

Enrollment Projections for ORCSD, 2017-2027

Long Range Planning Committee

Michael Goldberg Alyson Mueller David Taylor Robert Mohr
Lisa Allison Rob Mc Ewan Marie O'Neill Giana Gelsey Katrin Kasper

November, 2017

Summary of LRPC Goals

- Provide the School Board with enrollment projections for each of the next 10 years.
- Make every effort to provide projections for the following school year in the fall when they can be used in the budgeting process.
- Continually improve and refine the model used to make enrollment projections.

Decline in Enrollment largely offset by HS Tuition Students

- Peak enrollment was 2,393 in 2000.
- 2017-18 enrollment is 2,148, including 142 tuition students.
- *Decline over 17 years was 245.*
- **Projected 2027-28 with Barrington tuition students 2,097 (1,937 plus 160 tuition)**
- *The number of tuition students rises as native enrollment drops, net 10 year loss of only 51.*

Methodology

- First Grade

Historical births and enrollment trends are used to project the number of students (using linear regression).

- Grades 2 – 12

Grade Progression Ratios (GPRs) are used to forecast the number of students.

First Grade Methodology

- Linear Regression Model coefficients updated annually
- Primary independent variable is births 6 years prior
- Some autocorrelation components
- Looking at other independent variables
 - Employment
 - Real Estate transactions

Kindergarten Methodology

- First Grade Forecasts are starting point
- Grade Progression ratios used to estimate kindergarten enrollment based on forecast for the following year's first grade
- GPR starts with the actual 2016 to 2017 GPR
- Over time GPR is assumed to approach first to second grade GPR

Projections for Grades 1-12

- Calculate GPR's for each grade and year.
- Find the 5-year average GPR by grade.
- Apply average GPRs to actual and predicted enrollments to predict enrollments into the future.
- Takes into account the net migration (in-migration and out-migration) over time and by grade.

What is a “Grade Progression Ratio?”

Number of students in grade J and year t

+

Add students who move to ORSD in grade J+1 and year t+1

-

Subtract students who leave ORSD before grade J+1 and year t+1

=

Number of students in grade J+1 and year t+1

A numerical example:

200 students in 5th grade in October 2013

+ 10 new students join ORSD at the 6th grade for 2014

-5 students leave ORSD before 6th grade

= 205 students in 6th grade in 2014

GPR (5th to 6th = $205/200 = 1.025$)

GPRs Account for Net New Students

- More families with children moving in than moving out. (5 year average used)
- All GPRs for grades 2-12 are in the range of 1.00 – 1.05 except grade 8-9, which is impacted by tuition students coming in and native students going to private schools. High School GPR very close to 1.00

Elementary School Split

- Historical ratios (three year average) used to estimate First Grade split between the schools. (54.4% Mast Way 45.6% Moharimet)
- GPR for each elementary is used to project grades 2-4 based on projections for prior year grades 1-3 at that school.
- Different GPRs used for Moharimet and Mast Way.

Projection Range (Plus and Minus)

- Historical LRPC Projections 1994 – 2017 (23 years of forecasts, each predicting 10 future years)
- Subtract Actual Enrollment for each predicted year.
- Take the absolute value of the difference and divide by the actual enrollment figure to get a percentage.
- Find the average percentage difference for each forecast horizon (1 to 10 years out).

The Projections



**Enrollment Projections Summary
For Oyster River School District
Preliminary October 1, 2017-18 Actual to 2027-28 Projected**

<u>Year</u>	<u>K</u>	<u>1-4</u>	<u>5-8</u>	<u>9-12</u>	<u>Total</u>	Average Absolute Error of Estimate		<u>HS Without Tuition</u>	<u>Total Without HS Tuition</u>
						<u>Percent Error +/-</u>	<u>To Total</u>		
2017-18	119	576	660	793	2,148	Actual Year		651	2,006
2018-19	109	581	668	795	2,153	One Year Out	1.6%	636	1,993
2019-20	114	570	674	816	2,173	Two Years Out	2.6%	652	2,009
2020-21	113	564	682	803	2,163	Three Years Out	3.6%	639	1,999
2021-22	113	557	674	802	2,146	Four Years Out	5.1%	642	1,986
2022-23	113	543	680	810	2,145	Five Years Out	6.6%	649	1,985
2023-24	116	540	667	815	2,138	Six Years Out	7.6%	655	1,978
2024-25	116	536	661	823	2,136	Seven Years Out	8.6%	663	1,976
2025-26	118	533	652	815	2,118	Eight Years Out	9.6%	655	1,958
2026-27	119	533	636	821	2,108	Nine Years Out	11.2%	661	1,948
2027-28	121	535	632	808	2,097	Ten Years Out	12.7%	648	1,937

