(DRAFT REPORT)

GADSDEN HIGH SCHOOL

CAMPUS MASTER PLAN

GADSDEN INDEPENDENT SCHOOL DISTRICT

CREDITS

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Efren Yturralde	– Deputy Superintendent
Richard Chavez	– Associate Superintendent for Support Services
Alfredo Holguin	– Physical Plant Director
Rafael Gallegos	– Executive Director for Energy Management & Construction

Gadsden High School

Principal	– Cary Chambers
Assistant Principal	– Angelo Pokluda
Departmental Staff	– Science, Math, Languages, English, Fine arts, FACS, Social Studies, Business, Special Education, Physical Education, ROTC

Planners – Alley Associates, P.C.

Consultants

Jon Feind	– FMS Engineering (Mechanical)
Chris Licking	– FMS Engineering (Plumbing)
Larry Zamora	– Zamora Engineering (Structural)
Phillip Robinet	– Robinet & Ramos Engineering (Electrical)
David Shields	– Bohannan Huston (Civil)
Kelly Fort	– Zia Engineering (Traffic Impact Analysis)
Luis M. Acuna	– Sun City Analytical (Asbestos)

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SUMMARY

1928 Old English Building

Gadsden High School (originally Valley High School) was dedicated in December 1928, a two story historical building of 17,770 square feet on six acres. Today, the building remains an important part of the campus, which now has seventeen buildings of 325,615 square feet on sixty five (65) acres. Approximately 40% of the buildings are over 50 years old with the most recent buildings constructed in 1994, 1998, 2011, and the Career Pathway Building to be completed in 2013. The older buildings and site require major improvements to meet the State Adequacy Standards and to ensure the school's continued use for many more years.

To determine construction needs and the cost to meet adequacy standards, the Public Schools Facility Authority (PSFA) has worked with the District on recent Gadsden High School projects including the addition and remodeling to the Varsity Gym, the Library/Administration Building, the Career Pathway Building, and site improvements. PSFA supported all of these projects in design and development and in obtaining state funding.

The Public School Capital Outlay Council (PSCOC) in 2006-07, 2007-08, and 2008-09 awarded the funds for the addition to the Gymnasium, the Library/Administration Building, and the Career Pathway Building. These awards also required a campus utilization study and the establishment of campus wide design goals. In October 2009, a report "Utilization and Program of Space" was completed by Dr. Don Kelly. It was a guide as to what building improvements are required. This report determined the size and room utilization in the Career Pathway Building, and determined much of the remodeling and site work

included in this master plan. Nearly 50% of all classrooms and laboratories do not meet the sizes in the adequacy standards and most of the older buildings need replacement or improvements in their plumbing, electrical, and mechanical systems. The proposed remodeling will bring the existing buildings up to adequacy standards with old and new classrooms as equal facilities. The site work needs to address the vehicle and pedestrian circulation, add the appropriate landscaping, and complete the replacement of many utilities.

To complete the scope of work the estimated budget is $45,000,000.00 and a construction schedule of 48 months. This long schedule is due to limited areas under construction at any time will most likely require several phases, this will allow GHS to maintain its educational programs during the construction period.

GOALS

1

GADSDEN INDEPENDENT SCHOOL DISTRICT

We the parents, staff, students, and community members of Gadsden High School, believe that all students can learn and succeed. By communicating high expectations, we will create a positive atmosphere and provide opportunities for all. Our curriculum will be varied so as to prepare students to succeed. This education will enhance their personal strengths and will build self-esteem. Gadsden High School will provide a safe, stable, innovative, and well-staffed environment to accomplish this educational mission.

Educational Philosophy

The Gadsden School Board believes that it must provide a planned educational program, through continued improvements of its schools, that affords the opportunity for and holds high expectations of each student to realize maximum development as an individual and as a contributing member of our democratic society. The educational program should develop in each student:

1. *Creative and analytical thinking;*
2. *An appreciation of those intrinsic values that are conductive to a full and rewarding life;*
3. *An understanding of the changing workplace and his role within it;*
4. *An appreciation of, compliance with, and respect for the rules and regulations of society; and*
5. *A positive attitude toward family life and our country.*

Vision

To provide each student the tools they need to have an enriched and successful life.

GADSDEN HIGH SCHOOL

Goals

- Achievement: Increase students' achievement in reading, writing, and math. Increase students' awareness of career choices and preparation.
- School Safety: Follow-up of policies, procedures, and programs to secure safety.
- Attendance: Encourage students to attend class daily.
- Parental Involvement: Keep parents informed of students' progress and behavior.
- School drop-out: Encourage students to stay in school and work towards success.

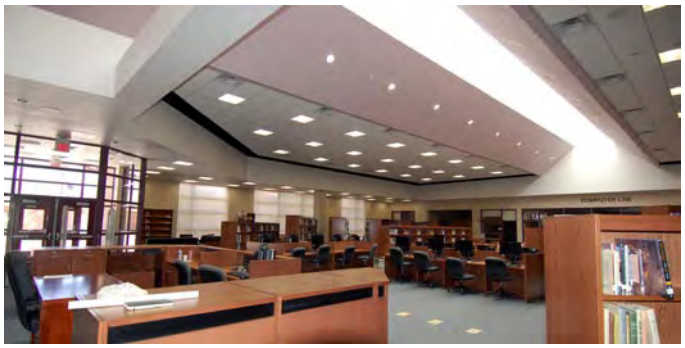
EXISTING CONDITIONS

2

Gadsden High School (Formerly Valley High School) was dedicated in November 1928 on six acres of level farm land. In 1933, it had 149 students which increased to 173 by 1946. After 18 years of slow growth, the population of the surrounding area now had accelerated growth and by 1990 it had 1,643 students (grades 10-12), twelve additional buildings, and 30 acres. At that time, much of the schools growth had been poorly planned with vehicular traffic dividing its buildings into two areas, several classrooms in remodeled World War II barracks, nine (9) portable classrooms, utilities haphazardly located, many building shapes and styles, flooded buildings and grounds, and illogical student/staff walkways. These conditions caused problems for education, safety, security, and maintenance. District wide planning reports in 1990 and 1994, projected continued growth throughout the District. Gadsden High School was the only district high school projected to exceed 2,496 students (grades 10-12) by the year 1998.

In 1992, an additional 35 acres were added to the campus, and a site plan was developed with future building locations, bus lanes, parking, and better access to Highway 28. Today, the district has four high schools. Gadsden High School has slightly over 1,700 students (grades 9-12), occupying the original 1928 Old English building along with 16 additional buildings on 65 acres. Conflicting traffic patterns have been eliminated with the addition of parking and bus lanes on the north side of the campus and a service drive and service parking on the south side. Portables and barracks, have or will be removed, and recent construction has included a classroom building (1994), cafeteria building (1998), library/administration building (2011), addition and remodeling to the main varsity gym (2011), and the Career Pathway Building currently under construction with a estimated

completion in 2013. The site work for these buildings has improved storm water drainage, walkways, security, utilities, technology networking, fire protection, sewage treatment, playfields, and maintenance.



New Library completed 2011

Since 2001, Architectural Research Consultants (ARC) has been working with the Gadsden District preparing a Facilities Master Plan, which continues to be an important tool to determine student growth, educational needs, and financial resources. ARC along with the oversight of the Public Schools Facility Authority (PSFA), have helped direct GISD to focus on what improvements should occur at Gadsden High School in order to create a substantial educational facility. PSFA was a part of the planning process for the addition and remodeling to the main high school gym, the Library/Administration Building, and the Career Pathway Building and were also instrumental in the funding awards made by PSCOC in 2006 – 07, 2007-08, and 2008-09.

Even with the work completed to date, the older parts of the remaining campus still require major remodeling (see existing campus plan). The PSCOC award language in 2007-08 included "to develop the scope of work necessary to bring existing facilities to adequacy." This was further defined in the 2008-09 award as gross square footage "at 160 square feet per student for 1,850

students or 296,000 square feet." Gadsden High School's existing buildings, including the Career Pathway Building, two proposed ADA additions, a proposed addition to the auxiliary gym, and a security building exceed the 296,000 GSF by 32,650 GSF. 100% of all work in excess (Page 6) shall be paid by the District and includes the auxiliary gym, fitness center, and several other buildings.

Availability of funds and the ability to move students and staff with minimal disruption will be critical in determining the number of remaining design and construction phases. Based on the current Facilities Master Plan, the District has allocated $1,520,000.00 from their 2010 General Obligation Bond for additional construction at GHS. A possible State match of $15,200,000, would allow for a total project of $16,720,000. The District has moved forward with several critical Master Plan projects and has funded 100% of this work from prior bonds. These projects include a re-roof of the North Building, mechanical upgrades at the North Building, the refurbishing of the culinary teaching area in the North Building, and remodeling of a special education laboratory in the Annex Building. Total funds invested to date are approximately $930,000. The District will request that these funds be applied to their participation in future projects as this work is required to comply with State Adequacy Standards.

Gymnasium Remodel Completed 2011

BUILDING SQUARE FEET

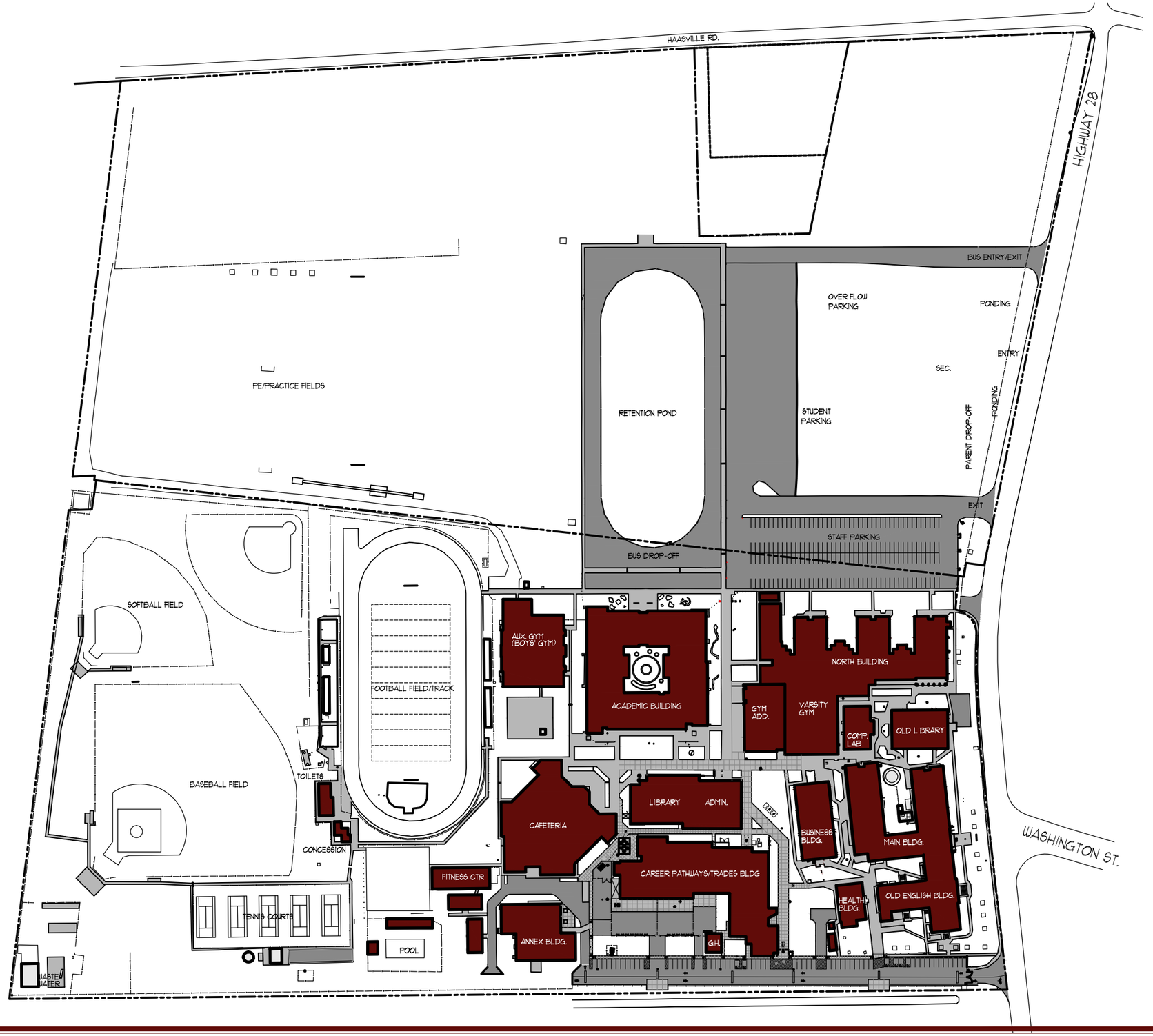
	GSF To Adequacy	GSF Above Adequacy
Academic	45,130 GSF	
Administration/Library	19,366 GSF	
Annex	12,253 GSF	
Auxiliary Gym (Boys)		17,840 GSF
Addition (Proposed)		6,000 GSF
Business (2 Story)	18,858 GSF	
Addition (Proposed)	800 GSF	
Cafeteria	31,050 GSF	
Career Pathway/Trades	37,147 GSF	
Computer Lab	4,363 GSF	
Fire Pump House	640 GSF	
Fitness Center/Pool/Concession/Public Toilets		8,810 GSF
Health	3,832 GSF	
Main	24,057 GSF	
North	52,764 GSF	
Addition to Gymnasium	9,806 GSF	
Old English (2 Story)	20,314 GSF	
Addition (Proposed)	4,000 GSF	
Old Library	7,985 GSF	
Security Building (Planned)	600 GSF	
Total	**292,965 GSF**	**32,650 GSF**

Total campus to adequacy 292,965 GSF/1,850 = **158.36 GSF/Student**

Total campus 292,965 GSF + 32,650 GSF = **325,615 GSF**

GADSDEN HIGH SCHOOL
EXISTING CAMPUS PLAN

GADSDEN INDEPENDENT SCHOOL DISTRICT



SCALE: 1" = 200' - 0"

3

Concept

Gadsden High School is unique with its campus like setting, its multiple numbers of buildings of varied styles and shapes, and its lack of rigidly organized program spaces. All of this has created a school with a rich environment were many students have prospered, with which the community indentifies, and a school that can not be copied or emulated. The challenge for the Master Plan is to retain what is good, improve educational spaces, stress flexibility, develop technology, and support the District's and Gadsden High School's long term goals.

Site

The site is organized **(Flow Diagram Fig.1)** to separate vehicular and pedestrian traffic from the buildings and grounds. The buildings are grouped to form passage ways, and are connected by sidewalks and landscaping. From the vehicle parking area, a wide walkway leads directly to the campus administration building. The building is central to the campus along with the core functions of food service, library, counselor, and health. Classrooms and laboratories then circle around the core.

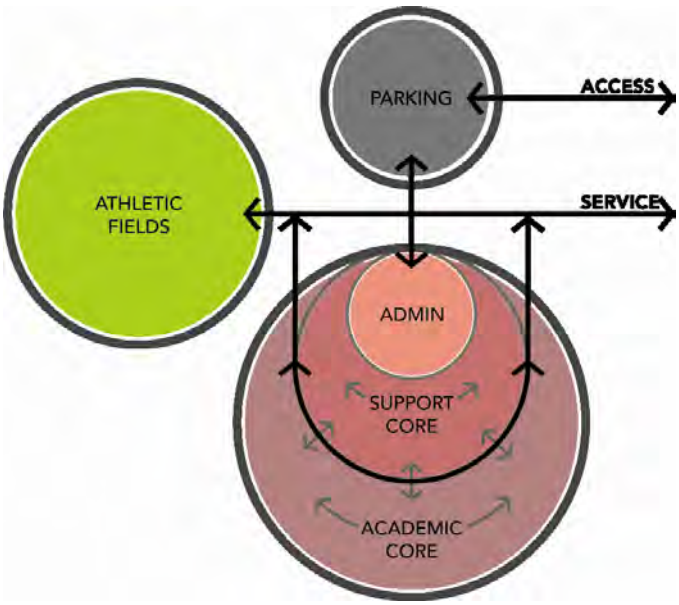


Fig.1: Flow Diagram

Implementation of the traffic study (attachment F) will improve circulation to and from Highway 28, add a student drop off area, and increase the number of paved parking spaces. The site circulation patterns are illustrated on page 11. Many improvements are already a part of this diagram and as buildings are remodeled, the remaining work shall be completed. This work includes items such as accessible sidewalks which will be extended throughout the campus, and shaded gathering areas will also be added, due to the harsh sun. In open areas, landscaping shall include low maintenance, native plants, and varied rock patterns.

Buildings

The last new building at Gadsden High School is the Career Pathway Building which will be completed in 2013, and now construction will concentrate on the remodeling of the existing buildings. The Old English Building is over 80 years old and surrounded on two sides by buildings constructed in nearly every decade since 1950. The buildings have had little continuity in the educational space, construction, electrical and mechanical systems, technology, setting, and location. Nearly half of the buildings do not meet state adequacy standards and code requirements with classrooms being too small, toilet rooms in poor condition and lacking sufficient fixtures, inefficient and insufficient mechanical and electrical systems, and many more varied problems. The remodeling will meet current educational standards and requirements, and be substantial/sustainable to ensure long and continuous use. To help unify the various building types, exteriors will be painted with a common pallet, and window and doors improved. The 1928 Old English Historic building exterior will be refurbished to reflect its original beauty and shall be the only building not painted.

Curriculum

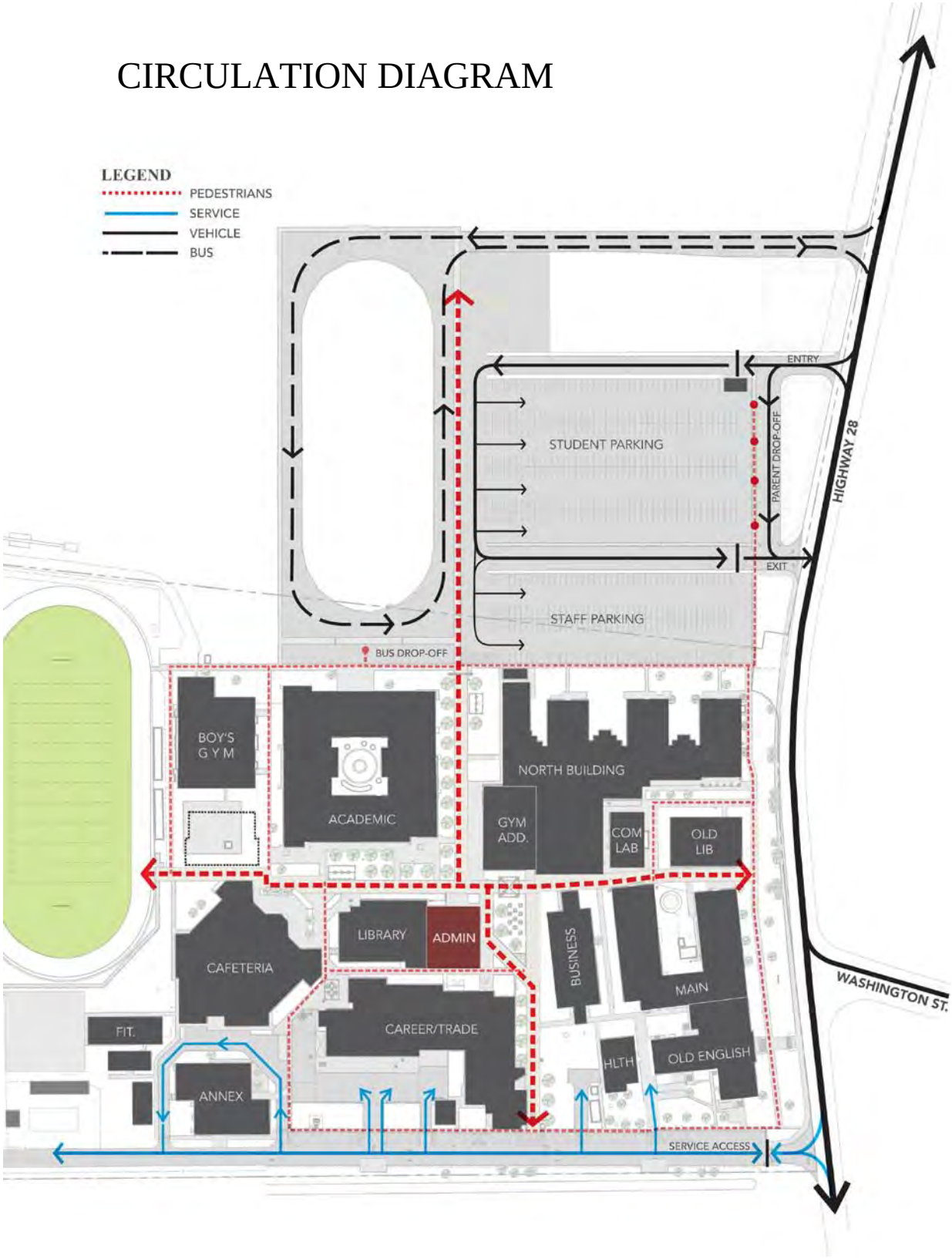
In 2008- 09 the curriculum was organized around sixteen career clusters. In 2010 – 11 this was modified to the following seven clusters:

- *Arts and Education*
- *Business Services*
- *Communication and Information*
- *Energy and Environmental Technologies*
- *Engineering Construction and Manufacturing*
- *Health*
- *Hospitality and Tourism*

Meetings with the administration and staff have included discussions of how to accommodate these clusters. Should departments be decentralized, academies set up, or other possible restructured organization? Staff consensus was to organize the campus by departments requiring the departments to collaborate to support a specific cluster. The exception to the departmental organization is the ninth 9th grade community. For several years, the 9th grade community has been located in the Academic Building, and has been an effective way to integrate new students into the high school and to concentrate on specific student educational needs.

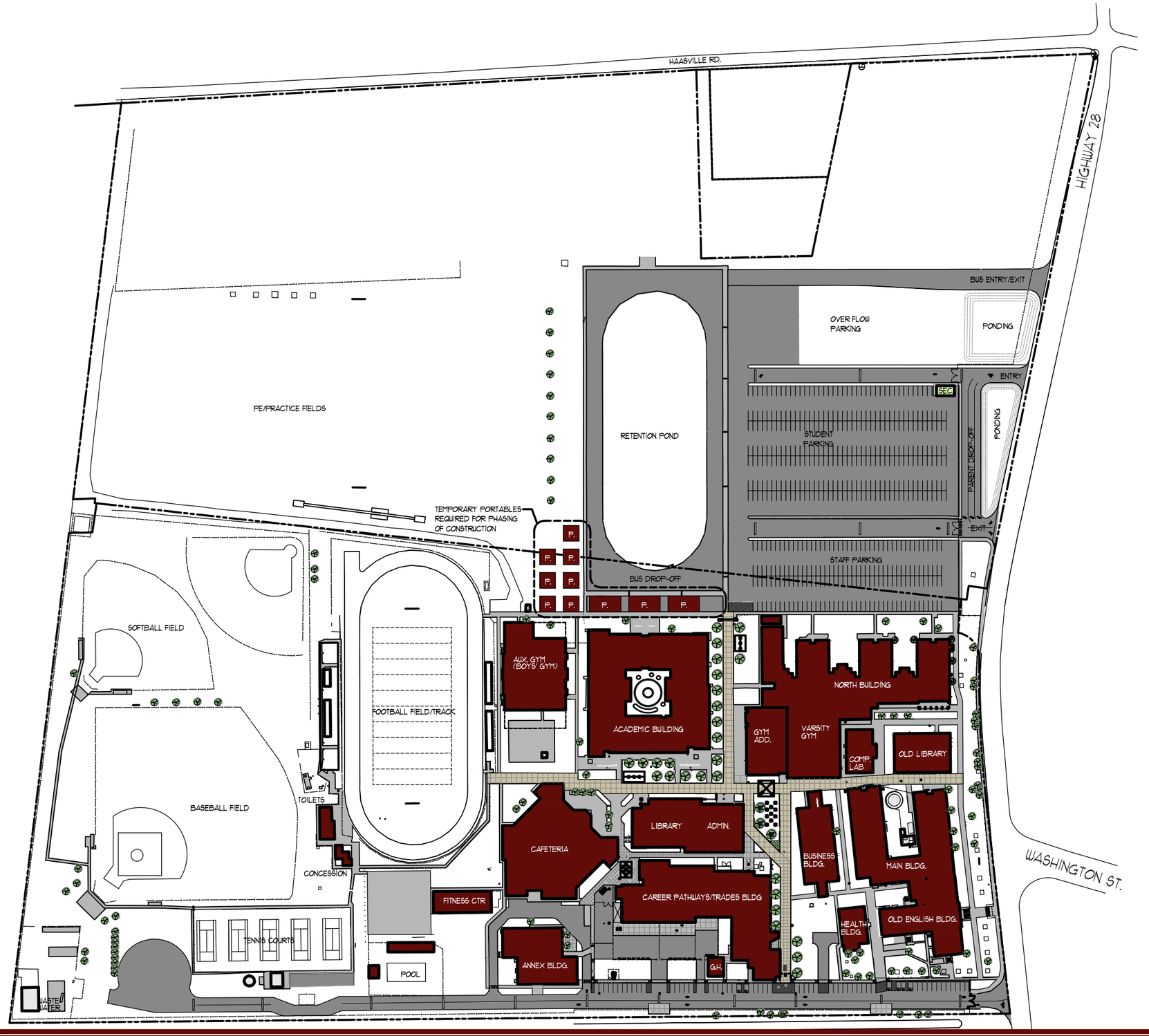
The proposed campus master plan (page 12), illustrates how the departments will be organized on the campus. Section 4- Utilization, gives more detail as to the proposed location of specific programs.

CIRCULATION DIAGRAM



GADSDEN HIGH SCHOOL
PURPOSED CAMPUS PLAN

GADSDEN INDEPENDENT SCHOOL DISTRICT



SCALE: 1" = 200' - 0"

UTILIZATION

4

This section illustrates how the campus will be utilized and organized once all remaining construction and remodeling phases are complete. Teacher and program assignments for each space are based on the master schedule for the 2011-2012 school years. Student numbers are based on current enrollment projections within the master schedule. A total of 1,669 students have been registered for the upcoming fall semester. It is anticipated by the school administration, that this number will begin to increase once the semester begins. Based on this information, the utilization worksheet, included in this section (pages 14-15), shows that on average the space provided will be utilized approximately 73% of the day. As the student population grows to 1,850 students, this percentage could increase to approximately 78%, depending on class schedule and location of students. As a result of the block schedule, the utilization will not be increased past 80% due to the required prep periods, which represent between 22%-28% of the daily schedule. These rooms are being utilized by staff and teachers to prepare for their programs, but this activity is not reflected in the worksheet.

