West Linn – Wilsonville Schools

Long Range Planning Committee Meeting
Administration Building
22210 SW Stafford Rd, Tualatin, OR 97062
September 20, 6:00 PM

Agenda

1. Call to Order 6:04 pm Admin Boardroom

2. Roll Call:

David Lake	**Samy Nada**
Doris Wehler	**R. B. Brandvold**
Kent Wyatt	**Grady Nelson**
Mike Jones	Chealsea Martin (Board Liaison)
Kathy Ludwig	**Tim Woodley**
Amy Berger	**Ginger Fitch**
Andrew Kilstrom	**Cindy Crowder**

3. Board Chair Ginger Fitch was present to introduce herself and thanked the group for all their hard work.

4. Tim presented a PowerPoint of photos of the new schools and other summer bond projects as a summer project review.

5. The October Board Study Session will include a discussion about long range planning.

6. Demographics Methodology & Next Steps

    a. The District has commissioned out another 5 year demographics study with Davis Demographics & Planning (DDP). There is an option to have a 10-year projection as well and that is something the board might decide to have done.
    b. The group would like to look at past predictions compared to factual data as well as overlay of the bond expiration dates to help understand bond capacity.
    c. The superintendent study group will also be starting up to look at what a future high school means. What programs might be needed, what size, location, etc. and what is needed for career and college readiness into the future.
    d. A handout included describes what DDP does and why they do it.

7. Re-calibrate School Capacity
    a. How many kids can we educate in our district? How do you determine that number? There are two handouts about what capacity means and how do we define that.
    b. There are several ways to determine capacity of a school. Things to look at are:
        i. Why do you calculate school capacity?

ii. Define school capacity
iii. Capacity variables (operational, physical & programmatic)
iv. Building capacity – Maximum capacity, building, functional, program & temporary area all on the spectrum of capacity definitions.

c. Capacity is defined in many ways and that is something the district will need to communicate with the community as the planning process moves forward.
d. Three districts have published information about their assessments around capacity: Portland Public, Anchorage Public Schools & Pendleton School District and might become helpful as the LRPC moves forward in planning.
e. The LRPC and the board will look at the changes to the district schools and programs with the data collected from DDP. We have an additional middle school, a new Sunset primary school, additional space added at both WLHS & WHS as well as program changes around preschool in the district, special ed growing, etc.

8. Study Session & Meeting Calendar
    a. Amy will send out a draft of the schedule to the group.

9. Adjourn 7:21 pm

West Linn – Wilsonville Schools

Long Range Planning Committee Meeting
Administration Building
22210 SW Stafford Rd, Tualatin, OR 97062
Wednesday, September 20, 2017 6:00 PM

Long Range Planning Committee Meeting

Agenda

1. Call to Order

2. Roll Call

Mike Jones	Samy Nada
David Lake	RB Brandvold
Doris Wehler	Kent Wyatt
Grady Nelson	Chelsea Martin, Board Liaison

3. Summer Project Review (power-point)

4. Demographic Methodology & Next Steps (hand-out)

5. Re-calibrate School Capacity (presentation & hand-out)

6. Study Session & Meeting Calendar

Adjourn

Department of Operations
2755 SW Borland Road, Tualatin, Oregon 97062
503-673-7995 Fax 503-638-9143 • www.wlwv.k12.or.us

Defining Capacity

by William S. DeJong, Ph.D., REFP and Joyce Craig

How many students can a building accommodate? This question often arises, and in the development of a facility plan, it can be one of the most debated issues. The answer to this question can impact the need for constructing new buildings as well as additions and can have a profound impact on revenue especially if projects are funded through state or other agencies.

It is not uncommon to review an evaluation of an existing building only to find that the capacity which had once been assigned to the building is much greater than what can be reasonably accommodated.

During the past thirty years, the programs in a public school system and the manner in which they are delivered have changed significantly. Repeated arguments are heard that "this school was able to accommodate 600 students thirty years ago and now you are saying it can only accommodate 400 students today. How can this be the case?" Persons making these statements often do not realize that class size has been reduced [let's say from 30 to 25], the music program was being held on the stage, there was no art room and the teacher used a cart, computers had not been invented and there were no computer labs, the Kindergarten program went from half day to full day and severely handicapped special education students that were institutionalized are now attending public schools. Add to this the fact that many states are legislating a class size of 20 or under for the early elementary grades, schools are expanding pre-school services, and there are many more at-risk students programs.

Historically school districts throughout North America have determined the capacity of school by counting the number of classrooms in a building and multiplying by an average class size. In facility planning terminology we have used the term, "design capacity", to describe this methodology. Even though at first glance this seems only to be common sense, this methodology does not take into account the programmatic implications of school facilities. In an elementary school there is a need for libraries/media centers, administrative areas, special education classrooms, and specialized spaces for specific program areas such as science, art and music. In a secondary school, in theory it may be possible to use every classroom every period of every day, but from a practical perspective it is not likely. In facility planning terminology, taking program issues into consideration, we use the term, "functional capacity".

Even though functional capacity is a more realistic analysis of what a building can accommodate, it is necessary to apply some common sense. There are examples in which classrooms have been taken over for other purposes such as teacher prep areas, storage, or offices which can result in a lower capacity figure.

Public schools use space in school buildings for special purposes such as community activities or district-wide special education programs when space is available in a building. The location of this type of program impacts the number of students the building can accommodate. For planning purposes, functional capacity assumes these special programs could be moved to another location. Therefore functional capacity is defined as the number of student the building can accommodate assuming a "traditional" educational program.

The formula used for determining capacity should reflect the programs of the public schools yet should be kept simple for planning purposes. The method for determining functional capacity is different for elementary, middle and high schools.

ELEMENTARY SCHOOLS

There are a wide variety of elementary schools that range from K-1 to K-6, small schools with ten or fewer classrooms to schools with fifty or more classrooms.

The following criteria are suggested for consideration in determining functional building capacity at the elementary level.

