

**JOINT ASSEMBLY SCHOOL BOARD FACILITY PLANNING COMMITTEE
THE CITY AND BOROUGH OF JUNEAU, ALASKA**

MARCH 7, 2016 5:30 PM
MUNICIPAL BUILDING - ASSEMBLY CHAMBERS

I. ROLL CALL

II. APPROVAL OF AGENDA

III. APPROVAL OF MINUTES

IV. PUBLIC PARTICIPATION

(Not to exceed a total of 10 minutes nor more than 2 minutes for any individual).

V. AGENDA TOPICS

- A. Initial Meeting Notes and Joint Committee Purpose
- B. Power Point Presentation
- C. Appendices for Future Report
- D. Future Meeting Dates

VI. STAFF REPORTS

VII. ADJOURNMENT

ADA accommodations available upon request: Please contact the Clerk's office 72 hours prior to any meeting so arrangements can be made to have a sign language interpreter present or an audiotape containing the Assembly's agenda made available. The Clerk's office telephone number is 586-5278, TDD 586-5351, e-mail: city.clerk@juneau.org



City and Borough of Juneau
Engineering & Public Works Department
155 South Seward Street
Juneau, Alaska 99801
Telephone: 586-0800 Facsimile: 463-2606

DATE: February 29, 2016

TO: Joint Assembly & School Board Facility Planning Committee

FROM: Rorie Watt, P.E., Director, Engineering & Public Works Department *DWR*

RE: Initial Meeting Notes

Because we lack a funding plan, the School District and City must move forward together to strategically plan for the maintenance and repair of our educational facilities. There is no start or stop to this conversation; it will and must be an ongoing dialogue between the public and the elected officials and administrations of both the District and the City.

Historically, Alaskan communities have availed themselves of the State Department of Education and Early Development's School Construction Debt Reimbursement program (DEED and SCDR) which has typically funded 70% of the cost of JSD facility projects. The remaining 30% of the costs have been borne by local property tax payers, authorized by ballot initiatives that have been approved by municipal votes. Over the last 30 years, the City and the State have averaged about \$8M/year of investment in our school facilities. Combined, the JSD currently operates about one-million square feet of facilities.

Strategic planning is a priority at this time because of the following facts:

1. The SCDR Program has been suspended until FY 2021 at which time the maximum State supported reimbursement would be reduced to 50% of project costs.
2. Outside of the operating budget (which funds education programs), the JSD does not have access to funding that could be used for facility maintenance.
3. Total JSD enrollment has declined by around 10% over the last decade, and is not expected to rebound.
4. JSD operational funding provided by the Base Student Allocation (funding from the State) is likely to decline against inflation.

In your packet and at the meeting, we have prepared baseline information about the JSD's existing facilities. It is intended that this information will provide a factual database for a future planning document.

Recommendations:

These are difficult issues, and the Joint Committee and the community should take its time in consideration of the many paths forward. No actions are needed at this time; moreover, I discourage Joint Committee members from taking or forming any particular positions or opinions at this time. Our general goal should be to preserve our existing facilities, and the first step is creating a broad understanding of what we have, and how we have traditionally funded these facilities.

Joint Assembly and School Board Facility Planning Committee

Background

The Assembly appropriated \$300,000 in FY15 to study the long term facility needs for the district. The goal is to have the review completed by April 2018

Purpose

The Assembly and School Board Facility Planning Committee shall:

Develop a long term facility master plan including but not limited to review of boundaries, number of facilities, and evaluation of long term funding for both staff and facility maintenance.

Confirm or deny that the community can continue to own and maintain the facilities that we have in a manner that we currently operate them.

Meetings, Officers, Records, Quorum, and Staff Support.

The joint Assembly and School Board Facility Planning Committee will hold regular meetings as needed to accomplish its purpose in the time allotted. All meetings shall be open to the public and advertised through the Municipal Clerk's office.

The Mayor has appointed three Assembly members, Jesse Kiehl, Jerry Nankervis and herself, Mayor Becker, to the Committee.

The School Board President has appointed three School Board members, Sean O'Brien, Josh Keaton, and President Holst to the Committee.

The committee shall follow the procedures used by the Assembly and other CBJ boards and commissions for transaction of its business, as interpreted by the City Attorney as necessary. The committee shall keep a record of its meetings, resolutions, transactions, findings, determinations, and written public comments received, which shall be filed with the Municipal Clerk and be open to public inspection at reasonable times.

A majority of the appointed membership of the committee shall constitute a quorum for the transaction of business.

Dated: January 21, 2016

A handwritten signature in cursive script, reading "Mary Becker", written over a horizontal line.

Mary Becker
Mayor



Juneau School District Comprehensive Facility Plan

Slide

CBJ Ordinance Serial No. 2015-20(M)

Background

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Purpose

The Assembly and School Board Facility Planning Committee shall:

- Develop a long term facility master plan including but not limited to review of boundaries, number of facilities, and evaluation of long term funding for both staff and facility maintenance.
- Confirm or deny that the community can continue to own and maintain the facilities that we have in a manner that we currently operate them.

Juneau School District Comprehensive Facility Plan

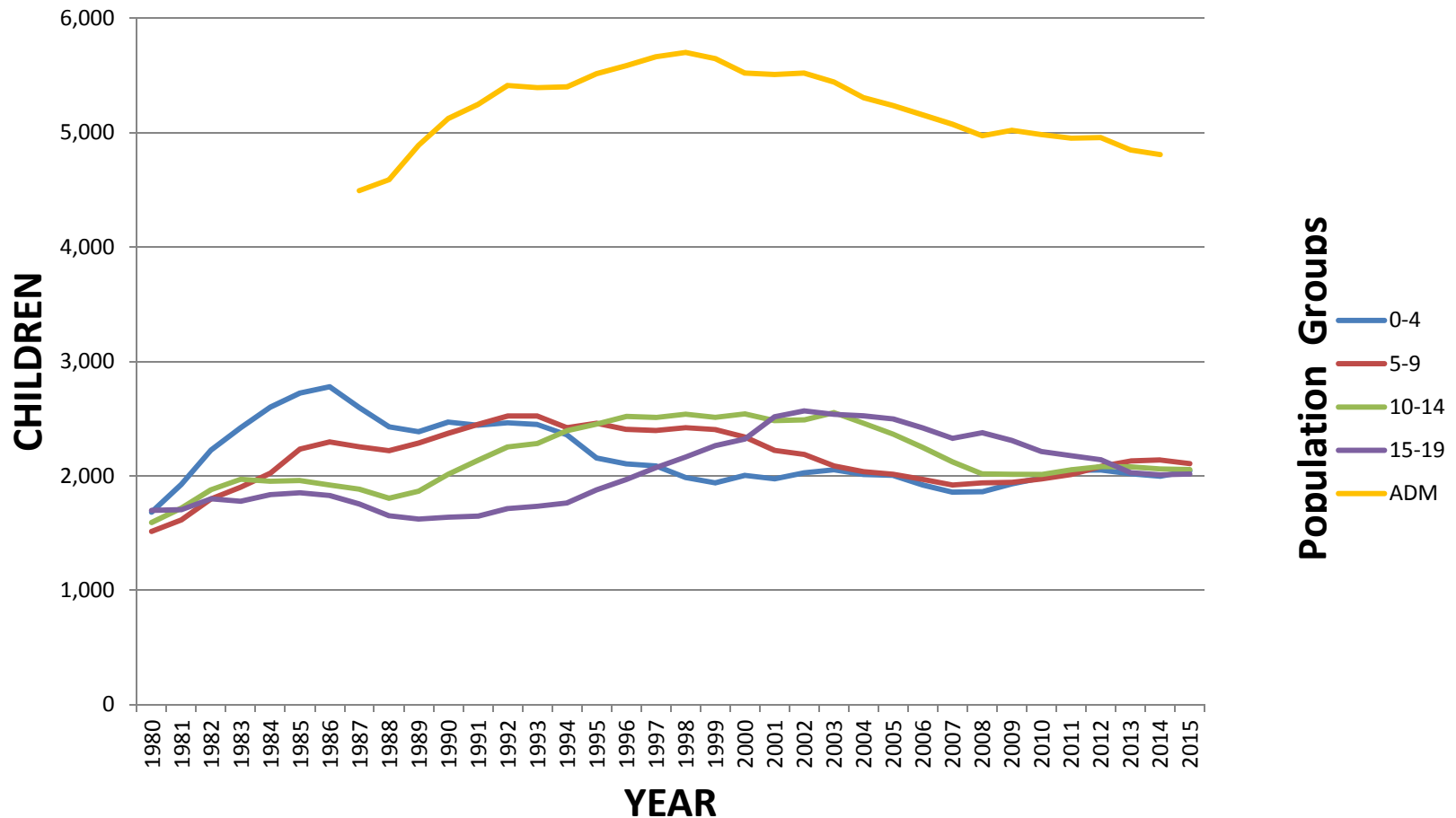
The scope of the master planning study is to develop a long-range capital project and facility utilization plan that optimizes efficient use of existing facility resources, protects and maintains existing facility infrastructure, and evaluates the feasibility of operating and maintenance funding strategies required to do so.

Key Study Points:

