

Massachusetts School Building Authority

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To: Board of Directors
From: Susan Flanagan-Cahill, General Counsel
Date: March 31, 2010
Re: MSBA Public Hearing and Public Comment Period Regarding Proposed Amendments to the MSBA's Regulations

As discussed at the last Board meeting, the MSBA is proposing amendments and revisions to the MSBA's Regulations, 963 CMR 2.00 *et seq.*, regarding Educational Program Space Standards. Specifically, the MSBA is proposing to further clarify the MSBA's enrollment process requirements, introduce a maximum grossing factor of 1.50, and specifically allow the MSBA to consider collaborative spaces for special education services.

Additionally, based on feedback from Board Members at the January 27, 2010 Board Meeting, the MSBA also is proposing amendments and revisions regarding General Site and School Construction Standards, specifically adding daylighting, view, glazed area, and glare control requirements.

The MSBA held a series of public hearings on the proposed regulations in Fall River, Boston, Pittsfield and Southbridge in February and March, and accepted written public comments from February 8, 2010 to March 19, 2010. Pursuant to the Secretary of State's requirements, the MSBA provided notice of the hearings and public comment period by notifying the Massachusetts Municipal Association and the Department of Housing and Community Development, filing a notice with the Secretary of State, publishing a notice in the Massachusetts Register, and advertising for two days in the Boston Globe. The MSBA also posted information about the comment period and the hearing on its website, notified the Massachusetts Association of Superintendents, and notified other interested parties.

The MSBA received four letters about the proposed revisions to the regulations, copies of which are attached. A total of three people testified at the public hearings.

The following is a brief summary of the written public comments and testimony received:

- **General Site and School Construction Standards.** The proposed regulations include daylighting, view, glazed area, and glare control requirements.

Those who commented noted that the addition of these requirements is consistent with good practice and MA-CHPS goals and suggested that the MSBA consider adding certain exhaust air recovery requirements to its regulations.

- **Educational Program Space Standards.** The proposed regulations further clarify the MSBA's enrollment process requirements, introduce a maximum grossing

factor of 1.50, and specifically allow the MSBA to consider collaborative spaces for special education services.

Enrollment Process – No comments were received.

Maximum Grossing Factor of 1.50 – Those who commented noted that the proposed grossing factor of 1.50 may be difficult to achieve for small schools.

Consideration of Collaborative Spaces for Special Education Services – Those who commented were supportive of these changes. They suggested that: the regulations encourage discussions between collaborative officials and local school leaders regarding proposed construction or renovations; the MSBA require confirmation from a district that the anticipated future programmatic space needs of the Educational Collaborative have been reviewed by the district; district approval include a sign-off by the superintendent; and, the MSBA’s regulations specify that the collaboratives are Department of Elementary and Secondary Education approved collaboratives.

Based on the comments received, the MSBA will be making the following additional changes to its Regulations:

- Adding “Educational” to Collaborative Spaces in the title of paragraph 2 of section 2.06 (6) to clarify that this regulation is intended for educational collaborative space; and
- Inserting language to specify that the collaboratives are Department of Elementary and Secondary Education approved collaboratives.

In addition to the proposed changes to its regulations, the MSBA is proposing changes to its Educational Program Space Standards and Guidelines. These changes were detailed in the Board Memo that was distributed for the January 27, 2010 Board Meeting. Highlights include changes in the following program areas: Core Academic Spaces; Art & Music; Vocations & Technology; Health & Physical Education; and Dining & Food Service.

During the public comment period, the MSBA also received comments on these proposed changes to the Educational Program Space Standards and Guidelines. These comments are detailed in the attached letter from the Boston Society of Architects (BSA) and in the BSA’s Report to the MSBA, which is also attached.

Proposed amendments and revisions to the Massachusetts School Building Authority's regulations, 963 CMR 2.00: SCHOOL BUILDING GRANT PROGRAM

2.04: General Site and School Construction Standards

The Eligible Applicant shall make all reasonable efforts to ensure that an Approved Project, including those for the expansion or renovation of an existing building, meet all applicable federal, state, local and regional building code requirements. It shall be the responsibility of the Eligible Applicant to ensure compliance with all such building code requirements, and the Authority shall bear no responsibility for an Eligible Applicant's failure to comply with said requirements.