Average Class Size

There is currently a wide range of class sizes throughout the country. Many districts have 30 or more students in elementary classrooms whereas other districts are striving for 20 or fewer. The most common average class size that is used for planning purposes is 25 students. In determining

capacity, the class size that should be used should either be based on district policy or actual averages in the district.

School district class size policy is usually used to determine the number of teaching positions not capacity. For example, a school district may have a policy that when there are more than 30 students in a classroom another teacher will be added. Even though this policy may be interpreted to mean that the capacity of a classroom is 30 students the reality is the average class size of this district maybe nearer 25 students. In this case, average class size would be a better indicator of determining the number of students that should be used. On the other hand it could be argued that capacity is the maximum number of students that a building can accommodate, not the optimum.

Even though a class size of 25 is the most common number used by school districts throughout the United States many states and local districts are moving toward smaller class sizes for the early elementary [primary] grades.

Special Education:
Special Education instruction occurs at various levels of need, varying class sizes, and in various locations throughout a district. Instructional areas for high incident students [learning disabled, behaviorally and mildly mentally handicapped, etc.] are usually found at most elementary schools.

For planning purposes, functional capacity assumes that low incident students [severely profoundly handicapped] are not located in the building and are being housed at a different district facility.

For discussion purposes let's assume that a building can accommodate 400 students without housing the low incident or severely profoundly handicapped students. On the other hand a building may have four classrooms dedicated to serving this population. In this case the capacity may be reduced to 300 students.

We would suggest for buildings that house low incident or severely profoundly handicapped students that two capacity figures be established: one calculation including this population and one not including this population. [The reason being that if the building is not to be used for this purpose, it has the potential for housing more students.]

Art and Music Spaces:
In nearly every elementary school in North America, art and music instruction is an important part of a well-rounded elementary curriculum. Therefore spaces for each of these programs should be included in an elementary school. In schools with fewer students, these programs may need to be combined into one space.

Computer Labs:
Even though the future solution is to have computers integrated into all instructional spaces, the current practice is to have designated computer labs in elementary schools.

Science Classrooms:
State proficiency testing has placed an increased emphasis on science curriculum at the elementary level. Currently science instruction is limited to what can be done in the regular classroom. Districts will need to decide whether to provide separate classrooms for science or to include it in the regular classroom.

Special Programs:
Most school districts provide special programs for at-risk students such as Title I and other programs for gifted students. If these programs are to be provided, space needs to be allocated for these purposes.

Determining Elementary School Capacity

The elementary program is usually delivered based on students being assigned a home room or regular classroom and attending specials such as art and music in a specialized classroom. The number of special classrooms should be a reflection of the enrollment of the building.

For example: if a school has only one classroom for each grade it would only require a part-time art room. Whereas if there are three classrooms for each grade, a full time art classroom would be needed. Or, for example, a school with 200 students may only require one special education classroom whereas a school for 400 may require two or more classrooms for special education.

School districts often change the use of an individual classroom from year to year. One year the classroom may be a regular classroom. The next year it may be a special education classroom and the year after that a computer room. Since these changes do occur, the simplest procedure would be to count the total number of classrooms and subtract the number for special purposes and then multiply the remainder by 25 [or by desired class size determined by the district]. This may not be perfect, but by using this method the only information needed would be the total number of classrooms in a building.

The table below illustrates this method of calculation, based on 25 students per class. If a lower number of students per class is desired, it will obviously reduce the capacity of the building.

Elementary School Space Allocation					
Total # of Classrooms	17	26	33	41	49
Special Ed. Classrooms	1	2	3	4	5
Art/Music Classrooms	1	2	2	2	2
Special Programs [At-Risk]	1	2	2	2	2
Computer Lab	1	1	1	1	2
Science Classroom	1	1	1	2	2
Regular Classrooms	12	18	24	30	36
Students Per Classroom	X25	X25	X25	X25	X25
Capacity	300 Students	450 Students	600 Students	750 Students	900 Students

The table below might be used as a quick reference table in conducting a facility study. The actual number of specials and the class size may need to be altered based on local district policies.

# of Classrooms in Building	# Special Classrooms	Difference	Multiply by 25	Capacity
10	2	8	25	200
11	2	9	25	225
12	3	9	25	225
13	3	10	25	250
14	3	11	25	275
15	4	11	25	275
16	4	12	25	300
17	5	12	25	300
18	5	13	25	325
19	5	14	25	350
20	6	14	25	350
21	6	15	25	375
22	6	16	25	400
23	7	16	25	400
24	7	17	25	425
25	7	18	25	450
26	8	18	25	450
27	8	19	25	475
28	8	20	25	500
29	8	21	25	525
30	8	22	25	550
31	8	23	25	575
32	8	24	25	600
33	9	24	25	600
34	9	25	25	625
35	9	26	25	650
36	9	27	25	675
37	9	28	25	700
38	10	28	25	700
39	10	29	25	725
40	10	30	25	750
41	11	30	25	750
42	11	31	25	775
43	11	32	25	800
44	11	33	25	825
45	12	33	25	825
46	12	34	25	850
47	12	35	25	875
48	12	36	25	900
49	13	36	25	900

Determining High School Capacity

High schools operate on a totally different basis than elementary schools. Students are not in self-contained environments occasionally traveling to another location for a special class. At the high school level, students typically change classes each period.

High schools are undergoing significant change in program delivery. Many schools are adopting block scheduling and/or various teaming approaches. The method for calculating capacity at the high school level needs to be flexible to deliver a traditional departmentalized program or the newer evolving methods of program delivery.

Average Class Size

There is currently a wide range of class sizes in a high school and from school to school. It is not uncommon to find some very small classes in advanced placement courses and upper level foreign languages. At the same time it is not uncommon to find 60 or more students in a band or choir class.

