MEMORANDUM

To: Samantha Nelson
Finance Director
McMinnville School District

Date: March 4, 2022
Project: F1608.03.002

From: Benjamin Maloney
Project Manager/Demographer

RE: 2022–23 to 2031–32 Enrollment Forecasts Report—McMinnville School District

At the request of the McMinnville School District (District/MSD), FLO Analytics (FLO) has prepared forecasts of future student enrollment for grades kindergarten (K) through 12 for school years 2022–23 to 2031–32. The study was completed through three main tasks: (1) Student Enrollment Assessment, (2) Demographic and Land Use Analyses, and (3) Student Enrollment Forecasting, and the resulting forecasts are reported at various levels of geography and from different perspectives of enrollment (see Forecast Perspectives section below). District-wide enrollment forecasts represent the total number of students living both within and outside the district boundary and attending District schools and programs. These forecasts are provided as a district total and per-grade group. More granular residence-based and building/program attendance forecasts were also prepared, which include district-wide totals per individual grade and the number of students anticipated to reside in and attend each of the District's elementary-, middle-, and high-school attendance areas (AAs) and schools/programs.

STUDENT ENROLLMENT ASSESSMENT

To better understand recent enrollment trends, FLO analyzed historical (2016–17 to 2020–21) and current October 2021–22 Student Information System (SIS) provided by the District. We evaluated historical grade progression ratios (GPRs), participation in special or nontraditional programs, demographic characteristics of the student body (e.g., residence in single-family [SF] or multifamily [MF] housing), and differences in enrollment based on residence versus building attendance (i.e., transfer rates). All students contained within the MSD SIS data, except for students attending preschool (PS) were included in our analyses and enrollment forecasts. This task also included mapping the existing AA configurations (Figure 1) and the distribution of the student body across the district and surrounding area based on student residences (Figure 2).

Figure 3 shows the district-wide enrollment per individual grade based upon the SIS information provided to FLO by the District. Prior to the 2020–21 school year, enrollment had steadily decreased, contracting by 81 students from 2016–17 to 2019–20. Primarily due to the effects of COVID-19, enrollment declined markedly between the 2019–20 and 2020–21 school years, decreasing by 373 students. Grades K, 2–7, 10, and 11 all experienced a decline in enrollment from the prior year. Grades experiencing a decline in 2020–21 averaged 59 fewer students compared to enrollment in 2019–20. In contrast, enrollment in grades 1, 8–9, and 11 increased (an average of 39 additional students). District-wide enrollment expanded in 2021–22 (48 additional students) with grades K, 2, 4, 9–10, and 12 experiencing an increase. Grades experiencing an increase in 2021–22 enrollment

averaged 47 additional students. Grades experiencing a decline in 2021–22 enrollment (grades 1, 3, 5–8, and 11), averaged 34 fewer students than in 2020–21; however, all grades that experienced a contraction in 2021–22 enrollment are associated with cohorts that experienced a comparatively large decline in 2020–21 enrollment.

Figure 4 tabulates enrollment by grade group and school. From 2016–17 to 2019–20, elementary school (ES; grades K–5) and high school (HS; grades 9–12) enrollment declined by 232 and 41 students. At the same time, middle schools (MS; grades 6–8) contributed 192 additional students, primarily due to the presence of a comparatively large grade 7 cohort in 2019–20. Concerns regarding COVID-19 likely contributed to enrollment declines at ES (293 fewer students), MS (36 fewer students), and HS (44 fewer students) from 2019–20 to 2020–21. From 2016–17 to 2020–21, ES and HS enrollment declined by 525 and 85 students, respectively. Meanwhile, MS enrollment expanded by 156 students, largely due to the ongoing presence of the aforementioned cohort within the grade group (grade 8 in 2020–21)

Despite further uncertainty due to the continuing COVID-19 pandemic, students began to return to the District in 2021–22, with both the ES (54 additional students) and HS (86 additional students) experiencing an increase in enrollment since the 2020–21 school year. MS enrollment declined in 2021–22 (92 fewer students), due to the aforesaid cohort exiting the grade group while being replaced by a relatively smaller cohort matriculating into the grade group. Because of the gradual decline in historical enrollment (2016–17 to 2019–20), a trend that has been exacerbated by the impact of COVID-19, no ES experienced an increase in enrollment between 2016–17 and 2021–22. Over the same time period, MS enrollment increased by 64 students with enrollment at Duniway MS and Patton MS expanding by 50 and 14 students, respectively. While there has been some year-to-year variation, HS enrollment increased by one student over the same time period.

