

Mercer Island School District

Updated Projections

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December 2019

Introduction

The following is an update of an enrollment forecast that was completed for the Mercer Island in early 2017. Since the 2017 update some demographic conditions have changed. Enrollment growth in King County, overall, has slowed in the past two years with more families opting to live in the outlying regions of King County, and even further north and south in Pierce and Snohomish County. In addition, births in King County were lower in 2017 and 2018, primarily due to women having fewer children. We do not know if this is an enduring or temporary trend. We should also note that home sales and prices in King County and Mercer Island were on an upward swing between 2012 and 2017, but recent data shows a slowing of home sales in Mercer Island and the County as a whole, perhaps because prices have increased so rapidly.

Perhaps as a result of these trends Mercer Island's enrollment growth has slowed and even declined some over the past two years. At this time we expect enrollment in Mercer Island to flatten out and even decline some between 2020 and 2025, We expect enrollment to start growing again in the latter part of the forecast period (2025 to 2030) when we expect more development activity and population growth.

Introduction

Given the current demographic conditions and the uncertainty inherent in predicting the future we recommend that the District give ample attention, not only to the main forecast, but also to the low and high alternatives that show what might happen if population and housing growth in Mercer Island and King County were to be lower or higher than what we have assumed in our main model.

It is possible that Mercer Island could see larger enrollment declines in the near term than we have assumed in the medium range forecast, given recent demographic trends. We believe, however, that looking out over the decade it is also likely that these declines will eventually cease with a turn toward the more positive trend that we see in the medium range forecast. The comprehensive plan from the City speaks to the need for additional housing in the City and we believe that given continuing growth in the Puget Sound, additional housing and population growth will eventually work its way into future city planning, especially with the extension of light rail across the the region.

The assumption of greater population and housing growth between 2025 and 2030 is one of the guiding assumptions of our forecast. This forecast also assumes that we will see continuing population growth in King County and the Puget Sound, but that the growth trends going forward will be more modest than the trends we saw between 2012 and 2017 when Seattle and the region was booming. Amazon is reported to be finishing their hiring for the Seattle area over the next one to two years. For this reason we may see more modest population growth trends in the near term, consistent with the County forecasts obtained from the State of Washington.

Introduction

It is possible, of course, that Amazon or some other large employer in the region will increase their hiring at a more rapid pace than expected resulting in continuing large population gains over the next decade. The high range forecast in this document recognizes that possibility and the District should give some consideration to what steps might be taken if enrollment were to trend higher than expected.

As a general rule enrollment trends on the Island are dependent on either the turnover of existing homes, resulting in net gains of families with children, or the development of new housing that brings additional families with children to Mercer Island. Home sales and new home development are two critical factors to keep an eye on in gauging the potential for future growth.

The next section of this report provides an executive summary of our findings in the form of bullet points. After this presentation we present specific data on enrollment, births, population, and housing. Each section is preceded by a set of bullet points that highlight the important information to keep in mind when viewing the charts and tables. The final section presents a series of alternative forecasts that were used to help us develop our main forecast. After this, there is a brief presentation of the methodology used to create the forecast and detailed numbers by grade level for the low, medium, and high range forecast options that are recommended for planning.

Executive Summary

- Enrollment in the Mercer Island School District is tracking below the medium range forecast that was completed in 2017.
- Enrollment in the District has declined in the past two years.
- The 2017 forecast predicted that elementary enrollment growth would slow some between 2017 and 2020, but it has slowed even more than expected with smaller than expected kindergarten classes.
- A look at the data suggests that while the District still sees more families with preschool age children move in than move out of the District prior to those children reaching school age, the District's share of the kindergarten population has declined in the past two years. This suggests that either more families than usual are leaving before their children reach school age, or fewer families with preschool age children are moving in (or, of course, a combination of the two).
- K-12 enrollment growth in King County has slowed considerably over the past two years compared to the period between 2012 and 2017.

Executive Summary

- There is evidence in the latest Puget Sound enrollment data that some families with children have been migrating to the outlying regions of King County and even into Kitsap, Pierce and Snohomish County where housing is more affordable.
- This is not a universal trend, however, since there are still affluent families opting to live in areas that are close to Seattle and other urban job centers. Lake Washington saw tremendous enrollment growth over the past year and the Seattle School District saw a net gain of over 600 students.
- There are still families migrating to the Puget Sound who are relatively affluent and can choose to live in more expensive areas, but this population is generally smaller than the population of families that are opting to live in the outlying regions.
- Births in King County in 2017 and 2018 were lower than the numbers that we saw between 2012 and 2016. This is primarily due to women having fewer children. As a result of this trend, we have lowered our long range forecast of the King County K-12 population, predicting less growth than the model that we were using for the 2017 forecast.

Executive Summary

- The lower birth forecasts means that we are predicting less K-12 growth over the next decade in King County and Mercer Island than the model completed in 2017.
- Home sales and prices have also started to moderate and even decline some after the rapid increase that we saw between 2012 and 2017. A continuing drop in prices could eventually result in more sales and more population growth of families with children on the Island, especially if home prices moderate a bit.
- We are still predicting that King County K-12 enrollment will grow over the next decade but due to the recent change in births we are predicting less growth and we expect continued migration to more affordable areas in King County and even to the outlying regions in Kitsap, Pierce and Snohomish County by residents that are new to the region.
- In Mercer Island specifically, we are predicting that the recent trends will result in less growth and even enrollment declines in the near term (2020 to 2025) with enrollment eventually trending up in the latter part of the forecast period (2025 to 2030). During the latter period we expect the extension of light rail to spur some additional development on the Island resulting in improving K-12 enrollment trends. This assumption is consistent with the City's comprehensive plan goals for more affordable housing options in the future.

Executive Summary

- As always, there is uncertainty when predicting the future. For this reason we have developed low and high alternatives to our medium range forecast which show what might happen if population and housing growth were to be lower or higher than what we have assumed in our medium range model.
- As noted in the introduction, K-12 enrollment growth on the Island is dependent on the turnover of existing homes or the development of new housing which brings more families with children into the District. Home sales and new home development are critical factors to keep an eye on when planning for the future.
- The District should also pay particular attention to Kindergarten enrollment. There are still some fairly large birth cohorts projected to enter the schools over the next couple of years (2020 and 2021). If the District's share of the birth cohort continues to drop, enrollment will likely drop more dramatically than what we have assumed in the medium range forecast. On the other hand, if the District's share stabilizes or shows a marked increase, enrollment may well remain at its current level or even increase some.

Executive Summary

- Although we are predicting some decline in middle school enrollment in the near term, this is primarily due to the size of the cohorts that are rolling in at 5th grade (in some years smaller than usual) or rolling out at the 8th grade (in some years larger than usual). In general, the District sees a net increase at the secondary grades from migration (more families moving in than out) suggesting that the District may be a “move-up” choice for families who are looking to buy a bigger home when their children are older. This is why the turnover of new homes or the development of additional housing are critical factors for enrollment trends.

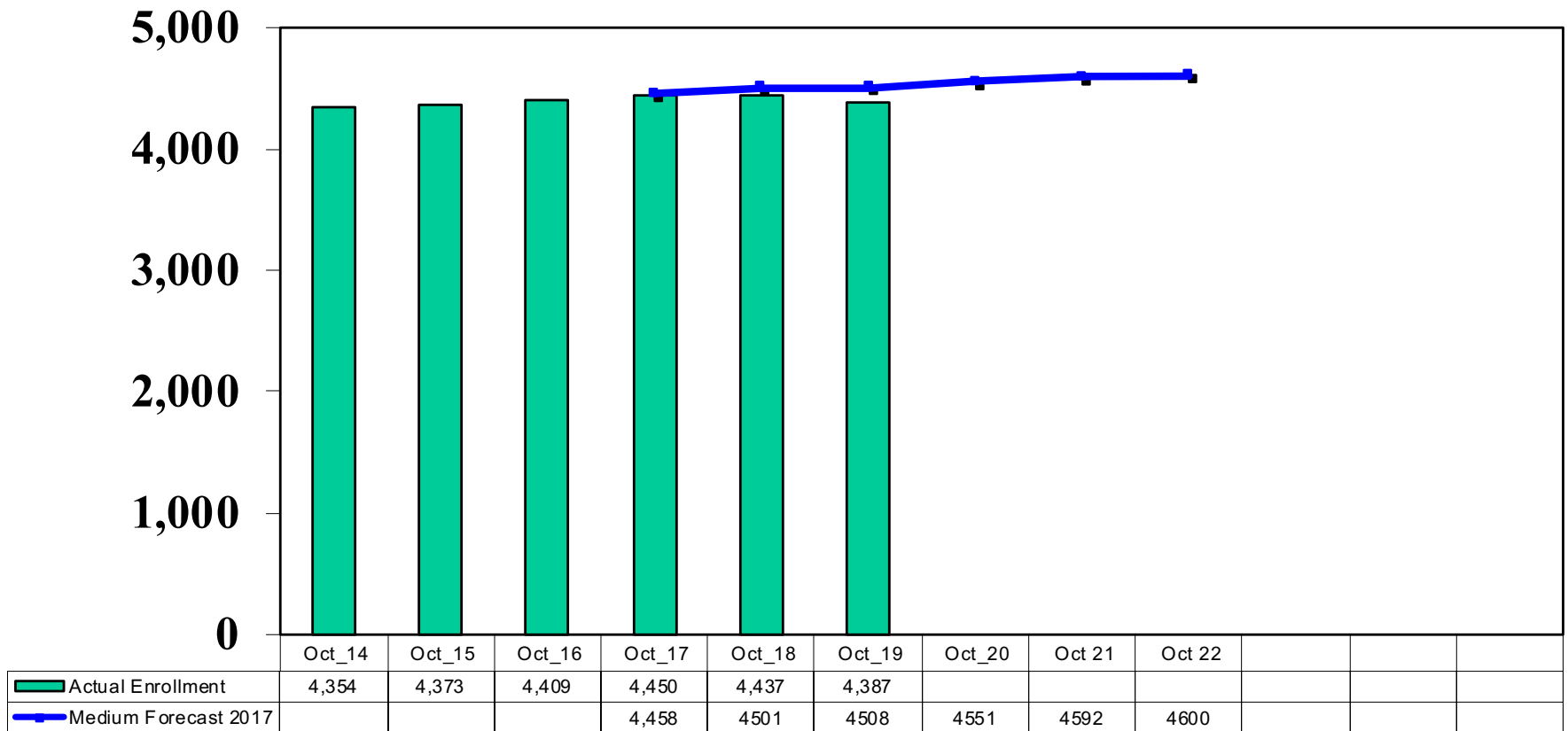
Enrollment Trends

Mercer Island and King County

Enrollment Trends

- Enrollment in the Mercer Island School District is tracking below the projection completed in 2017.
- Enrollment growth in King County has slowed over the past two years. Based on the most current year of enrollment data, K-12 enrollment in the Puget Sound is continuing to increase with more growth migrating to Kitsap, Pierce, and Snohomish County.
- Mercer Island's share of the King County K-12 population has declined over the past five years, indicating the the District is growing at a slower rate than the rest of the County.
- Based on the latest birth and population forecasts for King County, we expect K-12 enrollment growth in the County to continue growing over the next decades.
- Given the latest birth data (see the section on births) we are, however, predicting less K-12 enrollment growth in King County and Mercer Island over the next decade than we were predicting in 2017.

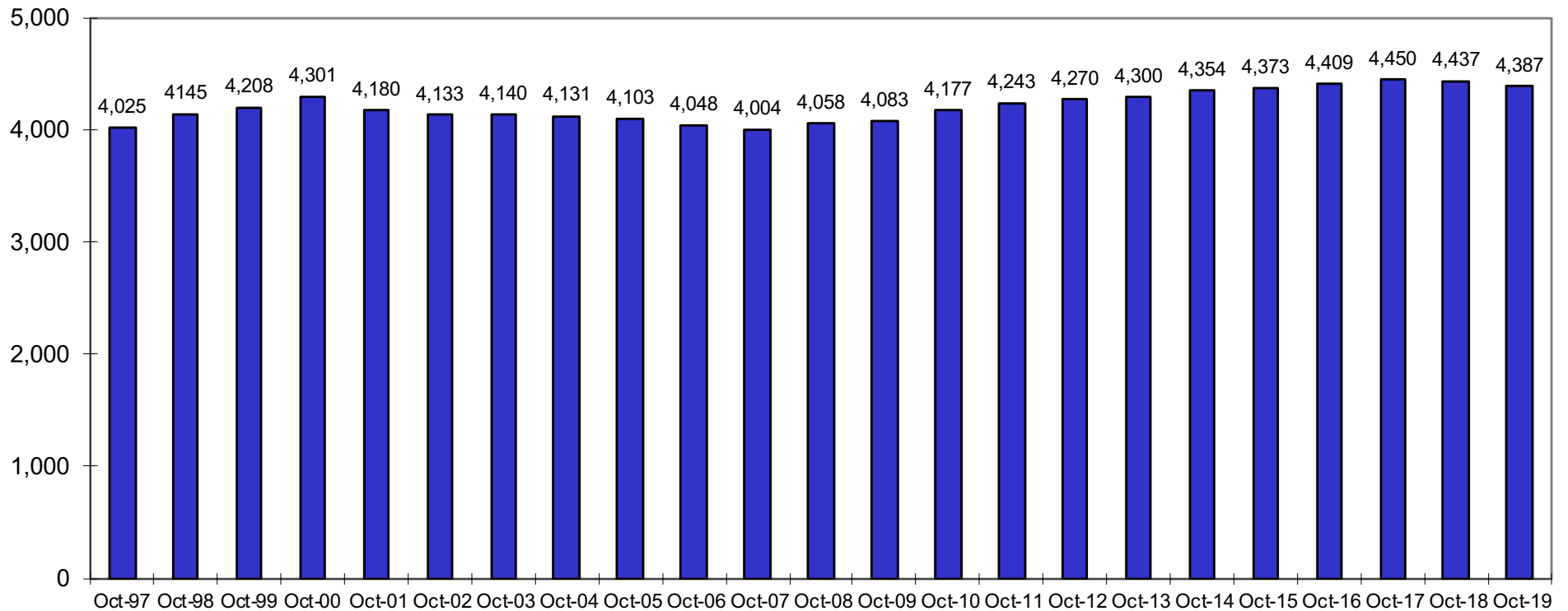
Forecast from 2017 Compared to Actual Enrollment



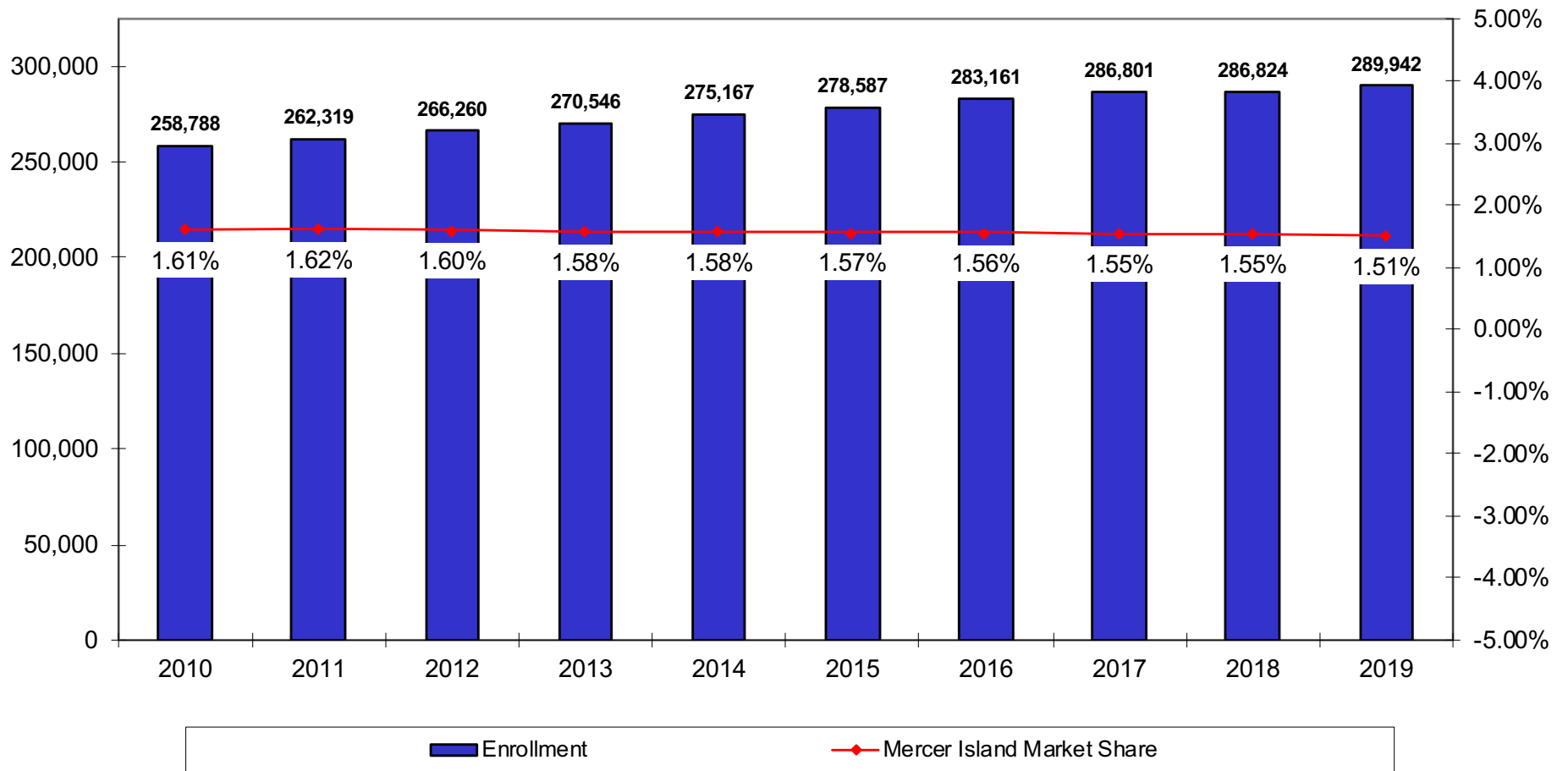
District Enrollment Trend

P223 Enrollment (October)

