Enrollment Projections for ORCSD, 2012-2022

Long Range Planning Committee

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December, 2012

Enrollment Decline to Continue

- Peak enrollment in 2000 was 2,393

- 2012-13 (excluding tuition) is 1,944

  - *Decline over 12 years was 449*

- Projected 2022-23 (excluding tuition) 1,552

  - *Decline over 10 years will be 392*

- Projected 2022-23 with Barrington 1,628

Enrollment Report 2012-2022

- Describe LRPC Purpose and Methodology

- Present the ten year enrollment projections

- Explain why enrollment has been declining and why this is likely to continue.

- Questions and Discussion

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.

Methodology

- Multiple linear regression equations based on historical and projected births and enrollment trends are used to project students in kindergarten and grade 1.

- Grade Progression Ratios (GPRs) are used to forecast the number of students in grades 2 through 12.

Projections for Grades 2-12

- Calculate GPR's for each grade and year
- Find the 5-year average GPR for each grade.
- Apply 5-year 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 (different GPR for each grade).

What is a "Grade Progression Ratio?"

<table>
<tr><td>

Number of students in grade J and year t

</td><td></td></tr>
<tr><td>**+**</td><td>

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

</td></tr>
<tr><td>**-**</td><td>

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

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<tr><td>**=**</td><td>

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

</td></tr>
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A numerical example:

200 students in 5th grade in 2009

+ 10 new students join ORSD at the 6th grade for 2010

-15 students leave ORSD before 6th grade in 2010

= 195 students in 6th grade in 2010

GPR ($5th$ to $6th$ = 195/200 = .975)

GPRs Reflect Net New Students

- More families with children moving in than moving out

- All GPRs are in the range of 1.01 – 1.03 except High School, which is impacted by tuition students

Elementary School Split

- Historical ratios used to estimate Kindergarten and grade 1 split between the schools.

- District-wide GPR used to project grades 2-4 based on projections for grades 1-3 at each school.

- Future housing changes and redistricting are not reflected in the projected elementary split.

How Accurate Are the Projections?

■ Backcasting (running today's model against historical data to "predict" historical enrollment) shows the model to be most accurate in the near term with average error of estimate approximately (plus or minus) 2% on total enrollment one year out.

■ The average error of estimate increases as we project further out in time, reaching about (plus or minus) 8% when projecting ten years into the future.

How Close Were 2011Projections?

LRPC Enrollment Projection vs. Actual 2012-13

	LRPC Final 2011 Projection For 2012-2013	Preliminary October 1 For 2012-2013	Actual Higher (Lower) Number	Actual Higher (Lower) Percent
Grade School Total				
Kindergarten	113	116	3	2.7%
Grade 1	150	129	(21)	(14.0)%
Grade 2	147	144	(3)	(2.0)%
Grade 3	144	144	0	0.0%
Grade 4	157	158	1	0.6%
Grade School Total	711	691	(20)	(2.8)%
Middle School				
Grade 5	166	166	0	0.0%
Grade 6	141	146	5	3.5%
Grade 7	161	168	7	4.3%
Grade 8	169	171	2	1.2%
Middle School Total	637	651	14	2.2%
High School				
Grade 9	152	150	(2)	(1.3)%
Grade 10	172	179	7	4.1%
Grade 11	174	166	(8)	(4.6)%
Grade 12	179	176	(3)	(1.7)%
High School Total	677	671	(6)	(0.9)%
Total Enrollment	2025	2013	(12)	(0.6)%

The Projections

Enrollment Projections
For Oyster River School District
2012 Actual to 2022 Projected

Average Absolute Error of Estimate
Percent Error
To Total

Year	K	1-4	5-8	9-12	Total			
2012-13	116	575	651	671	2013		Actual Year	
2013-14	114	556	650	675	1995		One Year Out	2%
2014-15	108	545	637	687	1978		Two Years Out	3%
2015-16	111	529	645	671	1956		Three Years Out	4%
2016-17	89	527	615	705	1936		Four Years Out	5%
2017-18	84	497	594	705	1880		Five Years Out	6%
2018-19	86	465	583	690	1824		Six Years Out	6%
2019-20	89	433	565	698	1785		Seven Years Out	6%
2020-21	91	402	564	665	1723		Eight Years Out	7%
2021-22	91	400	532	643	1665		Nine Years Out	7%
2022-23	91	408	497	631	1628		Ten Years Out	8%

Highlights: Current to 2022-23

(1) Total enrollment drops by 385 or 19% over 10 years.

