,130
Median Age	33.6	33.8	35.1	36.6	38.1

Births	380	400	390	360
Deaths	210	230	250	290
Natural Increase	170	170	140	70
Net Migration	-50	-50	-40	-40
Change	120	120	100	30

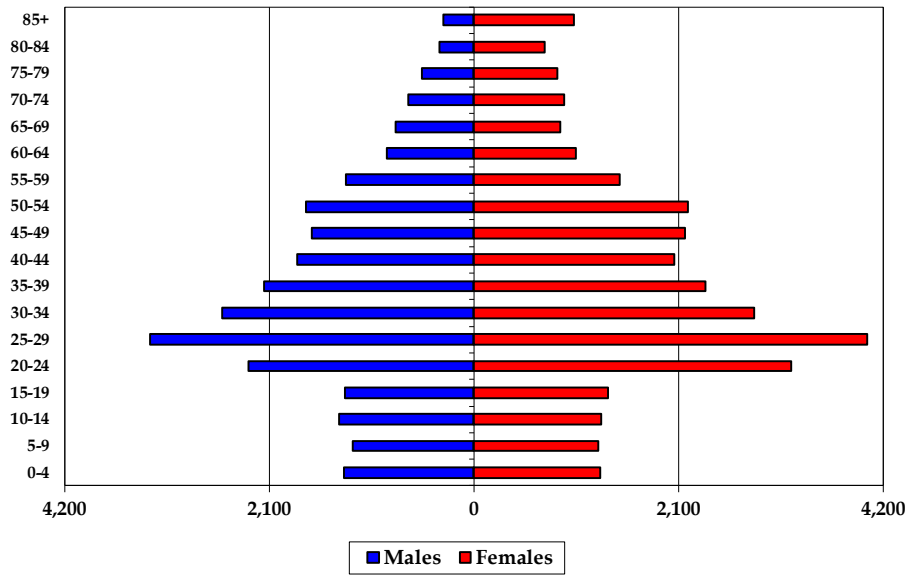
Differences between period Totals may not equal Change due to rounding.

Appendix C: Population Pyramids

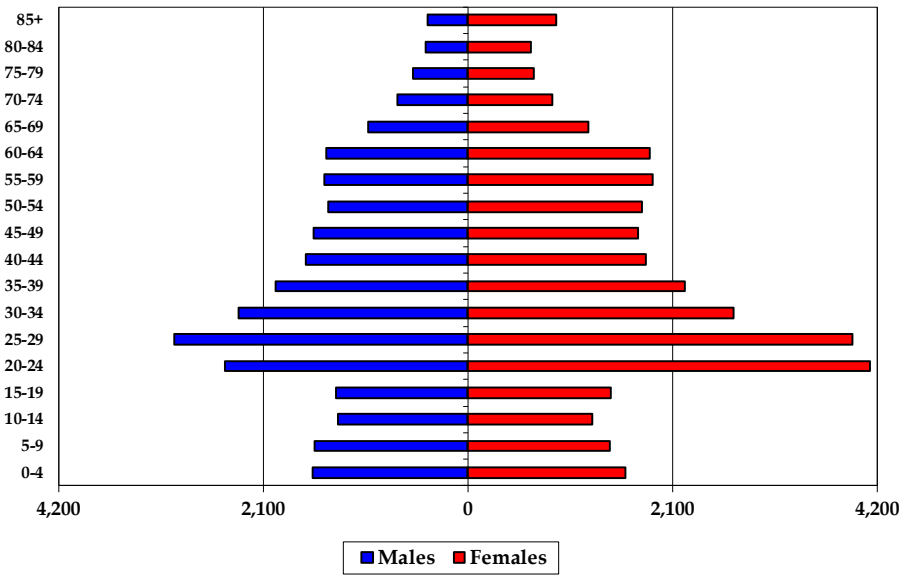
Population pyramids are graphic representations showing age-sex distribution of a geographic area. They are essentially a demographic fingerprint. They can be placed into broad typologies, but no two areas have the same exact characteristics.



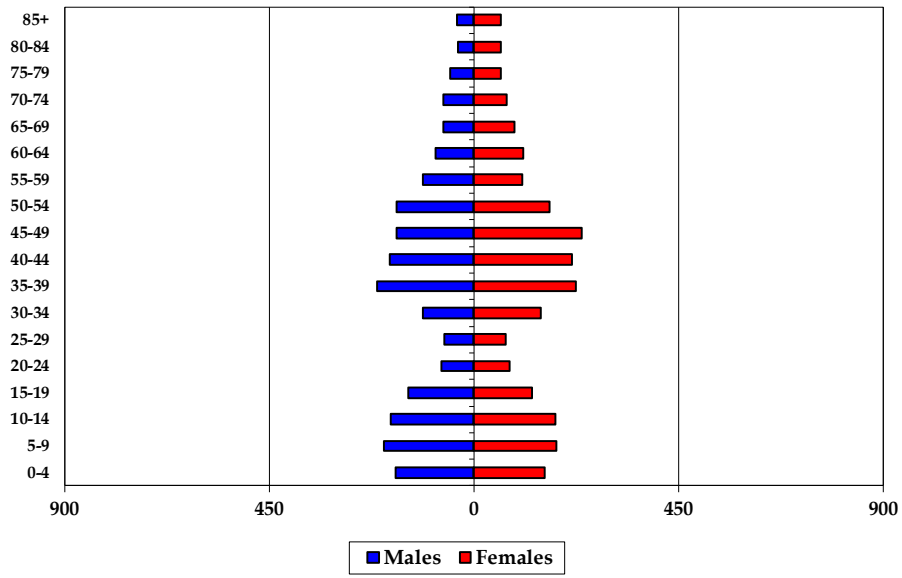
Brookline, Massachusetts Total Population – 2000 Census



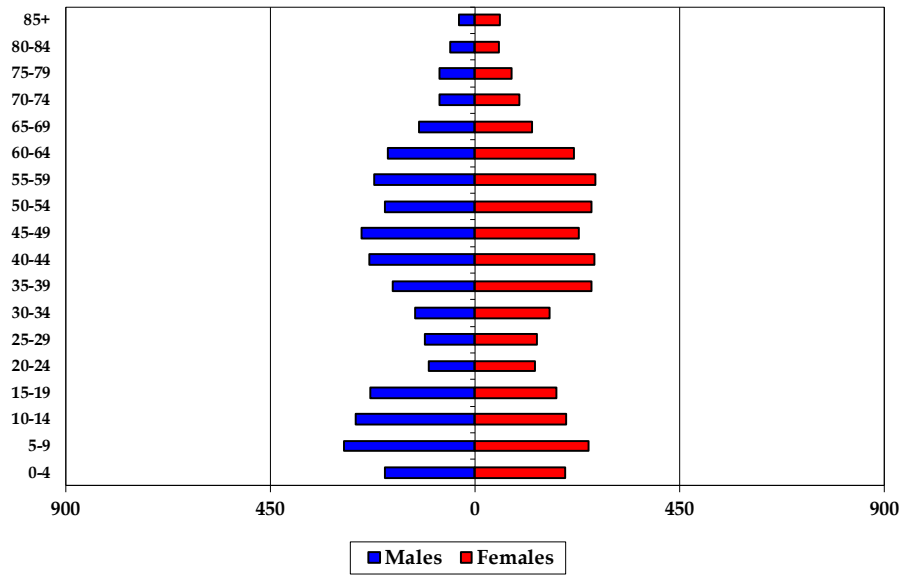
Brookline, Massachusetts Total Population – 2010 Census



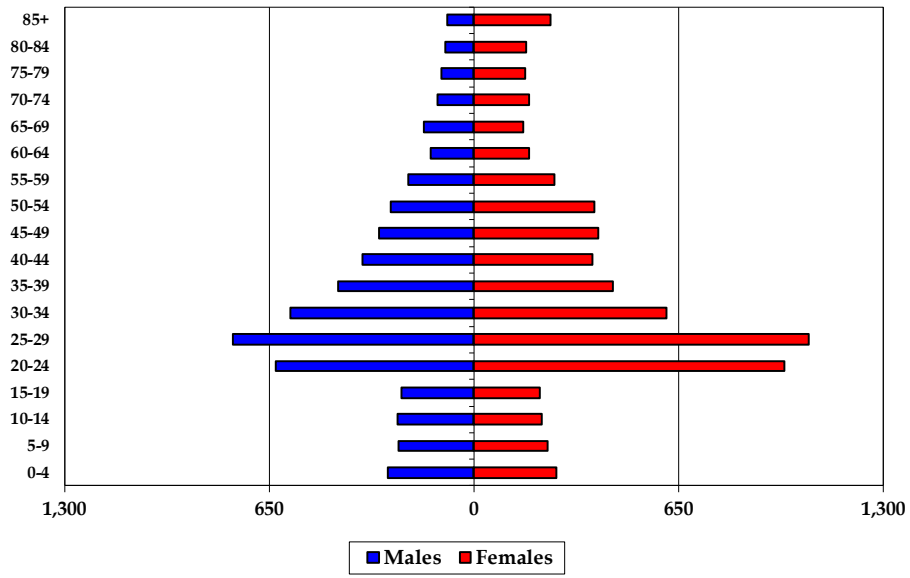
Baker Elementary Zone Population – 2000 Census



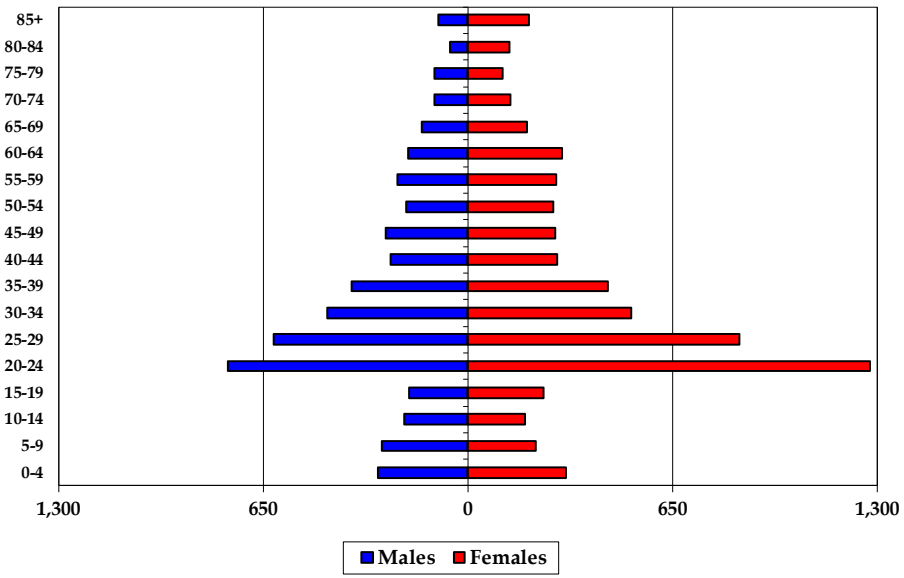
Baker Elementary Zone Population – 2010 Census



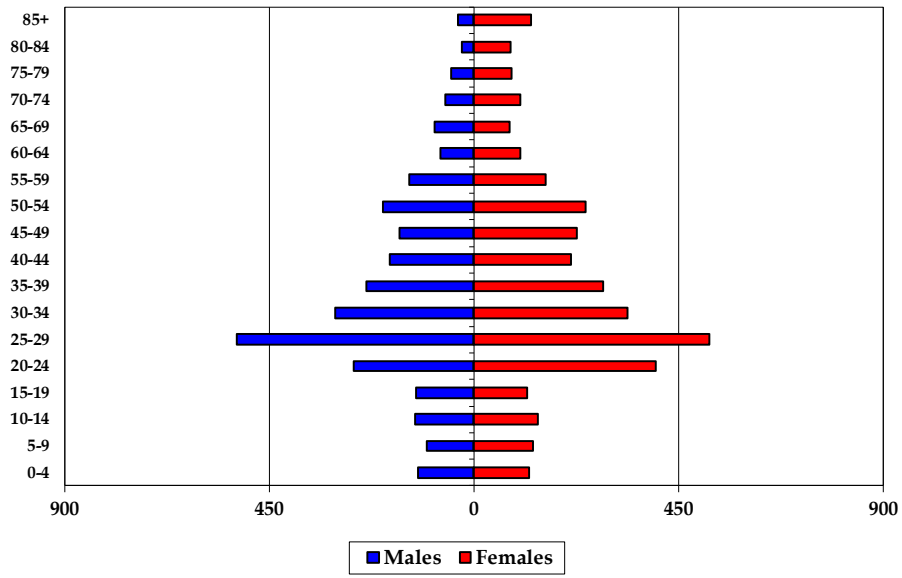
Coolidge Corner Elementary Zone Population – 2000 Census



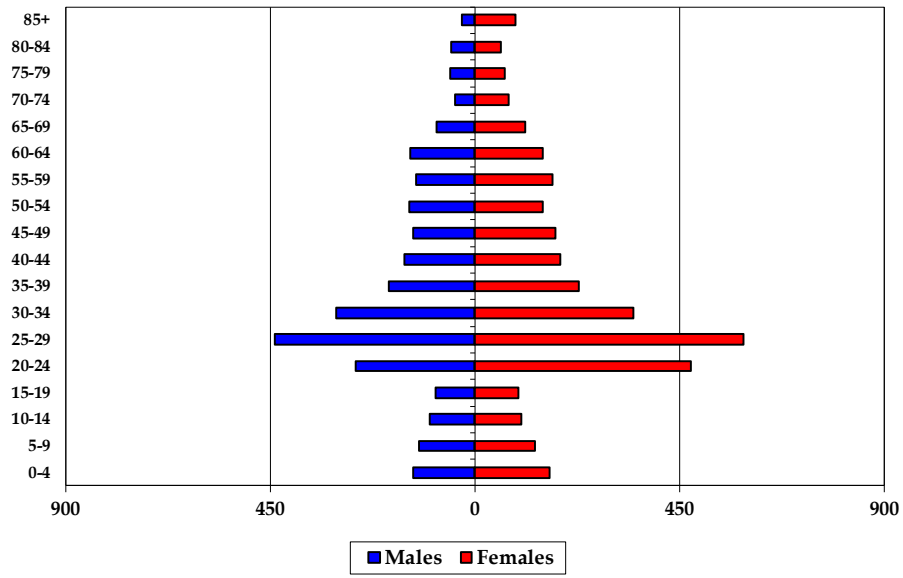
Coolidge Corner Elementary Zone Population – 2010 Census



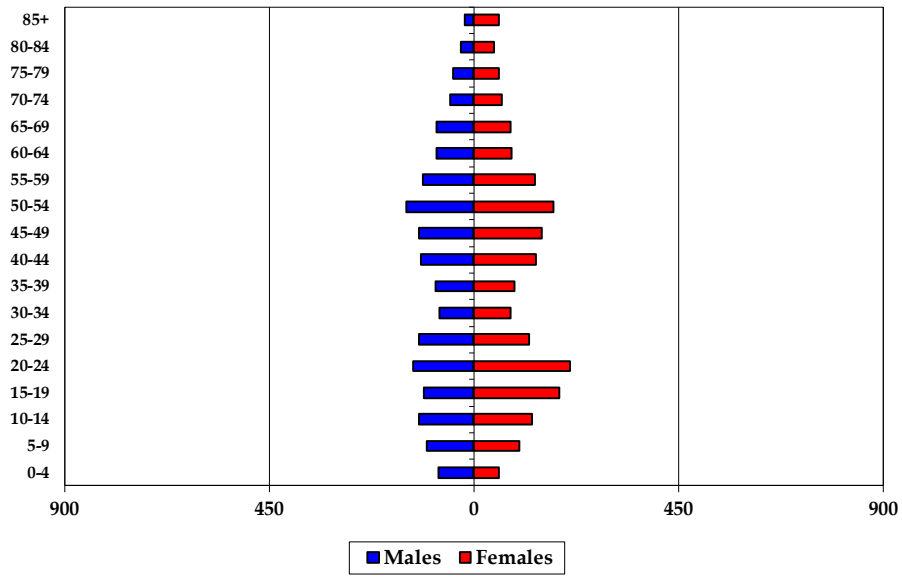
Driscoll Elementary Zone Population 2000 Census