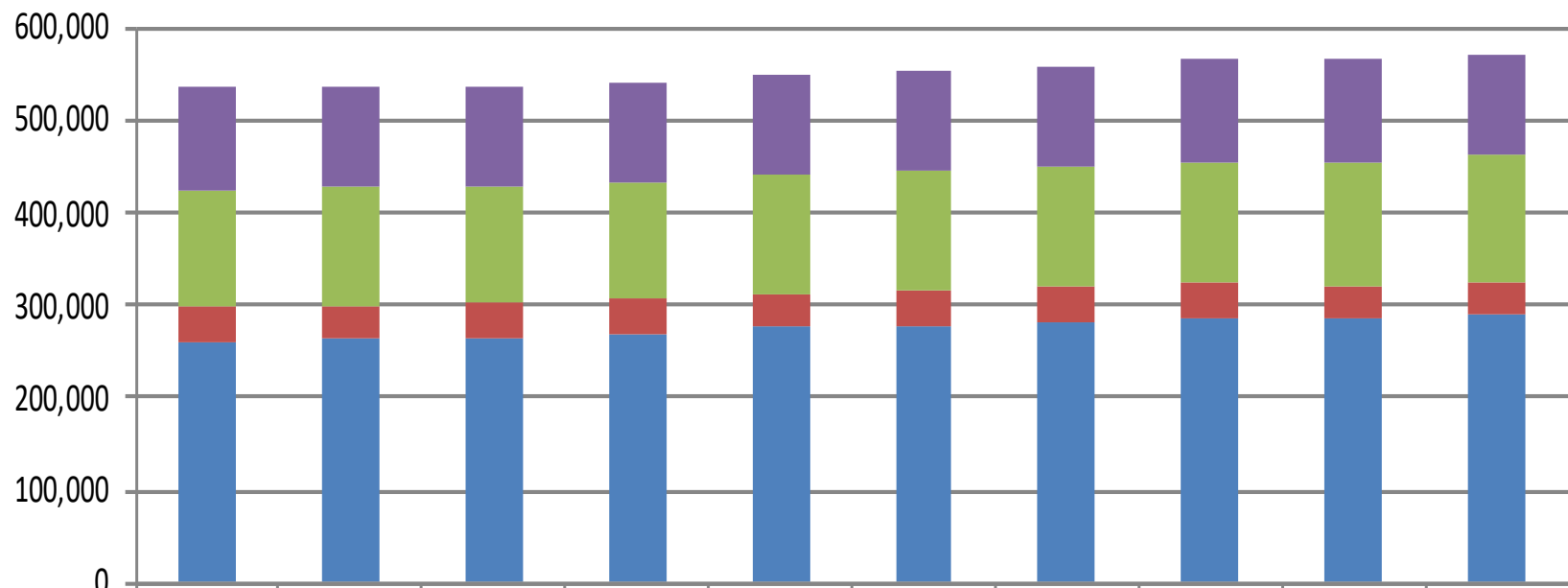
Does Not Include Full-Time Running Start Students
or Students Enrolled in Open Doors



King County Public Schools Enrollment Trend and Mercer Island Market Share

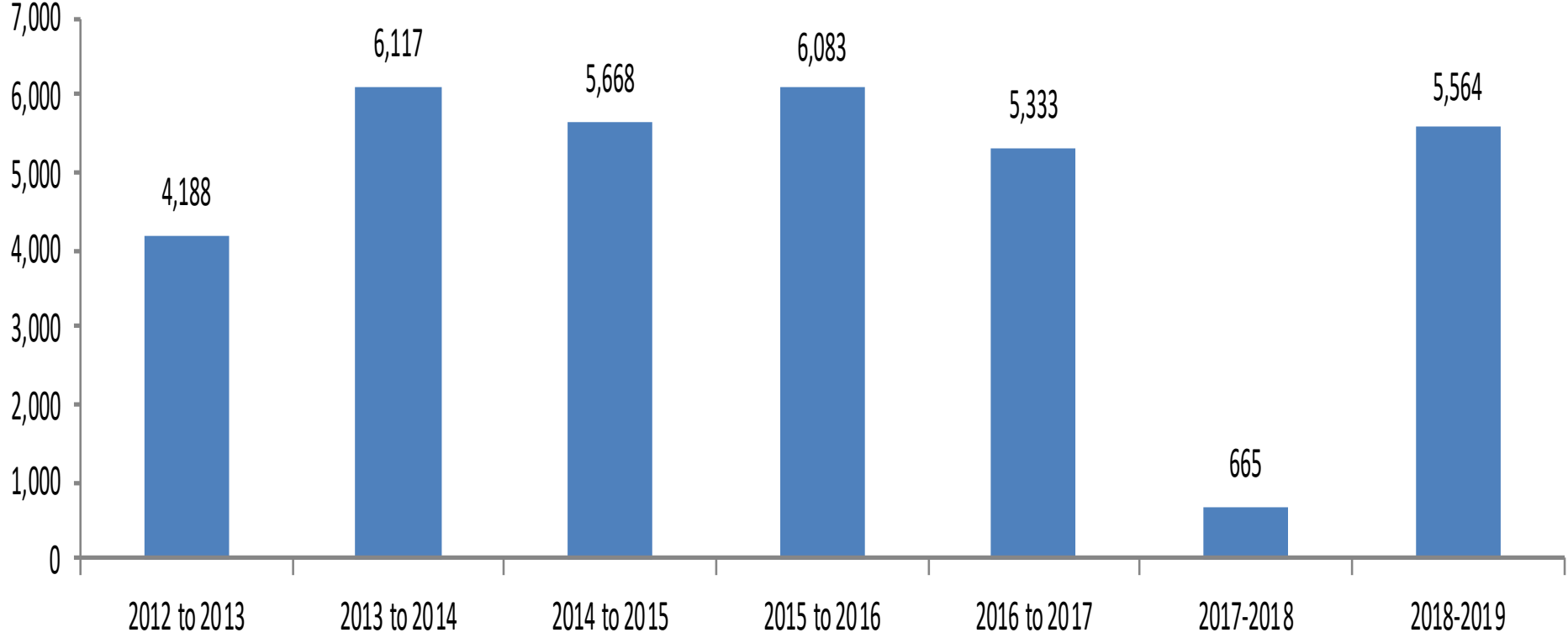


Public School Enrollment for the Puget Sound King, Kitsap, Pierce, and Snohomish County



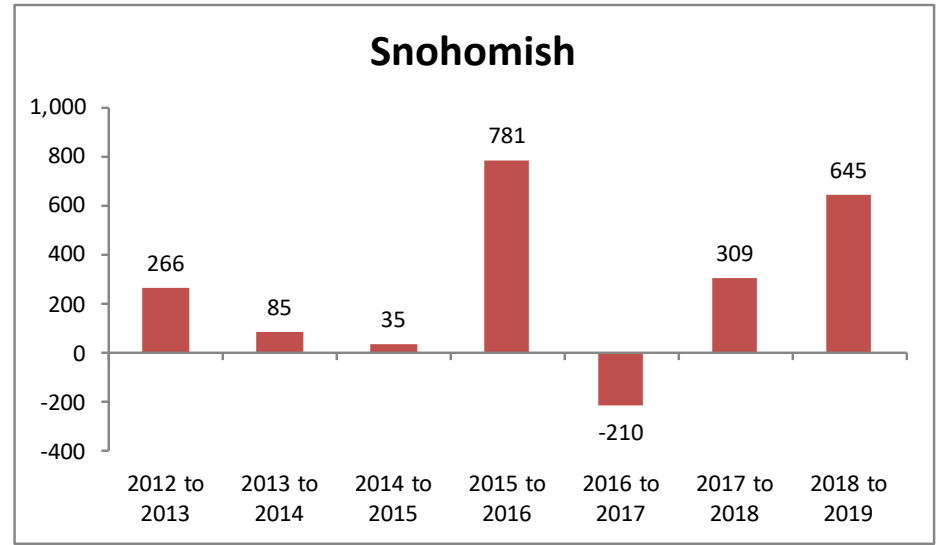
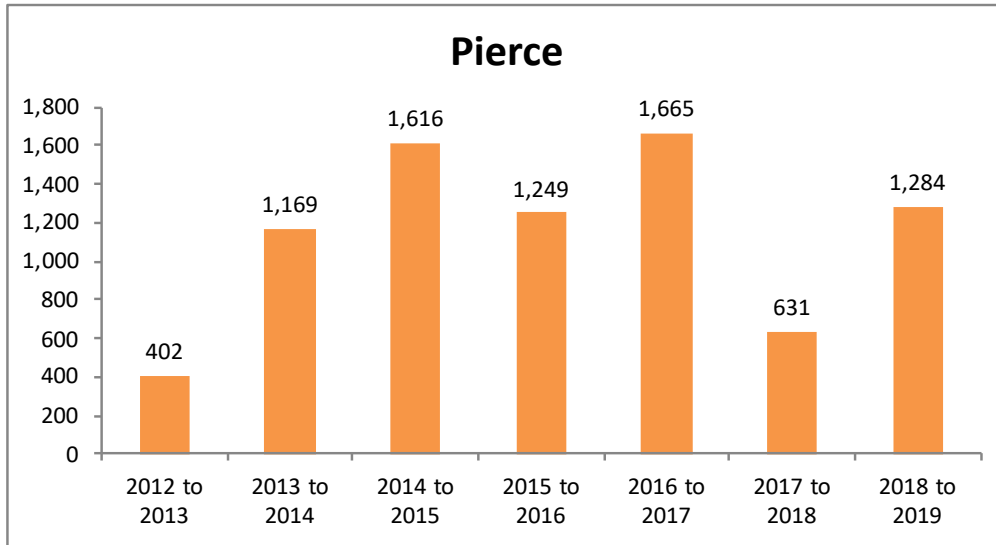
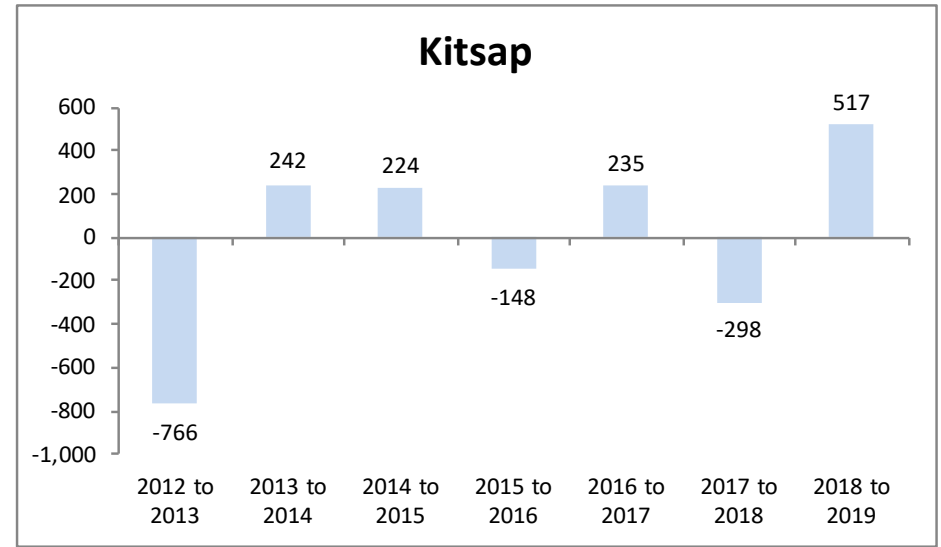
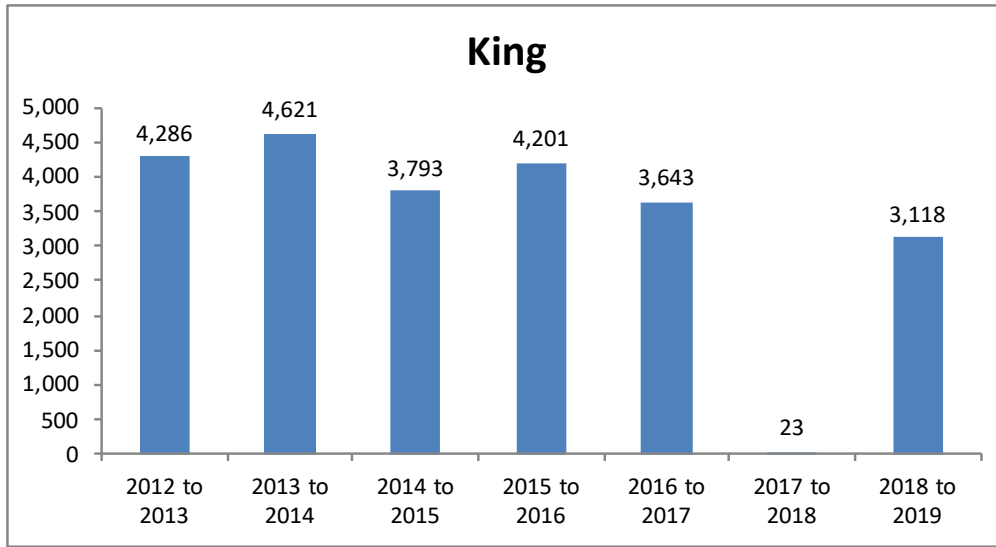
	Oct10	Oct11	Oct12	Oct13	Oct14	Oct15	Oct16	Oct17	Oct18	Oct19
Snohomish	109,457	108,724	107,891	108,186	108,242	108,277	109,058	108,848	109,157	109,777
Pierce	128,698	128,413	126,930	127,332	128,501	130,117	131,366	132,940	133,571	134,855
Kitsap	37,156	36,751	35,975	35,547	35,451	35,675	35,527	35,762	35,464	35,981
King	259,516	262,319	266,260	270,546	275,167	278,960	283,161	286,801	286,824	289,942

Annual Net Change in K-12 Enrollment King, Kitsap, Pierce and Snohomish Combined



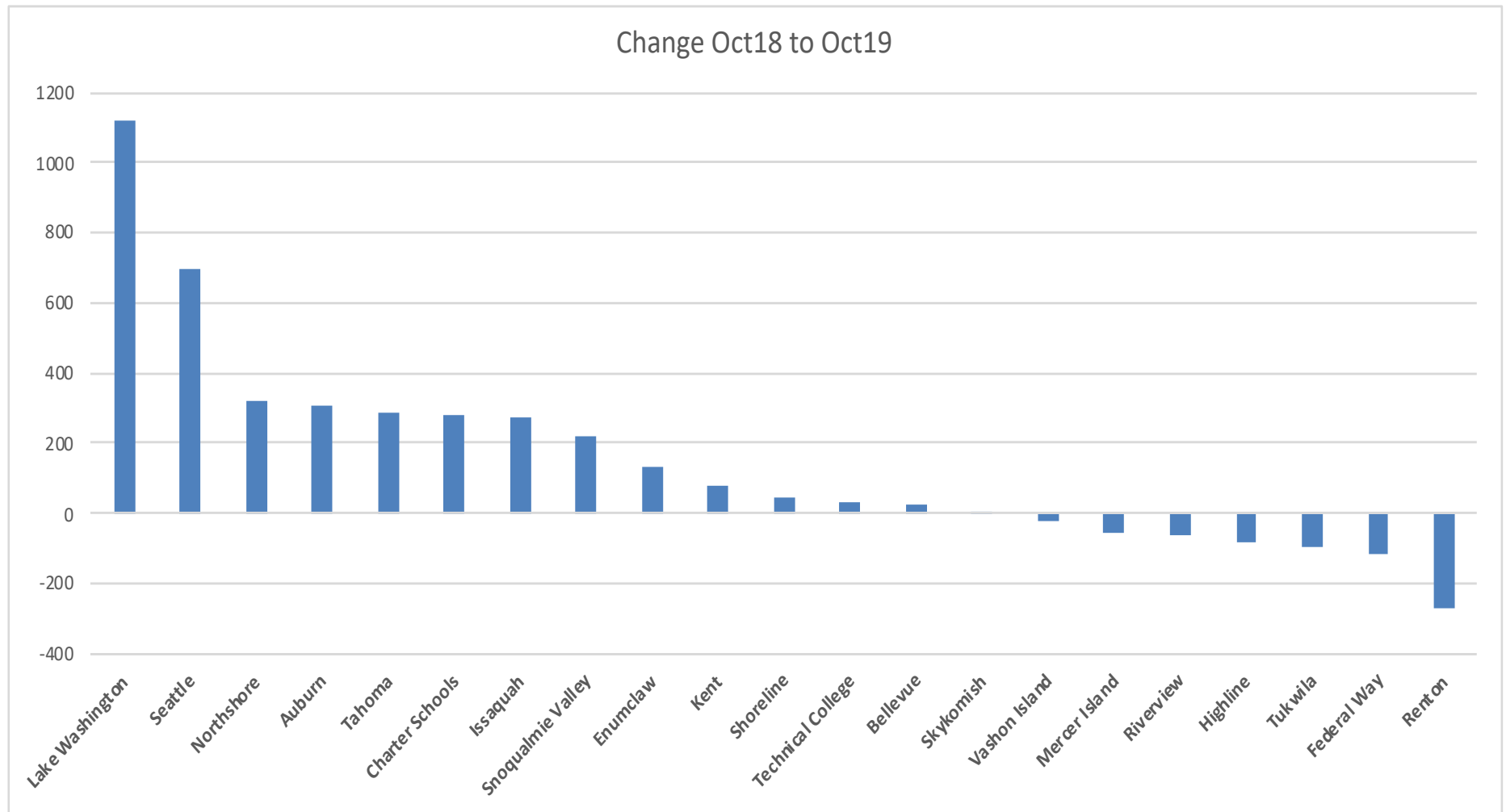
Annual Net Change in Enrollment by County Since 2012