(2) High School enrollment decreases by 40, as the forecasted increase in Barrington tuition students (based on prior year's eighth grade) does not fully offset the decline in resident high school students.

(3) Middle School enrollment declines by 154

**(4) Elementary school enrollment declines by about 192 students over 10 years.**

HS Tuition Students in Projection

HS Tuition Students

	Year	Grade 9	Grade 10	Grade 11	Grade 12	Tuition Total	HS Total Without Tuition
Actual							
→	2012	21	18	12	14	65	606
	2013	21	22	18	11	73	602
	2014	23	24	22	18	87	600
	2015	19	26	23	22	90	581
	2016	22	21	25	23	92	613
	2017	21	24	21	25	91	614
	2018	19	22	23	21	85	605
	2019	19	20	23	23	85	613
	2020	18	21	20	22	81	584
	2021	19	19	21	20	79	564
	2022	17	20	19	20	76	555

Elementary School Projections

			Mast Way Projections			MW				Moharimet Projections			MOH	Total
	K	**1**	**2**	**3**	**4**	**Total**	**K**	**1**	**2**	**3**	**4**	**Total**	**Both**
2012-13	51	45	75	57	81	309	65	84	69	87	77	382	691
2013-14	54	62	46	76	57	295	60	72	85	70	88	375	670
2014-15	51	60	62	46	77	297	57	70	73	86	71	357	653
2015-16	53	58	61	64	47	282	58	68	71	74	87	358	639
2016-17	42	59	59	62	64	286	47	69	69	72	74	330	616
2017-18	40	48	60	60	62	270	44	56	69	70	72	312	581
2018-19	41	45	49	61	60	256	45	53	57	71	70	295	551
2019-20	42	44	46	49	61	242	47	51	53	58	71	280	522
2020-21	43	46	44	47	50	229	48	53	51	54	58	264	493
2021-22	43	47	46	45	47	228	48	55	54	52	55	263	491
2022-23	43	49	47	47	45	232	48	57	55	55	53	267	499

ORCSD   December 2012

Oyster River School District
Actual and Projected Enrollment by Grade Grouping
1972 - 2022

