
CSTDM09 - California Statewide Travel Demand Model

Model Development

School Enrollment

Final System Documentation: Technical Note

ULTRANS
Institute of Transportation
Studies, UC Davis
Davis, California

HBA Specto Incorporated
Calgary, Alberta

May 2011

Table of Contents

1. Introduction.....	5
2. Grade schools.....	5
2.1 Tabular data.....	5
2.1.1 CBEDS.....	5
2.1.2 DataQuest.....	6
2.2 GIS data.....	7
2.3 Data processing.....	8
3. Post-Secondary education	18
3.1.Tabular data.....	18
3.1.1 Public institutions.....	18
3.1.2 Private institutions	21
3.2 Data processing.....	22

Tables:

Table 1: Data Sources 11

Table 2: Public Schools Database/GIS Data..... 12

Table 3. File Structure: School Enrollment by Grade 17

Table 4. Enrollment Data Sources.....23

Table 5. GIS Data and Campus Location Sources24

Figures:

Figure 1: Joined School Enrollment Data 9

Figure 2: School Enrollment by TAZ..... 10

1. Introduction

This document provides background information and a description of the school enrollment data development for the California Statewide Travel Demand Model (CSTDM09).

2. Grade schools

This technical note describes the assembly of grade school education inputs for CSTDM09. The number of enrolled students at each school is associated with a location within a TAZ and contributes to the modeling of origin and destination trips. Enrollment is considered at the school end.

The number of students was identified or calculated for the base year 2000 and for the target year of 2008. If 2008 data were unavailable we used the closest available year data that were available. All public schools with attendance reported to the state for 2008 are included. School locations are obtained from the California Department of education Public Schools Database (<http://www.cde.ca.gov/ds/si/ds/pubschls.asp>) Enrollment figures that could not be identified for schools were given a value of 0. Students were grouped into two categories: elementary school (K-8) and high school (9-12).

2.1 Tabular data

2.1.1 CBEDS

Enrollment figures were collected through the California Basic Educational Data System (CBEDS). The purpose of CBEDS is to collect information on student and staff demographics. Data are collected annually. There are two separate forms used to collect these data. The County/District Information Form is used to collect data specific to district and county offices on the number of classified staff, estimated number of teacher hires, and high school graduation requirements. The School Information Form is used to collect data specific to schools on the number of classified staff, select

educational options, enrollment, technology, education calendars, parental exception waivers, and bilingual paraprofessionals.¹

Enrollment is the number of kindergarten through grade twelve public students enrolled on "Information Day," a Wednesday in early October of the indicated school year. (CBEDS-SIF)²

2.1.2 DataQuest

School enrollment data for the year 2000 and 2008 were obtained using the DataQuest query tool from the CDE. DataQuest is a dynamic system that provides reports about California's schools and school districts. It contains a wide variety of information including school performance indicators, student and staff demographics, expulsion, suspension, and truancy information and a variety of test results. Data are presented so that users can easily compare schools, districts and counties.³ To create the tables for the years 2000 and 2008 using DataQuest, the level and subject must be selected from a drop-down menu before submitting the query.

1. Select the Level. The available levels include:

State
County
District
School
Other Choices
SELPA

"Other Choices" was chosen to retrieve a record for each school with enrollment data for the state of California.

2. Select the Subject. The available subjects include 6 categories each with several subcategories:

¹ <http://www.cde.ca.gov/ds/sd/cb/materials.asp>

² <http://www.cde.ca.gov/ds/sd/cb/glossary.asp#e>

³ <http://www.cde.ca.gov/ds/sd/cb/dataquest.asp>

School Performance:

Test Scores:

Student Demographics:

School Staffing:

Student Misconduct & Intervention:

Subject Area/courses:

Technology

Create your own report

“Enrollment” under Student Demographics was selected.

3. Submit.
4. Select Criteria
 - a. Display Results for: **Schools**
 - b. District/School Type: **All Districts**
 - c. County: **All California**
 - d. Year of Data: 2000-01
5. Select Report: **Enrollment by Grade**
6. Submit
7. Download Data as a semicolon delimited file

The same process was repeated for the school year 2008-2009 and 2007-2008.