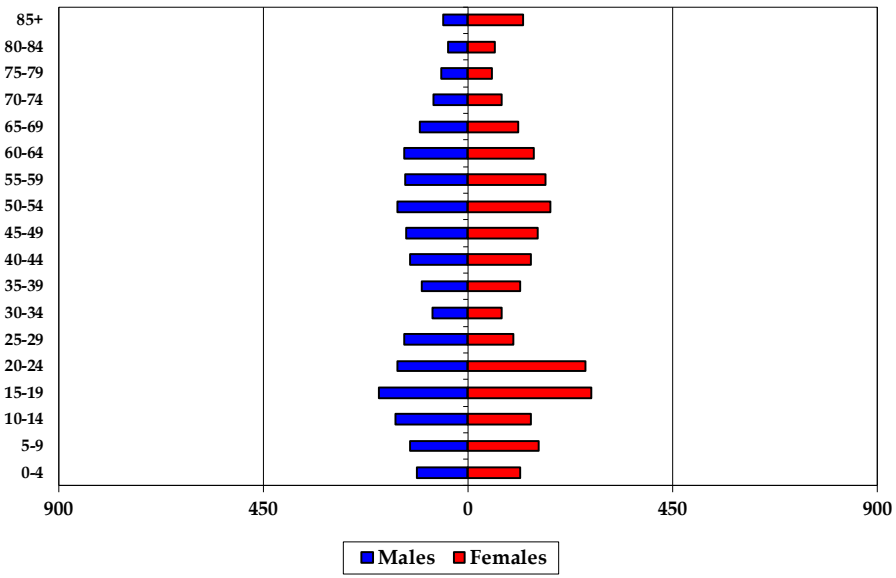
Driscoll Elementary Zone Population – 2010 Census



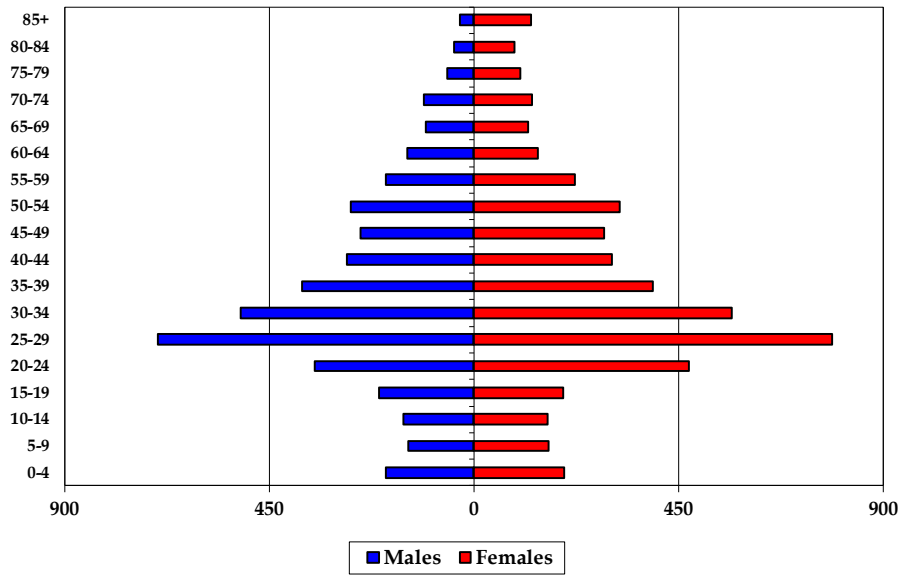
Heath Elementary Zone Population – 2000 Census



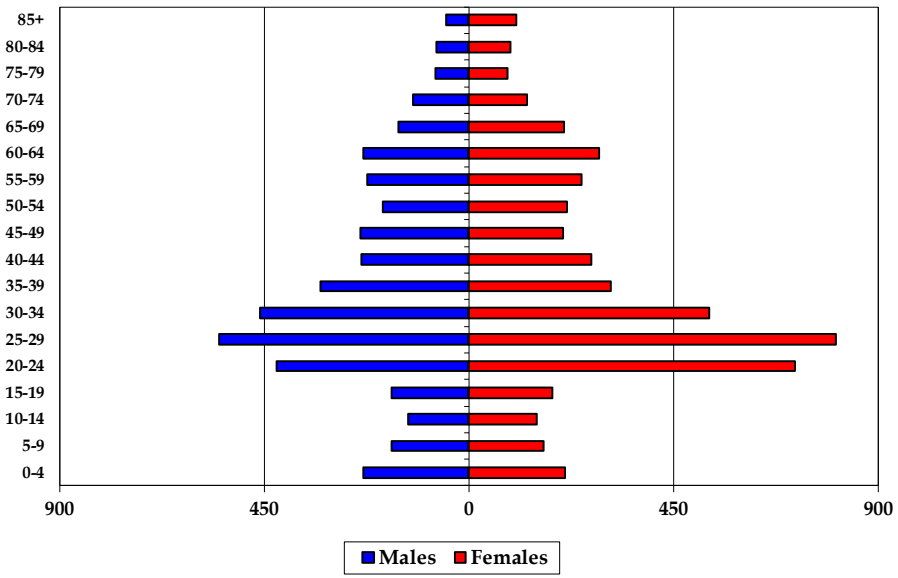
Heath Elementary Zone Population – 2010 Census



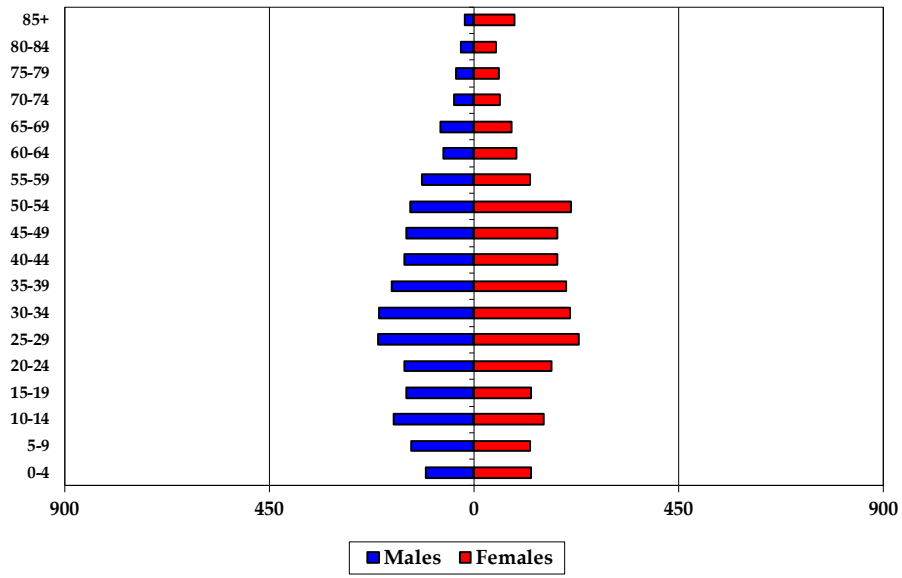
Lawrence Elementary Zone Population – 2000 Census



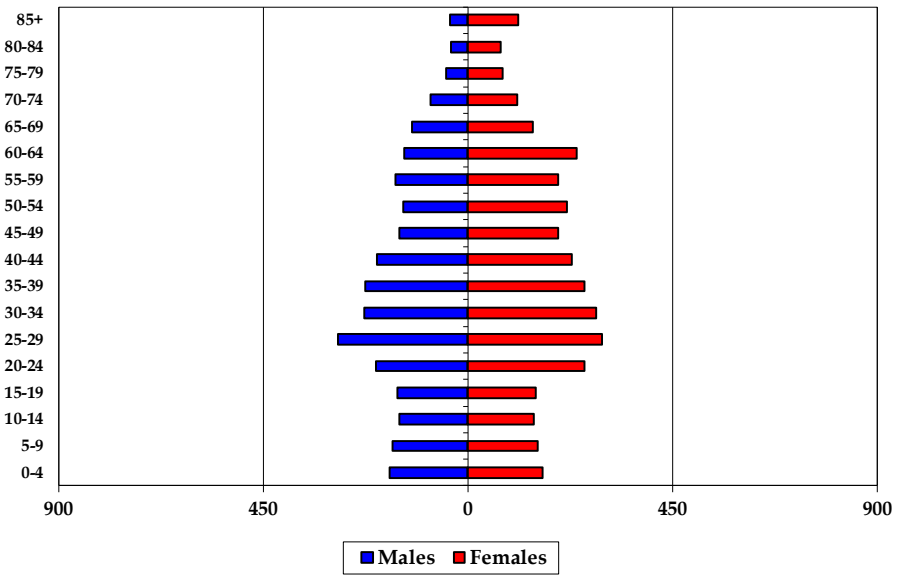
Lawrence Elementary Zone Population – 2010 Census



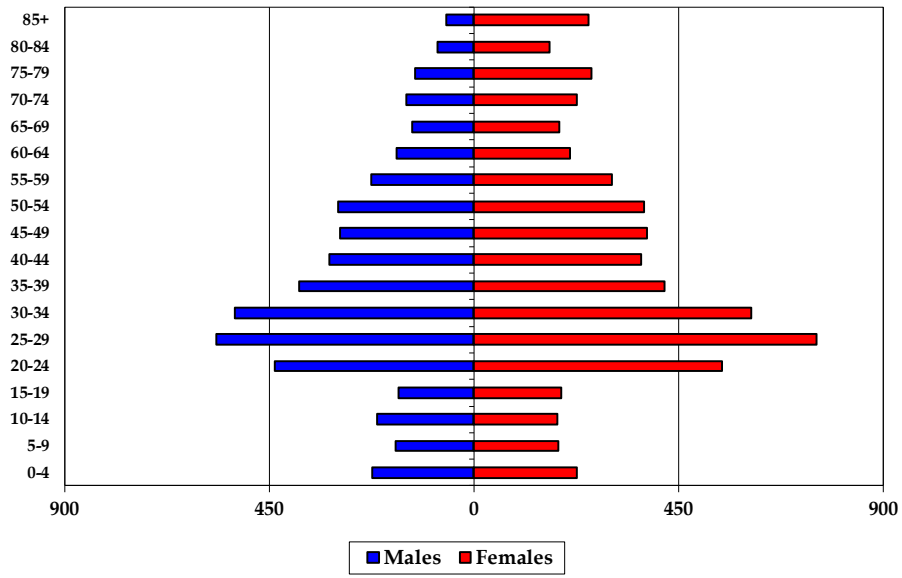
Lincoln Elementary Zone Population – 2000 Census



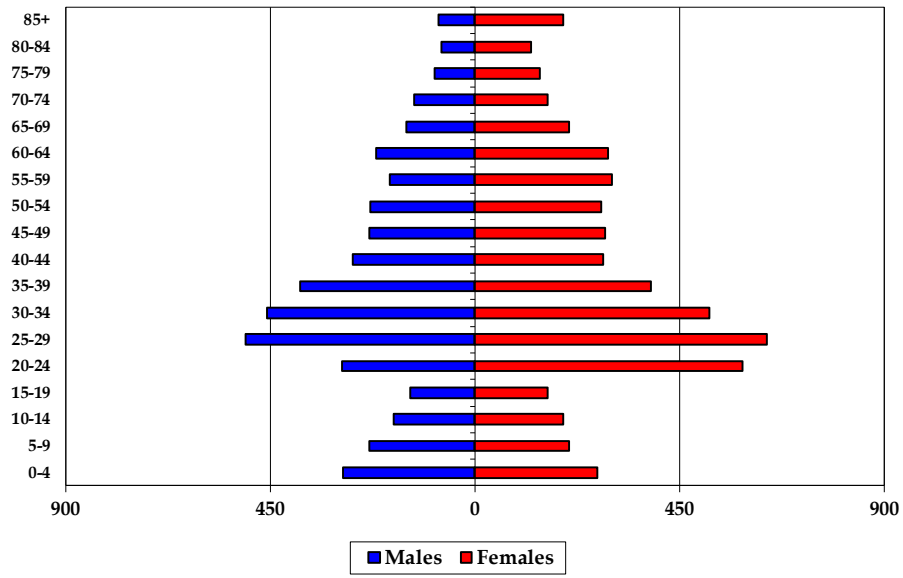
Lincoln Elementary Zone Population – 2010 Census



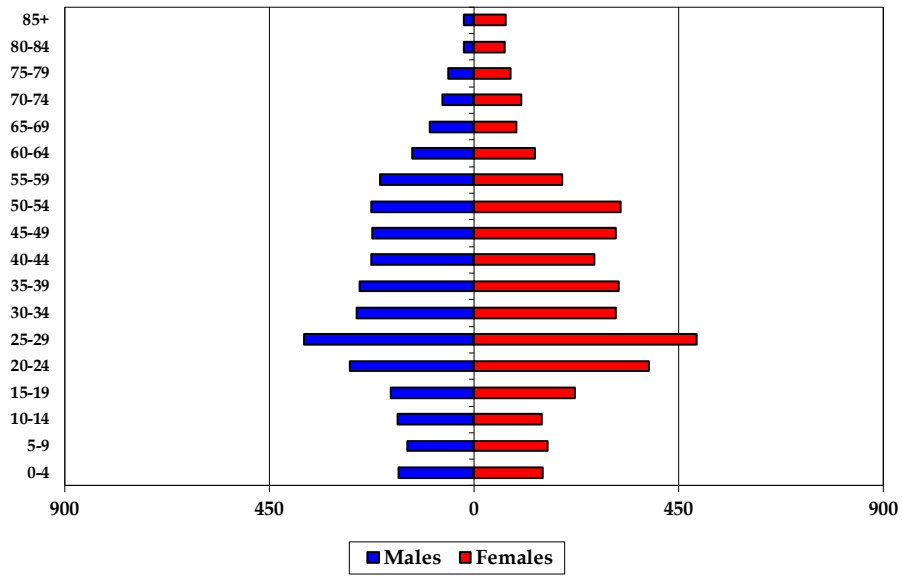
Pierce Elementary Zone Population – 2000 Census



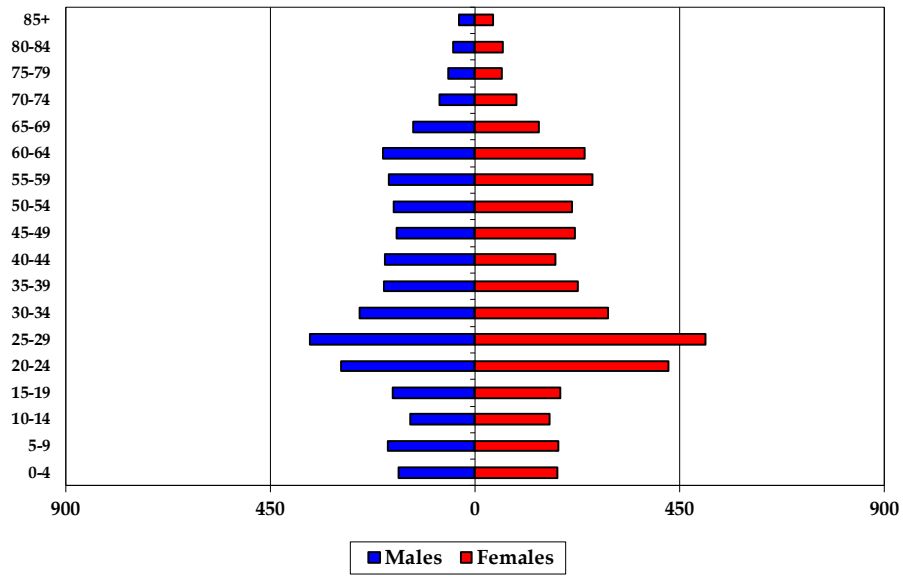
Pierce Elementary Zone Population – 2010 Census