Based on our analysis of district-wide transfers (Figure 5), a total of 202 students who live outside the district boundary transferred into district schools, representing 3.1 percent of enrollment. Overall, 628 students residing within the district boundary transferred to a school or program different from their residence school, which is based on the AA in which they live. This amounts to a district-wide intradistrict transfer rate of 10.1 percent. Transfers occur within all grade groups, but the largest percent of transfers occurs within the K–5 grade group, with a transfer rate total of 19.0 percent.

As depicted in the residence-attendance matrices (Figures 6 through 8) per grade group, transfer rates also differ per school/program. For instance, transfer-out rates for ES AAs range from 10.9 percent to 26.9 percent. From the perspective of building attendance, ES transfer-in rates range from 11.1 percent to 33.5 percent. Schools with higher transfer-in rates are typically due to a preference in programming and/or location. These transfer rates can help reveal patterns of student choice or quantify district policies. For instance, if a particular school with a high transfer-in rate began to experience overcrowding, the District may reconsider transfer policies or programming in order to alleviate enrollment issues. At the MS level, the difference in transfer-in percentages is minimal with 11.6 percent (Duniway MS) to 11.7 percent (Patton MS). Transfer-out rates range from 7.8 percent (Duniway MS) to 10.2 percent (Patton MS). As the only high school within the district, McMinnville HS exhibits a transfer-in rate of 3.6 percent (from out of district) and a 0.0 percent transfer-out rate.

DEMOGRAPHIC AND LAND USE ANALYSIS

In order to incorporate overarching factors that underpin student enrollment, FLO reviewed and analyzed historical, current, and projected demographic characteristics of the region; trends of population change over time; current land use policies; and anticipated residential development. For these efforts, land use data (e.g., construction permits, zoning, comprehensive plans) and

demographic information (e.g., births, female population of childbearing age) are gleaned from a variety of sources, chief of which are the regional, county, and municipal planning departments that manage and track land use in the district. For more details, see the Data Sources section below.

To better understand current land use based on the aforementioned data as well as the potential for change, we conducted interviews with planners from Yamhill County and the municipalities of McMinnville and Lafayette to discuss foreseeable residential growth (or decline) in the district through the 2031–32 forecast horizon. Key development data acquired through these meetings are presented in Figures 9–11. Figure 9 reports the estimated number of housing units by single-family and multifamily categories per the next two five-year periods, based on available data from the City of McMinnville, City of Lafayette, and Yamhill County. Figure 10 depicts the locations of SF and MF developments that are currently in construction or are expected to be built by 2031. Figure 11 includes details of acquired residential development data, such as data source, housing unit type, anticipated number of units per time period, and assorted notes.

Certified April 1, 2021, population estimates prepared by the Portland State University Population Research Center (PSU PRC) report the City of McMinnville population to be 34,251, an increase of 6.1 percent over the 2011 population estimate (32,270). Over the past three years, the population of McMinnville has increased at a rate of 0.4 percent per year. While the population growth has slowed recently, housing development has continued at a rapid pace, particularly on the north and west side of the District. McMinnville planners state that while there has and will continue to be SF development, the rate of MF construction has been increasing recently due to a lack of available developable land. However, there are ongoing plans to update the Urban Growth Boundary (UGB) to accommodate 10,000 additional people. Significant residential developments that are expected to begin and/or conclude during the forecast period include Baker Creek North (280 SF and 120 MF units), Oak Ridge (108 SF units), and the Hillcrest Master Plan (488 SF units). McMinnville planners also indicated the potential for a 200-unit affordable housing project once funding is secured. While the population of Lafayette has been increasing at a rate of 2.7 percent per year over the last three years, there is only one known development occurring within the portion of the city that is within the district boundary, a 16–20-unit MF building located near the intersection of E 8th Street and SE Jefferson Street.