(1) Design and Construction Standards: General.

(a) Projects shall reflect cost-effective design, material, and finish decisions consistent with good architecture and engineering practice, high quality construction, and the requirements of the Authority.

(b) To the extent possible, projects shall reflect attention to current and future-oriented technological practices for students, faculty, and school staff.

(c) The Authority prohibits an Eligible Applicant from utilizing chlorofluorocarbon-based (CFC) refrigerants in any new system for building heating, ventilating, air conditioning, or refrigeration.

(d) All new construction and reconstruction projects shall meet applicable local ordinances for recycling space and provide space within the building that is dedicated to the separation, collection, and storage of materials for recycling, including, at a minimum, paper (white ledger and mixed), cardboard, glass, plastics, aluminum cans, and metals.

(e) Construction of new school facilities shall, whenever possible, be oriented on the site in order for the building to maximize natural daylight for classroom spaces.

(f) The Authority may issue minimum and maximum guidelines and standards for the sustainability of Approved Projects, including school building design guidelines which provide guidelines for design, energy efficiency, materials, finishes, life cycle cost analysis, and systems selections.

(g) Approved Projects shall have a project identification sign on the construction site during the period of construction. Said sign shall be at least four feet by eight feet in size, shall be visible from the primary roadway adjoining the site, and shall include the following: "This project funded in part by the Massachusetts School Building Authority."

(h) On all Approved Projects involving the construction of a new school facility, the new school facility shall be designed and constructed to include: (i) interior daylighting and views in classrooms by locating all classrooms identified in the approved Design and Educational Program on

exterior walls, except computer rooms, music rooms, digital art rooms, technology rooms, small resource rooms, small laboratories, and other classrooms where daylighting and location on an exterior wall are not appropriate or necessary because of the nature of the classroom; (ii) a glazed area for each classroom identified in the approved Design and Educational Program that is determined to require daylighting pursuant to subsection (i), totaling not less than five percent (5%) of the net floor area of the classroom and which shall be located to provide outdoor views at both standing and sitting heights; and (iii) glare control devices, where applicable, to avoid high-contrast conditions that could impede visual tasks, but such glare control devices shall be constructed only when necessary and if the Designer has determined that glare control devices are the only way to prevent glare.

(2) Design and Construction Standards: Indoor Air Quality. An Eligible Applicant shall make all reasonable efforts to ensure suitable indoor air quality in an Approved Project. Without regard to any other contract provisions, an Eligible Applicant shall meet the following indoor air quality requirements, to the extent that they apply to an Approved Project, as determined by the Authority.

(a) New heating, ventilating and air conditioning systems shall meet the minimum ventilation rate requirements of American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Standard 62.1, Ventilation for Acceptable Indoor Air Quality, in effect at time of project approval.

(b) New heating, ventilating and air conditioning systems shall comply with ASHRAE standard 55 for thermal comfort within established ranges per climate zone, in effect at time of project approval, except that winter humidification and summer dehumidification shall not be required.

(c) Eligible Applicants shall implement containment procedures for dusts, gases, fumes, and other pollutants created during construction of an Approved Project if the building is occupied by students, teachers or school department staff while such renovation and construction is occurring. Such containment procedures shall be consistent with the "IAQ Guidelines for Occupied Buildings Under Construction" published by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA), in effect at time of project approval. All bids and proposals received for an Approved Project shall include the cost of planning and execution of containment of construction/renovation pollutants consistent with such SMACNA guidelines.

(d) On all Approved Projects involving the installation of new ductwork, HVAC supply and the return openings shall be sealed to protect them from dust infiltration during construction. Procedures shall be consistent with the "Duct Cleanliness for New Construction Guidelines" published by SMACNA, in effect at the time of project approval relative to advanced levels of cleanliness which provide in part

that ductwork shall be sealed when transported to the construction site; ductwork shall be stored in clean, dry conditions and kept sealed while stored; internal surfaces of ductwork shall be wiped-down immediately prior to installation to remove dust; open ends on completed ductwork and overnight work-in-progress shall be sealed; and uninstalled ductwork shall be protected from construction dust using surface wrapping.

(e) Filtration media in ventilation equipment shall be replaced with new media immediately prior to occupancy. Filtration media shall have a Minimum Efficiency Reporting Value (MERV) such that mold spores and similarly sized particles are excluded from supply air intakes.