GADSDEN HIGH SCHOOL UTILIZATION WORKSHEET

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1						BLOCK 1					BLOCK 2					BLOCK 3					BLOCK 4									
2						Time: 8:45 - 10:22					Time: 10:23 - 11:55					Time: 12:01 - 2:07					Time: 2:13 - 3:45									
3	Rm #	Clrm NSF	Max #St/ Sq Ft	PED MAX PTR / Clm	A. S. Y /N	# of St.	% Rm Occ.	Grade	Teacher Name	1,649	# of	% Rm Occ.	Grade	Teacher Name	Subject	# of St.	% Rm Occ.	Grade	Teacher Name	Subject	# of St.	% Rm Occ.	Grade	Teacher Name	Subject	Tot. St.	PED Max. PTR /Day	Tot. % Rm Occ. / Day	Occ # of Pd.'s / Day	% Pd. / Day
4	1006	814	25	30	y	28	112%		Leahy	Span2	26	104%		Leahy	Span2	0	0%		Leahy	Prep	27	108%		Leahy	Span1	81	81	81%	3	75%
5	313	805	25	30	y	23	92%		Lerma	Span1	0	0%		Lerma	Prep	24	96%		Lerma	Span1	27	108%		Lerma	ChDev	74	81	74%	3	75%
6	1001	817	25	30	y	33	132%		Mendoza	SpPAp	0	0%		Mendoza	Prep	26	104%		Mendoza	Span2	35	140%		Mendoza	SpanAP	94	81	94%	3	75%
7	1007	814	25	30	Y	0	0%		Muro	prep	35	140%		Muro	Span2	33	132%		Muro	Span2	33	132%		Muro	Span2	101	81	101%	3	75%
8	1011	770	25	30	Y	27	108%		Ortiz	Fr 1	29	116%		Otriz	Fr 1	0	0%		Ortiz	Prep	29	116%		Ortiz	Fr 1	85	81	85%	3	75%
9	320	805	25	30	y	23	92%		Sanchez	Span1	0	0%		Sanchez	Prep	23	92%		Sanchez	Span1	25	100%		Sanchez	Span1	71	81	71%	3	75%
10	1003	814	25	30	Y	26	104%		Smith	Fr 2	28	112%		Smith	ColSuc	0	0%		Smith	Prep	25	100%		Smith	Fr 2	79	81	79%	3	75%
11	5009	4,539	25	30	Y	20	80%		Enriquez	IntAuto	20	80%		Enriquez	MetalFab	12	48%		Enriquez	Auto3	30	120%		Enriquez	AutTch	82	81	82%	4	100%
12	5013	862	25	30	Y	0	0%		Hamilton	Prep	20	80%		Hamilton	ISI Inc	28	112%		Hamilton	PlantSci	16	64%		Hamilton	IntAg	64	81	64%	3	75%
13	5011	4,797	25	30	y	22	88%		Myers	Elec	18	72%		Myers	IntrAuto	0	0%		Myers	Prep	19	76%		Myers	IntroAut	59	81	59%	3	75%
14	5004	881	25	30	Y	23	92%		Gonzales	G.Comp	0	0%		Gonzales	Prep	22	88%		Gonzales	G. Comp	25	100%		Gonzales	Fren 1	70	81	70%	3	75%
15	5003	880	25	30	Y	0	0%		Quinones	Prep	23	92%		Quinones	G.Comp	18	72%		Quinones	Busines	15	60%		Quinones	BusLaw	56	81	56%	3	75%
16	5008	1,845	25	30	Y	18	72%		Ramos	Marketng	28	112%		Ramos	C.Success	0	0%		Ramos	Prep	12	48%		Ramos	Marktng	58	45	58%	3	75%
17	2003	860	25	30	y	0	0%		Conley	Prep	25	100%		Conley	EngPAP	23	92%		Conley	Eng4	28	112%		Conley	EngPAP	76	81	76%	3	75%
18	2004	860	25	30	y	31	124%		Crater	C.Succ	0	0%		Crater	Prep	30	120%		Crater	C.Succ	30	120%		Crater	C.Succ	91	81	91%	3	75%
19	2002	860	25	30	Y	0	0%		Florian	Prep	27	108%		Florian	Eng4	16	64%		Florian	ELD-4	16	64%		Florian	Eng4Inc	59	81	59%	3	75%
20	2005	860	25	30	y	25	100%		Foote	Eng3	24	96%		Foote	Eng3	0	0%		Foote	Prep	25	100%		Foote	Eng3	74	81	74%	3	75%
21	2001	850	25	30	y	28	112%		Gage	Eng2	28	112%		Gage	Eng2	33	132%		Gage	EngPAP	0	0%		Gage	Prep	89	81	89%	3	75%
22	2007	860	25	30	y	25	100%		Martinez	Eng4	0	0%		Martinez	Prep	20	80%		Martinez	Eng4Inc	28	112%		Martinez	Eng2	73	81	73%	3	75%
23	314	805	25	30	y	14	56%		Jaramillo	VolBall	18	72%		Jaramillo	Eng1	18	72%		Jaramillo	Eng1	0	0%		Jaramillo	Prep	50	81	50%	3	75%
24	1034	800	25	30	y	0	0%		Lennox	Prep	29	116%		Lennox	Eng1PAL	7	28%		Lennox	ESL1	19	76%		Lennox	Eng1EL	55	81	55%	3	75%
25	308	805	25	30	Y	19	76%		Honeycutt	Eng1	0	0%		Honeycutt	Prep	19	76%		Honeycutt	Eng1	19	76%		Honeycutt	Eng1	57	81	57%	3	75%
26	311	805	25	30	y	19	76%		Monsivias	ESL3	0	0%		Monsivias	Prep	21	84%		Monsivias	ESL2	15	60%		Monsivias	ESL3	55	81	55%	3	75%
27	2006	860	25	30	Y	19	76%		Moreno	Eng3ELD	0	0%		Moreno	Prep	20	80%		Moreno	ELD/PAL	18	72%		Moreno	Eng3EL	57	81	57%	3	75%
28	2008	860	25	30	Y	0	0%		Spain	prep	29	116%		Spain	APEng3	24	96%		Spain	Eng3	26	104%		Spain	Eng3	79	24	79%	3	75%
29	321	925	25	30	Y	34	136%		Torres	RD180	34	136%		Torres	rd180	34	136%		Torres	RD180	0	0%		Torres	Prep	102	81	102%	3	75%
30	2011	860	25	30	Y	28	112%		Valtierra	Eng2	20	80%		Valtierra	Eng2in	28	112%		Valtierra	Eng2	0	0%		Valtierra	Prep	76	81	76%	3	75%
31	315	805	30	15	Y	19	127%		Zemek	Eng1in	7	47%		Zemek	Li/Und	0	0%		Zemek	prep	20	133%		Zemek	Eng1in	46	60	77%	3	75%
32	5001	2,011	25	30	Y	0	0%		Anderson	Prep	6	24%		Anderson	CulArts	6	24%		Anderson	CulArt3	24	96%		Anderson	CulArt1	36	81	36%	3	75%
33	5022	2,284	25	30	Y	28	112%		Lopez	Nutr 1	26	104%		Lopez	LifeSk	26	104%		Lopez	LifeSk	0	0%		Lopez	Prep	80	81	80%	3	75%
34	1010	770	25	30	Y	18	72%		Munoz	TCad1	28	112%		Munoz	Cloth	0	0%		Munoz	Prep	29	116%		Munoz	Cloth	75	81	75%	3	75%
35	5021	1,915	25	30	Y	24	96%		Pena	CulArt1	25	100%		Pena	Nutr	25	100%		Pena	Nutr	0	0%		Pena	prep	74	81	74%	3	75%
36	2016	742	25	30	Y	0	0%		Arms	prep	10	40%		Arms	ROTC	10	40%		Arms	ROTC	12	48%		Arms	Alg 2	32	81	32%	3	75%
37	2014	762	25	30	Y	15	60%		Dixon	ROTC	11	44%		Dixon	ROTC	11	44%		Dixon	ROTC	0	0%		Dixon	prep	37	81	37%	3	75%
38	3006	1,102	25	30	Y	23	92%		Arredondo	Art2	23	92%		Arredondo	Art1	0	0%		Arredondo	Prep	24	96%		Arredondo	Art1	70	81	70%	3	75%
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42	1008	814	25	30	Y	23	92%		Marquez	IntrLaw	14	56%		Marquez	Law2	24	96%		Marquez	Law1	23	92%		Marquez	IntrLaw	84	81	84%	4	100%
43	1012	814	25	30	Y	0	0%		Melendrez	prep	24	96%		Melendrez	ComSk	26	104%		Melendrez	CommSk	28	112%		Melendres	ComSk	78	81	78%	3	75%
44	344	1,421	25	30	Y	20	80%		Miller	Vocal	25	100%		Miller	Chorus	33	132%		Miller	Guitar	0	0%		Miller	prep	78	81	78%	3	75%
45	5023	1,672	25	30	Y	59	236%		Villa	MarBand	12	48%		Villa	DrmLine	0	0%		Villa	MidSchl	0	0%		Villa	prep	71	81	71%	3	75%
46	345	914	25	30	Y	21	84%		Banegas	USGov	22	88%		Banegas	USGov	27	108%		Banegas	Sociolog	0	0%		Banegas	Prep	70	81	70%	3	75%
47	346	805	25	30	Y	0	0%		Burciaga	prep	22	88%		Burciaga	Whist	24	96%		Burciaga	Whist	0	0%		Burciaga	eventcor	46	81	46%	3	75%
48	341	805	25	30	Y	24	96%		Gerela	Whist	21	84%		Gerela	WHist	0	0%		Gerela	Prep	29	116%		Gerela	FtBall	74	81	74%	3	75%
49	339	805	25	30	Y	0	0%		Grace	prep	23	92%		Grace	USHist	20	80%		Grace	USHistIn	20	80%		Grace	USHistIr	63	81	63%	4	100%
50	340	805	25	30	Y	38	152%		Greenwald	Gsocc	0	0%		Greenwall	Prep	23	92%		Greenwall	WHist	26	104%		Greenwall	Whist	87	81	87%	3	75%
51	337	805	25	30	Y	26	104%		Gomez	USHist	0	0%		Gomez	Prep	26	104%		Gomez	USHist	25	100%		Gomez	USHist	77	81	77%	3	75%
52	301	805	25	30	Y	25	100%		Lugo	NMHist	0	0%		Lugo	prep	27	108%		Lugo	NMHist	25	100%		Lugo	BBskB	77	24	77%	3	75%
53	336	805	25	30	Y	24	96%		Medina	USHist	23	92%		Medina	USHist	0	0%		Medina	Prep	26	104%		Medina	Psych	73	81	73%	3	75%
54	300	805	25	30	Y	26	104%		Rios	NMHist	25	100%		Rios	SpNNat	0	0%		Rios	Prep	20	80%		Rios	Bsocc	71	81	71%	3	75%
55	333	805	25	30	Y	0	0%		Schaid	prep	16	64%		Schaid	USHist	20	80%		Schaid	USHist	23	92%		Schaid	USHist	59	81	59%	3	75%
56	304	820	25	30	Y	24	96%		Stemsrud	USGov	0	0%		Stemsrud	prep	22	88%		Stemsrud	USGov	26	104%		Stemsrud	USGov	72	81	72%	3	75%
57	303	805	25	30	Y	0	0%		Thornley	prep	25	100%		Thornley	NMHist	24	96%		Thornley	NMHist	27	108%		Thornley	NMHist	76	81	76%	3	75%
58	347	805	25	30	Y	20	80%		Yanez	USGovIn	20	80%		Yanez	USGovIN	0	0%		Yanez	Prep	16	64%		Yanez	BaseBal	56	81	56%	3	75%
59	3005	805	25	30	Y	20	80%		Alvarado	Alg1In	0	0%		Alvarado	Prep	20	80%		Alvarado	AlgInc	21	84%		Alvarado	Alg1	61	81	61%	3	75%
60	1033	800	25	30	Y	20	80%		Fowle	Alg2Inc	19	76%		Fowle	Alg2Inc	21	84%		Fowle	Alg2	0	0%		Fowle	Prep	60	81	60%	3	75%
61	1035	800	25	30	Y	20	80%		Goodin	Trig	16	64%		Goodin	APCalc	21	84%		Goodin	Trig	0	0%		Goodin	Prep	57	81	57%	3	75%
62	1032	800	25	30	Y	27	108%		Hauser	APAlg2	25	100%		Hauser	APAlg2	26	104%		Hauser	APAlg2	0	0%		Hauser	Prep	78	81	78%	3	75%

GADSDEN HIGH SCHOOL UTILIZATION WORKSHEET

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD
1						BLOCK 1					BLOCK 2					BLOCK 3					BLOCK 4									
2						Time: 8:45 - 10:22					Time: 10:23 - 11:55					Time: 12:01 - 2:07					Time: 2:13 - 3:45									
3	Rm #	Clrm NSF	Max #St/ Sq Ft	PED MAX PTR / Clm	A.S. Y /N	# of St.	% Rm Occ.	Grade	Teacher Name	1,649	# of	% Rm Occ.	Grade	Teacher Name	Subject	# of St.	% Rm Occ.	Grade	Teacher Name	Subject	# of St.	% Rm Occ.	Grade	Teacher Name	Subject	Tot. St.	PED Max. PTR /Day	Tot. % Rm Occ. / Day	Occ # of Pd.'s / Day	% Pd. / Day
63	3007	815	25	30	Y	20	80%		Hite	Alg1In	21	84%		Hite	Alg1	0	0%		Hite	Prep	27	108%		Hite	FtBall	68	81	68%	3	75%
64	1036	800	25	30	Y	0	0%		Howard	prep	20	80%		Howard	GeomInc	24	96%		Howard	Geom	25	100%		Howard	Geom	69	81	69%	3	75%
65	1031	800	25	30	Y	19	76%		James	Alg2Inc	20	80%		James	Alg2Inc	0	0%		James	Prep	20	80%		James	Alg2	59	81	59%	3	75%
66	1037	800	25	30	Y	23	92%		Jurus	Geom	19	76%		Jurus	Hgeom	25	100%		Jurus	Geom	0	0%		Jurus	Prep	67	81	67%	3	75%
67	1030	800	25	30	Y	24	96%		Salaz	Geom	24	96%		Salaz	Geom	19	76%		Salaz	Alg1	0	0%		Salaz	Prep	67	45	67%	3	75%
68	2051	2,133	25	30	Y	21	84%		Allred	PE	0	0%		Allred	Prep	13	52%		Allred	Wrestle	21	84%		Allred	PE	56	81	55%	3	75%
69	400	312	25	30	Y	0	0%		Bailey	prep	20	80%		Bailey	PE	28	112%		Bailey	Weights	24	96%		Bailey	Bball	72	81	72%	3	75%
70	2050	1,606	25	30	Y	16	64%		Letz	GBBall	36	144%		Letz	Gym	19	76%		Letz	Gym	0	0%		Letz	Prep	71	81	71%	3	75%
71	2018	1,497	25	30	Y	5	20%		Mora	AthTrain	22	88%		Mora	SportsPhy	0	0%		Mora	prep	6	24%		Mora	AlthTr	33	81	33%	3	75%
72	401	765	25	30	Y	28	112%		Perea	Weights	23	92%		Perea	Weights	0	0%		Perea	prep	29	116%		Perea	FtBall	80	81	80%	3	75%
73	1002	814	25	30	Y	17	68%		Reyes	GBBall	0	0%		Reyes	Prep	20	80%		Reyes	PE	21	84%		Reyes	PE	58	81	58%	3	75%
74	155	4,691	25	30	Y	16	64%		Rosen	Vball	18	72%		Rosen	PE	20	80%		Rosen	PE	0	0%		Rosen	Prep	54	81	54%	3	75%
75	6001	1,378	25	30	Y	24	96%		Butler	IS2	22	88%		Butler	IS2	0	0%		Butler	prep	14	56%		Butler	SoftBall	60	81	60%	3	75%
76	3025	1,290	25	30	Y	0	0%		Chavez	Prep	22	88%		Chavez	IS2	24	96%		Chavez	IS2	24	96%		Chavez	IS2	70	45	70%	3	75%
77	3028	1,290	25	30	Y	22	88%		Chavez, L	IS1	20	80%		Chavez	IS1	21	84%		ChavezL	IS1	0	0%		ChavezL	Prep	63	81	63%	3	75%
78	6004	1,400	25	30	Y	9	36%		Contaldo	AeroSp	25	100%		Contaldo	Physics	22	88%		Contaldo	Hphysics	0	0%		Contaldo	Prep	56	81	56%	3	75%
79	6003	1,400	25	30	Y	20	80%		Harper	IS2Inc	20	80%		Harper	IS2Inc	0	0%		Harper	prep	24	96%		Harper	BBBall	64	81	64%	3	75%
80	334	805	25	30	Y	0	0%		Morales	prep	23	92%		Morales	USGov	24	96%		Morales	USGov	23	92%		Morales	USGov	70	81	70%	3	75%
81	6002	1,378	25	30	Y	20	80%		Holzhausen	IS1	0	0%		Holzhauzen	Prep	21	84%		Holzhausen	IS1	21	84%		Holzhausen	IS1	62	81	62%	3	75%
82	6010	1,378	25	30	Y	0	0%		Lam	Prep	20	80%		Lam	Hbio	21	84%		Lam	Hbio	24	96%		Lam	BioInc	65	81	65%	3	75%
83	6013	1,400	25	30	Y	24	96%		Palmer	Bio	22	88%		Palmer	Bio	23	92%		Palmer	Bio	0	0%		Palmer	Prep	69	81	69%	3	75%
84	6011	1,378	25	30	Y	14	56%		RamosR	VolBall	15	60%		RamosR	AnatPhys	24	96%		RamosR	Biol	0	0%		RamosR	Prep	53	81	53%	3	75%
85	6012	1,378	25	30	Y	0	0%		Romero	Prep	22	88%		Romero	IS2	30	120%		Romero	EngDes	23	92%		Romero	IS2	75	81	75%	3	75%
86	3032	1,290	25	30	Y	0	0%		Roth	Prep	22	88%		Roth	IS1	21	84%		Roth	IS1	22	88%		Roth	IS1	65	81	65%	3	75%
87	2013	860	30	15	Y	0	0%		Aguilar	MS	0	0%		Aguilar	MS	5	33%		Aguilar	EngLD	11	73%		Aguilar	Eng4Inc	16	60	27%	2	50%
88	1026	793	56	8	Y	7	88%		Walker	USGov	0	0%		Walker	Prep	8	100%		Walker	USHistInc	8	100%		Walker	USHisIn	23	32	72%	3	75%
89	2014	860	30	15	Y	8	53%		Edwards-Allen	UsGovInc	8	53%		Edwards-Allen	USGovInc	18	120%		Edwards-Allen	Eng2-3	0	0%		Edwards-Allen	Prep	34	60	57%	3	75%
90	1023	793	56	8	Y	6	75%		Goodman	IS2	8	100%		Goodman	IS2Inc	0	0%		Goodman	prep	9	113%		Goodman	BioInc	23	32	72%	3	75%
91	2012	860	30	15	Y	10	67%		Hernandes	Eng1Inc	7	46%		Hernandez	Eng1Inc	7	46%		Hernandez	IS1	7	46%		Hernandez	MSk3-4	31	60	51%	4	100%
92	2023	1,320	30	15	Y	30	200%		Kalkward	ReadInt	30	200%		Kalkward	ReadInt	30	200%		Kalkward	ReadInt	30	200%		Kalkward	ReadInt	120	60	200%	4	100%
93	5020	1,353	56	8	Y	10	125%		Martin	LifeSK	10	125%		Martin	LifeSK	10	125%		Martin	LifeSk	10	125%		Martin	LifeSK	40	32	125%	4	100%
94	322	805	30	8	Y	10	125%		Lawrence	SSSks	10	125%		Lawrence	SciSkS	10	125%		Lawrence	prep	10	125%		Lawrence B Socc		40	32	125%	4	100%
95	5020	1,353	25	30	Y	60	240%		Maxey	Interven	60	240%		Maxey	Interven	60	240%		Maxey	Interven	60	240%		Maxey	Interven	240	81	240%	4	100%
96	1025	907	56	8	Y	6	75%		Carrillo	Alg1Inc	5	63%		Carrillo	GeomInc	0	0%		Carrillo	Prep	11	138%		Carrillo	Geom	22	32	69%	3	75%
97	1038	696	56	8	Y	7	88%		Mejia	Alg2Inc	6	75%		Mijia	Alg2Inc	7	88%		Mejia	Alg2Inc	0	0%		Mejia	Prep	20	32	63%	3	75%
98	1024	907	30	15	Y	10	67%		Nevarez	MathSk	10	67%		Nevarez	LangSk	10	67%		Nevares	SciSk	10	67%		Nevarez	SSSk	40	60	67%	4	100%
99	2018	800	30	15	Y	12	80%		VanDam	BSC	12	80%		VanDam	BSC	12	80%		VanDam	BSC	12	80%		VanDam	BSC	48	60	80%	4	100%
100	1027	793	56	8	Y	8	100%		Velez	IS2Inc	7	88%		Velez	IS1Inc	14	175%		Velez	Wrestle	0	0%		Velez	Prep	29	32	91%	4	100%
101	2009	860	56	8	Y	0	0%		Zapien	Prep	6	75%		Zapien	Eng2	8	100%		Zapien	Eng3	6	75%		Zapien	Eng1Inc	20	32	63%	3	75%
102	309	805	25	30	Y	0	0%		Franzak	prep	20	80%		Franzak	Alg1	20	80%		Franzak	Alg1	20	80%		Franzak	Alg1	60	81	60%	3	75%
103	2024	505	25	30	Y	30	120%		Provencia	DACC	30	120%		Provencia	DACC	30	120%		Provencia	DACC	30	120%		Provencia	DACC	120	81	120%	4	100%
104																														
105						1,621	72%				1,631	72%				1,663	74%				1,652	73%				6,567		73%		78%
106																														
107																														

	GRADE LEVEL	CURRENT STUDENT 40TH DAY COUNT	NUMBER OF / SPECIAL NEEDS STUDENTS PER GRADE	CURRENT NUMBER OF TEACHERS	NUMBER OF TEACHING SPACES
109	9th Grade	438			
110	10th Grade	438			
111	11th Grade	406			
112	12th Grade	387			
113	TOTALS	1669	300	102	
114					

GADSDEN HIGH SCHOOL UTILIZATION PLAN

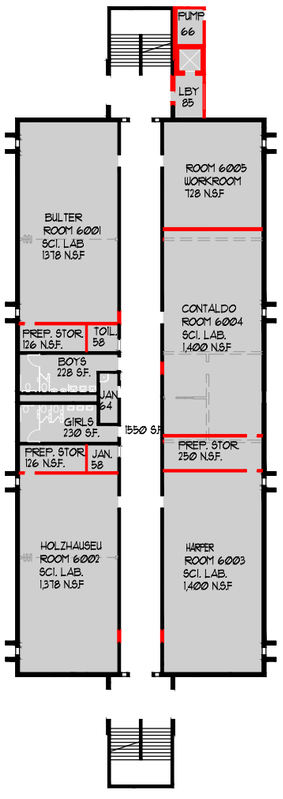
GADSDEN INDEPENDENT SCHOOL DISTRICT

DEPARTMENT- LEGEND

- MODERN LANGUAGE
- SCIENCE CLASSROOMS
- SPECIAL EDUCATION
- ENGLISH
- ART EDUCATION
- HISTORY
- MATH
- TECHNOLOGY AIDED INSTRUCTION
- PHYSICAL EDUCATION
- LIBRARY/MEDIA CENTER
- FOOD SERVICE
- ADMINISTRATION AND SUPPORT SERVICES
- ELEVATOR AND RESTROOM ADDITION
- ATHLETIC SUPPORT SPACE ADDITION
- ROTC/FACS
- 9TH GRADE ACADEMY

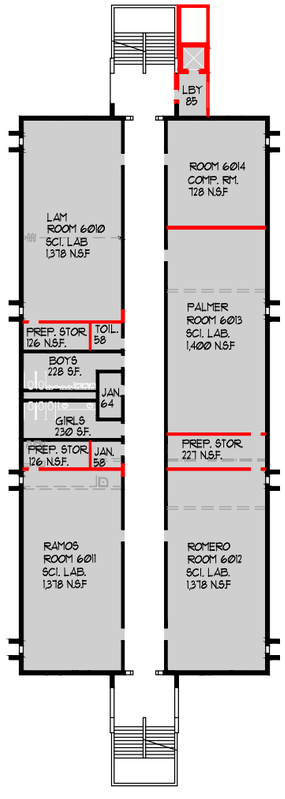
SCALE: 1" = 100' - 0"

BUSINESS

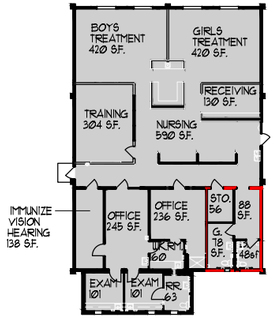


FIRST FLOOR

HEALTH



SECOND FLOOR



FIRST FLOOR

GADSDEN HIGH SCHOOL BUILDING FLOOR PLANS

GADSDEN INDEPENDENT SCHOOL DISTRICT

BUSINESS BUILDING

HEALTH BUILDING

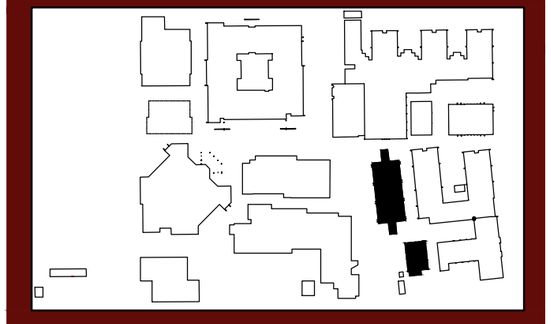
LEGEND

EXISTING WALLS

DEMO WALLS

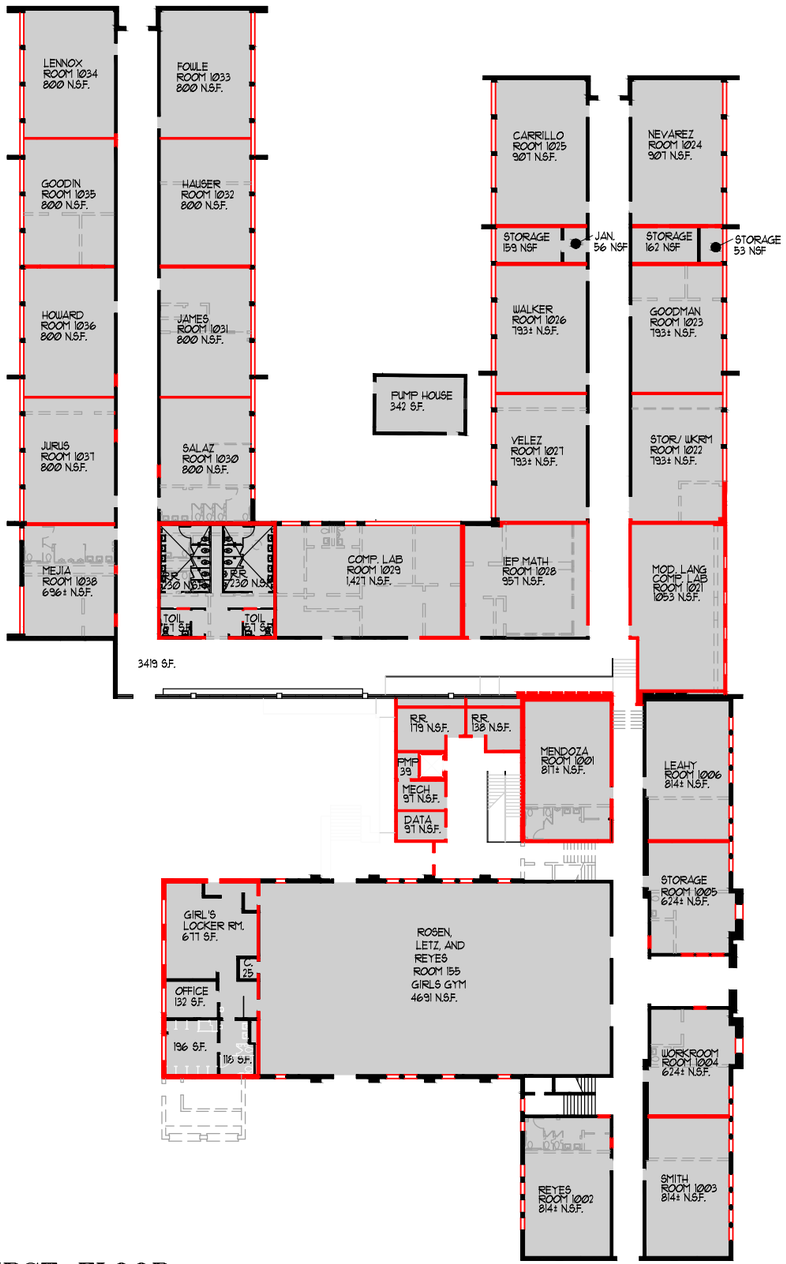
MAJOR REMODEL

KEY PLAN

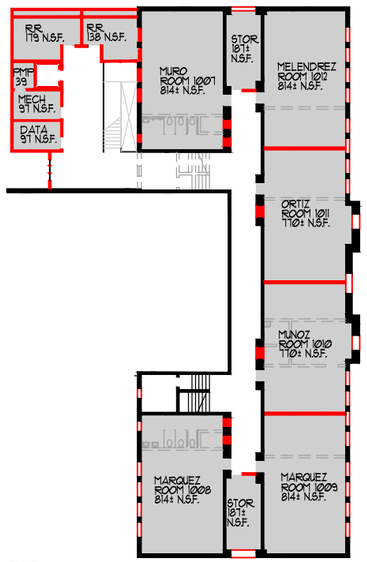


SCALE: 1" = 40' - 0"

OLD ENGLISH BUILDING & MAIN BUILDING



FIRST FLOOR



SECOND FLOOR

GADSDEN HIGH SCHOOL BUILDING FLOOR PLANS

GADSDEN INDEPENDENT SCHOOL DISTRICT

OLD ENGLISH BUILDING

MAIN BUILDING

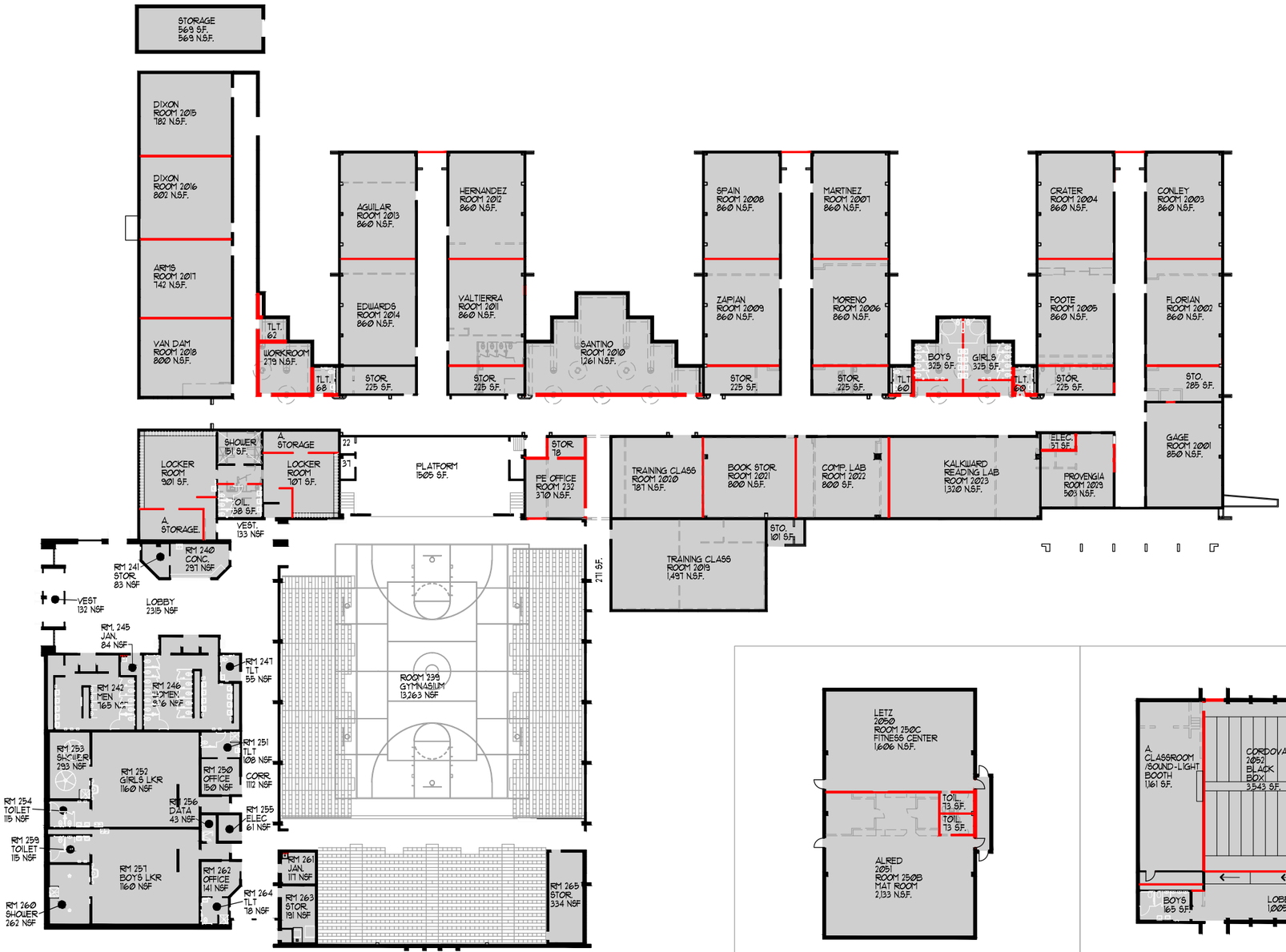
LEGEND

- EXISTING WALLS
- DEMO WALLS
- MAJOR REMODEL

KEY PLAN

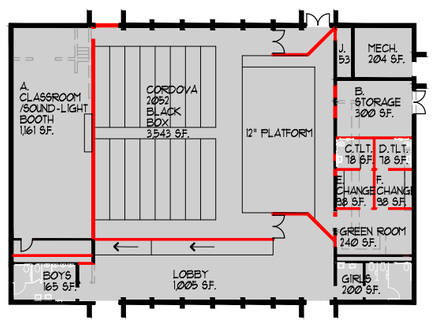
SCALE: 1" = 40' - 0"

NORTH BUILDING



COMPUTER LABS

OLD LIBRARY



GADSDEN HIGH SCHOOL
BUILDING FLOOR PLANS

GADSDEN INDEPENDENT SCHOOL DISTRICT

NORTH BUILDING

COMPUTER LABS

OLD LIBRARY

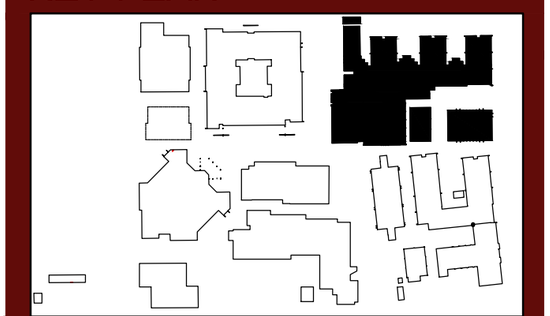
LEGEND

EXISTING WALLS

DEMO WALLS

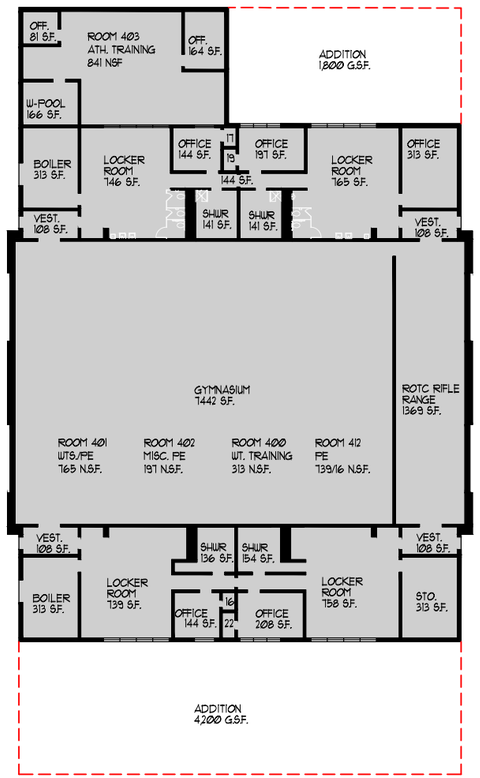
MAJOR REMODEL

KEY PLAN



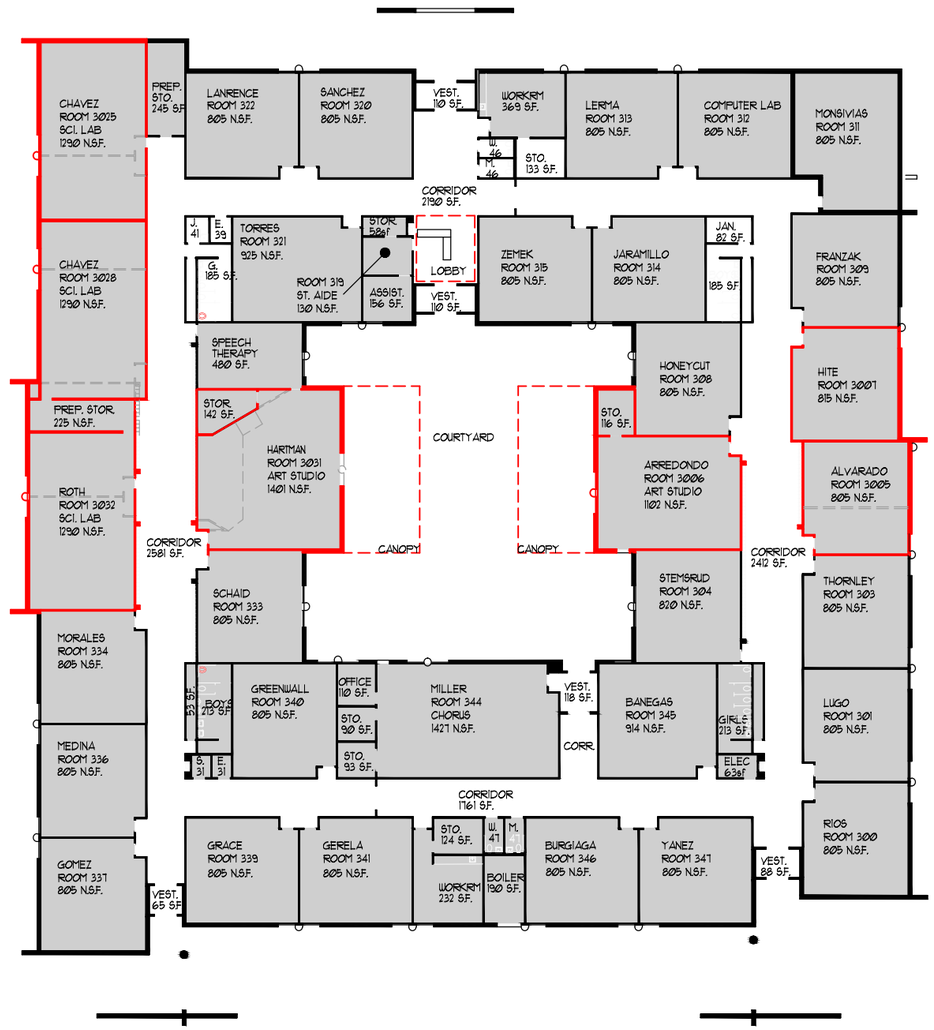
SCALE: 1" = 40' - 0"