(Numbers may have changed since the original reporting date)



King County Public School Districts

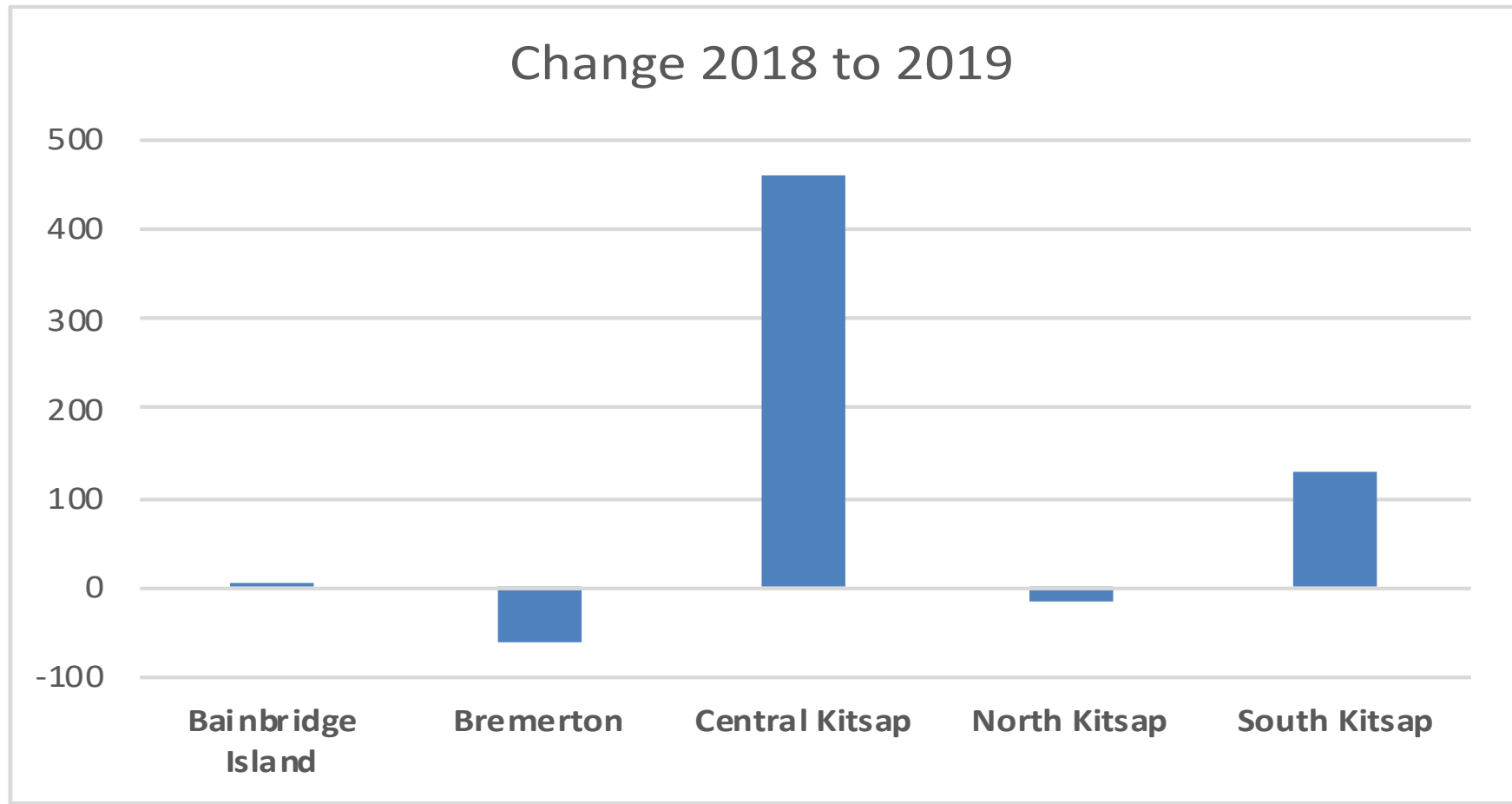
Change in Enrollment Between Oct 2018 to Oct 2019



Kitsap County Public School Districts

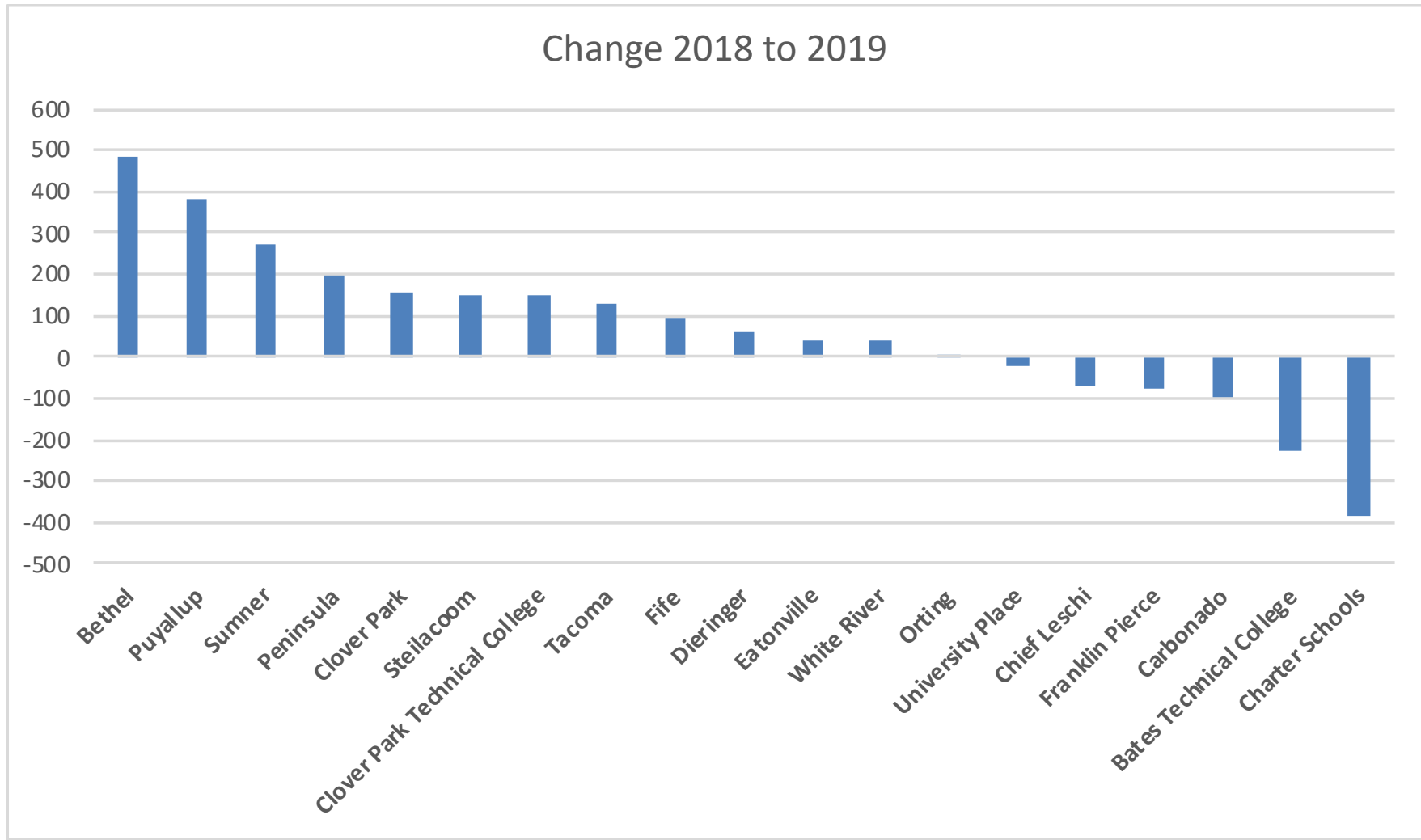
Change in Enrollment Between Oct 2018 and Oct 2019

Please Note: Bremerton's enrollment includes the Skills Center



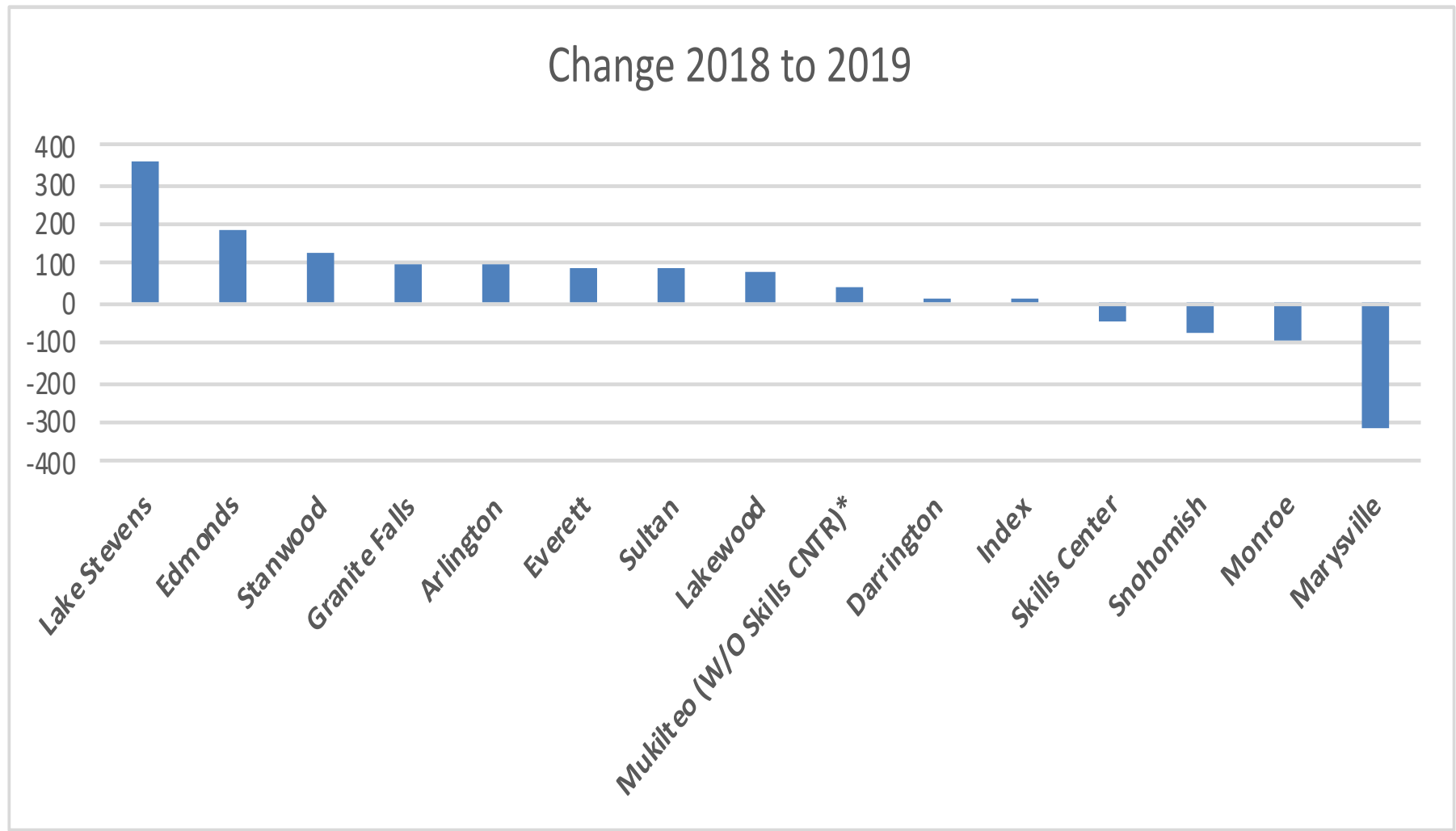
Pierce County Public School Districts

Change in Enrollment Between Oct 2018 and Oct 2019



Snohomish County Public School Districts

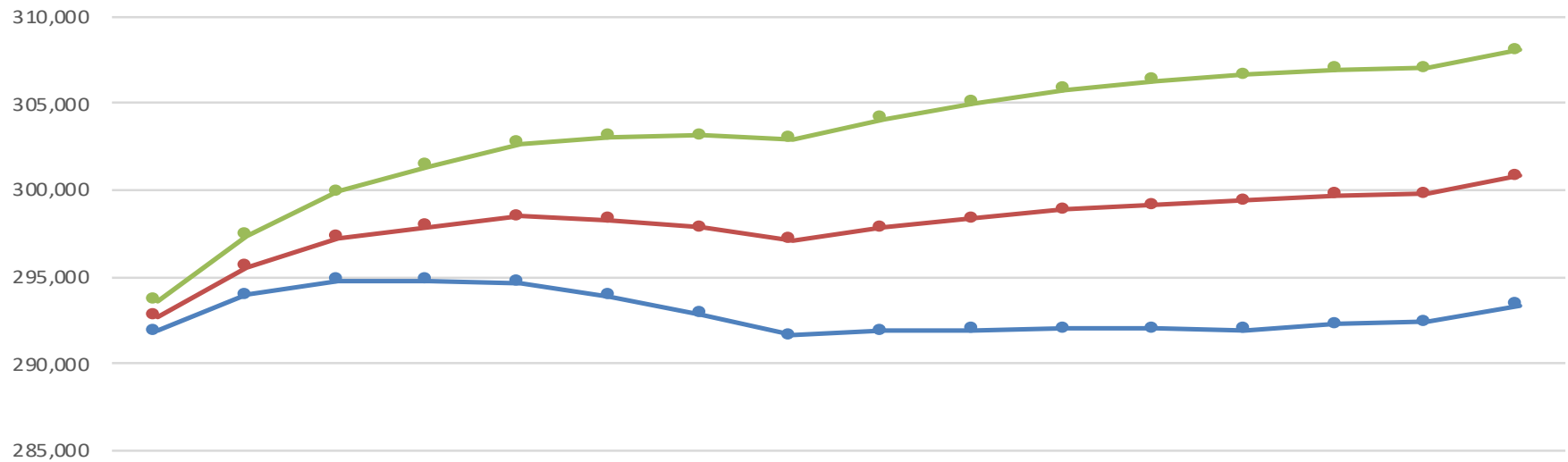
Change in Enrollment Oct 2018 and Oct 2019



Forecast of the King County K-12 Population

Using Cohort Survival, Actual Births, Birth Forecasts and Projected Changes in Population Growth During Certain Time Periods

Low, Medium, and High Range Forecast of King County K-12 Public School Enrollment (October)



	Oct-20	Oct-21	Oct-22	Oct-23	Oct-24	Oct-25	Oct-26	Oct-27	Oct-28	Oct-29	Oct-30	Oct-31	Oct-32	Oct-33	Oct-34	Oct-35
Low	291,884	293,927	294,828	294,813	294,697	293,880	292,850	291,637	291,880	291,969	292,040	292,025	291,981	292,297	292,416	293,382
Medium	292,717	295,570	297,235	297,931	298,484	298,283	297,813	297,110	297,837	298,371	298,842	299,155	299,385	299,701	299,808	300,789
High	293,663	297,417	299,922	301,394	302,655	303,080	303,164	302,940	304,097	304,994	305,759	306,281	306,642	306,952	307,039	308,029

Low Medium High

Enrollment Patterns

Mercer Island School District

Note: The bullet point comments in this section are the same as those in the 2017 report. Only the data has been updated.
The comments still apply.

Enrollment Patterns

- Grade progression rates show the net gains or losses that occur when families with children move in and out over the course of a year. A rate greater than one indicates a net increase and a rate less than one indicates a net loss.
- To create a grade progression rate you divide the enrollment at a particular grade (say second grade) by the enrollment at the prior grade from the previous year (say first grade). These are also known as cohort survival ratios. This is the method that the State facilities department uses when doing forecasts for all school districts in the State.
- In Mercer Island the cohort survival/grade progression rates are greater than one at most grades indicating that more families with children move in than move out over the course of the year at most grades.
- The exception to this pattern occurs mostly at the 11th and 12th grade where dropouts, or students opting for full-time Running Start programs can sometimes lead to net losses in enrollment.

Enrollment Patterns

- Grade progression rates do not apply to kindergarten since there is no previous grade.
- At the kindergarten level we can compare enrollment in a given year to births that occurred five years prior. We can compare enrollment to the County births to get a sense of overall market share in the County.
- We can also compare enrollment to births on Mercer Island.
- Kindergarten enrollment generally exceeds the number of births on the Island that occurred five years prior to each enrollment year. This indicates that the number of families with preschool age children who move into the District over a five year period generally exceeds the number who move out.
- Because many families move in at the secondary level the high school graduating classes are generally substantially larger than the following year's kindergarten class. The District will only grow if it sees larger kindergarten classes or large net gains of students at the continuing grades.

