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McMinnville School District Enrollment Forecasts 2015-16 to 2024-25

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MCMINNVILLE SCHOOL DISTRICT

ENROLLMENT FORECASTS

2015-16 TO 2024-25

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MCMINNVILLE SCHOOL DISTRICT

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2014-15 TO 2024-25

Prepared By

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EXECUTIVE SUMMARY

This report presents the results of a demographic study conducted by the Portland State University Population Research Center (PRC) for the McMinnville School District (MSD). The study includes analysis of population, housing and enrollment trends affecting the District in recent years and forecasts of district-wide enrollments for a ten year period from 2015-16 to 2024-25 and of individual schools for a five year period from 2015-16 to 2019-20.

District-wide Enrollment Trends

- The McMinnville School District (MSD) enrolled 6,613 students in fall 2014, nearly unchanged from the fall 2013 K-12 total of 6,607.

- Kindergarten enrollments in the three school years from fall 2011 to fall 2013 correspond to the three year peak in births between September 2005 and August 2008, and the smaller enrollment of 458 students in fall 2014 reflects the smaller number of births in 2008-09.

- Elementary (grades K-5) enrollment increased in both the 2013-14 and 2014-15 school years, but at 3,021 in fall 2014 remained slightly below its 2008-09 peak.

- Middle school (grades 6-8) enrollment at 1,542 students in fall 2014 was 41 students below its 2013-14 peak.

- High school (grades 9-12) enrollment of 2,050 in fall 2014 was the highest to date, surpassing its previous 2009-10 peak by 16 students.

District-wide Population Forecast

- Our forecast for 2020 population in the MSD is 46,013, an increase of 5,879 persons from the 2010 Census (1.4 percent average annual growth rate, or AAGR).

- School-age population (5 to 17) is forecast increase by 284 persons, a much slower rate (0.4 percent AAGR) than overall population growth.

- In the 2020 to 2030 period, the MSD grows by another 7,099 persons (1.4 percent AAGR), including a 518 person (0.6 percent AAGR) increase in school age population.

District-wide Enrollment Forecast

- The forecast includes higher rates of enrollment growth attributable to net in-migration than in the last seven years, due to the economic recovery and resumed demand for new housing within the District. However, average in-migration rates in the forecast period do not reach the levels observed in the mid-2000s.

- Incoming kindergarten classes throughout the forecast are expected to be smaller than in the recent three year peak from 2011-12 to 2013-14, in spite of a slightly higher "capture rate" due to the attraction of all-day kindergarten.

- Elementary enrollment grows slightly during the first two years of the forecast, and then declines by about 140 students between 2016-17 and 2019-20, due to the recent downturn in births. After 2019-20, elementary growth resumes, reaching 3,113 students by 2024-25.

- Middle school enrollments trend in the opposite direction from elementary enrollments throughout the forecast, falling in the first two years, growing from 2016-17 to 2019-20, and then declining as the smaller birth cohorts reach 6th grade beginning in 2020-21.

- High school enrollment fluctuates during the first five years of the forecast; the 2019-20 forecast of 2,059 students is nearly identical to 2014-15 enrollment. After 2019-20, high school enrollment is forecast to grow significantly, reaching a peak of 2,300 in 2023-24 before falling to 2,251 in 2024-25.

Table 1 compares the historic and forecast growth for the District by five year increment. Chart 1 depicts the District's 10 year K-12 enrollment history and forecast. More detailed forecasts for the District may be found in Table 14 on page 29 of this report.

Table 15 on page 31 of this report presents the enrollment forecasts for each school, grouped by school level (elementary, middle, and high).

Table 1
Historic and Forecast Enrollment
McMinnville School District

	Historic			Forecast	
	2004-05	2009-10	2014-15	2019-20	2024-25
District Total	5,844	6,567	6,613	6,728	6,938
5 year change		723	46	115	210
		12%	1%	2%	3%
K-5	2,726	3,031	3,021	2,963	3,113
5 year change		305	-10	-58	150
		11%	0%	-2%	5%
6-8	1,363	1,502	1,542	1,706	1,574
5 year change		139	40	164	-132
		10%	3%	11%	-8%
9-12	1,755	2,034	2,050	2,059	2,251
5 year change		279	16	9	192
		16%	1%	0%	9%

Population Research Center, PSU. March 2015.

Chart 1
McMinnville S.D. K-12 Enrollment History and Forecast
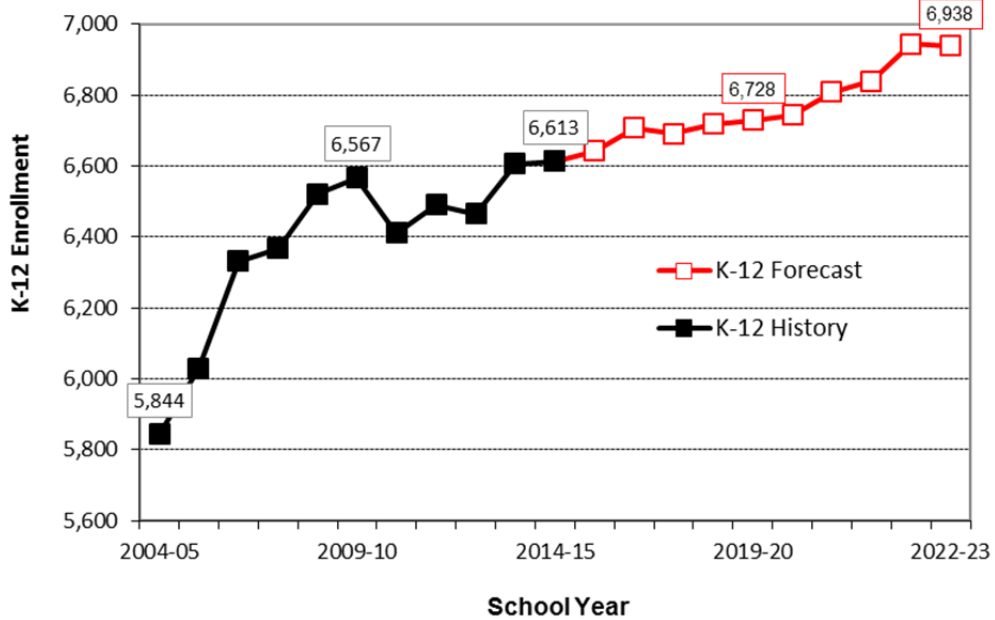
INTRODUCTION

The McMinnville School District (MSD) requested that the Portland State University Population Research Center (PRC) prepare enrollment forecasts for use in the District's long-range planning. The current study integrates information about MSD and updates the work PRC conducted in 2013, providing a snapshot of demographic, housing, and school enrollment patterns and trends. District-wide forecasts are presented for a ten year period from 2015-16 to 2024-25 and individual school forecasts for a five year period from 2015-16 to 2019-20.

In the next few sections, overviews of the local area population, housing and economic trends, and MSD enrollment history will be presented. Next, the methodology for the district-wide and individual school enrollment forecasts will be described; followed by the forecast results. The final section contains a brief discussion of the nature and accuracy of forecasts.

The District serves the Cities of McMinnville and Lafayette in Yamhill County as well as unincorporated areas surrounding McMinnville. The City of McMinnville accounted for 80.2 percent and the City of Lafayette accounted for 9.3 percent of the district's population in 2010. The District is located entirely within Yamhill County.

