



SACRED HEART SCHOOLS

ATHERTON

MASTER PLAN UPDATE
July, 2024



Birdseye View of High School Campus

Sacred Heart Schools (SHS) 2023-2024 Master Plan Update for Use of Facilities July 2024

Introduction:

Within the 2023-2024 school year we saw most activities back to normal with families and their student children eager to socialize and engage in school work and school activities. One of the school's hallmark goals is to promote and live out Christian Community as a value by being a place where families feel safe. This was evident this year as people embraced open community activities both on and off campus.

Enrollment was strong this year. We ended the school year at 1195. This was slightly atypical as we usually see more withdrawals by the end of the year due to various reasons, most of which involve relocation and occasional academic rigor lapses. I mention each year when I present this report to the Town that admissions are more of an art than a science. It is true that in the end the result is a pure number which is science, but the art is in the reality as we accept those students that best fit the school using various criteria, however not all offers are accepted and this means we are balancing the yield to get the best results to not only meet budget but also to get the most well-rounded student body we are able to achieve.

COVID-19 cases continued this school year at a much lower rate than the past 4 years. This allowed us to see a new normal that demonstrated illness rates typical of normal school years when we see a spike in cold and flu illnesses, of which, there were far fewer this past school year.

Our major struggle this school year was managing the expectations of those wishing to have more social face-to-face activities. With this we weighed the need for community bonding and struck a balance to ensure we stayed within our trip count requirements. This formula seemed to work as we remained at least 13% below the cap as measured by our TDM numbers listed later in this report.

Major Projects

- There were no major projects this past school-year

New Projects

- There are no new projects planned for the coming school year.

Future Considerations:

- We are exploring adding solar panels to rooftops, however we are only at the investigation stage, so we have no buildings identified at this time.
- Addition of small 2,000-3,000 square foot classroom/administrative building near Park Lane behind the Johnson and Stevens buildings and/or near the new Kindergarten Building in the center of campus behind the Oakwood Retirement Home. We are studying the feasibility for these additions sometime in the near future. This was included in last year's report and is on hold at this time, so no new information is available.
- Studying to move the cellular antenna to a new location on campus either near the maintenance shop on Park Lane or near Valparaiso Avenue behind the

- visiting team bleachers, to be away from the Preschool and Kindergarten buildings
- We are assessing whether there are specific locations on campus that we could potentially add housing to help meet Town housing mandates issued by the State of California
 - One location is in the southeast corner of campus at Valparaiso Avenue and Emilie Avenue. This location is undeveloped however it has an extensive grove of heritage oak trees
 - The other location would be where the maintenance shop is at present on Park Lane. In the future, the Religious of the Sacred Heart will not need the apartments we have here on site and the maintenance shop can be moved to that location and residences can be built along the center of the Park Lane in the former maintenance shop location

Projects accomplished in the past year –

- Sports field protective netting was added along Park Lane at Dollinger Field and on Gavello Fields on Emilie Avenue to protect the general public from balls traveling at fast speeds outside the school fences. This also helped prevent students from going outside the gates to retrieve balls from the street.

Sustainability/Green Building

- CALGreen Tier 1 & 2- Not applicable this coming school-year as we are not planning any building or maintenance projects that would fall into these categories
- On sustainability, we are exploring the installation of trash and cardboard compactors to help mitigate costs and better treat waste and recycling on campus-This is a carry over from last year

TDM

The traffic counts were tabulated using license plate reader cameras (ALPERS) mounted in positions at each of the eight vehicle entrance and exit gates to capture the front and back of all motor vehicles entering & exiting campus. The cameras are programmed to read data in certain classifications from each vehicle; specifically, the data collected is sensitive to signage. Discrepancies in the data were subtracted from the total of duplicate counts and signage measuring lengths longer than standard US license plate measurements. For example, the cameras can scan and record a sign on the back or side of a vehicle and each scan represents a trip count. These discrepancies were discovered using tabulated formula and were then subtracted from the count. This methodology was certified by a traffic engineering firm and the letter was provided to the Town.

This year's maximum trip count for the three-day monitoring period, April 18-20, 2024, was 4763 and 4707 for the two separate week's vehicle trip samples. This time period was chosen because it represented normal vehicle traffic on campus. This year's count is about **21% below the cap**.

We attribute the reduction to higher bus and van shuttle ridership and carpooling. Having tried various formulas over the past couple of years to increase ridership we tested pick up location and time models and settled on one that netted us more ridership. With a full

school year that proved the model successful, we plan to make stop location adjustments and route changes to increase the demand of the ridership.

Additionally, we have an average of 100 cyclists per day along with about 15-20 pedestrians.

TDM (Traffic Demand Management)-Trip Count Data

Week One

4/9/2024	4296
4/10/2024	4763
4/11/2024	4324

Week Two

4/23/2024	4548
4/24/2024	4707
4/25/2024	4100

At the direction of the Planning Department, the School hired an independent traffic engineering firm last year to audit and certify our trip count methodology. The full TDM is attached as exhibit 2 along with the W-Trans engineering certification letter as exhibit 3.

Enrollment Data

Enrollment is not an exact science. We try to get the best yield possible so we use our best guess as to how many of the accepted applications will actually be committed to enrollment. This formula has historically given us a yield of (+) or (-) 10-15 students by enrollment time, and by the end of any given year, we will lose an average of about 10-15 students to attrition. That number was less this year.

Our projected enrollment for **2023-2024** was 1195 students against a cap of 1196. We purposely set our budget a little lower than 1196 because meeting budget has proven difficult in past years with lower enrollment. Within the past two years our enrollment has been stronger.