Several states have attempted to determine the capacity of a building by establishing a capacity for each type of room in a building. This may be an appropriate approach but often results in a much larger capacity than what is realistic. For example the band room may be rated at a capacity for 75students. The fact of the matter is that the full band only meets one period per day and the rest of the day the room is being used for smaller sectional or specialized bands such as a jazz band. To say that the capacity of the band room is 75 assumes that the room is used every period of the day for that number of students. In reality, the band room may be used for 75 students one period per day and less than 20 students each of the remaining periods, or the room may only be used as a band room 3-4 periods per day.

Even though this seems like an over simplification, using an average class size of 25 students across the board has worked quiet well in determining capacity at the high school level.

Teaching Stations/Classrooms

Teaching stations are defined as areas in which students receive instruction in core curriculum courses as well as exploratory/elective curriculum areas. These areas should be adequately sized to meet the needs of the programs included in the space. Program areas include English, math, social studies, foreign language, science, art, music, family and consumer science, business, vocational/technology education, and physical education. In a high school the gym should be counted as one or more teaching stations. Even though it is not a regular classroom, it is a location in which students receive instruction on a hourly/daily bases. Likewise, a food lab, science lab, business computer lab, and vocational/technology lab are all counted as teaching stations. Auditoriums and library/media centers are not counted as teaching stations since these spaces are not assigned for "regular" instruction.

Utilization Factor

It is very difficult to schedule every teaching station every period of the day. There may be a specialized space such as a vocational/technical lab for which there is insufficient enrollment to conduct classes each period. At times it is advisable for the classroom to be available to the teacher during a teachers prep period. At other times it is just not possible to maintain an average enrollment of 25 students and there needs to be some room to adjust.

It is recommended that the utilization factor of 85% be used at the high school level. This would represent approximate utilization of five out six periods in a six period day or six out of seven periods in a seven period day. This may indicate that some spaces are being used more than 85% of the time whereas others may be used less.

Block scheduling provides another dilemma. There are a variety of block schedules but many are based on a four 90-minute period day. Some of the time it is the same four periods every day. At other times it is four periods on alternating days. Arguments have been made to reduce the utilization to 75% which would represent three out of four periods per day. On the surface 75% may seem logical but it is not efficient use of space. This would mean that 25% of classroom space would be idle at any one time.

Using the 85% factor in a school which utilizes a block schedule would mean that a room would be available one period every other day on the alternating block schedule. Or that approximately half of the rooms would be utilized 100% and the other half would be utilized 75% in the schools which have the same four periods every day.

Experience has shown that if the 85% factor is used for planning purposes, the high school has the ability to increase the utilization to 90% or higher in the event of short-term overcrowding issues. Experience will also show that once a building surpasses 90% utilization, scheduling of spaces and students becomes increasingly difficult.

[Authors' note: if space is going to be used less than 50% of the time, consideration should be given to reusing the space for another purpose or determining some type of multi-use of the space to increase its utilization.]

High School Functional Capacity Formula:

In the past, capacity was determined by counting the number of teaching stations in a facility and multiplying by an average class size. In facility planning terminology this is

called the "design" capacity of the building. However, this methodology does not take into account programmatic implications. By applying the utilization factor to the design capacity, the functional capacity can be obtained. An example is included below.

#of Teaching Stations	*40*	
Average # of Students	*x25*	
	1000	*x 85% = 850 Capacity*

This would be a very straight forward method of determining capacity, just count the total number of teaching stations, multiply by 25 students and multiply 85%.

Determining Middle School Capacity

The reason this was saved for last is that most middle schools are a hybrid between elementary schools and high schools. Actually middle schools are the evolving school of the future. More and more elementary schools and high schools are adopting the middle school program delivery of team teaching. In the past, middle schools were called junior high schools and were "mini" high schools. They operated on a 6 to 9 period schedule and students rotated between classes. Many schools which are called middle schools still operate in this fashion.

On the other hand the middle school philosophy places students in teams. The size of these team varies from school to school. A team may be two teachers and 50 students or teams may be as large as 6-8 teachers and 150-200 students. Regardless of the size of the team, the program typically consists of a core curriculum [English/language arts, math, science and social studies] and an exploratory curriculum of physical education, art, music, band, computers, technology, and foreign language. Depending on the individual middle school, there maybe other exploratory areas as well.

Students usually attend the core curricular areas every day throughout the school year. There are a wide variety of schedules associated with the exploratory programs. Students may attend an exploratory program every day for 6-18 weeks and then move on to another exploratory program or they may attend exploratory programs on alternating days. There are as many different schedules as there are middle schools and you need to be a middle school student to figure it out.

Since there are two basic methods for delivering education at the middle or junior high school level, there are two different methods for determining capacity.

Middle School Capacity

Schools that operate as middle schools, a modification of the elementary method for determining capacity applies. Find the total number of "regular" classrooms and multiply by the desired average class size, typically 25.

A school may have 30 classrooms for core curricular programs. This school may also have seven exploratory classrooms [art, band, choral, computer, technology, life skills, and physical education] and three special education classrooms. The capacity of the building would be 30 time 25 students per class which equals 750 students. If you were to study these figures closely you will note there is a lower utilization of this building.

Junior High School Capacity

As stated previously, many middle schools operate as junior high schools. As such the high school method for calculating capacity would be more appropriate to determine the number of students the building can accommodate. Using the example of the school above with 30 regular classrooms and seven exploratory programs the capacity would be as follows:

37 teaching stations x 25 students per class x 85% utilization = 806

Using this example, the capacity using the middle school method would is less than the junior high school method. In other words the utilization of space using the middle school philosophy is less than the junior high school philosophy. This is in fact the case. Many middle schools are aware of this situation and have gone to modified middle school programs in which the teams are arranged in such a fashion that an extra core section is taught in the regular classroom or a core teacher teaches an exploratory program in his/her classroom.

The simplest method for determining middle school capacity would be counting the teaching stations, multiplying by a desired class size and an 85% utilization factor.