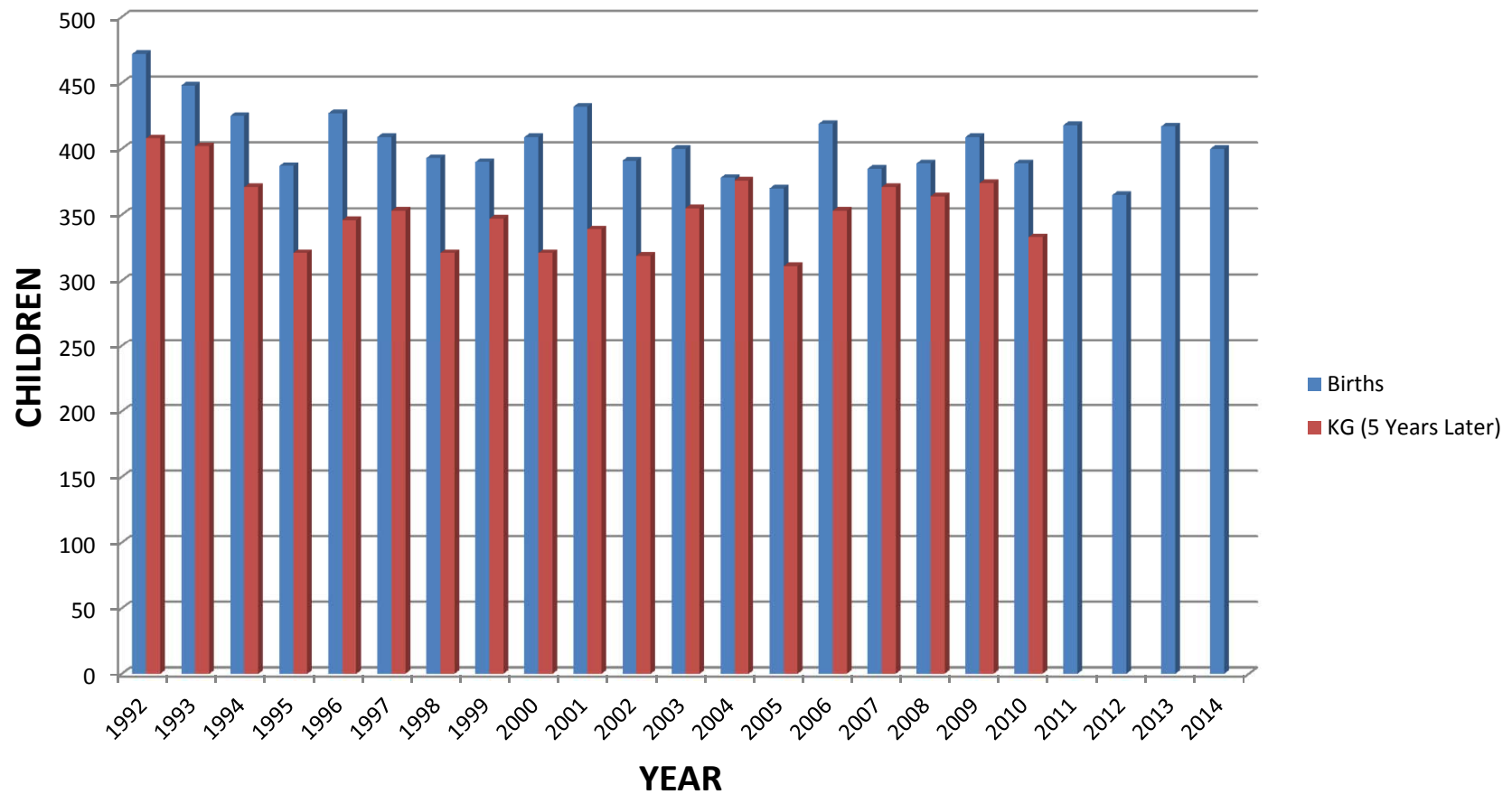
- Evaluation of Juneau School District long range facility needs.
- Economic feasibility analysis of existing facility operations, maintenance, and replacement costs.
- Efficient utilization of school district facilities.
- Long range facility renewal and replacement funding strategies.

Student Population History

School Age Children Population History



Juneau Births



Student Population Projections

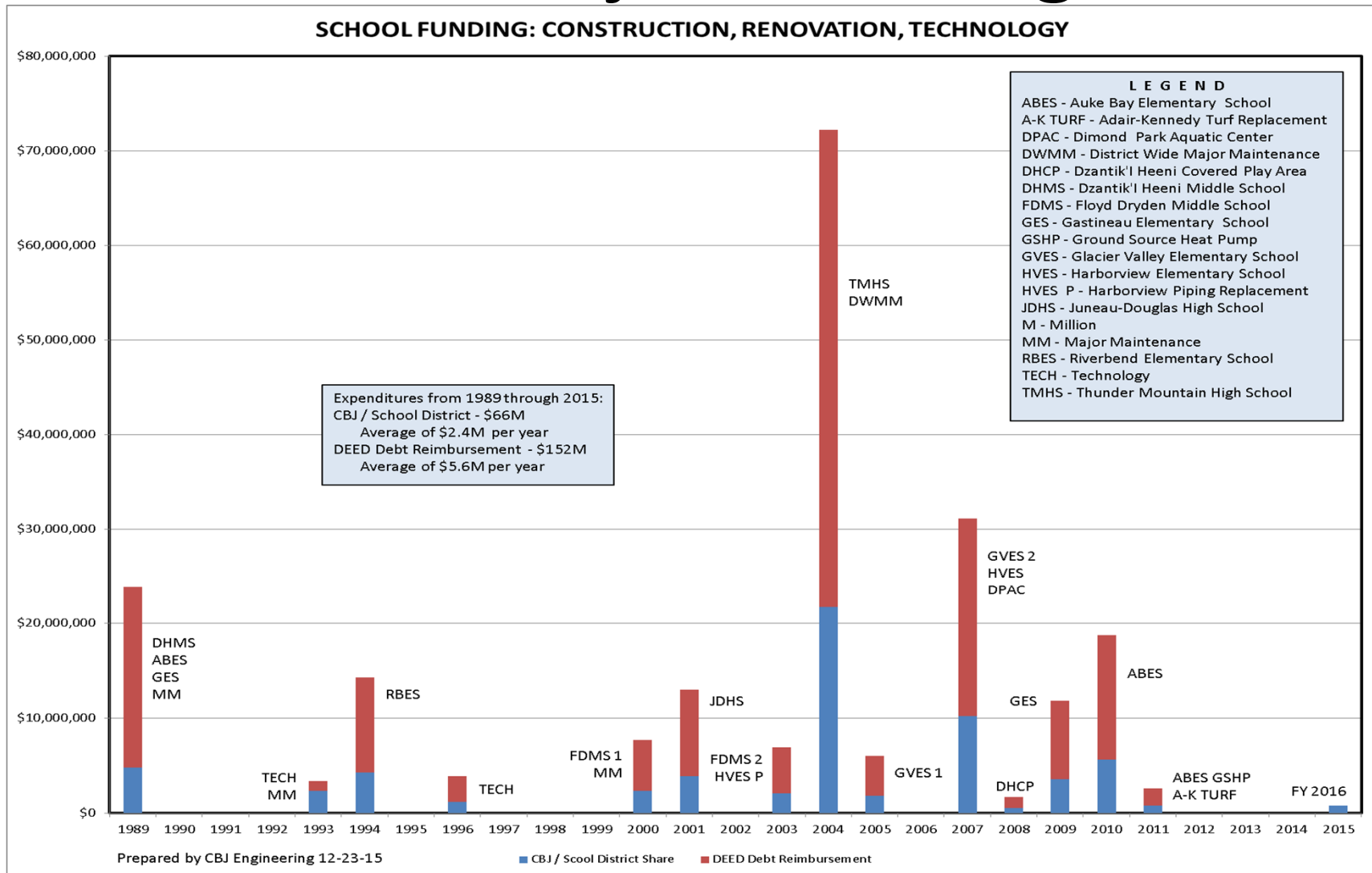
Actual October Enrollment, 2014-15 and Enrollment Forecast for 2016-27													
	Actual		Forecast										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Kindergarten	369	333	334	339	337	350	347	344	344	343	342	341	340
Grade 1	372	380	340	346	356	354	367	364	362	361	360	359	358
Grade 2	376	372	374	336	340	350	348	361	358	355	355	354	353
Grade 3	367	369	371	375	339	343	353	351	364	361	358	357	357
Grade 4	337	359	368	374	380	343	347	358	355	369	366	363	362
Grade 5	369	331	350	365	372	379	342	346	357	354	368	364	362
Grade 6	337	355	324	347	359	366	372	336	340	350	348	361	358
Grade 7	345	339	349	323	349	361	368	375	338	342	353	350	364
Grade 8	377	349	332	347	322	348	360	367	374	337	341	352	349
Grade 9	359	374	357	345	367	340	367	380	387	394	356	360	371
Grade 10	376	345	363	350	338	359	334	360	373	380	387	349	353
Grade 11	376	360	372	401	381	368	390	362	391	405	413	420	379
Grade 12	376	385	294	302	328	312	302	320	297	321	332	339	345
Grades 11 + 12	752	745	665	702	709	680	692	683	688	725	745	759	724
Total	4736	4651	4527	4550	4569	4573	4598	4625	4639	4672	4677	4669	4650

Note: These numbers do not include preschool enrollment.