Grade Progression Rate Example

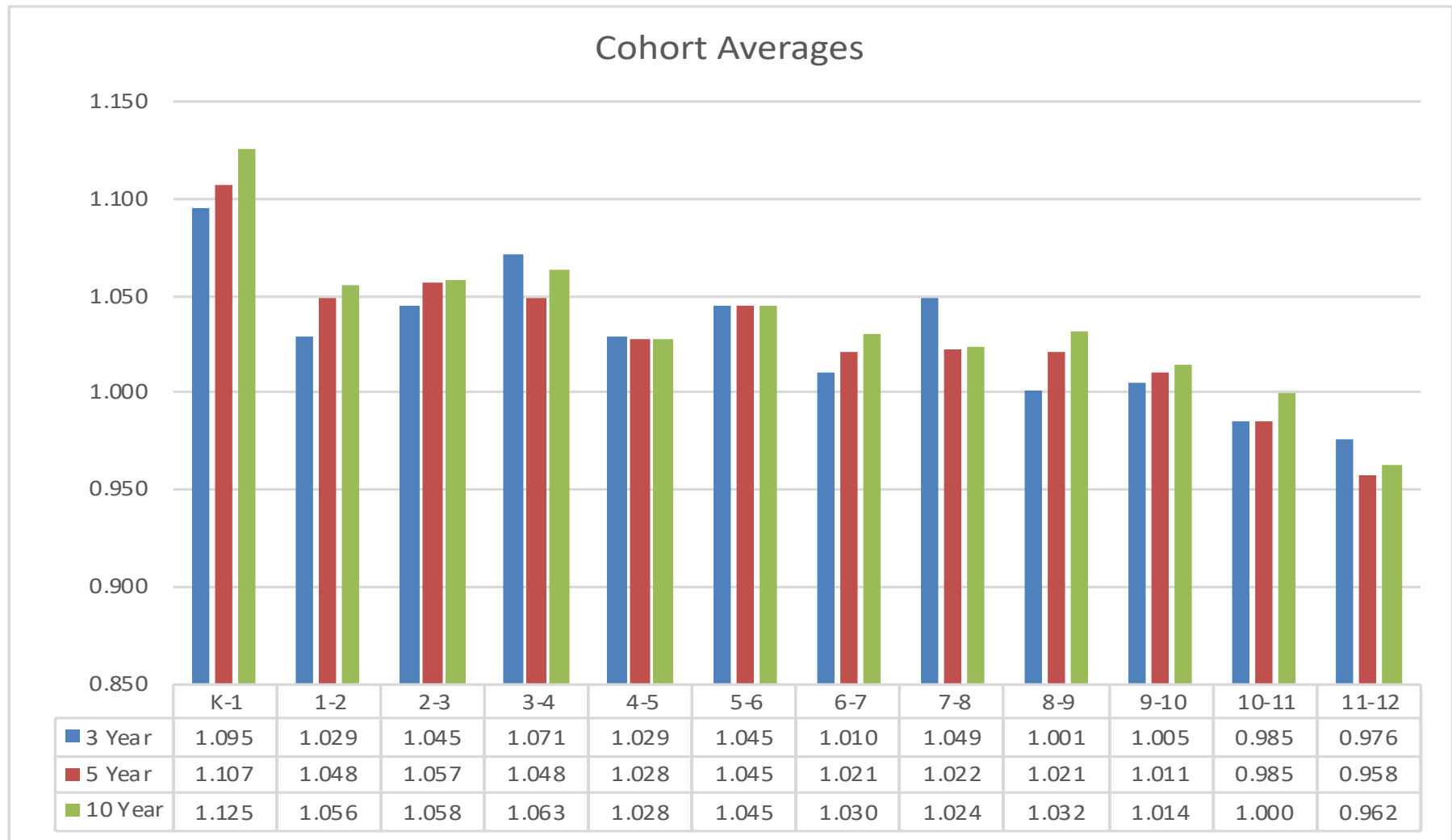
- Rates for Different Grade Levels:
 - Elementary: K-4 moves into Grades 1-5
 - Middle schools: Grades 5-7 move into 6-8
 - High school: Grades 8-11 move into 9-12
 - A ratio greater than 1 indicates a net gain from families moving in over the course of a year; less than 1 indicates a net loss (more moving out than moving in).

Grade	<u>2007</u>	<u>2008</u>
K	232	254
1	276	270
2	294	290
3	255	305
4	311	281
5	279	318
	3654	3726

K-4 Total	Gr1-5 Total	<u>Ratio</u>
1368	1464	107%

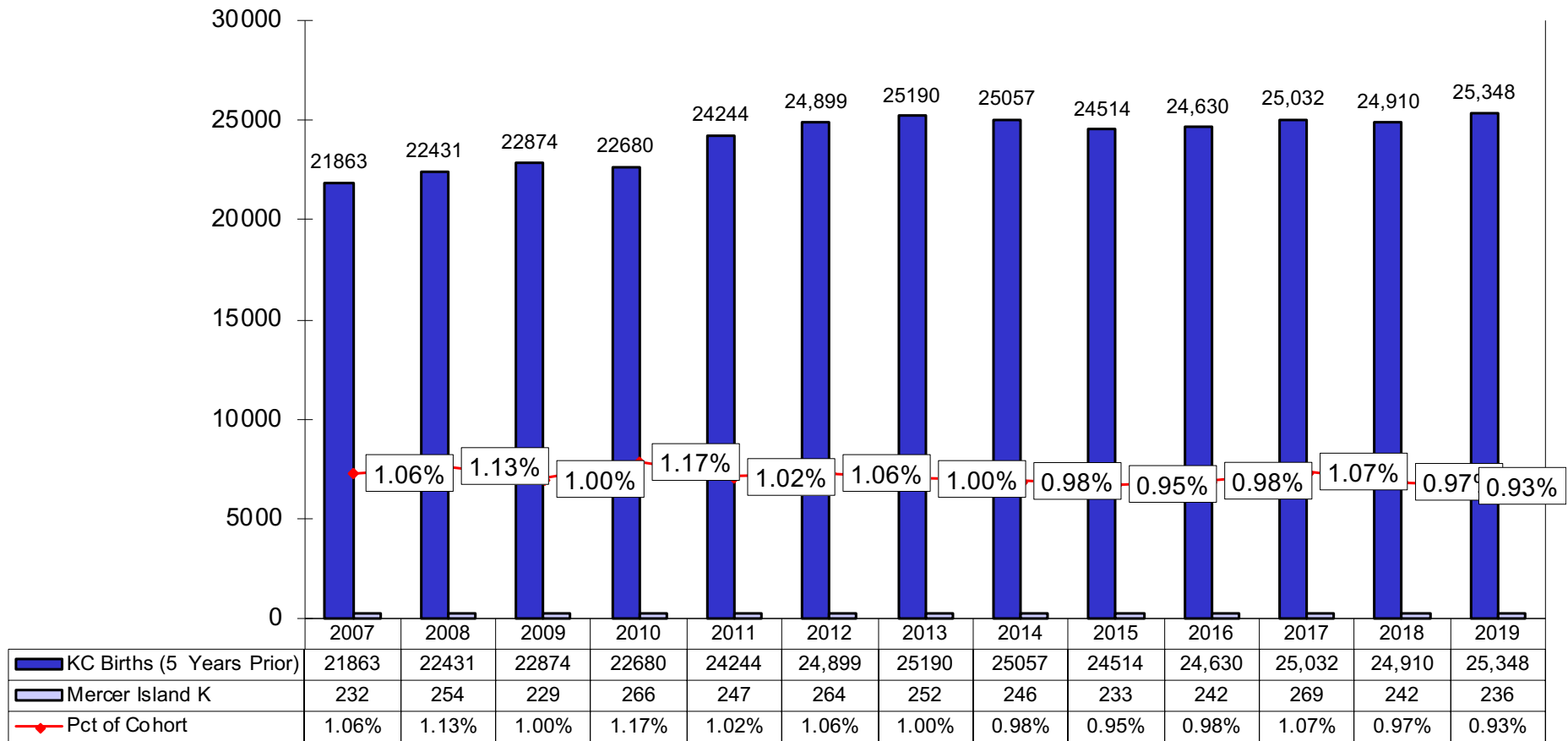
Average Grade Progression Rates (3, 5, and 10 Year Averages)

Cohort Ratio Averages for the Mercer Island School District



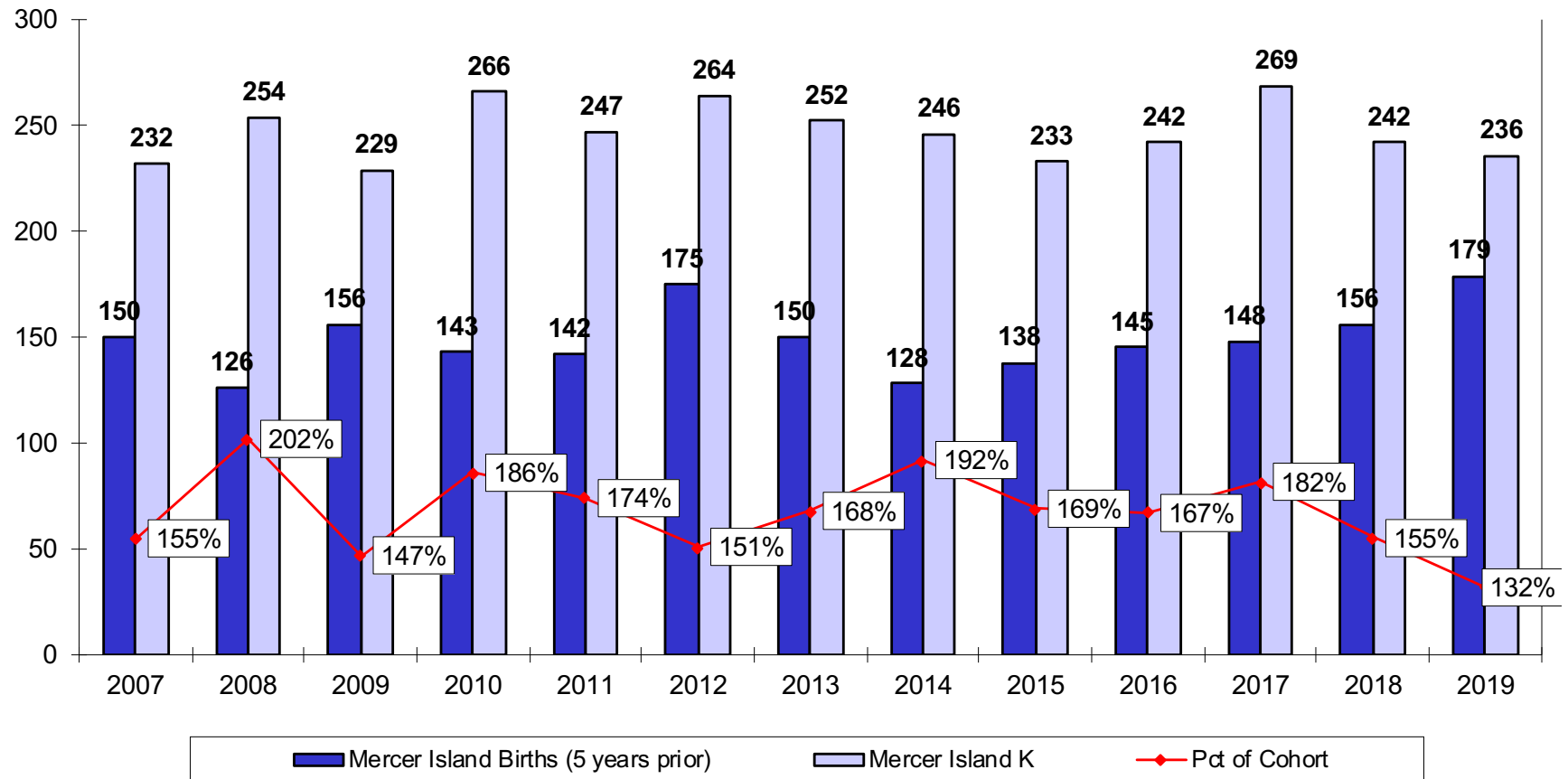
Mercer Island

K Enrollment as a Percent of King County Births



Mercer Island

K Enrollment as a Percent of City Births



Birth Trends

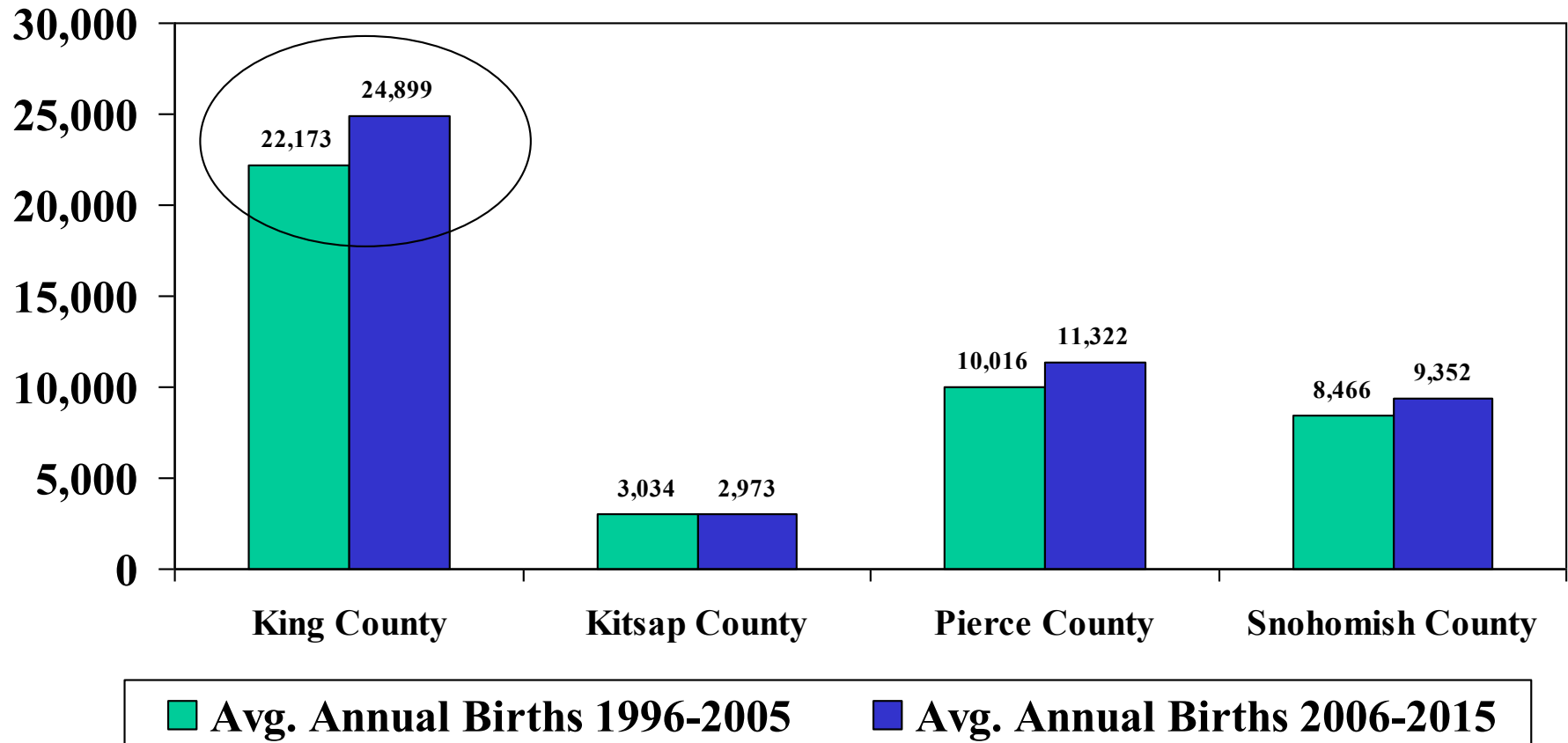
Births and Enrollment

Key Points and Highlights

- There were approximately 2,700 more births per year on average in King County between 2006 and 2015 than in the previous decade (1996 to 2005). This trend continued into 2016, but births dropped to a lower than expected level in 2017 and 2018, primarily because women are having fewer children.
- Based on the latest births, fertility rates, and subsequent birth forecasts we expect a lower K-12 enrollment growth trend in King County over the next decade than we were predicting in 2017.
- We still expect overall kindergarten and elementary enrollment in the County to grow over the next few years, as the recently larger birth cohorts enter the schools.
- Comparing City of Mercer Island births to Kindergarten enrollment five years later we can observe that more families with preschool age children move in, than move out, of the City prior to the children reaching school age. The District's share of the kindergarten population has dropped, however, in the past two years.