GYMNASIUM



FIRST FLOOR

ACADEMIC BUILDING



FIRST FLOOR

GADSDEN HIGH SCHOOL BUILDING FLOOR PLANS

GADSDEN INDEPENDENT SCHOOL DISTRICT

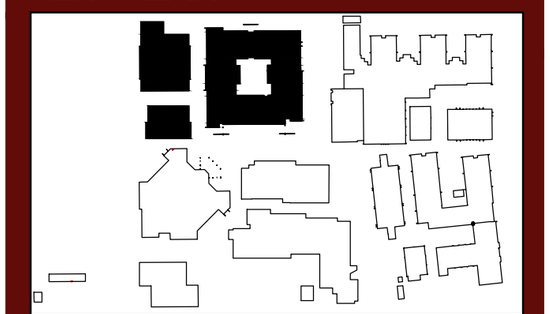
ACADEMIC BUILDING

GYMNASIUM

LEGEND

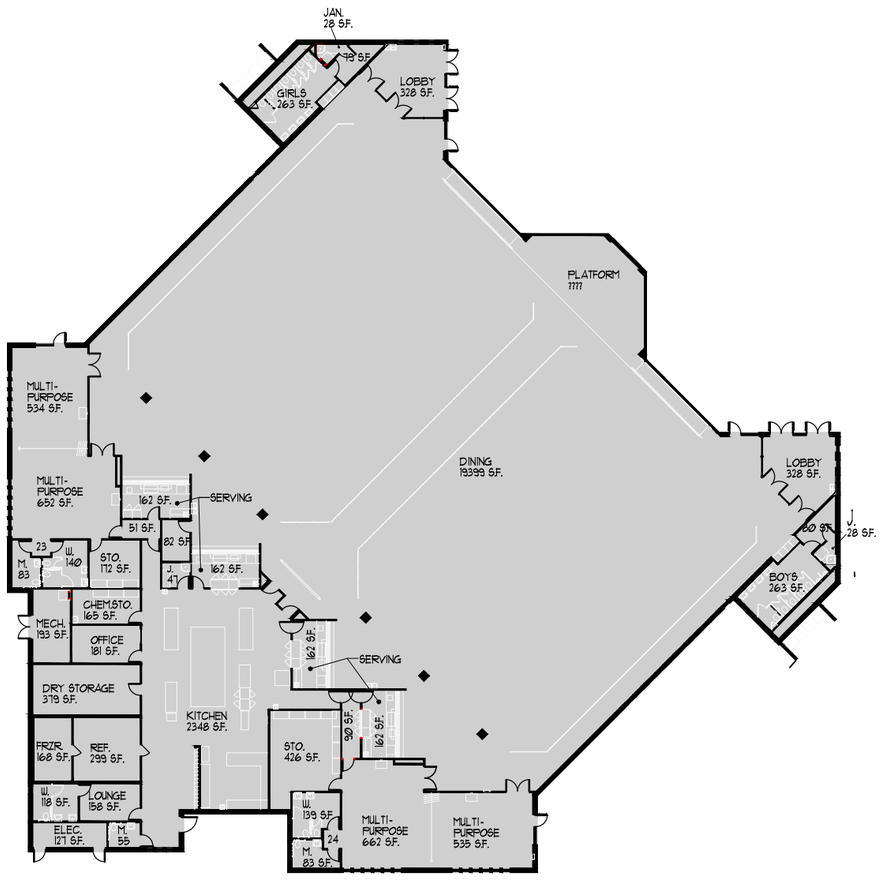
- EXISTING WALLS
- DEMO WALLS
- MAJOR REMODEL

KEY PLAN



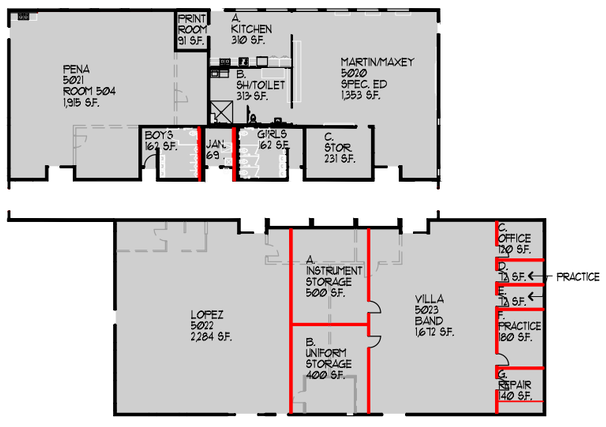
SCALE: 1" = 40' - 0"

CAFETERIA



FIRST FLOOR

ANNEX



FIRST FLOOR

GADSDEN HIGH SCHOOL
BUILDING FLOOR PLANS

GADSDEN INDEPENDENT SCHOOL DISTRICT

CAFETERIA

ANNEX

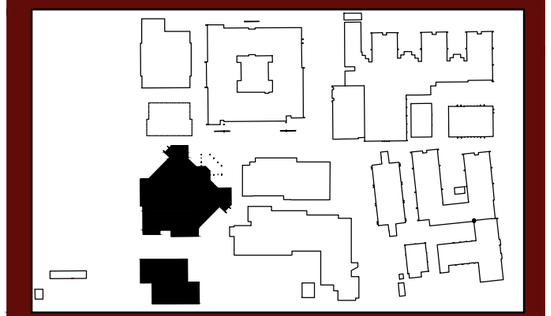
LEGEND

EXISTING WALLS

DEMO WALLS

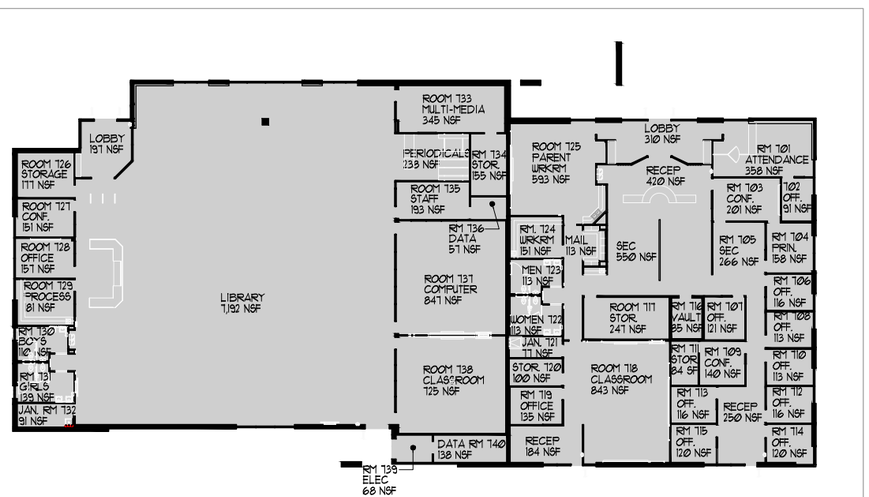
MAJOR REMODEL

KEY PLAN



SCALE: 1" = 40' - 0"

CAREER TRADES



LIBRARY & ADMIN.

GADSDEN HIGH SCHOOL
BUILDING FLOOR PLANS

GADSDEN INDEPENDENT SCHOOL DISTRICT

LIBRARY + ADMINISTRATION

CAREER TRADES

LEGEND

EXISTING WALLS

DEMO WALLS

MAJOR REMODEL

KEY PLAN

SCALE: 1" = 40' - 0"

SCOPE OF WORK

5

General

This section defines the work required to bring Gadsden High School up to adequacy standards and the probable cost. Each part of the work is briefly outlined with more detail in the attached Engineers' reports. Most of the site work should be done in the first phase making it easier to coordinate, since it will effect most building remodeling. This work includes access to Highway 28, parking improvements, utilities, sidewalks, security, networking, communications, and fire protection. Building remodeling will proceed over several years and in phases, but all parts must be carefully scheduled. For example, one of the first needs is completion of a portable classroom park to relocate existing classrooms so the vacated space can be remodeled.

Estimated costs are calculated with the help of RS Means Construction Cost Data and RS Means- Square Foot Costs and established costs in southern Dona Ana County. Site estimates are by unit prices and building estimates are by square foot prices. Some construction will need to be completed before other construction can proceed and will dictate how construction is organized. If construction phasing is continuous, it is anticipated that it will take 4 to 5 years before the last work is completed. The estimated costs are based on a construction start in the summer of 2012. As projects are started at future dates these costs must be updated for inflation and other unknown conditions.

Career Pathway Building Rendering

Cost		Description
Architectural Planning and Coordination		
	▪	All parts of the campus must comply with ADA, including accessibility, visibility, signage, hazards, location, equality and others.
$143,000.00	▪	Demolition of sidewalks, asphalt, fencing, etc.
$278,527.00	▪	Sidewalk system for pedestrian access between buildings, parking, fields, and all campus functions
$183,040.00	▪	20 foot wide sidewalks for pedestrian with restricted use for maintenance, ambulances, security and fire vehicles.
$350,752.00	▪	Sidewalk along Highway 28 to be increased to 8’ wide with bollards, retaining wall, and fencing.
$636,822.00	▪	Revise north side of campus for better access to Highway 28, student drop off area, additional Parking
$160,000.00	▪	Shade gathering structures
$120,000.00	▪	Security building.
$187,002.00	▪	Extension of maintenance road west with loop return including pavement and curbs
$390,000.00	▪	Temporary portable classroom park
$ 50,386.00	▪	Chain link fencing
$ 61,200.00	▪	Imported fill
Electrical Engineering		
$240,000.00	▪	Replacement and relocation of El Paso Electric primary service and elimination of overhead service
$510,000.00	▪	Revision and completion of campus electrical distribution
$ 88,000.00	▪	Security camera system – exterior cameras plus connection to building
$ 86,000.00	▪	Fire alarms – connections to buildings
$ 48,000.00	▪	Intrusion – connections to buildings
$ 65,000.00	▪	Communications – connections to buildings

$180,000.00	▪	Campus pole lighting

Civil Engineering

$164,065.00	▪	Waster water plant improvements
$153,340.00	▪	Drainage system including inlets, piping, ponding, grading, and lift station
$250,350.00	▪	Domestic water – coating storage tank, etc.
$150,000.00	▪	Domestic water piping
$150,000.00	▪	Natural gas
$410,000.00	▪	Sanitary waste - piping
$120,000.00	▪	Irrigation water
$362,000.00	▪	Fire protection system with pump station, additional storage tank, piping for fire hydrants, and to building sprinkler system

Landscaping

$435,600.00	▪	Irrigation piping and controls
	▪	Soil improvements
	▪	Plant types and locations (low water native)

General Requirements

$1,433,541.00	▪	Overhead, profit, bonds

Total

Estimated Construction Cost (MACC) = $7,406,630.00

Academic Building

- **1994**
- **ONE STORY**
- **45,130 GSF**

Remodeling Cost:
$4,084,265.00

Cost	Description
	General
	▪ This building is in good condition and all of the classrooms are adequately sized.
	▪ The ninth (9^{th}) grade community will remain in this building as it is reasonably separated from other grades, and has adequate number of classroom. The 3 science rooms will be remodeled with more space and laboratory equipment.
	▪ Chorus room will remain, but will have additional acoustical treatment
	▪ Two large classrooms will become Art rooms.
	▪ Other classrooms will be for Humanities
	▪ Comply with all ADA requirements
Demolition	
$1.65/GSF	▪ Remodel walls and partitions as required for new conditions
$0.36/GSF	▪ Remove finishes in toilet rooms as required for refurbishing
Shell	
-0-	▪ No structural problems
$8.00/GSF	▪ Re-roof single ply area
$1.25/GSF	▪ Repair and paint exterior
$0.52/GSF	▪ Replace doors and frames at entrances

$1.42/GSF	▪	Add covered shelters in courtyards for art classrooms.

Interior

$13.10/GSF	▪	Remodel classrooms for 3 science laboratories
Included	▪	Remodel areas as required for new construction
Included	▪	Refurbish interior finishes as required
Included	▪	Review hardware for adequacy
Included	▪	Upgrade classrooms to district standards

Services

$12.06/GSF	▪	Plumbing
Included	▪	Science Laboratories
Included	▪	Fire Protection
$25.00/GSF	▪	Mechanical
$12.70/GSF	▪	Electrical
$3.60/GSF	▪	Special systems

Fixed Equipment and Cabinetry

$3.04/GSF	▪	Replace all cabinets and millwork
$2.66/GSF	▪	Science laboratory (3 rooms)

General Requirements

$17.52/GSF	▪	Overhead, profit, bonds

Total
$90.50/GSF

Estimated Construction Cost (MACC) - $90.50/GSF x 45,130 GSF = **$4,084,265.00**

ANNEX BUILDING

- **1980**
- **One Story**
- **12,253 GSF**

Remodeling Cost:
$ 947,279.43

Cost	Description
	General
	▪ Recently completed remodeling was required by the Master Plan for the north side of the building including the ADA laboratory. Improvements included were in the mechanical, plumbing, electrical systems, re-roofing, service kitchen, and toilet/shower/change room.
	▪ Additional remodeling will include a band room and two home economics rooms. (FACS Program)
	▪ Toilet rooms will be remodeled
	▪ Comply with all ADA requirements
Demolition	
$1.50/GSF	▪ Remove all walls and ceilings as required for new conditions
Shell	
-0-	▪ No structural problems
$0.73/GSF	▪ Replace exterior doors, door frames, and windows.
$0.90/GSF	▪ Paint exterior
$4.10/GSF	▪ Re-roof south half of roof

Interior		
$18.70/GSF	▪	Remodel most areas as required for new conditions
Included	▪	Review hardware for adequacy.
Services		
$5.68/GSF	▪	Plumbing
$12.50/GSF	▪	Mechanical
-0-	▪	Fire protection
$9.00/GSF	▪	Electrical
Fixed Equipment and Cabinetry		
$4.04/GSF	▪	Band Cabinets
$5.20/GSF	▪	Sewing and Food Cabinets
General Requirements		
$14.96/GSF	▪	Overhead, Profit, Bonds

Total
$77.31/GSF
Estimated Construction Cost (Macc) - $77.31/GSF x $12,253 GSF = **$947,279.43**

AUXILIARY GYM (BOYS)

- **1957**
- **one story**
- **17,840 GSF**
  + 6,000 SF addition

Addition Cost:	$1,170,000.00
Remodeling Cost:	$2,106,904.00
Total	$3,276,904.00

Cost	Description
	General
	▪ The gym is in fair condition and by upgrading it can continue to serve the school. Upgrades includes to lighting, electrical power, roofing, painting, and gym floor.
	▪ On two sides of the gym are locker rooms with showers, toilets, and a training room that are in poor condition. To meet District standards it will require major and expensive remodeling and a addition of about 6,0000 GSF. This would still have compromises due to low ceiling heights (8'-0") with no duct space. A possible future District consideration is new construction to replace these rooms.
	▪ Comply with all ADA requirements.
Demolition	
$0.42/GSF	▪ Abatement ACM thermo insulation
$0.09/GSF	▪ Abatement fire doors
$2.15/GSF	▪ Demolish existing conditions as required for new work
Shell	
-0-	▪ No structural problems
$10.25/GSF	▪ Roofing

$2.24/GSF	▪	Replace all exterior doors and windows
$4.10/GSF	▪	Repair and paint exterior

Interior

$20.36/GSF	▪	Remodeling lockers/showers/toilet rooms, and training room
$12.60/GSF	▪	Minor remodeling to gym
	▪	Review hardware for adequacy

Services

$13.46/GSF	▪	Plumbing
$12.07/GSF	▪	Mechanical
	▪	Electrical
$12.70/GSF		Power and lighting
$1.80/GSF	▪	Special systems

Fixed Equipment and Cabinetry

$3.00/GSF	▪	Gym goals, score board, padding
Included	▪	Bleachers – 330 seats

General Requirements

$22.86/GSF	▪	Overhead, profit, bonds

Total
$118.10/GSF

Estimated Remodeling Construction Cost - $118.10 x 17,840 GSF = $2,106,904.00

Estimated Construction Cost for Addition - $195.00 x 6,000 GSF = $1,170,000.00

Estimated Construction Cost (MACC) $3,276,904.00

BUSINESS BUILDING

- **1972**
- **Two Story**
- **18,858 GSF**

Addition Cost:	$ 285,200.00
Remodeling Cost:	$3,189,642.12
Total:	$3,474,842.12

Cost	Description
	General
	▪ Comply with all ADA requirements including elevator for second floor access
	▪ Current departments and support space will be relocated and the building will now be occupied by the science department. The department's location was determined by width of classrooms, stud partions easily remodeled location adjacent to Career Pathway Building and math department, second floor easily plumbed with access from below, and building size adequate for science department needs
	▪ Toilet rooms to remain, but rebuilt with new fixtures, piping, accessories, and finishes
	▪ Eight science laboratories upon completion
Demolition	
$1.90/GSF	▪ Abatement ACM flooring
$0.08/GSF	▪ Abatement fire doors
$2.75/GSF	▪ Removal of all walls and ceiling as required for new conditions
Shell	
-0-	▪ No structural problems
$1.30/GSF	▪ Replace exterior doors and frames

$2.12/GSF	▪	Replace windows
$1.07/GSF	▪	Repair and paint exterior

Interior

$30.60/GSF	▪	Remodel most areas including the partitions and ceiling as required for new conditions
Included	▪	Rebuild toilet rooms with new partitions and accessories
Included	▪	Review hardware for adequacy
Included	▪	Upgrade classrooms to District standards

Services

$23.60/GSF	▪	Plumbing
Included	▪	Fire Protection
$25.00/GSF	▪	Mechanical
	▪	Electrical
$19.70/GSF		Power and lighting
$3.60/GSF		Special systems

Fixed Equipment and Cabinetry

$21.64/GSF	▪	Science laboratory (8 rooms) –
$3.04/GSF	▪	Cabinets

General Requirements

$32.74/GSF	▪	Overhead, profit, bonds

Total
$169.14/GSF

Estimated Construction Cost (MACC) - $169.14/GSF x 18,858 GSF = **$3,189,642.12**

(Proposed Addition)-2 Story 800 GSF

Cost	Description
	General ▪ Comply with all ADA requirements ▪ Elevator with lobby
Demolition	
$15.00/GSF	▪ Foundations, stairs
Shell	
$9.75/GSF	▪ Fill and soil work
$65.90/GSF	▪ Wall, floors, roof, roofing
Interior	
$40.65/GSF	▪ Partitions, shaft
Services	
$112.50/GSF	▪ Elevator
$25.00/GSF	▪ Mechanical
$18.70/GSF	▪ Electrical
General Requirements	
$69.00/GSF	▪ Overhead, profit, bonds
Total $356.50/GSF	

Estimated construction cost (MACC) - $356.50/GSF x 800 GSF = **$285,200.00**

CAFETERIA BUILDING

- **1998**
- **One Story**
- **31,050 GSF**

Remodeling Cost:
$2,746,993.50

Cost	Description
	General
	▪ In good condition, requiring minor repairs and refurbishing
	▪ Comply with all ADA requirements
	▪ Replace evaporative system with refrigerated cooling system
	▪ Upgrade electrical to accommodate new cooling system
Demolition	
-0-	▪ No asbestos
$1.00/GSF	▪ Removal of evaporative coolers and openings in roof for ducts penetrations
Shell	
-0-	▪ No structural problems
$9.10/GSF	▪ Roof, 13 years old, will require major repair or new roof with added roof top air conditioning units.
$1.10/GSF	▪ Repair and paint exteriors
$2.42/GSF	▪ Replace shade fabric with metal roof panels
$2.77/GSF	▪ Repair hollow doors and window frames

Interior

$4.06/GSF	▪	Repair and refurbish finishes
$6.45/GSF	▪	Replace VCT flooring with 12” x 12” porcelain tile in dining room

Services

$5.11/GSF	▪	Plumbing
$20.00/GSF	▪	Mechanical
$16.00/GSF	▪	Electrical Power and lighting
$3.34/GSF	▪	Special systems

General Requirements

$17.12/GSF	▪	Overhead, profit, bonds

Total
$88.47/GSF

Estimated Construction Cost (MACC) - $88.47/GSF x 31,050 GSF = **$2,746,993.50**

COMPUTER LABORATORY

- **1950**
- **One Story**
- **4,363 SF**

Remodeling Cost:
$479,057.40

Cost	Description
	General
	▪ After being remodeled several times, most parts of the interior must be removed.
	▪ Since its location is adjacent to main gym and PE classroom it is a good location for the mat room and fitness room
	▪ Comply with all ADA requirements
Demolition	
-0-	▪ No asbestos
$1.50/GSF	▪ Removal of most partitions and ceilings
Included	▪ Removal of floor tile
Included	▪ Relocation of existing toilet fixtures
Shell	
-0-	▪ No structural problems
$0.69/GSF	▪ Add doors on west side for access to gym
$0.96/GSF	▪ Paint exterior
$8.00/GSF	▪ Roof
$1.30/GSF	▪ Replace doors and frames

Interior		
$18.30/GSF	▪	Remodel partitions and ceilings required to meet new conditions
Included	▪	Enlarge toilet rooms and remodeled to meet ADA
$9.16/GSF	▪	Mat room floor and wainscot (6'-0 min) covered with mats
Included	▪	Review hardware for adequacy
Services		
$4.90/GSF	▪	Plumbing
$10.00/GSF	▪	Mechanical
-0-	▪	Fire Protection
$12.10/GSF	▪	Electrical Power and lighting
$3.60/GSF	▪	Special systems
Fixed Equipment and Cabinets		
$3.04/GSF	▪	Replace all cabinets and millwork
$15.00/GSF	▪	Equipment
General Requirements		
$21.35/GSF	▪	Overhead, profit, bonds

Total
$109.80/GSF

Estimated Construction Cost (MACC) - $109.80/GSF x 4,363 GSF = **$479,057.40**

HEALTH BUILDING

- **1965**
- **One Story**
- **3,834 GSF**

Remodeling Cost:
$416,564.10

Cost	Description
	General
	▪ Designed originally as a band area, and was remodeled for the health programs and nursing care in 2000
	▪ No room changes are planned
	▪ Repairs and refurbishing as required
	▪ Comply with ADA requirements
	▪ Refrigerated air conditioning
Demolition	
$1.50	▪ Toilet rooms
Shell	
-0-	▪ No structural problems
$0.78/GSF	▪ Replace exterior doors and hardware as required
$8.00/GSF	▪ Replace roofing
$1.02/GSF	▪ Paint exterior
Interior	
$4.20/GSF	▪ Remodel two (2) toilet rooms
$11.37/GSF	▪ Refurbish ceilings, walls, and flooring
Included	▪ Review hardware for adequacy
Included	▪ Upgrade classroom to district standards

Services		
$7.05/GSF	▪	Plumbing
$25.00/GSF	▪	Mechanical
$18.70/GSF	▪	Electrical Power and lighting
$3.60/GSF	▪	Special Systems
Fixed Equipment and Cabinetry		
$6.40	▪	Replace millwork
General Requirements		
$21.03/GSF	▪	Overhead, profit, bonds

Total
$108.65/GSF

Estimated Construction Cost (MACC) - $108.65/GSF x 3,834 GSF= **$416,564.10**

MAIN BUILDING

- **1950**
- **One Story**
- **24,057 GSF**

Remodeling Cost:
$2,864,707.56

Cost	Description
	General
	▪ Comply with all ADA requirements.
	▪ Ramp between Old English and Main Building for accessibility
	▪ Special education, science, administrative, and language arts shall be relocated to other buildings.
	▪ Math will be moved into the west and east classroom wings, to be close to the science department and Career Pathway Building.
	▪ The wall separating the Old English Building and the Main Building has a 2 hour rating fire door at the corridor.
	▪ General classrooms where possible to be a minimum of 800 SF and upgraded to meet district standards
	▪ Remodel administration and offices for other uses lobby.
	▪ Toilet room to be relocated into vacated administration office area.
	▪ Unused old office lobby is to be remodeled into classroom space.
Demolition	
$1.50/GSF	▪ Remove walls and ceilings as required for new conditions
	▪ Remove toilet rooms, science rooms and other relocated spaces

$0.80/GSF	▪	Remove glass block and adjacent windows
$0.15/GSF	▪	Abatement of science table tops

Shell

-0-	▪	No structural problems
$1.05/GSF	▪	Replace exterior doors and frames
$17.67/GSF	▪	Replace glass block with stucco walls and windows
$1.10/GSF	▪	Repair and paint exterior

Interior

$25.60/GSF	▪	Remodel partions and ceilings as required for new conditions
Included	▪	Review hardware for adequacy
$1.60/GSF	▪	Add ADA ramp and stairs at entrance to Old English building
Included	▪	Upgrade classrooms to District standards

Services

$14.58/GSF	▪	Plumbing
$10.00/GSF	▪	Mechanical
$3.34/GSF	▪	Fire Protection
	▪	Electrical
$12.00/GSF		Power and lighting
$3.60/GSF		Special systems

Fixed Equipment and Cabinetry

$3.04/GSF	▪	Replace all cabinets and millwork

General Requirements

$23.05/GSF	▪	Overhead, Profit, Bonds

Total
$119.08/GSF

Estimated Construction Cost (MACC) - $119.08/GSF x 24,057 GSF = **$2,864,707.56**

NORTH BUILDING AND GYM

- **1950**
- **one story**
- **52,764 GSF**
  + addition of 9,806 GSF

Remodeling Cost:
$6,181,830.24

Cost	Description
	General
	▪ Comply with all ADA requirements
	▪ Science laboratories will be relocated to the business building
	▪ Toilet rooms to be moved into vacant locker alcoves
	▪ ROTC will remain in present location
	▪ Adjust general classrooms, where possible, to be a minimum of 800 SF and remodeled to meet district standards
	▪ Gymnasium addition - no work required
Demolition	
$1.28/GSF	▪ Abatement ACM flooring
$0.06/GSF	▪ Abatement fire doors and lavatory tops
$0.85/GSF	▪ Abatement thermo insulation
$0.18/GSF	▪ Abatement drywall joint compound
$1.50/GSF	▪ Removal of walls and ceilings as required for new conditions
$0.80/GSF	▪ Remove glass block and adjacent windows
Shell	
-0-	▪ No structural problems
$2.10/GSF	▪ Replace exterior doors and frames
$14.67/GSF	▪ Replace glass block with stucco walls and windows

$1.10/GSF	▪	Repair and paint exterior
$2.20/GSF	▪	Metal panels of toilet room skylights

Interior

$0.90/GSF	▪	In several areas slabs at control joints uneven. Most of these joints will be grind down or filled. A few joints will require parts of slabs removed and replaced.
$26.80/GSF	▪	Remodel partitions and ceilings as required for new conditions
Included	▪	Move to unused locker alcoves and enlarge toilet rooms. Add new fixtures to meet code.
Included	▪	Review hardware for adequacy
Included	▪	Upgrade classrooms to District standards

Services

$12.40/GSF	▪	Plumbing -replace most plumbing including piping
Included	▪	Fire protection
$10.00/GSF	▪	Mechanical -Revise existing system to fit new conditions
$13.00/GSF	▪	Electrical
$3.60/GSF	▪	Special systems

Fixed Equipment and cabinetry

$3.04/GSF	▪	Replace millwork and cabinets

General Requirements

$22.68/GSF	▪	Overhead, profit, bonds

Total
$117.16/GSF

Estimated Construction Cost (MACC) - $117.16/GSF x 52,764 GSF= **$6,181,830.24**

Old English Building

- **1928**
- **Two Story**
- **20,314 GSF**

Addition Cost:	$1,237,880.00
Remodeling Cost:	$3,015,410.16
Total	$4,253,290.16

Cost	Description

General

- Comply with all ADA requirements
- The two story building is in reasonable condition, well constructed and maintained. Corridors floors are of reinforced concrete with masonry walls. Classroom floors and roof are framed lumber with no fire protection.
- A historical building with symbolic significance to the area, it must be preserved for continued use.
- Reinforcing of classroom floor wood framing which have long term deflection and then have fire protection added.
- Exterior windows installed in 1980's are broken, leaking, non operable, and are not historically appropriate. The Mechanical Engineers have requested the windows be replaced to decrease heat loads.
- Classrooms in many cases are less that 550 SF and all too small. Relocating portions, to increase all classrooms to over 700 SF.
- Upgrade heating and cooling to match other buildings.
- To resolve ADA access and toilets build a two story addition with an elevator, four toilet rooms, and stairs.
- Construct ADA accessible ramp to main building.
- Fire wall between Old English and main building requires 2hr fire doors at corridor.

Demolition		
$1.26/GSF	▪	Abatement of ACM flooring
$0.17/GSF	▪	Abatement of fire doors
$0.76/GSF	▪	Abatement thermo insulators
$0.30/GSF	▪	Abatement transited windows and entrances
$0.70/GSF	▪	Remove widows and panels
$1.10/GSF	▪	Remove one stair
$1.05/GSF	▪	Remove all walls and ceiling as required for new conditions
$1.25/GSF	▪	Remove exterior doors and frames
Shell		
$4.25/GSF	▪	Replace exterior windows and doors to match original in 1928 building
$3.70/GSF	▪	Repair stone sills and caps, and masonry
$7.97/GSF	▪	Reroof all parts
$2.70/GSF	▪	Reinforce wood floors at classrooms as required
Interior		
$35.60/GSF	▪	Remodel all areas as required for new conditions
Included	▪	Classrooms to meet all District standards
Included	▪	Review hardware for adequacy
Services		
$10.51/GSF	▪	Plumbing
Included	▪	Fire Protection
$24.07/GSF	▪	Mechanical
$18.70/GSF	▪	Electrical Power and lighting
$3.60/GSF	▪	Special systems
Fixed Equipment and Cabinetry		
$3.04/GSF	▪	Cabinets

General Requirements

$119.71/GSF	▪ Overhead, profit, bonds

Total
$148.44/GSF

Estimated Construction Cost (MACC) - $148.44/GSF x 20,314 GSF = **$3,015,410.16**

(Proposed Addition) 2 Story 4,000 GSF

Cost	Description
	General
	▪ Comply with all ADA requirements
	▪ Elevator, stair, toilet rooms
Demolition	
$4.00/GSF	▪ Exterior walls, foundations, stairs
Shell	
$9.75/GSF	▪ Fill and soil work
$65.90/GSF	▪ Walls, floors, roof, roofing
$29.80/GSF	▪ Exterior ramp, and stair
Interior	
$30.65/GSF	▪ Partitions, toilets, shaft, stair
Services	
$30.00/GSF	▪ Elevator
$22.00/GSF	▪ Plumbing
Included	▪ Fire protection
$24.07/GSF	▪ Mechanical
	▪ Electrical
$18.70/GSF	Power and lighting
$3.60/GSF	Special systems
General Requirements	
$71.54/GSF	▪ Overhead, profit, bonds
Total	
$309.47/GSF	

Estimated construction cost (MACC) - $309.47/GSF x 4,000 GSF = **$1,237,880.00**

OLD LIBRARY

- **1972**
- **One Story**
- **7,985 GSF**

Remodeling Cost:
$1,400,489.15

Cost	Description
	General
	▪ Originally designed as a kitchen/cafeteria with a stage. Enrollment outgrew the cafeteria's capacity and the building has had several different uses before becoming the library.
	▪ Now it will be remodeled for a black box performing theater with seating for approximately 100, a slightly raised stage, control booth, storage, green room, and changing room
	▪ Comply with all ADA requirements
Demolition	
$1.50/GSF	▪ Remove partitions and ceiling as required
$2.10/GSF	▪ Remove finishes in toilet rooms
$1.65/GSF	▪ Abatement ACM flooring
$.019/GSF	▪ Abatement fire doors
$1.10/GSF	▪ Remove windows and doors as required
Shell	
-0-	▪ No structural problems
$9.50/GSF	▪ Reroofing
$1.25/GSF	▪ Repair and paint exterior
$2.40/GSF	▪ Replace windows and doors as required

Interior		
$18.78/GSF	▪	Structures under raised seating
$25.40/GSF	▪	Remodel interior partitions and ceilings as required for new conditions
Included	▪	Remodeled toilets with new toilet partitions and accessories
Included	▪	Review hardware for adequacy
Services		
$11.12/GSF	▪	Plumbing
Included	▪	Fire Protection
$25.00/GSF	▪	Mechanical
$18.70/GSF	▪	Electrical Power and lighting
$3.60/GSF	▪	Special System
Fixed Equipment and Cabinetry		
$3.03/GSF	▪	Replace all cabinets and millwork
$14.40/GSF	▪	Sound, lighting, staging
$1.72/GSF	▪	Seating
General Requirements		
$33.95/GSF	▪	Overhead, profit, bonds

Total
$175.39/GSF

Estimated Construction Cost (MACC) - $175.39/GSF x 7,985 GSF = **$1,400,489.15**

Library/Administration Building

(2010) One Story 19,366 GSF

Career Pathway Building (Under Construction) One Story 37,147 GSF

GENERAL

These buildings and site work have been recently completed or are under construction and were designed and built to meet adequacy standards.