Actual

Projected

Grades 9-12
Grade 5-8
Grades K-4
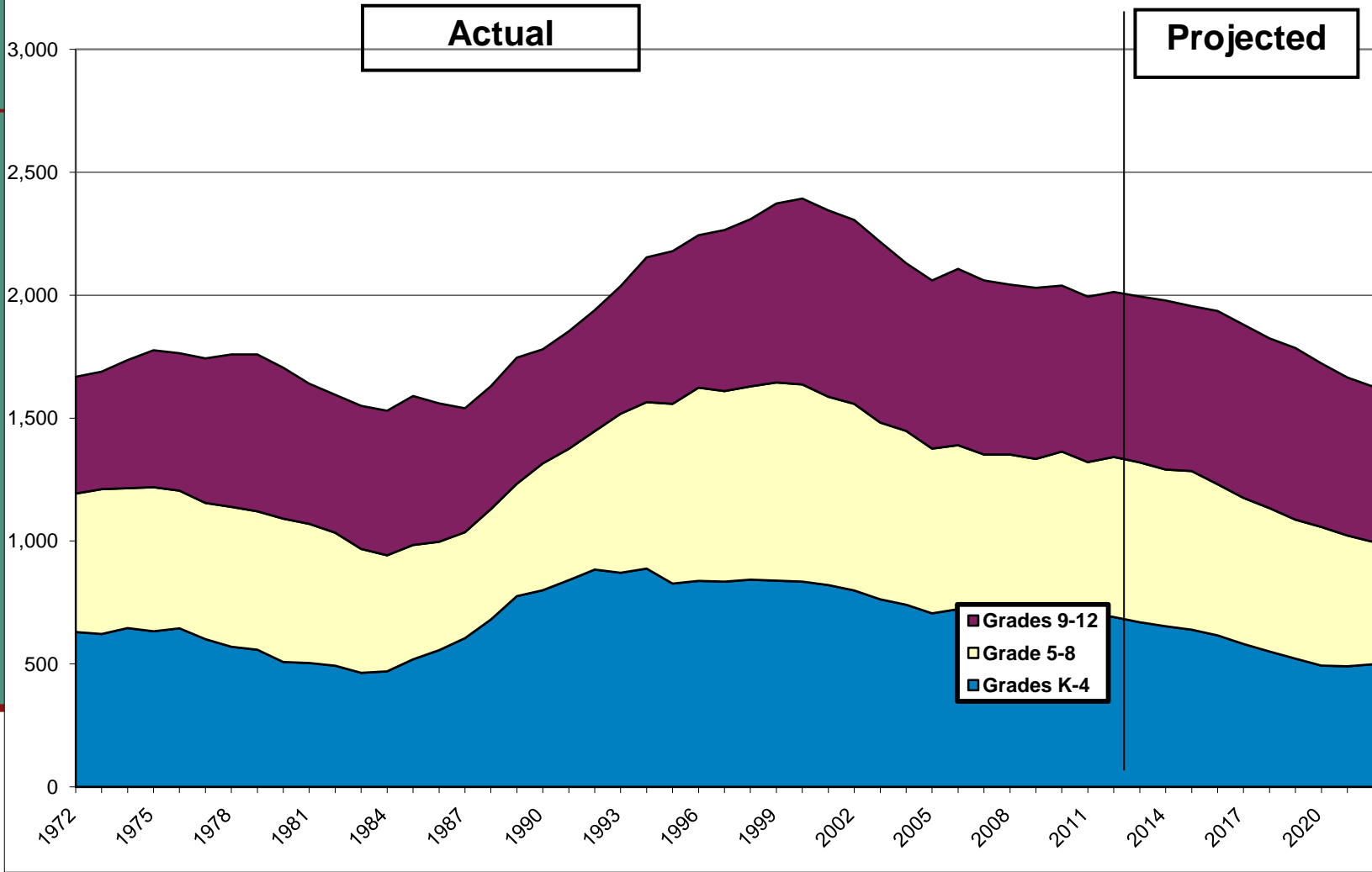
Actual and Projected Enrollment plus and minus Average Error of Estimate