Again, enrollment is not an exact science so we need to be careful with the number of offers we extend so we can stay within the cap and then balance this with having a certain number of students to meet financial obligations. Our projection this year is to net a yield of 1,196 students.

The following two tables represent the current enrollment projection for the coming school year followed by a table that shows the enrollment data for the previous 5 years.

Admissions Table 1- 2024-2025 Enrollment Projection

Class of	Grade Level	# of students
2039	Preschool 1st Year Half	12
2038	Preschool 1st Year Full	11
2037	Preschool 2nd Year	37
2036	Kindergarten	44
2035	1st Grade	48
2034	2nd Grade	46
2033	3rd Grade	48
2032	4th Grade	45
2031	5th Grade	48
2030	6th Grade	72
2029	7th Grade	74
2028	8th Grade	72
2027	9th Grade	160
2026	10th Grade	157
2025	11th Grade	160
2024	12th Grade	162
TOTAL		1196

Admissions Table 2 - Past Enrollment

	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024
Pre	66	70	70	55	62
Kinder	51	46	42	47	43
1	44	48	48	48	48
2	45	42	42	42	44
3	46	44	44	48	46
4	45	44	45	48	46
5	45	43	43	43	44
6	65	68	69	76	72
7	72	70	70	74	74
8	71	70	70	66	70
9	165	158	170	163	160
10	165	155	160	162	162
11	165	150	161	153	162
12	156	147	156	171	161
TOTAL	1196	1155*	1190	1196	
					Current Year

*COVID-19 Withdrawal Impact 1196 down to 1155

Enrollment of Atherton Residents

Historically, we have served a significant number of Atherton resident-students over the years which has represented between 18%-25% of the SHS student body. The Town of Atherton's website states there are approximately 228 school aged children living in Atherton right now and 217 (95%) of that number are enrolled to attend Sacred Heart schools in the coming year. With nine schools within the Atherton border, Sacred Heart serves a significant number of Atherton resident students year over year helping to solidify our commitment to the Town and the local community.

Statement of Historic Buildings

Sacred Heart Schools, Atherton has occupied the current location since its founding as a school in 1898. This past school year we celebrated our 125th anniversary. The Main Building, west wing was built in 1898 and the south wing was built in 1915. It is located in the center of the 62-acre campus and is the oldest building on the site. The Main Building (west wing) suffered earthquake damage in both 1906 and 1989 and both wings making up the one building, were seismically upgraded in 2000. In 2010 and 2015, we had the building (both wings) evaluated for seismic stability under current standards. Both reviews netted a structural engineer to deem the building life-safety compliant. Whereas this building is over 100 years old and we value it as a solid foundation that

anchors the campus, it is not a registered Historic Building. The Master Plan does not include nor suggest any changes or alterations to the Main Building outside of routine maintenance and necessary repairs.

Heritage Trees

The School is committed to maintaining the integrity, beauty, and health of the campus trees and natural setting, through continued maintenance and thoughtful planning. Since the safety of those on our campus is of utmost concern, we work regularly with a commercial arborist and the Town's arborist to assess tree health, and we take steps to keep the trees healthy through feeding, pruning, and removing as necessary. The recent drought followed by severe weather had us concerned about the stability of the aging tree population which has suffered many losses over the past couple of years.

Having increased our tree care budget to help predict risk factors and overall tree health we had to double this effort and the budget these past few school years as we lost some heritage trees to the wind, rain, and severe root decay along with landscape, fences and other small structures in the process.

Hours of Operation**

The following summarizes the hours of operation of the school and its facilities:

Facility Usage

- Normal school hours 7 am – 4 pm- Monday- Friday. Instruction begins at 8:30 AM for both the upper and lower campuses. Sundays are designated as low activity days with the exception of some league sports and other specialized events that cannot be held during weekdays
- Evening usage 4pm-10pm- Monday – Saturday with most activities ending by 7 PM
- Nighttime usage 10pm–7am. We rarely have an event that takes place in this time frame
- Special Events—Varies by year however usually about 6 in total:
 - Christmas Boutique (December)
 - Auction (Spring)
 - Special Child Health Speakers and Symposiums such as Common Grounds, etc.
 - Football game under the lights in the Fall
 - Special Olympics
 - Community Music festivals
- Non-school uses- cub/boy scouts, brownie/girl scouts and other similar programs
- Summer use- SHS traditionally conducts summer camps, hosts the Peninsula Bridge Program and summer school – Mid-June thru early-August

Athletic Field Usage

- SHS team sports
- Hours of usage: Monday- Saturday- 8 am – sunset or 7pm, whichever is the earlier to occur
- Summer Camps- M-F 9:00 am – 3:00 pm 6-8 weeks starting mid-June
- Sports Clinics- End of June – early Aug. 3-5 times per week. 3 pm-sunset or 7pm, whichever is the earlier to occur

Weekend use

- Some Saturdays- baseball/Little League, aquatics, etc. 10am-4pm
- We do not have a regular schedule for Sundays except for occasional Middle School games and church services. The Middle School games are necessary because some of the visiting middle school teams are only able to play on Sundays. On occasion, we have allowed other school-related events to occur on a Sunday between 10 a.m. - 5 p.m. (Masses, Open Houses, Valpo Run, etc.)