Runkle Elementary Zone Population – 2000 Census



Runkle Elementary Zone Population – 2010 Census

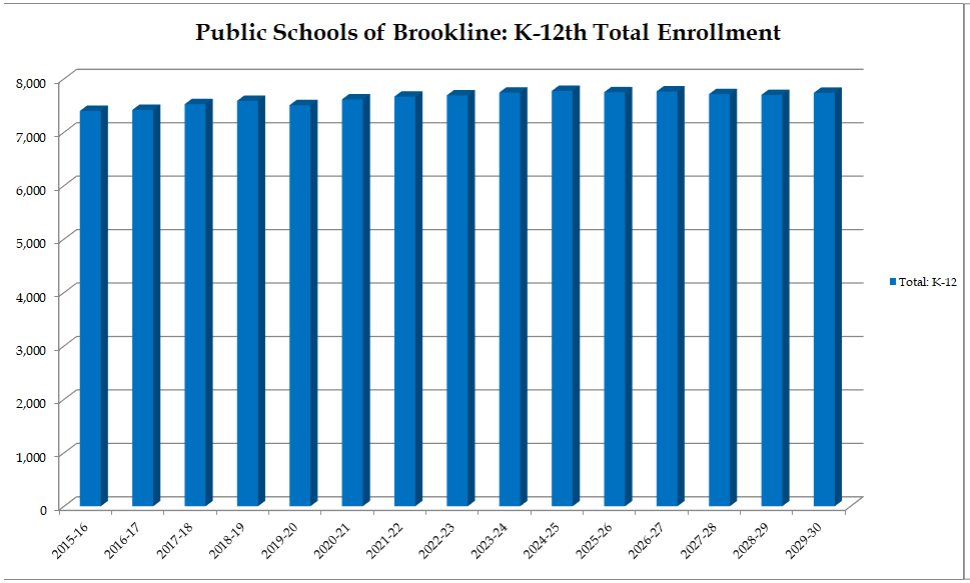


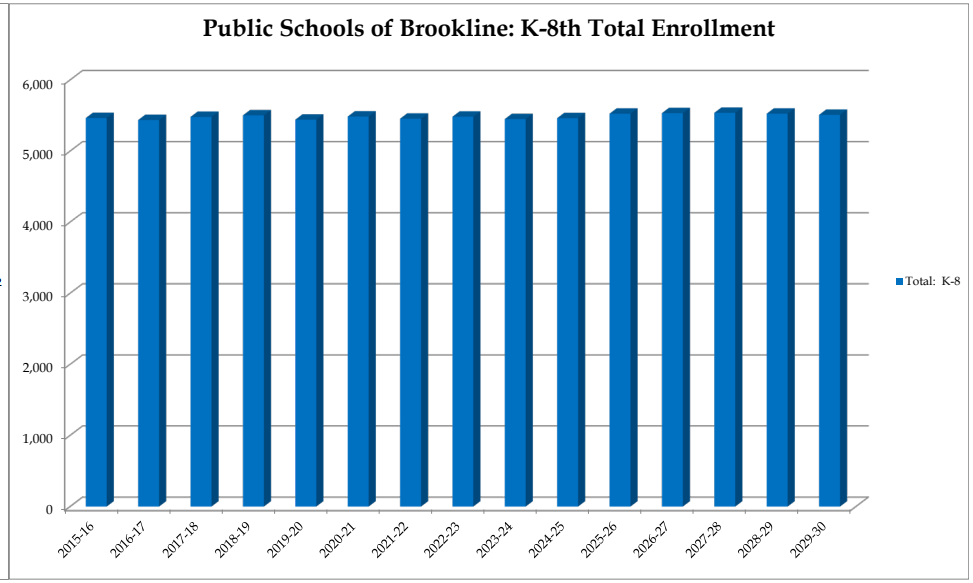
Appendix D: Enrollment Forecasts

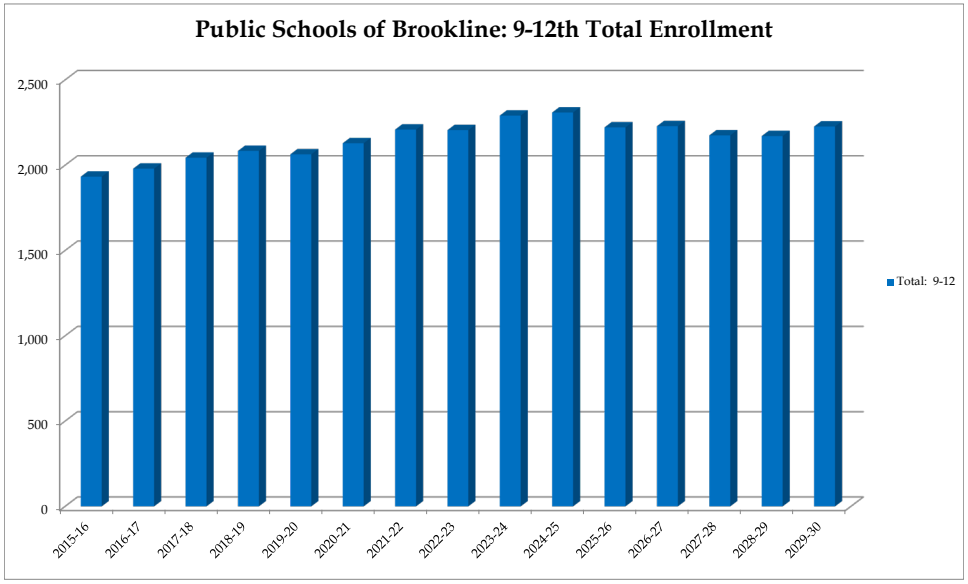
Public Schools of Brookline: Total Enrollment

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	257	262	257	251	252	252	252	252	252	252	252	252	252	252	252
K	633	582	609	603	600	626	625	630	628	633	628	629	625	622	623
1	696	627	566	615	614	623	631	630	635	633	638	634	633	629	627
2	621	678	631	574	613	616	624	631	630	635	633	636	633	632	628
3	704	633	691	645	573	617	620	628	635	634	639	632	635	632	631
4	598	677	621	680	624	565	610	611	621	628	627	626	619	622	619
5	553	584	660	605	657	613	555	598	600	612	619	616	615	608	611
6	610	549	585	665	582	651	607	550	591	594	605	612	609	608	602
7	543	576	550	571	618	563	628	586	531	570	574	586	593	590	589
8	507	531	568	545	561	612	556	620	579	524	563	563	576	583	580
Total: K-8	**5,465**	**5,437**	**5,481**	**5,503**	**5,442**	**5,486**	**5,456**	**5,484**	**5,450**	**5,463**	**5,526**	**5,534**	**5,538**	**5,526**	**5,510**
9	500	500	531	554	521	550	600	545	608	567	514	552	552	564	571
10	507	509	510	542	557	529	558	609	553	617	576	522	560	560	572
11	480	492	497	489	512	540	513	541	591	536	598	559	506	543	543
12	446	479	506	499	474	510	538	511	539	589	534	596	557	504	541
Total: 9-12	**1,933**	**1,980**	**2,044**	**2,084**	**2,064**	**2,129**	**2,209**	**2,206**	**2,291**	**2,309**	**2,222**	**2,229**	**2,175**	**2,171**	**2,227**
Total: K-12	**7,398**	**7,417**	**7,525**	**7,587**	**7,506**	**7,615**	**7,665**	**7,690**	**7,741**	**7,772**	**7,748**	**7,763**	**7,713**	**7,697**	**7,737**
SP	13	16	19	17	19	19	19	19	19	19	19	19	19	19	19
Total: K-12	**7,398**	**7,417**	**7,525**	**7,587**	**7,506**	**7,615**	**7,665**	**7,690**	**7,741**	**7,772**	**7,748**	**7,763**	**7,713**	**7,697**	**7,737**
Change		19	108	62	-81	109	50	25	51	31	-24	15	-50	-16	40
Percent Change		0.3%	1.5%	0.8%	-1.1%	1.5%	0.7%	0.3%	0.7%	0.4%	-0.3%	0.2%	-0.6%	-0.2%	0.5%
Total: K-8	**5,465**	**5,437**	**5,481**	**5,503**	**5,442**	**5,486**	**5,456**	**5,484**	**5,450**	**5,463**	**5,526**	**5,534**	**5,538**	**5,526**	**5,510**
Change		-28	44	22	-61	44	-30	28	-34	13	63	8	4	-12	-16
Percent Change		-0.51%	0.81%	0.40%	-1.11%	0.81%	-0.55%	0.51%	-0.62%	0.24%	1.15%	0.14%	0.07%	-0.22%	-0.29%
Total: 9-12	**1,933**	**1,980**	**2,044**	**2,084**	**2,064**	**2,129**	**2,209**	**2,206**	**2,291**	**2,309**	**2,222**	**2,229**	**2,175**	**2,171**	**2,227**
Change		47	64	40	-20	65	80	-3	85	18	-87	7	-54	-4	56
Percent Change		2.43%	3.23%	1.96%	-0.96%	3.15%	3.76%	-0.14%	3.85%	0.79%	-3.77%	0.32%	-2.42%	-0.18%	2.58%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years


Public Schools of Brookline: K-12th Total Enrollment
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24
2024-25
2025-26
2026-27
2027-28
2028-29
2029-30
Total: K-12


Public Schools of Brookline: K-8th Total Enrollment
6,000
5,000
4,000
3,000
2,000
1,000
0
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24
2024-25
2025-26
2026-27
2027-28
2028-29
2029-30
Total: K-8

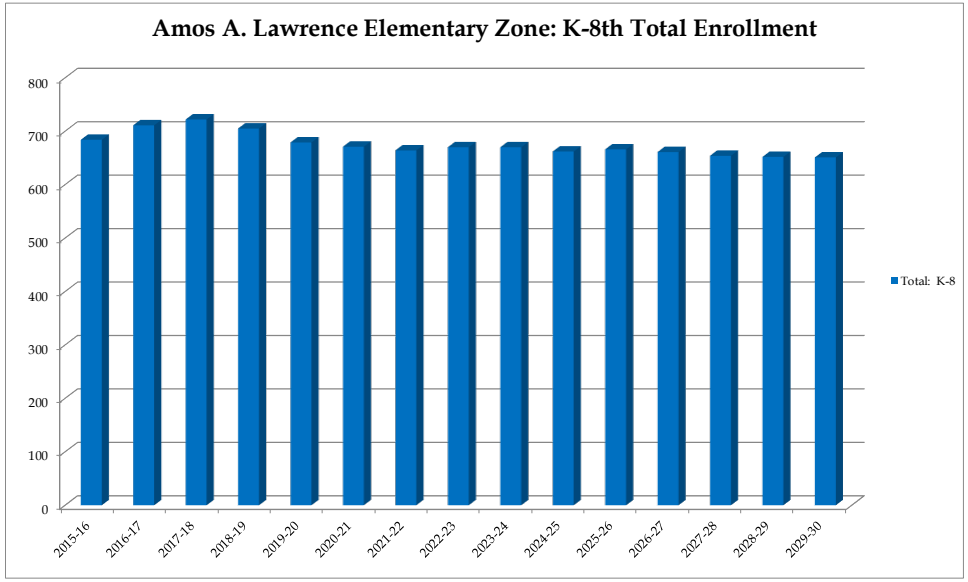

Public Schools of Brookline: 9-12th Total Enrollment
2,500
2,000
1,500
1,000
500
0
2015-16
2016-17
2017-18
2018-19
2019-20
2020-21
2021-22
2022-23
2023-24
2024-25
2025-26
2026-27
2027-28
2028-29
2029-30
Total: 9-12

Amos A. Lawrence Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	92	80	88	87	80	81	81	82	82	83	82	81	80	80	81
1	93	89	76	90	85	78	79	79	80	80	81	80	80	79	79
2	82	88	91	78	81	83	76	77	77	78	78	79	78	78	77
3	91	85	86	86	71	79	81	74	75	75	76	75	76	75	75
4	72	88	83	79	84	69	77	79	72	73	73	73	72	73	72
5	58	79	84	76	72	82	68	75	77	71	72	71	71	70	71
6	85	62	75	77	62	68	78	65	71	73	67	68	67	67	67
7	61	79	60	73	72	60	65	75	62	68	70	65	66	65	65
8	50	61	79	59	72	71	59	64	74	61	67	69	64	65	64
Total: K-8	**684**	**711**	**722**	**705**	**679**	**671**	**664**	**670**	**670**	**662**	**666**	**661**	**654**	**652**	**651**

Total: K-8	**684**	**711**	**722**	**705**	**679**	**671**	**664**	**670**	**670**	**662**	**666**	**661**	**654**	**652**	**651**
Change		27	11	-17	-26	-8	-7	6	0	-8	4	-5	-7	-2	-1
Percent Change		3.95%	1.55%	-2.35%	-3.69%	-1.18%	-1.04%	0.90%	0.00%	-1.19%	0.60%	-0.75%	-1.06%	-0.31%	-0.15%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

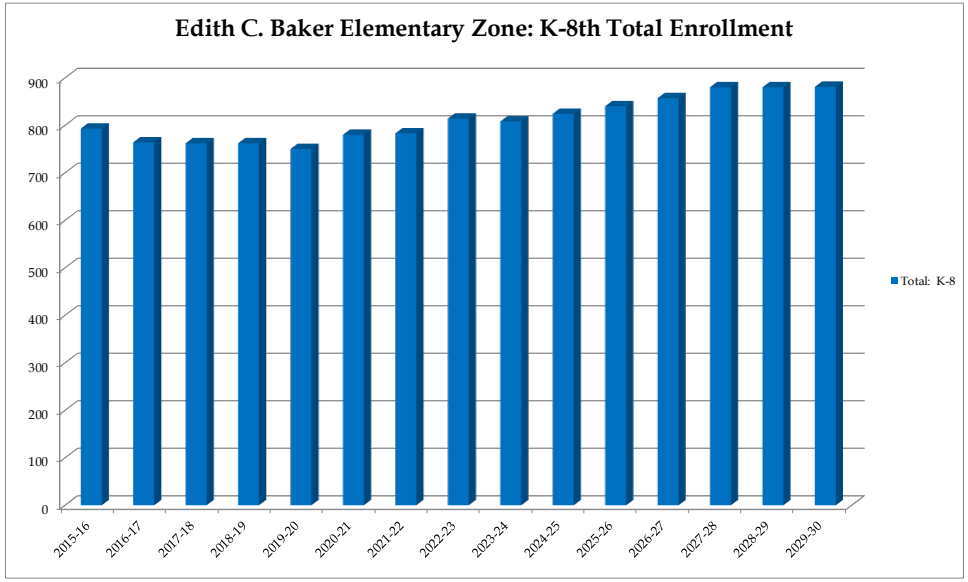


Edith C. Baker Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	74	83	78	73	83	93	92	91	89	88	89	91	92	93	92
1	111	76	85	86	78	99	98	97	96	94	93	94	95	96	97
2	79	103	76	83	86	80	101	99	98	97	95	95	96	97	98
3	112	72	111	88	81	88	82	103	101	100	99	97	97	98	99
4	79	106	68	115	82	82	89	81	104	102	101	100	98	98	99
5	77	80	101	62	104	80	80	86	79	103	101	102	101	99	99
6	97	74	85	102	64	105	81	81	87	80	104	102	103	102	100
7	85	91	75	79	95	61	101	78	78	84	77	101	99	100	99
8	79	79	83	74	77	92	59	98	76	76	81	75	99	97	98
Total: K-8	**793**	**764**	**762**	**762**	**750**	**780**	**783**	**814**	**808**	**824**	**840**	**857**	**880**	**880**	**881**