Legend:
- Projected Total Enrollment
- Total Plus Average Error
- Total Minus Average Error
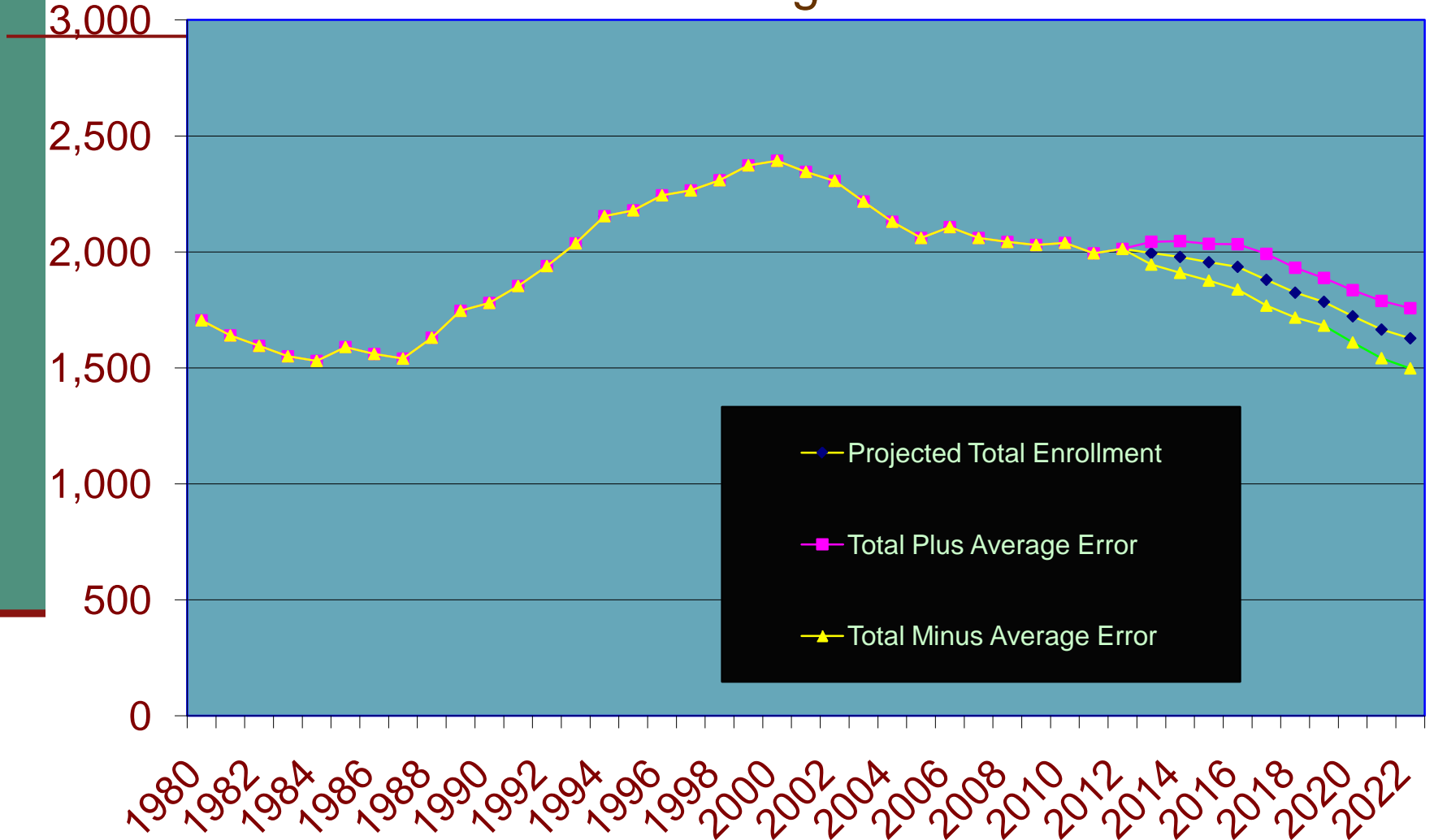
How Do We Know Enrollment Will Decline?