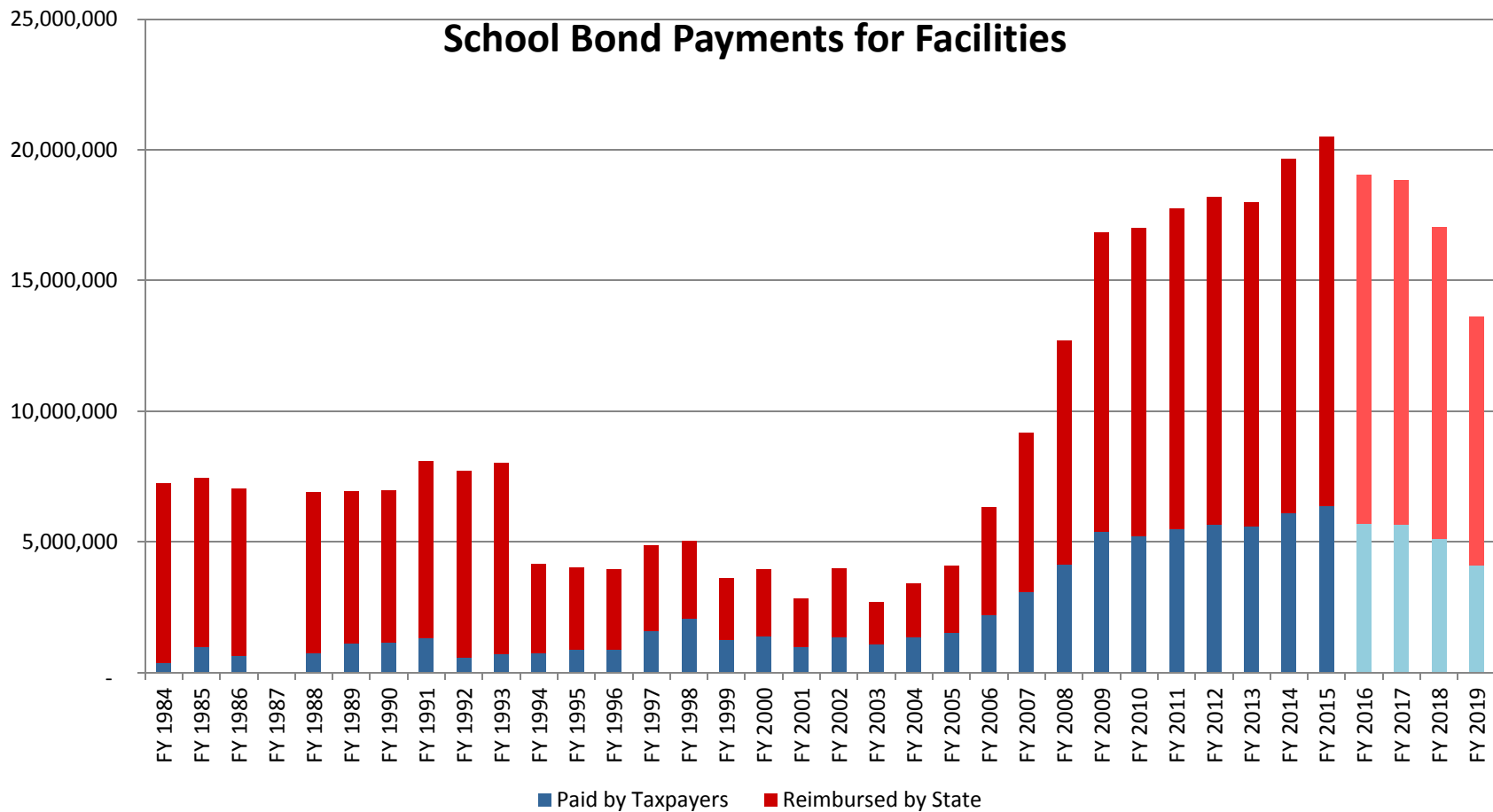
Summary of JSD Facilities

School District Facilities	Year Built	Age	Size (SF)	Grades Served	Student Capacity	Current Students ²	Current % Capacity	Facility Value	FY2025 Deferred Maintenance Value	
ELEMENTARY SCHOOLS										
Auke Bay	1968	48	49,478	PK-5	424	365	86.02%	\$15,189,746	\$0	
Gastineau	1953	63	45,433	PK-5	386	298	77.21%	\$13,947,931	\$940,838	
Glacier Valley	1966	50	52,500	PK-5	453	427	94.36%	\$16,117,500	\$2,868,459	
Harborview	1952	64	66,290	PK-5	578	382	66.06%	\$20,351,030	\$2,248,580	
Mendenhall River	1983	33	58,000	PK-5	503	356	70.75%	\$17,806,000	\$17,053,884	
Riverbend	1997	19	57,493	PK-5	499	316	63.38%	\$17,650,351	\$6,504,195	
MIDDLE SCHOOLS										
Dzantik'i Heeni	1994	22	105,000	6-8	634	476	75.13%	\$32,235,000	\$22,955,600	
Floyd Dryden	1972	44	75,486	6-8	447	485	108.64%	\$23,174,202	\$4,923,259	
HIGH SCHOOLS										
Juneau Douglas	1956	60	216,700	9-12	1156 ¹	618	53.47%	\$66,526,900	\$15,310,590	
Thunder Mountain	2008	8	168,842	9-12	1023	706	69.04%	\$51,834,494	\$6,104,854	
OTHER										
Marie Drake	1968	48	72,135	K-12	432	299	68.54%	\$22,145,445	\$20,175,528	
Old Dairy	1936	80	8,600	na	na	na	na	\$2,640,200	\$1,297,967	
Maintenance 1	1984	32	5,600	na	na	na	na	\$1,719,200	\$1,427,676	
Maintenance 2	1982	34	5,600	na	na	na	na	\$1,719,200	\$1,427,676	
Average Facility Age										43 years
Total Facility SF										987,157 SF
Total Students										4,728 students
Total SF/Student										209 SF/student
Total Facility Value										\$303,057,199
Total FY 2025 Deferred Maintenance Value										\$103,239,107
1 Based on 190,738 SF due to deduction of auditorium space										
2 FY2016 Enrollment inclusive of Pre-K students										

Past Project Funding



CBJ School Project Debt



Summary of Key Points

- JSD has ~980,000 SF of facilities
- JSD has ~4700 students resulting in 209 SF/student; well above state and national standards (114/122 and 165/167 SF respectively for elementary and secondary students)
- JSD will have ~\$67 million in deferred maintenance by FY2020
- Funding of 2-3% of replacement value per year is an industry standard used to budget for facility renewal & replacement projects. 2% = \$6 million; 3% = \$9 million
- Excluding new construction CBJ has provided ~\$1.3 million per year(~\$4.4 million including state share) to upgrade school facilities since 1990

Appendix -A

Facility Summaries

Juneau School District
Comprehensive Facility Plan
February 2016

Auke Bay Elementary School – Grades PK-5

DEED GSF = 49,478 SF (Actually 52,901 SF but space variance provided for 2418 SF fan loft)

DEED Capacity = 424 students

DEED 2014-15 K-5 Average Daily Membership (ADM) = 355 students

DEED K-5 Capacity = 83.6%

2014-15 Pre K Enrollment = 0

DEED Capacity inclusive of Pre-K = 83.6%

Certified Teaching Staff = 20 FT and 7 PT

Classrooms = 20; Half-Classrooms = 4

History

Original Construction = 1968; Project Cost = not available

Additions = 1972, 1992, 2012

Classroom Addition = 1972; Project Cost = not available; Scope: Convert covered area to classrooms.

Foundation Repairs = 1980; Project Cost = not available; Scope: Stabilize building foundation with piling

Covered Play Area = 1990; Project Cost = not available; Scope: Construct covered play area.

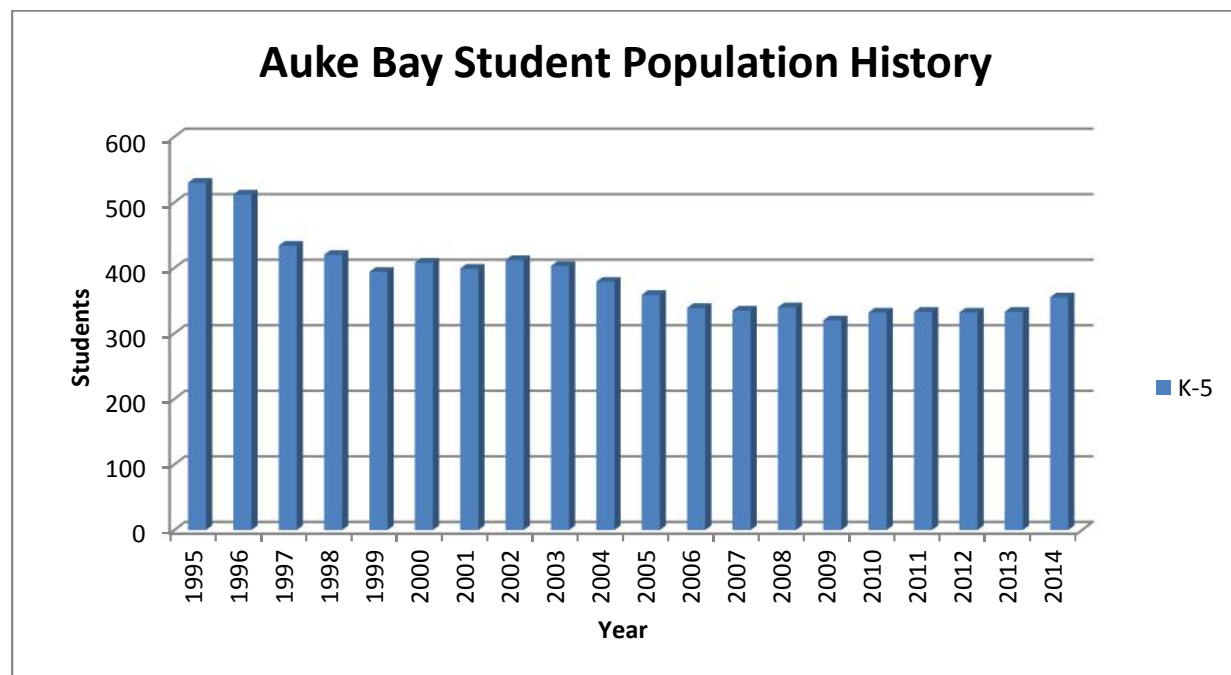
Classroom Addition = 1992; Project Cost = not available; Scope: Add two classrooms.

Roof Replacement = 2005; Project Cost = \$836,000; Scope: Replace roof.

Renovation/Addition = 2014; Project Cost = \$22.2 million; Scope: Comprehensive renovation of entire facility.

Facility Replacement Value = \$ 16.2 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$0



Dzantik'i Heeni Middle School– Grades 6-8

DEED GSF = 105,000 SF

DEED Capacity = 183 Elementary students & 451 Secondary students; 634 students total

DEED 2014-15 Elementary Average Daily Membership (ADM) = 141 students

DEED 2014-15 Secondary Average Daily Membership (ADM) = 348 students

DEED Capacity = 77.29%

Certified Teaching Staff = 32 FT and 2 PT

Classrooms = 36; Half-Classrooms = 3

History

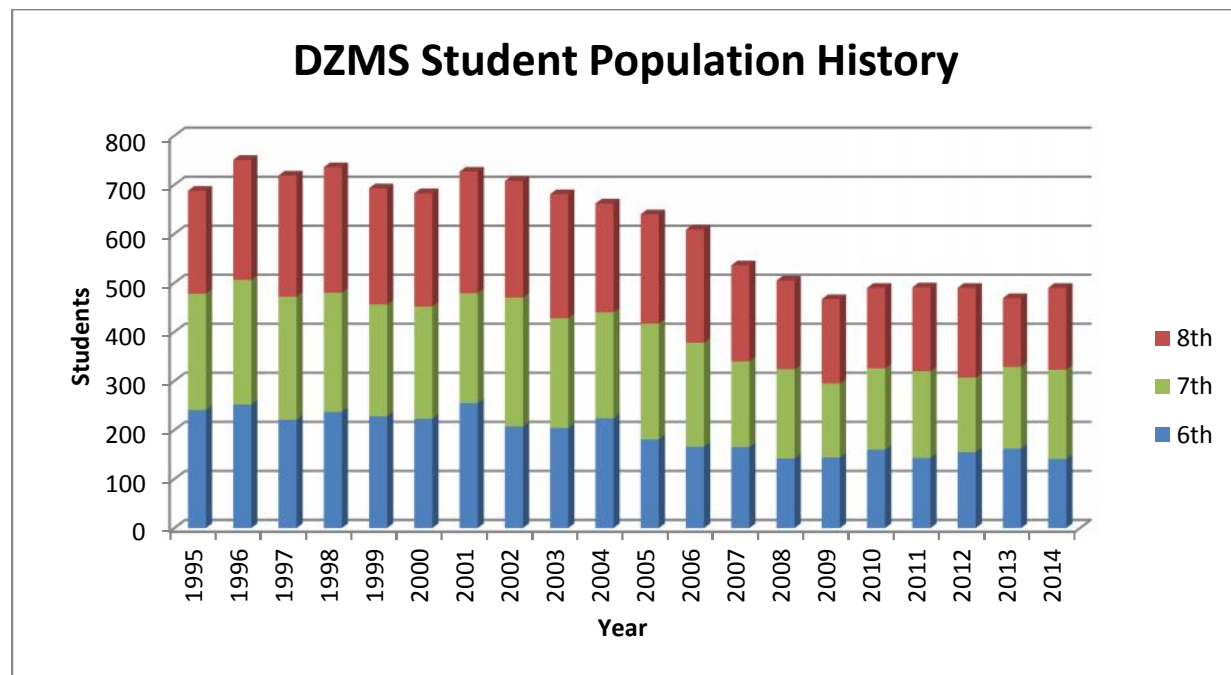
Original Construction = 1993; Project Cost = not available

Additions = NA

DZ Covered Play Area = 2010; Project Cost = \$1.2 million; Scope: Install covered play area.