(f) In spaces where chemical use will occur, including housekeeping areas, chemical mixing areas, copying/print rooms, and vocational spaces, partitions shall extend from the top of finished floor to the underside of the floor or roof deck above and shall be provided with a dedicated outside exhaust at a rate of at least 0.50 cubic feet per minute per square foot, no air recirculation, and adequate make up air. These spaces shall have negative air pressure, providing an outside exhaust at a rate of at least 0.50 cubic feet per minute per square foot. The spaces shall maintain a negative pressure of at least 5 Pa (0.02 inches of water gauge) to a minimum of 1 Pa (0.004 inches of water) compared to their immediate environment, when their doors are closed.

(g) Each new building entrance shall be provided with a two-part walk-off mat system to capture dirt, particulates and moisture. Part one of the system shall include a drop through mat within the vestibule. Part two shall include a walk-off mat in the entranceway of a minimum length of 15 feet. The Eligible Applicant shall not install drain pans or traps in the vestibule.

(h) Electric ignitions shall be provided for all gas-fired equipment including water heaters, boilers, air-handling units, and cooking stoves.

(i) Where feasible, outside air intake openings shall be located a minimum of 25 feet from any hazard or noxious contaminants such as chimneys, plumbing vents, cooling towers, streets, alleys, parking lots and loading docks. The distance between exhaust air or vent outlets and air intakes shall be the greater of 25 feet or the distance as determined by 780 CMR: *Massachusetts State Building Code*, equation 2801.2.2.2, in effect at the time of project approval. When locating an air intake within 25 feet of a contaminant source is unavoidable, such opening shall be a minimum of two feet below the contaminant source and ten feet horizontally from the nearest edge of the air intake to the nearest edge of the contaminant source. All intakes shall be six feet above landscaped grade including soil, lawn, shrubs, or any plant life within 1.5 feet horizontally of intake.

(j) During construction of an Approved Project, building materials, especially gypsum wallboard, wood, porous insulation, paper, and fabric, shall be kept dry to prevent the growth of mold and bacteria. Stored materials shall be covered to prevent rain damage, and if resting on the

ground, spacers shall be employed as necessary to allow air to circulate between the ground and the materials. Water damaged materials shall be dried within 24 hours. Materials that are damp or wet for more than 24 hours, except non-porous materials such as metal, shall be removed from the site. Materials showing signs of mold and mildew shall be immediately removed from the site and properly disposed of, including any with moisture stains. Moldy materials shall be replaced with new, undamaged materials.

(k) Eligible Applicants shall furnish permanent signage on the school site discouraging the idling of vehicles beyond a period of five minutes, in accordance with the statute governing stopped motor vehicles, M.G.L. c. 90, § 16A.

REGULATORY AUTHORITY

963 CMR 2.00: M.G.L. c. 70B and St. 2004, c. 208.

**Proposed amendments and revisions to the Massachusetts School Building Authority's regulations,
963 CMR 2.00: SCHOOL BUILDING GRANT PROGRAM**

2.06: Educational Program Space Standards

(1) General Provisions. The approved Design and Educational Program and the Project Scope and Budget Agreement shall be the basis for the design of an Approved Project, and the Approved Project shall not diverge from said Project Scope and Budget Agreement without the prior written consent of the Authority.

(2) Enrollment Projection. The Enrollment Projection, as determined by the Authority. An Eligible Applicant must submit to the Authority enrollment information and related documentation using the Authority's on-line enrollment projection system or as may otherwise be requested by the Authority. The Authority and the Eligible Applicant may have a Design Enrollment Conference to review the Enrollment Projection and discuss any supporting documentation that the Eligible Applicant may have provided. After the Design Enrollment Conference, if any, the Eligible Applicant shall sign an Enrollment Certification that documents the Enrollment Projection which shall be the basis for a potential project. No potential project shall progress through the Authority's capital pipeline process beyond this stage without the Eligible Applicant signing and submitting to the Authority the signed Enrollment Certification.