- US Census data shows fewer children living in the district in 2010 than in 1990.

- The number of adults of childbearing age living in the district has declined sharply.

- Lower birth rates statewide, in New England and nationally.

Fewer children are being born and births drive enrollment.

Number of Children in ORCSD
Source: U.S. Census Bureau
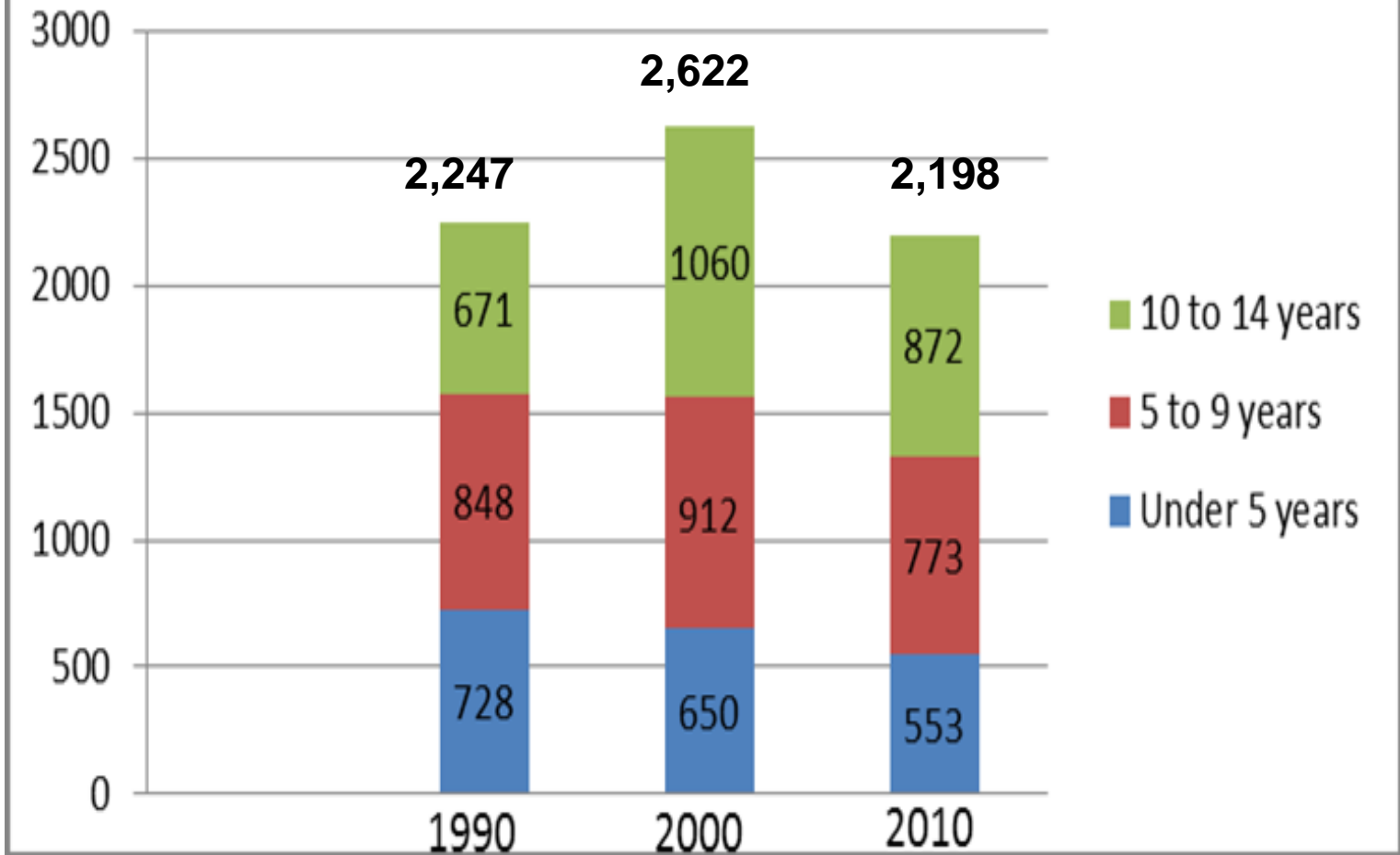
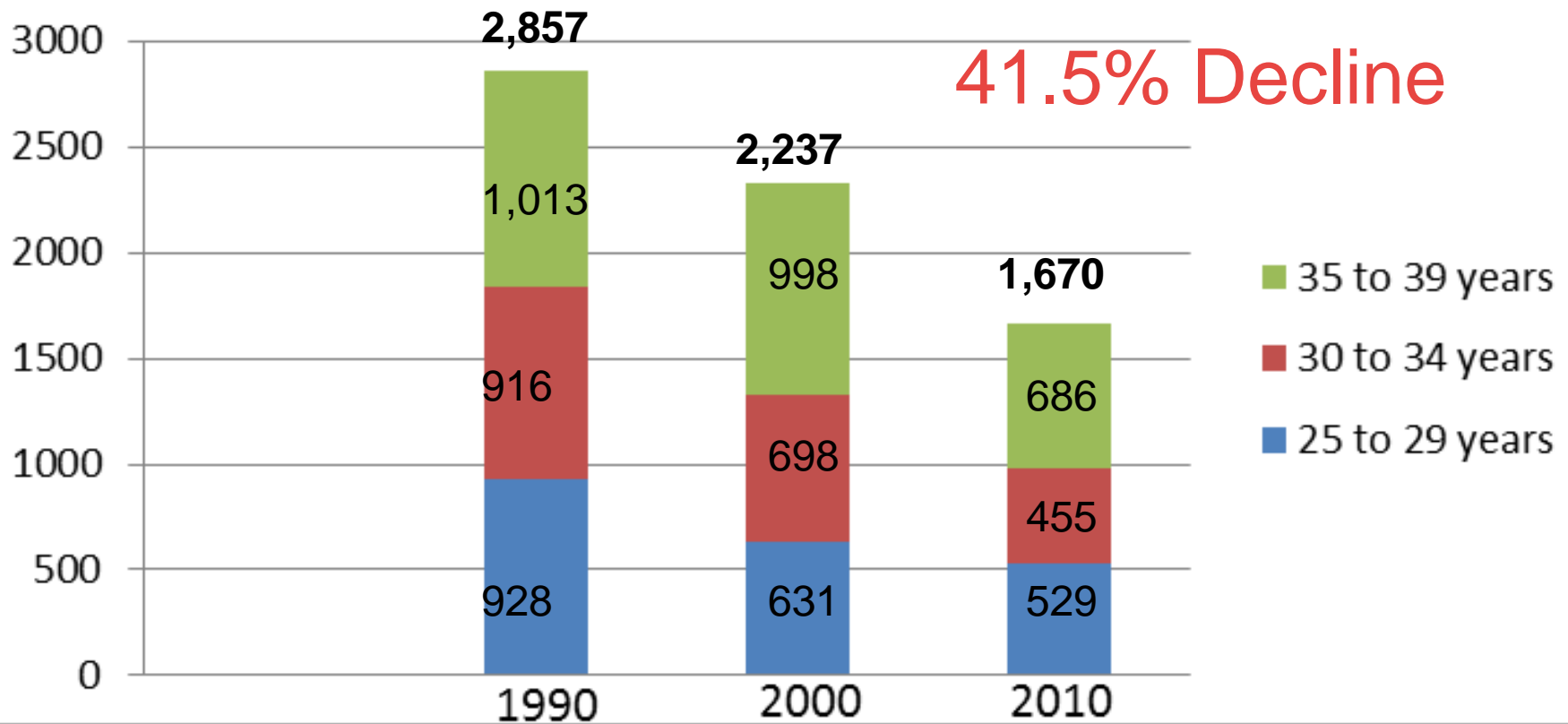# Births after the 2010 Census to Mothers Residing in ORCSD