A wide range of information specific to the district and its surrounding area was gathered for use in this demographic study. Data sources include: enrollment information from the MSD, demographic and housing data from the U.S. Census Bureau, birth data from the Oregon Center for Health Statistics, city and county population estimates produced by PRC, city and county population forecasts from PRC, and housing development information from the cities and counties.

POPULATION, HOUSING, AND EMPLOYMENT TRENDS

During the decade between 2000 and 2010, total population within the MSD grew by 21 percent, from 33,106 persons to 40,134. The MSD's share of County population has grown from 35 percent in 1990 to 39 percent in 2000 and then to 40 percent in 2010. In each of the last two decades more than half of the County's growth has occurred within the District. The two incorporated cities of McMinnville and Lafayette now contain about 90 percent of the District's population; fewer than 10 percent of District residents live in unincorporated Yamhill County. Table 2 shows that average annual growth rates for the Cities of McMinnville, Lafayette, and Yamhill County between 2010 and 2014 have been significantly lower than in the 2000s.

Table 2 City, County, and School District Population					
				Avg. Annual Growth Rate	
	2000	2010	2014	2000-2010	2010-2014
MSD Total*	33,106	40,134	N/A	1.9%	--
City of McMinnville	26,499	32,187	32,705	2.0%	0.4%
City of Lafayette	2,586	3,742	3,825	3.8%	0.5%
MSD Unincorporated	4,021	4,205	N/A	0.4%	--
Yamhill County	84,992	99,193	102,525	1.6%	0.8%

*Note: District population determined by PSU-PRC based on aggregation of census blocks within the MSD boundary shapefiles. The 2010 MSD population published by the Census Bureau is 39,623.

Sources: U.S. Census Bureau, 2000 and 2010 censuses aggregated to MSD boundary by PSU Population Research Center; Portland State University Population Research Center, July 1, 2014 estimates.

Yamhill County total employment in 2014 had finally returned to its 2007 peak. The county lost over 2,000 jobs between 2007 and 2010, and took four years to recover to its pre-recession employment level.[1] The county's unemployment rate rose from 5.0 percent in 2007, slightly higher than the U.S. rate of 4.6 percent, to 11.4 percent in 2009. The most recent annual Yamhill County rate of 5.9 percent in January 2015 was close to the nation's 5.7 percent rate.[2]

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[1] "Current Employment by Industry," Oregon Employment Department. Average annual non-farm employment in Yamhill County was 31,600 in 2007, 29,460 in 2010, and 31,630 in 2014.

[2] "Employment in In Yamhill County: January 2015," Oregon Employment Department; Labor Force Statistics from the Current Population Survey, Bureau of Labor Statistics, U.S. Department of Labor.

The Oregon Employment Department offered this assessment of Yamhill County employment growth in March 2015:

> Employment growth during the last 12 months in Yamhill County has been led by gains in the private sector. From January 2014 to January 2015, the private sector gained 360 jobs, and the public sector gain 270. Manufacturing led employment growth over the year, adding 330 jobs. Employment gains in the public sector were lead by local government. Yamhill County's seasonally adjusted unemployment rate has declined over the year, the rate is the lowest it has been since July 2008. From October 2007 (Yamhill County's pre-recession non-seasonally adjusted employment peak) to January 2015 Yamhill County's employment levels are much like Oregon's employment levels: currently at or near to its pre-recession peak. [3]

Housing Growth

The 2010 Census data showed that the number of housing units within the MSD increased by 3,260 (27 percent) between 2000 and 2010. The numeric increase was nearly as large as the 3,559 unit increase in the 1990s. The number of households (occupied housing units) increased at a slower rate each decade, so vacancy rates increased. Table 3 presents housing and household characteristics for MSD compiled from the decennial censuses of 1990, 2000, and 2010.

Table 3 McMinnville School District Housing Units, 1990, 2000, and 2010			
	1990	**2000**	**2010**
Housing Units	8,589	12,148	15,408
10 year change		*3,559* *41%*	*3,260* *27%*
Occupied Housing Units	8,351	11,540	14,477
10 year change		*3,189* *38%*	*2,937* *25%*
Vacant Housing Units	238	608	931
Vacancy rate	*2.8%*	*5.0%*	*6.0%*

Source: U.S. Census Bureau, 1990, 2000, and 2010 Censuses; data aggregated to MSD boundary by Population Research Center, PSU.

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[3] "Mid-Valley Economic Indicators—Yamhill County." Oregon Employment Department, March 18, 2015.

Residential building permit activity within the City of McMinnville and City of Lafayette in each of the past 15 years is presented in Table 4. Development was brisk in the early and mid-2000s, but fell precipitously after 2007, consistent with the economic downturn that depressed the demand for housing throughout Oregon and the U.S. Signs of a recovery were evident in 2013, when both McMinnville and Lafayette issued their largest number of permits for single family homes since 2007. Development accelerated in McMinnville in 2014, with permits issued for 108 single family homes and the 75 unit Lafayette Place Apartments now nearing completion in the Grandhaven Elementary area.[4]

Table 4
Housing Units Authorized by Building Permits
Cities of McMinnville and Lafayette

Year Permit Issued	City of McMinnville		City of Lafayette	
	Single Family	Multiple Family	Single Family	Multiple Family
2000	140	231	N/A	N/A
2001	187	62	7	0
2002	232	72	66	0
2003	265	24	41	0
2004	258	56	18	0
2005	202	139	114	0
2006	189	0	107	0
2007	181	66	54	0
2008	75	80	10	0
2009	63	2	4	0
2010	56	3	2	0
2011	44	36	12	0
2012	46	2	5	0
2013	77	0	22	0
2014	108	75	21	0

Sources: Annual Permit Report, City of McMinnville
(at http://www.ci.mcminnville.or.us/city/departments/building-division-reports/);
U.S. Census Bureau, Residential Construction Branch
(at http://censtats.census.gov/bldg/bldgprmt.shtml).

In the first two and a half months of 2015, McMinnville has issued permits for about 25 single family homes, including homes in all six of the MSD's elementary attendance areas. The

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[4] Lafayette Place will have 24 one bedroom and 51 two bedroom apartments. A second phase with 57 additional units is also planned.

Columbus (nine homes) and Grandhaven (seven homes) attendance areas account for the majority of these.[5]   Most of the current homebuilding is occurring on remaining lots in subdivisions platted several years ago during the housing boom. Construction has also begun in more recent subdivisions, the 30 lot Chegwyn Meadows (Grandhaven Elementary) and Habitat for Humanity's 35 lot Aspire subdivision (Buel Elementary).

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[5] Information from City of McMinnville, Building Division Reports, at
http://www.ci.mcminnville.or.us/city/departments/building-division-reports/.

ENROLLMENT TRENDS

The McMinnville School District (MSD) enrolled 6,613 students in fall 2014, nearly unchanged from the fall 2013 K-12 total of 6,607. These most recent two years set new records for district-wide enrollment, surpassing the previous peak in 2009-10. Not all grade levels have attained new heights, however. Kindergarten enrollment of 458 students in fall 2014 was significantly lower than in each of the previous three years. Elementary (grades K-5) enrollment increased in both the 2013-14 and 2014-15 school years, but at 3,021 in fall 2014 remained slightly below its 2008-09 peak. Middle school (grades 6-8) enrollment at 1,542 students in fall 2014 was 41 students below its 2013-14 peak. High school (grades 9-12) enrollment of 2,050 in fall 2014 surpassed its previous 2009-10 peak by 16 students.