Other-Mixed Use

- Occasionally we need to prepare for an Open House (2-3 times a year) on Sundays and will have maintenance come in to clean up the buildings and grounds
- The Oakwood retirement home for aged Religious of the Sacred Heart nuns sits in the middle of our site and their 24-hour operation is run completely independent of the school. Their activities and access needs can require 24/7 emergency service and employee activity confined to the retirement home

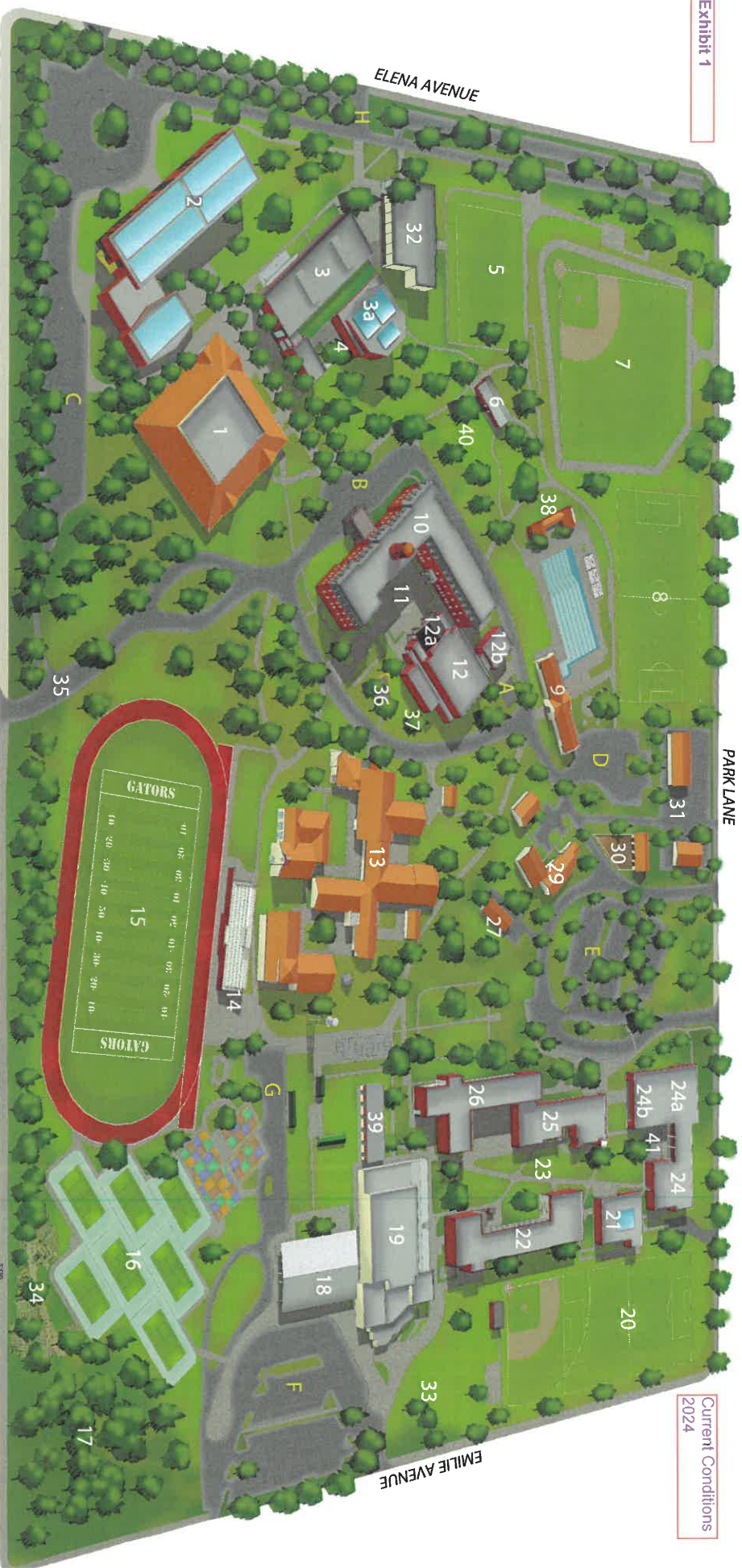
Pictures of new storm damage 2024



Exhibits:

- 1. Current Conditions**
- 2. Future Project Considerations**
- 3. School Trip Count Data**
- 4. Traffic Engineer Certification Letter**

