

Enrollment Projections for ORCSD, 2016-2026

Long Range Planning Committee

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Thanks to Retired LRPC Members

Special Thanks for many years of service to the LRPC

- Tom Merrick of Durham
- Lorna Jacobsen of Madbury

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.
- 2016-17 enrollment is 2,115, including 115 tuition students.
- *Decline over 16 years was 278.*
- **Projected 2026-27 with Barrington tuition students 2,006 (1,846 plus 160 tuition)**
- *The number of tuition students rises as native enrollment drops, net 10 year loss of only 109.*

Methodology

- Kindergarten

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

- Grades 1 – 12

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

Kindergarten Methodology

- Linear Regression Model coefficients updated annually
- Primary independent variable is births 5 years prior
- Some autocorrelation components
- Looking at other independent variables
 - Employment
 - Real Estate transactions

Model Change This Year

- Now that we have full day kindergarten, we can use grade progression ratios to predict first grade enrollment.
- This should result in better predictions for first grade.

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 are in the range of 1.00 – 1.04 except High School, which is impacted by tuition students coming in and native students going to private schools.

Elementary School Split

- Historical ratios used to estimate Kindergarten split between the schools.
- GPR for each elementary is used to project grades 1-4 based on projections for prior year grades K-3 at that school.
- Different GPRs used for Moharimet and Mast Way.

Projection Range (Plus and Minus)

- Historical LRPC Projections 1994 – 2015 (21 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, 2016-17 Actual to 2026-27 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>		
2016-17	116	577	656	766	2,115	Actual Year		651	2,000
2017-18	109	551	661	794	2,114	One Year Out	1.6%	656	1,976
2018-19	115	530	661	808	2,113	Two Years Out	2.6%	651	1,956
2019-20	114	505	661	837	2,117	Three Years Out	3.5%	677	1,956
2020-21	114	488	664	827	2,093	Four Years Out	5.0%	666	1,932
2021-22	117	486	633	832	2,067	Five Years Out	6.3%	672	1,907
2022-23	122	495	609	832	2,057	Six Years Out	7.2%	671	1,897
2023-24	121	503	580	832	2,036	Seven Years Out	8.4%	672	1,876
2024-25	126	511	561	835	2,033	Eight Years Out	10.0%	675	1,873
2025-26	125	524	559	803	2,010	Nine Years Out	11.3%	643	1,850
2026-27	127	533	569	777	2,006	Ten Years Out	12.9%	617	1,846

Elementary School Projections

LRPC Projections with Full Day Kindergarten													
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>
2016-17	62	68	61	66	63	320	54	64	83	75	97	373	693
2017-18	53	64	70	61	68	318	55	55	65	88	78	342	659
2018-19	56	55	66	71	64	313	58	56	56	69	92	332	644
2019-20	56	58	57	67	73	312	58	59	57	60	72	306	618
2020-21	56	58	60	58	69	301	58	59	61	61	62	301	602
2021-22	58	58	60	61	60	296	59	59	60	64	63	306	602
2022-23	60	60	60	60	63	303	62	61	60	64	67	314	617
2023-24	60	62	62	61	62	307	62	63	62	64	66	317	624
2024-25	62	62	65	62	63	313	64	63	65	66	67	324	637
2025-26	61	64	64	65	64	319	63	65	64	69	68	330	649
2026-27	63	64	66	64	67	324	64	65	67	68	72	336	660

Middle School Projections

Year	Fifth	Sixth	Seventh	Eighth	Total
2016	150	167	164	175	656
2017	167	155	173	165	661
2018	153	173	160	174	661
2019	162	158	179	162	661
2020	152	168	164	180	664
2021	137	157	174	165	633
2022	129	142	163	175	609
2023	136	133	147	164	580
2024	135	141	138	148	561
2025	135	139	145	139	559
2026	139	140	144	146	569

HS Tuition Students in Projection



Year	9th	10th	11th	12th	Total Tuition
2016	38	34	21	22	115
2017	40	40	37	21	138
2018	40	40	40	37	158
2019	40	40	40	40	160
2020	40	40	40	40	160
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