Table 5 summarizes the enrollment history for the District by grade level annually from 2004-05 to 2014-15. The five year changes at the bottom of the table show the contrast between two very different periods, 2004-05 to 2009-10, when the District had net growth of 723 students, and 2009-10 to 2014-15, when the District added just 46 students.

In addition to long term trends including lower fertility rates and an aging population, recent slower enrollment growth can be attributed to job losses suffered during the recent recession and the slow recovery, which has resulted in much smaller than normal in-migration levels. Also, the MSD experienced a net loss of students to neighboring districts due to Oregon's new open enrollment policy.

Table 5

McMinnville School District, Enrollment History, 2004-05 to 2014-15

Grade	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
K	460	448	502	459	487	460	440	510	503	506	458
1	435	480	482	528	497	485	463	437	531	525	537
2	451	458	510	498	541	514	479	487	431	544	530
3	457	463	483	516	505	537	509	477	495	455	545
4	446	476	485	496	522	514	528	514	460	494	446
5	477	451	487	475	485	521	514	523	520	468	505
6	435	511	481	486	515	500	522	521	511	527	482
7	464	446	539	478	489	502	491	515	524	542	526
8	464	458	456	529	488	500	482	503	521	514	534
9	453	475	488	470	546	497	490	487	500	537	497
10	447	459	477	483	463	542	481	492	479	497	540
11	425	459	446	465	455	470	516	465	477	472	479
12	430	446	496	484	528	525	496	559	513	525	534
Total	**5,844**	**6,030**	**6,332**	**6,367**	**6,521**	**6,567**	**6,411**	**6,490**	**6,465**	**6,606**	**6,613**
Annual change		*186*	*302*	*35*	*154*	*46*	*-156*	*79*	*-25*	*141*	*7*
		3.2%	*5.0%*	*0.6%*	*2.4%*	*0.7%*	*-2.4%*	*1.2%*	*-0.4%*	*2.2%*	*0.1%*
K-5	2,726	2,776	2,949	2,972	3,037	3,031	2,933	2,948	2,940	2,992	3,021
6-8	1,363	1,415	1,476	1,493	1,492	1,502	1,495	1,539	1,556	1,583	1,542
9-12	1,755	1,839	1,907	1,902	1,992	2,034	1,983	2,003	1,969	2,031	2,050

	5 Year Change: 2004-05 to 2009-10		5 Year Change: 2009-10 to 2014-15		10 Year Change: 2004-05 to 2014-15	
	Change	Pct.	Change	Pct.	Change	Pct.
K-5	305	*11%*	-10	*0%*	295	*11%*
6-8	139	*10%*	40	*3%*	179	*13%*
9-12	279	*16%*	16	*1%*	295	*17%*
Total	**723**	***12%***	**46**	***1%***	**769**	***13%***

Sources: Oregon Department of Education; MSD

Private and Home School Enrollment, Transfers, and District "Capture Rate"

Several small private schools operate in McMinnville, but they may enroll students from beyond the District, and MSD residents may attend private schools outside of the District's boundaries. The best source for private school enrollment by residence is census household survey data. The Census Bureau's American Community Survey (ACS) includes questions about school enrollment by level and by type (public or private). The ACS estimate from MSD households surveyed between 2011 and 2013, indicates that only 4.2 percent (+/-2.3 percent) of MSD K-12 residents are enrolled in private schools (Table 6).

Table 6 **School Enrollment by Type of School** *Residents of McMinnville School District* *Census Data, 2011-2013*		
	2011-13	
	estimate	**MOE***
Enrolled in 1st-12th grade	7,004	*+/-779*
Public Schools	6,710	*+/-789*
Private Schools	294	*+/-158*
Private Share	*4.2%*	*+/- 2.3%*
Enrolled in 1st-8th grade	4,944	*+/-651*
Public Schools	4,735	*+/-664*
Private Schools	209	*+/-144*
Private Share	*4.2%*	*+/- 3.0%*
Enrolled in 9th-12th grade	2,060	*+/-428*
Public Schools	1,975	*+/-427*
Private Schools	85	*+/-66*
Private Share	*4.1%*	*+/- 3.3%*

*Margin of sampling error at the 90 percent confidence level.

Source: 2011-2013 American Community Survey 3 year estimates, Table C14002 (tabulated for MSD area by Census Bureau).

Another difference between MSD enrollment and school-age population can be attributed to home schooling. Home schooled students living in the District are required to register with the Willamette Education Service District (WESD). In March 2015 there were 276 MSD residents in the home school registry. In reports from the past five years the number has ranged from a low of 266 to a high of 312. Home schooling accounts for about four percent of MSD school-age residents.

For purposes of forecasting enrollment, the ratios of kindergarten and first grade public school enrollment to overall population in the corresponding ages are very important. These ratios are called "capture rates." Once a student is enrolled in the public schools in first grade, it is very likely that they will continue to be enrolled in subsequent grades, unless their family moves out of the District. We compared MSD kindergarten and 1st grade enrollment in 1999-00 and 2000-01 to the 2000 Census and in 2009-10 and 2010-11 to the 2010 Census, finding that 80 to 82 percent of the kindergarten-age population and 85 to 87 percent of the 1st grade age population were enrolled in MSD schools. That means that about 18 percent of kindergarten-age children and 13 percent of first grade age children were not enrolled in MSD schools. These children include students who were enrolled in private schools or charter schools, net transfers to and from other public school districts, home schooled students, or children not yet attending school, since school is not compulsory until age seven.

Inter-District Transfers

In each of the past several years the MSD has had a net loss of students due to inter-district transfers, as there have been fewer students from other public school districts transferring into the District than District residents transferring out. In the years before 2012-13, there were nearly 100 more MSD residents enrolled in other districts than residents of other districts enrolled in MSD. During this period, state policy prescribed that students who wanted to attend a public school outside their resident district had to gain approval from their home district and from the district that they wanted to attend, and that approval had to be renewed each year.

Although inter-district transfers may still be granted under the old policy, Oregon adopted a new open enrollment policy in 2012, under which students may transfer without approval of their home district to a district that designates available spaces at its schools. In 2012-13, there was a net loss of 160 K-12 students through a combination of open enrollment and inter-district transfers, as shown in Table 7. The number of additional MSD residents admitted to other districts has been smaller in the past two years than in 2012-13, but students admitted in earlier years can remain at other districts without reapplying. Therefore, the total number of MSD residents enrolled in other districts may still be increasing. The three largest recipients of MSD residents during the three years of the open enrollment policy have been the Amity, Dayton, and Yamhill-Carlton School Districts.

Table 7					
Inter-District Transfers and Open Enrollment					
	Into MSD		Out of MSD		
	Inter-District	Open Enrollment	Inter-District	Open Enrollment	Net
2011-12					
K-5	22	--	58	--	-36
6-8	8	--	30	--	-22
9-12	32	--	72	--	-40
Net	**62**	**0**	**160**	**0**	**-98**
2012-13					
K-5	22	0	28	54	-60
6-8	11	0	20	33	-42
9-12	33	4	47	48	-62
Net	**66**	**4**	**95**	**135**	**-160**
2013-14					
K-5	20	0	45	16	-41
6-8	16	0	19	6	-9
9-12	22	3	61	18	-57
Net	**58**	**3**	**125**	**40**	**-107**
2014-15					
K-5	29	0	18	37	-26
6-8	12	0	13	15	-16
9-12	36	3	35	37	-36
Net	**77**	**3**	**66**	**89**	**-78**

Source: McMinnville School District

Neighboring Districts

Table 8 displays several facts about MSD demographic and enrollment trends in comparison to three other nearby Yamhill County school districts. The MSD had the largest population growth among the four districts in the 2000s, and is the only district with enrollment growth in each of the three periods shown in the table. The school-age share of the MSD's total population remained steady at 19 percent in both 2000 and 2010, while the other three districts all experienced declining school-age shares. Amity and Dayton have reversed their enrollment losses in part due to their open enrollment policies.