Exhibit 1

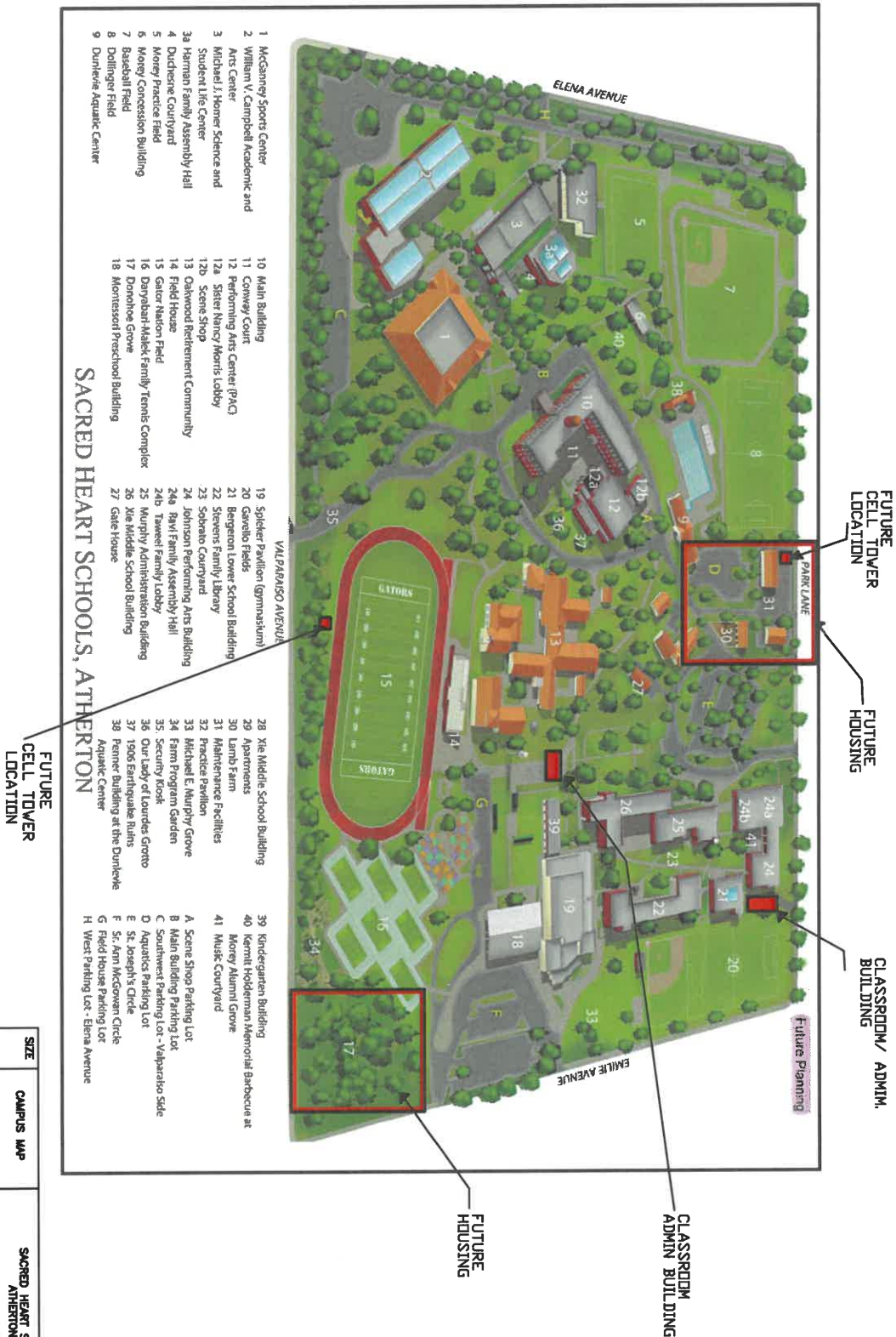


Current Conditions
2024

- | | | | | |
|---|--|-------------------------------------|---|---|
| 1 McGarney Sports Center | 10 Main Building | 19 Speiker Pavilion (gymnasium) | 28 Xie Middle School Building | 39 Kindergarten Building |
| 2 William V. Campbell Academic and Arts Center | 11 Conway Court | 20 Gavello Fields | 29 Apartments | 40 Kermit Holderman Memorial Barbecue at Morey Alumni Grove |
| 3 Michael J. Horner Science and Student Life Center | 12 Performing Arts Center (PAC) | 21 Bergen Lower School Building | 30 Lamb Farm | 41 Music Courtyard |
| 3a Harman Family Assembly Hall | 12a Sister Nancy Morris Lobby | 22 Stevens Family Library | 31 Maintenance Facilities | |
| 4 Duchesne Courtyard | 12b Scene Shop | 23 Sobrato Courtyard | 32 Practice Pavilion | |
| 5 Morey Practice Field | 13 Oakwood Retirement Community | 24 Johnson Performing Arts Building | 33 Michael E. Murphy Grove | |
| 6 Morey Concession Building | 14 Field House | 24a Ravi Family Assembly Hall | 34 Farm Program Garden | |
| 7 Baseball Field | 15 Gator Natron Field | 24b Tawael Family Lobby | 35 Security Kiosk | |
| 8 Dollinger Field | 16 Daryabari-Malek Family Tennis Complex | 25 Murphy Administration Building | 36 Our Lady of Lourdes Grotto | |
| 9 Dunlevie Aquatic Center | 17 Donohoe Grove | 26 Xie Middle School Building | 37 1906 Earthquake Ruins | |
| | 18 Montessori Preschool Building | 27 Gate House | 38 Penner Building at the Dunlevie Aquatic Center | |

SACRED HEART SCHOOLS, ATHERTON

SIZE	CAMPUS MAP	SACRED HEART SCHOOLS ATHERTON	REV
SCALE 1:1	ATHERTON, CA	6/21/2024	



Sacred Heart Schools Atherton
Traffic Count Report

Summary

Date In	COUNTA of Tag	Date Out	COUNTA of Tag	Total Car Trips
4/9/2024	2154	4/9/2024	2142	4296
4/10/2024	2437	4/10/2024	2326	4763
4/11/2024	2176	4/11/2024	2148	4324

Entrance Counts

COUNTA of Tag		Reader 1		Maintenance		McGanneyEntr		Vaiposentr		Grand Total
Date In	Hour In	EleneEntry1	EleneEntry2	EmileEntry1	EmileEntry2	Entrance Gate	Y	ParkEntry1	ParkEntry2 Y	
4/9/2024	1						1			1
	3						2			2
	4						5			5
	5						5			10
	6						5			15
	7						17			22
	8						57			64
	9						12			12
	10						17			17
	11						5			5
	12						17			17
	13						4			4
	14						28			28
	15						32			32
	16						8			8
	17						22			22
	18						17			17
	19						3			3
	20						4			4
	21									
	23									
4/9/2024 Total		191	205	424	50	7	256	49	426	546
4/10/2024		1		1			1			2
4/10/2024	1						1			1
	3						1			1
	4						5			5
	5						4			4
	6						8			8
	7						25			25
	8						57			57
	9						10			10
	10						12			12
	11						8			8
	12						1			1
	13						4			4
	14						1			1
4/10/2024 Total		1		1			1			2