Based on overarching population and housing trends, as well as current and projected rates of development, we estimate the number of housing units by type that may be constructed within the 2021 to 2026 and 2026 to 2031 periods (Figure 9). Within the first five-year period, we anticipate residential development amounting to 791 units, followed by 574 units in the second five-year period. These estimates are the result of the rate of development witnessed over the past five years, forecasted population growth within the district, and sentiment conveyed by planners from the City of McMinnville, City of Lafayette, and Yamhill County.

Housing type is an important indicator of the number of students who can be expected to be yielded from a housing unit. For instance, on average, SF housing units generate more students per unit than MF housing units. Factors that contribute to student generation rates (or yields) include the size of housing units, the number of bedrooms, housing costs, and neighborhood demographics. We assessed residential housing units throughout the district and determined that, of students enrolled in district schools in 2021–22, 78.1 percent reside in SF housing units, 21.2 percent in MF housing units, and 0.7 percent in unspecified housing units that we are unable to immediately classify as SF or MF.

FLO defines SF and MF housing in accordance with the U.S. Census American Community Survey Subject Definitions and other sources of demographic research and population forecasts (e.g., Portland State University Population Research Center). SF housing includes one-unit structures that

are fully detached from other housing, as well as attached dwellings (e.g., row houses and townhouses). In the case of attached units, to be classified as an SF structure, each unit must be separated from the adjacent unit by a ground-to-roof wall, and units must not share heating/air-conditioning systems or utilities. MF housing is defined as residential buildings containing two or more housing units that do not have a ground-to-roof wall and/or have common facilities (attic, basement, heating, plumbing, etc.).

Average student generation rates vary by geographic location in the district and by housing subtypes (e.g., SF detached, townhome, duplex, multiunit apartments). We determine student generation rates for district subregions, typically U.S. Census block groups, which contribute to district-wide averages per SF and MF housing units. Based on currently available residential housing data, average student generation rates in the district were estimated to be 0.47 students per SF housing unit and 0.31 students per MF housing unit (Figure 12).

The number of students enrolled in a district is largely influenced by the number of school-aged children residing within the county. We compare Oregon Health Authority's historical birth data (i.e., live births within the district) to historical K class sizes to determine annual K percent of births values (i.e., the number of kindergarteners who enroll with the District divided by the number of live births within the county five years prior). These values, combined with age-group-specific population projections of childbearing-aged women residing in the county, allow us to forecast the number of anticipated births in the county, and thus the number of kindergarteners anticipated in future school years. Figure 13 depicts the number of live births within the district, K class sizes that include all enrolled students, and resulting ratios of kindergarteners to births, including both historical values and our forecasts. While there was some minor year-to-year variation, births within the district steadily increased from 2012 (495) to 2016 (518). Births declined in 2017 (35 fewer births) then modestly increased in 2018 (488 births) before a steep decline in both 2019 (444 births) and 2020 (420 births). K enrollment decreased from 466 students in 2017–18 to 420 students in 2018–19 before expanding in 2019–20 (490 students). K enrollment declined significantly in 2021–22 (104 fewer students) in response to the effects of COVID-19 before increasing (419 students) in 2021. K enrollment forecasts are further discussed in the Births to Kindergarten section.