Table 8
Selected Yamhill County School Districts
Demographic and Enrollment Highlights, 2000 to 2014

	Amity	Dayton	McMinnville	Newberg
Enrollment growth, **2000-01 to 2005-06**	-5%	4%	11%	6%
Enrollment growth, **2005-06 to 2010-11**	-6%	-8%	6%	1%
Enrollment growth, **2010-11 to 2014-15**	13%	3%	3%	-2%
Grades 9-12 enrollment, **2014-15**	36%	34%	31%	31%
Latino enrollment, **2014-15**	15%	39%	34%	20%
Population growth, **2000 to 2010**	4%	12%	21%	17%
Population age 5 to 17, **2000**	24%	25%	19%	20%
Population age 5 to 17, **2010**	19%	21%	19%	18%
Population under age 5, **2000**	6.3%	6.6%	7.3%	7.2%
Population under age 5, **2010**	5.9%	7.5%	7.1%	6.2%
Population rural, **2010**	100.0%	39.7%	9.8%	20.4%

Data assembled by Population Research Center, PSU, from several sources: U.S. Census Bureau; McMinnville S.D.; OR Dept. of Education; U.S. Dept. of Education.

Enrollment Trends at Individual Schools

Attendance area boundaries for the District's schools have remained unchanged since 2009. Therefore, the annual enrollment totals for individual elementary and middle schools shown in Table 9 represent stable boundaries and grade configurations, and are comparable from year to year.

While enrollments have fluctuated, the five year net change from 2009-10 to 2014-15 was relatively small at most of the schools, with Duniway Middle School's increase of 79 students (11.5 percent) standing out as the only gain or loss exceeding 40 students or 10 percent.

Among elementary schools, Grandhaven's gain of 30 students (5.8 percent) and Newby's gain of 36 students (7.5 percent) were the only net increases over the five year period. However, neither school grew in the most recent year, between 2013-14 and 2014-15, while three other elementary schools did grow, most significantly Buel (23 students) and Memorial (16 students). Wachser remains the MSD's smallest elementary school with 382 students; the other five now have total enrollments in a relatively narrow range between 511 and 551 students.

Middle schools are often subject to large annual fluctuations, due to only having three grades. A relatively small incoming 6th grade class can cause the 6th-8th grade total to fall. That occurred at Patton in 2014-15, where most of the 52 student net loss was attributable to the 2014-15 6th grade class being much smaller than the 2013-14 8th grade class.

Enrollment in the District's high school programs declined by 65 students between 2009-10 and 2012-13, but has rebounded since, adding 81 students in the most recent two years and surpassing its previous peak enrollment.

Table 9

Enrollment History for Individual Schools, 2009-10 to 2014-15

School	Historic Enrollment						Change 2009-10 to 2014-15	
	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Number	Percent
Buel Elementary	543	509	492	527	504	527	-16	-2.9%
Columbus Elementary	524	514	501	508	508	511	-13	-2.5%
Grandhaven Elementary	521	496	534	532	557	551	30	5.8%
Memorial Elementary	545	525	527	492	520	536	-9	-1.7%
Newby Elementary	478	492	494	507	516	514	36	7.5%
Wascher Elementary	420	397	400	374	387	382	-38	-9.0%
Elementary Totals	**3,031**	**2,933**	**2,948**	**2,940**	**2,992**	**3,021**	**-10**	***-0.3%***
Duniway Middle School	684	698	759	752	752	763	79	11.5%
Patton Middle School	818	797	780	804	831	779	-39	-4.8%
Middle School Totals	**1,502**	**1,495**	**1,539**	**1,556**	**1,583**	**1,542**	**40**	***2.7%***
McMinnville High School	1,765	1,745	2,003	1,969	2,031	2,050	--	--
MACA	269	238	--	--	--	--	--	--
High School Totals	**2,034**	**1,983**	**2,003**	**1,969**	**2,031**	**2,050**	**16**	***0.8%***
District Totals	**6,567**	**6,411**	**6,490**	**6,465**	**6,606**	**6,613**	**46**	***0.7%***

Source: McMinnville School District.

ENROLLMENT FORECASTS

District-wide Long-range Forecast Methodology

To ensure that enrollment forecasts are consistent with the dynamics of likely population growth within the District, we combine the grade progression enrollment model with a demographic cohort-component model used to forecast population for the District by age and sex. The components of population change are births, deaths, and migration. Using age-specific fertility rates, age-sex specific mortality rates, age-sex specific migration rates, estimates of recent net migration levels, and forecasts of future migration levels, each component is applied to the base year population in a manner that simulates the actual dynamics of population change.

The 2000 and 2010 Census results were used as a baseline for the population forecasts. By "surviving" the 2000 population and 2000s births (estimating the population in each age group that would survive to the year 2010) and comparing the "survived" population to the actual 2010 population by age group, we were able to estimate the overall level of net migration between 2000 and 2010 as well as net migration by gender and age cohort. The net migration data was used to develop initial net migration rates, which were used as a baseline for rates used to forecast net migration for the 2010 to 2030 period.

We estimated the number of births to women residing within the District each year from 1999 to 2013, using data from the Oregon Health Authority, Center for Health Statistics. Detailed information including the age of mothers is used to calculate fertility rates by age group for both 2000 and 2010.

The 2010 age-specific fertility rates for the MSD, Yamhill County, and the State of Oregon are shown in Chart 2. MSD age-specific fertility rates for women under 25 years old are similar to those of the County and of the State. The rates for women 25 years old to 29 years old were higher for the MSD and Yamhill County than for the State. Fertility rates for MSD women 30 and over are similar to both the County and the State.