	14	4	25	63	2	33	4	27	75	233
	15	17	41	136	17	45	10	93	80	439
	16	15	10	66	6	17	3	31	54	202
	17	21	14	62	7	19	5	34	59	221
	18	4	4	15	4	7	1	14	16	65
	19		7			3			14	24
	20					4		1	1	5
	21							2		2
4/10/2024 Total		201	239	568	55	263	56	479	570	2437
4/11/2024	2					1		1	1	1
	3			1				1	1	3
	4			3		5		1	9	22
	5			7		2	1	3	14	28
	6			26	1	11	8	31	43	168
	7	22	25	125	2	51	23	203	80	679
	8	94	89	1	13	9		3	23	36
	9			1		7		1	30	19
	10			1	1	8	1	1	19	30
	11			14	1			3	24	51
	12		1	3	2	15		2	12	35
	13		2	9		12		1	26	50
	14	12	35	57	5	30	2	20	70	232
	15	29	38	81	13	22	19	76	43	322
	16	15	11	48	9	21		30	32	166
	17	6	14	45	14	17		28	47	171
	18	7	4	26	3	13		6	43	102
	19		1	7	4	4		2	38	56
	20					2			19	21
4/11/2024 Total	22	185	220	454	68	231	54	410	546	2176

Exit Counts

COUNTA of Tag	Reader2									
Date Out	Hour Out	ElenaExit1	ElenaExit2	EmilieExit1	EmilieExit2	Maintenance Exit Gate	ParkeExit1	ParkeExit2	ValpoExit2	Grand Total
4/9/2024	0						2		1	3
	3								1	1
	4		2							2
	5		1						1	2
	6						1		3	4
	7		2	11	1		9		14	38
	8		10	57	68	1	187	19	83	445
	9			1			9	3	22	35
	10						3		13	18
	11		1		1		8	1	24	43
	12			2			6		15	27
	13			2			9		25	41
	14			1			14		75	215
	15	35	63	5	3	3	123	18	107	415
	16	23	64	25	46	9	48	3	69	190
	17	9	31	4	26	1	57	4	115	293
	18	12	66	3	35		27	2	98	189
	19	10	34	1	17		25	1	53	104
	20			5	20		5		46	58
	21		1		6				6	6
	22						1		7	8

4/9/2024 Total 4/10/2024	23	1	330	68	253	18	534	51	4	5
	0	106			1		1		1	2
	3						1		1	1
	5	3			1		1		1	5
	6						4		4	5
	7		1		2	2	7	16	47	14
	8	12	11	9	76	1	175	5	85	347
	9	11	60	3	7	1	56	228	19	56
	10			5	16	1	13	2	20	51
	11				15	3	11	2	23	39
	12			1	6	2	6	1	32	40
	13				2		6		32	40
	14	30	40	1	18	2	17	11	73	181
	15	20	68	22	67	4	131	3	80	403
	16	8	32	5	35	3	63	2	78	227
	17	26	66	11	73	1	59	2	124	362
	18	10	35		25		58	6	115	249
	19	5	8	10	21		9		35	88
	20		1						8	9
	21								5	5
	22								8	8
	23	1					1		4	6
4/10/2024 Total		126	322	67	364	20	609	48	770	2326
4/11/2024	4	2							1	3
	5						6	17	2	2
	6	1	8	1	2	1	170	15	6	7
	7	1	63	19	76		15	93	15	33
	8	6	1		2	2	19	3	11	445
	9		1		2	2	19	4	23	29
	10			2	13	1	19	4	19	50
	11				2	1	8	2	26	58
	12			1	4	1	12	3	19	40
	13			1	20	1	15		83	40
	14	31	77	6	51	7	124	8	83	233
	15	15	53	15	26	2	61	2	80	356
	16	11	53	4	57		52	5	107	275
	17	15	33	6	28		22	1	72	186
	18	16	45	5	23		8	1	27	64
	19				3		12		50	70
	20		5						7	7
	21								5	5
	22								4	
	23	1	339	62	309	16	544	46	733	2148
4/11/2024 Total		99					1			6

Traffic Count Report

Summary

Entrance Counts

COUNTA of Key											
Date In	Hour In	Reader1								Grand Total	
		EleneEntry1	EleneEntry1.2	EmilieEntry1.1	EmilieEntry1.2	Maintenance Entrance Gate	McGanneyEntry y	ParkEntry1.1	ValpoEntry ParkEntry1.2 y		
4/23/2024	1						1			1	
	3				1		1			1	
	4				3		5		1	10	
	5				6		3		3	15	
	6				15	2	12	4	26	31	
	7	13	29		63			19	220	69	
	8	139	99			1	52	1	9	34	
	9		2				21		40	20	
	10		1			1	15		3	20	
	11				3	1	15		22	41	
	12				3		5		1	15	
	13	1	2		4	2	7	2	4	23	
14	3	32		22	1	30	3	24	61		
15	32	49		50		39	16	75	60		
16	18	16		38	1	15	1	18	49		
17	18	15		50		21		46	62		
18	14	6		25	1	10	1	15	42		
19				20		5			39		
20								1	29		
21						7			7		
22									1		
4/23/2024 Total		238	251		303	13	264	47	446	589	
4/24/2024	0									1	
	1						1			1	
	3						1			2	
	4				1					1	
	5				3		5		1	9	
	6		1		5	4	3		4	18	
	7	2	15		16		9	3	27	36	
	8	26	35		84	1	24	11	181	53	
	9	118	81		17		64		62	66	
	10				2		4		2	17	
	11		1		6		9		1	22	
	12		1		2	1	12		1	21	