The progression of students from one grade to the next is a significant determinant of future enrollment, and therefore plays a significant role in our forecasting process. We assess how cohort sizes change over time by calculating GPRs—the ratio of enrollment in a specific grade in a given year to the enrollment of the same age cohort in the previous year. For instance, when 150 kindergarteners in 2017 become 140 1st graders in 2018, the GPR is 0.93. GPRs quantify how cohort sizes change as students' progress to subsequent grades by considering that not all students advance to the next grade and that new students join existing cohorts. A GPR value greater than 1 indicates that the student cohort increased in size from one grade to the next. Such a result may be due to students moving into the district or students choosing to transfer into the district from other districts (public or private). Conversely, a GPR value less than 1 indicates that the student cohort decreased in size from one grade to the next. This may be due to students moving out of the district, students choosing to transfer to other districts, or students not advancing to the next grade.

Figure 14 depicts the GPRs for all students enrolled with the District from 2017–18 to 2021–22. The two- and three-year GPR averages shown incorporate the 2020–21 and 2021–22 GPRs and were not used in the forecasting process. In order to mitigate the irregular effect of COVID-19 on the grade transitions from 2019–20 to 2020–21 and 2020–21 to 2021–22, a set of forecasted GPRs was developed. These are also included in Figure 14. With the exception of a few transitions, GPRs from 2017–18 to 2019–20 were typically at or above 1.00, leading to district-wide averages that ranged from 1.00 to 1.02. The contraction in enrollment due to COVID-19 is the likely reason that GPRs, for

nearly every transition decreased in 2020–21. Due to an increase in grade 7 enrollment, only the 6–7 transition GPR increased in 2020–21. When considering grade groups, the largest contractions were experienced within the K–5 grouping. As a result of new enrollments and students returning to the District, the GPRs for all transitions were higher in 2021–22 than in 2020–21, collectively looking more like pre-pandemic GPRs. As further discussed in the COVID-19 Assumptions section, the forecasted GPRs for the preferred medium-growth scenario assume a return to the pre-pandemic levels as a starting basis and were then adjusted slightly to account for an expected increase in enrollment compared to recent years in response to an anticipated higher rate of in-migration due to new housing.

ENROLLMENT FORECASTS

Summary

- Between the 2021–22 and 2031–32 school years, district-wide enrollment (headcount) is forecasted to increase from 6,433 to 6,483, or by 0.8 percent. Figure 15 shows the annual district-wide building attendance forecasts for the low-, medium- (preferred), and high-growth scenarios. All subsequent figures focus on the medium-growth scenario, as it represents the most likely enrollment outcomes based on currently available data and our analysis. The COVID-19 Assumptions section discusses relevant assumptions for this year's low-, medium- (preferred), and high-growth scenarios.
- Figure 16 disaggregates the annual district-wide building attendance forecasts by grade group.
  - K–5 enrollment from 2,665 to 2,772 (4.0 percent increase)
  - 6–8 enrollment from 1,563 to 1,475 (5.6 percent decrease)
  - 9–12 enrollment from 2,205 to 2,236 (1.4 percent increase)
- In comparison to the previous two figures, Figure 17 provides annual district-wide *residence-based* forecasts per individual grade. These forecasts represent the number of students expected to reside in the district (for more details, see the Forecast Perspectives section below). The individual grade forecasts are summed to form grade group totals and adding the students who reside outside the district produces annual building attendance forecasts per grade group. Building attendance is expected to gradually decrease through 2027–28 (175 fewer students). In response to the expectation of a series of increasingly larger K cohorts entering the system, along with forecast GPRs generally above 1.00, we expect enrollment to increase (184 additional students) through the remainder of the forecast period (2027–28 to 2031–32).
- Based on the geographic distribution of students, the residence-based forecasts are aggregated to grade group attendance areas. Figure 18 provides forecasts of students residing in each of the ES, MS, and HS attendance areas.
- Building/program attendance forecasts are derived from the residence-based forecasts, using an analysis of the rates of intradistrict transfer for specific grades (e.g., Figures 5–8), rates of out-of-district student enrollment, and district policies concerning transfers and student placement. Figure 19 provides annual district-wide building attendance forecasts per individual grade (for the preferred, aka medium-growth, scenario). Figure 20 provides annual forecasts of students attending each of the ES, MS, and HS buildings/programs.

