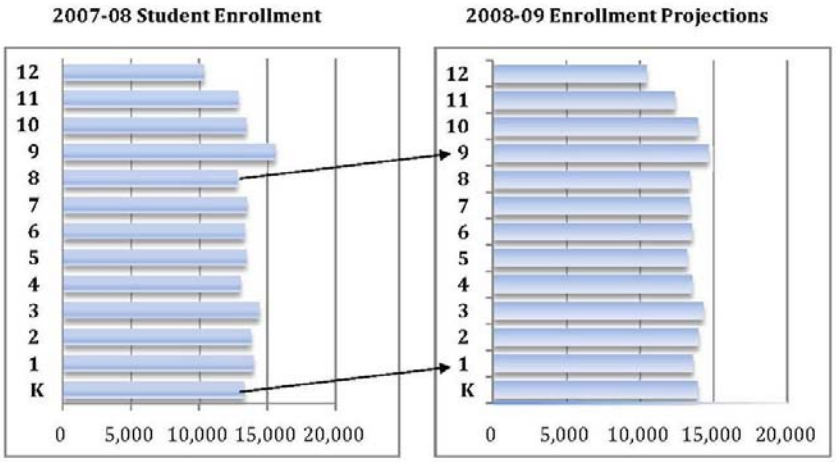
Cohort –Survival Methodology

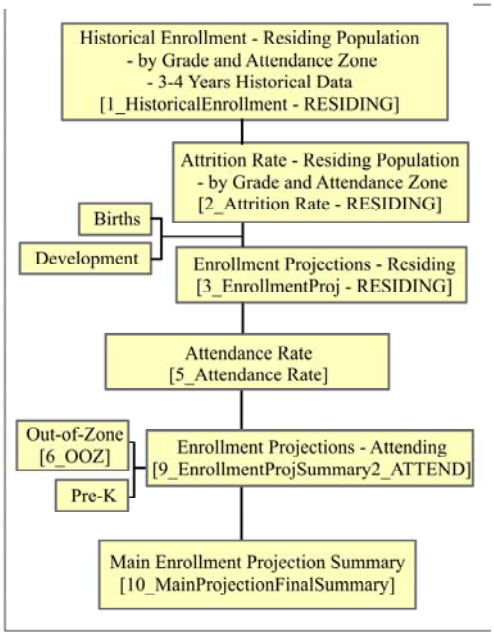
The Orange County School Enrollment Projection Tool (OCSEPT) incorporates the cohort-survival method. This method is considered a very reliable procedure and is utilized by the State of Florida in their projections and the U.S. Census Bureau for their projections and reports. As illustrated in Figure 1, the model uses an aging concept that moves a grade level or cohort of people into the future and increases or decreases their numbers according to past experience through history. For public school enrollment projections, a cohort begins with a group of students enrolled in kindergarten and moves that cohort to first grade the following year, second grade the next year, and so on based on the historical survival rate. **Currently, OCSEPT is a model that calculates annual projections for ten planning years using a two year average survival rate.** Although the model is using a two year fixed rate, it has the flexibility to employ a variety of rates. For example, one can use a three year average rate on high school and a one year rate on elementary and middle school students. In addition, the OCSEPT model allows the demographer to calibrate to a district-wide projection goal.

Figure 1: Cohort-Survival Methodology



The cohort-survival methodology relies on historical enrollment data to capture the effects of in and out-migration, housing growth, and natural changes in population. However, other data needs to be collected in order to determine if the survival rates need to be adjusted to align with a shorter or longer historical time horizon. The following is a summary of data sources used to in the OCSEPT model flow charted in Figure 2.

Figure 2: OCSEPT Flow Chart



Birth Data

The historical number of births is a good indicator of size of the future kindergarten classes for each school. The U.S. Census Bureau, after each decennial year aggregates populations in age groups from 0 to 5 by census block. Although this data has been incorporated in past applications, students that were born on a decennial year will have already entered kindergarten by the fifth year of the decade. To project incoming kindergarten enrollment past 2005, the District

retrieves data on births that occurred following 2000 for all of Orange County by zip code and census tract from the Planning, Evaluation and Data Analysis Department of the Florida Department of Health. Using the data analysis tools of Geographic Information Systems (GIS) an equivalency table can be created between the census tracts and the school attendance zones. Shown in Figure 3, the table below summarizing the number of births by attendance zone was generated from this equivalency table. The OCSEPT model assumes that an annual increase or decrease in births will yield the same percentage increase or decrease in enrollment for their corresponding entry year to kindergarten.

Figure 3: Births by Attendance Zone

Based on 0809 Attendance Zones for Elementary Schools

Location Id	School	Type	Learning Community	Births										Kindergarten Residing (In Zone)		Kindergarten Attending (In Zone)	
				1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2006	2007	2006	2007
Elementary Schools																	
1401	Aloma	ES	East	138	134	124	120	121	113	113	114	119	120	90	82	82	76
321	Andover	ES	Southeast	33	29	30	45	46	66	74	73	80	92	86	83	82	79
1282	Apopka	ES	North	61	58	68	67	76	74	89	83	108	131	79	83	86	78
981	Arbor Ridge	K8	East	131	131	129	104	118	110	106	109	100	90	63	72	60	66
531	Audubon Park	ES	Central	150	160	141	163	164	156	171	183	233	237	114	145	99	135

Development Data

The cohort survival method takes into account housing growth and in-migration to an area; however, hand adjustments are made to the survival rates whenever there is an anticipated change in the pace of new development. A few scenarios where hand adjustments are required include where:

1) New construction is anticipated to exceed the pace of historical construction for an area,
2) An area is reaching build-out and all new construction will cease or slow down, or
3) An unprecedented slow-down in the market.