2.2 GIS data

Geographic locations of schools were compiled using data files containing the school addresses. The data files were obtained from the California Department of Education website (<http://www.cde.ca.gov/ds/si/ds/pubschls.asp>) in December, 2010 (see Table 6.1). From this table, schools were geocoded using school addresses and the ESRI North American Geocoding Service Version 10. If schools could not be geocoded they were located using internet resources, mapping software or phone research. Removed from this database were district offices, juvenile halls and closed schools. All GIS work was performed by staff at ULTRNS in 2010. 10,548 schools were identified for this dataset.

2.3 Data processing

Tabular data and GIS data were joined using the county/district/school (CDS) code as the primary key. The CDS code is a 14-digit code that is used as the official identification for a school within California. The first two digits identify the county, the next five digits identify the school district, and the last seven digits identify the school.⁴

The GIS data already contained a field with the CDS code and was left unchanged. The tabular data had a district code and a school code that were combined to create the CDS code. The tabular data was also altered to create two new fields for each year: (1) Total Enrollment K-8 and (2) Total Enrollment 9-12. For the K-8 field, the fields representing enrollment for Kindergarten through eighth grade were summed and for the 9-12 field, grades 9-12 were summed.

For 376 of the total 10,092 schools, no enrollment data were available for the 2008 to 2009 school year. Consequently, data from the 2007 to 2008 school year were used instead. An additional field was created to identify where 2007 to 2008 data were used instead of 2008 to 2009 data, "2007_8data" and a value of 1 was given to those records using the older data.

Once spatial data contained the enrollment data for the base year and recent year, the enrollment data could then be associated with the TAZ layer. A spatial join using ArcGIS allows two spatial layers to be joined based on spatial location. A new spatial output point layer is created which assigns the TAZ attributes to all school location points which fall inside of the TAZ boundary.

⁴ <http://www.cde.ca.gov/ds/si/ds/>

Attributes of grade_schools_TAZ021610_1

sen_mem	sen_prty	con_dist	con_mem	con_prty	latitude	longitude	pop_stat	2000_k_b	2000_9_12	2000_k_b	2000_9_12	TAZ	2007_0data
Don Perata	D	09	Barbara Lee	D	37.7899999	-122.17000	1	0	91	0	0	1446	1
Liz Figueroa	D	09	Barbara Lee	D	37.6719999	-122.09999	2	3	196	0	0	244	1
Don Perata	D	09	Barbara Lee	D	37.7749999	-122.22000	1	9	299	0	0	255	1
Liz Figueroa	D	13	Fortney Stark	D	37.6689999	-122.11000	3	19	208	20	137	1659	1
Don Perata	D	13	Fortney Stark	D	37.7770000	-122.28000	3	355	0	0	0	1458	1
Don Perata	D	13	Fortney Stark	D	37.7669999	-122.29000	3	248	0	0	0	1458	1
Don Perata	D	13	Fortney Stark	D	37.7790000	-122.29000	3	318	0	0	0	1458	1
Liz Figueroa	D	13	Fortney Stark	D	37.6619999	-122.06000	2	465	0	0	0	1669	1
Liz Figueroa	D	13	Fortney Stark	D	37.6569999	-122.06000	2	699	0	369	0	1657	1
Liz Figueroa	D	13	Fortney Stark	D	37.6360000	-122.06999	2	534	0	0	0	1656	1
Don Perata	D	09	Barbara Lee	D	37.7779999	-122.19000	1	304	0	0	0	1447	1
Don Perata	D	09	Barbara Lee	D	37.7819999	-122.23000	1	1426	0	0	0	1449	1
Don Perata	D	11	Richard W. Pombo	R	37.7060000	-121.94000	3	348	0	281	0	1674	1
Don Perata	D	13	Fortney Stark	D	37.7740000	-122.28000	3	49	1342	0	1100	1459	1
Liz Figueroa	D	13	Fortney Stark	D	37.6080000	-122.03000	3	1064	0	737	0	1647	1
Don Perata	D	09	Barbara Lee	D	37.7480000	-122.17000	1	1038	0	0	0	1437	1
Don Perata	D	09	Barbara Lee	D	37.7839999	-122.22000	1	1345	0	0	0	1454	1
Don Perata	D	09	Barbara Lee	D	37.8089999	-122.28000	1	669	0	0	0	1479	1
Don Perata	D	09	Barbara Lee	D	37.8340000	-122.26000	1	475	0	0	0	1518	1
Don Perata	D	09	Barbara Lee	D	37.7620000	-122.19000	1	627	0	0	0	1436	1
Don Perata	D	09	Barbara Lee	D	37.7670000	-122.15000	1	558	0	0	0	1442	1
Don Perata	D	09	Barbara Lee	D	37.8080000	-122.28000	1	45	0	0	0	1479	1
Liz Figueroa	D	13	Fortney Stark	D	37.5626000	-121.96579	2	8	10	0	0	1603	1
Sam Anestled	R	02	Wally Harger	R	39.7229999	-121.83000	2	37	46	0	0	200	1
Sam Anestled	R	02	Wally Harger	R	39.3630000	-121.69000	4	3	4	0	2	225	1
Sam Anestled	R	02	Wally Harger	R	39.9360000	-121.72000	8	60	0	36	0	213	1
Sam Anestled	R	04	John T. Doolittle	R	38.5128668	-121.54000	4	117	0	0	0	220	1
Sam Anestled	R	02	Wally Harger	R	39.7520000	-121.61000	4	56	24	4	55	217	1
Sam Anestled	R	02	Wally Harger	R	39.8110000	-121.59999	4	394	0	0	0	215	1
Sam Anestled	R	02	Wally Harger	R	39.8840000	-121.66000	4	69	0	45	0	213	1
Dave Cox	R	03	Dan Lungren	R	38.0760000	-120.55000	6	1	0	1	0	3012	1
Dave Cox	R	03	Dan Lungren	R	38.2000000	-120.68000	7	13	2	20	0	3011	1
Dave Cox	R	03	Dan Lungren	R	37.9380000	-120.62000	7	0	5	0	0	3010	1
Sam Anestled	R	02	Wally Harger	R	39.1460000	-122.16000	6	145	248	0	354	230	1
Tom Tomiakson	D	07	George Miller	D	38.0309999	-121.86000	3	3	151	0	226	1346	1
Tom Tomiakson	D	07	George Miller	D	37.9930000	-122.28000	3	0	72	0	0	1577	1
Don Perata	D	07	George Miller	D	37.9930000	-122.28000	3	1	174	0	231	1554	1