Average Annual Births by County

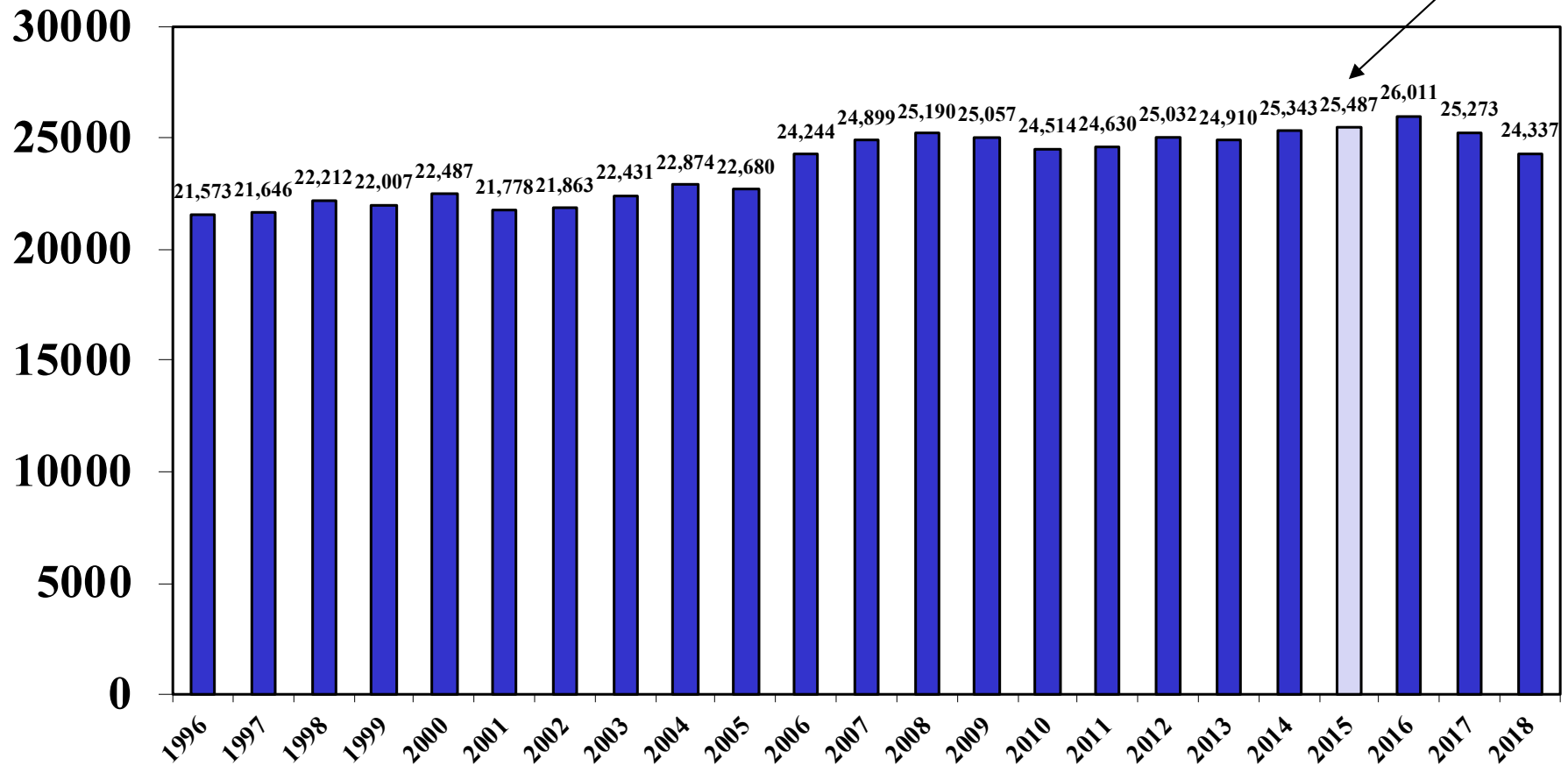
Source: State of Washington Department of Health Birth Files



King County Births

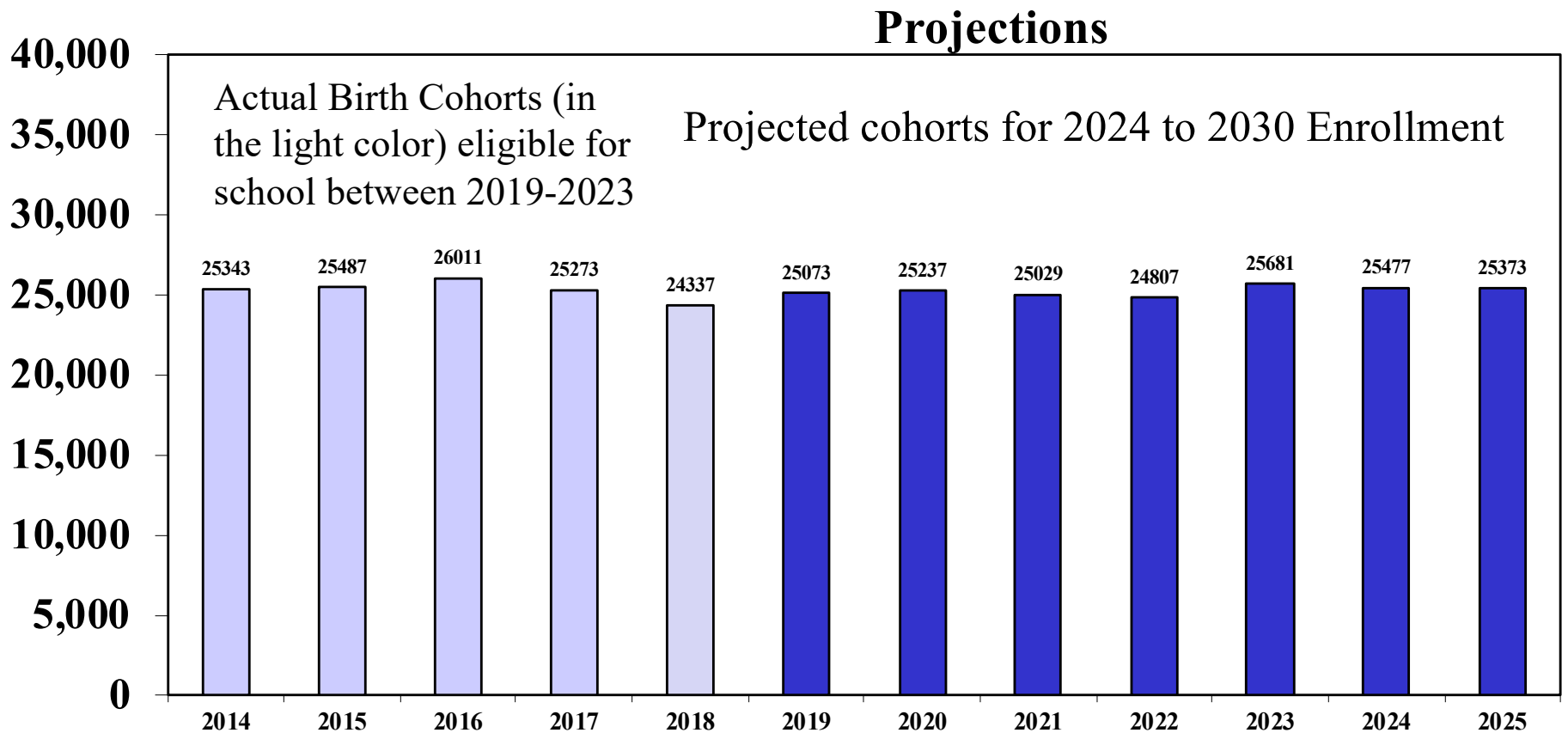
Source: Washington State Health Department

Next year's cohort



King County Birth Projections

(Based on the Average of 2016 to 2018 Fertility Rates
and Projected Growth in Females in Their Child-Bearing Years
Using the OFM Medium Range Population Forecast)



Population Trends

Population Trends

- The population of King County has been growing at a faster pace than expected between 2012 and 2019. Growth did slow some between 2017 and 2018 but the estimated net population gain in 2019 was similar to the large gains we saw between 2014 and 2017.
- Much of this growth has been driven by a strong economy anchored by extensive hiring at Amazon. The company is expected to reach its hiring goal in the Seattle area over the next one to two years. After that time period they are expected to mostly maintain current employment levels (this is based on newspaper reports about the company rather than first hand information).
- The State is predicting that population growth in King County will be more moderate over the next decade compared to the trends that we saw over the past decade.
- We expect Mercer Island to grow at a lower rate than the overall County over the next decade.

Population Trends

- We developed low, medium, and high range population forecasts for the District based on information about projected growth in the City from the Puget Sound Regional Council.
- The Council's land use forecast assumes a growth trend that is similar to the City's comprehensive plan.
- The Council's land vision forecast from two years ago, assumes greater density is possible and thus greater population growth.
- We applied the assumed growth rates from each of these forecasts to the current estimated population in 2019 to create low and high forecasts of the District's population. We also created a medium range estimate that is in-between these two numbers.
- These population forecasts were used to help us create low, medium, and high range forecasts of the District's enrollment.

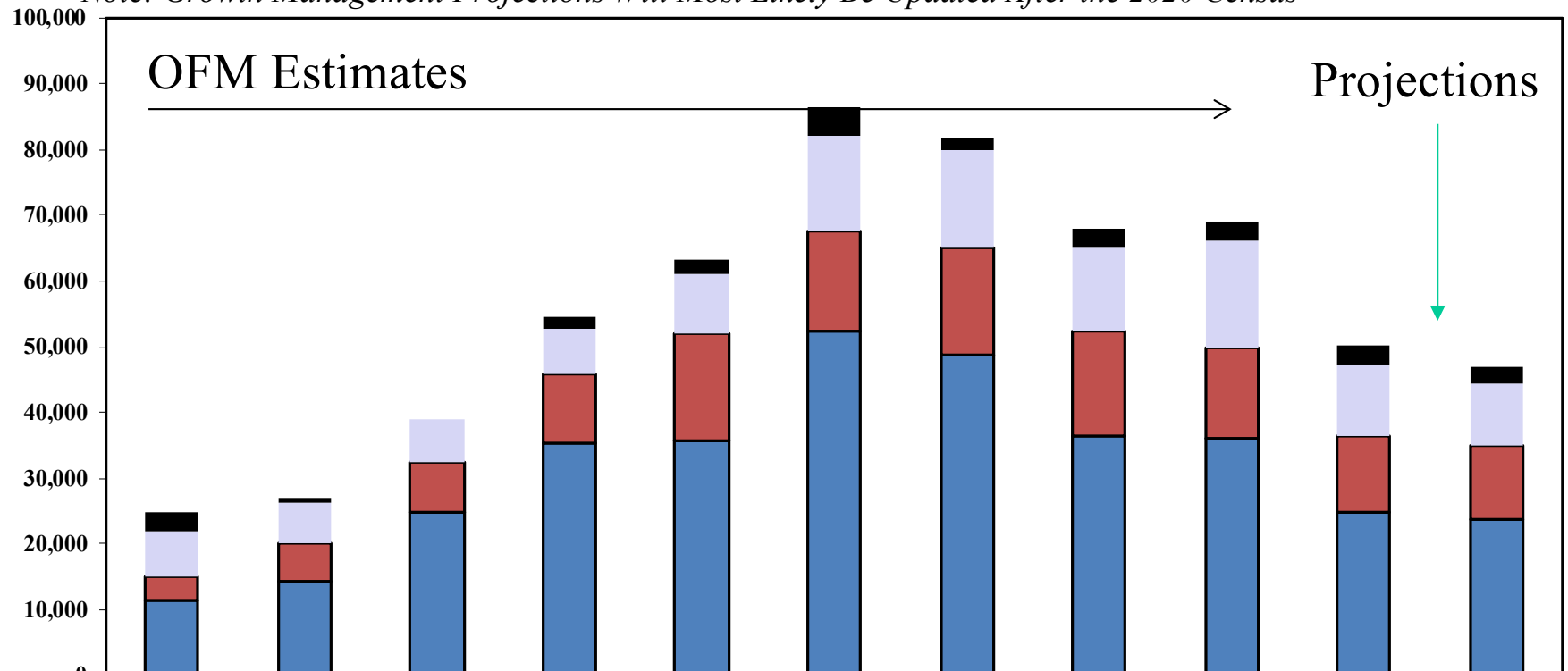
County Net Population Change and Projections

Puget Sound Counties

Source: Office of Financial Management of the State of Washington

Projections for 2020, 2025 and 2030 are from the Growth Management Medium Range Projections Released by the State in December 2017.

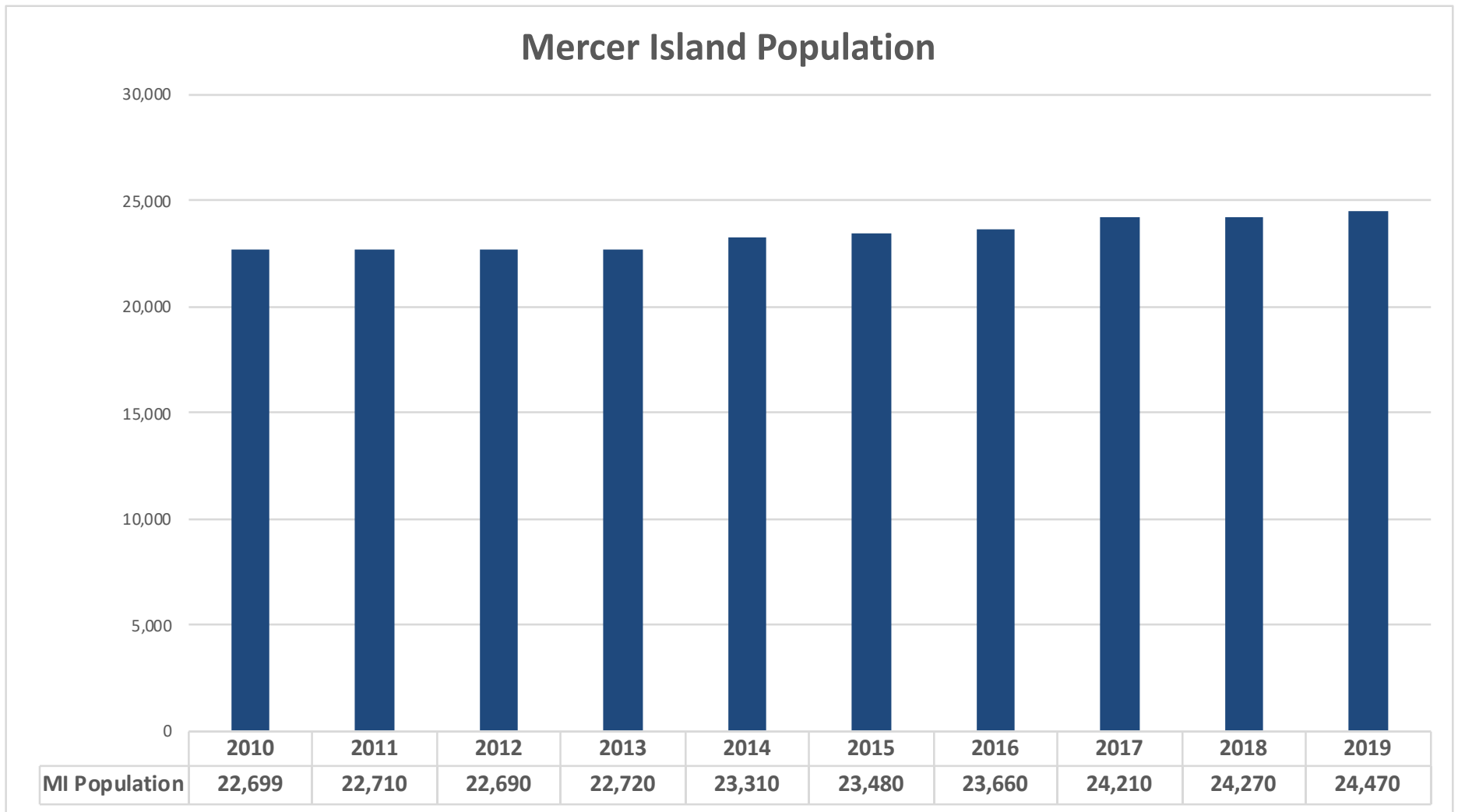
Note: Growth Management Projections Will Most Likely Be Updated After the 2020 Census



	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	Annual Net Change 2020-2025	Annual Net Change 2025-2030
■ Kitsap County	2,767	600	-500	1,900	2,300	4,390	1,710	2,820	2,980	2,886	2,636
■ Pierce County	6,925	6,050	6,300	6,800	8,820	14,370	14,910	12,820	16,080	11,086	9,146
■ Snohomish County	3,665	5,900	7,600	10,500	16,600	15,260	16,540	15,720	13,850	11,505	11,276
■ King County	11,351	14,400	24,900	35,350	35,550	52,300	48,600	36,500	36,100	24,832	23,810

Mercer Island Population

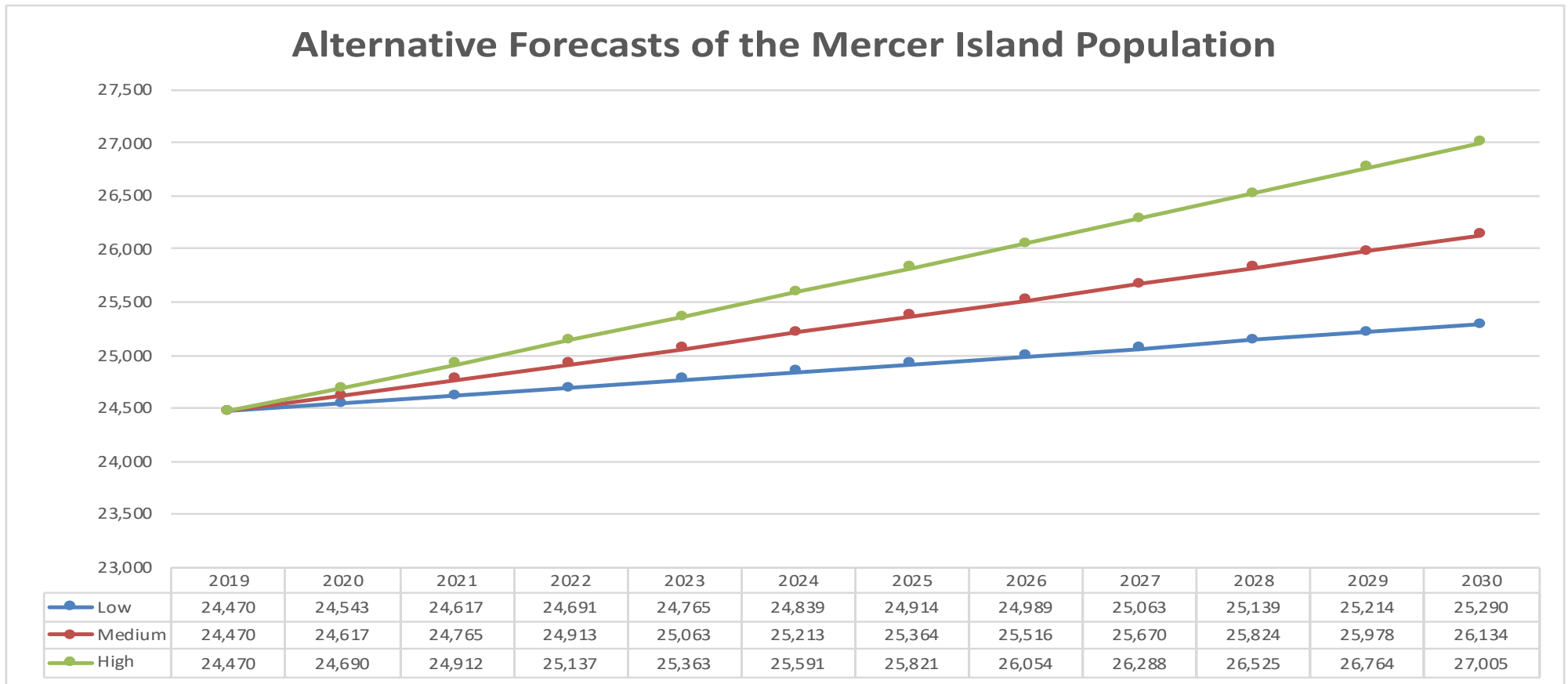
Census and State Estimates



Mercer Island Resident Population Forecasts

Alternative Forecasts Based on Different Assumptions About Growth.