Facility Replacement Value = \$ 32.2 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$12.6 million



Floyd Dryden Middle School– Grades 6-8

DEED GSF = 75,486 SF

DEED Capacity = 147 Elementary students & 300 Secondary students; 447 students total

DEED 2014-15 Elementary Average Daily Membership (ADM) = 168 students

DEED 2014-15 Secondary Average Daily Membership (ADM) = 344 students

DEED Capacity = 114.74%

Certified Teaching Staff = 27 FT and 3 PT

Classrooms = 30; Half-Classrooms = 7

History

Original Construction = 1972; Project Cost = Not Available

Additions = 1975, 1984

Classroom Addition = 1975; Project Cost = Not Available; Scope: Add west classroom wing.

Classroom Addition = 1984; Project Cost = Not Available; Scope: Add east classroom wing.

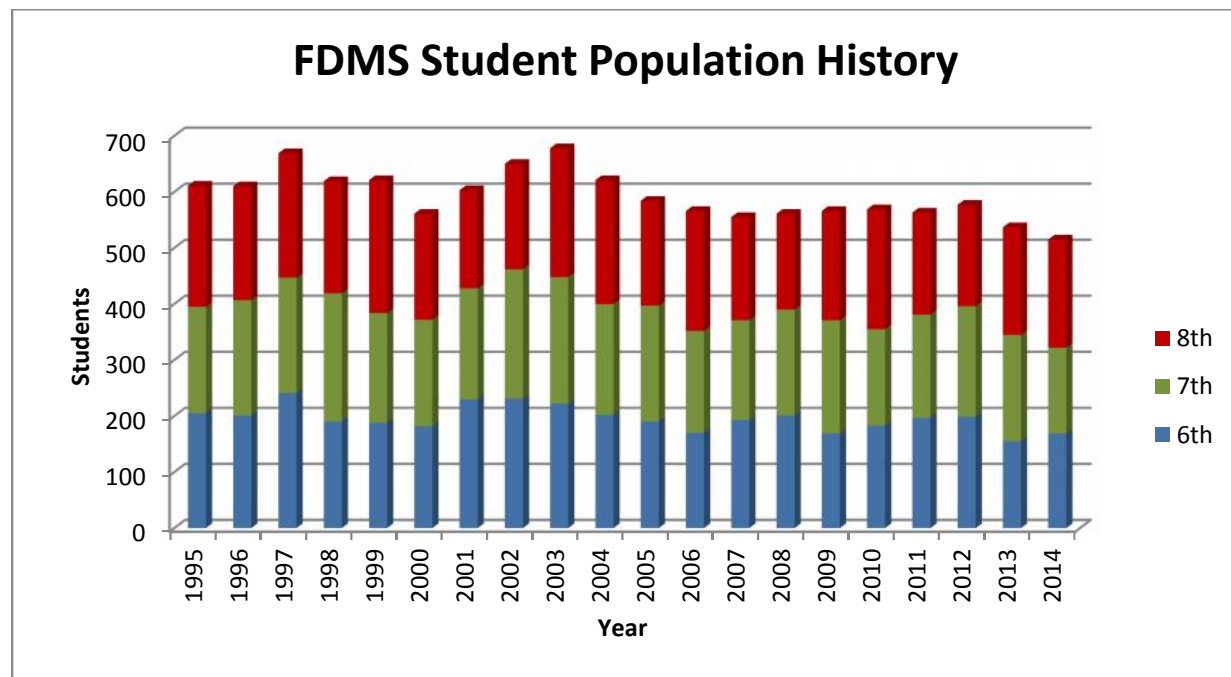
FDMS Renovation 1 = 2003; Project Cost = \$5.4 million; Scope: Renovate interiors and replace roof.

FDMS Renovation 2 = 2005; Project Cost = \$5.3 million; Scope: Renovate interiors, boiler room, new UST, exterior envelope, front entry canopy and sidewalk.

FDMS Courtyard Improvements & Art = 2006; Project Cost = ~\$850,000; Scope: Upgrade courtyard paving, install covered picnic tables and bike racks, install art.

Facility Replacement Value = \$23.2 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$4.1 million



Gastineau Elementary School – Grades PK-5

DEED GSF = 45,433 SF

DEED Capacity = 386 students

DEED 2014-15 K-5 Average Daily Membership (ADM) = 312 students

DEED K-5 Capacity = 80.83%

2014-15 Pre K Enrollment = 5

DEED Capacity inclusive of Pre-K = 82.12%

Certified Teaching Staff = 20 FT and 2 PT

Classrooms = 16; Half-Classrooms = 8

History

Original Construction = 1953; Project Cost = Not Available

Additions = 1965, 1992, 2013

Classroom Addition = 1965; Project Cost = not available; Scope: Add classroom wing.

Gym Addition = 1992; Project Cost = not available; Scope: Add gym, music room and adjacent spaces.

Roof Replacement = 2000; Project Cost = ~\$300,000; Scope: Replace roof on classroom wing.

Window Replacement = 2007; Project Cost = \$1.2 million; Scope: Replace windows and paint exterior.

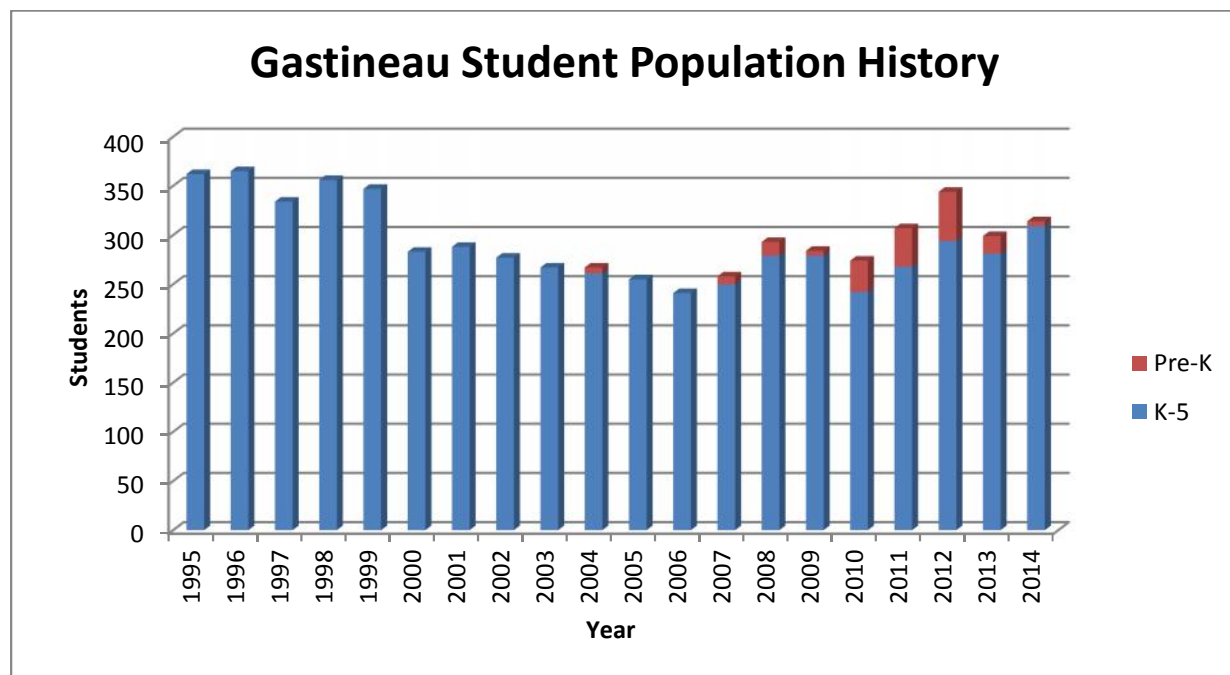
Library Roof Replacement = 2008; Project Cost = ~\$250,000; Scope: Replace library roof.

Renovation/Add. = 2012; Project Cost = ~\$12.5 million; Scope: Complete renovation of most systems

Playground Upgrade = 2013; Project Cost = ~\$775,000; Scope: New playground equipment and drainage

Facility Replacement Value = \$ 14.5 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$1 million



Glacier Valley Elementary School – Grades PK-5

DEED GSF = 52,500 SF

DEED Capacity = 453 students

DEED 2014-15 K-5 Average Daily Membership (ADM) = 393 students

DEED K-5 Capacity = 86.74%

2014-15 Pre K Enrollment = 4

DEED Capacity inclusive of Pre-K = 87.63%

Certified Teaching Staff = 25 FT and 5 PT

Classrooms = 22; Half-Classrooms = 4

History

Original Construction = 1966; Project Cost = Not Available

Library Addition = 1977; Project Cost = Not Available; Scope: Library addition.

Roof Replacement = 1997; Project Cost = \$754,000; Scope: Replace roof on classroom wing.

Reno, Phase 1 = 2007; Project Cost = ~\$2.2 million; Scope: Replace windows and exterior doors, upgrade exterior wall, renovate boiler room with new mechanical & electrical equipment, replace UST.

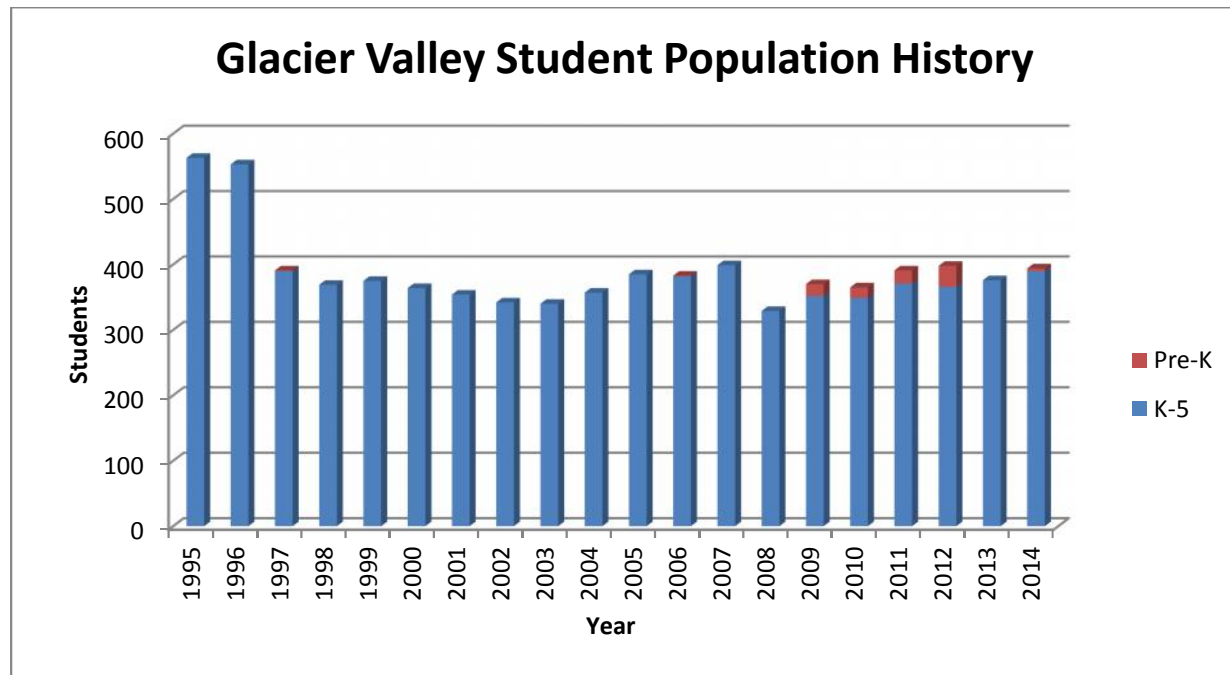
Reno, Phase 2 = 2009; Project Cost = ~\$16 million; Scope: Upgrade most interior systems and finishes.