Total: K-8	**793**	**764**	**762**	**762**	**750**	**780**	**783**	**814**	**808**	**824**	**840**	**857**	**880**	**880**	**881**
Change		-29	-2	0	-12	30	3	31	-6	16	16	17	23	0	1
Percent Change		-3.66%	-0.26%	0.00%	-1.57%	4.00%	0.38%	3.96%	-0.74%	1.98%	1.94%	2.02%	2.68%	0.00%	0.11%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

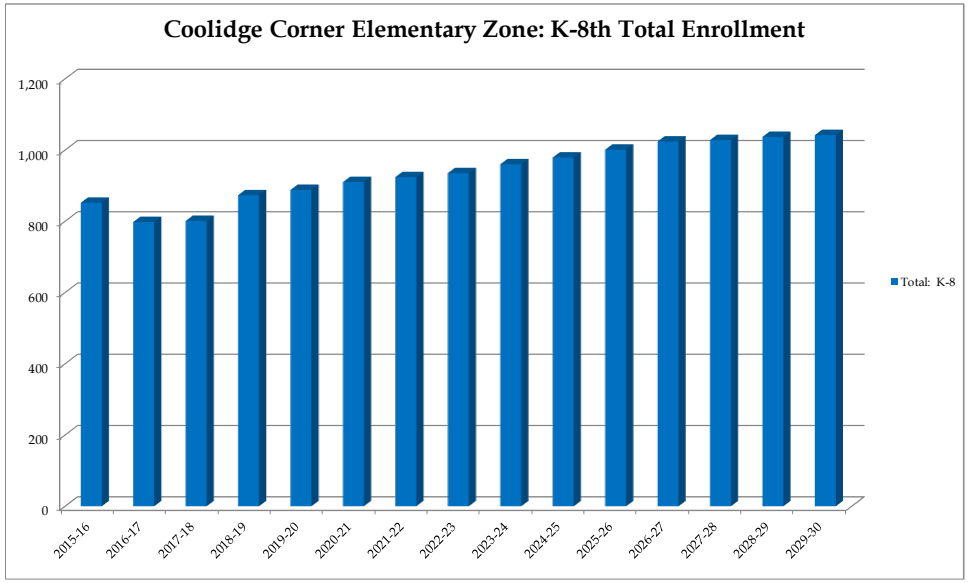


Coolidge Corner Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	-	-	-	29	31	31	31	31	31	31	31	31	31	31	31
K	105	91	92	109	105	110	112	115	117	120	121	123	124	125	123
1	110	101	85	93	115	112	115	117	120	122	125	126	127	128	129
2	101	93	96	93	93	113	110	113	115	118	120	121	122	123	124
3	111	97	92	109	103	94	114	111	114	116	119	119	120	121	122
4	96	100	96	93	102	100	91	111	108	111	113	114	114	115	116
5	88	92	93	107	92	101	99	90	110	107	110	111	112	112	113
6	77	77	94	97	102	90	99	97	88	108	105	107	108	109	109
7	85	72	78	90	93	99	87	96	94	85	105	101	103	104	105
8	79	75	75	82	83	91	97	85	94	92	83	102	98	100	101
Total: K-8	**852**	**798**	**801**	**873**	**888**	**910**	**924**	**935**	**960**	**979**	**1,001**	**1,024**	**1,028**	**1,037**	**1,042**

Total: K-8	**852**	**798**	**801**	**873**	**888**	**910**	**924**	**935**	**960**	**979**	**1,001**	**1,024**	**1,028**	**1,037**	**1,042**
Change		-54	3	72	15	22	14	11	25	19	22	23	4	9	5
Percent Change		-6.34%	0.38%	8.99%	1.72%	2.48%	1.54%	1.19%	2.67%	1.98%	2.25%	2.30%	0.39%	0.88%	0.48%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

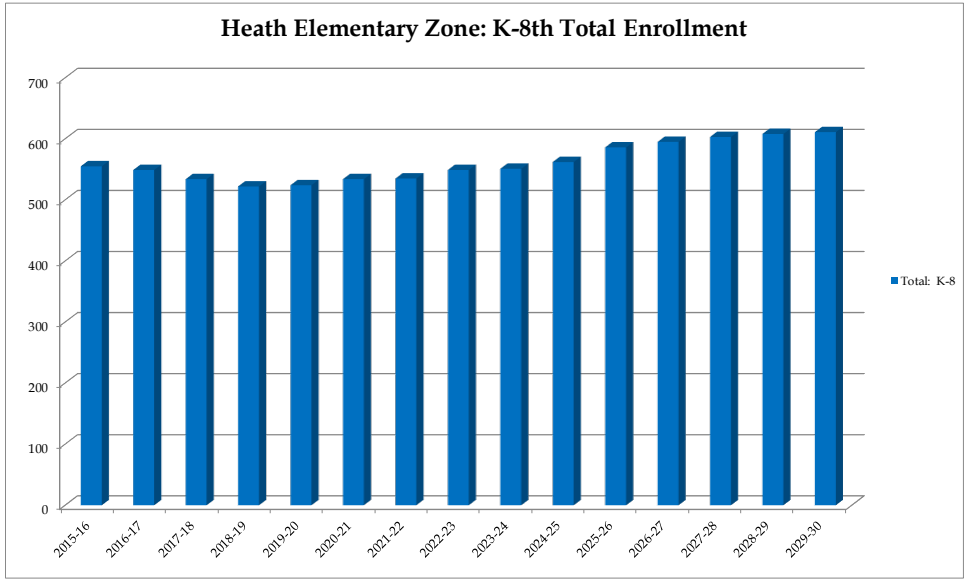


Heath Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	31	29	31	29	27	27	27	27	27	27	27	27	27	27	27
K	67	47	55	49	58	61	62	63	64	65	65	67	67	68	69
1	71	66	45	58	60	63	64	65	66	67	68	68	69	69	70
2	66	71	61	45	61	61	64	65	66	67	68	69	69	70	70
3	74	67	72	60	46	63	63	66	67	68	69	69	70	70	71
4	56	71	62	71	61	46	64	64	67	68	69	68	68	69	69
5	68	53	68	58	69	60	45	63	63	66	67	67	66	66	67
6	62	65	55	68	54	68	59	45	62	62	65	68	68	67	67
7	54	52	63	55	62	51	64	55	42	58	58	62	65	65	64
8	37	57	53	58	53	61	50	63	54	41	57	57	61	64	64
Total: K-8	**555**	**549**	**534**	**522**	**524**	**534**	**535**	**549**	**551**	**562**	**586**	**595**	**603**	**608**	**611**

Total: K-8	**555**	**549**	**534**	**522**	**524**	**534**	**535**	**549**	**551**	**562**	**586**	**595**	**603**	**608**	**611**
Change		-6	-15	-12	2	10	1	14	2	11	24	9	8	5	3
Percent Change		-1.08%	-2.73%	-2.25%	0.38%	1.91%	0.19%	2.62%	0.36%	2.00%	4.27%	1.54%	1.34%	0.83%	0.49%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

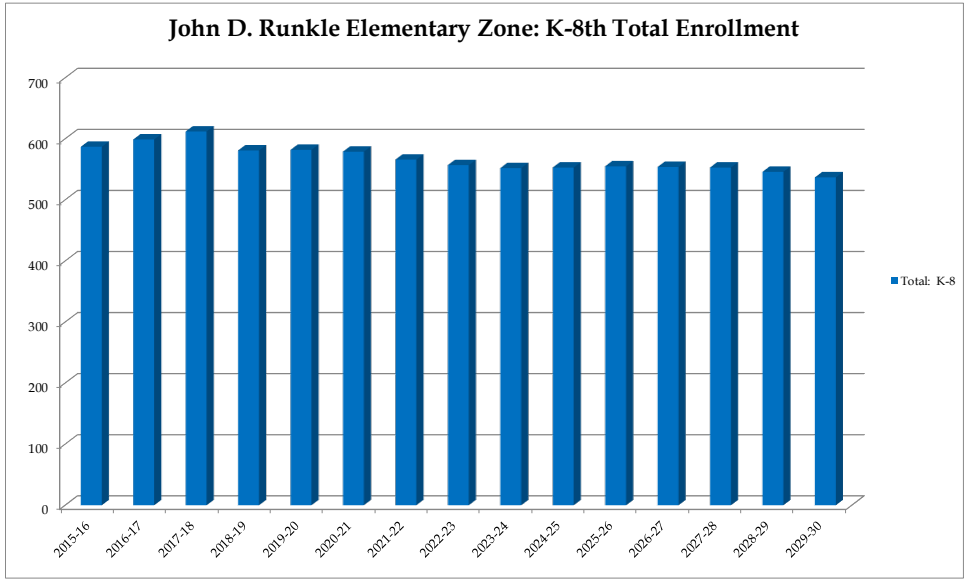


John D. Runkle Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	16	14	15	16	16	16	16	16	16	16	16	16	16	16	16
K	63	58	62	54	63	63	62	62	61	61	60	60	59	58	56
1	66	66	61	60	61	66	66	65	65	64	64	63	62	61	60
2	71	70	66	61	63	62	67	67	66	66	65	65	64	63	62
3	69	74	71	63	61	62	61	66	66	65	65	64	64	63	62
4	69	69	78	70	62	60	61	60	65	65	64	64	63	63	62
5	53	66	71	71	66	60	58	59	58	63	63	61	61	60	60
6	69	66	65	73	70	65	59	57	58	57	62	62	60	60	59
7	62	70	68	64	73	69	64	58	56	57	56	61	61	59	59
8	65	60	70	65	63	72	68	63	57	55	56	54	59	59	57
Total: K-8	**587**	**599**	**612**	**581**	**582**	**579**	**566**	**557**	**552**	**553**	**555**	**554**	**553**	**546**	**537**

Total: K-8	**587**	**599**	**612**	**581**	**582**	**579**	**566**	**557**	**552**	**553**	**555**	**554**	**553**	**546**	**537**
Change		12	13	-31	1	-3	-13	-9	-5	1	2	-1	-1	-7	-9
Percent Change		2.04%	2.17%	-5.07%	0.17%	-0.52%	-2.25%	-1.59%	-0.90%	0.18%	0.36%	-0.18%	-0.18%	-1.27%	-1.65%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

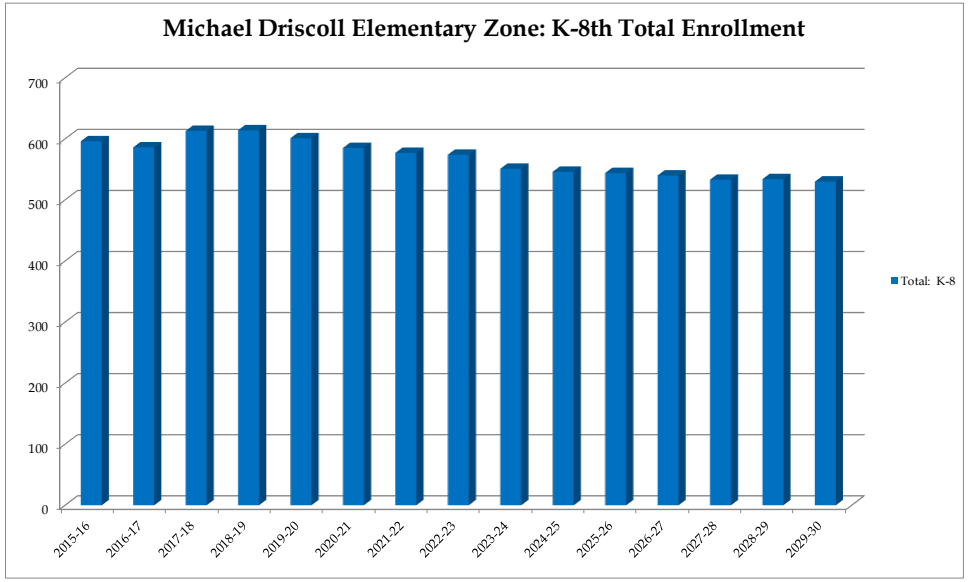


Michael Driscoll Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	15	14	16	17	-	-	-	-	-	-	-	-	-	-	-
K	61	61	61	70	56	61	61	62	62	63	62	61	60	58	57
1	70	58	62	60	63	55	59	59	60	60	61	60	59	58	56
2	57	76	68	68	63	66	57	61	61	62	62	63	62	61	60
3	73	63	81	66	63	62	65	56	60	60	61	61	62	61	60
4	72	70	61	77	66	62	61	64	55	59	59	60	60	61	60
5	72	68	73	58	82	65	61	60	63	54	58	58	59	59	60
6	69	66	75	73	64	85	68	63	62	66	56	60	60	61	61
7	57	66	68	74	66	62	82	66	61	60	64	54	58	58	59
8	65	58	64	68	78	67	63	83	67	62	61	63	53	57	57
Total: K-8	**596**	**586**	**613**	**614**	**601**	**585**	**577**	**574**	**551**	**546**	**544**	**540**	**533**	**534**	**530**

Total: K-8	**596**	**586**	**613**	**614**	**601**	**585**	**577**	**574**	**551**	**546**	**544**	**540**	**533**	**534**	**530**
Change		-10	27	1	-13	-16	-8	-3	-23	-5	-2	-4	-7	1	-4
Percent Change		-1.68%	4.61%	0.16%	-2.12%	-2.66%	-1.37%	-0.52%	-4.01%	-0.91%	-0.37%	-0.74%	-1.30%	0.19%	-0.75%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

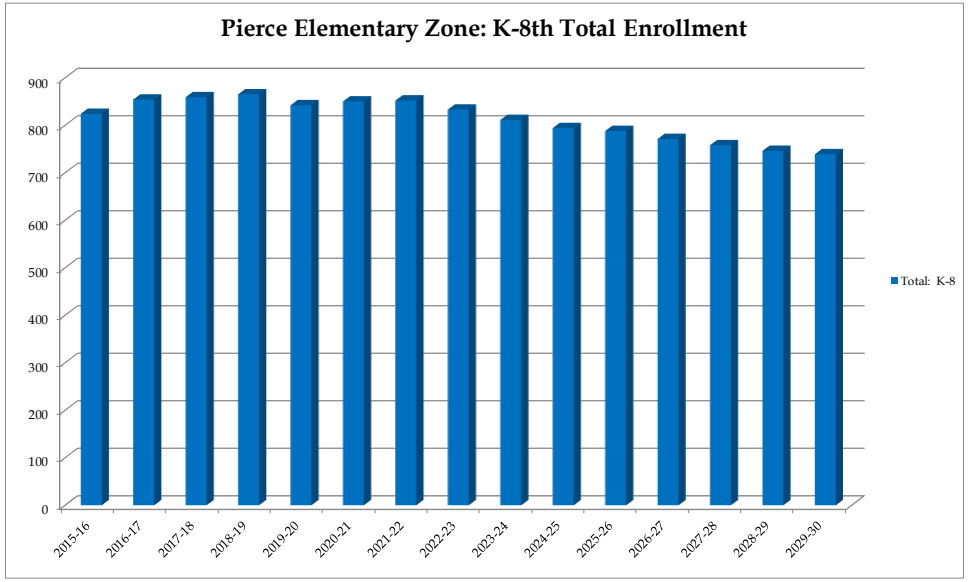


Pierce Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	106	96	108	99	93	95	94	94	93	93	90	89	87	85	88
1	108	113	91	103	95	91	91	90	90	89	89	87	86	84	83
2	107	106	111	87	96	92	88	88	87	87	86	85	84	83	81
3	90	111	108	109	91	98	94	90	90	89	89	87	86	85	84
4	87	91	114	106	104	90	97	93	89	89	88	87	85	84	83
5	85	83	84	110	106	101	87	94	90	86	86	85	84	82	81
6	85	88	76	90	103	105	100	86	93	89	85	84	83	82	80
7	81	86	84	80	79	101	103	98	84	91	87	83	82	81	80
8	75	80	83	81	75	77	98	100	95	81	88	84	81	80	79
Total: K-8	**824**	**854**	**859**	**865**	**842**	**850**	**852**	**833**	**811**	**794**	**788**	**771**	**758**	**746**	**739**