Summary

Determining capacity is critical to the formation of a district facility plan. Capacity should be program driven. Even though the resultant capacity may be different than what you have used before, you are likely to find these numbers more accurately reflect the program that is being delivered today.

About the Authors

William S. DeJong, Ph.D., REFP is President of DeJong & Associates, Inc. He has also served as former Executive Director of the National Community Education Association, President and Assistant Executive Director of the Council of Educational Facility Planners, Int. and is co-founder of Meeks Technology Group. Dr. DeJong was named as the International Planner of the Year in 1991.

Ms. Joyce Craig is a Project Director with DeJong & Associates, Inc. She has coordinated facility projects in Alaska, Indiana, Ohio, Michigan, South Carolina, and West Virginia. Joyce also serves on CEFPI's Research Committee.

DAVIS DEMOGRAPHICS

Davis Demographics

For nearly 25 years, Davis Demographics has been a premier provider of K-12 demographic studies to school districts across the nation. One hundred percent of our planning/demographic consulting work is done through the use of powerful GIS mapping/planning software, and we lead our industry with cutting-edge demographic tools. Because of this, we have extensive experience with geospatial technologies and location-based analysis, including demographic analysis, geocoding, enrollment projections by residence and by school, boundary realignment, intra-district attendance and transfer matrix, long-range planning and many related tasks. There is not a single K-12 Demographer who knows GIS better, and no other Demographer has assisted more school districts over the past 25 years than Davis Demographics.

Since our clientele is exclusively K-12 school districts, we firmly understand school district needs in the area of planning and growth management. We have extensive experience working alongside district staff, supporting and facilitating committee meetings, conducting community forums, and guiding School Boards through complex issues. Many school districts think of our staff as part of their own planning team, and we've worked closely together with many of our clients for decades, earning and maintaining their trust.

Why undertake a Demographic Study?

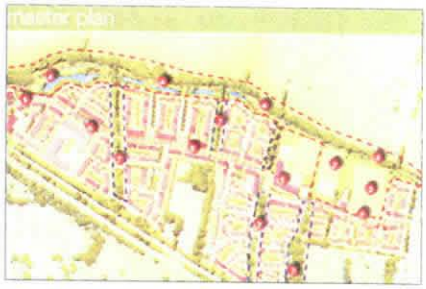
The primary purpose for a demographic study is to produce the vital data needed for informed-decision-making about school facilities. So much about a Demographic Study is location-based, meaning that the things we are scrutinizing tend to correspond to geography in some way or another.

- *Where do students live?*
- *Where are schools located?*
- *What are the attendance boundaries of each school?*
- *Where are new homes being built? (bringing additional students)?*
- *Where should a prospective new school be located?*

This is the reason that we use GIS software (mapping & location) in our Demographic Studies. Critical data from a Demographic Study is used for decision-making, and the overwhelming basis for decision-making is the Student Forecasting portion of a Study. This is the look into the future, helping drive sound decisions, much the way a good weather forecast assists your decision-making about your wardrobe choices for the following day. A Demographic Study from our firm will identify areas within the district where the Administration may need to address alternative means for accommodating its students. These alternatives may involve re-aligning school boundaries to better match area student populations, or the possible expansion or consolidation of existing facilities, or maybe the need to move a program from one facility to another.

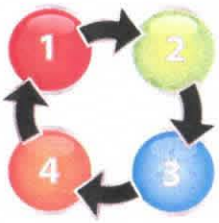
DAVIS DEMOGRAPHICS

Study versus Master Plan



Our Demographic Studies are extremely detailed! We don't just take a cursory view of a situation and report on it. We painstakingly study a situation, then provide the resources and tools to most effectively assist and help answer "What Do We Do Now?" It has often been our practice to suggest to a school district that what they need isn't so much a Demographic Study, but rather a Demographic Master Plan. A typical Demographic Study looks 5-10 years into the future. It serves a valuable purpose, but it alone is not the entirety of what a school district needs, especially for a growing school district. School districts need vital data about the NUMBER, PLACEMENT, and TIMING of any future additional schools. This comprehensive information comes by means of demographic master planning. ***Demographic master planning*** is a combination of our standard 10-year forecasts combined with our Build-Out Study. (see next page). We believe firmly that a 10-year study alone will indeed provide a very good idea of what to expect in the next 10 years (which we consider "short-range"). The real power of planning is when a 10-year demographic study is combined with our comprehensive Build-Out Study, so that a school district can effectively establish a LONG-TERM GOAL to works towards and then create a PLAN to reach that goal. The demographic master plan will enlighten administrators with knowing how many schools will ultimately be needed, the optimal location for those schools, and the timing of when those new schools would be needed. No other Demographer will provide this comprehensive approach to planning, AND can provide the tools to work with in planning for and moving towards that established goal. Only Davis Demographics can do all this.....we lead our industry in doing exactly this.

Student Forecasting Methodology



A number of modifying factors contribute to the comprehensive forecasting methodology used by Davis Demographics in our student projections. We start with current-year and past-year student enrollments, analyzing the upward/downward trends over several recent years. We then meticulously factor in new housing data, a dataset that we don't merely purchase from a third-party vendor as many demographers do, but rather we painstakingly research on our own, to achieve the most up-to-date and accurate information. We call it our 'boots on the ground' approach. We also communicate with local planning agencies and Developers who are engaged in building large numbers of new residential housing, so that we can achieve the best information related to new housing starts. Additionally, we include area birth rates, as well as specialized mobility factors that identify student migration patterns. Once all of the modifying factors are assembled, we will calculate 10-year projections (yearly outlook, each year for 10 years) that take into account each small region within the district, showing growth, decline, or stable student population. A Final Report will include an outline of the methodology used in the projections, so there is no guessing as to how the numbers were achieved. The Report will also include supporting maps, charts, and community demographic reports.

DAVIS DEMOGRAPHICS

Did you know?

Some Demographers create Projections that look more like a hurricane trajectory path than a target. Projections are labeled as Low, Medium, High. They say this helps account for any unforeseen factors.
We say those projections aren't very helpful for PLANNING.