Add Commons and fan loft. Reconfigure some interior spaces. Reconfigure site access and paving.

Playground Upgrade = 2010; Project Cost = ~\$550,000; Scope: Replace playground equipment.

Facility Replacement Value = \$16.3 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$1 million



Harborview Elementary School – Grades PK-5

DEED GSF = 66,290 SF

DEED Capacity = 578 students

DEED 2014-15 K-5 Average Daily Membership (ADM) = 496 students

DEED K-5 Capacity = 85.75%

2014-15 Pre K Enrollment = 4

DEED Capacity inclusive of Pre-K = 86.45%

Certified Teaching Staff = 25 FT and 7 PT

Classrooms = 23; Half-Classrooms = 8

History

Original Construction = 1952; Project Cost = not available

Additions = 1957, 1974, 2009

2nd Floor Addition = 1957; Project Cost = not available; Scope: Add 2nd floor classrooms.

Gym Addition = 1974; Project Cost = not available; Scope: Add multipurpose room.

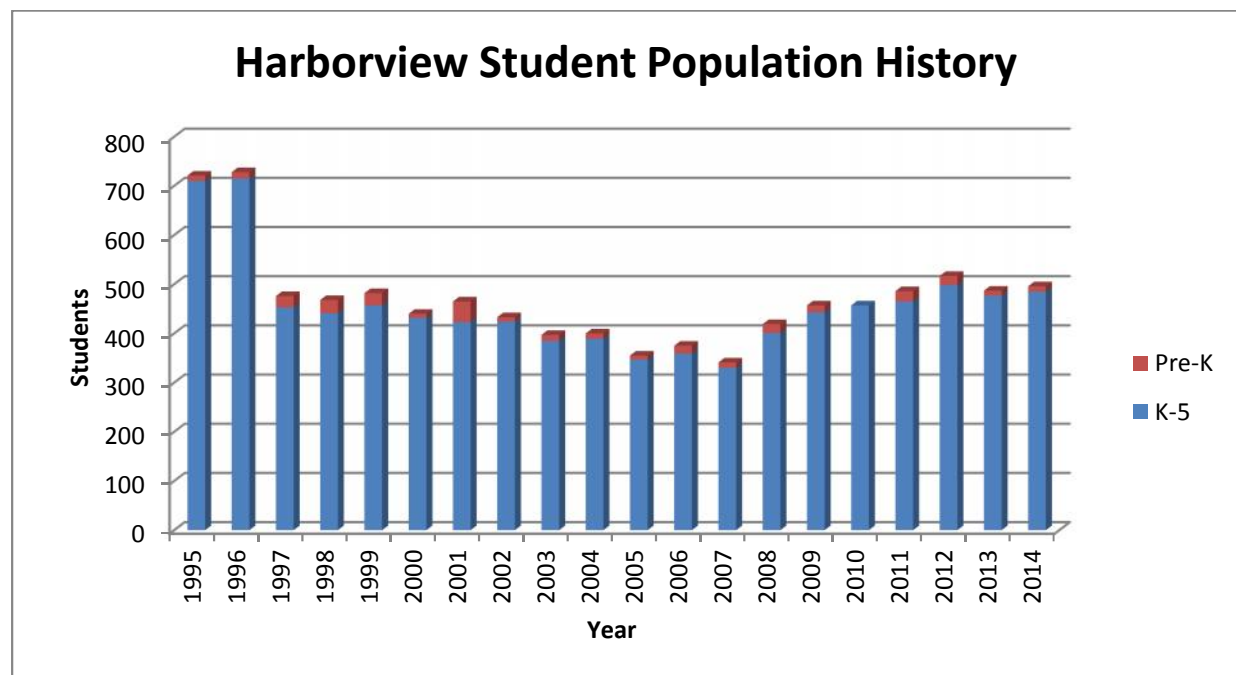
Code Upgrade/Remodel = 1982; Project Cost = not available; Scope: Interior renovation.

Gym Roof Replacement = 2000; Project Cost = ~\$165,000; Scope: Replace roof on gym addition.

Renovation/Add = 2009; Project Cost = ~\$22.4 million; Scope: Upgrade most interior systems and finishes. Add Commons and reconfigure some interior spaces. Reconfigure site access and paving. Upgrade playground.

Facility Replacement Value = \$19.1 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$0



Juneau Douglas High School – Grades 9-12

DEED GSF = 190,738 SF*

DEED Capacity = 1156 secondary students

DEED 2014-15 Average Daily Membership (ADM) = 650 secondary students

DEED Capacity = 56.28%

Certified Teaching Staff = 35 FT and 6 PT

Classrooms = 51; Half-Classrooms = 4

*Excludes 25,962 SF of auditorium space that is shared with CBJ

History

Original Construction = 1956; Project Cost = not available

Additions = 1959, 1960, 1966, 1984

Addition = 1959; Project Cost = not available; Scope: Add 35,000 SF

Addition = 1960; Project Cost = not available; Scope: Add 35,000 SF

Addition = 1966; Project Cost = not available; Scope: Add 4,000 SF

Addition = 1984; Project Cost = not available; Scope: Add 82,700 SF

JDHS Roof Repair = 1998; Project Cost = not available; Scope: Repair roof.

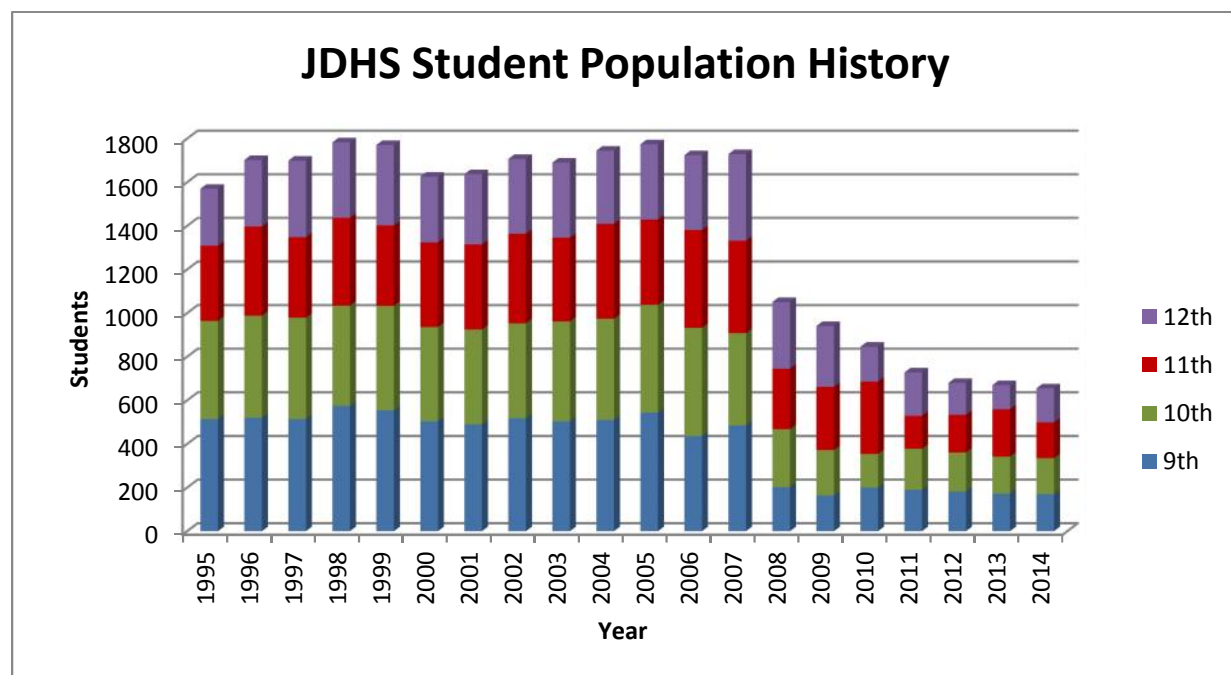
JDHS Renovation Phase I = 2004; Project Cost = \$22.4 million ; Scope: Major building and site upgrade.

JDHS Renovation – Oil Tank = 2006; Project Cost ~\$436,000; Scope: Replace UST.

JDHS Renovation Phase II = \$4.4 million; Scope: Numerous smaller projects targeting repair of specific building system including UST replacement, circuit breaker replacement, gym floor replacement, gym wall repairs, site improvements, locker room repairs, metal shop exhaust and wood shop dust collector.

Facility Replacement Value = \$66.5 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$7.8 million



Marie Drake Alternative School – Grades K-12

DEED GSF = 72,135 SF

DEED Capacity = 213 Elementary students & 219 Secondary students; 432 students total

DEED 2015-16 Elementary Average Daily Membership (ADM) = 150 students

DEED 2015-16 Secondary Average Daily Membership (ADM) = 119 students

DEED Capacity = 60.44%

2014-15 Pre K Enrollment = 1

DEED Capacity inclusive of Pre-K = 60.62%

Certified Teaching Staff = 18 FT and 5 PT

Classrooms = 25; Half-Classrooms = 2

History

Original Construction = 1968; Project Cost = not available

Additions = 1985

Addition = 1985; Project Cost = Not Available; Scope: Add library.

Marie Drake Roof Replacement = 2001; Project Cost = ~\$1,000,000; Scope: Replace roof.