Total: K-8	**824**	**854**	**859**	**865**	**842**	**850**	**852**	**833**	**811**	**794**	**788**	**771**	**758**	**746**	**739**
Change		30	5	6	-23	8	2	-19	-22	-17	-6	-17	-13	-12	-7
Percent Change		3.64%	0.59%	0.70%	-2.66%	0.95%	0.24%	-2.23%	-2.64%	-2.10%	-0.76%	-2.16%	-1.69%	-1.58%	-0.94%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years

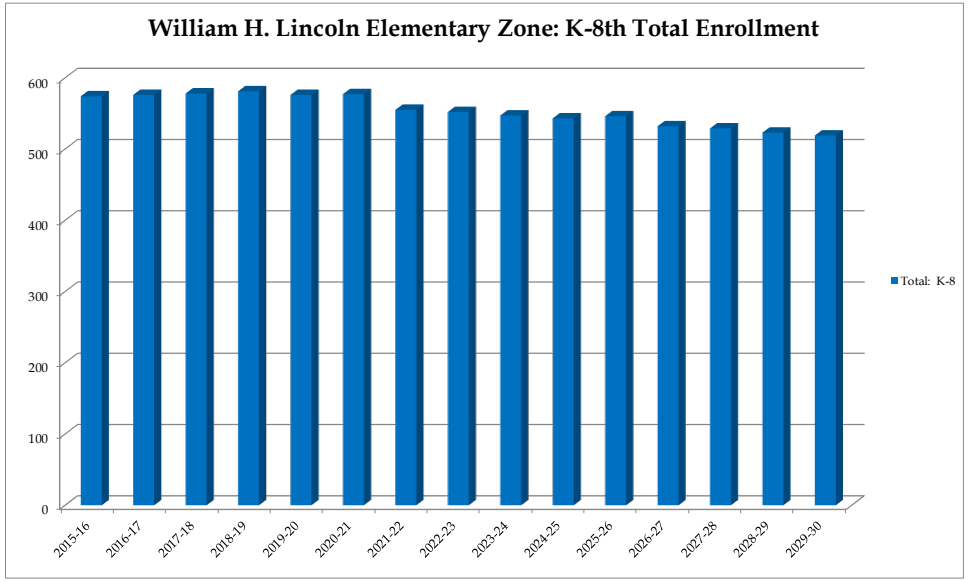


William H. Lincoln Elementary Zone

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
PK	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K	65	66	65	62	62	62	61	61	60	60	59	57	56	55	57
1	67	58	61	65	57	59	59	58	58	57	57	56	55	54	53
2	58	71	62	59	70	59	61	61	60	60	59	59	58	57	56
3	84	64	70	64	57	71	60	62	62	61	61	60	60	59	58
4	67	82	59	69	63	56	70	59	61	61	60	60	59	59	58
5	52	63	86	63	66	64	57	71	60	62	62	61	61	60	60
6	66	51	60	85	63	65	63	56	70	59	61	61	60	60	59
7	58	60	54	56	78	60	62	60	54	67	57	59	59	58	58
8	57	61	61	58	60	81	62	64	62	56	70	59	61	61	60
Total: K-8	**574**	**576**	**578**	**581**	**576**	**577**	**555**	**552**	**547**	**543**	**546**	**532**	**529**	**523**	**519**

Total: K-8	**574**	**576**	**578**	**581**	**576**	**577**	**555**	**552**	**547**	**543**	**546**	**532**	**529**	**523**	**519**
Change		2	2	3	-5	1	-22	-3	-5	-4	3	-14	-3	-6	-4
Percent Change		0.35%	0.35%	0.52%	-0.86%	0.17%	-3.81%	-0.54%	-0.91%	-0.73%	0.55%	-2.56%	-0.56%	-1.13%	-0.76%

Forecasts Developed December 2019
Green Cells (2019-20 and earlier) are historical data
Blue Cells (2020-21 and later) are forecasted years



Brookline High School

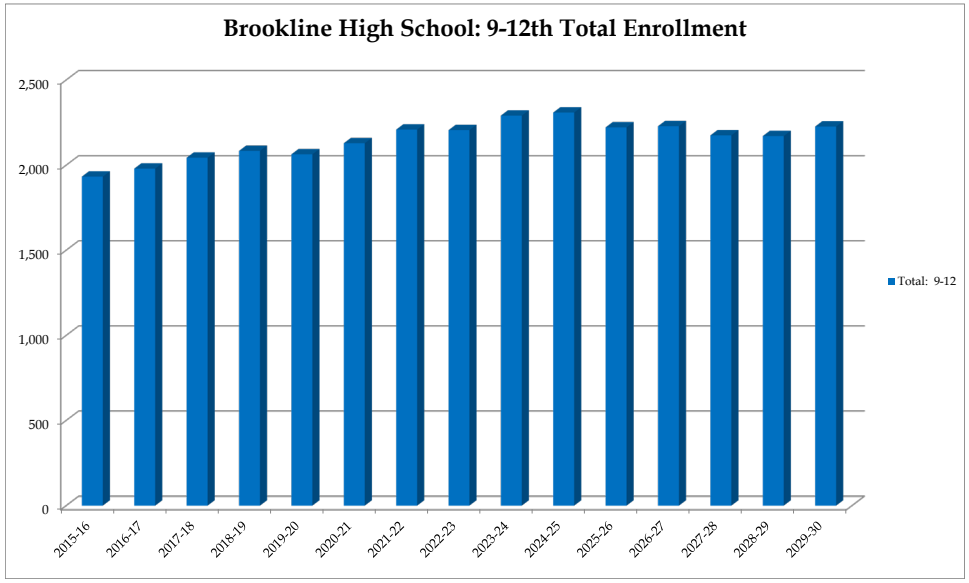
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
9	500	500	531	554	521	550	600	545	608	567	514	552	552	564	571
10	507	509	510	542	557	529	558	609	553	617	576	522	560	560	572
11	480	492	497	489	512	540	513	541	591	536	598	559	506	543	543
12	446	479	506	499	474	510	538	511	539	589	534	596	557	504	541
Total: 9-12	**1,933**	**1,980**	**2,044**	**2,084**	**2,064**	**2,129**	**2,209**	**2,206**	**2,291**	**2,309**	**2,222**	**2,229**	**2,175**	**2,171**	**2,227**

Total: 9-12	**1,933**	**1,980**	**2,044**	**2,084**	**2,064**	**2,129**	**2,209**	**2,206**	**2,291**	**2,309**	**2,222**	**2,229**	**2,175**	**2,171**	**2,227**
Change		47	64	40	-20	65	80	-3	85	18	-87	7	-54	-4	56
Percent Change		2.43%	3.23%	1.96%	-0.96%	3.15%	3.76%	-0.14%	3.85%	0.79%	-3.77%	0.32%	-2.42%	-0.18%	2.58%

Forecasts Developed December 2019

Green Cells (2019-20 and earlier) are historical data

Blue Cells (2020-21 and later) are forecasted years



Appendix E: Housing Development Estimated Timeline

TOWN OF BROOKLINE—DEPARTMENT OF PLANNING AND COMMUNITY DEVELOPMENT
Potential Residential/Mixed-use Development Projects in various stages of Permitting Processes—November 21, 2019

PROJECT	TOTAL UNITS	STUDIO	1-BR	2-BR	3-BR	4-BR	AGE-RESTRICTED	NOTES	ESTIMATED EARLIEST CONSTRUCTION COMPLETION *
40 Centre	40	16	14	5	5	0	-	In litigation.	On hold/ unknown
420 Harvard/49 Coolidge	25	3	6	11	5	0	-	Under construction	June 2020
384 Harvard (JCHE)	62	0	52	10	0	0	YES	Under construction	August 2020
1299 Beacon	55	0	13	42	0	0	YES (55+)	Comprehensive Permit (CP) issued. Next step: apply for Building Permit.	Nov. 2022
1180 Boylston	50	0	15	33	2	0	YES (55+)	CP issued. Next step: apply for Building Permit	Nov. 2022
Waldo/Durgin (10 Pleasant & 5 Waldo)	143	**0**	85	58	0	0	-	Secured Zoning Amendment. Next step: Special Permit Process. Estimate based on developer's estimate of earliest date.	March 2024
455 Harvard	17	0	10	5	2	0	-	Under construction	June 2020
136 Babcock	45	20	13	7	5	0	-	Issued Building Permit	June 2021
21 Crowninshield	8	0	0	0	8	0	-	Nearing end of construction	June 2020
Residences of South Brookline—Hancock Village	175	3	79	43	50	0	-	Building Permit application anticipated early 2020	Jan. 2022
Puddingstone—Hancock Village	230	0	54	140	24	12	-	CP filed Oct. 29, 2018. Developer has not indicated construction plans or timetable, and has three other large projects in process.	On hold/ unknown
118 Gerry/121 Independence Drive	36	0	16	20	0	0	-	Special Permit Issued. Next step: Building Permit.	Sept. 2021
1223 Beacon (Hampton Court)	123	8	38	52	25	0	-	CP hearing on hold. Developer has not indicated construction plans or timetable, and has three other large projects in process.	On hold/ unknown
445 Harvard	25	0	12	10	3	0	-	CP anticipated end of 2019. Developer notes he won't likely start construction for three years.	January 2025
500 Harvard	30	3	17	7	3	0	-	CP hearing to open Dec. 2019.	June 2023
217 Kent	90	32	43	6	9	0	-	In pre-CP process. Assuming CP hearing opens January 2020.	June 2023
209 Harvard	44	36	0	3	5	0	-	In pre-CP process. Assuming CP hearing opens February 2020.	August 2023

*Estimates are based on the following assumptions:

1. Everything goes smoothly (from developer's perspective) & the market stays strong.
2. Comprehensive Permit public hearing process takes 12 months.
3. Preparation of Construction Documents for Building Permit takes 12 months.
4. Construction takes 1 ½ to 2 years from date of Building Permit.
5. Building projects used in the forecast are highlighted.

Student Yield per Household for Selected Appartment Complexes

	Coolidge Corner	Runkle	Heath	Baker
K-8 Students	46	42	47	250
Total Housing Units	120	68	181	563
YIELDS	0.38	0.62	0.26	0.44

Appendix F: Live-Attend Analysis

Live Attend Matrix

The table below gives details on the schools that students attend and the school boundaries where they live. The schools of attendance are listed on the left while the boundaries where students live are listed on the top line. This student data is from October 1st, 2019 Public Schools of Brookline 2019-20 student database.

The first column of numbers to the right of the schools of attendance represents the number of students enrolled at that school. The first row of numbers below the boundaries where students live represents the total number of students living inside of that boundary. The green-colored numbers represent the number of students who live in the boundary and attend their boundary school. All other numbers represent students who attend school outside of the boundary that they live in. The bottom row represents the number of students that "Live-In and Attend-Out" by school. The blue-colored cell shows the total number of students that "Live-in and Attend-Out". The farthest right column represents the number of students that "Live-Out and Attend-In" by school. The orange-colored cell shows the total number of students that "Live-Out and Attend-In".

Live-in counts

Where K-8th Students Live

Enrolled counts

Where K-8th Students Attend		Baker	Coolidge Corner	Driscoll	Heath	Lawrence	Lincoln	Pierce	Runkle	Out of District	Unmatched	**Live Out, Attend In (K-8)**
		761	**801**	**496**	**404**	**584**	**605**	**837**	**579**	**401**	**0**	**1342**
Edith C. Baker School	**750**	650	2		2		3	2	1	90		**100**
Coolidge Corner School	**888**	1	702	31	2	74	2	23	6	47		**186**
Michael Driscoll School	**600**	6	15	415		7	5	33	79	40		**185**
Heath School	**525**	71	2	2	371		2	1	21	55		**154**
Amos A. Lawrence School	**679**	3	54	6	4	443	14	120	4	31		**236**
William H. Lincoln School	**576**	13	6	4	12	6	454	13	14	54		**122**
Pierce School	**842**	1	5	8	2	45	101	626	9	45		**216**
John D. Runkle School	**582**	13	11	25	10	8	22	16	439	38		**143**
Non-PSB K-8 School	**26**	3	4	5	1	1	2	3	6	1		
Live In, Attend Out (K-8)	**967**	**111**	**99**	**81**	**33**	**141**	**151**	**211**	**140**			

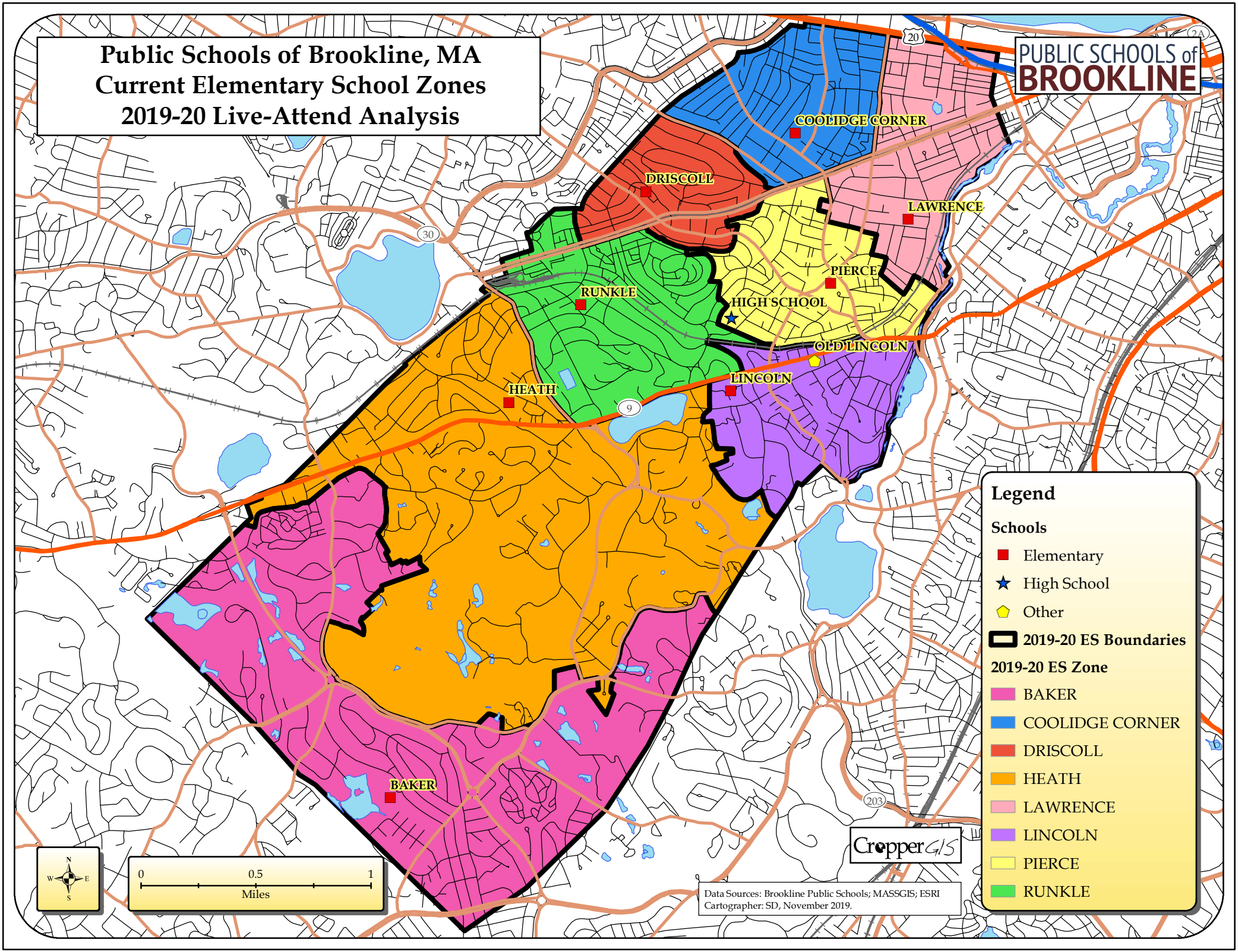
Live out and attend in totals per school. Total is shown at the top in the blue-colored cell.