4/24/2024 Total 4/25/2024	1	231	255	395	8	254	43	460	594	2240
	3					1			1	1
	4			1		1		1	1	3
	5			4	4	6		1	9	24
	6			4	1	3	1	3	18	30
	7	18	21	12	1	15	7	31	43	149
	8	96	97	74	1	42	12	205	81	608
	9		1	1	1	21	1	3	35	62
	10		2		1	11		4	15	33
	11			3	1	13		23	15	33
	12			1		13		1	22	37
	13	1	1	5		14		1	19	41
	14	8	37	28		33	3	22	55	186
	15	20	26	68		26	7	84	46	277
	16	17	12	39		11	1	19	42	141
	17	6	17	47		14	1	25	44	154
	18	3	3	24		6		11	35	82
	19			14		3		2	36	55
	20			1		6		1	27	35
	21								6	
	22								2	2
4/25/2024 Total										
	169	217	1	326	9	240	33	413	559	1967

Exit Counts

COUNTA of Key		Reader2								Grand Total
Date Out	Hour Out	ElenaExit1	ElenaExit2	EmilieExit1	EmilieExit2	Maintenance Exit Gate	ParkExit1	ParkExit2	ValpoExit2	
4/23/2024	0									2
	3	2					1		1	3
	5								2	2
	6						3		3	7
	7	3	3	2	1	5	5	25	93	434
	8	13	52	12	71	163	16	2	18	45
	9			1	3	11	11	2	22	40
	10					7	7	1	32	51
	11				8	3	6		25	41
	12		2	1	4	3	12	2	30	48
	13			2	1	1	22	3	98	255
	14	27	80	5	16	4	22	14	119	448
	15	16	91	15	48	3	142	2	83	224
	16	9	57	3	29		41	2	162	377
	17	13	71	9	56		64	2	82	182
	18	6	42	1	13		35	3		
	19	1	2	8	48		10		41	110

4/23/2024 Total 4/24/2024	20		1		2	8		55	66
	21		3			6		10	20
	22							8	8
	23					2		4	6
	0	90	404	59	301	554	55	903	2397
	3					1		1	1
	4							1	1
	5	2						1	2
	6							1	1
	7		1					3	3
	8	3	7	13	2	3	9	11	17
	9	10	62	3	8	173	4	43	325
	10			6	22	43		112	243
	11			1	15	3	1	19	50
	12		1	1	7	7		18	43
	13				15	8	1	31	48
	14				4	10		31	50
	15	30	70	2	23	18	1	71	218
	16	22	88	15	59	142	16	115	460
	17	8	50	10	51	51	3	106	279
	18	17	70	15	61	60	7	121	351
	19	17	33	3	16	15	1	55	140
	20	1	5	6	27	28	3	101	171
	21					1		17	18
	22	1	3			6		22	32
	23							7	7
4/24/2024 Total		111	390	75	372	570	45	895	2467
4/25/2024	0	1			1			1	1
	4							1	2
	5	1						1	1
	6							6	7
	7	1	2			3		19	29
	8	21	61	16	4	172	14	99	454
	9		1		2	7		39	50
	10					23	1	27	52
	11				11	10	2	41	66
	12				1	10		37	49
	13	1		1	3	10	2	21	38
	14	20	60	2	19	16	2	75	196
	15	11	44	16	53	127	8	79	342
	16	16	54	4	33	56	4	88	258
	17	11	43	14	54	40	4	79	246
	18	10	30	1	23	15	1	62	142
	19		2	15	31	18		37	103
	20		1		2	1		30	34
	21		4			9		36	49
	22								6
	23					2		5	8
4/25/2024 Total		93	303	69	308	519	38	788	2133

Exhibit 4



June 12, 2023

Mr. Michael Dwyer
Chief Operations Officer
Sacred Heart Schools
150 Valparaiso Avenue
Atherton, CA 94027

Sacred Heart Schools Traffic Monitoring

Dear Mr. Dwyer;

As requested, W-Trans has reviewed the Sacred Heart Schools traffic monitoring program and prepared a summary of the count program and its accuracy. The purpose of this letter is to summarize our findings regarding the current count program and its accuracy, and to note any discrepancies in the data collection and processing. Based on the recently collected traffic data, it was determined that Sacred Heart Schools has an accurate traffic count recording system and did not exceed the 6,000-trip cap set in their Transportation Demand Management (TDM) Plan.

Existing Conditions

Sacred Heart Schools is located at 150 Valparaiso Avenue in the Town of Atherton. According to the Schools' TDM Plan, annual traffic monitoring will be performed to verify that trips accessing the school remain under the TDM goal of 6,000 vehicle-trips per day. To accomplish this traffic monitoring, the school maintains Automatic License Plate Reader (ALPR) cameras at all entrances and exits to the campus. The locations of these 17 cameras are shown in Plate 1.