Records: 14 | Show: All Selected | Records: 0 out of 10092 Selected | Options

Figure 1: Joined School Enrollment Data

From this point layer containing school enrollment figures as well as TAZ ID numbers for each school, a new output table summarizing the total enrollment figures for each TAZ was produced, as well as the count of schools that fell within each TAZ.

FID	Shape *	TAZ	County	LUZ	count_taz	2008_k_8	2008_9_12	2000_k_8	2000_9_12
0	Polygon	100	Del Norte	100	5	1597	1172	1874	1294
1	Polygon	101	Del Norte	100	1	251	0	361	0
2	Polygon	102	Del Norte	100	2	396	71	445	117
3	Polygon	103	Del Norte	100	2	292	0	358	0
4	Polygon	104	Del Norte	100	1	114	0	112	0
5	Polygon	105	Humboldt	502	5	255	0	618	0
6	Polygon	106	Humboldt	502	15	2001	81	2026	208
7	Polygon	107	Humboldt	502	5	1017	0	1058	0
8	Polygon	108	Humboldt	501	13	1302	1023	1495	1199
9	Polygon	109	Humboldt	503	10	829	284	923	351
10	Polygon	110	Humboldt	503	4	579	768	590	837
11	Polygon	111	Humboldt	503	4	517	0	626	0
12	Polygon	112	Humboldt	503	1	363	0	450	0
13	Polygon	113	Humboldt	502	2	148	198	229	0
14	Polygon	114	Humboldt	502	2	366	0	388	0
15	Polygon	115	Humboldt	502	9	1671	977	1671	1231
16	Polygon	116	Humboldt	500	3	478	0	669	0
17	Polygon	117	Humboldt	500	12	872	495	760	374
18	Polygon	118	Humboldt	500	3	344	0	400	0
19	Polygon	119	Humboldt	500	5	183	275	255	438
20	Polygon	120	Humboldt	502	10	789	1504	547	1984
21	Polygon	121	Humboldt	502	5	410	126	469	69
22	Polygon	122	Lassen	600	5	93	82	133	113
23	Polygon	123	Lassen	600	6	258	482	332	146
24	Polygon	124	Lassen	600	2	708	0	862	0
25	Polygon	125	Lassen	600	8	550	1104	498	1214
26	Polygon	126	Lassen	600	4	1156	0	1357	0
27	Polygon	127	Lassen	600	11	268	138	308	113