Fitness Center, Public Toilets, Pool House, Concession Stand and Pump House

GENERAL

All five buildings have been constructed or remodeled in recent years and require little if any work at this time. These buildings are not included as a part of the adequacy standard. The GISD will maintain and remodel them to meet all code requirements.

BUDGET

6

The scope of work and the probable cost have been developed with the Gadsden Administration, Gadsden High School Staff and Engineering Consultants. Each part of the work must be scheduled to support the continued operation of Gadsden High School, must coordinate with other parts of the work, and must be within the funding supported by PSFA, GISD, and the State of New Mexico.

It has been determined by Gadsden High School Staff that most teachers will move at least once and in many cases twice as parts of buildings are remodeled. To keep this movement flexible and to a minimum, the size of areas to remodeled will be limited to areas where classrooms have been relocated to portable sites or to finished remodeled spaces. Staff discussed the possibility of the work in three phases, so each phase would be complete before starting the next, allowing for the review of problems, decisions on relocations of classrooms, and the anticipated impact of the remodeling on class work. The estimated budget of $45,000,000.00 is based upon a construction contract for all of the work to start in the summer of 2012 with the construction completion four years later. This may be unrealistic with GISD currently having about one third of the funds for their share of the budget, and future funds determined by General Obligation Bonds. A four year construction contract may not be realistic with changes in construction cost, and unknown conditions which make bidding a multi-year contract difficult, if not impossible. Phasing might be a more realistic approach. The estimated budget is also shown in three (3) phases in section 7 which adds 3 to 4 months to construction time and is estimated to increase the budget by 2.8 million dollars. Phasing of this project is recommended.

BUDGET

(START SUMMER 2012 – FINISH SUMMER 2016)

Estimated MACC to Adequacy		
Site work	$ 7,406,630.00	
Academic Building	$ 4,084,265.00	
Annex Building	$ 947,279.43	
Business Building (Incl. Addition)	$ 3,474,842.12	
Cafeteria Building	$ 2,746,993.50	
Computer Laboratory	$ 479,057.40	
Health Building	$ 416,564.10	
Main Building	$ 2,864,707.56	
North Building	$ 6,181,830.24	
Old English (Incl. Addition)	$ 4,253,290.16	
Old Library	$ 1,400,489.15	
Gymnasium Addition	Not Included	
Library/Administration Building	Not Included	
Auxiliary Gym (Boys)	Not Included	
Fitness Center/Public toilets,	Not Included	
Pool house, Concession stand, Pump house	Not Included	
Total MACC	$34,255,948.66	
NMGRT @ 6.375%	$ 2,183,816.73	
Total Estimated Construction	$36,439,765.39	**$36,439,765.39**
Contingency @ 10% MACC		**$ 3,425,594.87**
Furniture and equipment 6% MACC		**$ 2,055,356.92**
Estimated Design Services		
Architectural	$2,397,916.41	
Reimbursables	$ 75,000.00	
Surveys (as work progresses)	$ 20,000.00	
Special Consultants -	$ 150,000.00	
Acoustics		
Asbestos		
Theater Staging		
Sewage Treatment Plant		
Domestic water wells		
Irrigation water wells		
Others		
Roof Consultant	$ 108,000.00	
PAC	$ 120,000.00	
Tax 7.5625%	$ 217,113.05	
Total	$3,088,029.46	**$ 3,088,029.46**
Total Estimated Budget to Adequacy		**$45,008,746.69**
	Say	**$45,000,000.00**
Total Estimated GISD share to Adequacy @ 10%		**$ 4,500,000.00**
Total Estimated State share to Adequacy @ 90%		**$ 40,500,00.00**

POSSIBLE PHASING

7

PHASE I

(START SPRING 2012 – FINISH FALL 2013)

BUDGET

Estimated MACC To Adequacy		
Site work (start 70%)	$ 5,184,641.00	
Business Building	$ 3,474,842.12	
Addition to Old English	$ 1,237,880.00	
Old Library	$ 1,400,489.15	
North Building (4 toilet rooms remodeled)	$ 576,600.00	
Total MACC	$11,874,452.27	
NMGRT 6.375%	$ 756,996.33	
Estimated construction cost	$12,631,448.60	**$12,631,448.60**
Contingency – 10% MACC		**$ 1,187,445.23**
Furniture and equipment 6% MACC		**$ 712,467.14**
Estimated Design Services		
Architectural	$ 831,211.66	
Reimbursables	$ 25,000.00	
Surveys (completed work)	$ 10,000.00	
Special consultants	$ 100,000.00	
Sewage treatment plant		
Water wells		
Highway		
Electrical Service		
Acoustics		
Staging		
Asbestos		
Pac Consultants	$ 40,000.00	
Roof Consultants	$ 36,000.00	
Taxes 7.5625%	$ 78,817.26	
Total	$1,121,028.92	**$ 1,121,028.92**
Total Estimated Budget to Adequacy		**$15,652,389.89**
	Say	**$16,000,000.00**
Total Estimated GISD Share to Adequacy @ 10%		**$ 1,600,000.00**
Total Estimated State Share to Adequacy @ 90%		**$14,400,000.00**

PHASE II

(START FALL 2013 – FINISH SPRING 2015)

BUDGET

Construction Cost		
Site work 30% (completion)	$ 2,221,989.00	
North Building (completion)	$ 5,605,230.24	
Main Building (start 40%)	$ 1,145,883.02	
Old English (completion)	$ 3,015,410.16	
Total MACC	$11,988,512.42	
NMGRT 6.375%	$ 764,267.67	
Estimated construction cost	$12,752,780.09	**$12,752,780.09**
Contingency 10% MACC		**$ 1,198,851.24**
Furniture and equipment 6% MACC		**$ 719,310.75**
Design Services		
Architectural	$ 839,195.87	
Reimbursables	$ 25,000.00	
Survey (completed work)	$ 6,000.00	
Special Consultants	$ 25,000.00	
Highway		
Electrical service		
Others		
PAC Consultants	$ 40,000.00	
Roof Consultants	$ 36,000.00	
Taxes 7.5625%	$ 73,446.69	
Total	$ 1,044,642.56	**$ 1,043,428.57**
Total estimated budget to adequacy		**$15,715,584.64**
Total estimated budget (6% inflation)		**$16,658,519.72**
	Say	**$16,500,000.00**
Total Estimated GISD share to adequacy @ 10%		**$ 1,650,000.00**
Total Estimated State share to adequacy @ 90%		**$14,850,000.00**

PHASE III

(START SPRING 2015 – FINISH FALL 2016)

BUDGET

Construction Cost			
Cafeteria Building	$ 2,746,993.50		
Computer Laboratory	$ 479,057.40		
Health Building	$ 416,564.10		
Annex Building	$ 947,279.43		
Academic Building	$ 4,084,265.00		
Main Building (Completion)	$ 1,718,824.54		
Total MACC	$10,392,983.97		
NMGRT 6.375%	$ 662,552.73		
Total Estimated Construction	$ 11,055,536.70		**$11,055,536.70**
Contingency 10% MACC			**$ 1,039,298.40**
Furniture and Equipment 6% MACC			**$ 623,579.04**
Estimated Design Services			
Architectural	$727,508.88		
Reimbursables	$ 25,000.00		
Survey	$ 4,000.00		
Special Consultants	$ 25,000.00		
PAC Consultants	$ 40,000.00		
Roof Consultants	$ 36,000.00		
Taxes 7.5625%	$ 64,849.11		
Total	$922,357.99		**$ 922,357.99**
Total Estimated Budget to Adequacy			**$13,640,772.13**
Total Estimated Budget (12% inflation)			**$15,277,664.79**
		Say	**$15,300,000.00**
Total Estimated GISD Share to Adequacy @ 10%			**$ 1,530,000.00**
Total Estimated Stare Share to Adequacy @ 90%			**$13,770,000.00**

REPORTS

8

ATTACHMENTS

A. Mechanical Report
- FMS Engineering

B. Plumbing System Report
- FMS Engineering

C. Structural Report
- Zamora engineering, inc

D. Electrical Report
- Robinet & Ramos Consulting Engineers

E. Drainage and Utility Report
- Bohannan Huston

F. Traffic Impact Analysis
- Zia Engineering & Environmental Consultants, LLC.

G. Asbestos Removal Estimates
- Suncity Analytical, Inc.

ATTACHMENT - A

HVAC REPORT

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FMS Engineering, LLC

Engineering Report

Gadsden High School
Master Plan Evaluation
For
Heating Ventilating and Air Conditioning Systems

Performed by:
FMS Engineering, LLC
For
Alley Associates, Architects – Planners
1691 Hickory Loop
Las Cruces, NM

(915) 241-6461 • Fax: (915) 581-7973 • fms_eng@yahoo.com • 6313 Franklin Desert • El Paso, Texas 79912

Table of Contents

Section 1

Report Overview

The purpose of this report is to act as a Master Plan study for Gadsden High School with the ultimate intent being as follows. It is to establish the condition of the facility both from the standpoint of basic functionality, as well adequacy to meet the long term needs of the School District. This Evaluation is intended to provide basic information needed to guide further efforts in how to structure and approach a Master Plan for the site.

Information provided in the report is based on review of the available historic information available for the site, interviews with GISD personnel knowledgeable about the site, and (non invasive) site walkthrough observations. Condition assessments are based on industry knowledge for the system types found, as well as the physical findings. Mission issues are addressed where known however this topic will generally be deferred to future Master Planning activities and to the direction of the Architect for comprehensive treatment.

Energy and Sustainability issues are considered using this document as a basis: Advanced Energy Design Guide for K-12 School Buildings (Guide). The Guide was developed by:

- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
- The American Institution of Architects (AIA)
- Illuminating Engineering Society of North America (IESNA)
- U.S. Green Building Council (USGBC)
- U.S. Department of Energy (DOE)

Included in this Guide are recommendations for the design of the building envelope; fenestration; lighting systems (including electrical lights and daylighting); heating, ventilation, and air-conditioning (HVAC) system; building automation and controls; outside air (OA) treatment; and service water heating (SWH). Additional saving recommendations are provided for electrical distribution, plug loads, renewable energy systems, and using the building as a teaching tool.

It is also notable that the base document for the Guide is ASHRAE Standard 90.1-1999, Energy Standard for Buildings (ASHRAE 90.1). ASHRAE 90.1 is the excepted standard that establishes minimum energy standards and the Guide details measures to improve beyond the established minimums.

Clearly with an existing facility (particularly an aged one), there will be limitations on what types of measures are practical.

Work performed for the Evaluation included the following:

1. A Building by Building investigation of HVAC systems.
2. Assessment of systems and subsystems based on age, operational deficiencies, and importance to the Adequacy agenda for the school.
3. The need for third party testing where deemed necessary.
4. To the extent possible, Educational agenda was considered such as Science and Culinary teaching environments.
5. Meetings to discuss findings, results, and procedural steps to accomplish the agenda of the work.

Section 2

Executive Summary

The Gadsden High School campus has been classified by Building Type and Function in Under the Architectural section of the report. The following list itemizes the basis of considerations that were used to assess the GHS campus.

- **Description:** Original construction – approximately 1954. Several additions to Date including Science, Commons, and Music. Construction type is generally masonry walls, single pane glass, and built-up roofs.
- **HVAC Systems:** Most areas received an upgrade to Rooftop Equipment within the last 5 years and equipment is in adequate condition.
- **Replacement prospective:** Roof top equipment is generally rated at a useful life of 15 years
- **Budget Considerations:** The HVAC aspect of the facility will probably not end up as significant budget item. The Envelope upgrades are uneconomic, the Equipment is generally in good condition, and the remaining Sustainability considerations can be employed at a fairly low cost.

Many aspects of the campus will receive HVAC upgrades subject to their age as well as program issues that affect the space configuration and load characteristics.

Section 3

Main Building & Old English

General: The Main Building and the Old English were constructed separately but are now interconnected and appear to be of the same general age. The construction consists of Face Brick, a Plaster Finish inside, and Flat Roof on Old English, except the Girls Gym and the Main Building which are pitched. Glass is all single pane, clear. It is a notable point that the facility is considered Historic as this presents a major design consideration for efforts to make changes in the building.

Heating & Cooling:

- The Old English Building had an upgrade project completed within the last 10 years where the Boiler and pumps were replaced and new Fan Coil units (floor cabinet types) were installed as replacement to the original convectors. A fresh air system was added; air is supplied from the roof. The Girls Gym (part of Old English) had a heating Air Handler replaced. Cooling is provided via Evaporative Coolers. The Coolers are still in good condition however some of the space will be considered for a conversation to Refrigerated cooling to be consistent with other learning spaces in the district and on this campus. A 4000 sf addition will be included in the work.
- The Main Building is served by Packaged Rooftop Heating and Cooling (refrigerated) Equipment. The equipment is condition and there will be no notable changes required to this facility from the standpoint of HVAC upgrades. Ductwork will be reconfigured based on floor plan changes.

Exhaust – Conventional toilet and spot application. Equipment is in adequate condition. Some spot and cosmetic upgrades may be required.

Special Systems – Building is controlled on Central Energy Management System. Minor revisions will be necessary.

Business Building

General: The Business Building is part of original construction. The construction consists of Face Brick, single pane clear Windows, and a Flat Roof. The function of the building will be converted to a Science agenda.

Heating & Cooling: Most areas received an upgrade to Rooftop Equipment within the last few years. However with the change in function, it is anticipated that much of the system will have to be replaced.

Exhaust – Conventional toilet and spot application. Equipment is in adequate condition. Some spot and cosmetic upgrades may be required. There will be notable additions to the exhaust for the Science application work.

Special Systems – Building is controlled on Central Energy Management System. The system will be revised for the new systems.

Health Building

General: The Health Building is a free standing structure behind the Old English facility. The construction consists of CMU, a Flat Roof, and single pane clear Windows.

A small addition was designed as an addition, but had not been constructed at the time of this review.

Heating & Cooling: The facility is cooled with Evaporative Coolers and heated with forced air Rooftop Furnaces. The equipment has reached the limit of its useful life and should be programmed for replacement.

Exhaust – Conventional toilet and spot application. Equipment is in adequate condition. Some spot and cosmetic upgrades may be required.
Special Systems – Building is controlled on Central Energy Management System. Minor revisions will be necessary.

North Building, Gymnasium, Computer Lab, & Old Library

General: North Building, Gymnasium, Computer Lab, & Old Library were part of the original construction and are all of a similar building class.

The North Building and Computer Lab construction consists of Face Brick with plaster on the inside, pitched Roof, and single pane clear Windows. The Varsity Gym is similar and it is notable that it is undergoing a remodeling project at the time of this report. The Old Library construction consists of Face Brick and Stucco over a framing system, a Flat Roof, and single pane clear Windows.

Heating & Cooling:

- The North Building completed a project in 2010 where all Packaged Rooftop Heating and Cooling (refrigerated) equipment was replaced. As such, the facility is in good standing from a Mechanical perspective. Ductwork revisions will be required based on program for floor plan.
- The Gymnasium is currently under construction as part of a remodeling project and will receive new Evaporative Coolers and Heating Furnaces. As such, the facility is in good standing from a Mechanical perspective.
- The Computer Lab was upgraded to Packaged Rooftop Heating & Cooling (refrigerated) equipment within the last 5 years. As such, the facility is in good standing from a Mechanical perspective. Ductwork revisions will be required based on program for floor plan.
- The Old Library is cooled with Evaporative Coolers and heated with forced air Rooftop Furnaces. The equipment has reached the limit of its useful life and will be programmed for replacement.

Exhaust – Conventional toilet and spot application. Equipment is in adequate condition. Some spot and cosmetic upgrades may be required.
Special Systems – Building is controlled on Central Energy Management System. Minor revisions will be necessary.

Gymnasium Addition – Ph.1 & Admin/Library – Ph. 1

General: Gymnasium Addition – Ph.1 & Admin/Library – Ph. 1 are both new construction facilities as of 2010. As such, they are in good standing from a Mechanical perspective.

Heating & Cooling: The Gym and Library have all new HVAC systems.

Exhaust: The Gym and Library have all new Exhaust systems.
Special Systems: The Gym and Library are all on the District EMS system.

Academic Building

General: Building is generally built with Face Brick over a framing system, a Flat Roof, and single pane clear Windows.

Heating & Cooling: The original system was Evaporative Cooling with baseboard Radiant Heating supported by a Boiler. Over time as systems have failed, the Coolers have been replaced with Packaged Rooftop Heating and Cooling (refrigerated). The facility needs to be upgraded due to its age as well as the educational agenda.

Exhaust – Conventional toilet and spot application. The motorized equipment should be replaced when the HVAC upgrade is done.
Special Systems: The Building should be placed on the District EMS when the HVAC upgrades are done.

Boys Gym

General: The Boys Gym was constructed in the general range of the original facility. It is of CMU construction with a pitched Roof the main gym area and Flat Roofs on either side for support areas such as Locker Rooms. All Windows are single pane clear.

Heating & Cooling:

- The gym area has a new Rooftop Heating unit installed and two new Evaporative Coolers. At the time of this review, the Maintenance department was constructing a ductwork upgrade for the gym area. The gym will not require any upgrade work except for cosmetic upgrades due to systems that are abandoned.
- The north side of the Gym has a Training Room that is currently served by a Packaged Rooftop Heating and Cooling (refrigeration) unit. It is in good condition.
- The south side of the Gym has Offices and Lockers that are served by piecemeal systems including Evaporative Coolers and Unit Heaters. This area needs to be upgraded.

Exhaust – Conventional toilet and spot application. Equipment is in adequate condition. Some spot and cosmetic upgrades may be required.
Special Systems – Original pneumatic controls are abandoned in place and should be considered for removal. Building is controlled on Central Energy Management System.

Cafeteria

General: The Cafeteria was constructed in the late 1990's and is a combination of CMU, Face Brick, and Stucco, and generally a Flat Roof. All Windows are single pane clear.

Heating & Cooling: – The facility is cooled with Evaporative Coolers and heated with forced air Rooftop Furnaces. The equipment has reached the limit of its useful life and should be programmed for replacement.

Exhaust – Conventional toilet and spot application. The motorized equipment should be replaced when the HVAC upgrade is done.

Kitchen Equipment: Should be replaced as needed when other systems are replaced.

Special Systems: The Building should be placed on the District EMS when the HVAC upgrades are done.

Annex

General: The Annex Building iss of a similar building class with CMU walls, Flat Roof, and single pane clear Windows. It has a split plan with a large Occupational Classroom on one side and a Band Classroom on the other.

Heating & Cooling:

- The Classroom is served by Evaporative Coolers and a Rooftop Furnace unit. The equipment is good condition.
- The Band Classroom is heated with Unit Heaters mounted in the space. Cooling is provided with Evaporative Coolers. The equipment should be upgraded to refrigerated air to be consistent with other facilities of this type.

Exhaust – toilet and spot application
Special Systems – Central Energy Management System.

Fitness Center, Pool, Concession

General: The Fitness Center, Pool, and Concession Areas consist of four separate structures:

- The Pool facility is of CMU construction with a flat roof and houses a swimming pool and locker rooms.
- The Fitness Center which is essentially a Weight Room and it a portable metal building.
- A Concession facility is of CMU construction with a pitched shingle roof.
- A Toilet facility is of CMU construction with a pitched shingle roof.
- There is a Press Box at the football field.

Heating & Cooling:

- The actual pool is outdoors. Office and Changing facilities are in the structure. The facility is provided with an Evaporative Cooler (and ductwork) on the roof and does not have heat as it is closed most of the winter. The equipment is in good condition.

- The Weight Room is cooled with a ground mounted Evaporative Cooler on the east end.
- The Concession facility currently has Electric Heat primarily for freeze protection. No changes or upgrades are planned for the facility.
- The Toilet facility has Electric Heat in the chase area and an exhaust system for HVAC. No changes are planned.
- The Press Box has an Evaporative Cooler and Electric Heat which are in good condition.

Exhaust – Conventional toilet and spot application. Equipment is in good condition.

Main Building

Services:

- Demolition of HVAC systems subject to floor plan program.
- Reconfigure ductwork based on floor plan revisions.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Old English

Services:

- Demolition of HVAC systems subject to floor plan program.
- New HVAC to include chiller, piping, air handling, ductwork.
- Reuse existing Boiler and piping.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Business Building

Services:

- Demolition of HVAC systems subject to floor plan program.
- Reconfigure ductwork based on floor plan revisions.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Health Building

Services:

- Demolition of HVAC systems in Evaporatively Cooled area.

- Provide new Refrigerated HVAC system.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

North Building

Services:

- Demolition of HVAC systems subject to floor plan program.
- Reconfigure ductwork based on floor plan revisions.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Varsity Gymnasium

Services:

- Newly remodeled. Minor cosmetic changes only.

Computer Lab

Services:

- Demolition of HVAC systems subject to floor plan program.
- Reconfigure ductwork based on floor plan revisions.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Old Library

Services:

- Demolition of HVAC systems.

- Provide new Refrigerated HVAC system.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Academic Building

Services:

- Demolition of HVAC systems.
- Provide new Refrigerated HVAC system.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Boys Gym

Services:

- Newly remodeled. Minor cosmetic changes only.

Boys Gym – Side Wings

Services:

- Demolition of HVAC systems.
- Provide new Refrigerated HVAC system.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Cafeteria

Services:

- Demolition of Evaporative HVAC systems.

- Provide new Refrigerated HVAC system.
- Provide Kitchen ventilation equipment.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Annex

Services:

- Demolition of Evaporative HVAC systems.
- Provide new Refrigerated HVAC system.
- Revise EMS controls.
- Revise Exhaust/Ventilation for restrooms and miscellaneous loads.

Pool

Services:

- Minor cosmetic changes only.

Weight Room

Services:

- Minor cosmetic changes only.

Concession-Toilet

Services:

- Minor cosmetic changes only.

HVAC Systems Status and Programming						
Building	**System Description**	**HVAC System Age - yrs**	**Consideration for Replacement**	**Building Area - sf**	**New System Type**	**HVAC Budget Cost**
Main Building	Combination Heat/Cool RTU	< 5	adapt	24500		$ 245,000.00
Old English (2 story)	Evaporative Cooling	8	Yes	26500	Refrigerated Cooling	$ 662,500.00
Old English - Addition	New Construction	na	na	4000	Refrigerated Cooling	$ 100,000.00
Business Building (w/ 800 sf Elev Addn)	Combination Heat/Cool RTU	< 5	Yes	18858	Refrigerated Cooling	$ 471,450.00
Health Building	Evaporative Cooling/Gas Heat	> 15	Yes	3832	Refrigerated Cooling	$ 95,800.00
North Building	Combination Heat/Cool RTU	< 5	adapt	52764		$ 527,640.00
Varsity Gym	Evaporative Cooling/Gas Heat	< 5	No	12500		
Computer Lab	Combination Heat/Cool RTU	< 5	adapt	4363		$ 43,630.00
Old Library	Evaporative Cooling/Gas Heat	> 15	Yes	7985	Refrigerated Cooling	$ 199,625.00
Academic Building	RTU Clg/Boiler Heat	> 15	Yes	45130	Refrigerated Cooling	$ 1,128,250.00
Boys Gym	Evaporative Cooling/Gas Heat	< 5	No	9225		
Boys Gym southside	Evaporative Cooling/Gas Heat	> 10	Yes	3480	Refrigerated Cooling	$ 87,000.00
Boys Gym northside	Combination Heat/Cool RTU	8 to 10	Yes	5130	Refrigerated Cooling	$ 128,250.00
Cafeteria	Evaporative Cooling/Gas Heat	> 15	Yes	31000	Refrigerated Cooling	$ 620,000.00
Annex Building	1/2 Upgraded - 1/2 Evap	> 15	Yes	5290	Refrigerated Cooling	$ 132,250.00
Pool	Evaporative Cooling/Gas Heat	8 to 10	No	1600		
Weight Room	Evaporative Cooling/Gas Heat	9 to 10	No	2100		
Concession-Toilet	Electric Heat	> 10	No	2500		

ATTACHMENT - B

PLUMBING REPORT

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FMS Engineering, LLC

Engineering Report

Gadsden High School
Master Plan Evaluation
For
Plumbing Systems

Performed by:
FMS Engineering, LLC
For
Alley Associates, Architects – Planners
1691 Hickory Loop
Las Cruces, NM

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Table of Contents

Section 1

Report Overview

The purpose of this report is to act as a Master Plan study for Gadsden High School with the ultimate intent being as follows: It is to establish the condition of the facility both from the standpoint of basic functionality, as well adequacy to meet the long term needs of the School District. This evaluation is intended to provide basic information needed to guide further efforts in how to structure and approach a master plan for the site.

Information provided in the report is based on review of the available historic information available for the site, interviews with GISD personnel knowledgeable about the site, and (non invasive) site walkthrough observations. Condition assessments are based on industry knowledge for the system types found, as well as the physical findings. Mission issues are addressed where known however this topic will generally be deferred to future Master Planning activities and to the direction of the Architect for comprehensive treatment.

Conservation and Sustainability issues are considered using this document as a basis: Material considered in this evaluation includes:

- American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE) as it relates to plumbing equipment
- U.S. Green Building Council (USGBC)

Included in this Guide are recommendations for the design of the site utilities, building plumbing fixtures and plumbing distribution systems.

Current state adopted building codes are the benchmark standard for this report. Solutions presented exceed this benchmark where found to be cost effective for the owner's long term plans.

Clearly with an existing facility (particularly an aged one), there will be limitations on what types of measures are practical.

Work performed for the Evaluation included the following:

1. A Building by Building investigation of Plumbing systems.
2. Assessment of systems and subsystems based on age, operational deficiencies, and importance to the Adequacy agenda for the school.
3. The need for third party testing where deemed necessary.
4. To the extent possible, Educational agenda was considered such as Science and Special Skills teaching environments.
5. Meetings to discuss findings, results, and procedural steps to accomplish the agenda of the work.

Section 2

Executive Summary

The Gadsden High School campus has been classified by Building Type and Function in Section 3 under Site Map. The following listings identify each Building along with notable characteristics and conditions that summarize their status.

- **Description:** Original construction – approximately 1954. Several additions to Date including Science, Commons, and Music. Plumbing systems and fixtures within each building are a mix of materials, nearly all of which are original to the building's construction. Site utilities are mixed with portions of each system recently replaced. Portions of the site utilities are still original to the time that some buildings were placed and are due for replacement.
- **Replacement prospective:** Plumbing fixtures generally are considered to have a service life of 10-15 years. Plumbing distribution (i.e. Pipe and fittings) generally is considered to have a useful service life of 40 years.
- **Budget Considerations:** Site utility upgrades can be significant investment items and they are necessary to ensure the long term function of these aged systems.. Plumbing fixtures and distribution systems within the buildings will be mandatory replacements where spaces are upgraded for ADA accessibility. Other building systems and fixtures shall be suggested where spaces are renovated for expanded use. It has been determined that this campus will benefit greatly both as an issue of life safety and serviceability by the improvement and expansion of its plumbing utility systems.

Section 3

Plumbing Overview: Recent new construction and buildings constructed after 2000 are expected to be in good serviceable condition and require no upgrades within the building envelope. Buildings constructed prior to 2000 shall be considered ready for possible plumbing fixture replacements. Buildings constructed prior to 1980 shall be considered for mandatory plumbing fixture replacements and shall require evaluation of distribution systems' replacement.

Due to the age of the existing plumbing site utilities and several serviceability and life safety issues, it is this report's recommendation that all site utility improvements described below be performed prior to or in conjunction with the first stage of all building improvements on this site.

Several buildings require new fire hydrants to be properly protected as noted in the following pages. Proper design would place new hydrants in a configuration that one hydrant might serve several buildings. The campus has recently added a fire protection water supply and pump system which includes 75,000 gallons of dedicate fire protection water. While this exceeds the state's storage capacity for schools as negotiated with the PSFA, this storage volume does not currently meet the national NFPA standards for a campus of this size. Provisions have been made at the time that the 75,000 gallon storage tank was installed to add an additional tank if equal size at a later date. It is this report's recommendation that the new 75,000 gallon storage tank be added as soon as possible to provide a system closer to current NFPA guidelines. In addition, several existing buildings require new NFPA-13 sprinkler systems to meet current life safety codes. The fire pump and new distribution system has been configured to allow expansion to the entire campus as each building is improved.

Recent domestic water services have been improved by the addition of a central pressure booster pump. This pump is located near the main classroom building housed in a dedicated pump house. This system is supplied by well water to provide the campus will all of its domestic water. At the time of this report, the domestic water improvements are limited to the new vocational education and administration facilities. It is this report's recommendation that the remainder of all existing buildings be provided with new domestic water service pipe below grade up to the point of each buildings main water entry. Individual building improvements are discussed building by building.

Sanitary Waste (Sewer) is a combination of gravity and pumped services which discharge to a private campus waste treatment plant. Portions of the existing gravity drain is reported to be experiencing chronic problems. The campus drains by gravity to a central lift station which forces the waste to the treatment station. Due to the age and reported problems with the gravity drain lines, it is this report's recommendation that all such pipe not improved within the past 5 years be replaced.

Natural gas services are provided by a single municipal meter located on the state highway on the east property line. Recent improvements include a new medium pressure gas line sized to supply new construction as well as future expansion to all existing buildings. Due to the deteriorating condition of much of the existing gas pipe, much of which is exposed on

building's rooftops, it is time to replace this pipe. The new distribution system has been configured to allow for expansion to the remainder of the campus. It is this report's recommendation that the expansion of the new distribution system be continued to include new gas supply pipe to all existing buildings.

Irrigation water is currently provided by private wells on site. Sport fields are fully irrigated. Portions of the buildings have irrigation water provided to green spaces surrounding these buildings. As site utilities are improved and green spaces are modified, irrigation water will need to be modified and extended to properly service the final landscape solutions.

Site Map: See attachments for site utilities and building orientation.

Section 4

Main Building & Old English

General: The Main Building and the Old English were constructed separately but are now interconnected and appear to be of the same general age. Plumbing fixtures are aged and should be replaced. Distribution materials are mixed and also due for replacement. Proper ADA compliant fixture configuration may best be resolved by completely relocating and expanding toilet facilities to allow for proper fixture count and accessibility.

Natural Gas:

- The natural gas is generally exposed on the roof. The campus main gas has recently been upgraded on this roof. The building distribution piping downstream of the new main gas pipe is aged, rusting and due for replacement.

Fire Protection:

- These buildings shall require NFPA-13 compliant building sprinklers to meet current life safety codes. The construction of the old English building will require sprinklers to be added to multiple levels of concealed spaces for proper protection. Additional external fire hydrants should be added to properly protect this building.

Sanitary Waste (Sewer):

- This system is original to the building construction. Portions of this system may still be served by a septic system east of the building, but it is reported that all of the sanitary waste has be re-directed to extend to the campus' waste management facility. Due to the age of this system, it is recommended that all pipe within the building shell, including that below the slab, be replaced.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Due to the age of the system it is recommended that all pipe within the building be replaced.

Business Building

General: Plumbing fixtures are aged and should be replaced. Distribution materials are mixed and nearing the end of their expected service life. Plans for student curriculum include improved science facilities. This building likely can best be configured for such facilities. Plumbing for modern science rooms would include new science hoods and demonstration fixtures that would include new natural gas and domestic water services.

Natural Gas:

- The natural gas enters this building from below grade and is routed within the building thereafter. The distribution system within the building appears to be in serviceable condition and need be replaced only as gas fired appliances are altered.

Fire Protection:

- This building shall require NFPA-13 compliant building sprinklers to be added to this building. New fire hydrant(s) are recommended for proper protection.

Sanitary Waste (Sewer):

- This system is original to the building construction. Replacement of this system shall be recommended only where spaces are altered for accessibility and/or expansion.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Replacement of this system shall be recommended only where spaces are altered for accessibility and/or expansion.

