SCHOOL BUILDINGS IN ABILENE—USD 435
A Look Toward 2020

By

G. KENT STEWART
Consultant
Manhattan, Kansas

For

Board Of Education
USD 435 Abilene

Timothy Shafer
Superintendent

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FOREWORD

At an Abilene restaurant I mentioned to the table waitress, "I have been studying your schools. They sure are nice looking buildings." She enthusiastically replied, "Oh yes, don't they look good; and I just love that Kennedy School in the spring."

Later in the day I visited the Middle School. As I greeted Principal Ron Wilson he exclaimed, "Stewart, you're looking really good." Flattered by such a spontaneous greeting, I did not mention my arthritic joints and diminished hearing. On the way back to Manhattan I thought to myself ...looking really good, just like the Abilene school buildings, but aging quickly.

This school building adequacy study turned out to be a two question study:

1. What are the major maintenance needs at each school?

2. What is the future of Garfield School? Subordinate to the Garfield question, but closely related is an apparent interest in obtaining additional space at the Middle School.

The importance of those questions and the importance of their answers is imbedded in the school district mission statement.

> "The mission of Abilene USD 435 is to help all students become successful responsible life-long learners in a changing world."

Concerning school buildings, the key words in the mission statement are, "... help all students become...learners in a changing world." Students are living in a dramatically changing 21st Century world, but they are learning in mid-20th Century school buildings.

The median age of the elementary school buildings is age 56 years, and for the secondary schools it is 47 years. Fortunately, educators and architects in the 1950's and 1960's designed forward looking schools that are continuing to facilitate good teaching and observable student achievement. None the less, the school buildings are aging and if they are to continue to serve well as they have for the past half-century, some improvements are needed. These needs are the subject of this report. They are what this report is about.

G. Kent Stewart
June 11, 2012

CHAPTER ONE

KASB ENROLLMENT STUDY

In January 2012, the Kansas Association of School Boards issued its study of past and estimated future enrollment for USD 435. Some highlights of the report follow. The complete report is available at the school district office.

COUNTY POPULATION

Population in Dickinson County for the past 40 years has been quite steady:

1970	19,993	
1980	20,175	High
1990	18,958	Low
2000	19,344	
2010	19,754	
Avg.	19,645	

The difference between the high and low population is 1,217 or 6%. This is a substantial change; yet the current population is almost the same as the 40-year average. Abrupt or dramatic population change in the future is not expected. From 1980 to 2000, numbers of births and deaths in Dickinson County have been almost equal.

BIRTHS SINCE 2000

Births recorded in Dickinson County from 1999 through 2003 average 217 annually. From 2004 through 2009, the average was 235 and the highest years were 2008 and 2009 with 249 and 269 births, respectively.

PAST ENROLLMENT

Grades K-12 school enrollments in USD 435 since 2006 are shown in the tabulation below:

2006	1603
2007	1637
2008	1577
2009	1607

2010	1628
2011	1625
Avg.	1613

Enrollment has been quite steady, ranging from the average by only about plus or minus 45 students annually about 3 to 4 students per grade.

ESTIMATED FUTURE ENROLLMENT

KASB estimated future enrollment by noting that about 55% of the babies born to Dickinson County mothers enroll in Grade 1 in Abilene. Also, KASB noted that student progress from grade to grade is over 100% annually through Grade 8, and averages 97% from Grade 9 through Grade 12. This indicates future enrollment increases in the elementary grades. KASB enrollment estimates are summarized below.

Enrollment estimates:

Fall 2011 (Actual)		Fall 2016 (Estimated)	
Grades K – 5	739	Grades K – 5	835
Grades 6 – 8	385	Grades 6 – 8	372
Grades 9 – 12	487	Grades 9 – 12	504
Specials	15	Specials	20
Total	1,626	Totals	1,731

The above tabulation shows an increase of almost 100 students in Grades K – 5 from now to Fall 2016. In grades 6 – 8, enrollment is expected to decline a little because of the loss of two large classes to the high school. High school enrollment is expected to increase by about 17 students because a large Grade 9 class is expected in 2013 that will pass through the high school grades and graduate in the spring of 2017. Overall, Grades K – 12 enrollment is expected to increase by about 100 students between now and Fall 2016.