Chart 2
Age-Specific Fertility Rates, 2010
MSD, Yamhill County, & Oregon
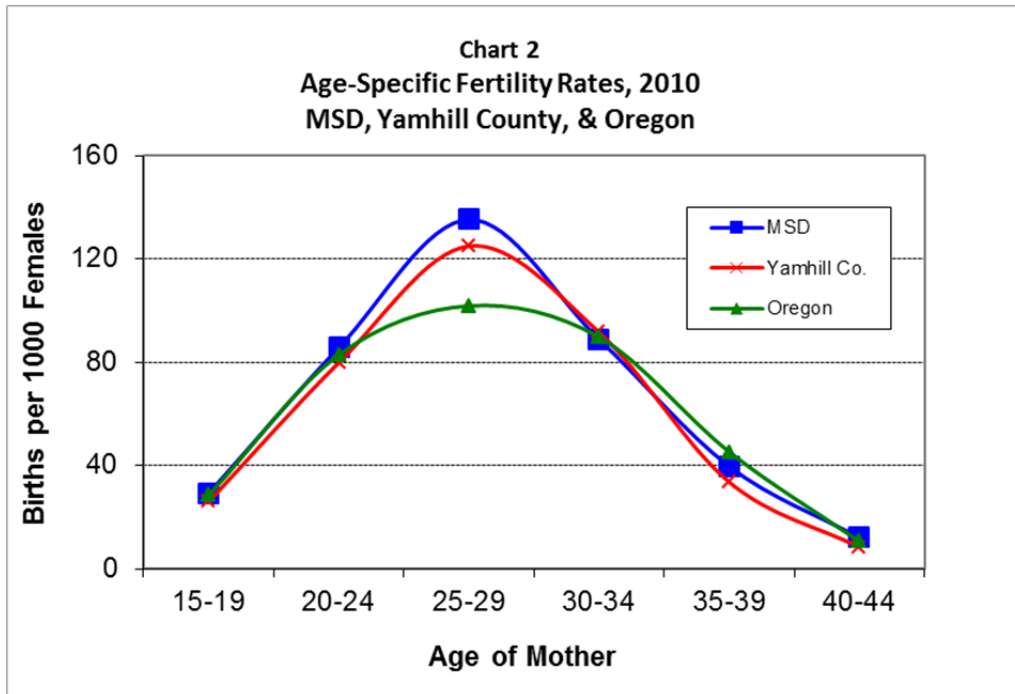
The total fertility rate (TFR) is another measure of fertility; it is an estimate of the number of children that would be born to the average woman during her child-bearing years based on age-specific fertility rates observed at a given time. The estimated TFR for the District decreased from 2.12 in 2000 to 1.84 in 2010. Similarly, drops in TFRs were observed in Yamhill County and the State during the past decade. In 2000, the TFRs were 2.12 for Yamhill County and 1.98 for the State; while in 2010, the TFRs were 1.82 for Yamhill County and 1.79 for the State.

Long-term state and national long term trends indicate declining fertility rates for women under 30 and increasing rates for women 30 and over, but fertility rates in 2010 were unusually low due to the poor economy. [6] Birth totals fell more than eight percent in the U.S. and Oregon between 2007 and 2011, and remained near their 2011 level in both 2012 and 2013. Nationally, fertility rates were at a record low in 2013.[7] Most of the decline occurred between 2007 and 2010, particularly among Mexican immigrant women, whose birth totals declined by 23

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[6] "In a Down Economy, Fewer Births." Pew Research Center, Pew Social & Demographic Trends, October 2011; "America's Baby Bust." Washington Post, July 21, 2014.

[7] *Births: Preliminary Data for* 2013. National Center for Health Statistics, National Vital Statistics Reports, Volume 63, Number 2; *Oregon Birth Data,* Oregon Health Authority, Center for Health Statistics.

percent.[8] In these forecasts, birth rates for women age 30 and older increase slightly from 2010 rates, but rates for women under age 20 continue to decline, resulting in no change to the 2010 TFR of 1.84.

Table 10 shows historic births from 2000 to 2013 as well as forecasts from 2014 until 2019, the period that will have an impact on the enrollment forecasts presented in this study. As in Oregon and the U.S., the number of births in MSD has fallen from its 2007 peak, coinciding with the economic downturn. The 2013 birth total was the lowest since 1997. However, births are forecast to increase slightly, attributable mostly to overall population growth.

Table 10
Estimated and Forecast Births
McMinnville School District

Year	Births
2000	509
2001	508
2002	519
2003	542
2004	543
2005	525
2006	594
2007	612
2008	577
2009	542
2010	488
2011	516
2012	488
2013	473
2014 (forecast)	509
2015 (forecast)	514
2016 (forecast)	520
2017 (forecast)	526
2018 (forecast)	531
2019 (forecast)	537

Source: 2000-2013 birth data from Oregon Center for Health Statistics allocated to MSD boundary by PSU-PRC. 2014-2019 forecasts, PSU-PRC.

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[8] "U.S. Birth Rate Falls to a Record Low; Decline Is Greatest Among Immigrants." Pew Research Center, Pew Social & Demographic Trends, November 2012.

Historic school enrollment is linked to the population forecast in two ways. First, the kindergarten and first grade enrollments at the time of the most recent census (the 2009-10 school year) are compared to the population at the appropriate ages counted in the census. The "capture rate," or ratio of enrollment to population, is an estimate of the share of area children who are enrolled in MSD schools. Assumptions for capture rates based on census data are used to bring new kindergarten and first grade students into the District's enrollment.

The other way that historic population and enrollment are linked is through migration. Annual changes in school enrollment by cohort closely follow trends in the net migration of children in the District's population. Once the students are in first grade, a set of baseline grade progression rates (GPRs) is used to move students from one grade to the next. Grade progression rates are the ratio of enrollment in an individual grade to enrollment in the previous grade the previous year. Baseline rates, usually 1.00 for elementary grades, represent a scenario under which there is no change due to migration. Enrollment change beyond the baseline is added (or subtracted, if appropriate) at each grade level depending on the migration levels of the overall population by single years of age.

Population Forecast

Census data shows that the District added about 7,000 residents in the 2000s. About two thirds of the growth was due to positive net migration (more people moving in than moving out). Natural increase (births minus deaths) also contributed to population growth during the decade. Growth due to net migration is forecast to be about the same in the 2010 to 2020 period as in the 2000 to 2010 period. However, natural increase is slowing due to an aging population and lower fertility. By 2030, net migration will account for all of the District's population growth, as natural increase will be close to zero. Chart 3 shows the 2000 to 2010 estimate and 2010 to 2030 forecasts of MSD population growth attributable to net migration.

Chart 3
Net Migration, 2000 to 2030, McMinnville S.D.
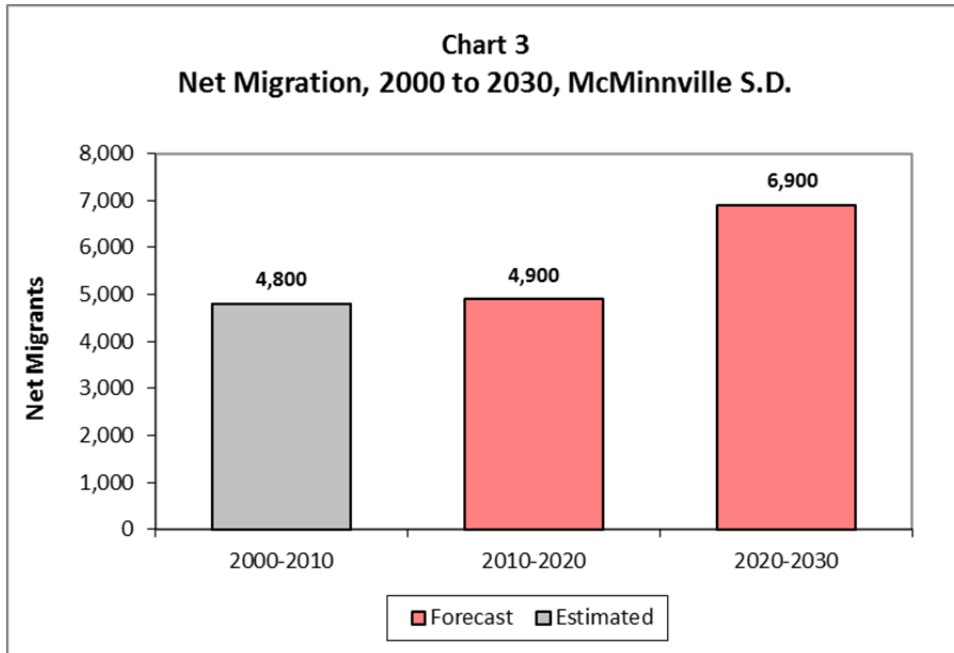
District-wide population by age group is presented in Table 11. The forecast for 2020 population in the MSD is 46,013, an increase of 5,879 persons from the 2010 Census (1.4 percent average annual growth rate, or AAGR). School-age population (5 to 17) is forecast to increase by 284 persons, a much slower rate (0.4 percent AAGR) than overall population growth. As a result, the share of population age 5-17 is expected to drop from 18.6 percent in 2010 to 16.8 percent in 2020. By 2020, the fastest growing age groups are the "baby boom" generation that will be in its 60s and 70s. In the 2020 to 2030 period, the MSD grows by another 7,099 persons (1.4 percent AAGR), including a 518 person (0.6 percent AAGR) increase in school age population.