Health Building

General: The Health Building is a free standing structure behind the Old English facility. A small addition was designed as an addition, but had not been constructed at the time of this review. With the exception of the new addition, plumbing fixtures are aged and should be replaced. Distribution materials are mixed and also due for replacement.

Natural Gas:

- The natural gas is generally exposed on the roof. The addition will include its own gas service branch independent of the health building's gas service. The health building distribution piping is aged, rusting and due for replacement.

Fire Protection:

- This building is not planned to be sprinkled; however, additional external fire hydrants should be added to properly protect this building.

Sanitary Waste (Sewer):

- This system is original to the building construction. Due to the age of this system, it is recommended that all pipe within the building shell, including that below the slab, be replaced.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Due to the age of the system it is recommended that all pipe within the building be replaced.

North Building, Varsity Gymnasium, Computer Lab, & Old Library

General: North Building, Gymnasium, Computer Lab, & Old Library are all of a similar building class. The Varsity Gym is similar and it is notable that it is undergoing a remodeling project at the time of this report. With the exception of the recent locker room addition at the Varsity Gym, plumbing fixtures at each of these facilities are aged and should be replaced. Distribution materials are mixed and also due for replacement. Proper ADA compliant fixture configuration may best be resolved by completely relocating and expanding toilet facilities to

allow for proper fixture count and accessibility. Additional expansion plans include new and expanded locker room facilities for proper visiting student sports events.

Natural Gas:

- The natural gas is generally exposed on the roof. The campus main gas is currently being upgraded on this roof. The building distribution piping downstream of the new main gas pipe is aged, rusting and due for replacement.

Fire Protection:

- The varsity gym and new locker room addition are fully sprinkled. Recent improvements made to this gymnasium and the new locker room addition meet current NPFA 13 sprinkler requirements. With the exception of the computer lab, the remainder of these buildings shall require the addition of NFPA-13 compliant sprinklers. Additional external fire hydrants should be added to properly protect this building.

Sanitary Waste (Sewer):

- This system is original to the building construction. Due to the age of this system, it is recommended that all pipe within the building shell, including that below the slab, be replaced.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Due to the age of the system it is recommended that all pipe within the building be replaced.

Varsity Gymnasium Addition – Ph.1 & Admin/Library – Ph. 1

General: Gymnasium Addition – Ph.1 & Admin/Library – Ph. 1 are all new construction facilities as of 2010. As such, they are in good standing from a plumbing perspective and require no improvements.

Academic Building

General: Plumbing fixtures are aged and may be replaced if and where improvements are made for ADA accessibility or where spaces are altered for expanded use. Distribution materials likely serviceable and do not need replacement except where adjustments are necessary for fixture replacements with the exception of the sanitary waste. Where the sanitary waste pipe exists as original cast iron pipe, this material may do well to be replaced with PVC materials as budget permits for longer life and serviceability.

Natural Gas:

- The natural gas enters this building from below grade and is routed within the building thereafter. This system need be replaced/upgraded only as changes are made to gas fired appliances are altered.

Fire Protection:

- This building shall require new NFPA-13 compliant building sprinklers. One new fire hydrant was installed as part of the new administration/library building. Additional external fire hydrants should be added to properly protect this building.

Sanitary Waste (Sewer):

- This system is original to the building construction. The age of this system does not yet warrant replacement.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. The age of this system does not yet warrant replacement.

Boys Gym

General: Plumbing fixtures are aged and should be replaced. Distribution materials are mixed and also due for replacement. This building includes two full service locker rooms which are inadequate for current sports activities and accessibility and require replacement. A necessary expansion includes a trainers facility with proper plumbing services.

Natural Gas:

- The natural gas enters this building from below grade and is routed within the building thereafter. The building distribution piping downstream of the entrance is aged and due for replacement.

Fire Protection:

- This building requires the addition of NFPA-13 building sprinklers in all areas including gymnasium. Additional external fire hydrants should be added to properly protect this building.

Sanitary Waste (Sewer):

- This system is original to the building construction. Due to the age of this system, it is recommended that all pipe within the building shell, including that below the slab, be replaced.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Due to the age of the system it is recommended that all pipe within the building be replaced.

Cafeteria

General: The Cafeteria was constructed in the late 1990's. Plumbing fixtures are in good condition. Distribution materials are also in good condition.

Natural Gas:

- The natural gas enters this building from below grade and is routed within the building and on the rooftop thereafter. The distribution system appears to be in serviceable condition and need be replaced only as gas fired appliances are altered.

Fire Protection:

- This building requires the addition of NFPA-13 building sprinklers including the vaulted dining area. This building also requires new external fire hydrants for proper protection.

Sanitary Waste (Sewer):

- This system is original to the building construction. Replacement of this system shall be recommended only where spaces are altered for accessibility and/or expansion.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Replacement of this system shall be recommended only where spaces are altered for accessibility and/or expansion.

Annex

General: A portion of this building is currently under renovation. Existing non-renovated spaces are aged and plumbing fixtures should be replaced. Distribution materials are mixed and also due for replacement.

Natural Gas:

- The natural gas enters this building from below grade and is routed on the roof thereafter. The building distribution piping downstream of the entrance is aged and due for replacement.

Fire Protection:

- This building does not necessarily need building sprinklers added; however, this building should be protected with new external fire hydrants.

Sanitary Waste (Sewer):

- This system is original to the building construction. Due to the age of this system, it is recommended that all pipe within the building shell, including that below the slab, be replaced.

Domestic Water:

- The system is generally original to the building except for where repairs have been made. Due to the age of the system it is recommended that all pipe within the building be replaced.

Vocational

General: The Vocational Areas are currently being replaced with all new construction. No plumbing improvements are necessary for these new facilities.

Fitness Center, Pool, Concession

General: The Fitness Center, Pool, and Concession Areas consist of four separate structures. Each of these facilities are in similar condition related to plumbing. With the exception of possible new site utilities, no improvements are currently planned for these facilities.

Natural Gas:

- The natural gas enters these buildings from below grade and is routed within the building thereafter.

Fire Protection:

- Generally, new external fire hydrants are recommended as part of the site utility improvements for adequate protection.

Sanitary Waste (Sewer):

- These systems are original to each building's construction.

Domestic Water:

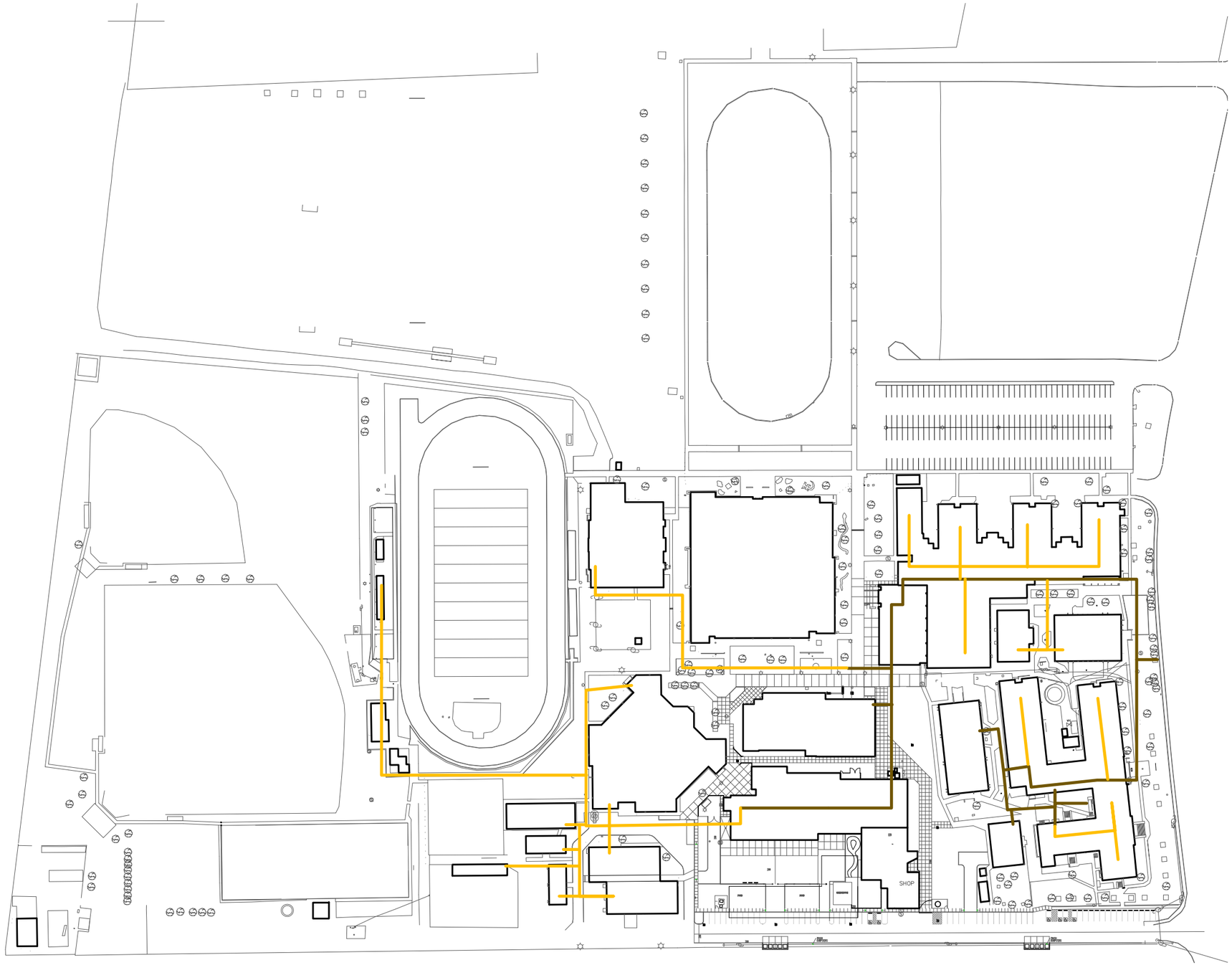
- Each system is original to the building except for where repairs have been made.

Plumbing System Master Planned Opinion of Cost

Item	System Description	~ Age	Consideration for Replacement	Building Area - Sq.Ft.	Budget Opinion	
Site Utilities				NA		
Domestic Water	Extend recent imrpovements to reach all buildings on campus. Demolish aged pipe as necessary to make way for new.	mixed 5-50+	yes		$150,000	
Fire Protection	Extend recent improvements to reach remaing buildings not yet protected. Include new fire hydrants and building sprinkler risers.	1	extension only		$362,000	
Sanitary Waste	Extend new gravity drained lines to existing lift station. Improve, repair existing treatment station. Modify existing and/or add new lift station.	mixed 5-50+	yes		$410,000	**Total:**
Natural Gas	Extend recent improvements to reach remaining buildings.	mixed 5-50+	yes		$150,000	**$1,072,000**
Main Building				24500		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$51,450	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$79,625	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$85,750	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$61,250	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$72,650	**$350,725**
Old English (Existing 2 story)				26500		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$25,175	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$111,300	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$29,150	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$25,175	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$22,800	**$213,600**
Old English - Addition				4000		
Natural Gas	all new work	na	na		$6,000	
Fire Protection	all new work	na	na		$10,000	
Sanitary Waste	all new work	na	na		$6,000	
Domestic Water	all new work	na	na		$10,000	**Total:**
Plumbing fixtures	all new work	na			$56,000	**$88,000**
Business Building (w/ 800 sf Elev Addn)				18858		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$39,602	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$79,204	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$66,003	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$47,145	**Total:**

Plumbing fixtures	Replace and add new, including science fixtures and safety items.	mixed	yes		$213,000	**$444,953**
Health Building				3832		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$4,407	
Fire Protection	na	na	no		$0	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$8,430	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$4,790	**Total:**
Plumbing fixtures	Replace and add new.	mixed	yes		$9,400	**$27,027**
North Building including Varsity Gym				52764		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$123,304	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$193,845	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$209,674	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$150,660	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$98,670	**$776,153**
Computer Lab				4363		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$4,145	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$9,599	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$4,145	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$3,500	**$21,388**
Old Library				7985		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$9,582	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$25,552	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$17,966	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$9,582	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$26,125	**$88,807**
Academic Building				45130		
Natural Gas	Replace entry risers and exposed pipe only as found necessary.	~15	yes		$27,078	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$144,416	
Sanitary Waste	Adjust only as necessary for new fixture configurations.	~15	yes		$56,413	
Domestic Water	Replace only as necessary to serve new fixtures.	~15	yes		$25,724	**Total:**
Plumbing fixtures	Replace and add new only to make accessible or minor revisions	~15	yes		$37,540	**$291,171**
Auxiliary Gym (Boys)				17835		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$29,963	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$57,072	

Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$49,938	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$35,670	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$67,600	**$240,243**
Cafeteria				31000		
Natural Gas	Replace entry risers and exposed pipe only as found necessary.	~15	yes		$34,000	
Fire Protection	Install new NFPA-13 building sprinklers	na	new work		$99,200	
Sanitary Waste	Adjust only as necessary for new fixture configurations.	~15	yes		$10,850	
Domestic Water	Replace only as necessary to serve new fixtures.	~15	yes		$7,750	**Total:**
Plumbing fixtures	Replace and add new only to make accessible or minor revisions	~15	yes		$7,125	**$158,925**
Annex Building				5290		
Natural Gas	Replace all on roof and within buiding	mixed 15-30+	yes		$11,109	
Sanitary Waste	Replace completely due to age and configuration.	mixed 15-50+	yes		$18,515	
Domestic Water	Replace completely due to age and configuration.	mixed 15-50+	yes		$13,225	**Total:**
Plumbing fixtures	Replace and add new	mixed	yes		$26,125	**$68,974**



LEGEND

- NATURAL GAS – EXISTING
- NATURAL GAS – PROPOSED NEW
- FIRE PROTECTION – EXISTING
- FIRE PROTECTION – PROPOSED NEW
- DOMESTIC WATER – EXISTING
- DOMESTIC WATER – PROPOSED NEW
- SANITARY WASTE – EXISTING
- SANITARY WASTE – PROPOSED NEW

GENERAL NOTES:

1. ALL PIPE CONFIGURATIONS ARE SHOWN APPROXIMATELY. DETAILED PIPE CONFIGURATION SHALL BE DETERMINED AT THE TIME IMPROVEMENTS ARE DEVELOPED.

NORTH

1 / P1.1

PLUMBING SITE UTILITY PLAN - NATURAL GAS

FMS Engineering, LLC
PH:915.241.6461 FX:915.581.7973
E-MAIL: FMS_ENG@YAHOO.COM

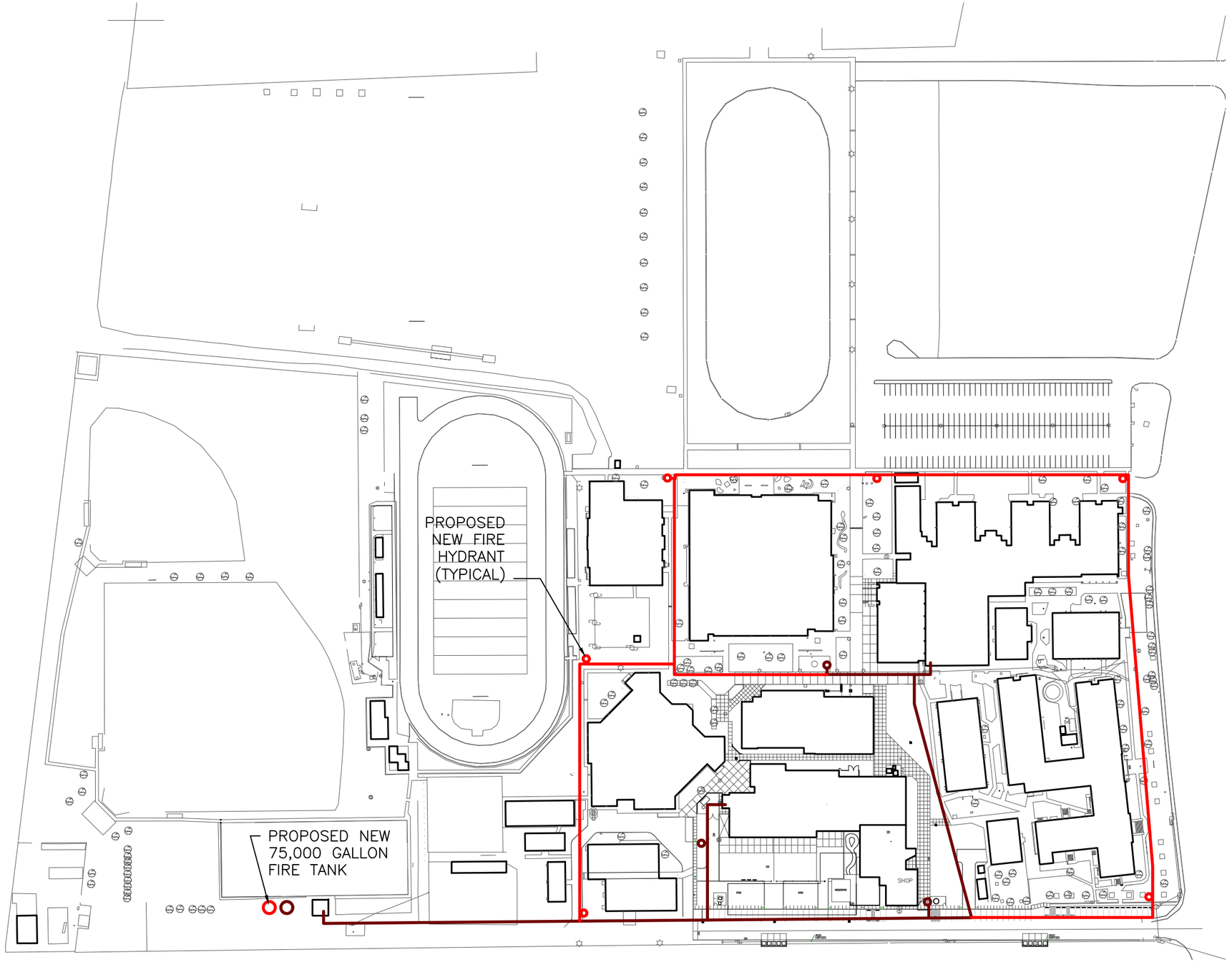
REFERENCE:	PLUMBING EVALUATION REPORT
PROJECT NO:	1010
DATE:	JUNE 2011
SCALE:	NONE
SHEET	1 OF 4

PROJECT TITLE:

MASTER PLAN
GADSDEN HIGH SCHOOL
GADSDEN INDEPENDENT SCHOOL DISTRICT No.19

PURPOSE: PROPOSED UTILITY IMPROVEMENTS

DRAWING P1.1



LEGEND

- NATURAL GAS – EXISTING
- NATURAL GAS – PROPOSED NEW
- FIRE PROTECTION – EXISTING
- FIRE PROTECTION – PROPOSED NEW
- DOMESTIC WATER – EXISTING
- DOMESTIC WATER – PROPOSED NEW
- SANITARY WASTE – EXISTING
- SANITARY WASTE – PROPOSED NEW

GENERAL NOTES:

1. ALL PIPE CONFIGURATIONS ARE SHOWN APPROXIMATELY. DETAILED PIPE CONFIGURATION SHALL BE DETERMINED AT THE TIME IMPROVEMENTS ARE DEVELOPED.

NORTH

1
P1.2

PLUMBING SITE UTILITY PLAN - FIRE PROTECTION WATER

FMS
Engineering, LLC
PH:915.241.6461 FX:915.581.7973
E-MAIL: FMS_ENG@YAHOO.COM

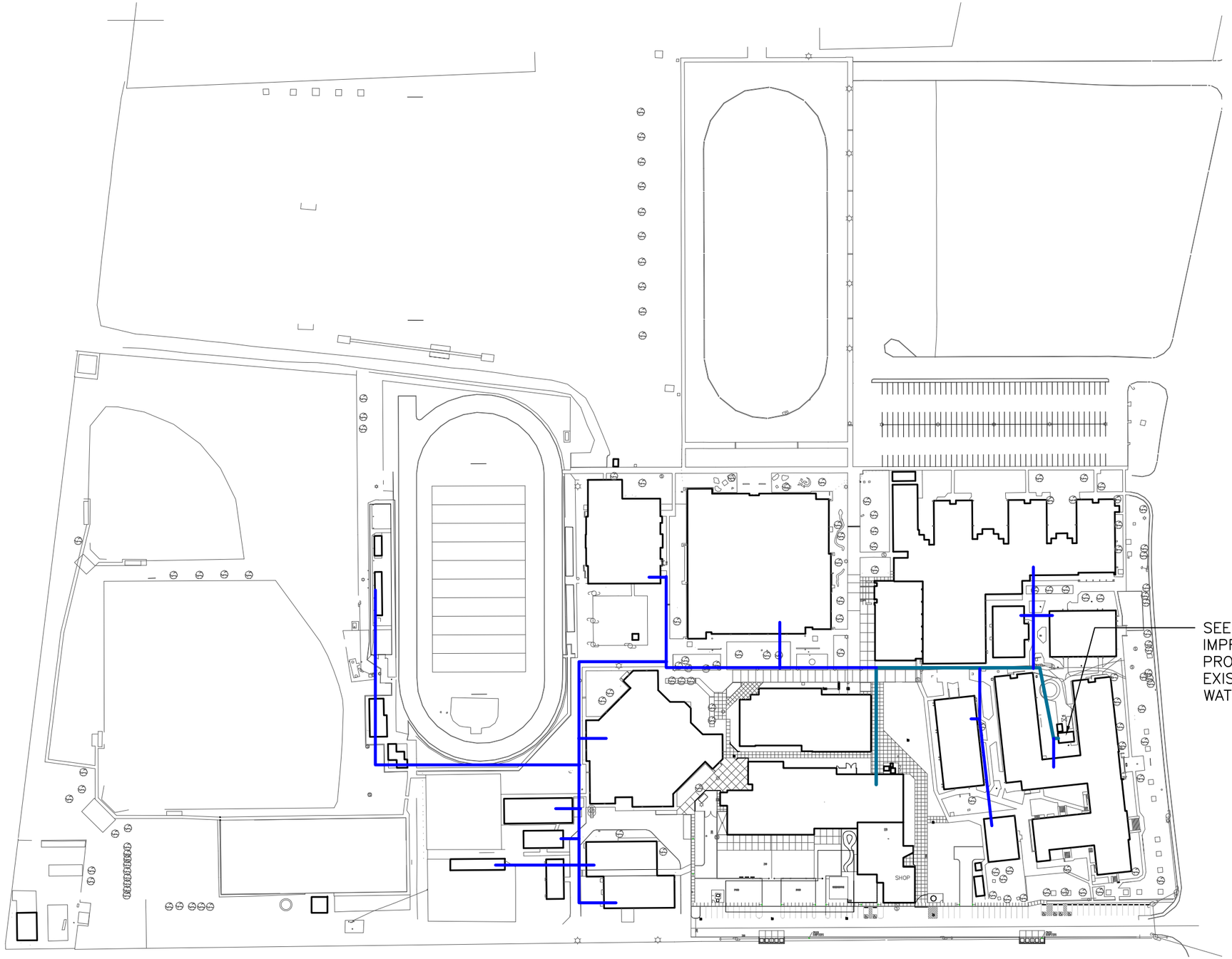
REFERENCE:	PLUMBING EVALUATION REPORT
PROJECT NO:	1010
DATE:	JUNE 2011
SCALE:	NONE
SHEET	2 OF 4

PROJECT TITLE:

MASTER PLAN
GADSDEN HIGH SCHOOL
GADSDEN INDEPENDENT SCHOOL DISTRICT No.19

PURPOSE:
PROPOSED UTILITY IMPROVEMENTS

DRAWING
P1.2



LEGEND

- NATURAL GAS – EXISTING
- NATURAL GAS – PROPOSED NEW
- FIRE PROTECTION – EXISTING
- FIRE PROTECTION – PROPOSED NEW
- DOMESTIC WATER – EXISTING
- DOMESTIC WATER – PROPOSED NEW
- SANITARY WASTE – EXISTING
- SANITARY WASTE – PROPOSED NEW

GENERAL NOTES:

1. ALL PIPE CONFIGURATIONS ARE SHOWN APPROXIMATELY. DETAILED PIPE CONFIGURATION SHALL BE DETERMINED AT THE TIME IMPROVEMENTS ARE DEVELOPED.

SEE CIVIL REPORT FOR IMPROVEMENTS PROPOSED UPSTREAM OF EXISTING DOMESTIC WATER BOOSTER PUMPS

NORTH

1 / P1.3

PLUMBING SITE UTILITY PLAN - DOMESTIC WATER

FMS Engineering, LLC
PH:915.241.6461 FX:915.581.7973
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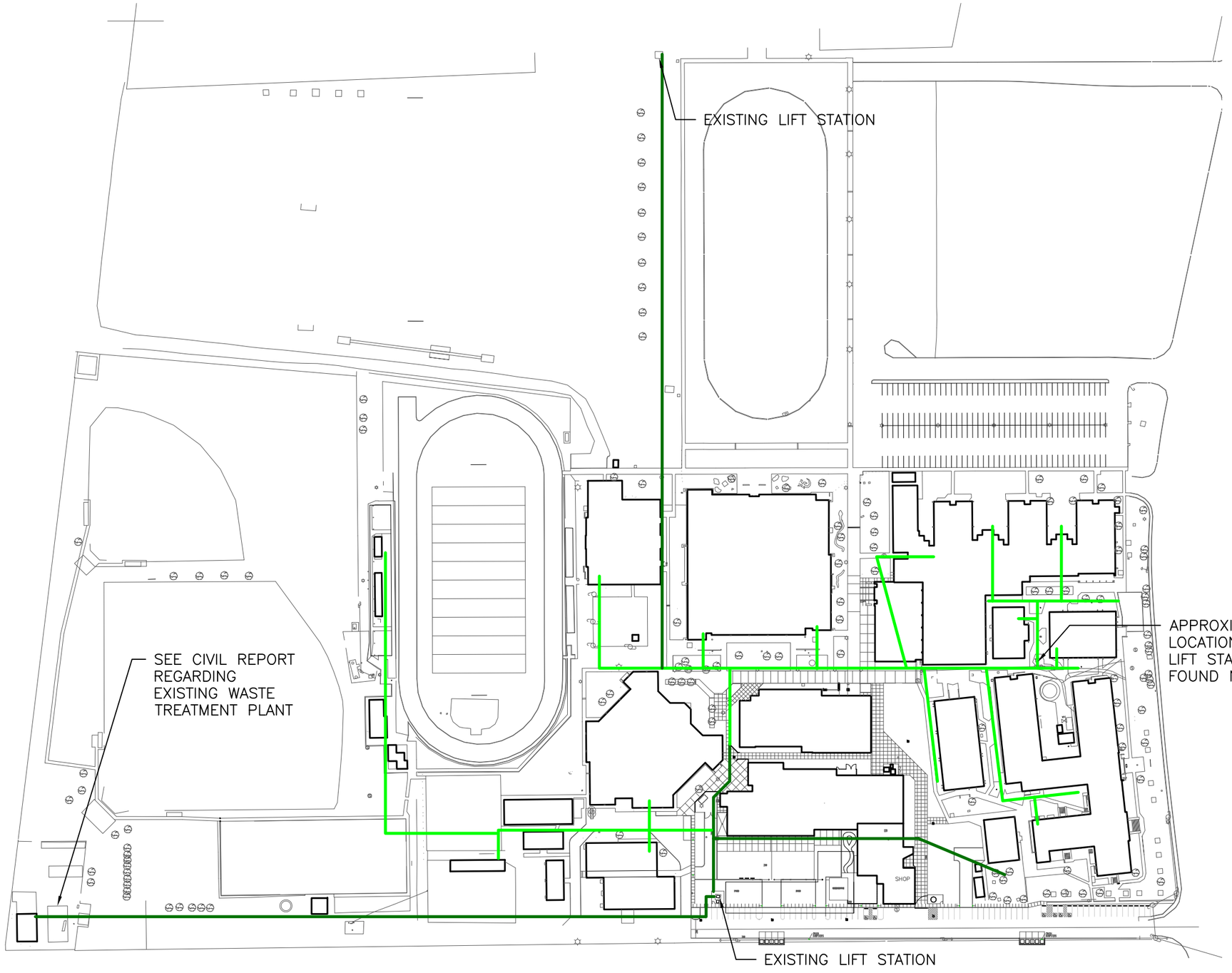
REFERENCE:	PLUMBING EVALUATION REPORT
PROJECT NO:	1010
DATE:	JUNE 2011
SCALE:	NONE
SHEET	3 OF 4

PROJECT TITLE:

MASTER PLAN
GADSDEN HIGH SCHOOL
GADSDEN INDEPENDENT SCHOOL DISTRICT No.19

PURPOSE: PROPOSED UTILITY IMPROVEMENTS

DRAWING P1.3



LEGEND

- NATURAL GAS – EXISTING
- NATURAL GAS – PROPOSED NEW
- FIRE PROTECTION – EXISTING
- FIRE PROTECTION – PROPOSED NEW
- DOMESTIC WATER – EXISTING
- DOMESTIC WATER – PROPOSED NEW
- SANITARY WASTE – EXISTING
- SANITARY WASTE – PROPOSED NEW

GENERAL NOTES:

1. ALL PIPE CONFIGURATIONS ARE SHOWN APPROXIMATELY. DETAILED PIPE CONFIGURATION SHALL BE DETERMINED AT THE TIME IMPROVEMENTS ARE DEVELOPED.

FMS Engineering, LLC
PH:915.241.6461 FX:915.581.7973
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REFERENCE:	PLUMBING EVALUATION REPORT
PROJECT NO:	1010
DATE:	JUNE 2011
SCALE:	NONE
SHEET	4 OF 4

PROJECT TITLE:

MASTER PLAN
GADSDEN HIGH SCHOOL
GADSDEN INDEPENDENT SCHOOL DISTRICT No.19

PURPOSE: PROPOSED UTILITY IMPROVEMENTS

DRAWING P1.4

NORTH

1 P1.4

PLUMBING SITE UTILITY PLAN - SANITARY WASTE

ATTACHMENT - C

STRUCTURAL REPORT

Larry Zamora
Zamora Engineering, Inc.
7170 Westwind Dr., Ste. 301
El Paso, TX 79912-1744
(Tel) 915-587-9775
(Fax)915-587-9785

June 27, 2011

Mr. Rembert C. Alley Jr., AIA
Alley & Associates, P.A.
1691 Hickory Loop, Suite A
Las Cruces, NM 88005

RE: Structural Observation Report of Existing Buildings
At the Gadsden High School Campus
Gadsden Independent School District
Anthony, NM

Dear Mr. Alley,

I visited the GHS campus and met with Mr. Mario Apodaca to observe the structural condition of the following buildings.

1. Nurses Office Building
2. Old English Building
3. Administration and Classroom Building
4. Business Building
5. Computer Lab Building
6. Library Building
7. Classrooms North Building
8. Annex Building
9. Fitness Center
10. Pool Building
11. Cafeteria Building
12. Boys Gymnasium Building
13. Academic Building
14. Football Field Concession and Restroom Building

My observations and conclusion are based on the visible condition of exposed structural elements.

With the exception of the Old English Building and the North Classroom Building I did not see any condition/s in any of the other buildings that I would consider to be a structural deficiency and/or of a serious structural nature. The two building noted do have structural problems that in my estimation need attention and remedial work. I will now discuss them further as follows:

Old English Building.

Observing of the exterior to this building the most readily visible problem is the deterioration of what appears to be concrete copings at the window sills, door heads and top of parapet walls. These elements have deteriorated to varying degrees and if not addressed can or may lead to more serious structural problem and possible safety issues from falling pieces of those elements.

Observing the interior of the building, the most readily visible structural problem is the marked sloping of the wood framed floors. The wood members have deflected to varying degrees in all of the classrooms.

North Classroom Building.

Observing the exterior of this building the most readily visible problem is the deterioration of the concrete in the exposed foundation walls. This appears to be due to wetting of the soil and concrete by the sprinkler system resulting in a chemical reaction between the sulfates in the soil and the chemical composition of the concrete. If this is not addressed, eventually it will get to the point that the reinforcing steel will become exposed which leads to rusting of the steel that in turn will cause spalling of the concrete leading to loss of the foundation wall.

Observing the interior, the only visible problem is the deterioration of the concrete slab on grade at the construction joints. This deterioration is present at several locations and is and will continue to be an ongoing maintenance problem if not corrected.

In conclusion although not without problems the majority of the buildings appear sound and in relatively good condition. The two buildings noted need to have the problems noted corrected in order to avoid larger and more extensive problems in the future.

If I can provide any additional information please call me.

Sincerely,

Larry C. Zamora, P.E.
Zamora Engineering, Inc.