- Figures 21 and 22 provide annual district-wide building attendance forecasts per individual grade for the low- and high-growth scenarios, respectively. The COVID-19 Assumptions section of this report discusses assumptions for the low-, medium- (preferred), and high-growth scenarios.

Detailed Results

Births to Kindergarten

As previously mentioned, the relationship between the number of births occurring in the district and future K class sizes is vitally important to forecasting student enrollment. An increasing number of births will typically correlate to increases in enrollment and vice versa. Figure 13 shows the relationship between K enrollment and related births five years prior. District births gradually increased from 2012 to 2016 (495 to 518). In response, K enrollment increased from 466 students in 2017–18 to 490 students in 2019–20. While births again increased in 2015 (493), 2020–21 K enrollment declined by 104 students, a contraction that is mainly due to concerns regarding COVID-19. Students returning to the district, in conjunction with a birth increase in 2016 (518), contributed to a modest increase in 2021–22 K enrollment (33 additional students).

District births regressed in 2017 (483 births), then modestly increased in 2018 (488 births) before a steep decline in both 2019 (444 births) and 2020 (24 fewer births). In response to the decline in district births in 2017 and 2018, we expect K enrollment to steadily contract in 2022–23 (411 students) and 2023–24 (399 students). While births decreased in 2019, we anticipate a gradual return to pre-pandemic K percent of births, leading to the expectation that K enrollment will increase in 2024–25 (414 students). As a result of another decline in births in 2020 (420 births) and the economic uncertainty surrounding COVID-19, we expect K enrollment to decline in 2025–26 then remain steady in 2026–27 (392 students). However, with indications that the impacts surrounding COVID-19 may continue to gradually alleviate, along with an expanding population of women of childbearing age, we anticipate that births will steadily increase between 2022 (433) and 2026 (481). This will lead to a steady expansion of K enrollment between 2027–28 (403 students) and 2031–32 (448 students).

District-wide Enrollment Forecasts

As noted in Figures 15, 16, 17, and 19, district-wide enrollment is forecast to decline (134 fewer students) between 2021–22 and 2026–27 then increase (185 additional students) between 2026–27 and 2031–32, leading to the expectation that district-wide student enrollment expansion of 50 students by the end of the forecast period. We expect a 20-student increase in 2022–23 followed by an additional increase in 2023–24 (64 students). Larger student cohorts currently enrolled within the MS and HS grade groups are expected to begin to matriculate out of the District, leading to the expectation that enrollment will begin to decline in 2024–25 (14 fewer students) then continue through 2026–27.

District-wide enrollment is expected to decline in 2027–28 (40 fewer students) before increasing in 2028–29 (11 additional students) then continue to steadily expand through 2031–32 (185 additional students). This growth is due in part to the expectation that the population of the City of McMinnville and the surrounding area will continue to expand at recent rates for the foreseeable future along with our projection that district births will increase after the lull in actual 2020 births and forecasted 2021 births. While fertility rates may not rebound to a significant degree, the increasing presence of women

of childbearing age is expected to act to offset a tepid fertility rate and lead to a gradual increase in births that begins in 2022 then persists through 2026 and contribute to the aforementioned enrollment expansion. While we expect there to be some year-to-year variation in K–5 enrollment over the first half of the forecast period, leading to three fewer students in 2026–27 than in 2021–22, we anticipate that ES enrollment will begin in to increase 2028–29 then expand each subsequent year through the end of the forecast period (111 additional students). Much of this gain can be attributed to a series of more robust K classes entering the district in conjunction with the expectation that class cohorts will generally increases in size as they matriculate through the system.

MS enrollment is expected to decline through 2024–25 (160 fewer students), primarily due a relatively larger grade 8 cohort advancing out of the grade group, while being replaced with comparatively smaller cohorts entering MS. Enrollment is anticipated to increase in 2025–26 (65 additional students) then expand again in 2026–27 (5 additional students) and 2027–28 (63 additional students) as a relatively large cohort matriculates through the grade group. After which, enrollment is expected to gradually decline through the end of the forecast period, primarily due to a series of smaller cohorts matriculating into and through the grade group (62 fewer students).