Figure 2: School Enrollment by TAZ

Table 1: Data Sources

Data type	Source	Website	Dataquest inputs	Year
GIS, point layer	<ul style="list-style-type: none"> • CA Dept. of Education • Address Locators (GDT) • CBEDS (US Census) • Caltrans 	www.dot.ca.gov/hq/tsip/TSIPGSC/library/libdatalist.htm		2006
Table	CA Dept. of Education	http://dq.cde.ca.gov/dataquest/	Level: Other choices Subject: Enrollment Display: all schools, enrollment by grade	2008-2009
Table ⁵	CA Dept. of Education	http://dq.cde.ca.gov/dataquest/	Level: Other choices Subject: Enrollment Display: all schools, enrollment by grade	2007-2008
Table	CA Dept. of Education	http://www.cde.ca.gov/ds/sd/cb/filese/nrsch.asp		2000-2001

⁵ 2007-2008 enrollment figures were only used if no data exist for 2008-2009 enrollment figures; in GIS layer, refer to column schools.2007_08data for information on which dataset was used – 1 indicates 2007-2008 enrollment figures were used in place of 2008-2009.

Table 2: Public Schools Database/GIS Data

Field Name	Field Type	Width	Description
CDS_CODE	Character	14	This 14-digit code is the official, unique identification of a school within California. The first two digits identify the county, the next five digits identify the school district, and the last seven digits identify the school. Please note that a CDS code ending in '0000000' indicates a district record not a school.
STAT_TYP	Character	7	This field identifies the status of the school or district. Definitions of the valid status types are listed below: <ul style="list-style-type: none"> ■ Open: The district or school is in operation and providing instructional services. ■ Closed: The district or school is not in operation and no longer providing instructional services. ■ Merged: The district has combined with another district, and the schools within the merged district have closed and re-opened in the newly formed district. ■ Pending: The district or school has not opened yet, but plans to open within the next 9-12 months.
COUNTY	Character	15	County name.
DISTRICT	Character	50	District name.
SCHOOL	Character	50	School name.
STR_ADDR	Character	60	The street address (physical address) of this school. Note: Some schools (primarily closed or retired schools) may not have data in this field.
STR_CITY	Character	25	The city for the street address of this school. Note: Some schools (primarily closed or retired schools) may not have data in this field.
STR_ZIP	Character	10	The zip code for the street address of this school. Note: Some schools (primarily closed or retired schools) may not have data in this field.
STR_ST	Character	2	The state in which the school is located.
MAIL_ADR	Character	60	The mailing address of this school (i.e., P.O. Box). Note: Many schools have not provided a mailing address that is distinct from the street address. If you are using this file to create mailing labels, we advise that you replace missing data in this field with data from the STR_ADDR field. For your convenience we have filled the previously unpopulated mail_adr cells with str_addr data.
MAIL_CTY	Character	25	The city for the mailing address of this school. Note: Many schools have not provided the city for the mailing address that is distinct from the city of the street address. If you are using this file to create mailing labels, we advise that you replace missing data in this field with data from the STR_CITY field. For your convenience we have filled the previously unpopulated mail_city cells with str_city data.
MAIL_ZIP	Character	10	The zip code for the mailing address of this school. Note: Many schools have not provided the zip code for the mailing address that is distinct from the zip code of the street address. For your convenience we have filled the previously unpopulated mail_zip

			cells with str_zip data.
MAIL_ST	Character	2	The state within the mailing address.
DST_TYPE	Character	20	<p>The type of school district. A brief description of the different types of school districts are listed below:</p> <ul style="list-style-type: none"> ■ A unified school district includes both elementary and high school educational levels. ■ An elementary school district usually includes kindergarten and grades one through six or eight. ■ A high school district usually includes grade nine and above but may include grade seven and above. ■ The word union in the name of an elementary school district indicates that it was formed from two or more districts. ■ The word joint in a district's name indicates that it includes territory from more than one county. ■ State special refers to California State Special Schools.
SCH_TYPE	Character	20	<p>The type of school. Types of public schools include:</p> <ul style="list-style-type: none"> Special Education School County Community School Youth Authority Facility Opportunity School Juvenile Court School Other County-Wide Programs Elementary School Single Elementary School in District Intermediate/Middle School Alternative schools of choice Junior High School K-12 School High School Single High School in District Continuation High School Community Day School State Special School Adult Education Center.
START_DT	Date	8	This field identifies the start date of schools. An empty cell indicates that the start date precedes the date in which the California Department of Education began to maintain this information. The Department began to maintain this information on July 1, 1980.
END_DT	Date	8	This field identifies the end date of schools. An empty cell indicates that the school is not closed.
CHARTER	Character	1	<p>This field identifies charter schools. The field is coded as follows:</p> <p style="padding-left: 40px;">Y = The school is a charter school, but not a State Board of Education</p>