ATTACHMENT - D

ELECTRICAL REPORT

Phillip Robinet, P.E.
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3214 E. Yandell
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(Fax) 915-562-5226

Gadsden HS Master Plan - Electrical Report ***REVISED***
6-27-11

Introduction

The purpose of this Master Plan and Report is to determine which of the existing buildings will require new lighting, new power distribution for required additional receptacles, and/or new power distribution for the buildings that will be getting new refrigerated air conditioning that will replace the existing evaporative cooling. For some buildings, a new electrical service with increased capacity will be required due to the new additional electrical loads.

Main Electrical Service for the Entire Campus

The Campus currently has two electrical services. Electrical service # 1 is an overhead service fed from El Paso Electric Co. (EPECo) overhead primary lines along Highway 28. This overhead service feeds an exterior switchboard rated at 1600 amps at 120/208 volts, 3 phase. This existing switchboard is located between the Computer Lab Building and the Old Library Building.

Electrical Service # 2 is an underground service fed from the same set of EPECo overhead primary lines along Highway 28. The pad-mounted transformer is located on the east side of the North Building.

It is recommended to combine both of these services into one electrical service from EPECo. This will be accomplished by installing a new underground service and backfeeding both of the existing electrical services. By doing this, some of the EPECo overhead primary lines along Highway 28 can be removed. In addition, the existing overhead lines running east-west from the Highway 28 primary lines to the existing electrical service # 1 (between the Computer Lab and Old Library) can be removed also.

Due to the future construction of sidewalks and walkways between the Main Building and the Computer Lab/Old Library Buildings, it will be necessary to relocate the existing 1600 amp switchboard (electrical service # 1) a few feet to the north. An underground pull box will be installed in the existing switchboard location to splice the existing branch feeders to the new branch feeders extended to the new switchboard location.

Main Building

The existing lighting in the building consists mainly of surface mounted fluorescent light fixtures. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The existing power distribution for the duplex receptacles consists mainly of surface mounted raceways and electrical boxes. The quantity of duplex receptacles in the

classrooms is insufficient in my opinion. Therefore, additional duplex receptacles will be installed throughout.

This building currently has refrigerated air conditioning, therefore no additional power will be required for the HVAC system.

Because of the additional electrical loads being added to this building, a new electrical distribution panel of increased ampacity will be installed.

Old English Building

The existing lighting in the building consists mainly of surface mounted fluorescent light fixtures. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The existing power distribution for the duplex receptacles consists mainly of surface mounted raceways and electrical boxes. The quantity of duplex receptacles in the classrooms is insufficient in my opinion. Therefore, additional duplex receptacles will be installed throughout.

This building is being converted from evaporative cooling to refrigerated air conditioning. New branch circuiting will be installed to each of the new air conditioning units.

Because of the additional electrical loads being added to this building, a new electrical distribution panel of increased ampacity will be installed.

Business Building

The existing lighting in the building consists mainly of recessed fluorescent light fixtures, and are relatively inefficient. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The existing power distribution for the duplex receptacles consists mainly of surface mounted raceways and electrical boxes. The quantity of duplex receptacles in the classrooms is insufficient in my opinion. Therefore, additional duplex receptacles will be installed throughout.

This building currently has refrigerated air conditioning, therefore no additional power will be required for the HVAC system.

The capacity of the electrical power to this building will not have to be upgraded or increased in size unless the parameters of the scope of work change.

Health Building

This lighting and convenience power in this building are in need of replacing and/or ugrading.

This building is being converted from evaporative cooling to refrigerated air conditioning. New branch circuiting will be installed to each of the new air conditioning units.

Because of the additional electrical loads being added to this building for the new HVAC equipment, a new electrical distribution panel of increased ampacity will be installed.

Old Library

The existing lighting in the building consists mainly of recessed fluorescent light fixtures, and are relatively inefficient. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The existing power distribution for the duplex receptacles consists mainly of surface mounted raceways and electrical boxes. The quantity of duplex receptacles is insufficient in my opinion. Therefore, additional duplex receptacles will be installed throughout.

This building is being converted from evaporative cooling to refrigerated air conditioning. New branch circuiting will be installed to each of the new air conditioning units.

Because of the additional electrical loads being added to this building, a new electrical distribution panel of increased ampacity will be installed.

Computer Lab

The existing lighting in this building consists primarily of recessed fluorescent fixtures that have parabolic lenses. While relatively more efficient than the fixtures in the other buildings with prismatic lenses, this is still old technology. I recommend replacing these fixtures with the newer recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The power distribution for the receptacles in this building seems to be adequate in quantity, therefore this is not a need for upgrading or replacement.

This building currently has refrigerated air conditioning, therefore no additional power will be required for the HVAC system.

The capacity of the electrical power to this building will not have to be upgraded or increased in size unless the parameters of the scope of work change.

North Building

The existing lighting in the classrooms of this building consists mainly of surface mounted fluorescent light fixtures. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application. However, the corridors appear to have been recently refurbished with new uplighting type of light fixtures, therefore this portion of the building will probably not have to be upgraded as far as the lighting is concerned.

The quantity of duplex receptacles in this building is insufficient in my opinion. Therefore, additional duplex receptacles will be installed throughout.

This building currently has refrigerated air conditioning, therefore no additional power will be required for the HVAC system.

Because of the additional receptacles and other types of convenience power being added to this building, a new electrical distribution panel of increased ampacity will be installed.

Academic Building

The existing lighting in the building consists mainly of recessed fluorescent light fixtures, and are relatively inefficient. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The power distribution for the receptacles in this building seems to be adequate in quantity, therefore this is not a need for upgrading or replacement.

This building currently has refrigerated air conditioning that is in need of replacing, therefore new branch circuiting will have to be provided to the new air conditioning units.

The capacity of the electrical power to this building will not have to be upgraded or increased in size unless the parameters of the scope of work change.

Boy's Gym

The existing lighting in this building consists of surface mounted fluorescent fixtures in the locker rooms and metal halide hi-bay type of fixtures in the gymnasium. The light fixtures in the locker rooms will be changed to new fluorescent fixtures with high efficiency optics, high efficiency reflectors, and T8 lamps. The lighting fixtures in the gymnasium will be changed to fluorescent hi-bay fixtures which are more efficient and more recent technology than the metal halide fixtures.

The power distribution for the receptacles in this building seems to be adequate in quantity, therefore this is not a need for upgrading or replacement.

This building is not currently scheduled for replacement of the HVAC equipment, therefore no electrical work regarding this equipment will be necessary.

The capacity of the electrical power to this building will not have to be upgraded or increased in size unless the parameters of the scope of work change.

Cafeteria Building

The existing lighting in the building consists mainly of recessed fluorescent light fixtures, and are relatively inefficient. These light fixtures will be changed to new recessed fluorescent fixtures with high efficiency optics, high efficiency reflectors, and either T8 or T5 lamps depending on the application.

The power distribution for the receptacles in this building seems to be adequate in quantity, therefore this is not a need for upgrading or replacement.

This building is being converted from evaporative cooling to refrigerated air conditioning. New branch circuiting will be installed to each of the new air conditioning units.

Because of the additional electrical loads being added to this building for the new HVAC equipment, a new electrical distribution panel of increased ampacity will be installed.

ATTACHMENT - E

DRAINAGE AND UTILITIES REPORT

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GADSDEN INDEPENDENT SCHOOL DISTRICT
GADSDEN HIGH SCHOOL CAMPUS
SITE UTILITIES
PROGRAMMING REPORT

JULY 5, 2011

Prepared for:
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BHI Project # 20110026

TABLE OF CONTENTS

I. PROJECT DESCRIPTION

The Gadsden High School campus is situated within Anthony, New Mexico immediately west of the intersection of Washington Street and NM Highway 28. More specifically, this property being described to be within section 32 of Township 26 South Range 3 East and section 5 Township 27 South Range 3 East, bound by NM-28 to the east and Haasville Rd. and Paxton Lateral to the north and south. The campus of has grown significantly over the years with both students and faculty. As a result, this has warranted general improvements to the campus in order to maintain available recourses to the students, faculty and general public. Many other improvements are being proposed at this time; however this section will be specific to the utility systems throughout portions of campus. These utility system improvements are associated with water production & transmission, wastewater and drainage.

II. WATER

A. Existing Conditions (water production & storage)

This section addresses the campus water production and storage systems only. The facility distribution system, fire flows and building domestic water requirements are addressed elsewhere in this report. Gadsden High School's domestic water is provided by two water wells on campus. The primary well (Well #1) is located between class rooms adjacent to the water storage tank as indicated on the map (exhibit 2). The secondary well is located on the east end of the campus adjacent to NM28. Both wells are approximately over 300 ft. in depth and receive disinfection treatment prior to delivery to the 80,000 gallon above ground water storage tank. Currently well #1 maintains domestic water for the entire campus. Well #2 is not in use at this time. It is expected that if ground water levels to not drop to significant levels, that well #1 will continue to provide sufficient water use for the campus. Although in 2009 well #2 was tested positive for arsenic levels and has since been taken off line, subsequent testing has consistently indicated no traces of arsenic. If additional water is required for future growth, well #2 could be safely brought back on line. However, continued stringent monitoring of both wells will be very important in the future to ensure continued safe drinking water availability.

Campus water capacity and pressures are provided by an above ground steel 80,000 gallon steel storage tank. (see exhibit 2) The water storage tank will require recoating of the interior and exterior, as well installation of a cathodic protection system. The water system pressure utilizes an above ground 7,000 gallon pneumatic pressure tank that will require replacement within the next five years. Typically replacement cost for tanks less than 10,000 gallon are comparable to recoating them. Various isolation valves, water and air control valves and appurtenances associated with the water

storage and delivery system will also require replacement. General building improvement and maintenance is required for the water pressure & pump building as well as the well control and treatment buildings.

As the campus site and facilities expand, it is anticipated that additions to the landscape areas throughout campus will also expand. Improvements to the school's landscape irrigation needs will also be required to meet future landscape irrigation needs. An opinion of probable cost for these tasks is listed below.

The anticipated water system improvements are as follows:

- Provide interior and exterior coatings on 82,000 gallon water storage tank	$131,200
- Provide cathodic protection for water storage tank	$12,000
- Replace 7,000 gallon pressure tank	$8,500
- General building improvements to water storage control building	$5,500
- Provide water quality improvements to existing water wells; chlorine injector	$12,000
- Water pressure & pump control building improvements	$6,500
- Expand irrigation system and upgrades to well	$18,650
- Replace existing undersized / deteriorated water piping (yard piping)	$23,500
- Provide pipe repair / replacement at tank site	$8,500
- Anticipated project contingencies (≈ 10%)	$24,000
Total Construction Cost	**$250,350**

The anticipated cost, excluding gross receipt tax (GRT), associated with the improvements listed above is **$ 250,350.00**

III. WASTEWATER

A. Existing Conditions

Gadsden High School wastewater needs are provided by an onsite sequencing batch reactor wastewater treatment facility. The plant is located on the southwestern most corner of the campus. Gadsden High School and Gadsden Middle School operate under a combined NPDES discharge permit (permit #0028487) which discharges to the Lower Rio Grande basin watershed. The existing combined treatment facility has a 0.09 mgd design flow rate and operates at annual average daily flow rate of 0.003736 mgd with a maximum daily flow rate of 0.07 mgd for the Gadsden High School facility. Given an anticipated annual growth rate of 3% for the school it is expected that the average maximum daily flow rate would increase to 0.004856 mgd over the next 10 years. Based on this

projection, expansion of the existing facility is not anticipated; however various improvements and upgrades will be required to maintain a viable and efficient treatment facility. Those improvements are listed below. An engineer's opinion of probable cost to complete these tasks is included.

The anticipated wastewater system improvements are as follows:

- Reconfigure effluent piping *	$24,000*
- Provide new High-Head 15 HP pumps to Middle School outlet *	$15,000*
- Provide new coating system throughout	$60,000
- Provide new control wiring to effluent pumps and cycle duplex pumps *	$5,750*
- Provide new troughs and weirs *	$4,500*
- Replace PVC RAS piping with 304 stainless steel	$13,400
- Provide new aluminum waste box at static screen *	$1,800*
- Provide new course air diffusers	$4,800
- Replace slip joints and drop legs on air piping *	$9,600*
- Replace various piping throughout treatment facility *	$4,800*
- Provide bypass piping and hauling	$10,000
- Anticipated project contingencies (≈ 10%)	$14,915
Total Construction Cost	**$164,065**

The anticipated cost, excluding gross receipt tax (GRT), associated with the improvements listed above is **$ 164,065.00**

B. Future Public sewer system contingency*

Currently Dona Ana County Utilities Department is in the very early phases of planning for the expansion of their wastewater collection system in the vicinity of Gadsden High School. It has not been determined when or where a public wastewater collection system alignment that would create a potential for connection of the High School campus to the collection system would take place; however there is future potential that the school wastewater needs may be diverted to a new public wastewater collection system in the future. If a public wastewater collection system is provided in the future, there will be alternate system improvements required. Currently the treatment plant flows are diverted to a lift station located on the south end of campus (see exhibit 2). The lift station then pumps all discharge to the treatment plant. After treatment, effluent is then pumped to Gadsden Middle School where it is de-chlorinated and joined with the Middle School's effluent and final discharge to the lower Rio Grande basin watershed. If a public sewer system is provided, the current lift station piping can be re-configured to by-pass the treatment plant and discharge directly to the new system. This would

eliminate the need for the wastewater treatment facility. There is currently also a septic tank/ leachfield wastewater system in use at the east end of the campus that provides sewer disposal for the school library. This system will require the installation of a small independent grinder pump lift station to be installed to provide a separate connection to any public sewer system. The cost for this system is also included in the future connection cost below.

Therefore, to accommodate an anticipated public sewer system, the improvements to the existing treatment facility have been prioritized on the bases of a five year plan and a ten year plan. The asterisk * denotes work elements that would need to be completed within the 5 year or less term, while the remaining items could be completed beyond the five years or not at all if a public sewer system is completed within the next ten years. The five year cost and the ten year cost are separated below.

- Connection to public sewer collection system fees	$9,000
- New force main piping, valves & fittings	$14,400
- Lift station at Library connection	$15,500
- Pavement removal & replacement	$12,500
- Anticipated project contingencies (≈ 10%)	$4,940
Total Construction Cost (public system)	**$56,540**
Five Year Improvements Total	$67,045
Ten Year Improvements Total	$97,020

IV. DRAINAGE

A. Watershed Characteristics

The campus experiences little to no significant offsite contributing runoff due to the nature of the surrounding land and its function. The area surrounding the campus is primarily large agricultural land. As a result of irrigation facilities such as lined and unlined built up canals and diversions, which vary in size and capacity, assist with the diversion of flows from campus. Primarily, local runoff conditions from within the campus contribute to the onsite runoff and flooding potential.

B. Topographic Data

The topography of the campus is consider to be extremely flat in that there is approximately 4 feet of fall over 2,300 feet. This corresponds to a slope of approximately 0.40% or less is some areas. This area is considered land that is subject to sheet flow characteristics around buildings, where sidewalks and

concrete drainage swales are the primary drainage conveyance mechanism. The elevations within the region range from approximately 3,301 feet on the east side of campus to 3,297 feet at the downstream end of Paxton Lateral located on the south west corner of campus.

C. Soil Characteristics and Vegetation

The recording acreage for the entire subject property is 72.6 acres, respectively. Out of the 72.6 acres, approximately 26.6 acre is considered predominantly impervious developed area with minimal storage availability. The remaining 34.2 acres is considered open space largely used for sport activities and athletic events. The majority of the remaining ground cover is considered extremely permeable with grass surfacing or turf. The project area is considered to have a combination of well drained loam material which formed in mixed alluvium on the flood plains and low terraces of the Rio Grande. Adjacent roadways are predominantly surfaced with asphalt or concrete creating an impermeable surface allowing a larger percentage of storm water to runoff. The soil classification in the area was determined from the *Soil Conservation Service Soil Survey for Dona Ana County*. The underlying soil is primarily identified as a well drained Loam with a hydrologic soil groups, HSG, of 'B'. By definition, the hydrological soil group A is predominantly described as an extremely permeable material being made up of soil with a large amount of void spaces for infiltration and storage. A hydrological soil group D is considered impermeable such as dense clay material, building roof tops, asphalt, and concrete. These conditions eliminate infiltration and storage allowing a higher runoff potential.

D. Flood Insurance Rate Map

Gadsden High School is currently identified as being outside the 500 year Special Flood Hazard Area, as define by Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) 35013C0925 E, dated effective September 27, 1991. See Exhibit 1.

E. Analysis

1. Design Criteria

The design criteria implemented herein shall comply the Dona Ana County Development Standards Section 4, Terrain Management, as adopted in July of 2008. Expected storm water runoff volumes were computed based on both the 10 year and 100 year design storm. These values are described within Table 3 of this report. In order to mitigate storm water runoff generated by the developed area of campus, storm routing methods, pipes and inlet locations will be evaluated and alternative or modified ponding facilities will be recommended.

2. *Methodology*

The method utilized to obtain the peak flows for this project was the Soil Conservation Service (SCS) Method. The SCS method uses parameters such as drainage area, runoff curve numbers, and effective rainfall depths to estimate the drainage basin runoff. A time element, known as the time of concentration (Tc) was used in order to determine the magnitude of each peak discharge.

Drainage areas were delineated using the collected field data and 1 ft. interval topographic mapping. Field observations and aerial photos were also used to verify isolated basins and drainage divides within the Gadsden High School campus.

The runoff curve number, CN, was selected from Table 3-4, Runoff Curve Number for Urban Areas as part of section 3.3.1.3 of the of the *NMSH&TD Drainage Manual.* The Runoff Curve Number is a value used to quantify rainfall losses through infiltration, interception, and depression storage. The curve number was selected based on the percent ground cover, hydrologic soil group, and type of development. The typical CN value of 98 was used for impervious areas such as building roof tops, paved parking areas and paved streets. A CN value of 85 was used compacted gravel areas which are typically used for roadway corridors and parking areas. A CN value of 61 was used for the athletic fields, which are heavily grassed. When surfacing conditions are consistent throughout the watershed, then the use of a single curve number is applicable. When ground cover characteristics vary a weighted combination of the curve numbers are used to establish a composite CN value.

Time of concentration is the time it takes runoff to travel from the hydraulically most distant point to the basin outlet. This area predominantly experiences overland flow. The overland flow conditions are best described as sheet flow; flow that occurs in areas where there are no defined channels and where the runoff spreads out over a large area at a uniform depth. According to the Dona Ana County Development Standards; Section 4.1, the minimum time of concentration, Tc, to be used is 10 minutes, or 0.167 hour.

The 24-hour rainfall depths were determined from the *NOAA Atlas 2, Precipitation-Frequency Atlas of the Western United States*. All basins have been considered to receive the same amount of rainfall, in terms of depth, since they are located within close proximity to one another. The 10-year and 100-year precipitation depths were determined to be 2.33 and 3.65 inches.

F. Existing and Proposed Drainage Conditions

1. Existing Onsite Drainage Conditions

The contributing peak flows for the 10 year and 100 year storm event for the existing developed area of campus, was estimated to be 69 cfs and 125 cfs, respectively. The expected volume generated from the site under existing conditions for the 10 year and 100 year storm is 3.4 ac-ft and 6.2 ac-ft, respectively. However the athletic fields, located primarily on the west side of campus, generates a peak discharge of 5.0 cfs and 0.40 ac-ft of volume for the 10 year storm and 21 cfs and 1.80 ac-ft for the 100 year storm, respectively. The contributing area for the developed area was estimated to be approximately 26.6 acres and the athletic fields was determined to be 34.2 acre and producing significantly lower flows and volume to that of the developed areas. The athletic fields are considered to retain and attenuated runoff across the surface due to an increase surface roughness and subsurface storage availability, as a result, discharging significantly lower magnitude of flow and volume. The area identified on Exhibit 2, as future student parking immediately east of the existing retention pond was excluded from the existing developed condition analysis and is not part of the 26.6 acres. This area is approximately 11.8 acres in size and currently drains directly west into existing retention pond without being routed through the developed area south of campus.

2. Proposed Onsite Drainage Conditions

Gadsden High School is in the process of implementing improvements over the near to distant future. The campus is expected to remove some existing infrastructure and replace it with new and larger building space. Below is a summary breakdown of the amount of impervious area under existing and proposed conditions for the developed area and the north future student parking lot. The following tables will illustrate and compare the impact of the drainage Curve Number between both existing and proposed conditions. The area shown under proposed conditions is to be considered approximate values for conceptual level planning purposes only.

Table 1 – Developed Area Curve Number Comparison

		Existing Conditions		Proposed Conditions	
	CN	Area (ft2)	Area (ac)	Area (ft2)	Area (ac)
Buildings	98	329,490	7.56	375,000	8.61
Sidewalk / Concrete Aprons	98	197,694	4.54	225,500	5.17
Pavement	98	228,000	5.23	487,000	11.18
Base Course / Gravel Surface	85	403,400	9.26	72,000	1.65
Open Area / Athletic Fields	61	-	-	-	-
Total Acreage (ac)			26.6		26.6
Weighted CN Value			92		97

Table 2 – North Parking Area Curve Number Comparison

		Existing Conditions		Proposed Conditions	
	CN	Area (ft^2)	Area (ac.)	Area (ft^2)	Area (ac.)
Buildings	98	-	-	-	-
Sidewalk / Concrete Aprons	98	19,000	0.44	19,000	0.44
Pavement	98	195,500	4.49	390,000	8.95
Base Course / Gravel Surface	85	202,300	4.64	8,000	0.18
Open Area / Athletic Fields	61	98,200	2.25	98,200	2.25
Total Acreage (ac)			11.8		11.8
Weighted CN Value			85		91

From the information in Tables 1 and 2 it is apparent that the proposed improvements will impact the overall drainage conditions slightly due to the increase in runoff potential. The runoff curve numbers fall within values of 90 – 98, which correspond to a range of impervious surfaces, such as compacted well-graded base course to asphalt or concrete surfaces.

Table 3 – 10 Year and 100 Year Peak Flow and Volume

Condition	Location	Area (ac)	CN	10 Yr. Peak Flow (cfs)	10 Yr. Volume (ac-ft)	100 Yr. Peak Flow (cfs)	100 Yr. Volume (ac-ft)
Existing	Campus	26.6	92	69	3.40	125	6.20
Proposed	Campus	26.6	97	90	4.40	148	7.30
Existing	North Parking	11.8	85	22	1.00	44	2.10
Proposed	North Parking	11.8	91	30	1.40	55	2.60
Existing	Athletic Fields	34.2	61	5.0	0.40	21	1.8
Proposed	Athletic Fields	34.2	61	5.0	0.40	21	1.8

The information from Table 3 illustrates the expected peak discharge and generated volume based on anticipated improvements throughout the future parking area and the currently developed portion of campus. It is expected that the existing portion of campus, excluding the athletic fields, will generate a total volume of approximately 8.30 ac-ft.. Under the proposed developed condition the campus will generate a total volume of approximately 9.90 ac-ft..

3. Recommended Drainage Improvements

Currently, the campus is impacted by storm water surface runoff primarily due to the impervious area. The most efficient way of mitigating runoff through campus is to utilize a subsurface storm drain system, where ever possible, maintain and clean the existing system which includes the inlet grates, catch basins and underground pipe. An additional option is to take advantage of open space to provide detention/retention areas to assist in storage and attenuating peak flow conditions. The anticipated drainage improvements are as follows:

- Remove the remaining drop inlets and storm drain piping located on the east side of campus, near the gym, library and class room corridor
- Provide additional drop inlets and storm drain piping within the gym, library and class room corridor located on the east side of campus
- Provide connection from the new storm drain piping to the onsite lift station facility
- Extend storm drain line location south of campus near the wastewater treatment plant facility
- Excavate and provide additional volume to existing retention pond
- Remove and replace outfall structure discharging into existing retention pond

The anticipated cost for these drainage system improvements are as follows:

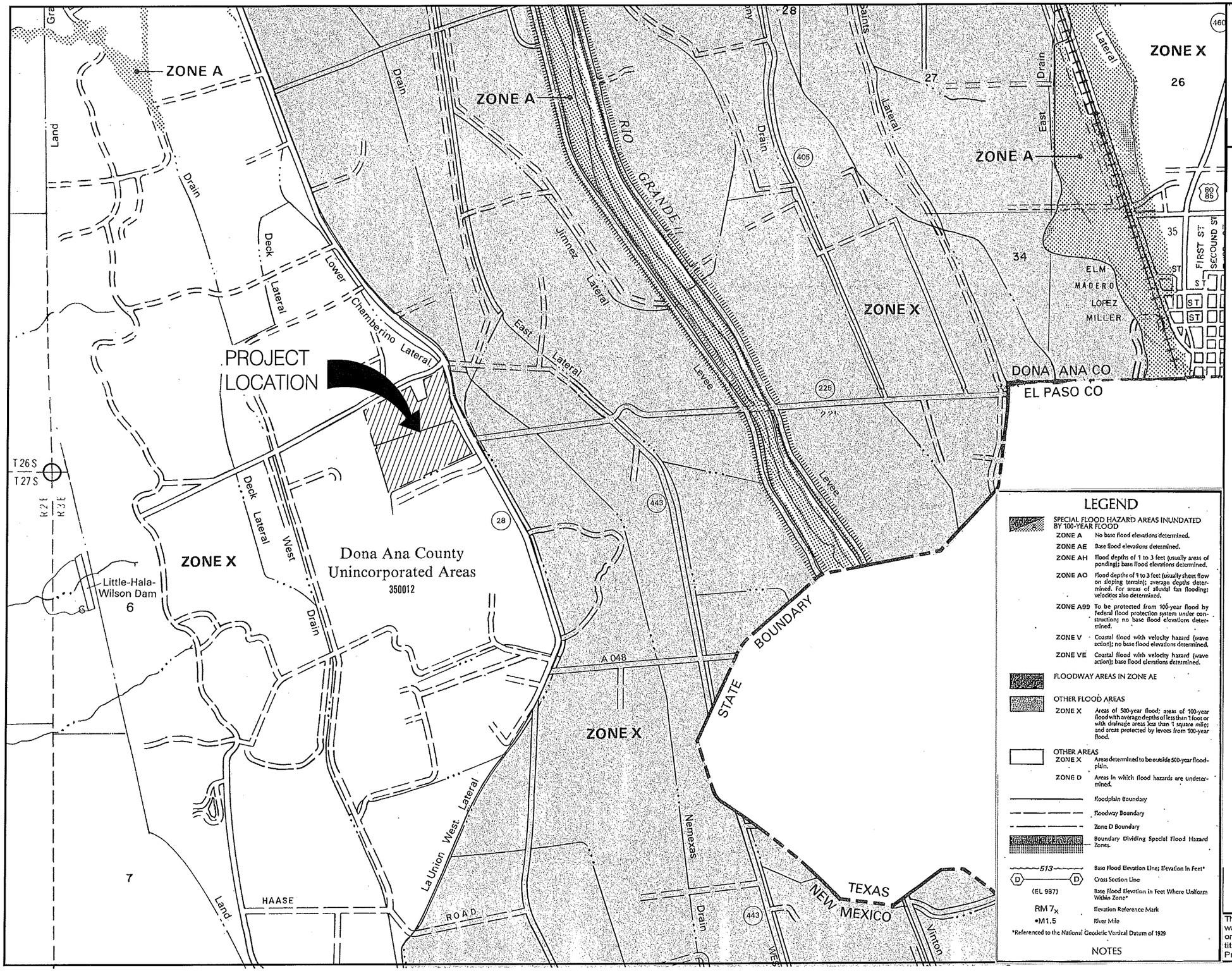
- Remove storm drain piping and drop inlet structures	$18,500
- Storm drain piping connection to Multi-Stage Lift Station	$2,000
- Install new drop inlets and manholes	$10,000
- Install new storm drain piping	$34,500
- Remove and reconstruction new outfall structure and retention pond	$10,000
- North parking lot drainage improvements (concrete rundowns & grates)	$8,400
- Onsite pond excavation	$56,000
- Anticipated project contingencies (≈ 10%)	$13,940
Total Construction Cost	**$153,340**

The anticipated cost, excluding gross receipt tax (GRT), associated with the onsite drainage improvements listed above is **$ 153,340.00**

4. Conclusion

The overall intent is to minimize the storm water runoff impact around campus facilities and not allow storm water runoff to discharge in excess of pre-developed rates or divert flows that adversely affect adjacent properties. Upgrading the entire storm drain system will alleviate the flooding potential around the facilities throughout the south side of campus. Providing additional capacity to the existing facilities along with providing new ponding areas; this will attenuate and detain runoff prior to entering into the storm drain system. Also, by increasing available storage capacity to the existing retention pond will warrant modifications to the existing outfall structure located on the south curb line of the existing retention pond.

Increasing the storage capacity of the existing retention pond will accommodate the increase in runoff volume generated by the future student parking area north of campus and the developed portion of campus. In order to retain the difference between pre and post developed runoff conditions, as required by local design standards, the pond would need to increase in volume by a minimum 1.60 ac-ft plus additional freeboard. In the event the school district would prefer to retain the entire 100 year storm event, and minimize the inundation of the existing bus drop off and student parking area and minimize any overflow onto the developed portion of campus, the pond would increase by a minimum of 9.90 ac-ft plus additional freeboard. The existing practice fields located on the northwest side of campus has the opportunity to operate as an overflow pond as well.



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- ZONE A — No base flood elevations determined.
- ZONE AE — Base flood elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE A99 — To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.
- ZONE V — Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- ZONE VE — Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- ZONE X — Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- ZONE X — Areas determined to be outside 500-year floodplain.
- ZONE D — Areas in which flood hazards are undetermined.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

RM 7x — Elevation Reference Mark

•M1.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

NOTES

APPROXIMATE SCALE

2000 0 2000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

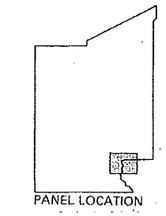
DONA ANA COUNTY, NEW MEXICO AND INCORPORATED AREAS

PANEL 925 OF 1050

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
UNINCORPORATED AREAS	350012	0925	E



MAP NUMBER
35013C0925 E

EFFECTIVE DATE:
SEPTEMBER 27, 1991

Federal Emergency Management Agency

HAASVILLE RD.

PRIVATE PROPERTY

PRIVATE PROPERTY

OPEN AREA

OPEN AREA

BUS DROP OFF

BUS ENTRY / EXIT

OVERFLOW PARKING

NM-28

PRACTICE FIELDS
&
FUTURE
RETENTION POND
OVERFLOW

EXISTING
RETENTION
POND

FUTURE STUDENT PARKING

PARENT DROP OFF

STAFF PARKING

BUS DROP OFF

WELL NO. 2

SOFTBALL FIELD

FOOTBALL FIELD
&
TRACK

SEPTIC TANK

NM-28

BASEBALL FIELD

WELL
NO.
1

WASHINGTON ST.

SAS
LIFT STATION

NM-28

PAXTON LATERAL

SITE UTILITIES AND DRAINAGE LEGEND

- PROPERTY BOUNDARY
- EXISTING EDUCATIONAL BUILDING
- NEW EDUCATIONAL BUILDING UNDER CONSTRUCTION
- FUTURE PAVEMENT SURFACE
- EXISTING WASTEWATER TREATMENT PLANT
- EXISTING WATER SYSTEM
- EXISTING PONDING AREA
- FUTURE PONDING AREA
- FUTURE STORM DRAIN DROP INLET
- FUTURE STORM DRAIN MANHOLE
- FUTURE STORM DRAIN PIPE
- FUTURE OUTFALL STRUCTURE

N

200 100 0 200

SCALE: 1" = 200'

P:\20110028\LCO\Design Analysis\DMP\GIS Drainage Master Plan Layout FINAL.dwg Aug 10, 2011 - 9:41am

Bohannan Huston
425 S. Telshor Blvd., Suite C-103 Las Cruces, NM 88011-8237 575.532.8670

GADSDEN INDEPENDENT SCHOOL DISTRICT

GADSDEN HIGH SCHOOL: WATER, WASTEWATER, AND DRAINAGE MASTER PLAN

EXHIBIT 2

ATTACHMENT - F

TRAFFIC IMPACT ANALYSIS

A. Kelly Fort, P.E.
Zia Engineering & Environmental Consultants, LLC.
755 S. Telshor Blvd., Ste. F 201
Las Cruces, NM 88011
(Tel) 575-532-1526
(Fax) 575-532-1587

TRAFFIC IMPACT ANALYSIS (TIA)

Gadsden High School
Doña Ana County, New Mexico

Zia Project No. LCC-11-015

Prepared for:
Alley Associates, P.C.
1691 Hickory Loop, Ste A
Las Cruces, NM 88005
(575) 523–1310

By:

A. Kelly Fort, P.E.
Project Engineer

June 28, 2011

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LIST OF FIGURES

EXECUTIVE SUMMARY

Gadsden High School currently sits on an approximate 65-acre tract of land in Anthony, Doña Ana County, New Mexico. The high school is located at 6301 Highway 28 just outside of Anthony, NM 88021, adjacent to the intersection of New Mexico Highway 28 and New Mexico Highway 225, both of which are roadways that are under the jurisdiction of New Mexico Department of Transportation (NMDOT). Alley Associates, P.C. (the client) is performing architectural services for the upgrade of the existing Gadsden High School under New Mexico Public School Facilities Authority supervision. The proposed upgrades are designed to bring the school up to the minimum requirements set by the state and will not result in an increase in the student population or the traffic generation. The phased improvements will center on a reconfiguration of the current building and parking layout. Currently, there is no parent drop-off or pick-up area within the school property, so parents stage along New Mexico Highway 28. In an effort to increase safety by moving traffic off the highway, the construction of a parent drop-off and pick-up lane is proposed. To accommodate the new lane, the current student/faculty driveway will be modified from one full access to two driveways (one entrance only and one exit only). Project construction would create an additional intersection between the student/faculty parking lot and New Mexico Highway 185. As a result of these proposed improvements, NMDOT has required this traffic impact analysis (TIA) prior to approval of any modifications to the current driveway and parking configuration. This traffic analysis will demonstrate that the addition of the entrance only driveway will not negatively affect traffic in the vicinity of the school and will increase student safety by eliminating the current parent staging along NM 28.