We used the Puget Sound Regional Land Use* and Land Vision Forecasts from two years ago to help us calibrate these forecast estimates. Rather than take the specific numbers from those forecasts we took the projected growth rates and applied them to the current estimate of the population (2019) to get our low and high numbers. The medium estimate is in-between the high and low estimates.



*The PSRC Land Use Baseline forecast is similar to the Mercer Island City Comprehensive Plan Assumptions.

Housing Trends

Housing Trends

- Home sales in Mercer Island have dropped some in 2018 and 2019 compared to the trends we saw between 2013 and 2017.
- Over 1,100 units were added to the District's housing stock between the 2000 and 2010 Census period. About half as many units have been added to the District's housing stock between 2010 and 2019.
- Based on permit activity, data from MetroStudy, and forecast data from the Puget Sound Regional Council we are predicting that just over 500 additional units will be added to the District's housing stock by 2030. This number is much lower than the period between 2000 and 2010 when the town center units were added and may well result in less enrollment growth and even declines in enrollment in the near term period of the forecast (2020 to 2025). We are expecting the bulk of additional housing development to occur between roughly 2023 and 2030.
- As mentioned in the 2017 report, a net gain of housing might occur in cases where an existing single family unit is torn down and replaced with two or more units. Greater density as well as the development of new land can result in housing increases.

Housing Trends

- We have created alternative forecasts of future housing growth. Similar to our population forecasts we have used the PSRC land-use and PSRC land-vision forecasts, as well as an alternative that is somewhere in the middle.
- Based on our reading of the City comprehensive plan and the PSRC documents we expect some increase in multi-family housing units, relative to single family over time (especially with the high forecast estimate). But it is likely that single family units will still make up between 65%-70% of the City's housing stock.
- Based on 2010 Census data there are approximately 42 students for every 100 housing units in the District. This number is higher than either Lake Washington or Bellevue, and well above the rate in Seattle (see page 48). The 2019 estimate for the District shows a similar number (42 students per 100 homes). It has not changed.

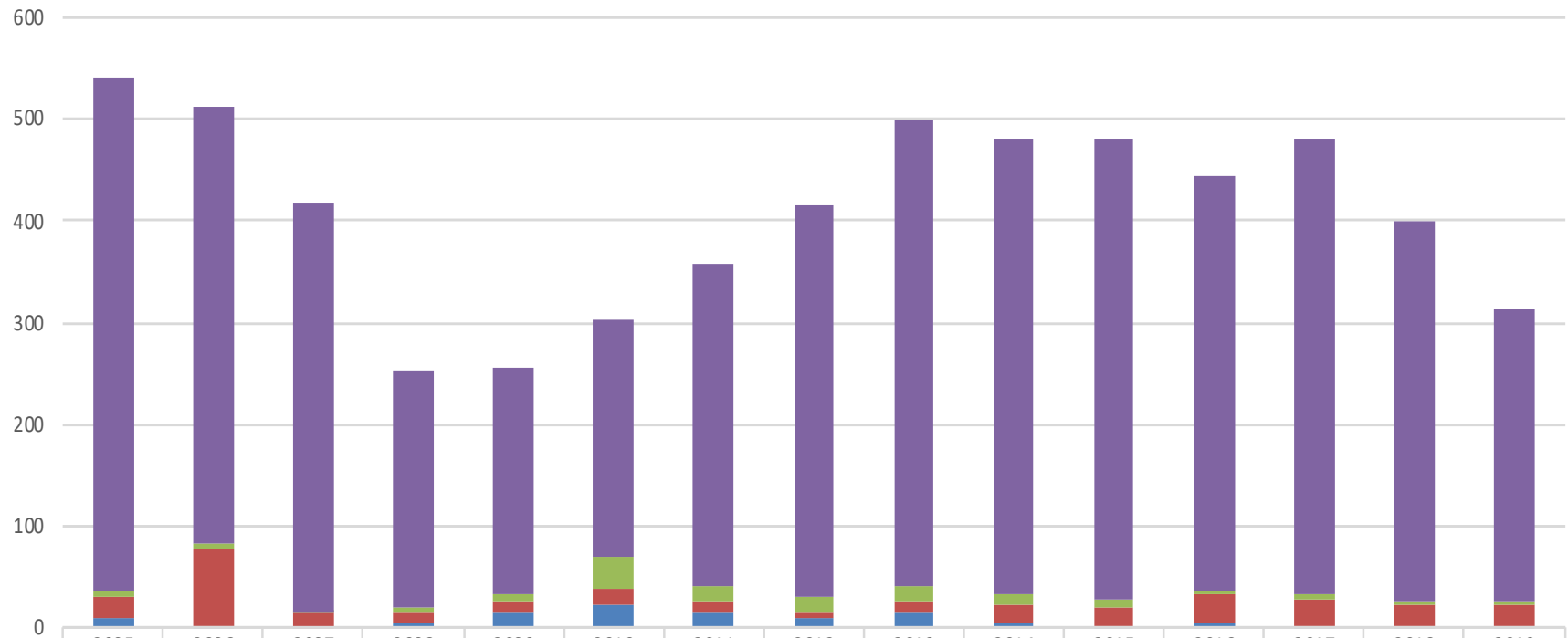
Housing Trends

- Assuming this number remains the same we can estimate how many students might be enrolled in the future by multiplying the number of students per house by our alternative housing forecasts.
- A forecast based on the low, medium, and high range housing numbers is presented in the forecast section of this report.

Home Sales in Mercer Island

Source: MetroStudy Assessor's Data

Homes Sales in the Mercer Island School District



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Existing Homes	507	429	401	233	223	233	318	383	457	449	453	407	450	374	288
Bank REO Sale	4	5	1	5	8	31	14	16	16	10	8	5	3	3	2
New Construction	22	76	15	11	12	14	12	4	10	17	18	27	28	22	22
Foreclosure	9	3		4	14	24	14	11	16	5	2	5	1	1	1

Puget Sound Regional Council Estimate of Permitted Units in Mercer Island

Year	JURIS	NEWUNITS	LOSTUNITS	NETUNITS	SF	MF1-2	MF3-4	MF5-9	MF10-19	MF20-49	MF50+	MH	OTH
2011	MERCER ISLAND	196	-21	175	2	7	0	0	0	0	166	0	0
2012	MERCER ISLAND	121	-21	100	4	4	0	6	0	0	86	0	0
2013	MERCER ISLAND	66	-45	21	19	2	0	0	0	0	0	0	
2014	MERCER ISLAND	272	-43	229	18	2	0	0	0	0	209	0	0
2015	MERCER ISLAND	67	-40	27	25	2	0	0	0	0	0	0	0
2016	MERCER ISLAND	20	-12	8	7	1	0	0	0	0	0	0	0
2017	MERCER ISLAND	89	-38	51	39	12	0	0	0	0	0	0	0
	<i>Total</i>	831	-220	611	114	30	0	6	0	0	461	0	0

Permit data is collected by the Puget Sound Regional Council from Cities and Counties on an annual basis. Data for 2018 is not yet available

LostUnits = Demolished units

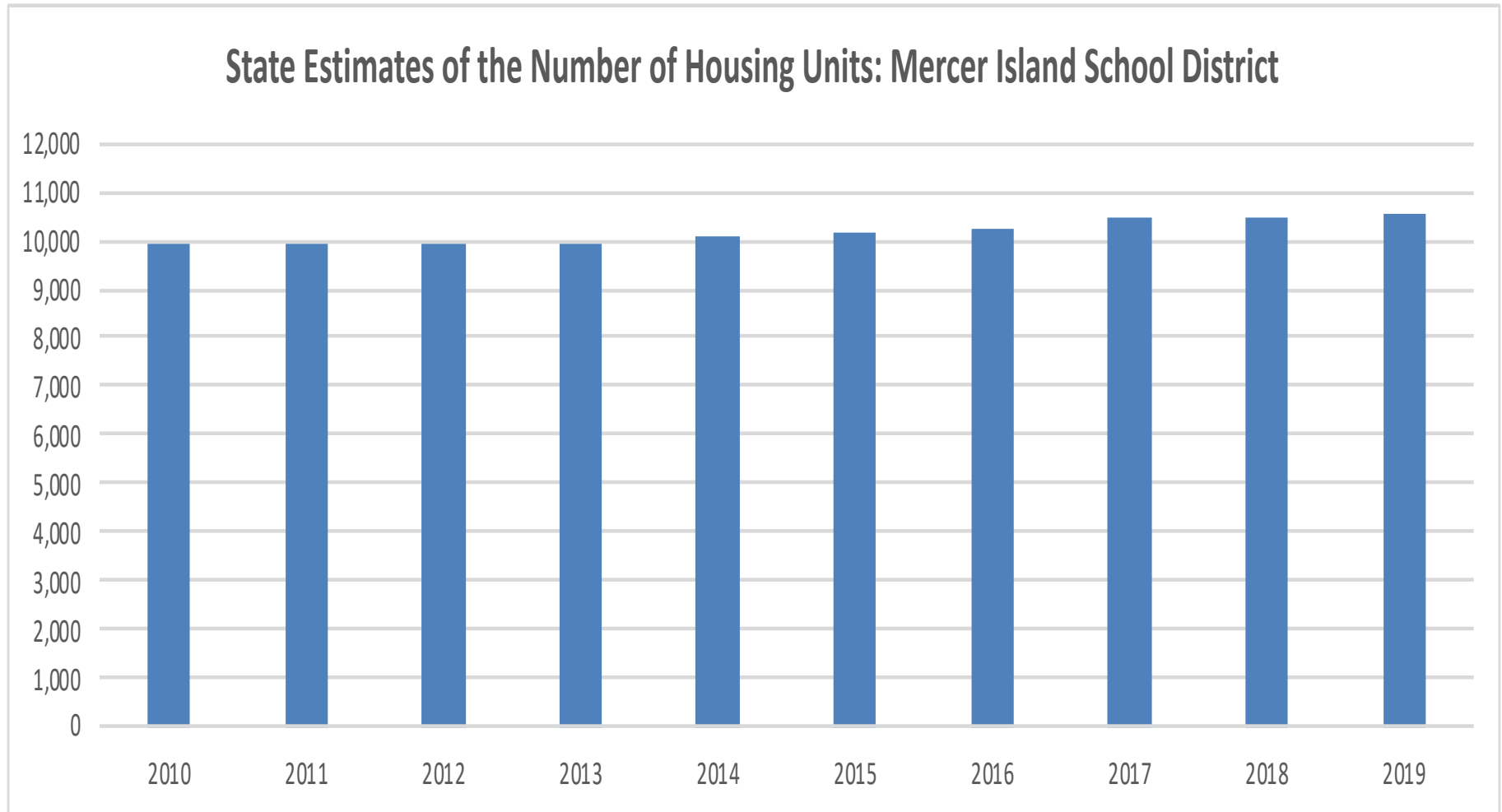
NetUnits = Difference between New and Lost

SF = Single Family Units

MF# = Multi-family units with differing numbers

Number of Housing Units

Source: Office of Financial Management, State of Washington



K-12 Public School Students Per House (King County Districts)

School District	P223 Oct 2010 Enroll	Census 2010 Total Housing Units	Census 2010 Occupied Units	Rounded Estimated K-12 Students Per 100 Homes	Rounded Estimated K-12 Students Per 100 Occupied
Tahoma	7,394	13,835	13,153	53	56
Snoqualmie Valley	6,019	13,693	12,635	44	48
Auburn	14,343	32,762	30,704	44	47
Kent	26,630	60,010	56,621	44	47
Issaquah	16,881	38,765	36,642	44	46
Federal Way	21,724	50,518	47,551	43	46
Mercer Island	4,177	9,930	9,109	42	46
Enumclaw	4,472	10,516	9,877	43	45
Riverview	3,152	7,470	7,019	42	45
Tukwila	2,908	7,353	6,817	40	43
Northshore	19,390	49,801	46,787	39	41
Highline	18,101	50,913	47,160	36	38
Bellevue	18,008	56,376	50,892	32	35
Lake Washington	24,592	76,389	71,711	32	34
Shoreline	8,808	28,028	26,561	31	33
Vashon Island	1,421	5,552	4,606	26	31
Renton	13,558	48,991	45,526	28	30
Seattle	46,794	308,858	283,793	15	16
Skykomish	49	823	330	6	15

**Note: The number of K-12 students per house is estimated using Census housing counts and the October 2010 P223 enrollment. The number of students per 100 homes was rounded to the nearest whole number.*

Private Schools

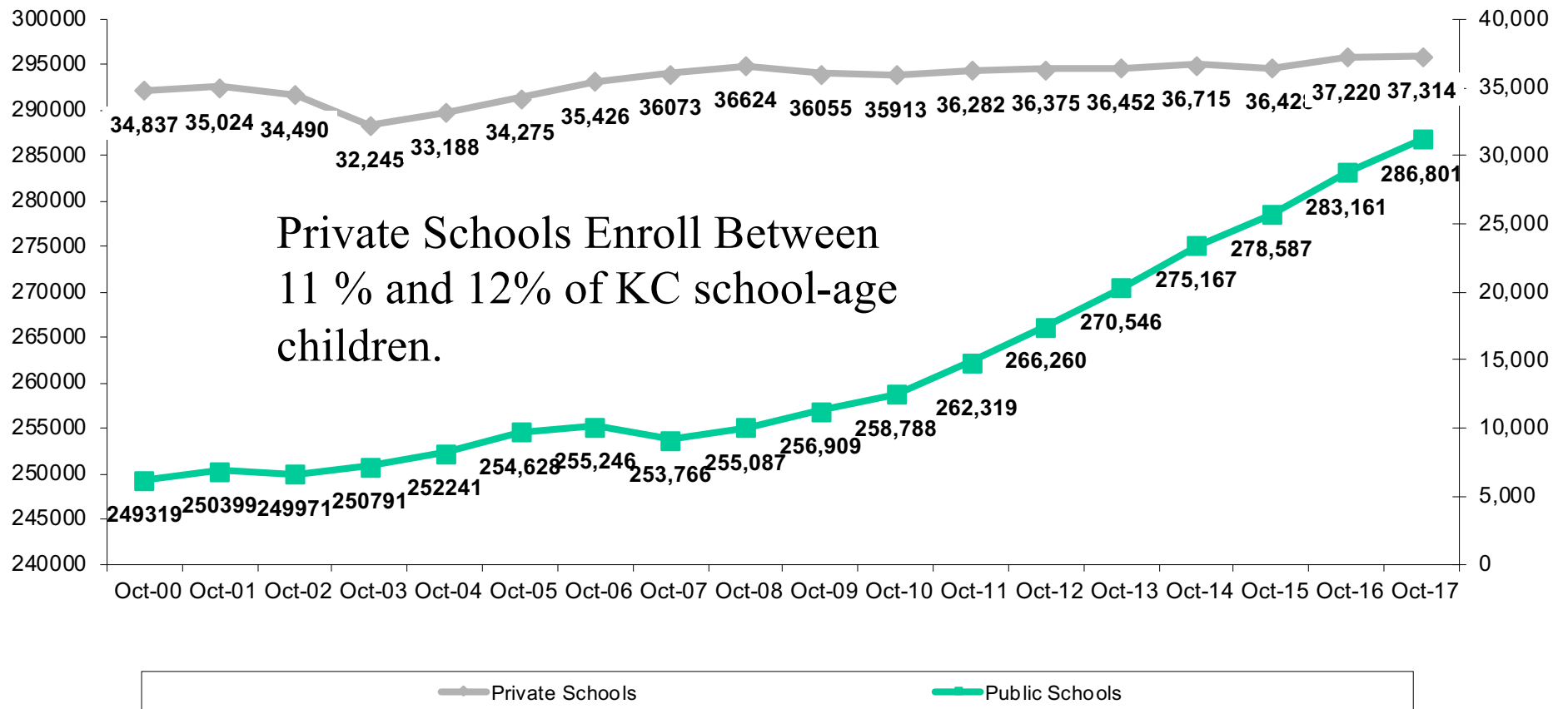
Private Schools

- Students on Mercer Island may attend private schools that are located on the Island, in Seattle, or in other areas around the Puget Sound.
- Private school enrollment in King County has increased some since 2010 but still makes up between eleven and twelve percent of the County's overall school enrollment. This percentage has remained relatively constant over the decade.
- Private school enrollment has been declining in Pierce and Snohomish County over the past decade.
- Enrollment for private schools located on Mercer Island, has declined by about 35 students since hitting a peak in 2010.
- There is no evidence at this time that private schools are having a significant impact on Mercer Island's enrollment, however, data for the 2018-19 school year is not available from the State at this time.