Enrollment at the HS level is expected to increase in 2022–23 (91 additional students) and 2023–24 (92 additional students) as comparatively larger cohorts advance through the grade group. As these cohorts exit the grouping, they are expected to be replaced by relatively smaller cohorts, leading to the expectation that HS enrollment will decline in 2024–25 (28 fewer students) and every subsequent year through 2027–28 (280 fewer students). Afterwards, HS enrollment is anticipated to increase in 2028–29 (36 additional students) in response to a substantial cohort (the 2021–22 grade 2 cohort), entering the grade group. Relatively larger cohorts are anticipated to continue to matriculate into the grade group, leading to the expectation that enrollment is will steadily increase through 2031–32 (120 additional students).

METHODS

Demographic Terms

While both projections and forecasts represent future enrollment, the methods of prediction differ. Enrollment projections are based on past and current patterns of change and the expectation that these trends will continue. For example, historical enrollment data for an ES shows an increase from 250 students in 2017 to 265 students in 2018 and to 275 students in 2019. The average rate of change observed over the past three years could be used to prepare a projection of enrollment in 2020, assuming that the trend of growth continues into the future. In other words, a projection does not predict future trends or what will actually occur, but rather indicates what would happen if the past and current trends that underpin the projection continue into the future. In this sense, projections are strictly mathematical.

In comparison, forecasts are based on past and current patterns of change, but also incorporate predictions of how trends may change in the future. So that practitioners may evaluate a range of potential outcomes, it is common for multiple sets of projections to be prepared, capturing a range of scenarios, such as decreasing enrollment due to declining fertility rates or rapid enrollment growth due to residential development and in-migration. Sets of projections differ based on the modification of one or more variables, including birth rates, student generation/yield rates per housing type, and rates of residential housing development. Forecasts represent the set of projections that is deemed

most likely to materialize, based on the analysis and decision-making of practitioners. In this sense, forecasts represent the art of the science of demography.

Forecast Perspectives

There are two basic types of student enrollment forecasts:

1. Building/program attendance forecasts represent the number of students expected to attend a specific school building or program. Districts often refer to these values as "actual" enrollments or the number of "students in desks." Building/program attendance forecasts account for out-of-district students, intradistrict transfers, special programs, etc.
2. Residence forecasts represent the number of students expected to reside in a certain region, whether it be the district as a whole or individual attendance areas. Residence forecasts are generally more accurate than building/program attendance forecasts because the former are not subject to the variability of student choice, school district policies, movement of program locations, and constraints on inter- and intradistrict transfers imposed by building capacities.

Residence forecasts are rooted in student location; thus, with the proper granularity, they can be allocated to boundaries other than the current attendance areas. For instance, FLO's residence forecasts are produced at the geographic level of U.S. Census block group, of which there are 26 in the District. These small-area forecasts can be accurately aggregated to larger geographies, such as prospective attendance area boundaries. Despite these advantages, residence forecasts do not always suit district needs.

Building/program attendance forecasts are often more useful, albeit less reliable, because they reflect realized enrollment by capturing the inter- and intradistrict transfers. At the district-wide level, the building/program attendance forecasts are always higher than the forecast of students residing in the attendance areas. This is due to the segment of students who live outside the district boundary but attend district schools. When comparing building/program attendance and residence-based forecasts for an individual school, it is important to recognize that there will be some variation between each.

Forecasting Methodologies

Initial Steps

Our first step in preparing enrollment forecasts is to perform a detailed assessment of historical enrollment trends (i.e., 2016–17 to 2021–22), as well as the geographic distribution of the 2021–22 student body. The results of this enrollment assessment feed into our enrollment forecasts, which use a combination of the demographic cohort-component model and the enrollment rate method. In the former, the components of population change (i.e., births, deaths, and migration) are used to forecast population for the district by age and sex, while the latter advances each age cohort through successive grade levels.