Table 11
Population by Age Group, History and Forecast
McMinnville School District, 2000 to 2030

	2000 Census	2010 Census	2020 Forecast	2030 Forecast	2010 to 2030 Change Number	2010 to 2030 Change Percent
Under Age 5	2,445	2,864	2,755	3,065	201	*7%*
Age 5 to 9	2,483	2,850	2,789	3,131	281	*10%*
Age 10 to 14	2,420	2,921	3,165	3,212	291	*10%*
Age 15 to 17	1,451	1,693	1,794	1,924	231	*14%*
Age 18 to 19	1,410	1,527	1,857	1,778	251	*16%*
Age 20 to 24	2,981	3,080	3,556	3,885	805	*26%*
Age 25 to 29	2,102	2,433	2,740	3,257	824	*34%*
Age 30 to 34	2,229	2,511	2,599	3,155	644	*26%*
Age 35 to 39	2,282	2,457	2,758	3,213	756	*31%*
Age 40 to 44	2,292	2,470	2,719	2,907	437	*18%*
Age 45 to 49	2,154	2,443	2,588	2,989	546	*22%*
Age 50 to 54	1,828	2,477	2,615	2,993	516	*21%*
Age 55 to 59	1,393	2,422	2,666	2,940	518	*21%*
Age 60 to 64	1,057	2,119	2,760	3,031	912	*43%*
Age 65 to 69	1,059	1,676	2,696	3,043	1,367	*82%*
Age 70 to 74	1,060	1,239	2,233	2,885	1,646	*133%*
Age 75 to 79	1,047	1,019	1,542	2,443	1,424	*140%*
Age 80 to 84	753	891	999	1,746	855	*96%*
Age 85 and over	660	1,042	1,182	1,515	473	*45%*
Total Population	**33,106**	**40,134**	**46,013**	**53,112**	**12,978**	***32%***
Total age 5 to 17	6,354	7,464	7,748	8,267	803	*11%*
share age 5 to 17	*19.2%*	*18.6%*	*16.8%*	*15.6%*		

		2000-2010	2010-2020	2020-2030
Population Change		**7,028**	**5,879**	**7,099**
Percent		*21%*	*15%*	*15%*
Average Annual		*1.9%*	*1.4%*	*1.4%*

Source: U.S. Census Bureau, 2000 and 2010 Censuses; data aggregated to MSD boundary by Portland State University Population Research Center. PSU-PRC Forecasts, 2020 and 2030.

Population forecasts for the District are consistent with the coordinated county and city forecasts that were adopted by Yamhill County in November, 2012, though our most recent forecast for MSD is slightly lower than the County forecast due to two additional years of growth that has been below historic averages. The average annual growth rates for the District are lower than the rates for the Cities of McMinnville and Lafayette, because the District includes unincorporated areas, which are expected to grow more slowly than the cities. The comparison between the county, cities, and school district population growth rates is provided in Table 12.

Table 12

Comparison of Population Growth Rates

Yamhill County, Cities, and McMinnville S.D.

Area	Average Annual Growth Rates			
	1990 to 2000 Historic	**2000 to 2010 Historic**	**2010 to 2020 Forecast***	**2020 to 2030 Forecast***
Yamhill County[1]	2.6%	1.6%	1.5%	1.5%
City of McMinnville[1]	4.0%	2.0%	1.6%	1.9%
City of Lafayette[1]	7.2%	3.8%	1.6%	2.0%
Unincorp. Yamhill Co.[1]	1.3%	-0.5%	0.4%	0.0%
McMinnville S.D.[2]	1.8%	1.9%	1.4%	1.4%

Note: Forecasts for the City of McMinnville include the city and its current urban growth boundary (UGB); forecasts for the county's unincorporated areas exclude portions within current UGBs.

1. Census data, 1990, 2000, and 2010; growth rates for 2010 to 2030 from "Population Forecasts for Yamhill County, its Cities and Unincorporated Area 2011-2035." Population Research Center, College of Urban and Public Affairs, Portland State University, October 2012.

2. McMinnville School District Population Forecast, PSU, Population Research Center, March 2015.

District-wide Enrollment Forecast

These enrollment forecasts rely primarily on input from three general sources of information: births, recent enrollment history, and assumptions about future migration by sex and age group. In the model used to produce the forecast, we base assumptions about future migration levels on recent migration trends and recent city and county forecasts.

Kindergarten enrollment is influenced by migration between birth and age five as well as the District's capture rate. Kindergarten capture rates in the forecast are 0.85, higher than recent rates due the attraction of full day kindergarten being implemented in 2015-16. First grade capture rates remain at 0.87, similar to rates observed at the time of the 2010 Census.

Chart 4 compares the historic and forecast number of births in the District with the historic and forecast number of MSD kindergarten students. The trend in kindergarten enrollment generally follows birth cohort (September to August) trends. For example, the peak kindergarten enrollments in the three school years from fall 2011 to fall 2013 correspond to the three year peak in births between September 2005 and August 2008, and the smaller enrollment in fall 2014 reflects the smaller number of births in 2008-09. However, external factors, such as

migration of children into and out of the District between birth and age five and private school enrollment or inter-district transfers, can alter the relationship between lagged births and kindergarten enrollment. The ratio of fall 2014 MSD kindergarten enrollment to 2008-09 births was 0.86, slightly higher than the kindergarten capture rate, suggesting that net in-migration of young children in the past five years has been positive, but small.