Green-colored numbers represent number of students who live in the zone and attend their zoned school. All other numbers represent students who attend school outside of the zone that they live in.

Live in and attend out totals per school. Total is shown at the left in the green-colored

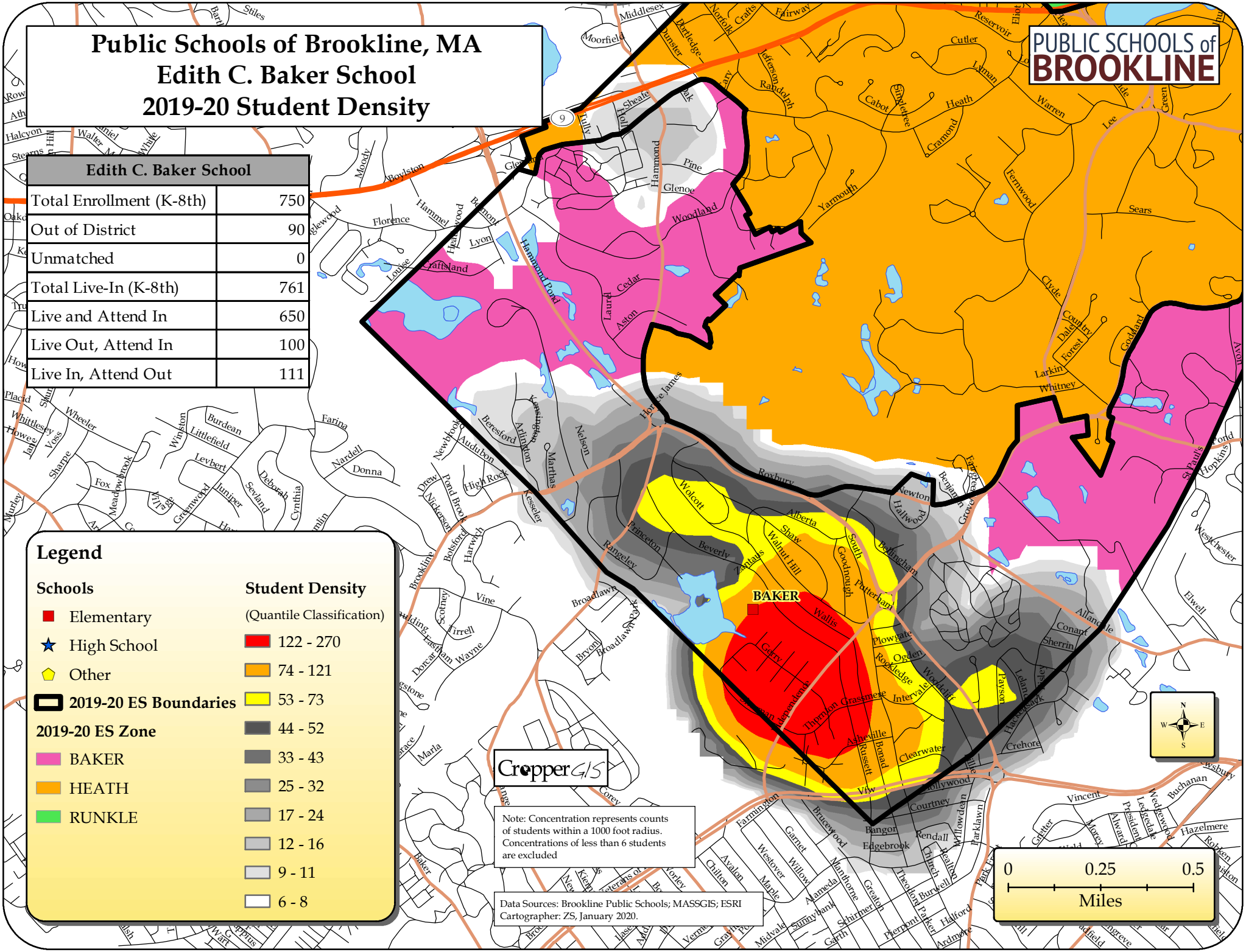
Where 9-12th Students Live

Where 9-12th Students Attend		Brookline	Out of District	Unmatched	**Live Out, Attend In (9-12)**
		1923	**166**	**0**	**165**
Brookline High School	**2064**	**1899**	165		**165**
Non-PSB High School		24	1		
Live In, Attend Out (9-12)	**24**	**24**			


Public Schools of Brookline, MA
Current Elementary School Zones
2019-20 Live-Attend Analysis
PUBLIC SCHOOLS of BROOKLINE
COOLIDGE CORNER
DRISCOLL
LAWRENCE
PIERCE
RUNKLE
HIGH SCHOOL
OLD LINCOLN
LINCOLN
HEATH
BAKER
20
30
9
203
Legend
Schools
Elementary
High School
Other
2019-20 ES Boundaries
2019-20 ES Zone
BAKER
COOLIDGE CORNER
DRISCOLL
HEATH
LAWRENCE
LINCOLN
PIERCE
RUNKLE
0
0.5
1
Miles
N
W
E
S
CropperGIS
Data Sources: Brookline Public Schools; MASSGIS; ESRI
Cartographer: SD, November 2019.

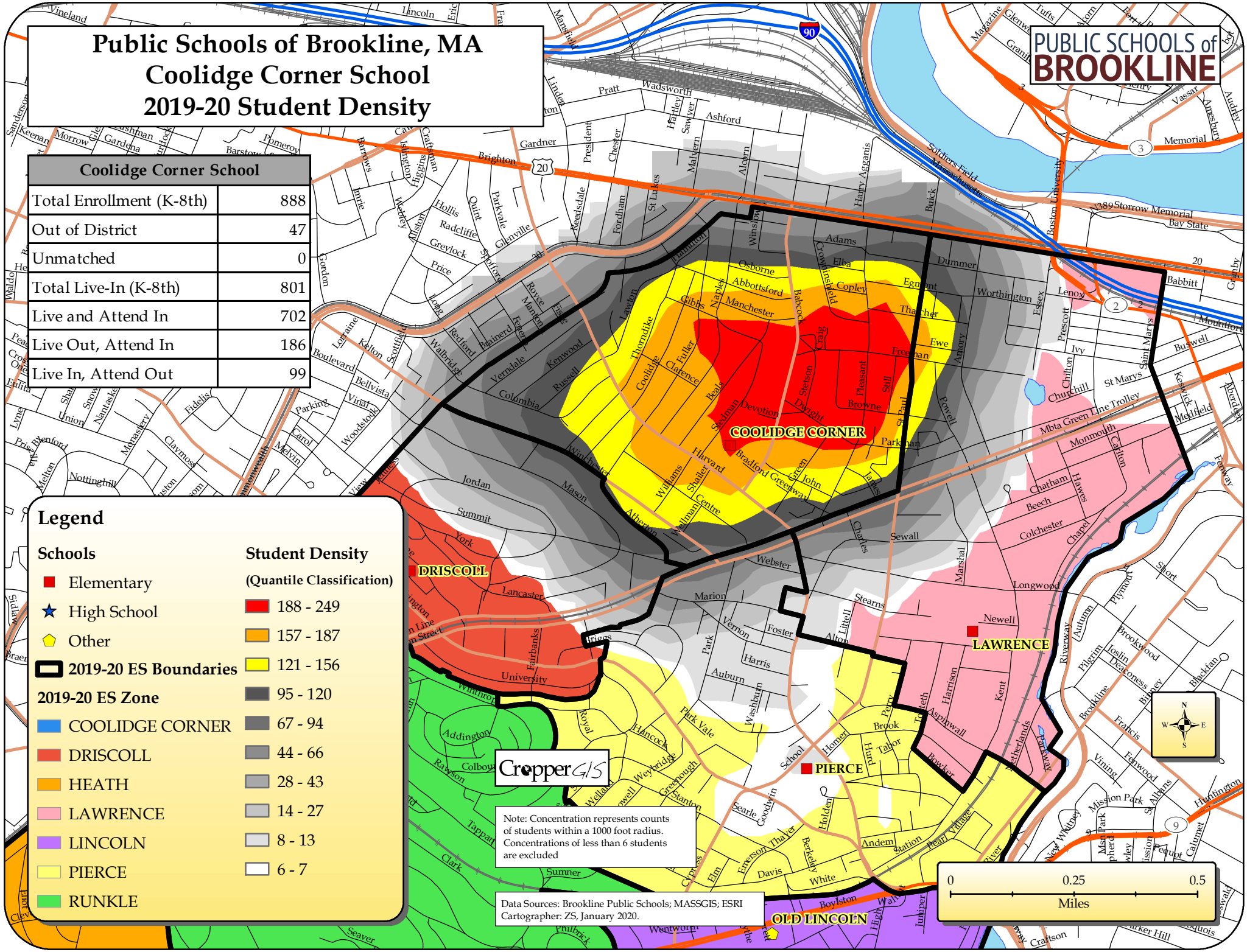
Public Schools of Brookline, MA
Edith C. Baker School
2019-20 Student Density

Edith C. Baker School	
Total Enrollment (K-8th)	750
Out of District	90
Unmatched	0
Total Live-In (K-8th)	761
Live and Attend In	650
Live Out, Attend In	100
Live In, Attend Out	111



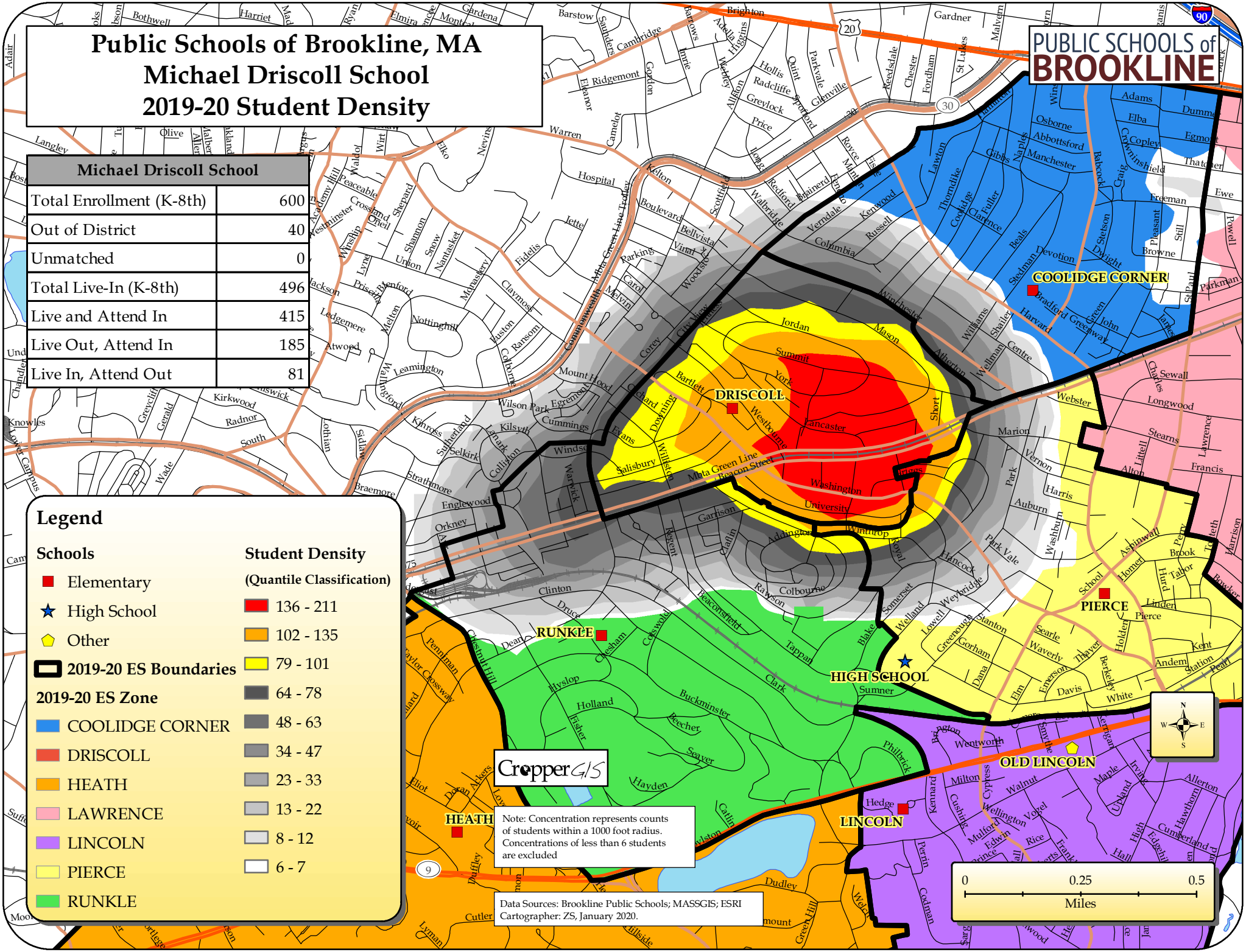
Public Schools of Brookline, MA
Coolidge Corner School
2019-20 Student Density

Coolidge Corner School	
Total Enrollment (K-8th)	888
Out of District	47
Unmatched	0
Total Live-In (K-8th)	801
Live and Attend In	702
Live Out, Attend In	186
Live In, Attend Out	99



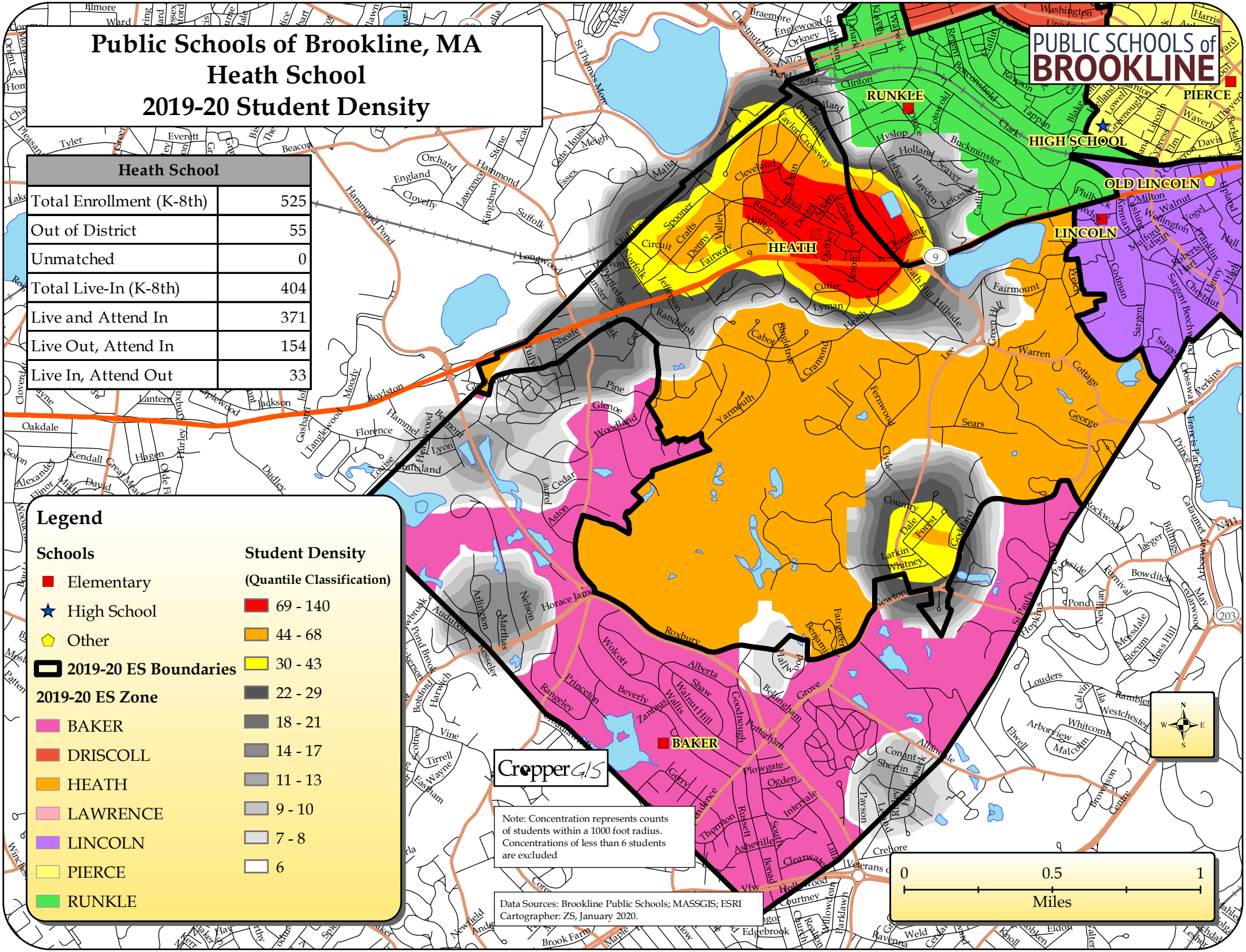
Public Schools of Brookline, MA
Michael Driscoll School
2019-20 Student Density