The purpose of this Traffic Impact Analysis (TIA) is to analyze the impact of the proposed driveway reconfiguration on the existing transportation system in the vicinity of the subject site. The analysis was conducted for the following critical intersection that may be potentially impacted by the new development:

- The school bus entrance/exit and New Mexico Highway 28
- The student/faculty entrance and New Mexico Highway 28
- The student/faculty exit and New Mexico Highway 28
- New Mexico Highway 28 and New Mexico Highway 225

AM and PM peak hour traffic volumes currently created by the Gadsden High School were determined via a manual traffic count by a Zia on May 18, 2011. Peak hour traffic volumes were found to occur from 8:00 to 9:00 AM and 3:00 to 4:00 PM for the high school. The AM peak hour traffic was determined to be 264 vehicles entering the school from New Mexico Highway 28 and 0 exiting. The PM peak hour traffic was determined to be 59 vehicles entering the school from New Mexico Highway 28 and 212 exiting. A copy of the traffic count data is included in Appendix B.

Zia placed a traffic counter across New Mexico Highway 28 from May 17 thru May 25, 2011. The data indicated that New Mexico Highway 28 had an Average Daily Traffic (ADT) of 11,394 near the project site. For calculation purposes, 5% of the traffic was assumed heavy vehicles along New Mexico Highway 28. The traffic traveling along New Mexico Highway 28 during the peak school hours of 8:00 to 9:00 AM and 3:00 to 4:00 PM was used for simulation purposes. The AM peak hour traffic was determined to be 355 vehicles traveling south and 358 vehicles traveling north. The PM peak hour traffic was determined to be 357 vehicles traveling south and 353 vehicles traveling north. A copy of the traffic count data is included in Appendix B.

Traffic volume at the intersection of New Mexico Highway 28 and New Mexico Highway 225 were determined via a manual traffic count by a Zia on May 19, 2011. The traffic traveling through the New Mexico Highway 28 and New Mexico Highway 225 intersection during the peak school hours of 8:00 to 9:00 AM and 3:00 to 4:00 PM was used for simulation purposes. The AM peak hour traffic was determined to be 795 vehicles traveling through the intersection. The PM peak hour traffic was determined to be 544 vehicles traveling through the intersection. Traffic count data is included in Appendix B.

Current traffic conditions along New Mexico Highway 28 operate as follows:

- School bus entrance/exit and New Mexico Highway 28 **AM Peak-A** **PM Peak-A**
- Student/faculty entrance/exit and New Mexico Highway 28 **AM Peak-A** **PM Peak-A**
- New Mexico Highway 28 and New Mexico Highway 225 **AM Peak-A** **PM Peak-A**

The proposed renovation of the Gadsden High school will not increase the traffic on New Mexico Highway 28. After the addition of the proposed driveway, all four intersections of interest will continue to operate at a LOS of A, which would meet the minimum LOS standard of B for Rural Major Collector facilities set by the New Mexico Department of Transportation (NMDOT).

A left-hand turn lane currently exists on New Mexico Highway 28, turning into the student/faculty parking lot. To accommodate moving the entrance to the north by approximately 300 feet, the turning lane would need to be extended to address the left-hand turning movements at the new entrance. The left-hand turn lane currently has a storage length of approximately 300 feet. Extending the left-hand turn lane to the north approximately 300 feet would double the current storage capacity.

1.0 INTRODUCTION

Gadsden High School currently sits on an approximate 65-acre tract of land in Anthony, Doña Ana County, New Mexico. The high school is located at 6301 Highway 28 just outside of Anthony, NM 88021, adjacent to the intersection of New Mexico Highway 28 and New Mexico Highway 225, both of which are roadways that are under the jurisdiction of New Mexico Department of Transportation (NMDOT). Alley Associates, P.C. (the client) is performing architectural services for the upgrade of the existing Gadsden High School under New Mexico Public School Facilities Authority supervision. The proposed upgrades are designed to bring the school up to the minimum requirements set by the state and will not result in an increase in the student population or the traffic generation. The phased improvements will center on a reconfiguration of the current building and parking layout. Currently, there is no parent drop-off or pick-up area within the school property, so parents stage along New Mexico Highway 28. In an effort to increase safety by moving traffic off the highway, the construction of a parent drop-off and pick-up lane is proposed. To accommodate the new lane, the current student/faculty driveway will be modified from one full access to two driveways (one entrance only and one exit only). Project construction would create an additional intersection between the student/faculty parking lot and New Mexico Highway 185. As a result of these proposed improvements, NMDOT has required this traffic impact analysis (TIA) prior to approval of any modifications to the current driveway and parking configuration. This traffic analysis will demonstrate that the addition of the entrance only driveway will not negatively affect traffic in the vicinity of the school and will increase student safety by eliminating the current parent staging along NM 28.

1.1 Purpose

The purpose of this Traffic Impact Analysis (TIA) is to analyze the impact of the proposed driveway reconfiguration on the existing transportation system in the vicinity of the subject site. The analysis was conducted for the following critical intersection that may be potentially impacted by the new development:

- The school bus entrance/exit and New Mexico Highway 28
- The student/faculty entrance and New Mexico Highway 28
- The student/faculty exit and New Mexico Highway 28
- New Mexico Highway 28 and New Mexico Highway 225

1.2 Project Site

As stated above, the site is located in Anthony, Doña Ana County, New Mexico. The primary access for the high school is via New Mexico Highway 28. The proposed site is located in Section 32, T 26 S., R 3 E., N.M.P.M. New Mexico Highway is a two-lane paved highway, with turning lanes, in good condition.

1.3 Vicinity Map

A vicinity map showing the location of the project site is included in Figure 1-3.

2.0 DESCRIPTION OF PROPOSED PROJECT

2.1 Land Use

The 37.95-acre parcel of land currently houses the Gadsden High School for grades 8th through 12th. The site consists of approximately 20 buildings totaling approximately 325,000 square feet with associated parking, access roads, storm water ponding and landscaped areas. Refer to the site layout in Figure 1-3.

2.2 Development Timing

Gadsden High School plans call for the phased construction completion by the fall of 2017, but the parking lot will be addressed in the first phase and is scheduled to be complete by the end of 2012. Accordingly, 2012 has been used as the implementation year in this TIA.

Insert Figure 1-3

Figure 1-3 Site Layout

2.3 Zoning

The tract of land for the existing development is currently zoned for a performance district (PD) as shown in Figure 2-3 below.

Figure 2-3 Zoning Designation

2.4 Site Plan & Access Points

A site plan showing the proposed layout of facilities is presented in Figure 1-3. The high school currently has three access points along New Mexico Highway 28. The proposed Gadsden High School renovations will add a fourth driveway to the student/faculty parking lot. The proposed access point will be a long driveway providing entry only access to the student/faculty parking lot. The existing student/faculty driveway will then be converted to exit only. Currently left-hand and right-hand turning lanes exist on New Mexico Highway 28 for the existing student/faculty driveway. Both turning lanes would need to be adjusted and/or extended to adequately serve the proposed student/faculty parking lot entrance. The access points are illustrated on the site plan in Figure 1-3.

3.0 STUDY AREA CONSIDERATIONS

3.1 Definition of Study Area

Zia used readily available information to determine the existing features, which may impact the development. Once existing roads, intersections, driveways and developed properties were identified, the main access points for the existing development and intersections of interest were analyzed. It was determined that the Gadsden High School renovations will impact the following intersections:

- The school bus entrance/exit and New Mexico Highway 28
- The student/faculty entrance and New Mexico Highway 28
- The student/faculty exit and New Mexico Highway 28
- New Mexico Highway 28 and New Mexico Highway 225

3.2 Existing Land Use

The existing site is currently a developed tract of land. The site is located approximately 2.0 miles west of the City of Anthony in Doña Ana County, New Mexico. Currently a mix of residential and agricultural land surrounds the high school.

3.3 Traffic Impacts of Development Activity

Currently, there are no known development activities of concern in the vicinity of the project area other than the proposed Gadsden High School renovations.

3.4 Existing Roadway System Characteristics

New Mexico Highway 28 is the primary access roadway to the Gadsden High School. New Mexico Highway 28 is a two-lane state highway with turning lanes. New Mexico Highway 225 currently intersects with New Mexico Highway 28 directly adjacent to the school to the east. New Mexico Highway 225 is also a two-lane state highway.

3.5 Programmed Transportation Improvements

Currently, there are no known programmed state or federal transportation improvement activities in the vicinity of the project area.

3.6 Description of Existing Traffic Signal System

Currently, traffic is controlled by signage and pavement markings at the intersections of interest. Traffic will be controlled by signage at the proposed intersection as well.

3.7 Alternative Travel Modes

Sidewalks do not exist throughout the majority of the study area and pedestrian traffic in the area is limited to students crossing New Mexico Highway 28 during parent drop-off and pick-up. Traffic delay caused by pedestrians crossing at intersections was not considered due to the low volume expected in the vicinity. A majority of the student population is bussed by Boon Transportation. It is estimated that 50 busses transport students to and from the high school, so the additional traffic created by the busses was included in this analysis.

4.0 ANALYSIS OF EXISTING CONDITIONS

4.1 Daily and Peak-Hour Traffic Volumes

AM and PM peak hour traffic volumes currently created by the Gadsden High School were determined via a manual traffic count by a Zia on May 18, 2011. AM and PM peak hour traffic volumes were determined from the manual traffic count and were found to occur from 8:00 to 9:00 AM and 3:00 to 4:00 PM for the high school. The AM peak hour traffic was determined to be 264 vehicles entering the school from New Mexico Highway 28 and 0 exiting. The PM peak hour traffic was determined to be 59 vehicles entering the school from New Mexico Highway 28 and 212 exiting. A copy of the traffic count data is included in Appendix B.

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4.2 Level of Service Criteria

According to the NMDOT Functional Classification Map (2007), New Mexico Highway 28 is classified as a Rural Major Collector (RCA). The operational performance of RCA facilities, as a minimum, must meet a level of service (LOS) B standard (Sub-Section 15.C, Tale 15.C-1 of the State Access Management Manual).

4.3 Existing Levels of Service

The existing level of service for the existing intersections of interest were modeled using Synchro 6 Traffic Signal Coordination Software and is summarized in Table 4-3 below.

TABLE 4-3
ROADWAY LEVEL OF SERVICE (LOS)
EXISTING YEAR 2011

Roadway	Peak Traffic Hour	HCM LOS
School bus entrance/exit and New Mexico Highway 28	AM	A
	PM	A
Student/faculty entrance/exit and New Mexico Highway 28	AM	A
	PM	A
New Mexico Highway 28 and New Mexico Highway 225	AM	A
	PM	A

4.4 Safety

The areas adjacent to the intersection of interest are relatively flat with a good line of sight for motorists in all directions. New Mexico Highway 28 appears to be relatively straight in the vicinity of the intersections of interest with a clear line of sight. Accordingly, safety at the intersection of interest does not appear to be a constraint.

4.5 Operational and/or Safety Deficiencies

Linda Montoya with NMDOT provided accident data for NM 28 and NM 225. Ms. Montoya did not provide information on any accidents on NM 28 in the vicinity of the high school. She did provide an intersection report for NM 225, which shows four recorded accidents along NM 225 since 2007, but none is near the NM 28 intersection. The NMDOT Intersection Report is included in Appendix B.

5.0 ANALYSIS OF IMPLEMENTATION YEAR (2012) CONDITIONS

5.1 Traffic Projections

The below subsections describe traffic projections for the implementation year (2012) with all background traffic under the build and no-build condition for the proposed Gadsden High School renovations.

5.1.1 Background Traffic

AM and PM peak background traffic was determined from the traffic counts and is shown in Table 5.1.1 below.

TABLE 5.1.1
AM AND PM PEAK BACKGROUND TRAFFIC
2011

ROADWAY	LOCATION	AM PEAK	PM PEAK
New Mexico Highway 28	Bus Entrance/Exit	763	760
New Mexico Highway 28	Student/Faculty Entrance/Exit	713	884
New Mexico Highway 28	New Mexico Highway 225	795	544

5.1.2 Development Assumptions

Since no additional traffic is being generated by the renovations, it was assumed that the existing traffic would just redistribute throughout the modified parking lot/driveway configuration.

5.1.3 Trip Generation

No additional traffic is being generated by the renovations. Therefore, there will be no new trip generation.

5.1.4 Trip Distribution and Assignment

Trip distribution was determined from the traffic counts. Percentages of the directional splits for the intersection of interest were assumed to follow the current conditions. Refer to Appendix E for AM and PM trip distribution and assignment.

5.1.5 Total Traffic – Pre-Renovation Conditions

Traffic for 2012 pre-renovation conditions was calculated using a 3% growth rate (calculated using Table DP-1 and DP-2 U.S. Census Bureau for Anthony, NM). Traffic projections for 2012 prior to the high school renovations (pre-renovation conditions) are presented in Table 5-1-5 below.

TABLE 5-1-5 PEAK HOUR VALUES IMPLEMENTATION YEAR (2012) – PRE-RENOVATION CONDITIONS			
ROADWAY	**LOCATION**	**AM PEAK**	**PM PEAK**
New Mexico Highway 28	Bus Entrance/Exit	786	783
New Mexico Highway 28	Student/Faculty Entrance/Exit	735	911
New Mexico Highway 28	New Mexico Highway 225	819	561

5.1.6 Total Traffic – Post-Renovation Conditions

Traffic projections for 2012 after the high school renovations (post-renovation conditions) are presented in Table 5-1-6 below.

TABLE 5-1-6 PEAK HOUR VALUES IMPLEMENTATION YEAR (2012) – POST-RENOVATION CONDITIONS			
ROADWAY	**LOCATION**	**AM PEAK**	**PM PEAK**
New Mexico Highway 28	Bus Entrance/Exit	786	783
New Mexico Highway 28	Student/Faculty Entrance	735	710
New Mexico Highway 28	Student/Faculty Exit	632	825
New Mexico Highway 28	New Mexico Highway 225	819	561

5.2 Traffic Analysis

5.2.1 Pre-Renovation and Post-Renovation Conditions for each Analysis Period

Analyses were performed on the 2012 pre-renovation and post-renovation condition traffic. As stated previously, 2012 pre-renovation traffic was calculated by growing the 2011-background traffic by the 3% per annum growth factor from the U.S. Census data. The 2012 post-renovation condition traffic was determined by redistributing the pre-renovation condition traffic throughout the reconfigured parking/driveway layout. Refer to Appendix C for the pre-renovation and post renovation traffic distribution.

5.2.2 Proposed Access Points

Gadsden High School has currently has three access points and proposes adding a fourth in the student/faculty parking lot to create a parent drop-off and pick-up lane. All vehicles will enter the student/faculty parking lot from New Mexico Highway 28 via the northern driveway. Students and faculty will drive into the parking lot, while parents will access the parent drop-off and pick-up lane. All vehicles will travel south, through their respective parking areas and exit via the southern driveway. Figure 1-3 schematically illustrates the access points to the proposed renovations.

5.2.3 Roadway Segments / Other Highway Facilities

No other roadway segments or highway facilities were analyzed.

5.2.4 Level of Service Build-Condition

Impact to the existing transportation system will be minimal due to the addition of the proposed driveway. The impacts on LOS are summarized in Table 5-2-4. More details of LOS results are presented in Appendix E.

TABLE 5-2-4
INTERSECTION LEVEL OF SERVICE (LOS)
IMPLEMENTATION YEAR 2012

Roadway	Peak Traffic Hour	HCM LOS
School bus entrance/exit and New Mexico Highway 28	AM	A
	PM	A
Student/faculty entrance and New Mexico Highway 28	AM	A
	PM	A
Student/faculty exit and New Mexico Highway 28	AM	A
	PM	A
New Mexico Highway 28 and New Mexico Highway 225	AM	A
	PM	A

5.3 Traffic Impact Assessment and Needed Improvements

The proposed renovation of the Gadsden High school will not increase the traffic on New Mexico Highway 28. After the addition of the proposed driveway, all four intersections of interest will continue to operate at a LOS of A, which would meet the minimum LOS standard of B for Rural Major Collector facilities set by the New Mexico Department of Transportation (NMDOT).

5.4 Access Design Specifications

5.4.1 Speed-Change Lane Requirements

A left-hand turn lane currently exists on New Mexico Highway 28, turning into the student/faculty parking lot. To accommodate moving the entrance to the north by approximately 300 feet, the turning lane would need to be extended to address the left-hand turning movements at the new entrance.

5.4.2 Vehicle Storage Needs

The left-hand turn lane currently has a storage length of approximately XXX feet. Extending the left-hand turn lane to the north approximately 300 feet would just increase the storage capacity.

5.4.3 Sight Distance Evaluation

According to Table 18.F-2 of the State Access Management Manual, the minimum required sight distance in the tables for a highway with a posted speed limit of 35 mph is 350 feet with a -3% to 3% grade. The current topography allows for the required sight distance.

5.4.4 Site access improvements/modifications

Turning lanes currently exist for both right-hand and left-hand turning movements.

5.4.5 Pedestrian/bicycle considerations

Sidewalks do exist in the vicinity of the subject site, but pedestrian traffic will be minimal if the parent drop-off and pick-up lane is constructed. No bicycle lanes are proposed for the project.

6.0 ANALYSIS OF HORIZON YEAR (2022) CONDITIONS

Due to the nature of the Gadsden High School renovations, the analysis of the horizon year (2022) conditions is not warranted. Additional traffic is not being generated; therefore the analysis of the implementation year (2012) conditions show that the proposed parking lot/driveway reconfiguration will not negatively affect the current traffic conditions.

7.0 SUMMARY OF DEFICIENCIES, IMPACTS AND RECOMMENDATIONS

7.1 Existing Conditions

Current traffic conditions along New Mexico Highway 28 operate as follows:

- School bus entrance/exit and New Mexico Highway 28 **AM Peak-A** **PM Peak-A**
- Student/faculty entrance/exit and New Mexico Highway 28 **AM Peak-A** **PM Peak-A**
- New Mexico Highway 28 and New Mexico Highway 225 **AM Peak-A** **PM Peak-A**

7.2 Implementation Year (2012) Conditions

The proposed renovation of the Gadsden High school will not increase the traffic on New Mexico Highway 28. After the addition of the proposed driveway, all four intersections of interest will continue to operate at a LOS of A, which would meet the minimum LOS standard of B for Urban Principal Arterial facilities set by the New Mexico Department of Transportation (NMDOT).

A left-hand turn lane currently exists on New Mexico Highway 28, turning into the student/faculty parking lot. To accommodate moving the entrance to the north by approximately 300 feet, the turning lane would need to be extended to address the left-hand turning movements at the new entrance. The left-hand turn lane currently has a storage length of approximately 300 feet. Extending the left-hand turn lane to the north approximately 300 feet would just increase the storage capacity.

7.3 Horizon Year (2022) Conditions

Due to the nature of the Gadsden High School renovations, the analysis of the horizon year (2022) conditions was not performed. Additional traffic is not being generated; therefore, the analysis of the implementation year (2012) conditions clearly shows that the proposed parking lot/driveway reconfiguration will not negatively affect the current traffic conditions.

8.0 REFERENCES

Trip Generation Manual, Institute of Transportation Engineers, 7th Edition

Highway Capacity Manual, Special Report 209, Transportation Research Board, 2000

Syncro 6 Traffic Signal Coordination Software, Trafficware 1993-2003

APPENDIX A

CENSUS DATA

POPULATION FINDER

United States | New Mexico | Anthony CDP

Anthony CDP, New Mexico

The Census 2000 population for Anthony CDP, New Mexico is 7,904.

city/ town, county, or zip
anthony, NM
state
-- select a state --
GO
search by address »

View population trends...

	2000	1990
Population	7,904	5,160

Source: U.S. Census Bureau, Census 2000, 1990 Census

View more results...

Population for all cities and towns in New Mexico, 2000-2009:
alphabetic | ranked

Map of Persons per Square Mile, City/Town by Census Tract:
2000 | 1990

See more data for Anthony CDP, New Mexico on the Fact Sheet.

The letters PDF or symbol indicate a document is in the Portable Document Format (PDF). To view the file you will need the Adobe® Acrobat® Reader, which is available for **free** from the Adobe web site.

APPENDIX B

AM & PM TRAFFIC PROJECTION DATA

Zia Engineering & Environmental Consultants
755 S. Telshor Blvd, Suite F-201
Las Cruces, NM 88011
505-532-1526

Site Code:
Station ID:

Latitude: 0' 0.000 South

Start	16-May-11		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo
12:00 AM	*	*	*	*	36	35	38	39	51	45	77	74	98	97	60	58
01:00	*	*	*	*	24	24	30	29	27	27	44	44	83	82	42	41
02:00	*	*	*	*	21	20	7	6	29	28	55	57	55	51	33	32
03:00	*	*	*	*	17	20	10	10	14	16	15	14	38	37	19	19
04:00	*	*	*	*	2	2	6	6	4	4	24	27	27	30	13	14
05:00	*	*	*	*	8	8	18	18	22	20	17	18	28	29	19	19
06:00	*	*	*	*	34	35	30	32	23	25	21	22	19	18	25	26
07:00	*	*	*	*	134	140	138	136	134	131	49	49	33	31	98	97
08:00	*	*	*	*	355	358	346	353	337	338	103	108	74	76	243	247
09:00	*	*	*	*	**547**	**537**	**745**	**724**	**506**	**501**	216	235	150	150	**433**	**429**
10:00	*	*	*	*	470	463	464	462	413	409	253	257	224	217	365	362
11:00	*	*	*	*	244	235	309	312	311	312	**352**	**345**	**288**	**282**	301	297
12:00 PM	*	*	*	*	301	297	237	236	330	329	324	321	360	353	310	307
01:00	*	*	*	*	300	304	372	371	365	357	399	390	385	386	364	362
02:00	*	*	*	*	316	320	393	398	**653**	**654**	424	425	454	441	448	448
03:00	*	*	*	*	357	353	389	389	390	385	373	367	396	392	381	377
04:00	*	*	*	*	385	380	348	346	347	352	423	429	**475**	**466**	396	395
05:00	*	*	*	*	**684**	**674**	**714**	**714**	448	443	**438**	**432**	355	355	**528**	**524**
06:00	*	*	*	*	442	431	454	448	464	456	377	367	393	392	426	419
07:00	*	*	*	*	449	452	444	433	327	324	370	371	355	355	389	387
08:00	*	*	*	*	259	261	245	244	278	272	286	281	278	284	269	268
09:00	*	*	*	*	174	174	192	191	161	163	257	250	234	235	204	203
10:00	*	*	*	*	99	94	143	139	167	164	225	226	191	194	165	163
11:00	*	*	*	*	139	137	70	66	124	120	158	159	111	118	120	120
Lane	0	0	0	0	5797	5754	6142	6102	5925	5875	5280	5268	5104	5071	5651	5614
Day	0		0		11551		12244		11800		10548		10175		11265	
AM Peak					09:00	09:00	09:00	09:00	09:00	09:00	11:00	11:00	11:00	11:00	09:00	09:00
Vol.					547	537	745	724	506	501	352	345	288	282	433	429
PM Peak					17:00	17:00	17:00	17:00	14:00	14:00	17:00	17:00	16:00	16:00	17:00	17:00
Vol.					684	674	714	714	653	654	438	432	475	466	528	524

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755 S. Telshor Blvd, Suite F-201
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505-532-1526

Site Code:
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Latitude: 0' 0.000 South

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Time	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo
12:00 AM	56	58	73	74	**2**	**2**	*	*	*	*	*	*	*	*	44	45
01:00	45	43	31	30	*	*	*	*	*	*	*	*	*	*	38	36
02:00	27	27	9	8	*	*	*	*	*	*	*	*	*	*	18	18
03:00	17	16	17	16	*	*	*	*	*	*	*	*	*	*	17	16
04:00	14	15	14	15	*	*	*	*	*	*	*	*	*	*	14	15
05:00	17	17	10	8	*	*	*	*	*	*	*	*	*	*	14	12
06:00	30	31	39	39	*	*	*	*	*	*	*	*	*	*	34	35
07:00	135	140	110	110	*	*	*	*	*	*	*	*	*	*	122	125
08:00	337	340	343	344	*	*	*	*	*	*	*	*	*	*	340	342
09:00	**542**	**521**	**570**	**566**	*	*	*	*	*	*	*	*	*	*	**556**	**544**
10:00	530	516	474	462	*	*	*	*	*	*	*	*	*	*	502	489
11:00	314	310	220	222	*	*	*	*	*	*	*	*	*	*	267	266
12:00 PM	281	280	291	286	*	*	*	*	*	*	*	*	*	*	286	283
01:00	335	341	353	348	*	*	*	*	*	*	*	*	*	*	344	344
02:00	289	295	**493**	**493**	*	*	*	*	*	*	*	*	*	*	391	394
03:00	446	440	342	349	*	*	*	*	*	*	*	*	*	*	394	394
04:00	449	439	341	335	*	*	*	*	*	*	*	*	*	*	395	387
05:00	**781**	**773**	427	419	*	*	*	*	*	*	*	*	*	*	**604**	**596**
06:00	522	522	419	416	*	*	*	*	*	*	*	*	*	*	470	469
07:00	443	435	408	406	*	*	*	*	*	*	*	*	*	*	426	420
08:00	223	221	229	232	*	*	*	*	*	*	*	*	*	*	226	226
09:00	180	175	209	210	*	*	*	*	*	*	*	*	*	*	194	192
10:00	112	106	142	136	*	*	*	*	*	*	*	*	*	*	127	121
11:00	102	101	98	98	*	*	*	*	*	*	*	*	*	*	100	100
Lane	6227	6162	5662	5622	2	2	0	0	0	0	0	0	0	0	5923	5869
Day	12389		11284		4		0		0		0		0		11792	
AM Peak	09:00	09:00	09:00	09:00	00:00	00:00									09:00	09:00
Vol.	542	521	570	566	2	2									556	544
PM Peak	17:00	17:00	14:00	14:00											17:00	17:00
Vol.	781	773	493	493											604	596

Comb. Total	12389	11284	11555	12244	11800	10548	10175	23057
ADT	ADT 11,394	AADT 11,394						

	School Driveway Left Turn Out	School Driveway Right Turn Out	Highway 28 Left Turn In	Highway 28 Right Turn In
7:00 AM			0	0
7:15 AM			2	3
7:30 AM			12	3
7:45 AM			16	10
8:00 AM			29	18
8:15 AM			55	30
8:30 AM			65	47
8:45 AM			15	5
11:30 AM	2	5	5	1
11:45 AM	1	6	4	0
12:00 PM	0	3	3	2
12:15 PM	1	8	6	2
12:30 PM	0	4	4	0
12:45 PM	1	6	5	0
1:00 PM	4	2	4	2
1:15 PM	2	5	5	0
2:30 PM	2	7	0	1
2:45 PM	0	2	3	0
3:00 PM	3	13	5	1
3:15 PM	3	5	1	2
3:30 PM	6	7	19	4
3:45 PM	47	69	14	3
4:00 PM	30	45	14	2
4:15 PM	1	10	0	0

Traffic Counter: Alex Garcia

Date: 5/18/11

	NM 28 Through South	NM 28 Through North	NM 28 Left-hand Turn on to NM 225	NM 28 Right-hand Turn on to NM 226	NM 225 Left-hand Turn onto NM 28	NM 225 Right-hand Turn onto NM 28
7:00 AM	23	7	16	7	12	5
7:15 AM	21	10	9	14	12	4
7:30 AM	28	14	12	10	23	12
7:45 AM	13	18	21	14	6	30
8:00 AM	33	20	40	13	12	74
8:15 AM	22	21	60	6	20	108
8:30 AM	22	21	44	21	17	111
8:45 AM	14	6	44	24	21	24
11:30 AM	13	10	9	5	11	9
11:45 AM	5	8	10	12	12	8
12:00 PM	8	16	12	12	13	28
12:15 PM	16	11	110	11	11	27
12:30 PM	10	3	44	25	11	22
12:45 PM	7	10	18	16	15	12
1:00 PM	6	12	12	9	7	8
1:15 PM	9	10	16	12	9	13
2:30 PM	16	20	10	19	5	6
2:45 PM	12	8	11	13	5	6
3:00 PM	10	7	5	9	19	14
3:15 PM	12	13	16	12	10	14
3:30 PM	13	23	25	20	18	36
3:45 PM	20	15	50	16	17	39
4:00 PM	20	18	69	26	14	28
4:15 PM	27	20	27	22	15	27