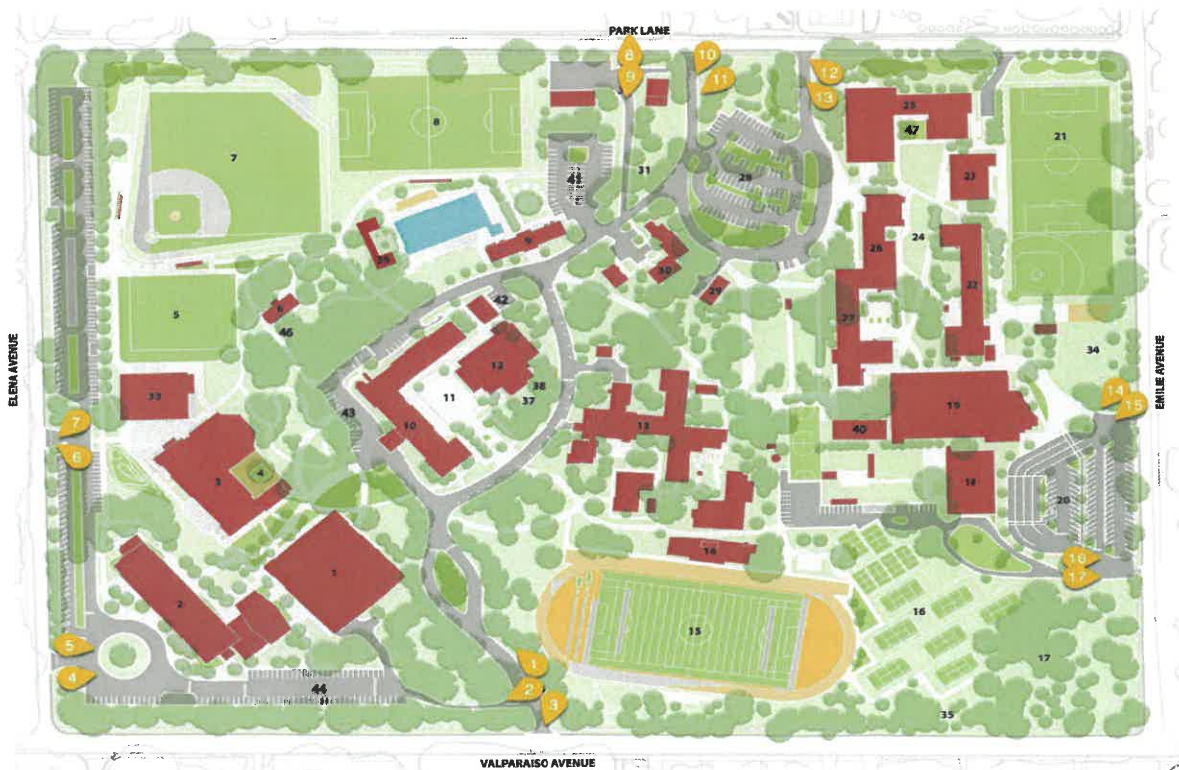


Plate 1 – Campus Map of Automatic License Plate Reader Camera Locations

The ALPR cameras capture the rear license plate of each vehicle as it passes the camera. The license plate number, date, time, and location are all uploaded to a web-based platform operated by School Pass, the school's security camera vendor. School administrative staff can view and download the data from the School Pass platform.

Data Processing

The ALPR system, similar to any traffic count data solution, has inherent limitations. Some known limitations include vehicles that cannot be counted due to missing or obscured rear license plates, missing vehicles due to drivers violating a traffic law by entering the campus through an exit driveway or leaving the campus through an entry driveway, counting vehicles based on words that are not a part of a license plate, or counting the same vehicle more than once as it moves through campus or moves up in a queue. Post-processing of the raw ALPR data helps to limit the inaccuracies created by these limitations.

To receive accurate trip information, school staff have created scripts that parse the raw ALPR data and exclude duplicates from the overall count. There are a few different scripts that have been created, with each one targeting a specific error in the ALPR system. These scripts mark entries as duplicates by examining the license plate string, date and time of the data entry, and camera location. With that information, the scripts have been written to identify duplicates or non-license plate entries and mark them for exclusion from the total trip count.

Data Review

W-Trans reviewed count data provided by the school for three typical weekdays, April 18 through April 20, 2023 (Tuesday through Thursday). The maximum number of trips counted accessing the school campus was 5,432 trips on Wednesday, April 19. On average, 5,163 trips accessed the site per day. Both the average number of trips and maximum number of trips for the data reviewed was below the 6,000-trip cap established in the School's TDM Plan. Therefore, the School appears to be in compliance with its TDM trip cap.

24-hour Manual Counts

To verify the accuracy of the ALPR cameras and the school's post-processing methods, 24-hour traffic counts were obtained at three entrances to the campus on Thursday, May 4. The entrances selected for this representative sampling of traffic counts were the entrance driveways on Emilie Avenue (Gate Five), Park Lane (Gate Four), and Elena Avenue (Gate Two). The 24-hour manual traffic counts for the selected date and locations, based on video taken by W-Trans, are enclosed.

These traffic counts represent the total sum of entrance trips for 24 hours for each counted driveway, broken down into 15-minute intervals. The manual counts were then compared to the ALPR entrance data for the same day and driveways, as summarized in Table 1.

Table 1 – Summary of 24-Hour Counts for May 4, 2023

Date	Driveway	Counts (# of Vehicles)		Summary of Counts	
		Manual	ALPR	Percent Difference	Difference in Trips
5/4/23	Emilie Ave Entrance	520	547	5.19%	27
5/4/23	Park Ln Entrance	533	534	0.19%	1
5/4/23	Elena Ave Entrance	543	542	0.18%	-1
Average		532	541	1.69%	

The two sets of counts were compared to ensure accuracy. The ALPR counts were higher than the video counts at the Emilie Avenue and Park Lane entrances, while the video counts were higher than the ALPR counts at Elena Avenue. Overall, the ALPR counts indicated 27 more inbound vehicles than the manual counts. The resulting average percent difference between the two sets of counts is 1.69 percent. Slight differences in count number can be expected due to data inaccuracies between any two data sets. For count data, less than a five percent difference is typically acceptable, on average. The average difference between the ALPR counts and the video counts was less than five percent, and was higher than the manual counts, indicating that the ALPR system is accurately capturing trips and that the trips are accurately being processed and recorded.