- 72 from April 1, 2010 to March 31, 2011.

- 69 from April 1, 2011 to March 31, 2012.

Births By Cohort Year (Oct 1 – Sept 30) Drive Enrollment

Births to Mothers Residing in ORCSD					2012	Grade
Year	12 Mos Ending 9/30				Enrollment	Prediction
2000	121					
2001	124					
2002	130	This cohort is currently in Fifth Grade			166	
2003	119					
2004	118					
2005	110					
2006	92	This cohort is currently in First Grade			129	
2007	101					
2008	101					
2009	90	This cohort is in First Grade Sept 2015				126
2010	93					
2011	74	This cohort is in First Grade Sept 2017				104
2012	70					
Source:	*Division of Vital Records Administration*		*New Hampshire Department of State*			

ORCSD Adults in Prime Childbearing Years *Source: Us Census Bureau*

41.5% Decline

Legend:
- 35 to 39 years
- 30 to 34 years
- 25 to 29 years

1990: 2,857 (1,013 / 916 / 928)
2000: 2,237 (998 / 698 / 631)
2010: 1,670 (686 / 455 / 529)

Birth Rates at Historic Lows, Lowest in New England States

- Nationwide, the fertility rate, defined as births per 1,000 women 15-44 years of age, was 64.1 in 2010 and 63.2 in 2011, the lowest ever recorded.

- New Hampshire's fertility rate was the lowest in the nation in 2010 at 51.5 followed by
  Rhode Island 52.1, Vermont 52.6, Maine 53.6 Massachusetts 54.0, Connecticut 54.5.

- All other states had higher fertility rates.

Source: US Department of Health and Human Services

Demographics Drive Decline

- Dramatic Decline in Adults of Childbearing Age, taking account of net move-ins

- Lowest birth rate in the nation in NH and NE

- Confirmed by Actual Dramatic decline in Births over the past 10 years:
  130 in 2002 cohort, 70 in 2012 cohort

Changing Demographics Predicted in Statewide Studies

NH Center for Public Policy (September 2007)

"The population that is school-aged…is now expected to level off and decline slightly by 2020."

Carsey Institute The Changing Faces of New Hampshire: Recent Demographic Trends in the Granite State (2007)

"Between 1990 and 2000, the number of people 25 to 34 in New Hampshire declined by 23 percent… despite a net inflow of young adults during the period" **This is attributed to a "birth dearth" in the 1970s.**

Summary

- **Total ORCSD enrollment is projected to decline significantly, by almost 400 students over 10 years from just over 2,000 in 2012-13 to just over 1,600 in 2022-23.**

- **The number of elementary school students will decrease, with elementary enrollment dropping by about 200 students over 10 years.**

- **Middle school enrollment, now 651, is projected to drop to under 500 by 2022.**

- **High School enrollment, now 671, will rise to about 700, then decline to 630, as the projected number of Barrington tuition students added during the period does not offset the drop in resident students.**

Any Questions?