Chart 4
MSD Birth Cohorts and Kindergarten Enrollment
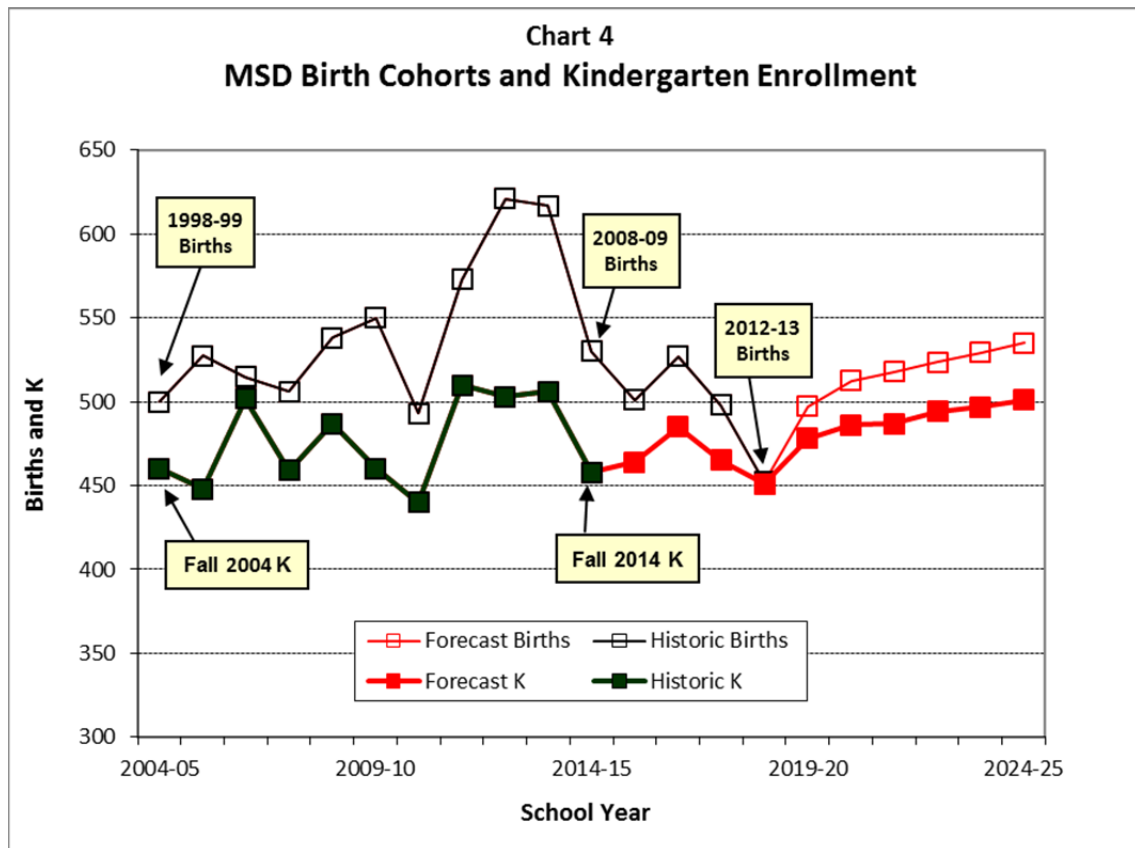
The district-wide enrollment forecasts for 2nd through 12th grade rely on migration rates and baseline GPRs, as described in the methodology section. For context, GPRs computed from the enrollment forecasts averaged over the 10 year horizon are compared in Table 13 with rates from two distinct historic periods. GPRs for individual grades can fluctuate from year to year due families moving in or out of the District. The K-1st transition may be influenced by students entering the District from private kindergartens, but movement into and out of other elementary grades for reasons other than family mobility is minimal. Therefore, elementary GPRs higher than 1.00 when averaged over several years, or grouped in several grades, usually indicate a pattern of net in-migration.

In both historic periods shown in Table 13, average GPRs for all elementary and middle school grades are at or above 1.00. However, the rates show slower growth attributable to migration during and after the recession, when compared with the rapid growth of the early to mid-2000s. The forecast includes higher average GPRs than in the last seven years, due to the economic recovery and resumed demand for new housing within the District. However, average GPRs in the forecast period do not reach the levels observed in the mid-2000s.

	Table 13 Grade Progression Rates[1] McMinnville S.D. History and Forecast			
Grade Transition	3 Year Average: 2004-05 to 2007-08	7 Year Average: 2007-08 to 2014-15	Baseline (without the influence of migration)	Forecast Average: 2014-15 to 2024-25
K-1	1.06	1.03	--[2]	1.04
1-2	1.05	1.02	1.00	1.02
2-3	1.03	1.01	1.00	1.01
3-4	1.04	1.00	0.99	1.01
4-5	1.00	1.00	1.00	1.02
5-6	1.05	1.02	1.00	1.01
6-7	1.02	1.00	1.00	1.01
7-8	1.00	1.00	0.995	1.01
8-9	1.04	1.00	1.00	1.01
9-10	1.00	0.99	0.99	1.00
10-11	0.99	0.97	0.97	0.98
11-12	1.07	1.11	1.10	1.11

1. Ratio of enrollment in an individual grade to enrollment in the previous grade the previous year.

2. The enrollment forecast model uses capture rates for first grade; K-1 baseline GPRs are not used.

Table 14 contains grade level forecasts for the McMinnville School District for each year from 2015-16 to 2024-25. The forecasts are also summarized by grade level groups (K-5, 6-8, and 9-12). Overall K-12 enrollment growth of 325 students (five percent) is forecast from 2014-15 to 2024-25.

Elementary enrollment is expected to be stable or grow slightly during the first two years of the forecast, and then decline by about 140 students between 2016-17 and 2019-20, due to the recent downturn in births. After 2019-20, elementary growth resumes, reaching 3,113 students

by 2024-25. Elementary enrollment in 2024-25 is only slightly above its previous peak in 2016-17, and 92 students (three percent) higher than its current (2014-15) level.

Middle school enrollments trend in the opposite direction from elementary enrollments throughout the 10 year forecast horizon, falling in the first two years, growing from 2016-17 to 2019-20, and then declining as the smaller birth cohorts reach 6th grade beginning in 2020-21. At the end of the forecast period in 2024-25, middle school enrollment of 1,574 is just 32 students (two percent) higher than in 2014-15.

High school enrollment fluctuates during the first five years of the forecast; the 2019-20 forecast of 2,059 students is nearly identical to 2014-15 enrollment. After 2019-20, high school enrollment is forecast to grow significantly, reaching a peak of 2,300 in 2023-24 before falling to 2,251 in 2024-25. Over the 10 year forecast period, there is a net increase in high school enrollment of 201 students (ten percent).

Table 14

McMinnville School District, Enrollment Forecasts, 2015-16 to 2024-25

Grade	Actual 2014-15	Forecast 2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
K	458	464	485	465	451	478	486	487	494	497	501
1	537	482	481	503	483	469	497	506	507	514	518
2	530	544	489	488	511	491	476	505	514	515	522
3	545	537	552	496	496	519	498	483	512	522	523
4	446	546	540	555	499	499	522	501	486	515	525
5	505	452	554	548	564	507	508	531	510	495	524
6	482	511	458	561	555	572	514	515	539	517	502
7	526	487	517	463	568	562	579	520	521	545	523
8	534	528	490	520	466	572	566	583	523	524	549
9	497	539	534	495	526	471	578	572	589	529	530
10	540	496	538	533	495	526	470	577	571	588	528
11	479	527	485	526	521	484	514	459	564	558	575
12	534	530	584	538	583	578	536	570	509	625	618
Total	**6,613**	**6,643**	**6,707**	**6,691**	**6,718**	**6,728**	**6,744**	**6,809**	**6,839**	**6,944**	**6,938**
Annual change		30	64	-16	27	10	16	65	30	105	-6
		0.5%	1.0%	-0.2%	0.4%	0.1%	0.2%	1.0%	0.4%	1.5%	-0.1%
K-5	3,021	3,025	3,101	3,055	3,004	2,963	2,987	3,013	3,023	3,058	3,113
6-8	1,542	1,526	1,465	1,544	1,589	1,706	1,659	1,618	1,583	1,586	1,574
9-12	2,050	2,092	2,141	2,092	2,125	2,059	2,098	2,178	2,233	2,300	2,251

	5 Year Change: 2014-15 to 2019-20		5 Year Change: 2019-20 to 2024-25		10 Year Change: 2014-15 to 2024-25	
	Growth	Pct.	Growth	Pct.	Growth	Pct.
K-5	-58	-2%	150	5%	92	3%
6-8	164	11%	-132	-8%	32	2%
9-12	9	0%	192	9%	201	10%
Total	**115**	**2%**	**210**	**3%**	**325**	**5%**

Population Research Center, Portland State University, December 2014

Individual School Forecasts

Forecasts are prepared for individual schools under a scenario in which the 2014-15 boundaries and grade configurations remain constant. Program changes, school choice policies, or other decisions about individual schools and the students they serve could impact enrollment in ways that these forecasts do not anticipate. The individual school forecasts depict what future enrollments might be if today's facilities, programs, and boundaries were unchanged.