Public and Private School Enrollment King County (K-12 Only)

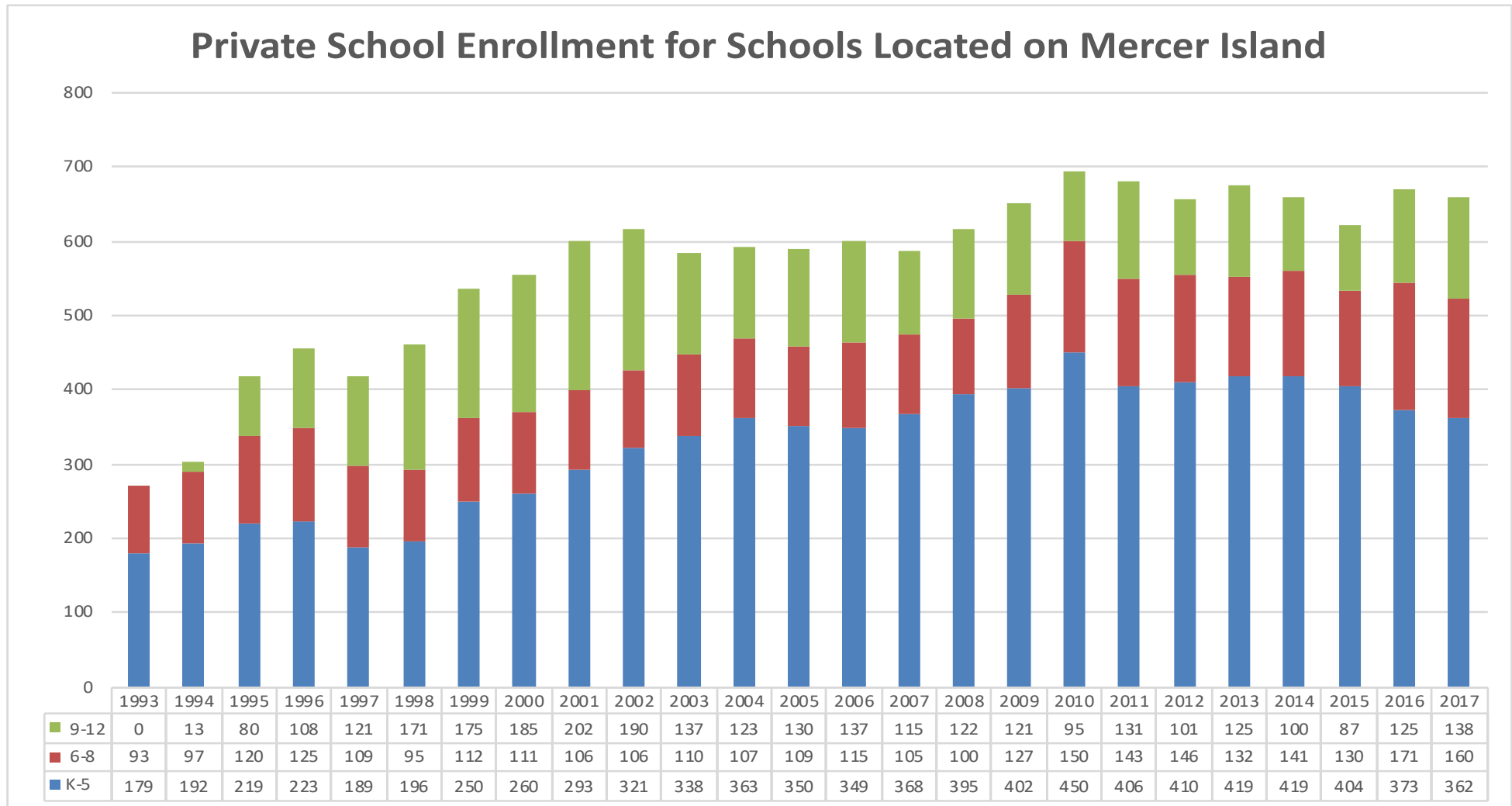
Source: P223 and P105 Report --State of Washington

Headcount



Enrollment for Private Schools Located in Mercer Island's Service Area

Source: OSPI Private School Enrollment Data



Enrollment Projections

Alternative Projections

Based on Different Models

- Before creating our final forecast models we created a set of alternative forecasts based on different methods. Some of the alternative forecasts (like the cohort models) consider births and enrollment trends by grade. Other forecasts predicted the total enrollment only based on housing, population and births. A description of each forecast is provided below.
- **3, 5, and 10 year Cohort Models:** These models show what might happen if the average of the grade level enrollment trends for the past three, five, and ten year period were to continue into the future. These models can be good if you believe that the most recent trends (e.g., the most recent three years) will not change much in future years. They are less reliable when future demographic trends look different from the recent past.
- **Linear Models Based on County Births and Local Population:** These models use the number of County births, and projected births along with the three alternative forecasts of Mercer Island's population to predict K-12 enrollment. Generally the higher the births and the population the higher the enrollment since these two indicators are highly correlated with enrollment. This is not universally true, however, especially if population consists mostly of young singles, or older childless couples.

Alternative Projections

Based on Different Models

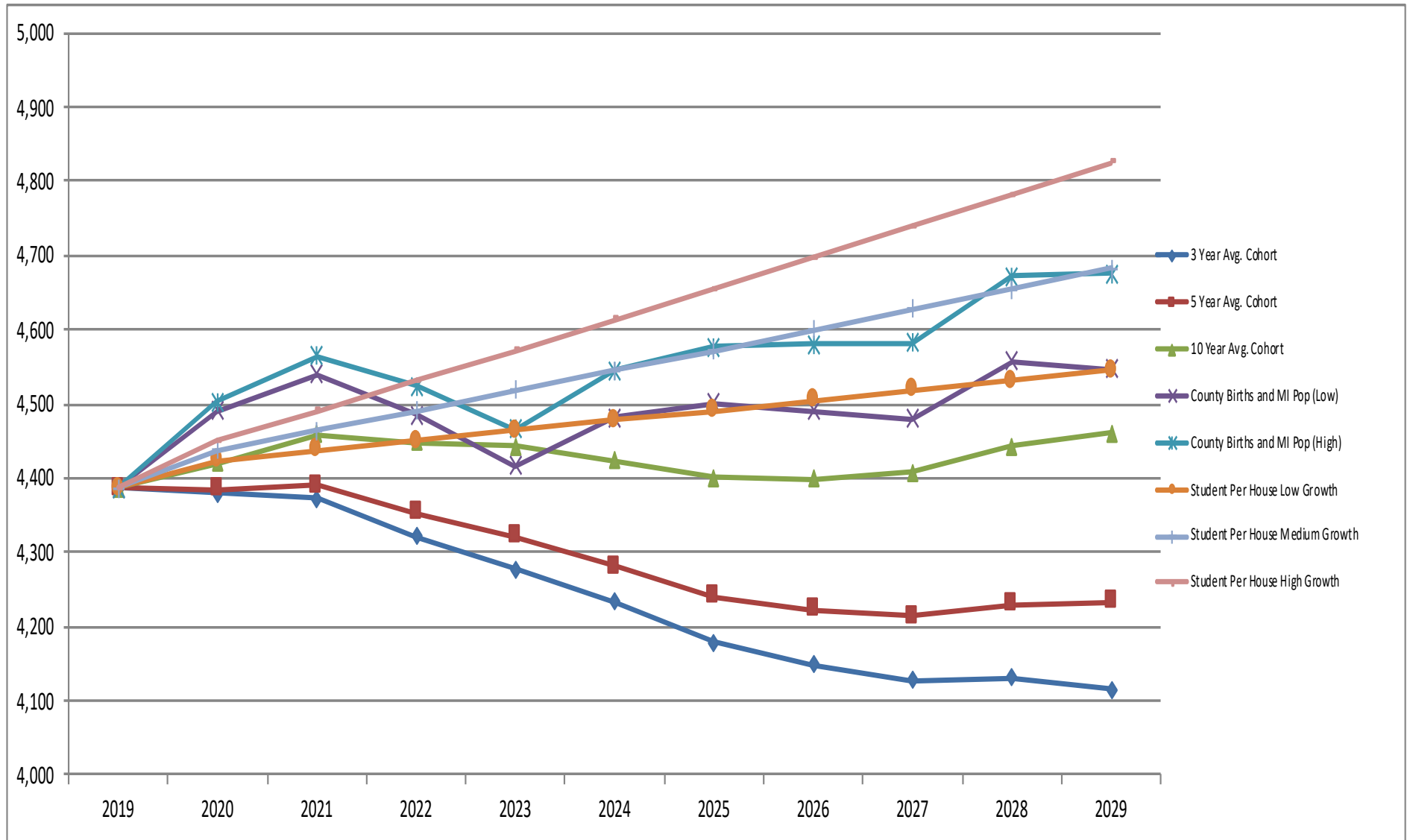
- **Housing Yield Forecasts:** These models apply the number of K-12 public school students per house from the 2010 Census to the alternative projected totals of future housing units in the District. These models assume that the number of students per house remains relatively stable over the course of the forecast. This is a reasonable assumption for the initial years of the forecast though it is possible that the number of students per house could change in future years based on the specific combination of housing types (multi-family versus single family) and/or based on changes in the percentage of the population that is school age. The assumptions that it will remain stable is supported by the latest data for 2019 which shows about the same number of students per house as the 2010 Census count. It has not changed much over the past decade.
- **Results:** The results of these different models are shown on the following pages. In general the average of multiple forecasts is often a better indicator of the future than any one forecast. Our final forecast numbers were adjusted for predicted growth and gains in housing and population so that they would correspond relatively close to the low, medium, and high range estimates presented here. As can be observed from the graph on page 57 there is substantial variation in the different models which suggests we are facing a high degree of uncertainty about the future.

Forecast Estimates Using a Variety of Methods

<u>Cohort Forecasts*</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>2026</u>	<u>2027</u>	<u>2028</u>	<u>2029</u>	<u>2030</u>
3 Year Avg. Cohort	4,387	4,379	4,372	4,321	4,277	4,233	4,179	4,149	4,128	4,132	4,115	4,084
5 Year Avg. Cohort	4,387	4,384	4,389	4,352	4,321	4,281	4,241	4,222	4,214	4,230	4,232	4,218
10 Year Avg. Cohort	4,387	4,420	4,459	4,448	4,443	4,423	4,401	4,400	4,408	4,443	4,460	4,458
Linear Models (Based on Total Enrollment Only -- 10 Year History)												
County Births and MI Pop (Low)	4,387	4,491	4,540	4,486	4,416	4,482	4,502	4,491	4,479	4,557	4,546	4,544
County Births and MI Pop (High)	4,387	4,503	4,565	4,523	4,466	4,545	4,578	4,580	4,581	4,673	4,676	4,688
Students Per House Forecast (Based on Alternative Pop/Housing Forecasts)												
Student Per House Low Growth	4,387	4,424	4,437	4,451	4,464	4,477	4,491	4,504	4,518	4,531	4,545	4,559
Student Per House Medium Growth	4,387	4,437	4,464	4,491	4,518	4,545	4,572	4,600	4,627	4,655	4,683	4,711
Student Per House High Growth	4,387	4,451	4,491	4,531	4,572	4,613	4,655	4,696	4,739	4,781	4,824	4,868
Average of all Forecasts	4,436	4,465	4,450	4,434	4,450	4,452	4,455	4,462	4,500	4,510	4,516	

*Kindergarten enrollment in the cohort forecasts is based on the District's average share of the County birth cohort (K enrollment compared to births) for the past three, six, and ten years, multiplied by actual and projected birth cohorts expected to enroll between 2020 and 2030

Graph of Alternative Forecasts



Final Enrollment Projections

Methods and Assumptions

An enrollment forecast is based on assumptions and mathematical calculations that convert these assumptions into numbers. The previous sections have identified a number of assumptions about births, grade level enrollment trends, population, and housing growth that are likely to impact the district in the coming years. This section describes the specific assumptions that guided the development of the forecasts.

The forecasts in this document were based on consideration of several factors:

The size of future birth cohorts and the projected share of that cohort that is likely to enroll in Mercer Island kindergartens.

Average grade-to-grade growth as students progress through the grades.

Predicted growth in the K-12 population based on alternative housing and population forecasts for the District.

The number of public school students per house.

The relationship between public and private school enrollment.

Methods and Assumptions

Births and Kindergarten Enrollment

Both county and city births were used to project kindergarten. The number of county births is known through 2018 which means we can predict kindergarten enrollment based on actual births out to 2023. Beyond that point births were projected based on the most recent fertility rates for the county and the forecast of the number of women likely to reach their childbearing years over time, using the medium range county forecast from the State. Births for the city of Mercer Island are also known through 2018. Births on Mercer Island beyond 2018 were predicted based on the correlation between city and county births. On average city births make up about six-tenths of a percent of the births in the county. This trend has been relatively consistent over the past decade.

Projecting Kindergarten Enrollment

Kindergarten enrollments were projected using birth-to-k ratios. The birth-to-k ratio compares the kindergarten enrollment in a given year to births five years prior to that year. The District's birth-to-k ratio has averaged about one percent of county births over the past decade. The District's share of city births is greater than 100% since there are families with preschool age children who move to Mercer Island before their children reach kindergarten age. The projection model uses the six year median birth-to-k ratio for both the city and the county to predict future enrollment, taking an average of the two estimates. This method was deemed reasonable since the number of city births is very small and does not always capture the larger birth trends that are likely to affect K-12 enrollment in the county. We also know from our linear models (reported earlier) that County births together with projected population totals for Mercer Island are highly correlated with K-12 enrollment.

Continuing Grades

Projecting Grades 1-12

The forecasts at grades one to twelve were based on grade level cohort ratios which predict the net gain and/or loss in enrollment as students progress from one grade to the next. We used the average rate from the past three years which reflects the most recent trends. The enrollment at each grade level was multiplied by the appropriate cohort ratio to project enrollment forward and then adjusted for projected changes in population and housing growth over time.

Adjustments for Population Growth

Adjustments for Population Growth

The cohort model shows what might happen if the current trends were to continue indefinitely into the future, with some adjustments for projected changes in the birth trends over time. What we also need to consider, however, is the effect of additional population and housing growth in Mercer Island and the county, especially growth in the K-12 population.

Our previous models based on population and housing provide us with alternative estimates of future enrollment. We applied growth factors to our forecasts to simulate the effects of low, medium and high growth rates. In other words, we tried to get our forecast to align as closely as possible with the low, medium, and high range estimates provided in the earlier section of this report. The numbers will differ to some degree, of course, because they take into account the size of each year's graduating class and each year's entering kindergarten, as well as the way in which students roll up through the grades. The final numbers in all of the models are, close to the low, medium, and high range alternative forecast estimates presented earlier.

The medium range forecast shows the District declining some in the near term with enrollment remaining relatively flat (2020 to 2025). After that time period we are predicting that enrollment will began growing again due the development of additional housing. Our medium range forecast in this report is lower overall than the one from the previous report, due primarily to our projection of lower K-12 County enrollment growth than in our previous forecast (2017).

Considerations

The low and high forecasts show what might happen if housing and population growth were to be lower or higher than what is assumed in the medium range forecast. Enrollments may well decline more than expected over the next few years (similar to the low forecast) if home sales remain low and there is relatively little new development. In addition, we are starting to see slow downs in K-12 population growth in King County. The high range forecast, on the other hand, shows what might happen if housing and population growth were to be higher than expected for a variety of reasons (increased housing density, greater availability of affordable housing, or if the recently greater than expected population growth in Seattle and King County were to continue indefinitely into the future). Currently we are predicting that population growth in King County will moderate some over the next decade, consistent with State forecasts.