(just like a weather forecast saying tomorrow's high temperature will be between 35 and 95 degrees is also not very helpful)

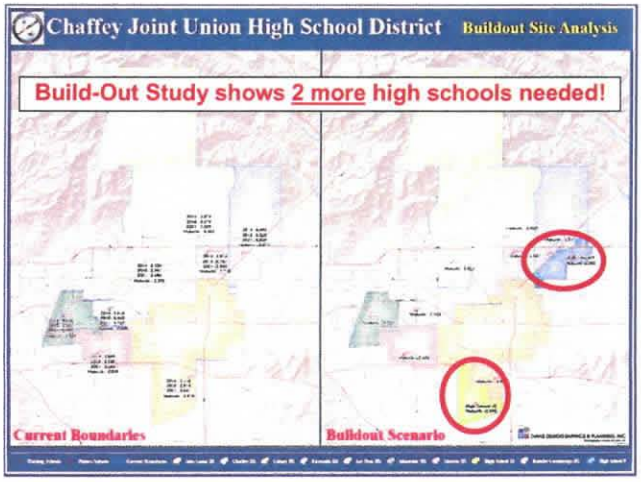
Our Projections aim to hit the Bulls-Eye. (and often do)

Slight miss? 37° when we said 35°? Still helps decision-making...wear your coat! Same thing with Enrollment Forecasts... The best decision-making requires an accurate understanding of what lies ahead.....not a vague estimation.

Our hope is that the completed Demographic Study will be extremely helpful as questions arise and decision-making occurs. Our sophisticated projection model produces highly accurate projections, and then our custom software tools can perform many kinds of analytics using the completed projections. Our SchoolSite software is built on Esri ArcGIS, the same GIS mapping platform used by 95% of all the cities, counties and municipalities in the USA. No school planning tool is more compatible with the data and tools being used by a school district's local community. This is important when we remember that things like street data and parcel data (things that school planners NEED) are maintained by local agencies using Esri GIS, just like Davis Demographics uses. This helps achieve a complimentary working relationship with local agencies and the GIS tools they use. Our SchoolSite software adds additional functionality to ArcGIS and can accomplish redistricting, demographic reporting, and many kinds of sophisticated analysis and map-making. SchoolSite is the best school planning software there is.

Build-Out Studies

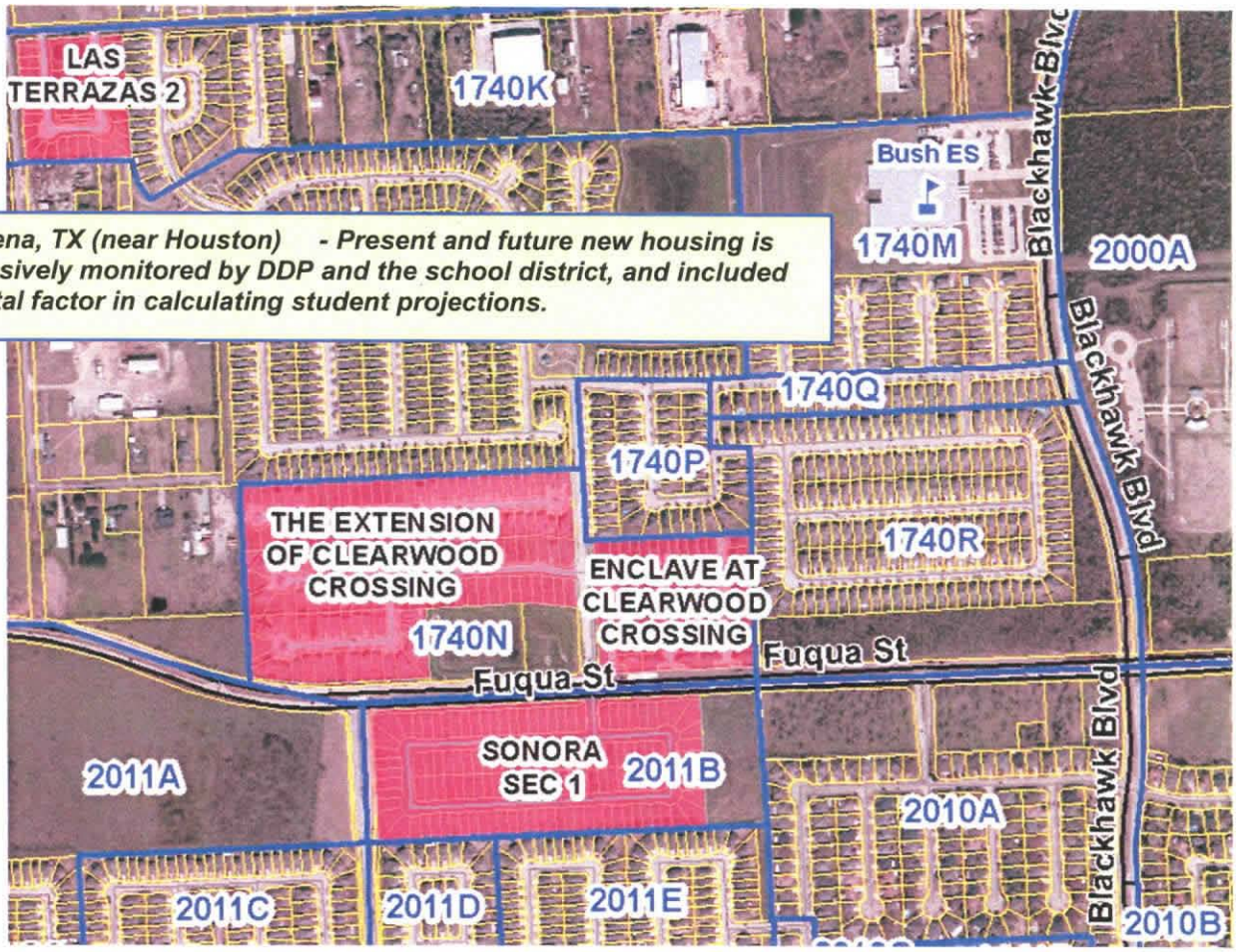
We have prepared Build-Out Studies for many school districts. This process can be crucial for the growing school grappling with its long-term facility needs. The build-out study is *complimentary* to 10-Year student projections, and it should be an integral part of any master-planning process. We have been doing Build-Out Studies for nearly a quarter-century, long enough to see MANY plans successfully come to fruition! Sufficient school facilities, located in the right place, and at the time needed. A Build-Out Study for a growing school district will help answer ALL 3 of these questions...***HOW MANY*** schools will be needed?...***WHERE*** to ideally place them...and ***WHEN*** will they be needed? A 10-year forecast alone cannot answer all 3 questions.