Elementary School Projections

	Mast Way Projections						Moharimet Projections						
						MW						MOH	Total
	<u>K</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Total</u>	<u>K</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>Total</u>	<u>Both</u>
2017-18	70	72	76	63	71	352	49	63	64	86	81	343	695
2018-19	59	75	76	78	67	355	50	63	65	68	90	335	690
2019-20	62	69	79	77	82	369	52	58	65	69	71	314	683
2020-21	62	70	73	81	82	367	52	59	60	69	72	311	678
2021-22	61	70	74	74	85	364	52	58	61	63	72	306	670
2022-23	61	68	73	75	78	356	51	57	60	64	66	299	655
2023-24	63	67	72	74	80	356	53	57	59	64	67	299	656
2024-25	63	68	71	73	79	355	53	57	58	63	66	298	652
2025-26	64	68	72	72	78	354	54	57	59	62	65	297	651
2026-27	65	69	71	73	77	354	54	57	59	63	64	297	652
2027-28	66	69	72	73	78	357	55	58	59	62	65	300	657

Mast Way K in 2019-20

		LRPC Forecast	Possible High End	
First GradeTotal 2019-20		127	130	+2.60% Avg. Error
Percent to Mast Way		54.40%	56.00%	
First Grade Mast Way		69	73	
GPR K to First		1.164	1.04	
Kindergarten 2018-19		59	70	
<u>One Year K to 1 GPR</u>				
Total K 2016	116			
Total First 2017	135			
Actual 1 year GPR	1.164			

Middle School Projections

Year	Fifth	Sixth	Seventh	Eighth	Total
2017	169	159	169	163	660
2018	160	175	163	169	668
2019	165	166	180	163	674
2020	161	171	170	180	682
2021	161	167	175	171	674
2022	166	168	171	175	680
2023	152	172	172	172	667
2024	155	158	176	172	661
2025	153	161	162	177	652
2025	150	159	164	162	636
2027	148	156	163	165	632

HS Tuition Students in Projection

Year	9th	10th	11th	12th	Total Tuition
2017	44	40	35	23	142
2018	40	44	40	35	159
2019	40	40	44	40	164
2020	40	40	40	44	164
2021	40	40	40	40	160
2022	40	40	40	40	160
2023	40	40	40	40	160
2024	40	40	40	40	160
2025	40	40	40	40	160
2026	40	40	40	40	160
2027	40	40	40	40	160