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(3) Prototypical Gross Square Foot Per Pupil Standards. The Authority may review the set of educational program space standards contained in the MSBA Educational Program Space Standards and Guidelines, which provide the basis for gross square foot per pupil allowances promulgated under 963 CMR 2.00. Pursuant to M.G.L. c. 70B, § 9(b), the MSBA Educational Program Space Standards and Guidelines may define prototype school design and space recommendations for each specified program activity eligible for funding from the Authority for new construction and said guidelines may also include space recommendations for reconstruction or renovations.

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(4) Per Student Space Allowance.

(a) The Authority shall not authorize design plans that exceed gross square foot per student allocations based upon the Certified Design Enrollment, of the Proposed Project and the limitations in gross square footage established in 963 CMR 2.06: *Tables 1, 2 and 3*, except as provided in 963 CMR 2.00. These standards are reflective of realistic, future-oriented, and contemporary educational program goals and are based on the summation of square foot allocations for each itemized educational space. The gross square footage per student allowances promulgated herein are based upon the MSBA Educational Program Space Standards and Guidelines which are based upon model educational programs for facilities of smaller and larger enrollments in order to develop a variable gross square foot per student allowance that accommodates the differing needs and economies of scale in facilities of smaller and larger enrollments.

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(b) The space standards contained in 963 CMR 2.00 and in the MSBA Educational Program Space Standards and Guidelines may not necessarily be applicable to reconstruction, renovation or repair projects. These standards and guidelines were developed by the Authority for determining maximum size and costs related to new construction and should not be used for assessing safety standards or educational adequacy of existing facilities that

were constructed in accordance with the standards and guidelines that prevailed at the time of construction. The Authority shall consider Proposed Projects on a case-by-case basis and in some cases different square footages may be determined at the discretion of the Authority.

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(c) Grossing Factor – The Grossing Factor is the net-to-gross square footage ratio of a school facility. The Authority shall not approve a Total Facilities Grant for any proposed project that includes design plans for a new school facility that have a Grossing Factor that exceeds 1.50.

The following tables establish the limitations in gross square footage per student allowable for the corresponding enrollment for elementary schools, middle school and high schools.

Table 1: Gross Square Feet per Student – Elementary Schools

Projected Enrollment	GSF per Student	Projected Enrollment	GSF per Student
Less than 300	180	Between 450 and 459	163
Between 300 and 309	180	Between 460 and 469	161
Between 310 and 319	179	Between 470 and 479	160
Between 320 and 329	178	Between 480 and 489	159
Between 330 and 339	177	Between 490 and 499	158
Between 340 and 349	175	Between 500 and 509	157
Between 350 and 359	174	Between 510 and 519	156
Between 360 and 369	173	Between 520 and 529	154
Between 370 and 379	172	Between 530 and 539	153
Between 380 and 389	171	Between 540 and 549	152
Between 390 and 399	170	Between 550 and 559	151
Between 400 and 409	168	Between 560 and 569	150
Between 410 and 419	167	Between 570 and 579	149
Between 420 and 429	166	Between 580 and 589	147
Between 430 and 439	165	Between 590 and 599	146
Between 440 and 449	164	600 and greater	145

Table 2: Gross Square Feet per Student – Middle and Junior High Schools

Projected Enrollment	GSF per Student	Projected Enrollment	GSF per Student
Less than 400	190	Between 580 and 589	175
Between 400 and 409	190	Between 590 and 599	174
Between 410 and 419	189	Between 600 and 609	173
Between 420 and 429	188	Between 610 and 619	172
Between 430 and 439	187	Between 620 and 629	171
Between 440 and 449	187	Between 630 and 639	170
Between 450 and 459	186	Between 640 and 649	169
Between 460 and 469	185	Between 650 and 659	169
Between 470 and 479	184	Between 660 and 669	168
Between 480 and 489	183	Between 670 and 679	167
Between 490 and 499	182	Between 680 and 689	166
Between 500 and 509	181	Between 690 and 699	165
Between 510 and 519	181	Between 700 and 709	164
Between 520 and 529	180	Between 710 and 719	163
Between 530 and 539	179	Between 720 and 729	163
Between 540 and 549	178	Between 730 and 739	162
Between 550 and 559	177	Between 740 and 749	161
Between 560 and 569	176	750 and greater	160
Between 570 and 579	175		