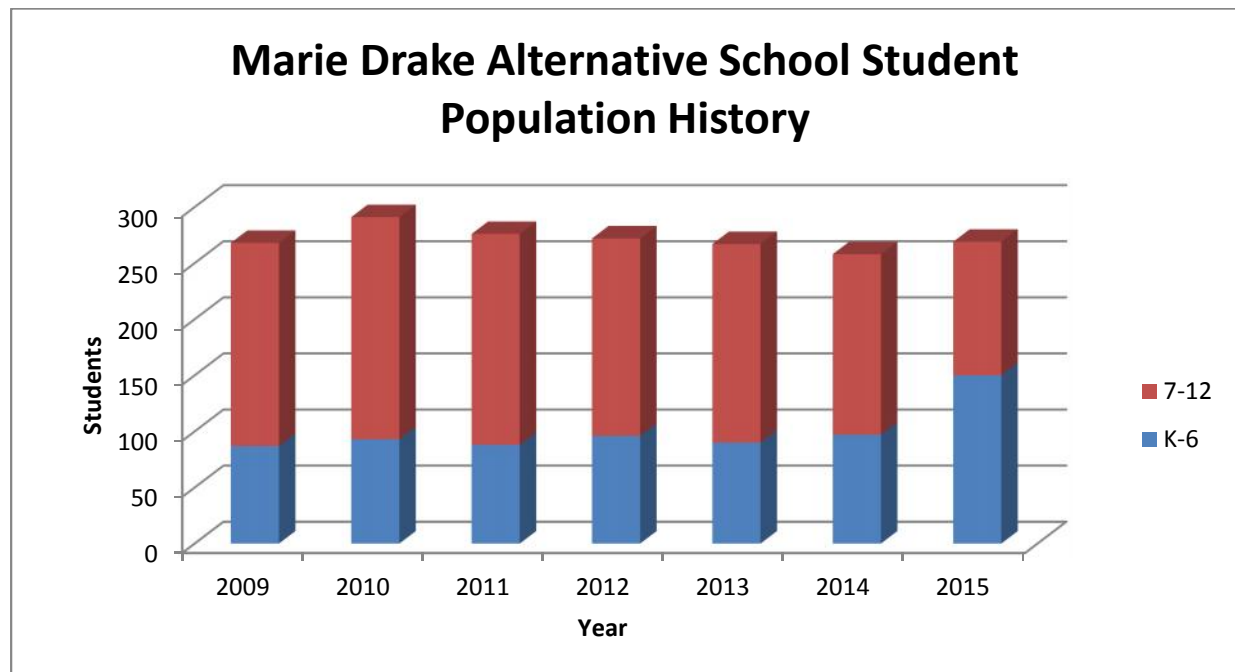
Marie Drake Boiler Room Upgrades = 2010; Project Cost = ~\$880,000; Scope: Renovate boiler room.

Marie Drake Window Replacement = 2011; Project Cost = ~\$690,000; Scope: Replace windows and insulate exterior wall where disturbed.

Marie Drake Renovation = 2012; Project Cost ~\$1.6 million; Scope: Reconfigure and renovate four classrooms and main entry office. Install elevator and renovate restrooms. Upgrade gym ceiling & lights.

Facility Replacement Value = \$22.1 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$18.6 million



Mendenhall River Community School – Grades PK-5

DEED GSF = 58,000 SF

DEED Capacity = 503 students

DEED 2014-15 K-5 Average Daily Membership (ADM) = 343 students

DEED K-5 Capacity = 68.17%

2014-15 Pre K Enrollment = 21

DEED Capacity inclusive of Pre-K = 72.35%

Certified Teaching Staff = 21 FT and 5 PT

Classrooms = 26; Half-Classrooms = 4

History

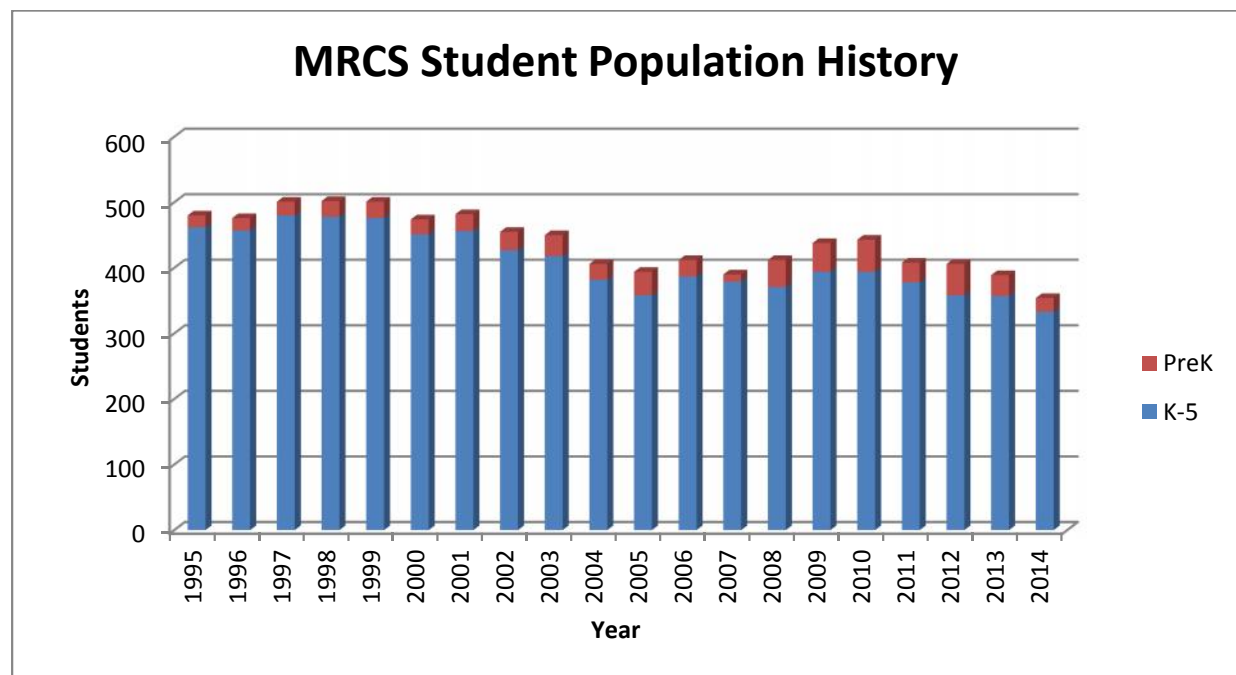
Original Construction = 1983; Project Cost = Not Available

Additions = NA

Roof Replacement = 1999; Project Cost = ~\$1 million; Scope: Remove metal roof and replace with EPDM

Facility Replacement Value = \$17.8 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$14.6 million



Riverbend Elementary School – Grades PK-5

DEED GSF = 57,493 SF

DEED Capacity = 499 students

DEED 2014-15 K-5 Average Daily Membership (ADM) = 281 students

DEED K-5 Capacity = 56.28%

2014-15 Pre K Enrollment = 21

DEED Capacity inclusive of Pre-K = 60.49%

Certified Teaching Staff = 21 FT and 4 PT

Classrooms = 25; Half-Classrooms = 1

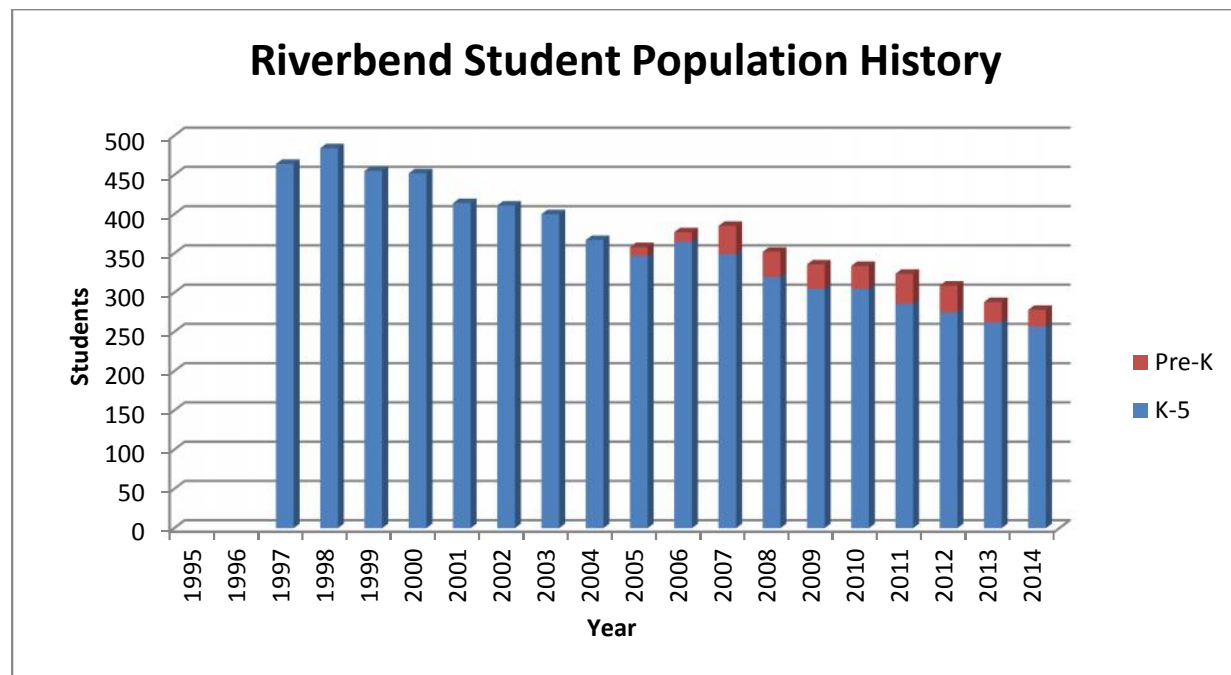
History

Original Construction = 1997; Project Cost = \$14.2 million

Additions = None

Facility Replacement Value = \$17.7 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$3.8 million



Thunder Mountain High School– Grades 9-12

DEED GSF = 168,842 SF*

DEED Capacity = 1023 secondary students

DEED 2014-15 Average Daily Membership (ADM) = 671 secondary students

DEED Capacity = 65.66%

Certified Teaching Staff = 35 FT and 5 PT

Classrooms = 39; Half-Classrooms = 7

*TMHS was constructed with core spaces sized for a classroom addition that would increase classroom space by 50% of existing.