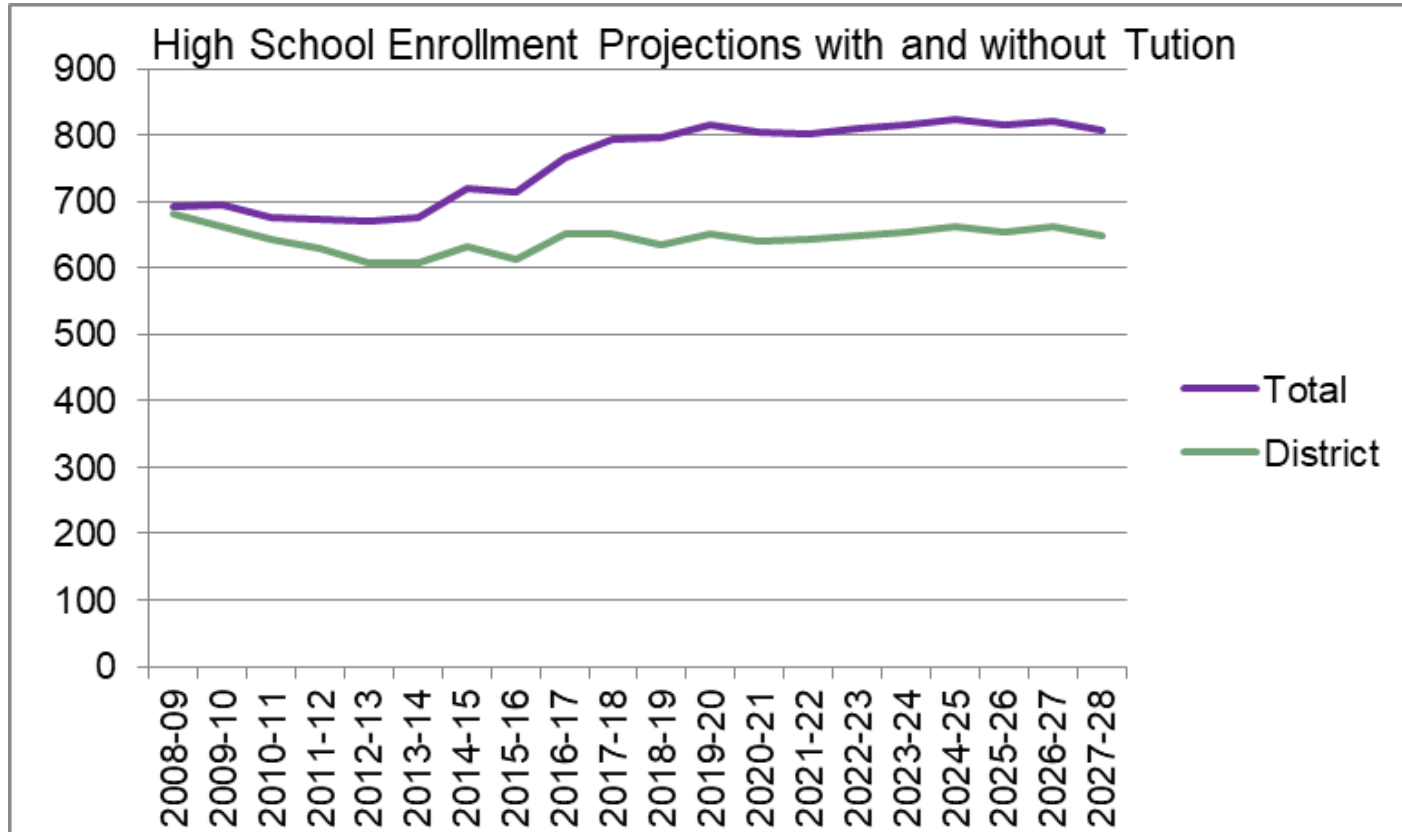
HS Enrollment From District

Year	9th	10th	11th	12th	Total District
2017	168	169	144	170	651
2018	155	169	166	145	636
2019	161	156	167	168	652
2020	155	162	154	169	639
2021	171	156	160	155	642
2022	162	172	154	161	649
2023	166	163	170	155	655
2024	163	168	161	172	663
2025	163	164	165	163	655
2026	168	165	162	167	661
2027	154	169	162	163	648

HS Enrollment Total by Grade

Year	9th	10th	11th	12th	Total District
2017	212	209	179	193	793
2018	195	214	206	181	795
2019	201	196	211	208	816
2020	195	202	193	213	803
2021	211	196	199	195	802
2022	202	213	194	201	810
2023	206	203	210	196	815
2024	203	208	201	212	823
2025	203	204	205	203	815
2026	208	205	201	207	821
2027	194	209	202	203	808