			<p>sponsored charter school.</p> <p>S = The school is a State Board of Education sponsored charter school.</p> <p>B = The school is a Statewide Benefit Charter school.</p> <p>Blank = The school is not a charter.</p>
CHARTER_NU	Character	5	This field represents the charter school number. Only charter schools have numbers in this field.
ASM_DIST	Character	3	Filler.
ASM_MEM	Character	30	Filler.
ASM_PRTY	Character	1	Filler.
SEN_DIST	Character	3	Filler.
SEN_MEM	Character	30	Filler.
SEN_PRTY	Character	1	Filler.
CON_DIST	Character	3	Filler.
CON_MEM	Character	30	Filler.
CON_PRTY	Character	1	Filler.
LATITUDE	Character	10	The angular distance (expressed in degrees) between the location of this school and the equator measured north to south.
LONGITUD	Character	10	The angular distance (expressed in degrees) between the location of this school and the prime meridian (Greenwich, England) measured from west to east.
POP_STAT	Character	1	<p>This field classifies the location of a school relative to seven categories of populous areas. The categories, descriptions, and codes are listed below. The data in this field are provided by the U.S. Census Bureau. It may take 1-2 years to get a designation for a new school.</p> <ol style="list-style-type: none"> 1. Large City: A central city of Consolidated Metropolitan Statistical Area (CMSA) with the city having a population greater than or equal to 250,000. 2. Mid-size City: A central city of a CMSA or Metropolitan Statistical Area (MSA), with the city having a population less than 250,000. 3. Urban Fringes of Large City: Any incorporated place, Census Designated Place, or non-place territory within a CMSA or MSA of a Large City and defined as urban by the Census Bureau. 4. Urban Fringes of Mid-size City: Any incorporated place, Census Designated Place, or non-place territory within a CMSA or MSA of a Mid-size City and defined as urban by the Census Bureau. 5. Large Town: An incorporated place or Census Designated Place with a population greater than or equal to 25,000 and located outside a CMSA or MSA. 6. Small Town: An incorporated place or Census Designated Place with a population less than 25,000 and greater than 2,500 and located outside a CMSA or MSA. 7. Rural, outside MSA: Any incorporated place, Census Designated Place, or

			<p>non-place territory designated as rural by the Census Bureau.</p> <p>8. Rural, inside MSA: Any incorporated place, Census Designated Place, or non-place territory within a CMSA or MSA of a Large or Mid-Size City and defined as rural by the Census Bureau.</p> <p>Blank (Data Not Available): New school not yet assigned a population status code by the Census Bureau, or where there has been a change in the CDS Code, or a school not reporting on the California Basic Educational Data System (CBEDS) collection.</p>
CSIS_CON	Character	25	<p>The California School Information System (CSIS) Consortium to which the district belongs. CSIS is a program to facilitate the transfer of information within the kindergarten through grade twelve public school system. For more information about CSIS please visit their Web site at http://www.csis.k12.ca.us/ (Outside Source). Each CSIS consortium is composed of districts using the same student information system, so these groupings of districts may not be regional. Populated cells represent schools that are participating in any of the current CSIS data collections.</p>
CSISAGNT	Character	7	<p>The 7-digit county-district code for the district or county office that serves as the fiscal agent for the CSIS consortium to which this district belongs. Populated cells represent schools that are participating in any of the current CSIS data collections.</p>
CSIS_CBEDS	Character	1	<p>The status of how local educational agencies (LEAs) and/or charter schools submit their fall California Basic Educational Data System (CBEDS) data.</p> <p>0 = Not expected to submit CBEDS data for the fall submission cycle.</p> <p>1 = School is not within a CSIS-participating LEA and therefore is expected to submit CBEDS data ONLY through traditional means for the fall submission cycle.</p> <p>2 = Charter school within a CSIS parallel LEA that has elected not to participate in CSIS and therefore is expected to submit CBEDS data ONLY through traditional means for the fall submission cycle.</p> <p>3 = Charter school within a CSIS state reporting LEA that has elected not to participate in CSIS and therefore is expected to submit CBEDS data ONLY through traditional means for the fall submission cycle.</p> <p>4 = Expected to submit CBEDS data through traditional means AND through CSIS for the fall submission cycle (i.e. the school is in a CSIS parallel LEA).</p> <p>5 = Expected to submit CBEDS data ONLY through CSIS for the fall submission cycle (i.e. the school is in a CSIS state reporting LEA).</p>
CSIS_LCEN	Character	1	<p>The status of how LEAs and/or charter schools submit their spring Language Census (R30-LC) data.</p> <p>0 = Not expected to submit Language Census data for the spring submission cycle.</p> <p>1 = School is not within a CSIS-participating LEA and therefore is expected to submit Language Census data ONLY through traditional means for the spring submission cycle.</p> <p>2 = Charter school within a CSIS parallel LEA that has elected not to participate in CSIS and therefore is expected to submit Language Census data ONLY through traditional means for the spring submission cycle.</p>