Michael Driscoll School	
Total Enrollment (K-8th)	600
Out of District	40
Unmatched	0
Total Live-In (K-8th)	496
Live and Attend In	415
Live Out, Attend In	185
Live In, Attend Out	81



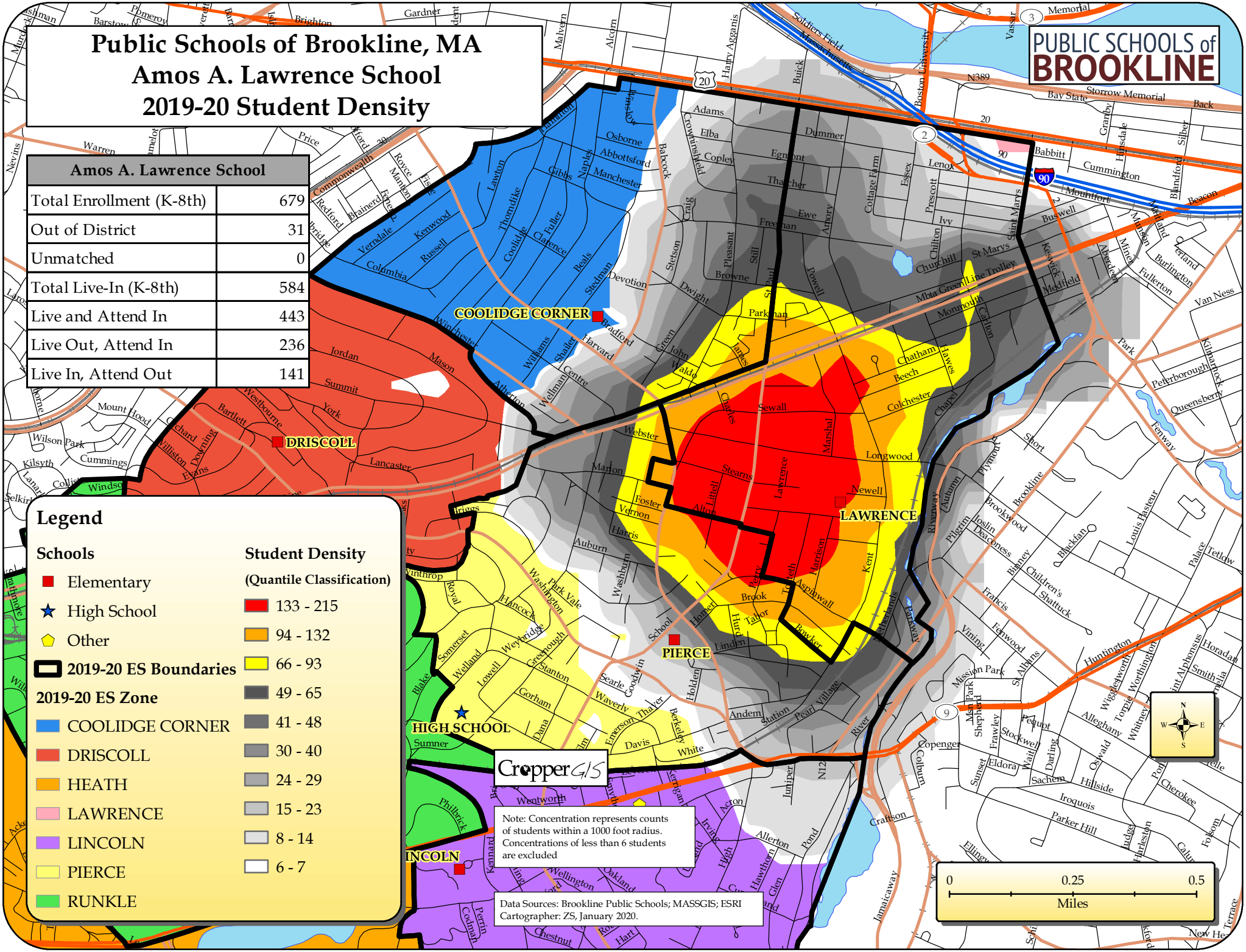
Public Schools of Brookline, MA
Heath School
2019-20 Student Density

Heath School	
Total Enrollment (K-8th)	525
Out of District	55
Unmatched	0
Total Live-In (K-8th)	404
Live and Attend In	371
Live Out, Attend In	154
Live In, Attend Out	33



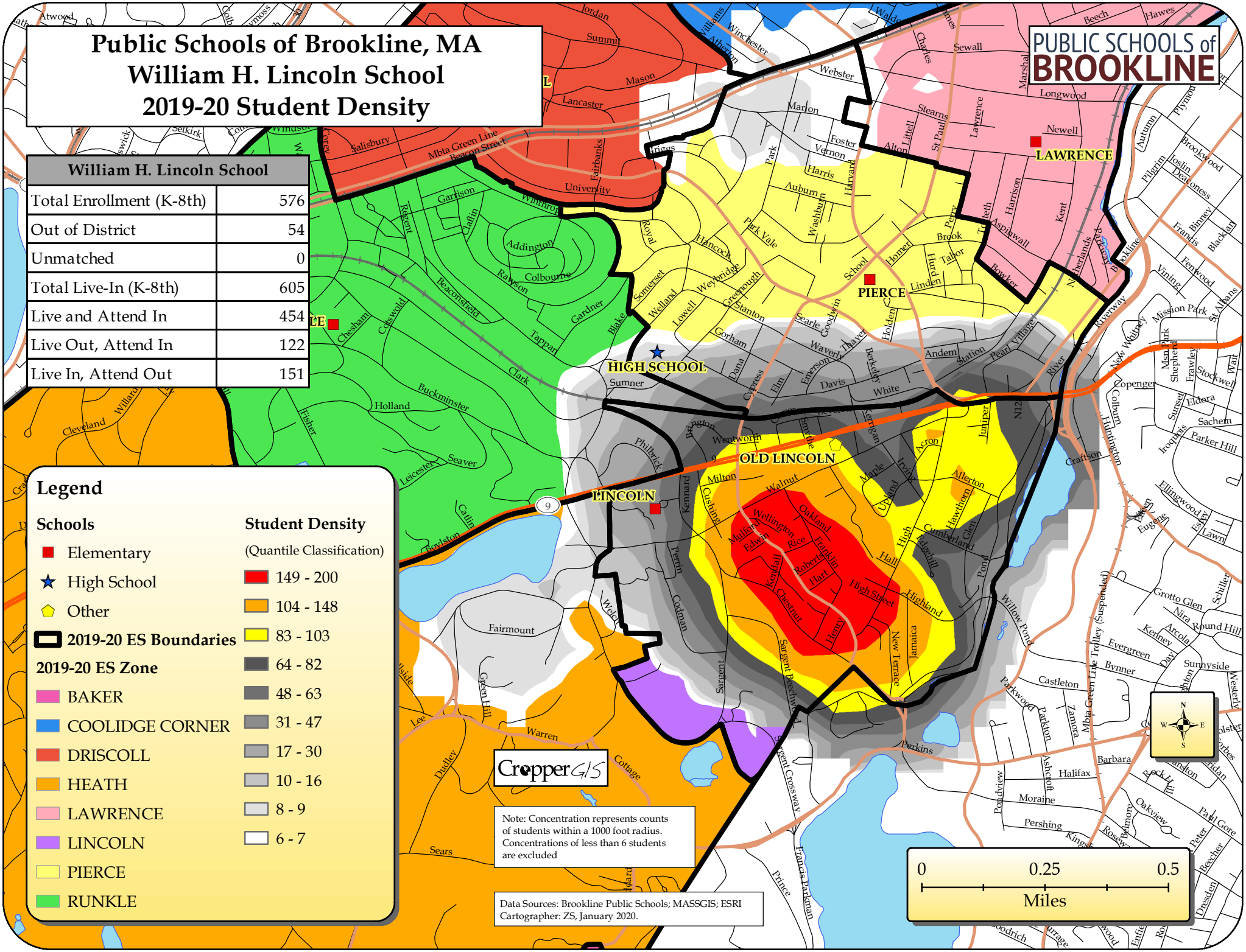
Public Schools of Brookline, MA
Amos A. Lawrence School
2019-20 Student Density

Amos A. Lawrence School	
Total Enrollment (K-8th)	679
Out of District	31
Unmatched	0
Total Live-In (K-8th)	584
Live and Attend In	443
Live Out, Attend In	236
Live In, Attend Out	141



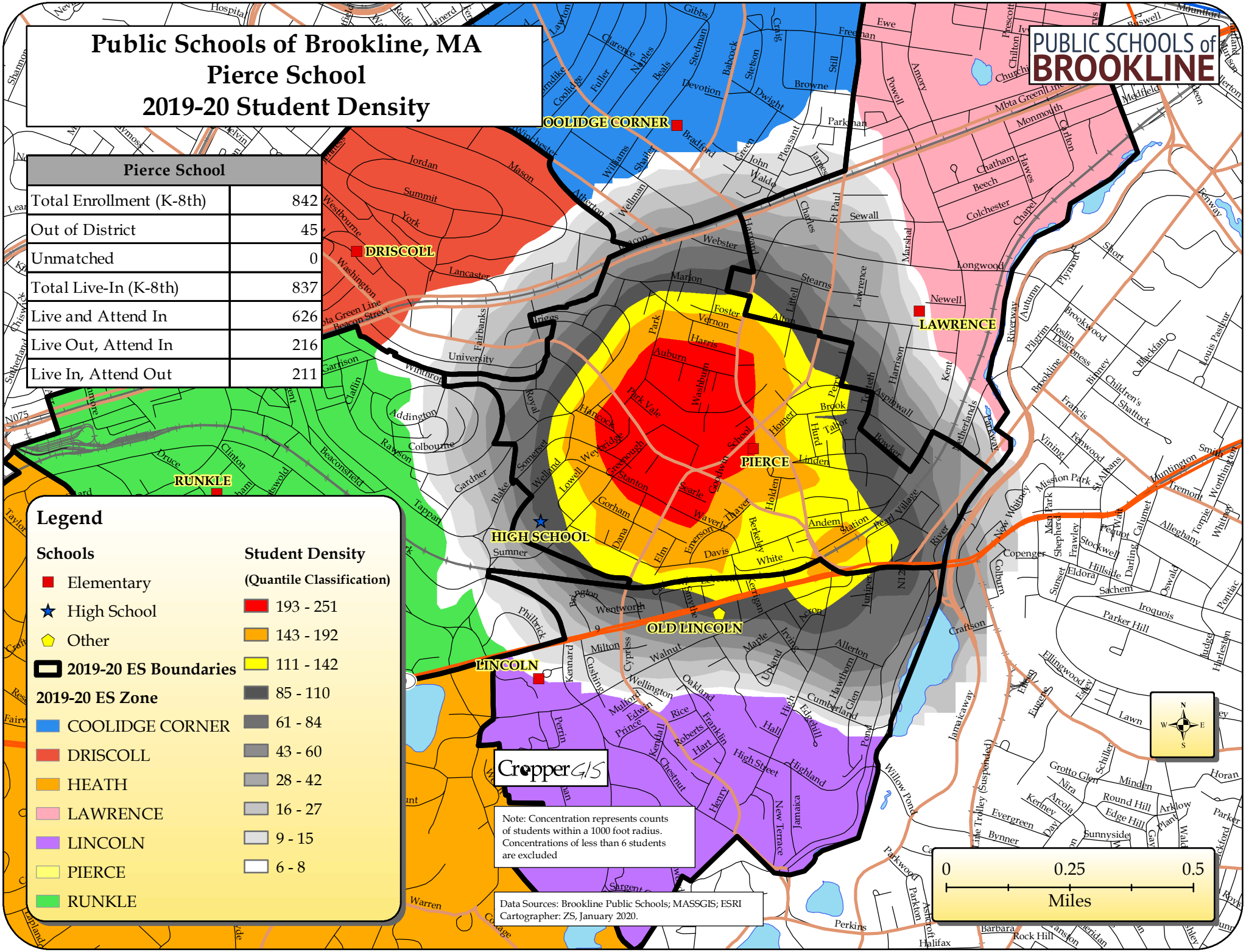
Public Schools of Brookline, MA
William H. Lincoln School
2019-20 Student Density

William H. Lincoln School	
Total Enrollment (K-8th)	576
Out of District	54
Unmatched	0
Total Live-In (K-8th)	605
Live and Attend In	454
Live Out, Attend In	122
Live In, Attend Out	151