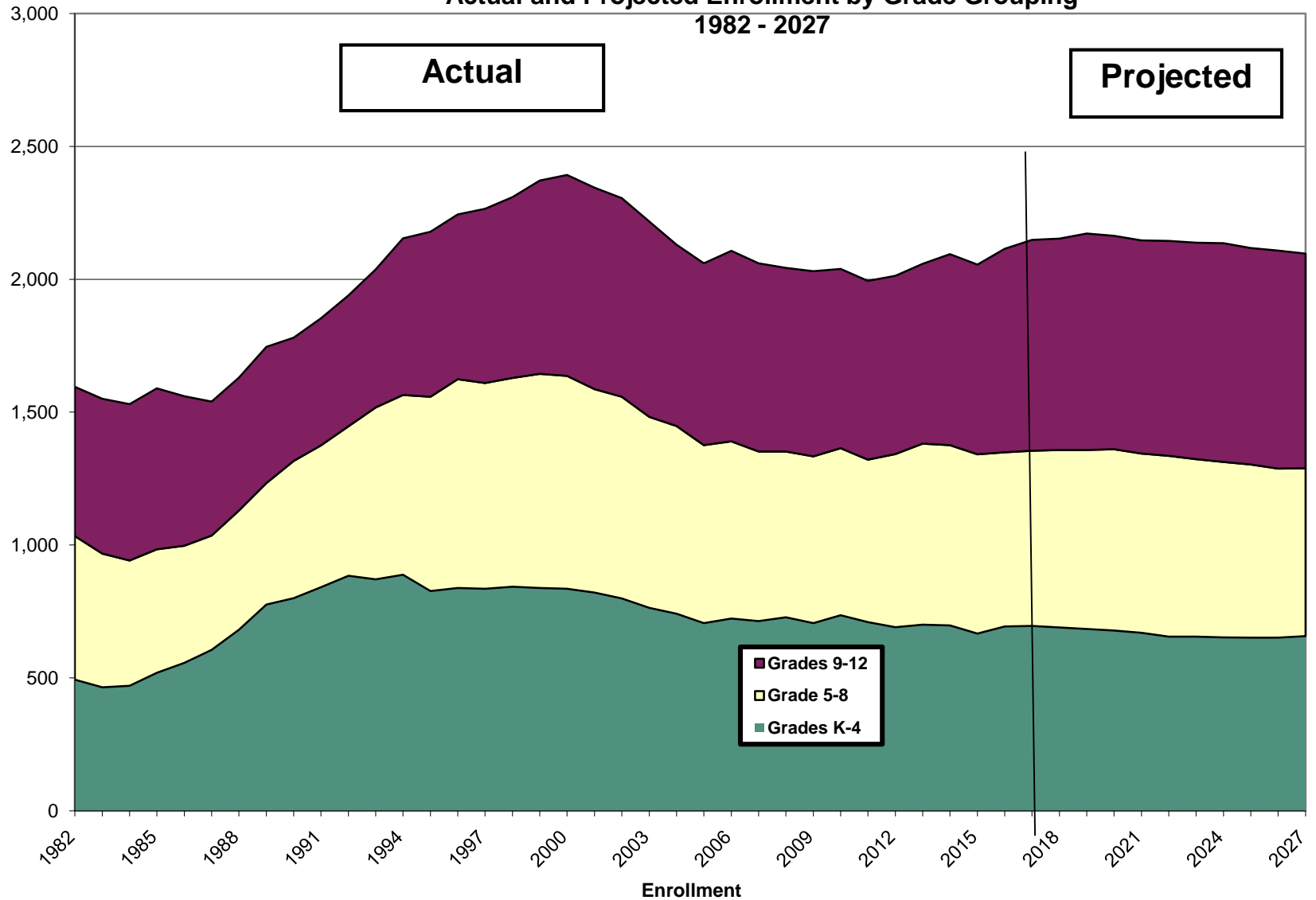
HS Enrollment Projection with Current Barrington Tuition Arrangement