			<p>3 = Charter school within a CSIS state reporting LEA that has elected not to participate in CSIS and therefore is expected to submit Language Census data ONLY through traditional means for the spring submission cycle.</p> <p>4 = Expected to submit Language Census data through traditional means AND through CSIS for the spring submission cycle (i.e. the school is in a CSIS parallel LEA).</p> <p>5 = Expected to submit Language Census data ONLY through CSIS for the spring submission cycle (i.e. the school is in a CSIS state reporting LEA).</p>
GRD_SPAN	Character	5	<p>The lowest grade and the highest grade in which student enrollment was reported in the most recent certified CBEDS data collection. This field may not represent the actual range of grades that a school supports.</p> <p>Note: Special programs at schools such as independent study, alternative education, and special education will often expand the grade span beyond that which is typically considered the grade span for schools of that type (i.e. high schools may have a grade span of grade three through twelve).</p>
LASTUPDT	Date	8	<p>This field identifies the last time that the school record was updated. This field was created on June 24, 1999.</p>
LONG_STR	Character	50	<p>The unabbreviated street (physical) address of this school. Note: Some schools (primarily closed or retired schools) may not have data in this field.</p>
LONG_MAI	Character	50	<p>The unabbreviated mailing address of this school (i.e., P.O. Box). Note: Many schools have not provided a mailing address that is distinct from the street address. If you are using this file to create mailing labels, we advise that you replace missing data in this field with data from the street address field.</p>

Table 3: File Structure: School Enrollment by Grade

Field Name	Field Type	Width	Description
Dist. Code	Character	7	County-District code.
Dist. Name	Character	50	District name.
Agency Code	Character	50	School name.
	Character	7	School code.
Kdgn.	Numeric	4	Enrollment for kindergarten.
Grade 1	Numeric	4	Enrollment for grade one.
Grade 2	Numeric	4	Enrollment for grade two.
Grade 3	Numeric	4	Enrollment for grade three.
Grade 4	Numeric	4	Enrollment for grade four.
Grade 5	Numeric	4	Enrollment for grade five.
Grade 6	Numeric	4	Enrollment for grade six.
Grade 7	Numeric	4	Enrollment for grade seven.
Grade 8	Numeric	4	Enrollment for grade eight.
Ungr. Elem.	Numeric	4	Enrollment for ungraded elementary.
Grade 9	Numeric	4	Enrollment for grade nine.
Grade 10	Numeric	4	Enrollment for grade ten.
Grade 11	Numeric	4	Enrollment for grade eleven.
Grade 12	Numeric	4	Enrollment for grade twelve.
Ungr. Sec	Numeric	4	Enrollment for ungraded secondary.
Total Enr.	Numeric	4	Total enrollment.

3. Post-Secondary Education

This part of the technical note describes the assembly of post-secondary education inputs for the California Statewide Travel Model (CSTM09). The number of enrolled students at each school is associated with a location within a TAZ and contributes to the modeling of origin and destination trips.

The number of students was identified or calculated for the base year 2000 and for 2008, or the most recent year for which data were available. Two sources were used and are listed below. Enrollment figures that could not be identified for schools were given a value of 0.

Student enrollment can be aggregated and presented in several different ways. Students can be classified as graduate, undergraduate, part-time and full-time. For the purposes of this model, total full-time equivalent enrollment was sought. If full-time equivalent enrollment totals were provided for a school, those figures were used. If not, then full-time equivalent totals were calculated.