Table 3: Gross Square Feet per Student – Academic High Schools

Projected Enrollment	GSF per Student	Maximum Grossing Factor Limit	Projected Enrollment	GSF per Student	Maximum Grossing Factor Limit
Less than 600	<i>to be determined</i>	1.50	Between 1300 and 1319	175	1.44
Between 600 and 619	226	1.50	Between 1320 and 1339	174	1.44
Between 620 and 639	226	1.50	Between 1340 and 1359	173	1.43
Between 640 and 659	222	1.50	Between 1360 and 1379	172	1.43

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Projected Enrollment ... [1]

<u>Between 660 and 679</u>	219	1.50	<u>Between 1380 and 1399</u>	171	1.42
<u>Between 680 and 699</u>	216	1.50	<u>Between 1400 and 1419</u>	171	1.42
<u>Between 700 and 719</u>	214	1.50	<u>Between 1420 and 1439</u>	170	1.42
<u>Between 720 and 739</u>	212	1.50	<u>Between 1440 and 1459</u>	169	1.41
<u>Between 740 and 759</u>	210	1.50	<u>Between 1460 and 1479</u>	167	1.41
<u>Between 760 and 779</u>	209	1.50	<u>Between 1480 and 1499</u>	166	1.40
<u>Between 780 and 799</u>	207	1.50	<u>Between 1500 and 1519</u>	165	1.40
<u>Between 800 and 819</u>	206	1.50	<u>Between 1520 and 1539</u>	165	1.40
<u>Between 820 and 839</u>	205	1.50	<u>Between 1540 and 1559</u>	165	1.40
<u>Between 840 and 859</u>	204	1.50	<u>Between 1560 and 1579</u>	164	1.40
<u>Between 860 and 879</u>	202	1.50	<u>Between 1580 and 1599</u>	163	1.40
<u>Between 880 and 899</u>	201	1.50	<u>Between 1600 and 1619</u>	162	1.40
<u>Between 900 and 919</u>	200	1.50	<u>Between 1620 and 1639</u>	162	1.40
<u>Between 920 and 939</u>	200	1.50	<u>Between 1640 and 1659</u>	162	1.40
<u>Between 940 and 959</u>	198	1.50	<u>Between 1660 and 1679</u>	162	1.40
<u>Between 960 and 979</u>	197	1.50	<u>Between 1680 and 1699</u>	162	1.40
<u>Between 980 and 999</u>	195	1.50	<u>Between 1700 and 1719</u>	161	1.40
<u>Between 1000 and 1019</u>	195	1.50	<u>Between 1720 and 1739</u>	160	1.40
<u>Between 1020 and 1039</u>	194	1.50	<u>Between 1740 and 1759</u>	160	1.40
<u>Between 1040 and 1059</u>	193	1.49	<u>Between 1760 and 1779</u>	160	1.40
<u>Between 1060 and 1079</u>	192	1.49	<u>Between 1780 and 1799</u>	160	1.40
<u>Between 1080 and 1099</u>	190	1.48	<u>Between 1800 and 1819</u>	160	1.40
<u>Between 1100 and 1119</u>	189	1.48	<u>Between 1820 and 1839</u>	160	1.40
<u>Between 1120 and 1139</u>	188	1.48	<u>Between 1840 and 1859</u>	159	1.40
<u>Between 1140 and 1159</u>	186	1.47	<u>Between 1860 and 1879</u>	159	1.40
<u>Between 1160 and 1179</u>	185	1.47	<u>Between 1880 and 1899</u>	159	1.40
<u>Between 1180 and 1199</u>	183	1.46	<u>Between 1900 and 1919</u>	158	1.40
<u>Between 1200 and 1219</u>	182	1.46	<u>Between 1920 and 1939</u>	158	1.40
<u>Between 1220 and 1239</u>	181	1.46	<u>Between 1940 and 1959</u>	158	1.40
<u>Between 1240 and 1259</u>	180	1.45	<u>Between 1960 and 1979</u>	158	1.40
<u>Between 1260 and 1279</u>	178	1.45	<u>Between 1980 and 1999</u>	157	1.40
<u>Between 1280 and 1299</u>	177	1.44	<u>Greater than 2000</u>	<i>to be determined</i>	1.40

(5) Vocational Technical Schools. Vocational Technical Schools and the Vocational Educational Space components of Comprehensive High Schools shall not exceed 225 gross square feet per pupil and any additional programmatic requirements may be considered on a case-by-case basis by the Authority in conformity with M.G.L. c. 74 requirements and a comparison of existing school facilities with similar vocational program requirements.