HS Enrollment From District

Actual 

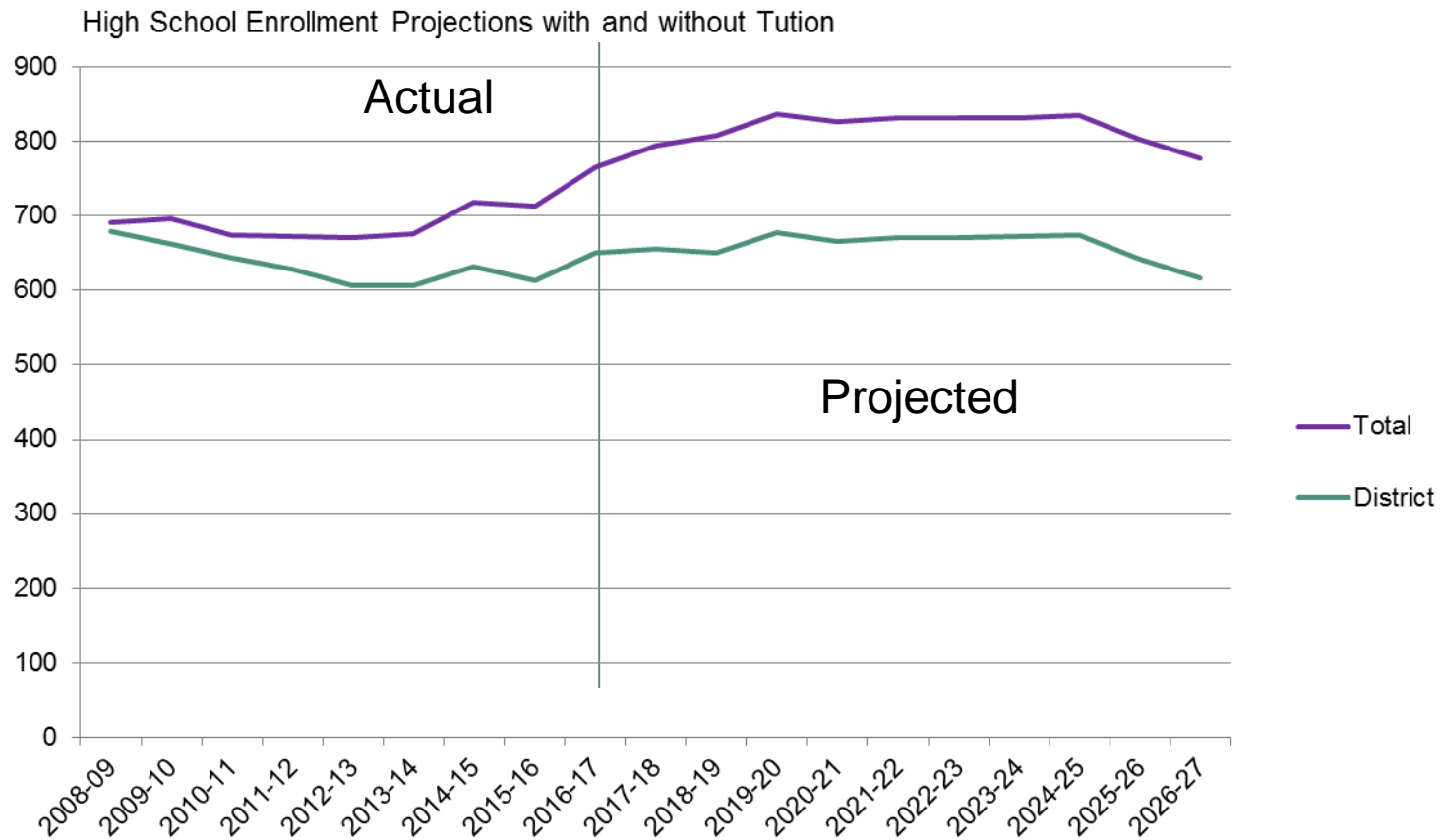
Year	9th	10th	11th	12th	Total District
2016	172	150	166	163	651
2017	172	172	144	168	656
2018	163	174	169	146	651
2019	171	164	171	170	677
2020	159	173	162	173	666
2021	178	160	170	163	672
2022	162	179	158	172	671
2023	172	164	176	160	672
2024	162	174	161	178	675
2025	146	163	171	163	643
2026	137	147	160	173	617