Enrollment Rate Method

In terms of linking historical enrollment trends to future enrollment forecasts, the enrollment rate method is first used to assess the percentage of five-year-olds living within the district boundary in the 2021–22 school year who were enrolled in K at district schools. This is referred to as the K enrollment (or "capture") rate. Separate enrollment rates are similarly computed for each of the other age/grade

cohorts present in 2021–22 (i.e., 1st through 12th grades). These cohort-specific enrollment rates—modified based on certain assumptions (e.g., dropout rates in HS)—are the primary basis for determining the rate at which each given cohort will be enrolled in the future and can be thought of as a means of calibrating the future enrollment forecasts. For example, the 2021–22 3rd-grade enrollment rate of eight-year-olds heavily informs the 8th-grade capture rate of the projected district population of 13-year-olds in 2026–27.

This is a widely prescribed forecasting method and is especially useful in one-year forecasts and districts without much year-to-year cohort variability. With minor refinements, our forecasts apply the average of the K–5 capture rates for the 2021–22 cohorts to new cohorts matriculating into K in the 2022–23 school year and later.

Projecting Net Migration

Another way historical enrollment data is used is by leveraging knowledge of the geographic distribution of the 2021–22 student population in order to calculate enrollment rates at the subdistrict level. To do this, FLO divided the district into regions, each with a sufficient number of students at each grade level to permit statistical calculations. These subdistrict, cohort-specific enrollment rates were applied as a baseline to new district school-age children projected to be added because of net in-migration over the next five years. Note that the future migration rate and population projections used, which were largely informed by Esri's 2021/2026 U.S. Demographics, were prepared at an even finer geographic resolution (U.S. Census block groups) and at units that are generally socioeconomically distinct from each other.

The Esri 2021/2026 U.S. Demographics dataset is prepared using recent growth trends derived from U.S. Census and state/local sources and, in tracking growth, accounts for regional land use and comprehensive plans, publicly available development data (e.g., permits), housing inventory, and U.S. Postal Service carrier route additions. Prior to use, FLO reviews these data and confirms proper assumptions and incorporation of local data sources, particularly with respect to any publicly available residential development data, making modifications as warranted.

The benefit of this approach is that the geographic analysis performed allows for a granular forecasting of how many of the eligible new children in the district over the next five years will enroll in district schools, which is expected to be more accurate than simply using district-level rates to predict capture. This is key, as migration often plays a larger role in future enrollment levels than any other factor—such as gradual changes in birth rate—but can vary greatly within a region.

At the end of each five-year window, the attendance-area numbers are modified as needed to ensure that they are consistent with district-wide numbers, which are computed using only district-wide population and historical enrollment numbers. In this way, the district-wide numbers "control" the attendance-area-level numbers.

Longer-term Forecasts (ten-year)

Our ten-year forecasts assume that recent trends in migration patterns, similar to those between 2021–22 and 2026–27, hold steady through the forecast period. Similar assumptions are estimated for the buildable land inventory and their build-out rates within the district boundaries.

2021 to 2026 births, which inform K classes beginning with the 2026–27 school year, were projected based on a review of historic live births to mothers residing within the district boundary, forecasted population of women of childbearing age throughout Yamhill County, and state trends in fertility.

In terms of capture rate, the grade-specific rates computed from the 2021–22 student enrollment assessments are used. Also, as with the shorter-term projections, a set of forecast GPRs is enforced at the district level. It is important to note that the forecast GPRs used do not incorporate 2020–21 and 2021–22 data due to the irregular effects of COVID-19.

COVID-19 Assumptions

While the District has already felt the effects of enrollment declines in 2020–21, we expect additional impacts from COVID-19 to surface over the coming years (i.e., a decline in 2021 births/2026–27 K enrollment). This is addressed through two additional forecast scenarios: a high-growth scenario and a low-growth scenario. Where the preferred (medium-growth) scenario assumes a gradual increase in births, a K percent of birth ratio that is in line with pre-pandemic trends, a moderated decline in 2021 births, and is consistent with known housing construction; the high-growth scenario assumes an accelerated pace of housing, additional births, and students that did not enroll in 2020–21 and 2021–22 gradually return to the District to some degree. The low-growth scenario assumes the opposite of the high-growth scenario (i.e., fewer births, a steeper 2021 birth decline, etc.). The low-growth scenario represents the least likely forecast outcome, but it still remains a possibility, especially if births continue to lag past the forecasted downturn in 2021.