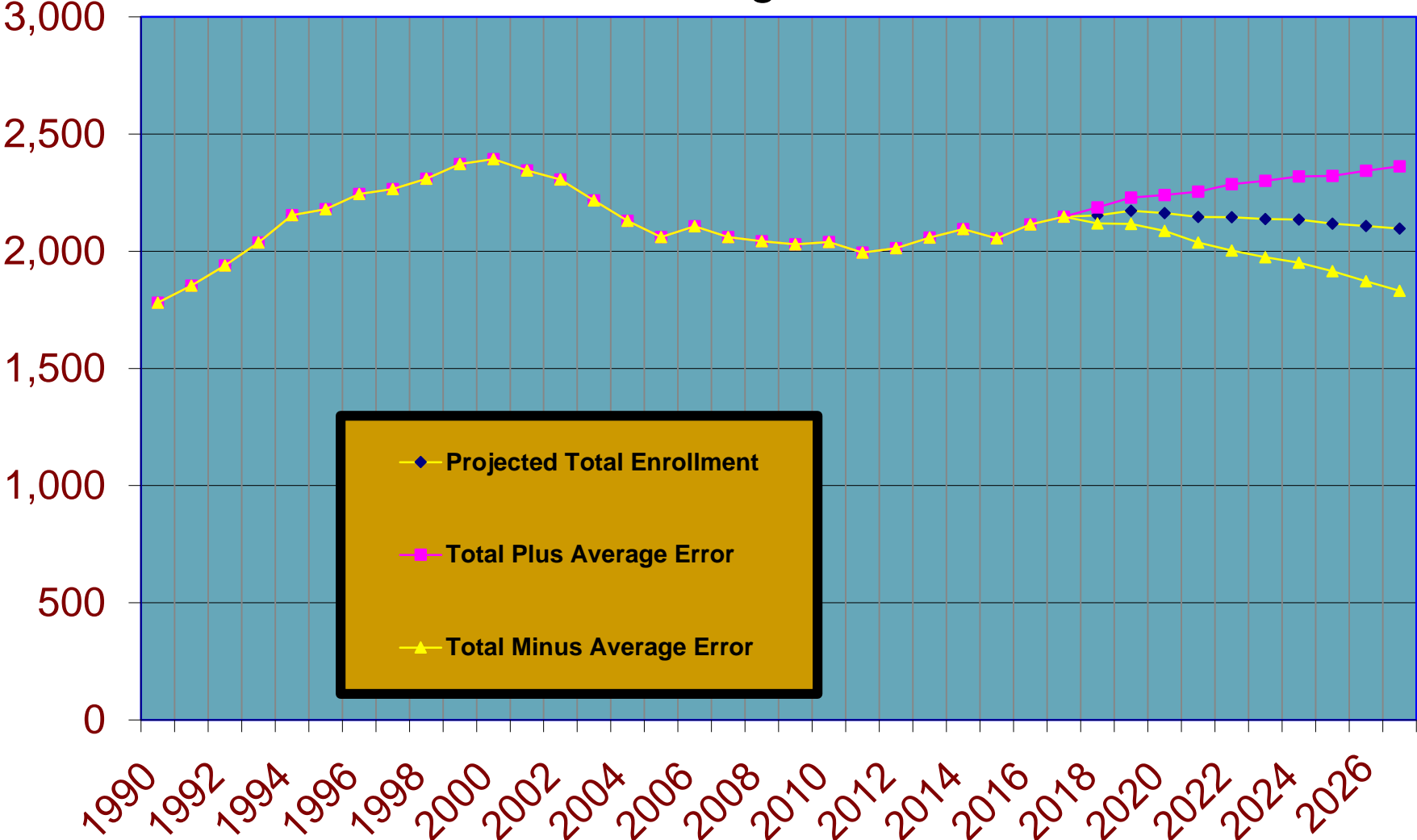
**Oyster River School District
Actual and Projected Enrollment by Grade Grouping
1982 - 2027**

Actual

Projected



Actual and Projected Enrollment plus and minus Average Error of Estimate



Summary

- **Total ORCSD enrollment is projected to remain in the 2,100 range for the entire projection period. Enrollment declines by only 51 students, from 2,148 this year to 2,097 projected in 2027-28.**
- **Full day kindergarten is assumed. The size of the kindergarten class remains close to the current level of 119 throughout the projection.**
- **The number of elementary school students will decrease slightly, by about 38 students, from 695 now to 657 in 2027-28. Mast Way now has 9 more students than Moharimet. This difference will grow to 55 students 2026-27 and remain at about that level to the end of the projection period.**
- **Middle school enrollment, now 660 grows to 682 in 2020-21, then drops to 632 in 2027-28.**
- **High School enrollment, now 793 (651 plus 142 tuition students), rises to 823 in 2024-25, then drops to 808 in 2027-28 (648 plus 160 tuition students).**

Any Questions?