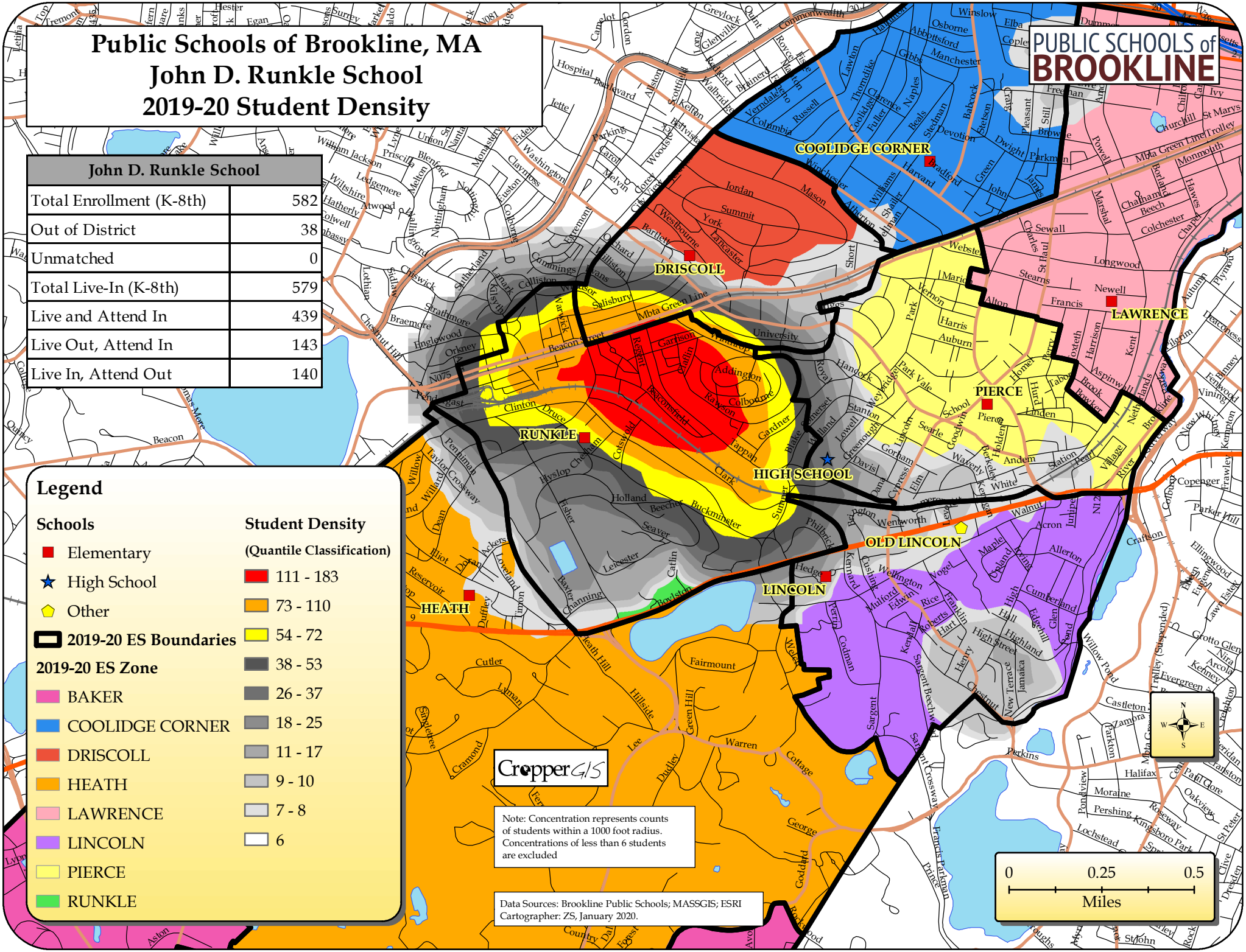
Public Schools of Brookline, MA
Pierce School
2019-20 Student Density

Pierce School	
Total Enrollment (K-8th)	842
Out of District	45
Unmatched	0
Total Live-In (K-8th)	837
Live and Attend In	626
Live Out, Attend In	216
Live In, Attend Out	211



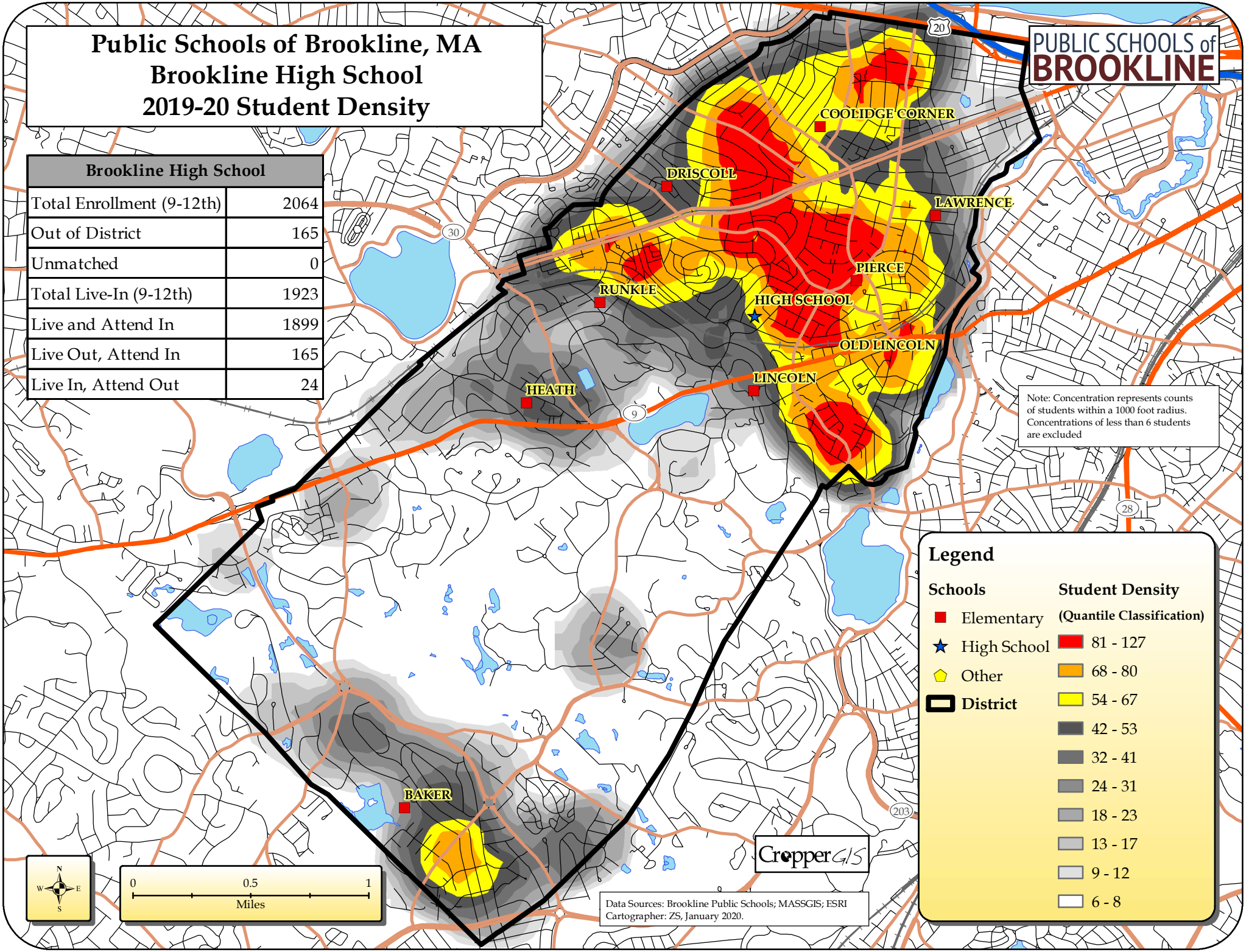
Public Schools of Brookline, MA
John D. Runkle School
2019-20 Student Density

John D. Runkle School	
Total Enrollment (K-8th)	582
Out of District	38
Unmatched	0
Total Live-In (K-8th)	579
Live and Attend In	439
Live Out, Attend In	143
Live In, Attend Out	140



Public Schools of Brookline, MA
Brookline High School
2019-20 Student Density

Brookline High School	
Total Enrollment (9-12th)	2064
Out of District	165
Unmatched	0
Total Live-In (9-12th)	1923
Live and Attend In	1899
Live Out, Attend In	165
Live In, Attend Out	24



Massachusetts School Building Authority

Deborah B. Goldberg
Chairman, State Treasurer

James A. MacDonald
Chief Executive Officer

John K. McCarthy
Executive Director / Deputy CEO

March 9, 2020

Mr. Bernard Greene, Chair
Brookline Select Board
Brookline Town Hall
333 Washington Street
Brookline, MA 02445

Re: Town of Brookline, John R. Pierce School

Dear Mr. Greene:

I would like to thank representatives of the Town of Brookline (the "District") for meeting with Massachusetts School Building Authority (the "MSBA") staff on November 12, 2019 and for continued conversations up through February 28, 2020 to review enrollment projections and methodologies for the John R. Pierce School project (the "Proposed Project"). As discussed, the next critical step is for the MSBA and the District to agree on a design enrollment for the John R. Pierce School.

The John R. Pierce School presently serves a portion of the District's total grade K-8 enrollment. The MSBA understands that the District is interested in including Pre-K classroom space in its Proposed Project as part of its district-wide efforts to return Pre-K classrooms back to the K-8 buildings as opposed to spaces that are currently being leased by the District. Please note, as discussed during the enrollment meeting on November 12, 2019, the MSBA does not project Pre-K enrollment. As stated previously, the determination of allowable space for Pre-K programming for the Proposed Project will be established during the feasibility study phase of the MSBA's process at the time of the review of the District's proposed educational space program for the Proposed Project. Accordingly, this analysis will be particularly focused on the enrollment projections for grades K-8.

The table below illustrates the District's K-12 enrollment during the most recent ten-year period, including enrollment for the current school year (2019-2020) as reported by the Department of Elementary and Secondary Education ("DESE") and the District.

Year	K-8	9-12	Total
2010	4,643	1,721	6,364
2011	4,825	1,770	6,595
2012	5,067	1,763	6,830
2013	5,227	1,789	7,016
2014	5,353	1,876	7,229
2015	5,465	1,933	7,398
2016	5,437	1,980	7,417
2017	5,481	2,044	7,525
2018	5,503	2,084	7,587
2019	5,442	2,064	7,506

The total grade K-8 enrollment as reported by DESE for the current school year is 5,442 students which reflects a decrease of 61 students (-1.1%) from the grade K-8 enrollment reported in 2018 which was the maximum grade K-8 enrollment reported in the preceding ten years. Additionally, the current year's grade K-8 enrollment is approximately 198 students (3.8%) greater than the average grade K-8 enrollment reported during the preceding ten-year period.

With respect to future enrollments, the MSBA's base enrollment forecast indicates the District's grade K-8 enrollment will experience a declining trend over the next five years then remain steady through the 2029-2030 school year (the "projected period"). The results of the base enrollment forecast indicate that the average total grade K-8 enrollment forecast for the projected period is 5,110 students.

The MSBA understands that the District is proposing a design enrollment to accommodate approximately 958 students in grades Pre-K-8 at the John R. Pierce School. The enrollment in grades K-8 reported to DESE for the 2019-2020 school year at the John R. Pierce School was 842 students.

The MSBA further understands that, due to significant historic enrollment growth, the District has begun to undertake modifications to several of its K-8 schools while the John R. Pierce School project is underway and subsequent to the John R. Pierce School project. The District understands that any modifications to facilities other than the John R. Pierce School will be performed outside the scope of this Proposed Project.

Utilizing the MSBA's 2016 School Survey data, general education classroom counts for the Coolidge Corner School according to the PFA Exhibit B Space Summary, and the current and proposed general education classroom counts at each school provided by the District, the MSBA performed a utilization analysis of each of the District's K-8 schools in order to recommend a design enrollment for an appropriately sized John R. Pierce School project. Additionally, the MSBA took into consideration the District's stated goal of sizing its classrooms around 18 students per classroom for Kindergarten and 21 students per classroom in grades 1-8. Exclusive of the John R. Pierce School project, this utilization analysis indicates the following:

		Grades		Total Classrooms and Students	
		K	1-8		
	Students per CR	18	21		
Edith C. Baker	# Classrooms	3	24	27	classrooms
	Target Utilization	54	504	558	students
Coolidge Corner	# Classrooms	5	40	45	classrooms
	Target Utilization	90	840	930	students
Michael F. Driscoll	# Classrooms	4	32	36	classrooms
	Target Utilization	72	672	744	students
Heath	# Classrooms	3	24	27	classrooms
	Target Utilization	54	504	558	students
Amos A. Lawrence	# Classrooms	3	24	27	classrooms
	Target Utilization	54	504	558	students
William H. Lincoln	# Classrooms	3	24	27	classrooms
	Target Utilization	54	504	558	students
John D. Runkle	# Classrooms	3	24	27	classrooms
	Target Utilization	54	504	558	Students
				216	K-8 classrooms
				4,464	Students

The analysis assuming 21 students per classroom for grades 1-8 shows that there are 216 available general education classrooms throughout the District exclusive of the John R. Pierce School which provides for a target utilization of approximately 4,465 students. Please note, the District could accommodate 384 more students across their K-8 schools when considering 23 students per classroom for grades 1-8 in the analysis above.

As a result of a sensitivity analysis performed by the MSBA on this base enrollment projection and further discussion with the District, the following adjustment has been made to the base enrollment projection:

- Development
    - Based on the discussions between the District and the MSBA, and the anticipated development information provided by the District, the MSBA enrollment model has been adjusted to use the five-year 75th percentile cohort survival rate for 2020-2021 rather than the five-year average cohort survival rate which is utilized throughout the base enrollment forecast.
    - This adjustment added approximately 80 students to the average total grade K-8 enrollment as compared to the projection without this adjustment.

As a result of the analysis on the base enrollment forecast, the utilization analysis given the District's current and proposed use of its K-8 schools, and the adjustment described above, the MSBA recommends a design enrollment of 725 students for the John R. Pierce School which is the projected, adjusted 10 year average enrollment (5,190 students) less those allocated to the District's seven other K-8 schools (4,465 students).

Please note, the MSBA's design enrollment recommendation assumes full utilization of all remaining school facilities. Accordingly, as part of the Feasibility Study, the District will be required to confirm the utilization of each existing facility anticipated to remain in service.

The MSBA believes that this design enrollment recommendation will position the District to efficiently meet space capacity needs throughout future enrollment variations. Please sign and return the attached certification no later than March 25, 2020 to confirm agreement on this design enrollment. If the District feels that this design enrollment does not meet the needs of the District, please respond to this letter via e-mail to Brittany Gomes and propose three meeting/conference call times for which the District can be available to discuss enrollment.

If you have any questions regarding this matter, please do not hesitate to contact me or Brittany Gomes (Brittany.Gomes@massschoolbuildings.org) at 617-720-4466.

Sincerely,

Mary Pichetti
Director of Capital Planning

Cc: Legislative Delegation
Melvin Kleckner, Brookline Town Administrator
Julie Schreiner-Oldham, Chair, Brookline School Committee
Ben Lummis, Interim Superintendent, Brookline Public Schools
Mary Ellen Normen, Deputy Superintendent for Administration & Finance, Brookline Public Schools
Lesley Ryan-Miller, John R. Pierce School Principal, Brookline Public Schools
File: 10.2 Letters (Region 4)

MASSACHUSETTS SCHOOL BUILDING AUTHORITY
TOWN OF BROOKLINE
JOHN R. PIERCE SCHOOL
DESIGN ENROLLMENT CERTIFICATION

As a result of a collaborative analysis with the Massachusetts School Building Authority (the "MSBA") of enrollment projections and space capacity needs for the proposed project at the John R. Pierce School, the Town of Brookline hereby acknowledges and agrees that the design of the proposed project at the John R. Pierce School shall be based on an enrollment of no more than 725 students in grades K-8. The Town of Brookline further acknowledges and agrees that, pursuant to 963 CMR 2.00 *et seq.*, the MSBA shall determine the square feet per student space allowance and total square footage for a K-8 school serving 725 students in grades K-8. The Town of Brookline acknowledges and agrees that it has no right or entitlement to any particular design enrollment, square feet per student space allowance, or total square footage and that it has no right or entitlement to a design enrollment any greater than 725 students for the John R. Pierce School, and further acknowledges and agrees that it shall not bring any claim or action, legal or equitable, against the MSBA, or any of its officers or employees, for the purpose of obtaining an increase in the design enrollment of the John R. Pierce School that it has acknowledged and agreed to herein. The Town of Brookline further acknowledges and agrees that, among other things, the design enrollment, square feet per student space allowance, and total square footage of the John R. Pierce School shall be subject to the approval of the MSBA's Board and that the final approval of a proposed project at the John R. Pierce School shall be within the sole discretion of the MSBA's Board.

The undersigned, for themselves and the Town of Brookline, hereby certify that they have read and understand the contents of this Design Enrollment Certification and that each of the above statements is true, complete and accurate. The undersigned also hereby certify that they have been duly authorized by the appropriate governmental body to execute this Certification on behalf of the Town of Brookline and to bind the Town of Brookline to its terms.

_____	_____
Chief Executive Officer	Duly Authorized Representative of School Committee
_____	_____
Date	Date
_____	
Superintendent of Schools	
_____	
Date	