One contributing factor to fewer returning 2020–21 students may have been the absence of vaccine availability for school-age children at the time. This might have been a particularly important consideration for parents during registration for the upcoming school year, as the highly contagious delta variant had been dominant in the U.S. since early July and the timeframe for vaccine rollout for children was still unknown. Vaccines were not available for children ages 5–11 until early November.

There simply is not data available to tell us where all these students went, or why. As reported by the National Education Association (https://www.nea.org/advocating-for-change/new-from-nea/finding-lost-students-pandemic), national research estimates that as many as 3 million students disappeared between March 1 (just before most districts nationally closed school buildings and switched to remote learning) and October 1, 2020. While comparable research has not yet been completed regarding October 1, 2021, enrollment, based on FLO's conversations with other districts of comparable size in the Pacific Northwest, the tepid return, if at all, of 2020–21 missing students thus far is not unique.

Some of the missing students may also have been lost to alternative pathways of education. One such path is homeschooling, with the possibility that in the stress and confusion of the pandemic some parents may not have properly notified MSD of this decision. Other options include online public schools that were established pre-pandemic and/or private schools.

Finally, regarding 2021 births, as recently reported by the Brookings Institution (https://www.brookings.edu/research/early-evidence-of-missing-births-from-the-covid-19-baby-bust/), complete data for the year are not yet available. This is the case both nationally as well as locally in Oregon and Yamhill County. While January and February 2021 monthly totals nationally were significantly lower than the same months in 2020, the March through June 2021 monthly totals have been higher than in 2020. However, as Brookings noted, data are not yet available on births that would have been conceived during the 2020/21 winter wave of the COVID-19 pandemic. While we forecasted District births to remain stable in 2021, 420 in 2020 to 421 in 2021, we assume little to no impact from COVID-19 on 2022 births and on. More importantly, we have considered births in the context of the sustained, substantial decline in general fertility rates in Oregon since the Great Recession (2008).

The modest growth in annual births we forecasted is due only to our projection that the growth rate of the population of women of childbearing age in the district will offset continued declines in fertility rate for the foreseeable future.

Data Sources

FLO used the following data sources to inform our student enrollment forecasts:

- MSD SIS (October 2016 to 2021), attendance areas, district boundary, and school locations
- Oregon Health Authority birth data
- PSU PRC annual July 1 population estimates
- PSU PRC Oregon Population Forecast Program (OPFP) county and urban growth boundary forecasts
- U.S. Census and American Community Survey enumerations and estimates
- Esri 2021/2026 U.S. Demographics
- FLO-conducted interviews with planners from Yamhill County and the municipalities of McMinnville and Lafayette
- County and/or municipal parcels, zoning, comprehensive plans, specific area plans, and building permits
- 2020 Statewide Urban Growth Boundaries and 2020 City Limits from Oregon Department of Land Conservation and Development

Accuracy

Enrollment projections and forecasts are expected values based on assessment of current and past data, and as such, should be considered a planning tool, rather than steadfast numbers for the allocation of future resources. Unlike measurable data such as the results of a survey, projections and forecasts do not allow for the estimation of a confidence interval to measure accuracy. The best way to measure error is to compare actual enrollment with previously prepared projections or forecasts that were conducted using similar data and methodologies. Finally, when considering confidence and accuracy, the appropriate use of projections and forecasts includes an understanding that some degree of variation from the anticipated values is likely. It is important that stakeholders monitor and manage the changing conditions that will affect future populations, and it is important that projections or forecasts be updated either at a regular frequency or when deviation of actual enrollment from the projections or forecasts is significant and/or develops into a sustained trend.