DAVIS DEMOGRAPHICS

Tracking new housing – a key factor for Projections

Researching and tracking new housing developments is crucial to the projections process. Davis Demographics thoroughly analyzes existing and planned housing projects in the area. We include the number of units planned, and the best estimate phasing schedule and completion date for each subdivision project. We look at the housing type of all units, which is critical to determining proper student generation rates, since condos/townhomes will generate different numbers of new students than apartments, which likewise will generate different numbers than single family detached homes, and so forth. This graphic depicts new housing developments within Pasadena ISD (Houston metro), using GIS mapping software and parcel data from Harris County. The pinkish-red areas are not just outlines on a map....there is a wealth of data dynamically tied to this map (the real power of GIS) where vital information is being maintained...including project name, type, number of units, expected completion date, contact information for various parties, etc.

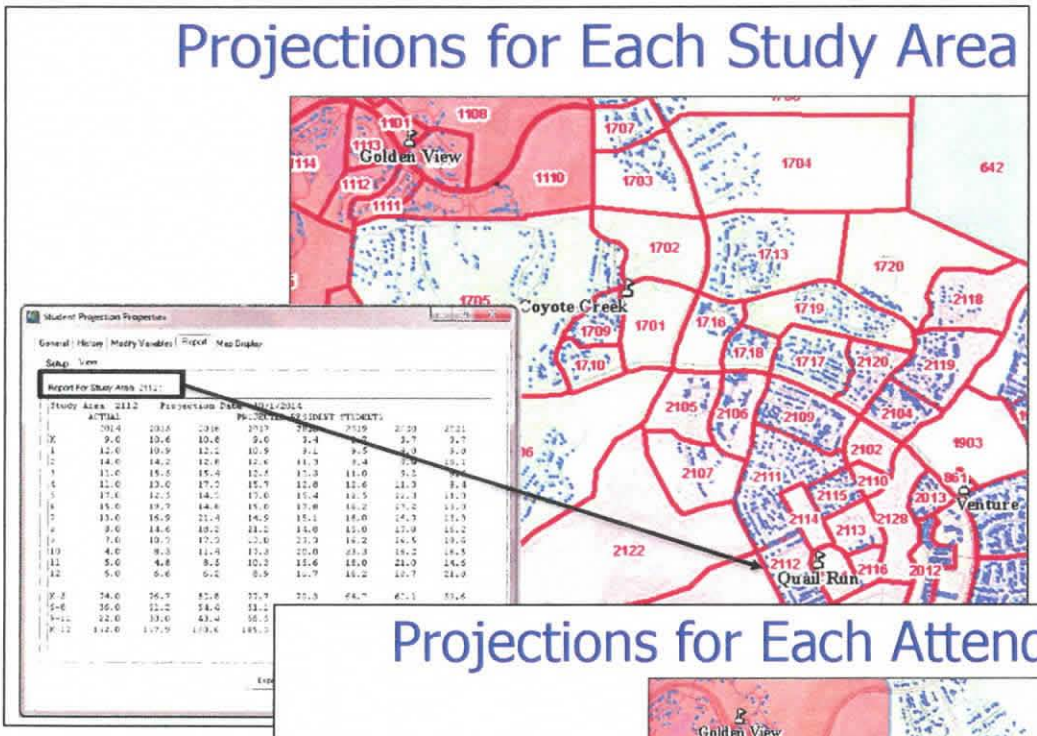


Pasadena, TX (near Houston) - Present and future new housing is aggressively monitored by DDP and the school district, and included as a vital factor in calculating student projections.

DAVIS DEMOGRAPHICS

The Benefits of using small Planning Areas

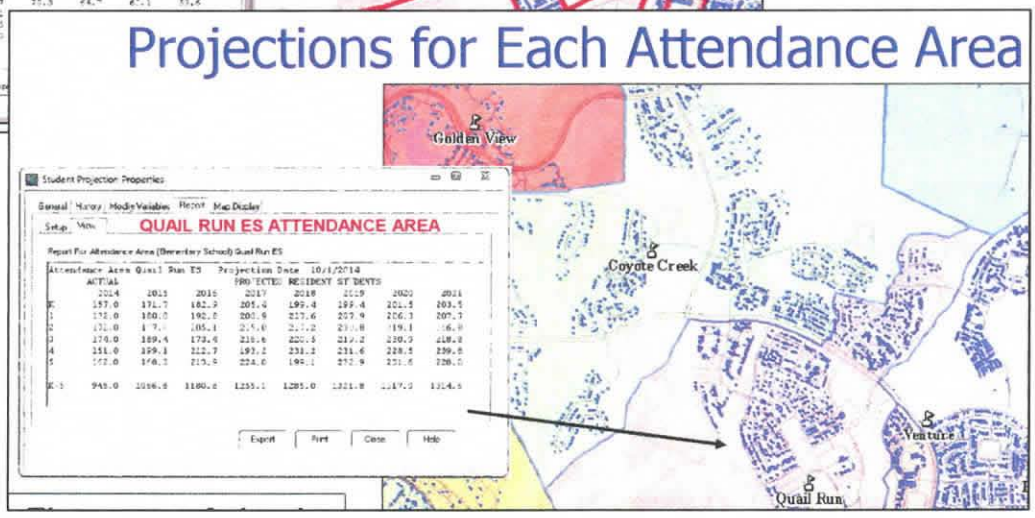
Davis Demographics divides each school district into small neighborhood planning areas for the student forecasting process. We then create an individual forecast for each planning area. These individual forecasts provide an unrivaled level of detail, and can be aggregated together to summarize and analyze the overall projections district-wide, by each school boundary, by grade level, etc. This approach is an exceptional way of analyzing the school district by region and by sub-region



Projections are created for each small planning area.