Two main data sources were used: **California Post-secondary Education Commission (CPEC)** and the **National Center for Education Statistics (NCES)**.

3.1 Tabular Data

3.1.1 Public Institutions

Enrollment data for public colleges and universities, including the University of California system, the California State University system and the California Community College system, were provided by the California Postsecondary Education Commission (CPEC).

The University of California, the California State University, and the California Community Colleges system offices submit a record for each student enrolled and for each degree or certificate completed. The Commission aggregates these data to

generate the number of first-time freshmen, the number transferred, the enrollments by level and discipline, and the degrees awarded.⁶

University of California and California State University Systems

For the UC and CSU systems, full-time equivalent undergraduate and graduate enrollment figures were provided for the year 2000 by CPEC, and the graduate and undergraduate figures were summed to deliver the 2000 FTE total enrollment. The most recent complete dataset for FTE enrollment at the time of data assembly was for the year 2007, and similarly the graduate and undergraduate FTE enrollment figures were summed for the 2007 FTE total enrollment.

At the California State University (CSU) and University of California (UC), a course load with 15 or more semester units is considered Full-time for undergraduate. At CSU and UC, a course load with 12 or more units is considered full-time for graduate students. At CSU and UC, fewer than 15 semester credit units is considered Part-time for undergraduate students, and a course load of fewer than 12 credit units is considered Part-time for graduate students. The acronym FTE refers to the term "full-time-equivalent" enrollment, a calculation used by the state to determine funding levels per student. The California State University and the University of California use FTE, to describe units of student workload measure for funding purposes for the systems. For the California State University, the term FTE enrollment is defined to be 15 semester or quarter units. Variations in the academic calendars of the campuses of the CSU are taken into consideration in the definition of the annual FTES, which is equivalent to 30 semester or 45 quarter units. With these definitions, the number of individual students on campus is difficult to determine, but the total volume of instructional activity is more accurately reflected. For the University of California, one undergraduate FTE in the semester system is student enrollment in 15 semester units for two semesters. One graduate FTE in the semester system is student enrollment in 12 semester units for two semesters. In the quarter system, the totals are 45 undergraduate credit units and 36 graduate credit

⁶ <http://www.cpec.ca.gov/OnLineData/OnLineData.asp>

units per academic year, respectively. Though the terms FTE and FTES are often used interchangeably, it is important to note that FTE enrollment and FTES are determined through entirely different methodologies.⁷

California Community College System

CPEC also provided enrollment data for community colleges, with no separation for undergraduate or graduate level. Full-time equivalent student enrollment (FTES) figures were also provided by CPEC. However, due to enrollment figures swaying widely from year to year, 3-year averages were taken to represent the base year and recent year. The average of 1999, 2000 and 2001 FTE enrollment figures were taken to represent the year 2000, and the average of 2005, 2006 and 2007 FTE enrollment figures were taken to represent the most recent year.

Full-time for Community College students is 12 or more units, and less than 12 credit units is considered Part-time. The acronym FTES refers to the term "full-time-equivalent student" enrollment, a calculation used by the state to determine funding levels per student. For the California Community College, one FTES represents 525 class (contact) hours of student instruction/activity in credit and noncredit courses. The number, 525, is derived from the fact that 175 days of instruction are required each year and a student attending three hours per day for 175 days will be in attendance for 525 hours.⁸

⁷ <http://www.cpec.ca.gov/SecondPages/Glossary.asp?ListType=15>

⁸ <http://www.cpec.ca.gov/SecondPages/Glossary.asp?ListType=15>

3.1.2 Private Institutions

The National Center for Education Statistics provides enrollment data for non-public institutions, using the latest data from the **Integrated Postsecondary Education Data System (IPEDS)**, the core postsecondary education data collection program for NCES. At the time of data collection, data was sourced from IPEDS 2007-2008.