Sacred Heart Schools Traffic Monitoring Summary

- Sacred Heart Schools did not exceed the daily trip cap of 6,000 trips for the time period reviewed.
- The highest number of daily vehicle trips during the days reviewed was 5,432 trips, occurring on Wednesday, April 19.
- The average number of daily vehicle trips on a school day for each day reviewed was 5,163 trips.
- The differences in ALPR counts and manual traffic counts averaged 1.69 percent based on a sampling of manual counts at three entrance driveways. The difference between the ALPR cameras and manual counts for the three locations sampled was 27 more vehicles.

Conclusions

Sacred Heart Schools was in compliance with the trip cap set in their TDM Plan for the time period reviewed as the data indicated that fewer than 6,000 trips were made to the campus per day. The average number of daily vehicle trips on a school day was approximately 5,163 trips. The average difference in traffic counts between manual traffic counts and the ALPR counts was 1.69 percent, which is an acceptable variance.

It is recommended that the Town of Atherton continue monitoring the traffic volume entering the school at yearly intervals as prescribed in the TDM Plan. The school's traffic count system appears to be accurate, and the Town should continue to accept the data obtained by the school to conduct the monitoring.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

Sincerely,


Nicholas Brunetto, PE
Associate Engineer


Mark Spencer, PE
Senior Principal



MES/ngb/ATH023.L1

Enclosure: 24-hour Manual Traffic Counts

Trip Gen

Location: Sacred Heart Schools, Atherton
City: Atherton

5/4/2023
Thursday

TIME	VOLUME			
	Sacred Heart Entrance (Gate 5) & Emilie Ave	Park Ln & Sacred Heart Entrance	Sacred Heart Entrance (Gate 2) & Elena Ave	TOTALS
	Location 001	Location 002	Location 003	
	Going IN	Going IN	Going IN	
12:00 AM	0	0	0	0
12:15 AM	0	0	0	0
12:30 AM	0	0	0	0
12:45 AM	0	0	0	0
1:00 AM	0	0	0	0
1:15 AM	0	0	0	0
1:30 AM	0	0	0	0
1:45 AM	0	0	0	0
2:00 AM	0	0	0	0
2:15 AM	0	0	0	0
2:30 AM	0	0	0	0
2:45 AM	0	0	0	0
3:00 AM	0	0	0	0
3:15 AM	0	0	0	0
3:30 AM	0	0	0	0
3:45 AM	0	0	0	0
4:00 AM	0	0	0	0
4:15 AM	0	0	0	0
4:30 AM	0	0	0	0
4:45 AM	0	0	0	0
5:00 AM	0	0	0	0
5:15 AM	0	0	0	0
5:30 AM	0	0	0	0
5:45 AM	1	0	0	1
6:00 AM	2	0	0	2
6:15 AM	1	0	0	1
6:30 AM	3	1	0	4
6:45 AM	0	2	0	2
7:00 AM	2	1	2	5
7:15 AM	2	9	9	20
7:30 AM	8	10	21	39
7:45 AM	11	22	30	63
8:00 AM	39	70	66	175
8:15 AM	92	138	142	372
8:30 AM	24	34	11	69
8:45 AM	28	2	9	39
9:00 AM	7	3	0	10
9:15 AM	2	0	0	2
9:30 AM	0	1	0	1
9:45 AM	0	0	0	0
10:00 AM	0	1	0	1
10:15 AM	0	1	0	1
10:30 AM	0	2	0	2
10:45 AM	1	1	0	2
11:00 AM	1	1	0	2
11:15 AM	2	2	0	4
11:30 AM	10	0	0	10
11:45 AM	2	1	0	3
12:00 PM	0	0	0	0
12:15 PM	2	0	0	2
12:30 PM	0	0	0	0
12:45 PM	0	0	0	0
1:00 PM	1	0	0	1
1:15 PM	2	1	0	3
1:30 PM	0	0	0	0
1:45 PM	1	0	0	1
2:00 PM	2	3	2	7
2:15 PM	10	3	10	23

2:30 PM	25	0	22	47
2:45 PM	27	32	13	72
3:00 PM	36	40	18	94
3:15 PM	45	30	31	106
3:30 PM	17	15	20	52
3:45 PM	13	13	26	52
4:00 PM	7	8	13	28
4:15 PM	7	9	8	24
4:30 PM	9	4	12	25
4:45 PM	7	8	11	26
5:00 PM	17	11	6	34
5:15 PM	11	9	9	29
5:30 PM	4	21	3	28
5:45 PM	4	7	7	18
6:00 PM	2	1	3	6
6:15 PM	8	4	7	19
6:30 PM	7	3	6	16
6:45 PM	12	9	26	47
7:00 PM	5	0	0	5
7:15 PM	1	0	0	1
7:30 PM	0	0	0	0
7:45 PM	0	0	0	0
8:00 PM	0	0	0	0
8:15 PM	0	0	0	0
8:30 PM	0	0	0	0
8:45 PM	0	0	0	0
9:00 PM	0	0	0	0
9:15 PM	0	0	0	0
9:30 PM	0	0	0	0
9:45 PM	0	0	0	0
10:00 PM	0	0	0	0
10:15 PM	0	0	0	0
10:30 PM	0	0	0	0
10:45 PM	0	0	0	0
11:00 PM	0	0	0	0
11:15 PM	0	0	0	0
11:30 PM	0	0	0	0
11:45 PM	0	0	0	0
Totals	520	533	543	1596