HS Enrollment Total by Grade

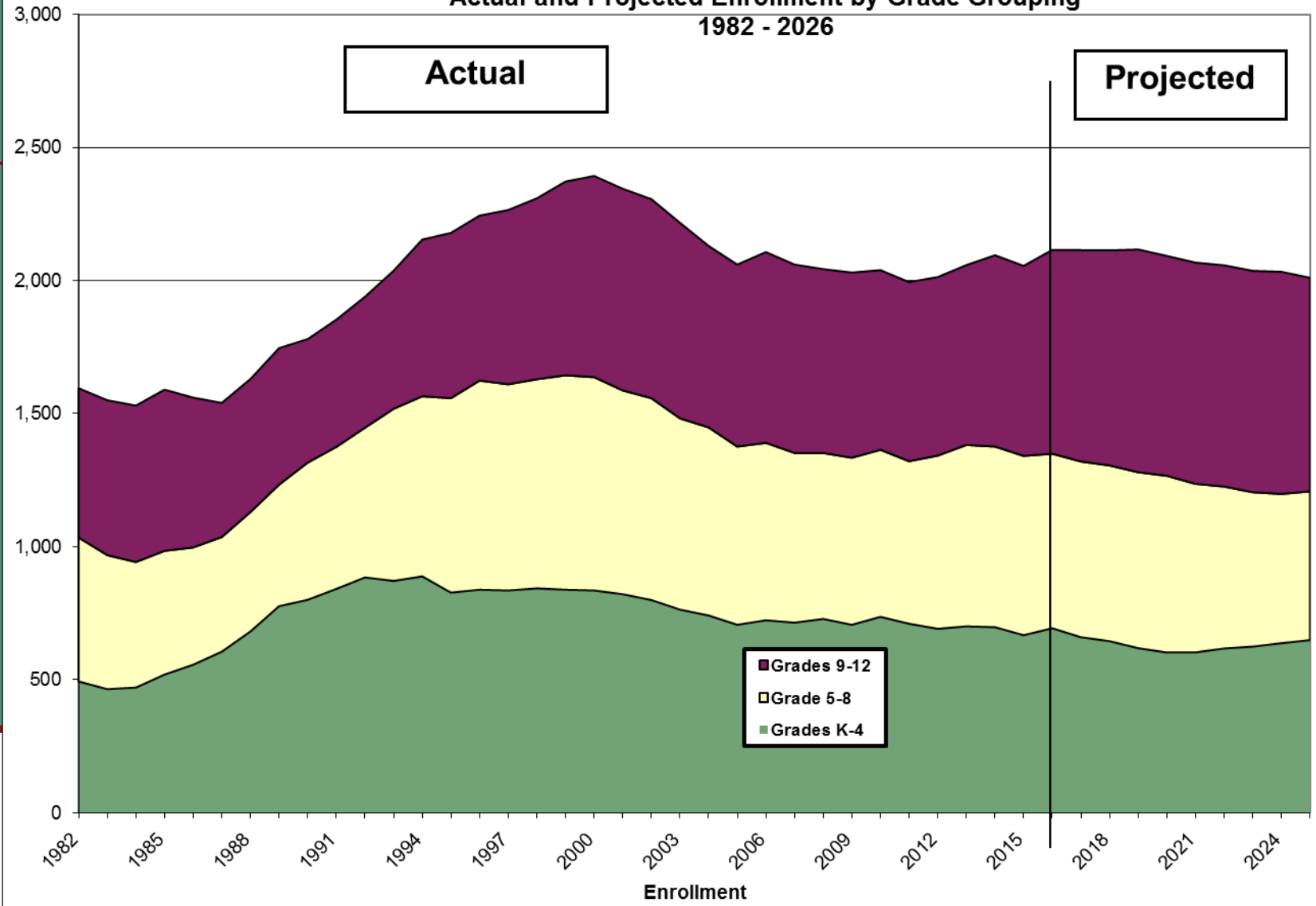
Actual 

Year	9th	10th	11th	12th	Total District
2016	210	184	187	185	766
2017	212	212	181	189	794
2018	203	214	209	183	808
2019	211	204	211	211	837
2020	199	213	201	213	827
2021	218	201	210	203	832
2022	202	219	198	212	832
2023	212	204	216	200	832
2024	202	214	201	218	835
2025	186	203	211	203	803
2026	177	187	200	213	777