The District requests data on the estimated future certificates of occupancy issued over the next five years. As shown below in the sample data in Figure 4, cities provide the location, type of residential housing, and the timing of the projected issued certificates of occupancy.

Figure 4: Sample City Data

Development	Juris	Unit Type (*SF / MF / MH*)	Total Units	Estimated Start Date (*##-XXX-##*)	Current Building Phase	Estimated COs Issued [Annual time period starts and ends in July]							
						2006	2007	2008	2009	2010	2011	2012	2013+
Alexander Ridge North	WG	SF	26						30	30	31		
Alexander Ridge North	WG	MF	140							45	46		
Alexander Ridge South	WG	SF	188						47	47	94		
Avalon Reserve Townhomes	WG	MF	138					28	28	28	27	27	
Belle Meade II	WG	SF	83					20	40	23			

In addition to the estimated certificates of occupancy, the District collects other sources of data to provide insight into the pace of development. This data includes:

1) Monthly number of residential building permits by municipality (source: HUD),

2) Residential building permits: GIS layers (source: City of Orlando, Orange County)
3) Existing Home Sales (source: Florida Association of Realtors)
4) Population Projections (source: Bureau of Economic and Business Research)

Historical Enrollment
Residing Enrollment
Survival Rate

OCSEPT includes three years of historical residing enrollment by attendance zone and grade. The residing enrollment is the total number of students within the attendance zone regardless if they are attending another school through a transfer, magnet program or opportunity scholarship. The historical data is used to calculate a two year survival rate for each grade level interval at each school. For example, the survival rate for the kindergarten to first grade for Elementary X is:

[(# of 2007-08 1st Graders) / (# of 2006-07 Ks) + (# of 2006-07 1st Graders) / (# of 2005-06 Ks)] / 2

The model then multiplies this rate by the current year's kindergarten to get the number of first graders for next year. The model then multiplies the same rate to next year's projected kindergarteners to get the projected first grade two years out. This process is repeated for each grade level at each school for ten planning years.

Attendance Rate

OCSEPT also uses attending enrollment; that is the total number of students within the attendance zone that are attending their geographically assigned school. From this enrollment an attendance rate can be determined for each grade level:

Attendance Rate = (# of 9th graders Attending Assigned High School) / (Total 9th Graders in Zone)

The OCSEPT model assumes the rate at which students choose to attend their home school will remain constant for future projected years. The attendance rate is multiplied by the residing enrollment projections produced from the survival rate to get an actual enrollment for each of the projected years.

Out-of-Zone Students (OOZ)

Out-of-zone students (OOZ) such as transfers, magnet students, Opportunity Scholarships, and other choice option students attending a school from outside the attendance area are included in the school by school projections.

OCSEPT assumes projected OOZ entering the first grade level at each school will be the same as the existing year and will have a survival rate of 100% as they matriculate through the grade levels. For example Middle School X has the current OOZ: 35-6th graders, 38-7th graders, and 42-8th graders. For the first projected year they will have 35-6th graders, 35-7th graders, and 38-8th graders.

In addition, if enrollments naturally decline based on the calculated cohort survival rate, adjustments can be made to the OOZ based on the assumption that these schools will be eligible to receive transfers.

Capital Outlay Full Time Equivalency (COFTE) Projections

Although the Orange County Public Schools uses Florida Department of Education's (FDOE) capital outlay full time equivalency (COFTE) projections as a guide, the OCSEPT projections are the actual numbers used for planning purposes. Looking at the differences can help explain why the District prefers OCSEPT for facility planning.

COFTE is based on the full time equivalency number of students which represents the school's enrollment for the entire year. For example, unless a phenomenal amount of growth occurs within the attendance zone, high schools typically have declining enrollments throughout the year. High School A might have 2,500 students on October 15 and by mid-spring have only 2,300 students. The full time equivalency for High School A would be around 2,400 students; however, the count is 2,500. In contrast, by using a OCSEPT the District is planning for facilities so that they can accommodate students during their peak enrollments.

Another difference is that individual students attending the public school system partial funded for special programs count as only a portion of an FTE where from a physical standpoint those students are whole bodies taking up a full spaces. COFTE does not include:

- Students within the Department of Juvenile Justice (DJJ),
- Volunteer Pre-K students, or
- OCPS students attending a class or participating in a program in a non-OCPS facility.

Table 1: Enrollment Projection Comparison

Grade Level	2007-08 Projections		2007-08 Enrollment (Oct 15)
	COFTE	OCSB Baseline	
Pre-K to 5	80,821	84,905	84,499
6-8	37,304	39,590	39,588
9-12	47,412	52,017	52,206
Total	165,537	176,512	176,293

This and other differences make the COFTE projection typically lower than the OCSEPT projections and an actual school-by-school COFTE projection difficult to reproduce. As shown in the table below, the count baseline projections are more accurate when compared to COFTE. In summary, where COFTE might be better for budgeting operations, OCSEPT is better for planning physical space.