We would divide each school district into numerous small planning areas.

These individual forecasts by small planning area are aggregated together to summarize by each school boundary, and in a variety of other ways.



Small STUDY AREAS are the smallest unit of geography by which Davis Demographics creates student forecasts. (So for example, a school district divided into 250 study areas would have 250 individual forecasts created....which can be aggregated together and summarized many ways).

STUDY AREAS are also the building blocks of school boundaries. So if the forecasts indicate changes are needed (Redistricting perhaps?), then that is a straightforward task using our software tools, which tie the forecasts to any "What-If?" boundary scenario.....an extremely effective way for changing boundaries!

DAVIS DEMOGRAPHICS

Leader among K-12 Demographers in GeoSpatial technologies

Davis Demographics partnered with ESRI before we even became a company. Our founder first partnered with Esri in the mid-1980's to use their computer mapping technology for school planning. (Davis Demographics was later "born" (incorporated) in 1993).

♦ ***Davis Demographics is the only Educational Consultant endorsed by Esri***
Esri is the world's leading provider of geospatial technologies and computer mapping

As an early adopter of GIS technology, DDP has worked with Esri since the mid-1980's delivering many of the first school administrative demographic and planning applications. SchoolSite™ for ArcGIS® illustrates the continuing commitment that DDP has given to providing K-12 school administrators with the most up-to-date planning solutions based on Esri Technology.

— Jack Dangermond, Founder & President of Esri

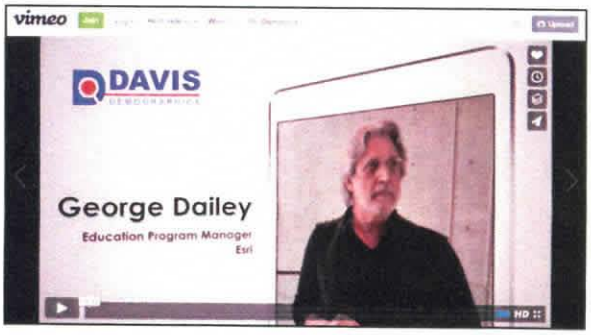
Davis Demographics & Planning brings decades of Esri GIS experience with solutions and services designed for K-12 education. As a two-time Esri Partner-of-the-Year award winner, Davis Demographics helps form the backbone of our efforts in helping school districts incorporate GIS technology and tackle pressing issues including seeking ways to save money and grow efficiencies. With their focus on GIS in school administration and their hands-on skills in developing/delivering desktop- and server-based applications and providing GIS training, DDP provides an unmatched level of front-end project effort and back-end user support.

As more school district leaders recognize the importance of harnessing the power of geography and GIS for better planning and decision-making, having the best of breed GIS tools and solution/service providers is critical to moving to district success. Davis Demographics coupled with Esri technology will take you there.

— George Dailey, National Manager of Esri's GIS in Educational Administration programs

Click the link to watch a 1-minute testimonial from George Dailey

https://vimeo.com/164128680



DAVIS DEMOGRAPHICS

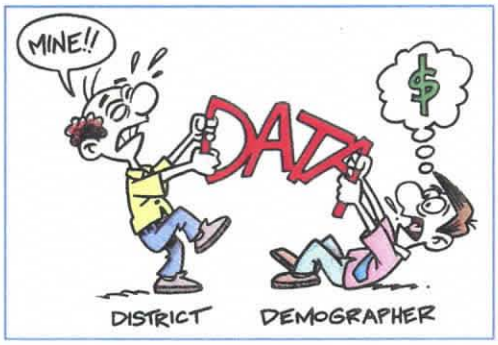
Planning Software

Davis Demographics is unique in that, not only do we provide a variety of comprehensive demographic and planning consulting services, we also have developed powerful GIS mapping software tools so that school districts can further analyze the data that we provide. We not only provide services but we open up the data to district access. This is huge. No other consultant offers the types of tools we provide, and most consultants will not share the underlying data from their demographic studies. For those consultants, controlling data access is an important part of their strategy of locking down continuing business.

SchoolSite VISUALIZE | ANALYZE | STRATEGIZE

Our philosophy is quite different. We provide not only the planning consulting many districts desire, but we also offer our software tools and access to the data. **SchoolSite** is built on industry-leading GIS from Esri (this is what your county and city are using!), so it integrates with vital data you need (i.e. parcel data). SchoolSite adds additional functionality to Esri GIS in the areas of Redistricting, Student Forecasting, and Anaylitics. No other consulting firm is more qualified than Davis Demographics to fulfill a school district's desire for state-of-the-art school planning software.

At Davis Demographics, we believe so strongly that a Demographer should empower school district clients with data and software tools that we even created a cartoon about it.



This is the typical Tug-of-War

ArcGIS + SchoolSite VISUALIZE | ANALYZE | STRATEGIZE

THIS is the empowered Davis Demographics client

-has the data

-has the software tools (ArcGIS and SchoolSite)

-has the know-how (training from Davis Demographics)

What do people say about SchoolSite?

We are one of the largest and fastest-growing school systems in Georgia. SchoolSite has greatly improved our ability to plan for and target our capital program needs within the district. It has simply made our job a whole lot easier.