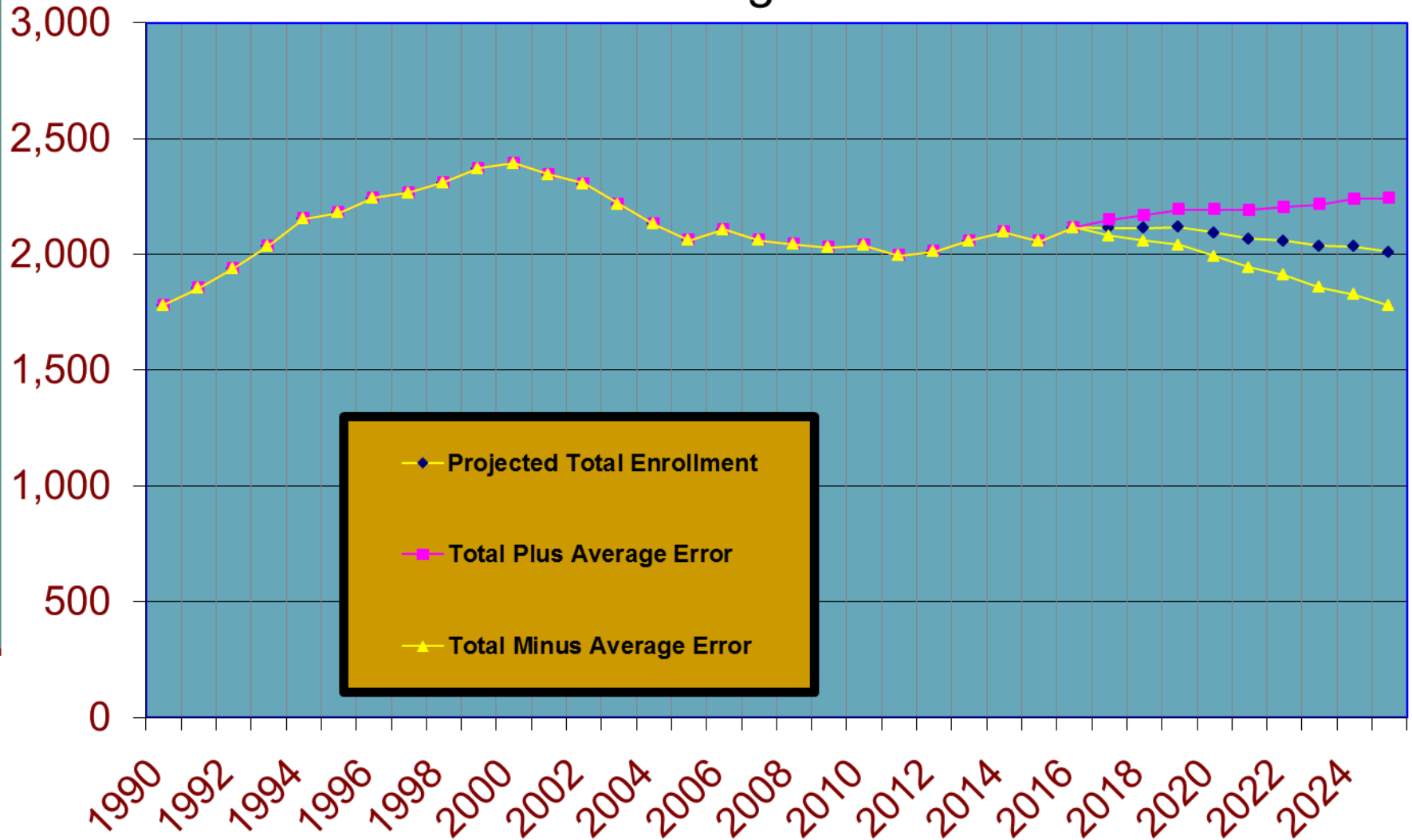
HS Enrollment Projection with Current Barrington Tuition Arrangement



**Oyster River School District
Actual and Projected Enrollment by Grade Grouping
1982 - 2026**



Actual and Projected Enrollment plus and minus Average Error of Estimate



Summary

- **Total ORCSD enrollment is projected to remain over 2,000 for the entire projection period. Enrollment declines by only 109 students, from 2,115 this year to 2,006 projected in 2026-27.**
- **Full day kindergarten is assumed. The size of the kindergarten class remains close to the current level of 116 for five more years, then rises to 127 in 2026-27.**
- **The number of elementary school students will decrease. Elementary enrollment drops from 693 now to 602 in 2020-21, when Mast Way and Moharimet will have equal enrollment. Elementary enrollment then rebounds to 660 in 2026-27.**
- **Middle school enrollment, now 656, drops to 569 in 2026-27.**
- **High School enrollment (including Barrington), now 766, rises to 837 in 2019-20, then remains between 830 and 840 for 6 years before dropping to 777 in 2026-27 (617 plus 160 tuition students).**

Any Questions?