The Commission collects data from the Integrated Postsecondary Education Data System (IPEDS) at the U.S. Department of Education. The information at IPEDS does not include transfers from community colleges or first-time freshmen. These data are gathered using a separate, voluntary reporting system.⁹

Data are provided by NCES as total undergraduate and graduate enrollment figures for Fall 2008. The percentages of students that are part-time and full-time are also provided for undergraduate and graduate students. Full-time equivalent enrollment was estimated to be 100% of total full-time students plus 50% of total part-time students.

$$\text{FTE} = (\text{FT}) + .5 (\text{PT})$$

FTE = Full-time Equivalent

FT = Full-time enrollment

PT = Part-time enrollment

If graduate and undergraduate enrollments were presented as a percentage of the total enrollment, the number of graduate and undergraduate students was first calculated, and then full-time equivalent enrollment was calculated.

$$\text{FTE} = ((\text{UE})(\% \text{FT}) + .5(\text{UE})(\% \text{PT})) + ((\text{GE})(\% \text{FT}) + .5(\text{GE})(\% \text{PT}))$$

FTE = Full-time Equivalent

FT = Full-time enrollment

⁹ <http://www.cpec.ca.gov/OnLineData/OnLineData.asp>

PT = Part-time enrollment

UE = Undergraduate enrollment

GE = Graduate enrollment

To calculate the same figures for the year 2000, the following equation was applied:

$$\text{FTE2000} = \text{FTE2008} - (\text{FTE2008} * .16)$$

FTE2000 = Full-time Equivalent enrollment for 2000

FTE2008 = Full-time Equivalent enrollment for 2008

This assumes that enrollment has increased by 16% between the years 2000 and 2008, a percentage estimated from data obtained for public colleges and universities for the same time period.

3.2 Data Processing

The GIS point layer representing the locations of college and university campuses in California was created using the addresses of the campuses and geocoding them using the GDT street database and ArcGIS geoprocessing tools. Addresses were visually verified using Google Earth, and campuses with incorrect addresses were corrected by replacing the X,Y coordinates with those attained through the satellite imagery on Google Earth.

Enrollment data for the base year and recent year were entered manually using the school name as the common key. Many schools have multiple campus locations that did not have detailed enrollment figures but instead had one general enrollment figure representing all campuses. In those instances, the total enrollment figure was applied to the main campus location with all other campuses receiving an enrollment figure of zero. Similarly, campus locations where no enrollment figure could be ascertained were also given a value of zero.

Table 4: Enrollment Data Sources

School System	Source	website	Aggregation	2000 enrollment data	Recent enrollment data	Table name
University of California	California Postsecondary Education Commission	http://www.cpec.ca.gov	FTE for 1998-2007	2000 Sum of graduate and undergraduate	2007, grad/undergrad sum	Enrollment_Full_Time_Equivalent.csv
CSU	California Postsecondary Education Commission	http://www.cpec.ca.gov	FTE for 1998-2007	2000 Sum of graduate and undergraduate	2007, grad/undergrad sum	Enrollment_Full_Time_Equivalent.csv
Community Colleges	California Postsecondary Education Commission	http://www.cpec.ca.gov	FTE for 1998-2007	Average of 1999, 2000 and 2001 figures	Average of 2005, 2006 and 2007 figures	Enrollment_Full_Time_Equivalent.xls, sheet1
Non-public, WASC-accredited institutions	National Center for Education Statistics	http://nces.ed.gov/collegenavigator	Total Enrollment for Fall 2008	$FTE = ((UE * \%FT) + .5(UE * \%PT)) + ((GE * \%FT) + .5 (GE * \%PT))$	FTE = FTE2008 - (16%* FTE2008)	CA colleges and universities_JB_020110, "non-public" sheet
State-approved and exempt institutions	National Center for Education Statistics	http://nces.ed.gov/collegenavigator	Total Enrollment for Fall 2008	$FTE = ((UE * \%FT) + .5(UE * \%PT)) + ((GE * \%FT) + .5 (GE * \%PT))$	FTE = FTE2008 - (16%* FTE2008)	CA colleges and universities_JB_020110, "state_approv" sheet

Table 5: GIS Data and Campus Location Sources

School system	Address Source	Link
Community college	CPEC	http://www.cpec.ca.gov/CollegeGuide/CollegeGuide.asp
University of California	CPEC	http://www.cpec.ca.gov/CollegeGuide/CollegeGuide.asp
California State University	CPEC	http://www.cpec.ca.gov/CollegeGuide/CollegeGuide.asp
AICCU	AICCU	http://www.aiccu.edu/index.php?option=com_content&task=view&id=5&Itemid=19
Other Private	California Colleges	http://www.californiacolleges.edu/CampusTour/default.asp?switchto=statewide
Other Private	U101	http://u101.com/colleges/California/
Other Private	Colleges in California	http://www.colleges-in-california.com/