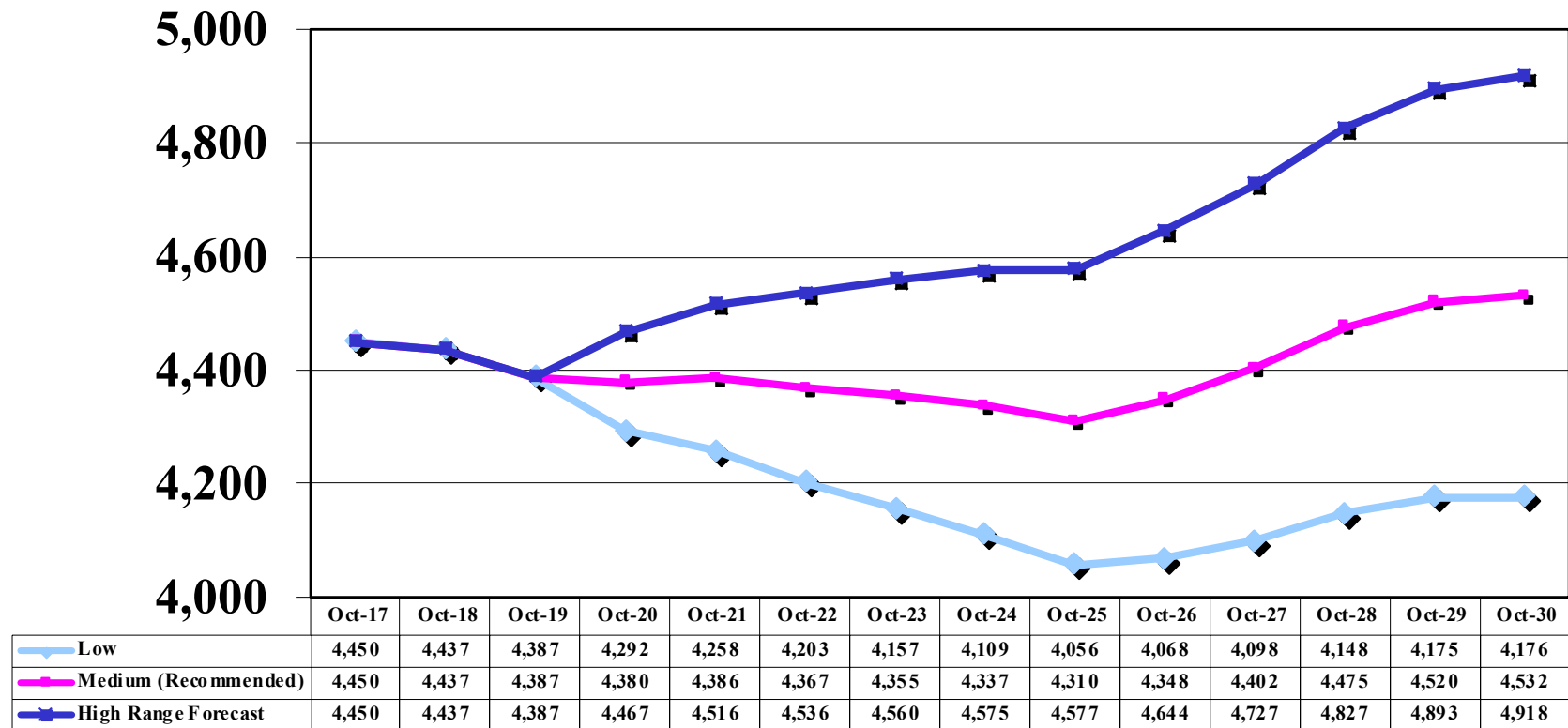
There is greater variation between the low, medium, and high range forecasts in this year's report than in our last report. This is due to the greater variation that we are seeing in our alternative forecast models. It also indicates a greater degree of uncertainty when predicting the future.

Finally, these forecasts assume that changes in enrollment are equal from year to year. In reality enrollment may grow a lot in one year, a little in another, decline in another year and stay at the same level in the following year. The recommended forecast assumes a certain amount of growth between now and 2025 and a different rate of growth between 2026 and 2030. The actual growth in a given year may vary from the averages assumed over the different periods of the forecast.

Mercer Island District Forecast

Alternative Forecasts 2020-2030

Based on Grade Level Trends and Alternative Projections of Population and Housing



Appendix A

Final Forecast Numbers

Headcount Forecasts by Grade Level

Mercer Island (October Headcount Enrollment)

Births	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>
Mercer Island Births	140	130	167	136	121	155	132	150	126	156	143	142	175	150	128	138	145	148	156	179
King County Births	21817	21573	21646	22212	22007	22487	21778	21863	22,431	22874	22680	24244	24,899	25190	25057	24514	24,630	25,032	24,910	25,348
K Enroll as % of Cnty	1.20%	1.11%	1.05%	1.05%	0.95%	1.11%	1.14%	1.06%	1.13%	1.00%	1.17%	1.02%	1.06%	1.00%	0.98%	0.95%	0.98%	1.07%	0.97%	0.93%
K Enroll as a % of City	186%	184%	136%	171%	172%	161%	188%	155%	202%	147%	186%	174%	151%	168%	192%	169%	167%	182%	155%	132%
City % of County Cohort	0.64%	0.60%	0.77%	0.61%	0.55%	0.69%	0.61%	0.69%	0.56%	0.68%	0.63%	0.59%	0.70%	0.60%	0.51%	0.56%	0.59%	0.59%	0.63%	0.71%

	<u>2000</u>	<u>2001</u>	<u>2002</u>	<u>2003</u>	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
K	261	239	227	233	208	250	248	232	254	229	266	247	264	252	246	233	242	269	242	236
1	259	276	257	257	260	224	283	276	267	283	280	294	277	298	287	273	256	280	296	259
2	306	277	291	276	259	274	227	294	294	280	304	294	311	297	317	305	298	261	293	302
3	330	309	276	308	282	266	290	255	306	311	305	305	310	336	317	343	324	313	276	303
4	314	330	309	297	330	292	275	311	281	316	339	320	331	337	361	326	356	336	321	307
5	360	318	332	331	301	345	306	279	320	280	328	341	322	339	358	356	348	367	344	331
6	362	356	316	349	341	301	353	298	282	347	282	343	362	338	360	378	363	371	382	358
7	350	364	368	325	359	339	304	369	304	290	346	311	348	370	358	369	398	367	371	388
8	349	352	369	381	340	352	343	308	365	314	305	357	320	350	374	356	363	408	384	393
9	343	347	354	351	392	344	343	334	336	383	320	337	362	332	364	398	368	368	403	386
10	350	335	343	360	355	387	346	337	341	350	393	335	339	364	333	368	412	367	368	407
11	340	334	343	333	364	363	379	342	348	357	358	407	336	342	364	332	361	403	360	364
12	<u>377</u>	<u>343</u>	<u>348</u>	<u>339</u>	<u>340</u>	<u>366</u>	<u>351</u>	<u>369</u>	<u>360</u>	<u>343</u>	<u>351</u>	<u>352</u>	<u>388</u>	<u>329</u>	<u>319</u>	<u>334</u>	<u>320</u>	<u>340</u>	<u>397</u>	<u>353</u>
Tot	4,301	4,180	4,133	4,140	4,131	4,103	4,048	4,004	4,058	4,083	4,177	4,243	4,270	4,284	4,358	4,371	4,409	4,450	4,437	4,387

Growth	93	-121	-47	7	-9	-28	-55	-44	54	25	94	66	27	14	74	13	38	41	-13	-50
Percent	2.2%	-2.8%	-1.1%	0.2%	-0.2%	-0.7%	-1.3%	-1.1%	1.3%	0.6%	2.3%	1.6%	0.6%	0.3%	1.7%	0.3%	0.9%	0.9%	-0.3%	-1.1%
	1830	1749	1692	1702	1640	1651	1629	1647	1722	1699	1822	1801	1815	1859	1886	1836	1824	1826	1772	1738
	1061	1072	1053	1055	1040	992	1000	975	951	951	933	1011	1030	1058	1092	1103	1124	1146	1137	1139
	1410	1359	1388	1383	1451	1460	1419	1382	1385	1433	1422	1431	1425	1367	1380	1432	1461	1478	1528	1510

Low Range Forecast

				Projected Births											
				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
<u>6 year Trends at Kindergarten</u>				City Births	163	162	179	146	150	151	150	149	154	153	152
	Median	SD+1	SD-1	Cnty Births	25,487	26,011	25,273	24,337	25,073	25,237	25,029	24,807	25,681	25,477	25,373
% County	0.98%	1.03%	0.93%	% County	1.00%	0.99%	1.06%	0.97%	0.97%	0.97%	0.97%	0.97%	0.97%	0.97%	0.97%
% City	166%	187%	145%	% City	156%	159%	150%	162%	162%	162%	162%	162%	162%	162%	162%
City % of County	0.60%	0.66%	0.53%												

Rollup

Rate Used	<i>Adjusted for Future Pop/Housing Growth</i>																
3 Year	2020	2021-22	2023-25	2026-30	Private		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0.97%	0.970	0.975	0.983	0.986	1.000	K	254	258	268	237	244	245	243	241	250	248	247
1.095	0.975	0.990	0.995	0.996	1.000	1	252	275	279	292	258	266	273	271	268	278	276
1.029	0.975	0.990	0.995	0.996	1.000	2	260	257	280	286	299	264	282	290	288	285	295
1.045	0.975	0.990	0.995	0.996	1.000	3	308	269	265	291	297	311	278	297	306	303	300
1.071	0.975	0.990	0.995	0.996	1.000	4	316	326	285	283	311	317	328	294	314	323	320
1.029	0.975	0.990	0.995	0.996	1.000	5	308	322	332	292	289	318	323	335	300	321	330
1.045	0.980	0.990	0.995	0.996	1.000	6	339	319	333	345	303	301	332	338	350	313	335
1.010	0.980	0.990	0.995	0.996	1.000	7	354	339	318	335	347	305	313	346	352	365	326
1.049	0.980	0.990	0.995	0.996	1.000	8	399	368	352	332	350	362	306	315	348	354	367
1.001	0.984	0.990	0.995	0.996	1.000	9	387	395	365	350	331	348	378	320	329	363	370
1.005	0.975	0.990	0.995	0.996	1.000	10	378	385	393	364	350	331	353	384	324	334	368
0.985	0.975	0.990	0.995	0.996	1.000	11	391	369	375	385	357	343	331	353	384	324	334
0.976	0.975	0.990	0.995	0.996	1.000	12	<u>346</u>	<u>377</u>	<u>356</u>	<u>364</u>	<u>374</u>	<u>346</u>	<u>326</u>	<u>315</u>	<u>336</u>	<u>365</u>	<u>308</u>
						Tot	4292	4258	4203	4157	4109	4056	4068	4098	4148	4175	4176

Change	-95	-34	-55	-46	-48	-53	12	30	50	27	1
Percent	-2.2%	-0.8%	-1.3%	-1.1%	-1.1%	-1.3%	0.3%	0.7%	1.2%	0.7%	0.0%

K-5	1698	1707	1710	1680	1698	1720	1728	1728	1725	1757	1768
6-8	1092	1025	1004	1013	1000	968	952	999	1050	1032	1028
9-12	1502	1526	1489	1464	1412	1369	1389	1371	1373	1386	1380

Projection King County K-12

KC K-12	292,717	295,570	297,235	297,931	298,484	298,283	297,813	297,110	297,837	298,371	298,842
Market share	1.47%	1.44%	1.41%	1.40%	1.38%	1.36%	1.37%	1.38%	1.39%	1.40%	1.40%

Medium Range Forecast (Growth Rates Based off of the Medium Range Pop/Housing Forecast)

				Projected Births											
				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
6 year Trends at Kindergarten				City Births	163	162	179	146	150	151	150	149	154	153	152
	Median	SD+1	SD-1	Cnty Births	25,487	26,011	25,273	24,337	25,073	25,237	25,029	24,807	25,681	25,477	25,373
% County	0.98%	1.03%	0.93%	% County	1.02%	1.01%	1.08%	0.99%	0.99%	0.99%	0.99%	0.99%	0.99%	0.99%	0.99%
% City	166%	187%	145%	% City	159%	162%	153%	165%	165%	165%	165%	165%	165%	165%	165%
City % of County	0.60%	0.66%	0.53%												

Rollup

Rate Used	<i>Adjusted for Future Pop/Housing Growth</i>																
3 Year	2020	2021-22	2023-25	2026-30	Private		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0.97%	0.990	0.995	1.003	1.006	1.000	K	259	263	274	241	249	250	248	246	255	253	252
1.095	0.995	1.000	1.005	1.006	1.000	1	257	284	288	301	266	274	281	279	277	286	284
1.029	0.995	1.000	1.005	1.006	1.000	2	265	264	292	298	311	275	294	302	299	297	307
1.045	0.995	1.000	1.005	1.006	1.000	3	314	277	276	307	313	327	292	313	321	319	316
1.071	0.995	1.000	1.005	1.006	1.000	4	323	336	297	297	330	336	349	312	333	343	340
1.029	0.995	1.000	1.005	1.006	1.000	5	314	332	346	307	307	341	347	360	322	344	354
1.045	1.000	1.000	1.005	1.006	1.000	6	346	328	347	363	322	323	360	366	379	340	363
1.010	1.000	1.000	1.005	1.006	1.000	7	361	349	332	352	368	327	340	379	385	399	357
1.049	1.000	1.000	1.005	1.006	1.000	8	407	379	366	350	371	389	332	345	385	391	405
1.001	1.004	1.000	1.005	1.006	1.000	9	395	407	380	369	352	374	410	350	364	406	413
1.005	0.995	1.000	1.005	1.006	1.000	10	386	397	409	383	372	355	382	420	359	373	416
0.985	0.995	1.000	1.005	1.006	1.000	11	399	380	391	405	379	368	359	386	424	362	377
0.976	0.995	1.000	1.005	1.006	1.000	12	<u>353</u>	<u>389</u>	<u>371</u>	<u>383</u>	<u>397</u>	<u>372</u>	<u>354</u>	<u>345</u>	<u>371</u>	<u>408</u>	<u>348</u>
						Tot	4380	4386	4367	4355	4337	4310	4348	4402	4475	4520	4532

Change	-7	7	-19	-12	-18	-28	38	54	73	45	12
Percent	-0.2%	0.2%	-0.4%	-0.3%	-0.4%	-0.6%	0.9%	1.3%	1.7%	1.0%	0.3%

K-5	1732	1757	1772	1751	1776	1803	1811	1811	1808	1842	1853
6-8	1114	1057	1045	1065	1062	1038	1031	1090	1149	1130	1126
9-12	1533	1573	1550	1540	1500	1468	1505	1501	1518	1548	1553

Projection King County K-12

KC K-12	292,717	295,570	297,235	297,931	298,484	298,283	297,813	297,110	297,837	298,371	298,842
Market share	1.50%	1.48%	1.47%	1.46%	1.45%	1.44%	1.46%	1.48%	1.50%	1.52%	1.52%

High Range Forecast

6 year Trends at Kindergarten				Projected Births											
				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
	Median	SD+1	SD-1	City Births	163	162	179	146	150	151	150	149	154	153	152
% County	0.98%	1.03%	0.93%	Cnty Births	25,487	26,011	25,273	24,337	25,073	25,237	25,029	24,807	25,681	25,477	25,373
% City	166%	187%	145%	% County	1.04%	1.03%	1.10%	1.01%	1.01%	1.01%	1.01%	1.01%	1.01%	1.01%	1.01%
City % of County	0.60%	0.66%	0.53%	% City	162%	166%	156%	169%	169%	169%	169%	169%	169%	169%	169%

Rollup

Rate Used	<i>Adjusted for Future Pop/Housing Growth</i>																
3 Year	2020	2021-22	2023-25	2026-30	Private		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
0.97%	1.010	1.015	1.023	1.026	1.000	K	264	268	279	246	254	255	253	251	260	258	257
1.095	1.015	1.010	1.015	1.016	1.000	1	262	292	297	310	274	282	290	288	285	295	293
1.029	1.015	1.010	1.015	1.016	1.000	2	270	272	304	310	324	286	306	314	312	309	320
1.045	1.015	1.010	1.015	1.016	1.000	3	320	285	287	322	329	343	307	329	338	335	332
1.071	1.015	1.010	1.015	1.016	1.000	4	329	346	309	312	350	357	370	331	354	364	361
1.029	1.015	1.010	1.015	1.016	1.000	5	321	342	360	322	326	366	372	385	345	369	379
1.045	1.020	1.010	1.015	1.016	1.000	6	353	338	361	382	342	346	390	397	411	368	393
1.010	1.020	1.010	1.015	1.016	1.000	7	369	360	345	370	391	350	368	414	422	437	391
1.049	1.020	1.010	1.015	1.016	1.000	8	415	391	381	367	394	417	359	377	425	432	448
1.001	1.024	1.010	1.015	1.016	1.000	9	403	420	395	387	373	400	444	383	402	453	461
1.005	1.015	1.010	1.015	1.016	1.000	10	394	409	426	403	395	381	414	459	396	416	468
0.985	1.015	1.010	1.015	1.016	1.000	11	407	391	406	426	402	395	388	423	469	404	424
0.976	1.015	1.010	1.015	1.016	1.000	12	<u>360</u>	<u>401</u>	<u>386</u>	<u>402</u>	<u>421</u>	<u>399</u>	<u>383</u>	<u>377</u>	<u>410</u>	<u>455</u>	<u>392</u>
						Tot	4467	4516	4536	4560	4575	4577	4644	4727	4827	4893	4918

Change	80	49	19	25	15	1	68	83	100	66	25
Percent	1.8%	1.1%	0.4%	0.5%	0.3%	0.0%	1.5%	1.8%	2.1%	1.4%	0.5%

K-5	1767	1807	1835	1823	1856	1889	1898	1898	1893	1929	1941
6-8	1137	1089	1087	1119	1127	1113	1117	1188	1257	1237	1232
9-12	1563	1620	1613	1618	1592	1574	1629	1641	1677	1727	1745

Projection King County K-12

KC K-12	292,717	295,570	297,235	297,931	298,484	298,283	297,813	297,110	297,837	298,371	298,842
Market share	1.53%	1.53%	1.53%	1.53%	1.53%	1.53%	1.56%	1.59%	1.62%	1.64%	1.65%

Consultant Background and Experience

Dr. Kendrick was the demographer for the Seattle Public schools from 1990 to 1997. In that capacity he provided enrollment projections to facilitate staffing and facilities planning and helped with the management of the student assignment system. He also provided analysis of the relationship between demographics and test scores.

Since 1997 he has worked as a consultant providing demographic analysis and enrollment projections for local school districts. Over the past 20 years his clients have included the following Districts: Auburn, Bainbridge Island, Bellingham, Bellevue, Bethel, Bremerton, Central Kitsap, Edmonds, Enumclaw, Federal Way, Marysville, Mercer Island, Monroe, North Kitsap, Olympia, Renton, Seattle, South Kitsap, Shoreline, Snoqualmie Valley, Sumner, and Tukwila. He also does annual enrollment projection work for the Everett, Highline, Mukilteo, Northshore, Puyallup, and Tacoma School Districts. He has worked in all four counties of the Puget Sound and is familiar with the different trends and patterns across the region.