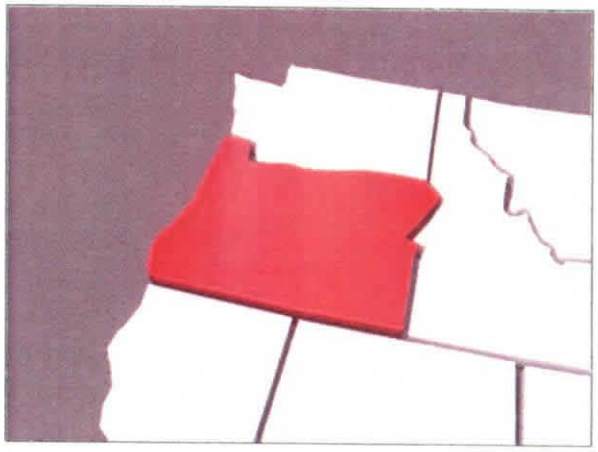
Patrick Burke, Chief Operations Officer, Fulton County Schools

DAVIS DEMOGRAPHICS

References in Oregon

Since 2015, Davis Demographics has provided consulting services to:

West Linn-Wilsonville School District
Sherwood School District
Lake Oswego School District
Corvallis School District
Greater Albany School District
Hillsboro School District
Scappoose School District
Canby School District



And provided our SchoolSite software to:

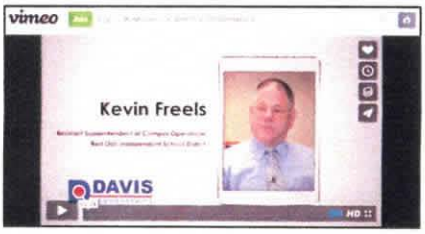
Beaverton School District
Bend-La Pine School District
Hillsboro School District

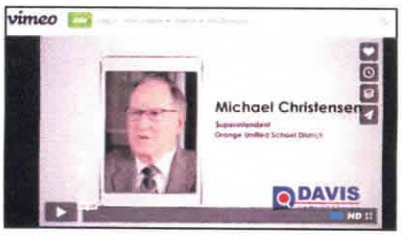
Nationwide

We've been doing this for 24 years! Over the past 2 years alone, we have provided consulting services to school districts in 22 states, and technical support and training to software clients 33 states.

Video Testimonials

https://vimeo.com/176602481 https://vimeo.com/176684888 https://vimeo.com/176597572





What's a School's 'Functional Capacity?'

By Paul Abramson | July 1st, 2012

Cynthia Owens Richardson, director of Planning for the Chesterfield County Public Schools, in Virginia, asks a lot of questions, looks for new information wherever she can find it and is not satisfied with easy answers or standard results. She wants more.

Dr. Richardson raised the question about small schools that triggered my column on that subject (SP&M, April 2012). Now she has raised a more complicated question: How does one measure the functional capacity of a school? She mentions a standard benchmark (when 90 percent of the space is occupied, the school is full), but she and dozens of persons who have responded to her, have questioned where that benchmark comes from and how adequate or accurate it is.
I worry about any attempts to set standards on something like that. It seems to me that any response should emphasize how a space is used and supported, rather than specific numbers of students or percentage of occupancy.

My firm specifies elementary school classrooms of at least 900 square feet no matter how many students are going to be in a class because we believe that is the minimum space needed to allow a variety of elementary school activities to occur. How do you calculate capacity for a school when a room is "full" with 22 students or 28 or even 15?

Another factor that needs to be considered in calculating capacity is support facilities. Schools are not just classrooms. I visited an elementary school in Louisiana that was designed to house 500 students. As the school population grew, the district added four classrooms, then eight more and then another eight. As a result, the school was operating with 1,000 students. It was functioning but, in my opinion, it was way above functional capacity.

One thousand students were using a cafeteria, a library and a multipurpose room designed to accommodate 500 students. Worse, the toilet facilities were designed for 500, too. There were long lines of students waiting to reach them before each lunch period. So, there were classrooms able to hold 1,000 students, and the building was rated for 1,000, but the real key to functional capacity was the availability of support facilities, and they were designed for 500.

High schools and elementary schools, as they are generally operated, function in a similar manner. In an elementary school, a teacher and a group of students "own" a classroom. When they leave for lunch, music or any similar activity, the room is empty. If the day is divided into eight periods and students leave the room twice a day (say for lunch and an activity), then the classroom is used 75 percent of the time (six periods out of eight). Is 75-percent occupancy full capacity?

Similarly, in a high school, ideally a teacher is assigned to a room, and when the teacher does not have a class or an assignment, the room should be empty. If the school runs on an eight-period day and the teacher has five classes and a duty period, then the room is used 75 percent of the time.

Unfortunately, in many high schools, teachers do not have a room of their own and must allow the classroom to be used at least one period each day by another teacher. To cover this situation, we use a benchmark that suggests that a classroom should be empty one period a day (for flexibility), that special rooms that need setups (think science labs, art studios, etc.) should be scheduled 50 percent of the time (one setup for each class use) and that physical education space could be scheduled every period, with different faculty overseeing it. It is not perfect (and it does not provide a classroom for each teacher), but it does take into consideration how each space functions.

Middle schools are another matter entirely. Ideally, a group of students and their teachers should have a block of rooms that are their home. When they leave, those rooms should be empty so that projects can be left or individual students and teachers can use them for whatever they need to do. That suggests that in a middle school that really uses teams and houses and provides them with space for their activities, classrooms are "full" when they are occupied 50 to 60 percent of the day.

That 90-percent rule of thumb? It's a nice formula, but it is just that, a model, not a reflection of the actual activity of the school. Usage and educational philosophy, not some mathematical formula, should determine how space is used and what percentage of use equals capacity.

Paul Abramson *is education industry analyst for* SP&M *and president of Stanton Leggett & Associates, an educational facilities consulting firm based in Mamaroneck, N.Y. He was named CEFPI's 2008 "Planner of the Year." He can be reached at intelled@aol.com.*

About the Author

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