The methodology for the individual school forecasts relies on unique sets of grade progression rates for each school. New kindergarten classes were forecast each year based on births and recent enrollment trends within elementary attendance areas. Subsequent grades were forecast using GPRs based initially on recent rates for the school and adjusted based on expected levels of housing growth. The final forecasts for individual schools are controlled to match the district-wide forecasts.

Due to the recent downturn in births, significant growth is not expected at any of the District's elementary schools over the five year forecast period. New housing development and migration of young families into the District will compensate somewhat for the birth decline. The largest enrollment losses are at Newby (loss of 32 students), which has relatively little current residential development within its attendance area, and at Grandhaven (loss of 23 students), which will gain students initially due to new apartment and single family home development now underway, but may lose later in the forecast period when the large cohorts currently in 1st and 3rd grade move into middle school.

Growth is expected at both middle schools, particularly at Patton, which loses 87 students in two years between 2014-15 and 2016-17 due to relatively small 4th and 5th grade classes currently enrolled at its feeder elementary schools, but has a net gain of 109 students over the five year period. High school enrollment is forecast to remain at or above its current level throughout the forecast period.

Table 15 presents the enrollment forecasts for each school, grouped by school level (elementary, middle, and high).

Table 15

McMinnville School District, Enrollment Forecasts, 2015-16 to 2019-20

School	Actual 2014-15	Forecast 2015-16	2016-17	2017-18	2018-19	2019-20	Change 2014-15 to 2019-20 Number	Percent
Buel Elementary	527	529	553	540	527	528	1	*0%*
Columbus Elementary	511	513	521	517	514	520	9	*2%*
Grandhaven Elementary	551	564	574	556	545	528	-23	*-4%*
Memorial Elementary	536	539	554	561	554	534	-2	*0%*
Newby Elementary	514	501	502	501	492	482	-32	*-6%*
Wascher Elementary	382	379	397	380	372	371	-11	*-3%*
Elementary Totals	**3,021**	**3,025**	**3,101**	**3,055**	**3,004**	**2,963**	**-58**	***-2%***
Duniway Middle School	763	770	773	769	776	818	55	*7%*
Patton Middle School	779	756	692	775	813	888	109	*14%*
Middle School Totals	**1,542**	**1,526**	**1,465**	**1,544**	**1,589**	**1,706**	**164**	***11%***
McMinnville High School	**2,050**	**2,092**	**2,141**	**2,092**	**2,125**	**2,059**	**9**	***0%***
District Totals	**6,613**	**6,643**	**6,707**	**6,691**	**6,718**	**6,728**	**115**	***2%***

Population Research Center, Portland State University, December 2014.

FORECAST ERROR AND UNCERTAINTY

Forecasts should be understood to represent a range of outcomes even though discrete numbers are provided. In general, forecast error varies according to the size of the population being forecast and the length of the forecast horizon. The smaller the population and the longer the forecast period, the larger the error is likely to be. In particular, the school level forecasts depend on assumptions about the distribution of housing and population growth in small areas within the District, so their relative errors are likely greater than the District-wide forecast error. The forecasts should be used as only one of many tools in the planning process.

The previous forecasts that PRC prepared for the District are compared to actual fall 2014 enrollments in Tables 16 and 17. Forecasts based on historic enrollment through fall 2010 are characterized as four year forecasts, while those based on fall 2012 enrollment are characterized as two year forecasts. Both forecasts included K-12 totals that were very accurate, within one percent of the District's K-12 total. However, the four year forecasts had several relatively large errors for individual grades. More specifically, among elementary grades, forecasts for 2nd and 5th grades were significantly below actual enrollment, but were partially offset by higher forecasts for kindergarten and 4th grade.

Although the two year forecast under-predicted total enrollment to a greater extent (60 students) than the four year forecast (27 students), the mean absolute percent errors (MAPEs) in each table show that the two year forecasts were more accurate, on average, than the four year forecasts for individual grades and for individual schools.

Table 16
Fall 2014 Enrollment Compared to Previous Forecasts
By Grade Level

Grade	Actual	Two year forecast[1]			Four year forecast[2]		
		Fcst.	Diff.	Error	Fcst.	Diff.	Error
K	474	481	7	*1.5%*	510	36	*7.6%*
1	523	512	-11	*-2.1%*	513	-10	*-1.9%*
2	549	529	-20	*-3.6%*	514	-35	*-6.4%*
3	527	541	14	*2.7%*	517	-10	*-1.9%*
4	439	438	-1	*-0.2%*	465	26	*5.9%*
5	518	502	-16	*-3.1%*	474	-44	*-8.5%*
6	483	469	-14	*-2.9%*	492	9	*1.9%*
7	526	527	1	*0.2%*	526	0	*0.0%*
8	533	512	-21	*-3.9%*	538	5	*0.9%*
9	499	533	34	*6.8%*	532	33	*6.6%*
10	539	522	-17	*-3.2%*	521	-18	*-3.3%*
11	481	480	-1	*-0.2%*	476	-5	*-1.0%*
12	531	516	-15	*-2.8%*	517	-14	*-2.6%*
Total	**6,622**	**6,562**	**-60**	***-0.9%***	**6,595**	**-27**	***-0.4%***
MAPE[3]				***2.6%***			***3.7%***

1. Forecast for 2014-15 by PSU-PRC, baseline 2012-13 enrollment, May 2013.

2. Forecast for 2014-15 by PSU-PRC, baseline 2010-11 enrollment, January 2011.

3. Mean absolute percent error for individual grades K-12.

Table 17
Fall 2014 Enrollment Compared to Previous Forecasts
By Individual School

School	Actual	Two year forecast[1]			Four year forecast[2]		
		Fcst.	Diff.	Error	Fcst.	Diff.	Error
Buel Elementary	528	522	-6	*-1.1%*	553	25	*4.7%*
Columbus Elementary	512	538	26	*5.1%*	521	9	*1.8%*
Grandhaven Elementary	557	540	-17	*-3.1%*	487	-70	*-12.6%*
Memorial Elementary	537	487	-50	*-9.3%*	487	-50	*-9.3%*
Newby Elementary	514	535	21	*4.1%*	521	7	*1.4%*
Wascher Elementary	382	381	-1	*-0.3%*	424	42	*11.0%*
Duniway Middle School	762	730	-32	*-4.2%*	761	-1	*-0.1%*
Patton Middle School	780	778	-2	*-0.3%*	795	15	*1.9%*
McMinnville High School[3]	2,050	2,051	1	*0.0%*	2,046	-4	*-0.2%*
District	**6,622**	**6,562**	**-60**	***-0.9%***	**6,595**	**-27**	***-0.4%***
MAPE[4]				***3.0%***			***4.8%***

1. Forecast for 2014-15 by PSU-PRC, baseline 2012-13 enrollment, May 2013.

2. Forecast for 2014-15 by PSU-PRC, baseline 2010-11 enrollment, January 2011.

3. Four year forecasts for MHS and MACA combined for comparability to Fall 2014 enrollment.

4. Mean absolute percent error for individual schools.