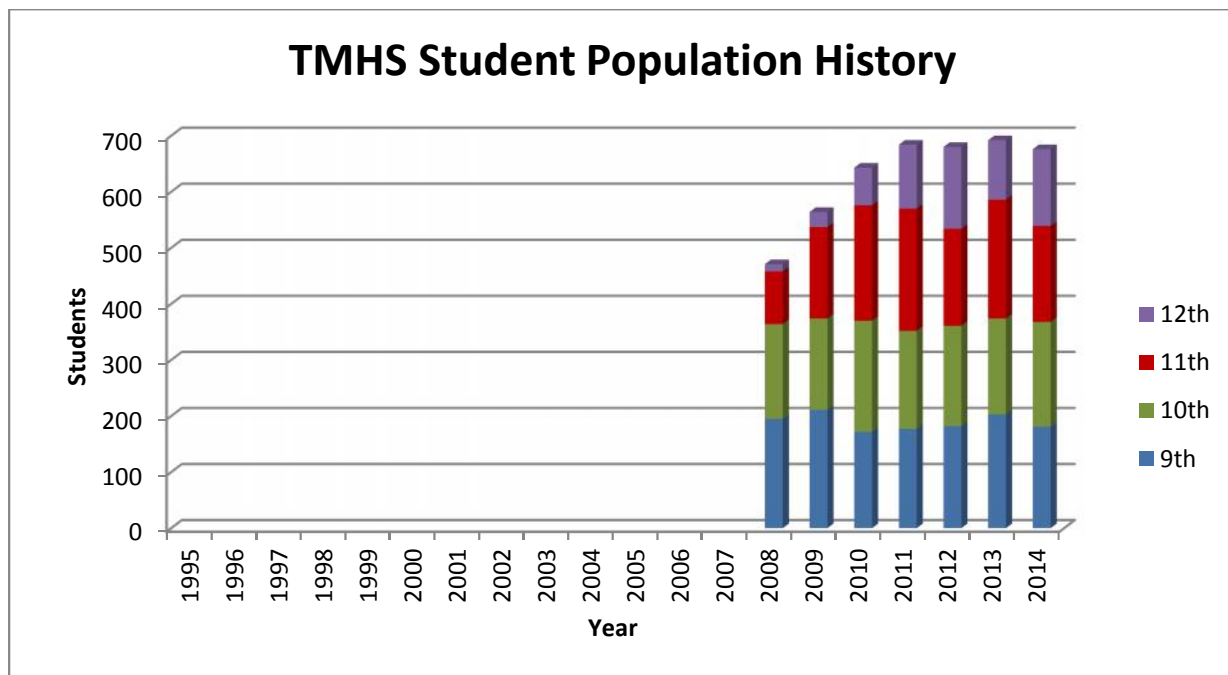
History

Original Construction = 2008; Project Cost = \$76.2 million

Additions = None

Facility Replacement Value = \$51.8 million

Estimated Value of Deferred Maintenance FY2020 Project Cost = \$0



Appendix -B

Enrollment Forecast

Juneau School District
Comprehensive Facility Plan
February 2016

ERICKSON & ASSOCIATES

Economic Consultants

264 NW Jefferson Place, Bend, OR 97703
319 Seward St. (suite 5), Juneau, AK 99801

Telephone (907) 957-6091
gerickso@gmail.com

28 December 2015

Mr. David L. Means
Director of Administrative Services
Juneau School District
10014 Crazy Horse Drive
Juneau, Alaska 99801

Re: Enrollment Forecast

Dear Mr. Means:

Summary

This letter completes my enrollment forecast report for 2015. Juneau School District enrollment in October declined 1.8 percent from a year earlier, to 4,651 students. While the decline was small in percentage terms, this was a three-fold increase from the 0.6 percent decline in the previous year.

Juneau enrollment has trended downward since 2005. Until recently that was mostly the result of declining birth rates. Since 2012, however, the declines reflect a shrinking Juneau economy.

As in my previous forecasts, I provide a *High*, *Mid*, and *Low* case forecast. The *Mid* forecast reflects the 50th percentile of all possible enrollment outcomes. I recommend the *Mid* forecast for most fiscal and facility planning purposes. The *High* and *Low* forecasts represent my estimates of the 90th and 10th percentiles of all possible enrollment outcomes.

As a consequence of demographic factors and continued weakness in the Juneau economy, my *Mid* forecast anticipates a 2.7 percent enrollment decline in October 2016. The *Mid* forecast projects slow growth thereafter, based largely on demographic factors. As I show in my *Low* forecast, continued weakness in the Juneau economy could mean persistent and possibly steeper declines in the future.

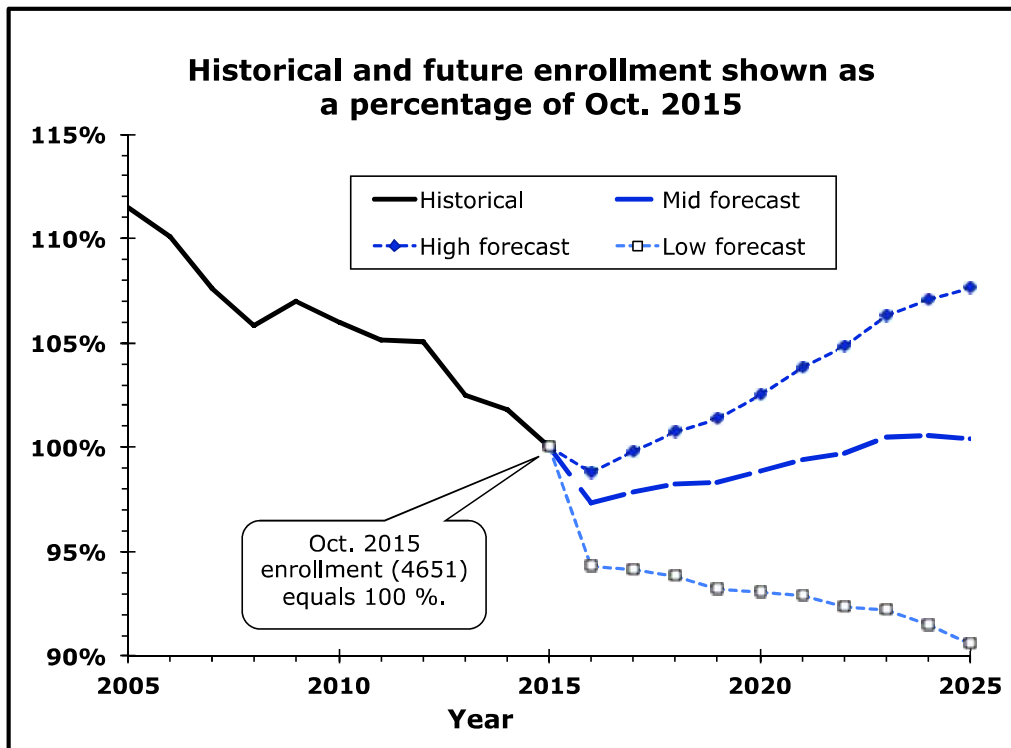
Figure 1 summarizes the forecast.

Figure 1

Juneau School District			
Enrollment, Actual and Forecast			
2014 to 2026			
Year	Low	Mid	High
Actual			
2014		4736	
2015		4651	
Forecast			
2016	4387	4527	4595
2017	4377	4550	4641
2018	4363	4569	4683
2019	4335	4573	4715
2020	4327	4598	4768
2021	4320	4625	4829
2022	4296	4639	4876
2023	4289	4672	4943
2024	4256	4677	4981
2025	4211	4669	5005
2026	4157	4650	5017

Note: Data do not include preschool enrollment.

Figure 2 presents the forecast in a broader context, showing historical enrollment since 2005 and the current forecast in terms of percentage differences from the Oct. 2015 enrollment. Enrollment is now 10.3 percent lower than in 2005. **Figure 2** also displays the uncertainty surrounding the forecast. A future of enrollment increases or even steeper declines is within the range of reasonable possibility.

Figure 2

The long-term forecast showing projected grade-level enrollments is found in **Figure 3**.

Figure 3

Actual October Enrollment, 2014-15 and Enrollment Forecast for 2016-27													
	Actual		Forecast										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Kindergarten	369	333	334	339	337	350	347	344	344	343	342	341	340
Grade 1	372	380	340	346	356	354	367	364	362	361	360	359	358
Grade 2	376	372	374	336	340	350	348	361	358	355	355	354	353
Grade 3	367	369	371	375	339	343	353	351	364	361	358	357	357
Grade 4	337	359	368	374	380	343	347	358	355	369	366	363	362
Grade 5	369	331	350	365	372	379	342	346	357	354	368	364	362
Grade 6	337	355	324	347	359	366	372	336	340	350	348	361	358
Grade 7	345	339	349	323	349	361	368	375	338	342	353	350	364
Grade 8	377	349	332	347	322	348	360	367	374	337	341	352	349
Grade 9	359	374	357	345	367	340	367	380	387	394	356	360	371
Grade 10	376	345	363	350	338	359	334	360	373	380	387	349	353
Grade 11	376	360	372	401	381	368	390	362	391	405	413	420	379
Grade 12	376	385	294	302	328	312	302	320	297	321	332	339	345
Grades 11 + 12	752	745	665	702	709	680	692	683	688	725	745	759	724
Total	4736	4651	4527	4550	4569	4573	4598	4625	4639	4672	4677	4669	4650

Note: These numbers do not include preschool enrollment.

Methodology

Historical data and prior forecasts

My first step in preparing this forecast was to update the historical data on grade level enrollments and prior grade level forecasts. Since 2009 the district’s official *Mid*-case forecast has been remarkably accurate. One-year-ahead absolute accuracy over the seven forecasts was 0.9 percent. The root mean square error was 1.3 percent. See **Figure 4**, “Accuracy of Total Enrollment Forecasts.”

Figure 4

Accuracy of Total Enrollment Forecasts					
Forecast for...	Source	Mid-case forecast issued 12 months earlier	Actual enrollment	Error	Percentage Error
Oct-09	(Reaume)	4,856	4,976	120	2.4%
Oct-10	(Reaume)	4,948	4,929	-19	(0.4%)
Oct-11	(Reaume)	4,892	4,888	-4	(0.1%)
Oct-12	(Reaume)	4,855	4,885	30	0.6%
Oct-13	(Erickson)	4,878	4,766	-112	(2.3%)
Oct-14	(Erickson)	4,719	4,736	17	0.4%
Oct-15	(Erickson)	4,657	4,651	-6	(0.1%)
ROOT MEAN SQUARE ERROR					1.3%
AVERAGE ABSOLUTE % ERROR					0.9%

Grade level forecasts have been less accurate, particularly for Kindergarten, 9th, 11th, and 12th grade enrollments. See **Figure 5**, “Accuracy of Grade Level Forecasts.”

Figure 5

Accuracy of Grade Level Forecasts

$$=(\text{forecast}-\text{actual})/\text{actual}$$

	K	1	2	3	4	5	6	7	8	9	10	11	12
Oct-09	13%	-5%	-2%	5%	4%	1%	0%	0%	-1%	-4%	3%	7%	7%
Oct-10	-13%	-4%	-4%	-3%	2%	3%	2%	2%	6%	-9%	-1%	15%	-7%
Oct-11	-3%	5%	0%	1%	7%	0%	-1%	2%	4%	-11%	6%	10%	-25%
Oct-12	11%	0%	0%	0%	-3%	4%	3%	0%	1%	2%	1%	0%	-10%
Oct-13	8%	-5%	-3%	-4%	-3%	-4%	-4%	-4%	-7%	0%	-3%	-5%	2%
Oct-14	3%	-2%	3%	4%	2%	-4%	0%	0%	1%	0%	-2%	-15%	13%
Oct-15	-5%	2%	1%	-2%	-3%	0%	-2%	2%	3%	-4%	-1%	1%	7%
Root Mean Square (RMS) Error	9%	4%	2%	3%	4%	3%	2%	2%	4%	6%	3%	9%	12%

Dark pink indicates RMS error over 10 percent; **light pink** indicates RMS errors of between 5 and 10 percent.