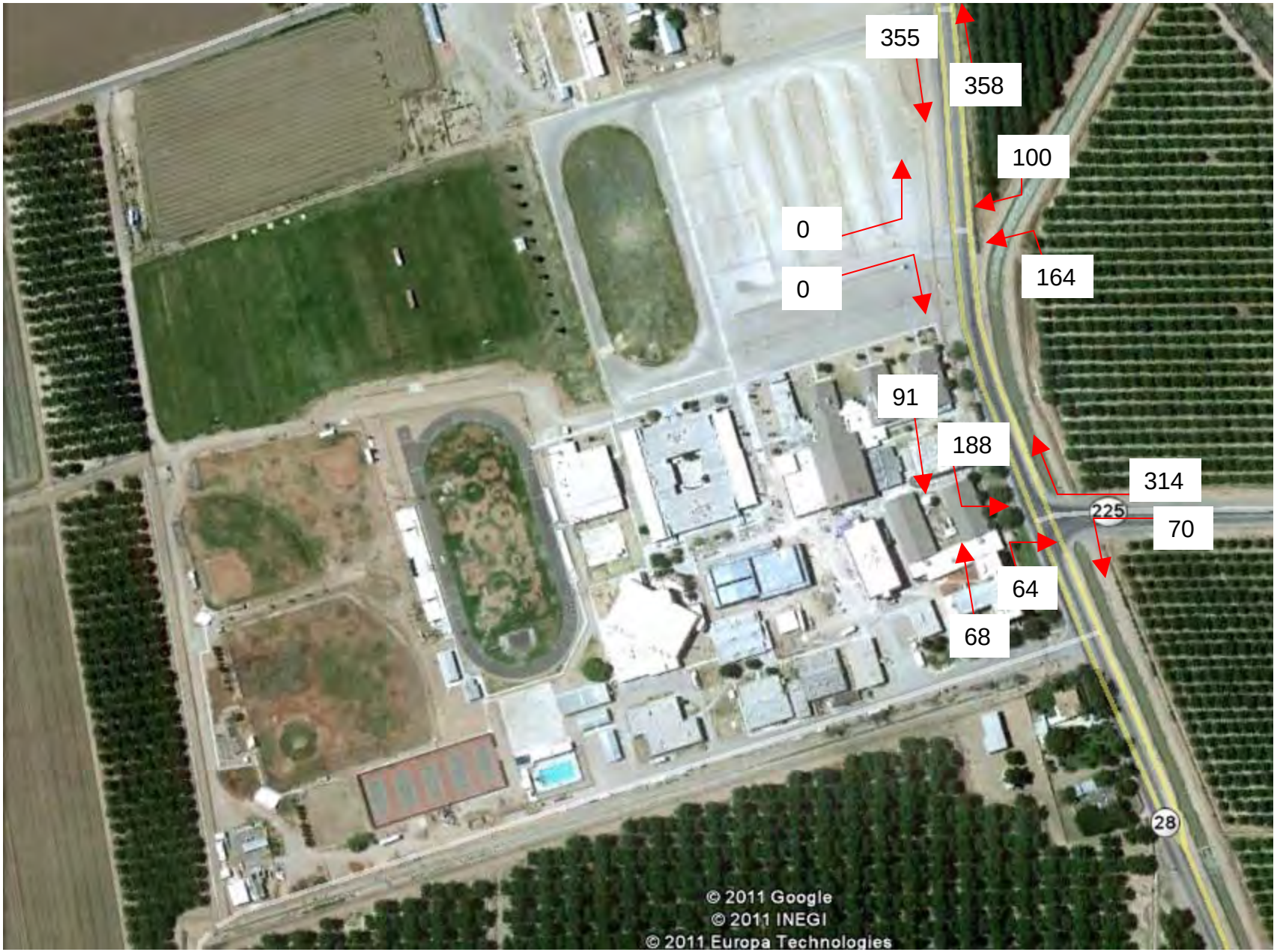
Traffic Counter: Alex Garcia

Date: 5/19/11

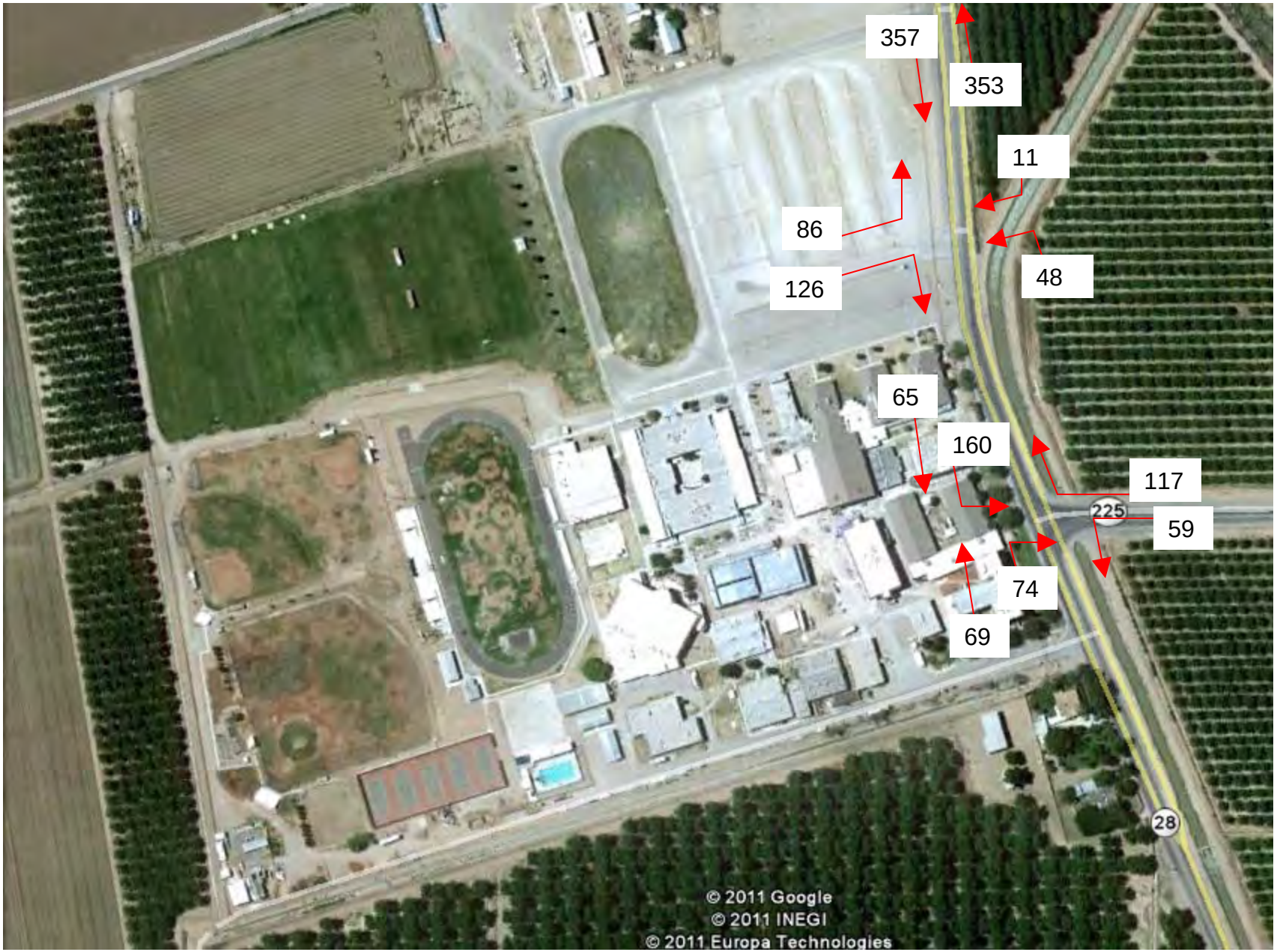
APPENDIX C

AM & PM PEAK TRAFFIC CALCULATIONS

Gadsen High School Traffic Splits AM Peak



Gadsen High School Traffic Splits PM Peak



APPENDIX D

TRAFFIC CRASH DATA

As of Date: 6/22/2011

New Mexico Department of Transportation
INTERSECTION REPORT
INTERSECTION REPORT FOR 2009 2008 2007
Rural
For Accidents at the Intersection of %225% AND

Crash Number / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersect	Severity / Lighting / Weather / Alcohol	Vehicles Involved / Classification / Analysis	INJ	FATAL
20070022158311	NM-225-P		Rural	PROPERTY DAMAGE ONLY	2		
19-MAR-07	000.900		NM 225	ACCIDENT	OTHER NON-COLLISION		
06:04	000.700		MP 1	DAYLIGHT	VEH TOWING SLED, TUBE, OR		
	000.900			CLEAR	OTHER DEVICE		
Vehicle 1		EAST	Pickup	HAD NOT CONSUMED ALCOHOL			
Contributing Factor 1			Made improper turn				
Vehicle 2		EAST	Passenger Vehicle	HAD NOT CONSUMED ALCOHOL			
Contributing Factor 2			Driver inattention				
Contributing Factor 3			None				
20080022159209	NM-225-P		Rural	NON-FATAL ACCIDENT	2	4	
24-AUG-08	002.200		NM 225	DAYLIGHT	OTHER VEHICLE		
06:08	002.200		MP 2	CLEAR	SIDESWIPE COLL/SAME DIR		
	000.000						
Vehicle 1		EAST	Pickup	HAD NOT CONSUMED ALCOHOL			
Contributing Factor 1			Driver inattention				
Vehicle 2		EAST	Other Passenger Vehicle	HAD NOT CONSUMED ALCOHOL			
Contributing Factor 2			Other improper driving				
Contributing Factor 3			None				
20090030008740	NM-225-P		Rural	NON-FATAL ACCIDENT	2	5	
03-NOV-09	001.020		NM 225	DARK - NOT LIGHTED	OTHER VEHICLE		
06:09	000.700		1725 W WASHINGTON	CLEAR	SIDESWIPE COLL/SAME DIR		
	000.000						
Vehicle 1		WEST	Van or Mini-van	HAD NOT CONSUMED ALCOHOL			
Contributing Factor 1			None				
Vehicle 2		WEST	Passenger Vehicle	SOBRIETY UNKNOWN			
Contributing Factor 2			Excessive Speed				
Contributing Factor 3			Speed too fast for conditions				
Contributing Factor 4			Drove left of center				
Contributing Factor 5			Driver inattention				

As of Date: 6/22/2011

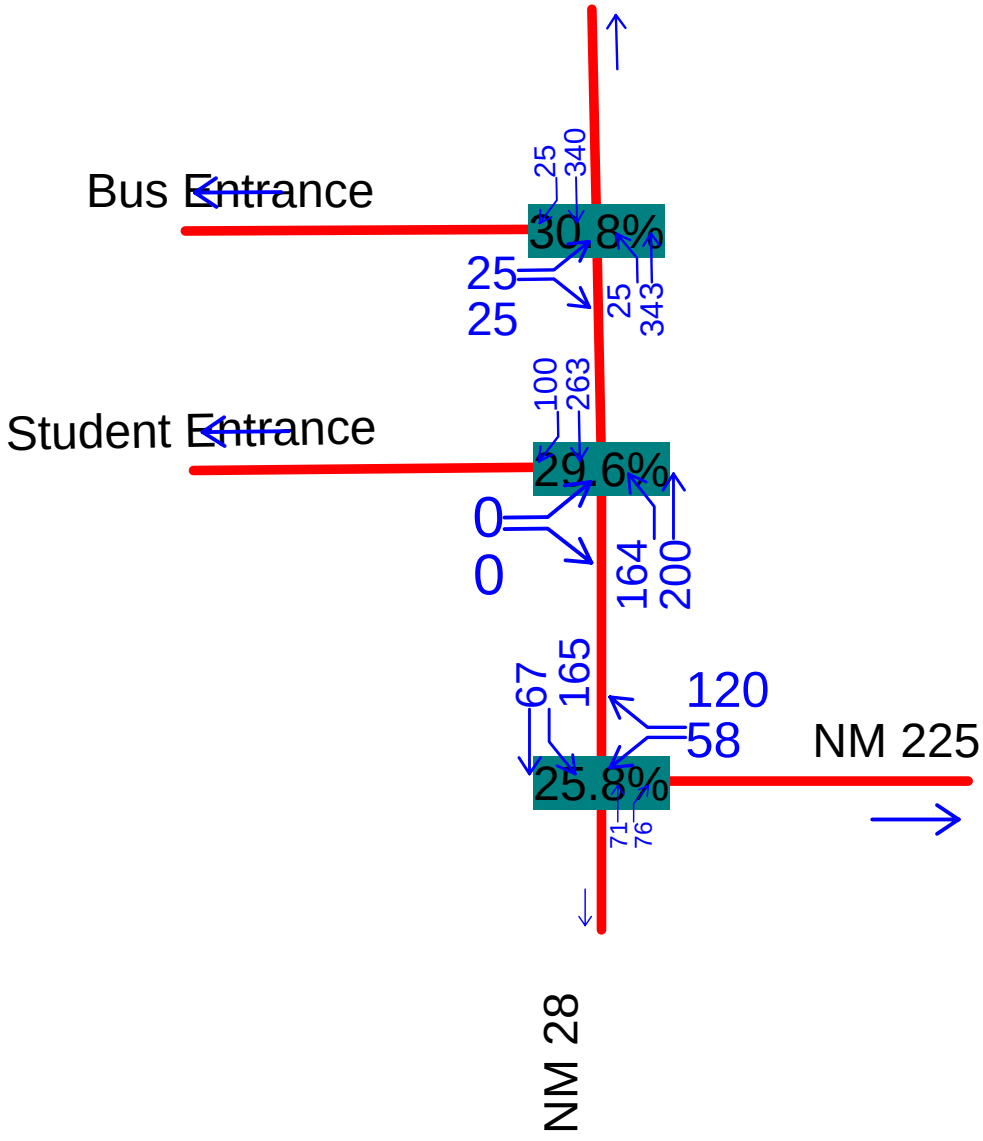
New Mexico Department of Transportation
INTERSECTION REPORT
INTERSECTION REPORT FOR 2009 2008 2007
Rural
For Accidents at the Intersection of %225% AND

Crash Number / Date / Time	Pstd Rte / Milepost / Milelog / Milepoint	Dir	City / Street / Intersect	Severity / Lighting / Weather / Alcohol	Vehicles Involved / Classification / Analysis	INJ	FATAL
Contributing Factor 6			Other improper driving				
20090030019010			Rural	PROPERTY DAMAGE ONLY	1		
10-DEC-09	000.000		CR 7225	ACCIDENT	OVERTURN		
02:09	999.990		US 550	DAYLIGHT	LEFT SIDE ROAD		
	000.000			CLEAR			
Vehicle 1		NORTH	Pickup	HAD NOT CONSUMED ALCOHOL			
Contributing Factor 1			Speed too fast for conditions				

APPENDIX E

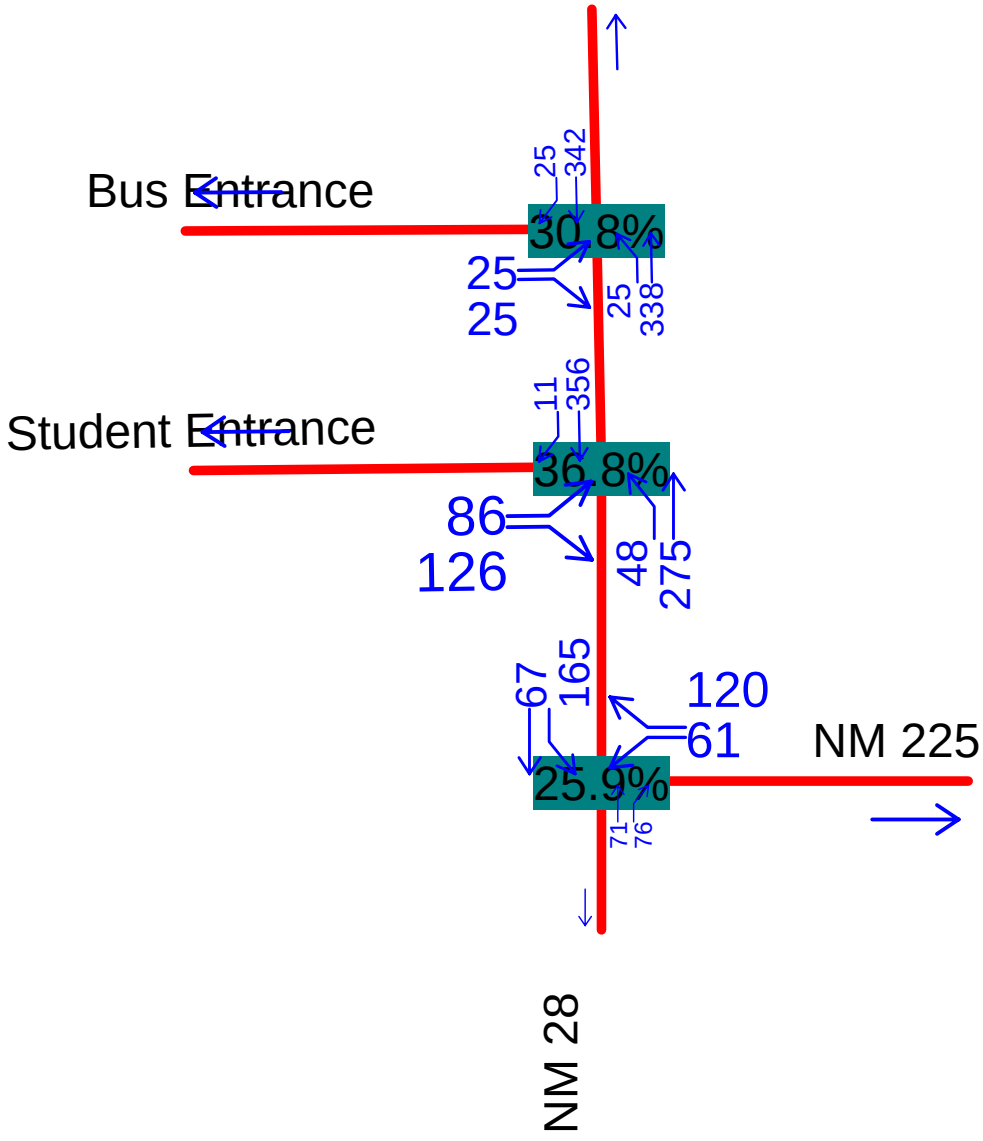
AM & PM TRIP DISTRIBUTION AND ASSIGNMENT

2012 AM Peak Distribution



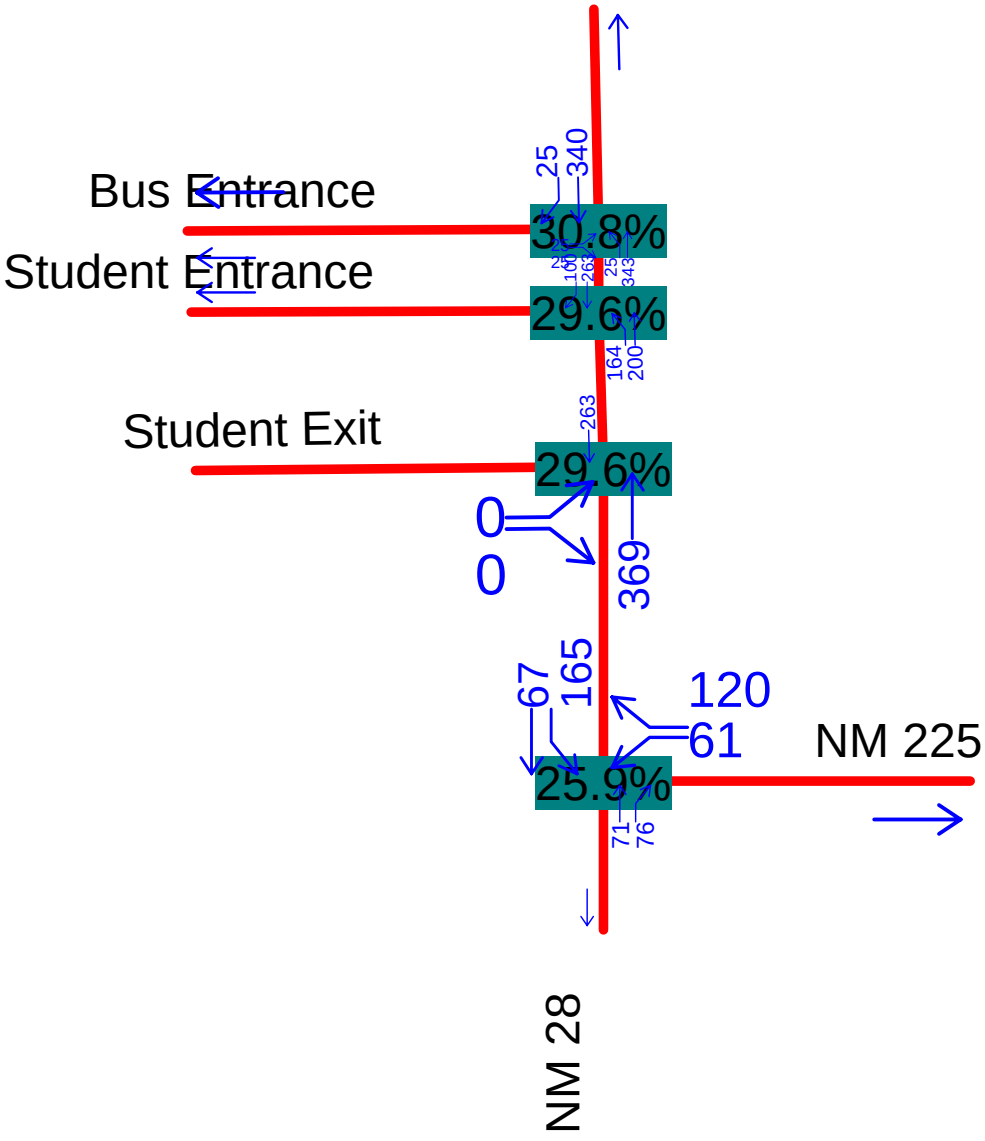
6/28/2011

2012 PM Peak Distribution



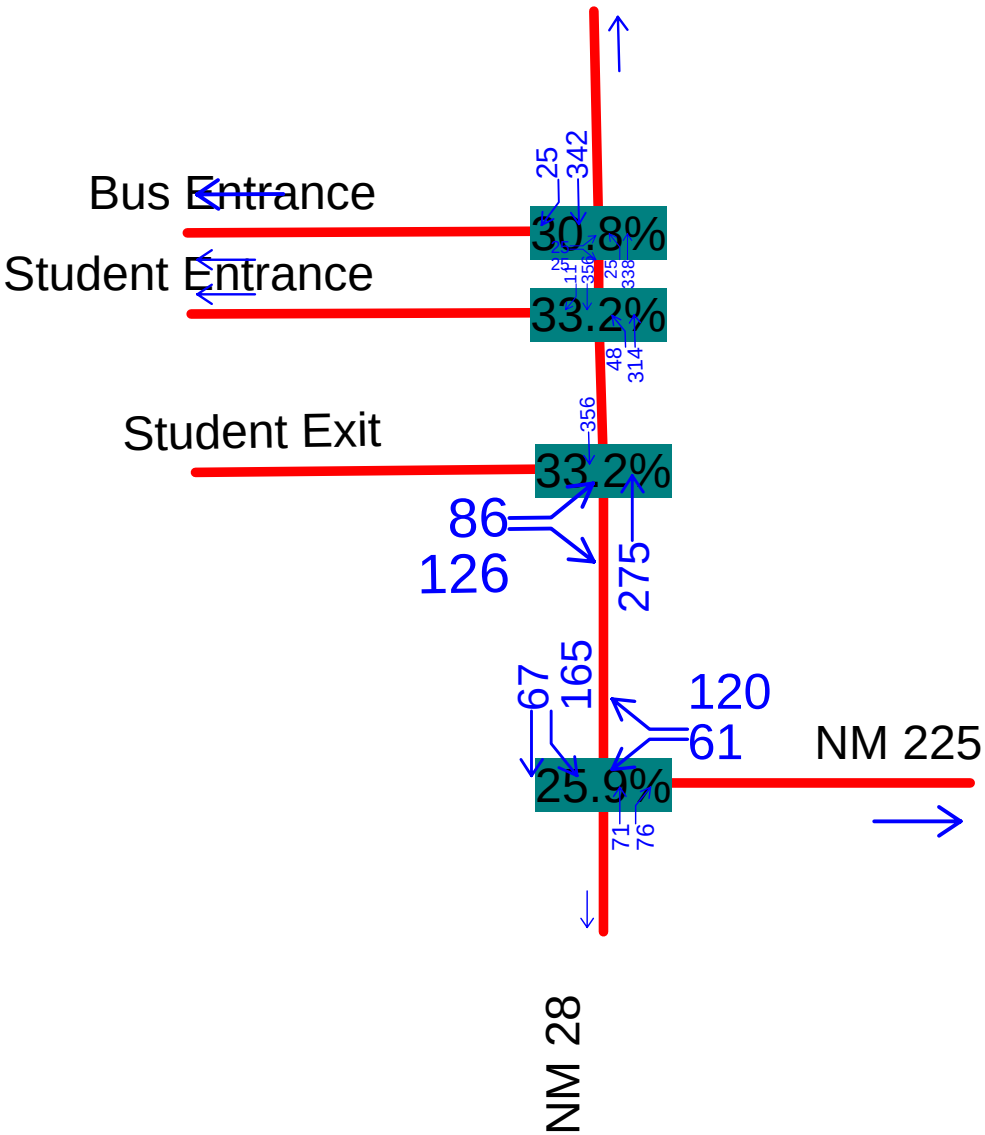
6/28/2011

2012 AM Peak Mod Distribution



6/28/2011

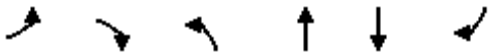
2012 PM Peak Mod Distribution



6/28/2011

APPENDIX F

LEVEL OF SERVICE CALCULATIONS

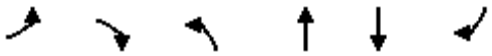


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	1900	1900	1805	1810	1810	1615
Flt Permitted			0.950			
Satd. Flow (perm)	1900	1900	1805	1810	1810	1615
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	850			600	500	
Travel Time (s)	23.2			11.7	9.7	
Volume (vph)	0	0	164	200	263	100
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	0	0	182	222	292	111
Lane Group Flow (vph)	0	0	182	222	292	111
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.6%		ICU Level of Service A	
Analysis Period (min) 15			

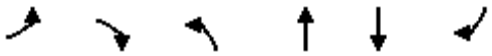
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250	250		250	250	
Storage Lanes	0	0		1	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	35		35			35
Link Distance (ft)	764		310			600
Travel Time (s)	14.9		6.0			11.7
Volume (vph)	58	120	71	76	165	67
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	64	133	79	84	183	74
Lane Group Flow (vph)	64	133	79	84	183	74
Sign Control	Stop		Stop			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1810	1810	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1810	1810	1615
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	857			500	458	
Travel Time (s)	23.4			9.7	8.9	
Volume (vph)	25	25	25	343	340	25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	28	28	28	381	378	28
Lane Group Flow (vph)	28	28	28	381	378	28
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

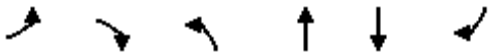


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1810	1810	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1810	1810	1615
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	850			600	500	
Travel Time (s)	23.2			11.7	9.7	
Volume (vph)	86	126	48	275	356	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	96	140	53	306	396	12
Lane Group Flow (vph)	96	140	53	306	396	12
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250	250		250	250	
Storage Lanes	0	0		1	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	35		35			35
Link Distance (ft)	764		310			600
Travel Time (s)	14.9		6.0			11.7
Volume (vph)	61	120	71	76	165	67
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	68	133	79	84	183	74
Lane Group Flow (vph)	68	133	79	84	183	74
Sign Control	Stop		Stop			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1810	1810	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1810	1810	1615
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	857			500	458	
Travel Time (s)	23.4			9.7	8.9	
Volume (vph)	25	25	25	338	342	25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	28	28	28	376	380	28
Lane Group Flow (vph)	28	28	28	376	380	28
Sign Control	Stop			Free	Free	

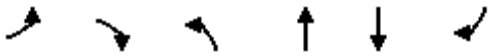
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	1900	0	1810	1810	0
Flt Permitted						
Satd. Flow (perm)	1900	1900	0	1810	1810	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	850			600	325	
Travel Time (s)	23.2			11.7	6.3	
Volume (vph)	0	0	0	369	263	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	0	0	0	410	292	0
Lane Group Flow (vph)	0	0	0	410	292	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.6%		ICU Level of Service A	
Analysis Period (min) 15			

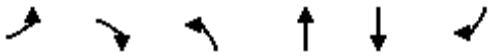
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250	250		250	250	
Storage Lanes	0	0		1	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	35		35			35
Link Distance (ft)	764		310			600
Travel Time (s)	14.9		6.0			11.7
Volume (vph)	61	120	71	76	165	67
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	68	133	79	84	183	74
Lane Group Flow (vph)	68	133	79	84	183	74
Sign Control	Stop		Stop			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



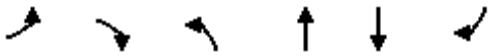
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	1863	1863	1583
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	1863	1863	1583
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			35	35	
Link Distance (ft)	849			325	170	
Travel Time (s)	19.3			6.3	3.3	
Volume (vph)	0	0	164	200	263	100
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	182	222	292	111
Lane Group Flow (vph)	0	0	182	222	292	111
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 29.6%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1810	1810	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1810	1810	1615
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	857			170	458	
Travel Time (s)	23.4			3.3	8.9	
Volume (vph)	25	25	25	343	340	25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	28	28	28	381	378	28
Lane Group Flow (vph)	28	28	28	381	378	28
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected	0.950					
Satd. Flow (prot)	1805	1615	0	1810	1810	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1615	0	1810	1810	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	850			600	325	
Travel Time (s)	23.2			11.7	6.3	
Volume (vph)	86	126	0	275	356	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	96	140	0	306	396	0
Lane Group Flow (vph)	96	140	0	306	396	0
Sign Control	Stop			Free	Free	

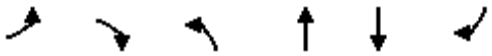
Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250	250		250	250	
Storage Lanes	0	0		1	1	
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	1538	1810	1538	1719	1810
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1719	1538	1810	1538	1719	1810
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	35		35			35
Link Distance (ft)	764		310			600
Travel Time (s)	14.9		6.0			11.7
Volume (vph)	61	120	71	76	165	67
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%
Adj. Flow (vph)	68	133	79	84	183	74
Lane Group Flow (vph)	68	133	79	84	183	74
Sign Control	Stop		Stop			Stop

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected			0.950			
Satd. Flow (prot)	0	0	1770	1863	1863	1583
Flt Permitted			0.950			
Satd. Flow (perm)	0	0	1770	1863	1863	1583
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			35	35	
Link Distance (ft)	849			325	170	
Travel Time (s)	19.3			6.3	3.3	
Volume (vph)	0	0	48	314	356	11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	53	349	396	12
Lane Group Flow (vph)	0	0	53	349	396	12
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.2%		ICU Level of Service A	
Analysis Period (min) 15			



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9	15			9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1810	1810	1615
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1810	1810	1615
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	25			35	35	
Link Distance (ft)	857			170	458	
Travel Time (s)	23.4			3.3	8.9	
Volume (vph)	25	25	25	338	342	25
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	5%	5%	0%
Adj. Flow (vph)	28	28	28	376	380	28
Lane Group Flow (vph)	28	28	28	376	380	28
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

ATTACHMENT - G

ASBESTOS REMOVAL ESTIMATES

Luis Acuna
Suncity Analytical, Inc.
1409 Montana Ave.
El Paso, TX 79902

Sun City Analytical Inc.

June 07, 2011

Rem Alley
1691 Hickory Loop
Las Cruces, New Mexico 88005

RE: Cost Estimates for Asbestos Abatement of Various Buildings.

Sun City Analytical, Inc., reviewed the most recent asbestos inspection of the Gadsden Independent School District #16 and determined some cost estimates for complete removal of all the asbestos in each building.

The following are cost estimates for the asbestos abatement of the materials found in the specified buildings. These cost estimates reflect the cost for removal of all ACM located in the building. **If only certain items are chosen from this cost estimate, then the estimates shown here will not be valid.** The cost includes all cost associated with asbestos abatement, such as, but not limited to, burial of asbestos, insurance, bonding, certifications, labor, equipment and material. (NOTE: This estimate **does not include repair or replacement costs**.).

New Cafeteria Building - No ACM was identified so no cost estimate is required.

Boys Gym

Abatement Costs		LOW	HIGH
Abatement of ACM Thermo Insulation		$7,250.00	$7,500.00
Abatement of Fire Doors		$1,200.00	$1,500.00
	TOTAL	**$8,450.00**	**$9,000.00**

Consulting Costs		LOW	HIGH
Abatement Plan		$700.00	$1,100.00
Air Monitoring, Project Management			
Clearance Sampling and Final Documentation		$3,970.00	$4,350.00
	TOTAL	**$4,670.00**	**$5,450.00**

Library Building

Abatement Costs		LOW	HIGH
Abatement of ACM Flooring		$12,000.00	$13,200.00
Abatement of Fire Doors		$1,200.00	$1,500.00
	TOTAL	**$13,200.00**	**$14,700.00**

Consulting Costs		LOW	HIGH
Abatement Plan		$700.00	$1,100.00
Air Monitoring, Project Management			
Clearance Sampling and Final Documentation		$5,570.00	$5,950.00
	TOTAL	**$6,270.00**	**$7,050.00**

1409 Montana Avenue
El Paso, Texas 79902

www.scaitc.com
E-mail: main@scaitc.com

Phone: (915) 533-8840
Fax: (915) 533-8843

Business Building

Abatement Costs		LOW	HIGH
Abatement of ACM Flooring		$32,500.00	$35,750.00
Abatement of Fire Doors		$1,200.00	$1,500.00
	TOTAL	**$33,700.00**	**$37,250.00**

Consulting Costs		LOW	HIGH
Abatement Plan		$700.00	$1,100.00
Air Monitoring, Project Management			
Clearance Sampling and Final Documentation		$13,800.00	$5,950.00
	TOTAL	**$14,500.00**	**$15,800.00**

North Building

Abatement Costs		LOW	HIGH
Abatement of ACM Flooring		$61,250.00	$67,375.00
Abatement of Fire Doors Science Table Tops		$2,800.00	$3,400.00
Abatement of Thermo Insulation		$43,200.00	$44,875.00
Abatement of Drywall/Jt Compound		$9,100.00	$9,800.00
	TOTAL	**$116,350.00**	**$125,450.00**

Consulting Costs		LOW	HIGH
Abatement Plan		$1,300.00	$1,600.00
Air Monitoring, Project Management			
Clearance Sampling and Final Documentation		$38,700.00	$40,200.00
	TOTAL	**$40,000.00**	**$41,800.00**

Old English / Old Main

Abatement Costs		LOW	HIGH
Abatement of ACM Flooring		$23,250.00	$25,575.00
Abatement of Fire Doors Science Table Tops		$2,800.00	$3,400.00
Abatement of Thermo Insulation		$13,800.00	$15,500.00
Abatement of Transite Windows and Entrance		$5,800.00	$6,100.00
	TOTAL	**$45,650.00**	**$50,575.00**

Consulting Costs		LOW	HIGH
Abatement Plan		$1,300.00	$1,600.00
Air Monitoring, Project Management			
Clearance Sampling and Final Documentation		$38,700.00	$40,200.00
	TOTAL	**$19,900.00**	**$21,500.00**

If you need any additional information, please do not hesitate to contact me at (915) 533-8840 or email us at main@scaitc.com.

Sincerely,
Sun City Analytical, Inc.

Luis M. Acuña PEA, CIAQP
President