(6) Special Education Spaces. Spaces for special education classes/programs may receive special consideration at the discretion of the Authority. The gross square feet per student defined herein includes a baseline assumption that 8% of the total planned enrollment will be enrolled in separate special education programs. Notwithstanding the gross square footage maximum standards established herein, additional space consideration may be given, at the sole discretion of the Authority, if the Eligible Applicant documents and certifies to the Authority why there is a need to exceed the maximum gross square footage allowances.

Educational Collaborative Spaces. The Authority may, in its sole discretion, consider spaces for special education services provided through **Department of Elementary and Secondary Education (DESE) approved Educational Collaboratives** to be included within Special Education. For the Authority to consider Collaborative Space, the Eligible Applicant must (1) have executed a formal written agreement to be a member of the collaborative or to receive services from a collaborative, prior to filing a Statement of Interest with the Authority, and (2) certify that any space allowed by the Authority in a school facility for use by a Collaborative shall remain in use for the Collaborative for the useful life of the facility.

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(7) Space Allowance by Program Activity. The approved Design and Educational Program and Project Scope and Budget Agreement shall be within the limitations as set forth in 963 CMR 2.06: *Table 4*:

Table 4
Net Square Feet¹

	<u>Minimum</u>	<u>Maximum</u>
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<u>Elementary School</u>	<u>Minimum</u>	<u>Maximum</u>
Pre-Kindergarten and Kindergarten (including self-contained lavatory)	1,100	1,300
Core Classroom (grades 1-8)	900	1,000
<u>Junior High School/Middle School</u>		
Core Classroom	850	950
<u>High School</u>		
Core Classroom	850	950

¹Measured from inside wall to inside wall.

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For all other spaces, the MSBA Educational Program Space Standards and Guidelines shall be followed in planning school facilities. Said Guidelines may also provide school designers and school building committees with prototype building programs for elementary, middle, and high schools, and other grade configurations as determined by the Authority. The Eligible Applicant may make reasonable departures from the MSBA Educational Program Space Standards and Guidelines with a prior written determination of the Authority, at their sole discretion, that such departures are consistent with the intent of 963 CMR 2.00 to provide adequate, safe, cost effective and programmatically sound school facilities. The space standards set forth in Table 4 and in the MSBA Educational Program Space Standards and Guidelines may not necessarily be applicable to reconstruction, renovation or repair projects. These standards and guidelines were developed by the Authority for determining maximum size and costs related to new construction and should not be used for assessing safety standards or educational adequacy of existing facilities that were constructed in accordance with the standards and guidelines that prevailed at the time of construction. The Authority shall consider Proposed Projects on a case-by-case basis and in some cases different square footages may be determined at the discretion of the Authority.

REGULATORY AUTHORITY

963 CMR 2.00: M.G.L. c. 70B and St. 2004, c. 208.

Projected Enrollment	GSF per Student
Less than 600	205
Between 600 and 609	205
Between 610 and 619	205
Between 620 and 629	204
Between 630 and 639	204
Between 640 and 649	203
Between 650 and 659	203
Between 660 and 669	202
Between 670 and 679	202
Between 680 and 689	201
Between 690 and 699	201
Between 700 and 709	200
Between 710 and 719	200
Between 720 and 729	199
Between 730 and 739	199
Between 740 and 749	198
Between 750 and 759	198
Between 760 and 769	197
Between 770 and 779	197
Between 780 and 789	196
Between 790 and 799	196

Projected Enrollment	GSF per Student
Between 800 and 809	195
Between 810 and 819	195
Between 820 and 829	194
Between 830 and 839	194
Between 840 and 849	193
Between 850 and 859	193
Between 860 and 869	192
Between 870 and 879	192
Between 880 and 889	191
Between 890 and 899	191
Between 900 and 909	190
Between 910 and 919	190
Between 920 and 929	189
Between 930 and 939	189
Between 940 and 949	188
Between 950 and 959	188
Between 960 and 969	187
Between 970 and 979	187
Between 980 and 989	186
Between 990 and 999	186
1000 and greater	185