Cohort component ratios

The best predictor of enrollment in any grade in any year is the prior year's enrollment in the next lower grade. My forecasting model is based on these cohort-component relationships, namely, the historical ratios between the numbers of students in each cohort as they move through the grades. A ratio of 1.00 means the enrollment was exactly equal to last year's enrollment in the prior grade. I calculated these ratios for each grade, for each of ten prior years. The ten-year averages cluster around 1.00, but range from a low of 0.83 (grade 12 to prior year's grade 11), to a high of 1.070 (grade 9 to prior year's grade 8).

Basing the model on the ten-year average ratios is intuitively appealing, but theory and my own analysis suggest a more accurate forecast is achieved by giving less weight to ratios from distant years. I made "backcasts" for the eight of the prior years for which I had ratios for two or more prior years. In one set of runs I used the averages, giving equal forecasting weight to all ratios, old and new. In other runs I reduced the weight given to older data. For forecasts one-year ahead, best accuracy is achieved by heavily overweighting the ratio from the most recent year: I give the most recent ratio 100 percent weight, the second oldest 50 percent weight, the third oldest 25 percent weight, and so forth. This reflects a discount factor, ρ (rho), of 0.5. (A discount factor of 1.00 is the same as ten-year average.)

For forecasting enrollment further out I reduce the overweighting given to recent ratios. For two-year-ahead forecasts I use discount factor of 0.7. For all forecasts more than two years ahead I use a discount factor of 0.9.

Forecasting future kindergarten enrollments

There is no grade before kindergarten, so another procedure is needed to forecast kindergarten enrollments. In developing this procedure I first calculated the ratios between annual Juneau births and kindergarten enrollments four, five, and six years later. Applying standard statistical tests to these data, I determined that the best predictor of future kindergarten enrollment is the average of births five and six years earlier.

For the kindergarten forecast for 2021 and later years we don't have the data to compute the average of births five and six years earlier.¹ In place of this data I use my own forecast of births based on a linear projection of Juneau births during the years from 2001 to 2014.²

¹ The number of Juneau births in 2015 isn't compiled and published until a year or more after the close of the year.

² The projection results in a forecast of 391 births in 2015, decreasing very slowly, to 385 births in 2022. The Alaska Dept. of Labor and Workforce Development predicts an average of 410 births during these years. See <http://laborstats.alaska.gov/pop/popproj.htm>.

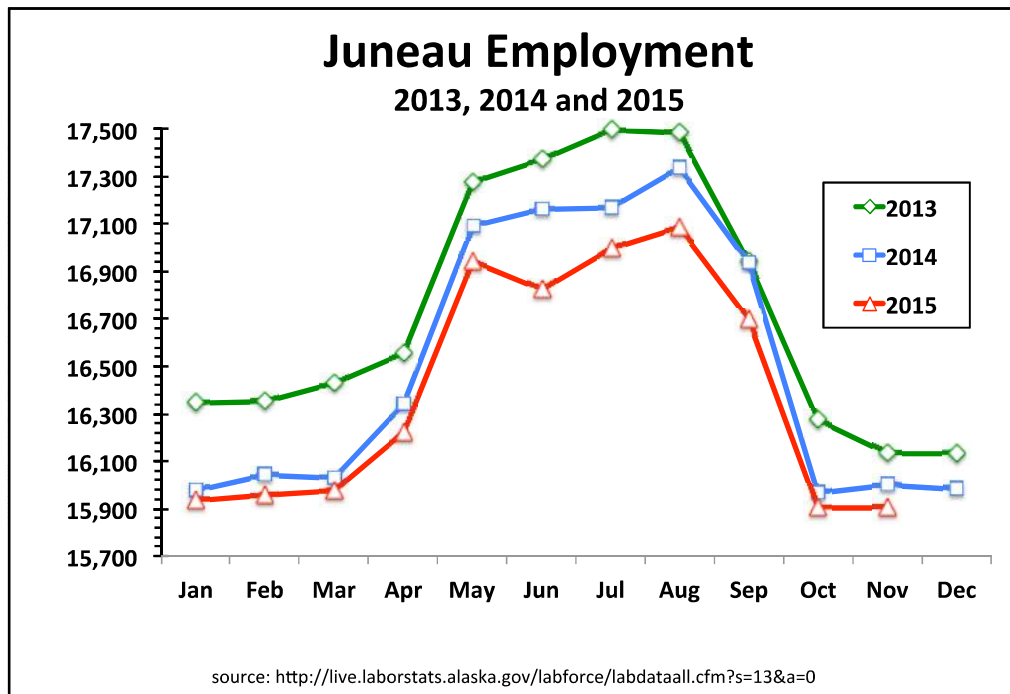
Economic factors

Juneau enrollment has trended downward since 2005, but until recently that was mostly the result of declining birth rates. That changed in 2013 and 2014, with declines in those years responding in part to Juneau job losses.

Figure 6 compares the number of Juneau workers in 2013, 2014, and the first 11 months of 2015. The number people at work in Juneau dropped by 250 in the 12 months between June 2013 and June 2014, and by a further 340 workers from June 2014 to June 2015.³ In June of 2015 there were 551 fewer people at work than there was in the same month two years earlier, a 3.2 percent decline.

The data series shown in Figure 6 does not break out the losses by sector. However, a different data set, which counts jobs instead of people, suggests that nearly all the losses occurred in government. State government accounts for approximately 60 percent of the decline, and local and federal governments about 20 percent each. Private sector jobs were unchanged overall, the result of losses in goods-producing businesses being offset by gains in private sector service jobs.⁴

Figure 6



³ These counts of employed workers are from Alaska Dept. of Labor & Workforce Development. "Current Employment Statistics," <http://live.laborstats.alaska.gov/labforce/labdataall.cfm?s=13&a=0>.

⁴ Alaska Dept. of Labor & Workforce Development, "Census of Employment and Wages," <http://labor.alaska.gov/research/qcew/qcew.htm>.

Comparison with last year's forecast

This year's forecast is significantly lower than the forecast I submitted last year. As **Figure 7** shows, enrollment in 2016 is now expected to be 3.1 percent lower than forecast in 2014. *Mid* case enrollment in 2020 is 2.7 percent lower. A major driver of this reduction is this year's precipitous drop in kindergarten enrollment, down by 9.8 percent, compared with the 1.8 percent drop in total enrollment.

Figure 7

Current Forecast Compared with Previous Forecast										
Year:	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
<i>Mid</i> forecast issued Dec. 2014	4672	4689	4711	4703	4725	4763	4791	4844	4863	4872
<i>Mid</i> forecast issued Dec. 2015	4527	4550	4569	4573	4598	4625	4639	4672	4677	4669
Percent difference:	(3.1%)	(3.0%)	(3.0%)	(2.8%)	(2.7%)	(2.9%)	(3.2%)	(3.6%)	(3.8%)	(4.2%)

I appreciate the opportunity to once again assist the district in developing the enrollment forecast.

Sincerely

Gregg Erickson

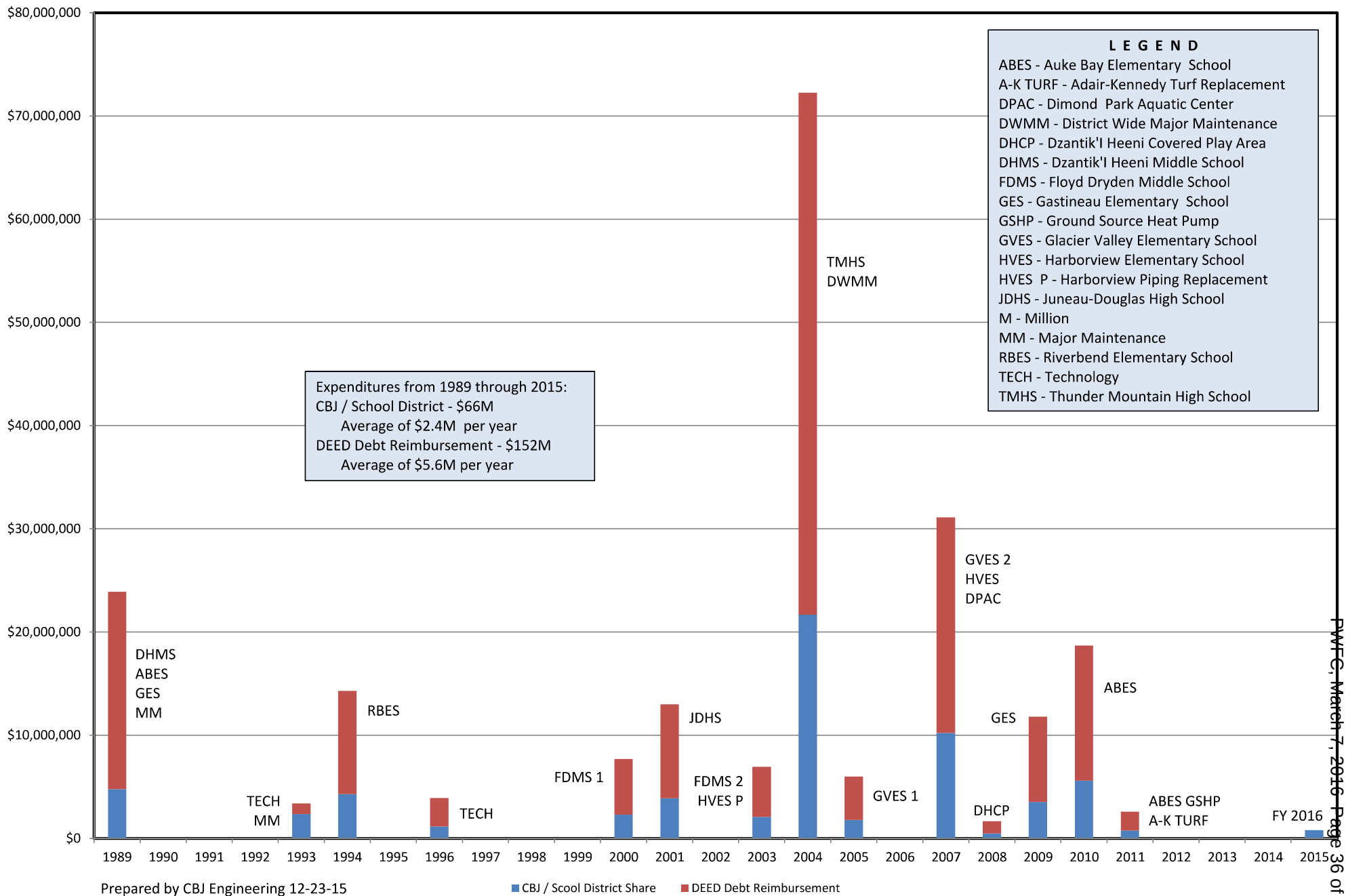
ERICKSON & ASSOCIATES

Appendix -C

JSD Facility Funding

Juneau School District
Comprehensive Facility Plan
February 2016

SCHOOL FUNDING: CONSTRUCTION, RENOVATION, TECHNOLOGY



School Bond Payments for Facilities