A WORD OF CAUTION

Estimates of future enrollment are best guesses based on the best information available at a given time. Estimates should be recalculated annually after the official September 20 headcount enrollment figures are known. Stewart

(2007; pp. 29-33) reported twelve variables that can affect the accuracy of enrollment estimates.

Note: More detailed information is contained in the KASB enrollment report titled: Abilene USD 435 K – 12 Enrollment Projection Report by Jim Hays, Research Director, KASB, January 20, 2012. Topeka

CHAPTER TWO

SCHOOL BUILDINGS

The Board of Education is operating three elementary schools, a middle school, and a high school. Four of the buildings are fairly close in age and each is in good condition. The newest building is the middle school.

Table 1 below shows the grades housed and enrollments at each building.

Table 1. USE OF SCHOOL BUILDING BY GRADES HOUSED IN USD 435 – Sept. 20, 2011.

Grades	Kennedy School	McKinley School	Garfield School	Middle School	High School	Total
K	147					147
1	115					115
2		113				113
3		116				116
4			115			115
5			133			133
6				118		118
7				143		143
8				124		124
9					123	123
10					121	121
11					128	128
12					114	114
Total	262	229	248	385	486	1610

Notes:

1. Figures are from the KASE Enrollment Study of January 2012.
2. Figures are headcount enrollments.
3. Figures do not include 15 special education students.

GARFIELD SCHOOL

Grades 5 and 6

The building fronts on Seventh Street at its intersection with Broadway. The west boundary is Cedar Street and the north boundary is Eighth Street east to Spruce way and on east along an alley to Buckeye. Five dwelling houses separate Buckeye Street from the east boundary of the site - addresses 700, 704, 710, 714, and 718 Buckeye Street.

BUILDING DESCRIPTION

Students enjoy a very well equipped playground that is actually a school park playground operated by the school board and the community parks and recreation commission. About half the playground is hard surface (black top) and the east half is grass. Comparing the site and grounds to elementary schools in the state in general finds the Garfield playground to be exemplary. Portions along the streets are fenced.

The two-story brick building was opened in 1942 as one of the last Depression Era public works (WPA) project school buildings. These schools were particularly well constructed and in only a few ways do they show 70 to 75 years of use. The building was placed on the National Historic Register in 2010.

Garfield has enjoyed particularly good maintenance and daily care. It is a two-story facility that was expanded in 1956 by adding an upstairs room over the library and another over a patio at the southwest corner of the building, and the food preparation area at the north end of the auditorium/gymnasium.

The building underwent considerable modernization - windows, lighting, in-room air-conditioners, fans, ceilings, carpeting, and furnishings, and electrical heavy up - in about 1990 and in 2005 some of the thermo pane windows were replaced. In 2010, carpeting was updated.

Overall, Garfield is a very good school building that has a lot of years of remaining useful life. However, the heating system (generation and distribution)

requires attention now. In fact, a new boiler must be installed in 2012. Classrooms are steam-heated and feature fin tube radiation equipment.

A typical classroom is well lighted and well furnished, has new ceilings and relatively new carpet, water, ceiling fans, good storage and cabinetry, and is cooled by through-wall (window-style) air-conditioners. Classrooms are in need of additional electrical outlets.

Corridors are well illuminated, and feature structural glazed tile (painted) wainscot and plaster walls. Stairs have terrazzo treads and substantial steel railings. Toilet rooms are obviously old, but clean, and apparently functional.

Two relocatable classroom units are situated on the north side of the building – a one-room placed in 1999 and a two-room in 2009. These relocatable units are in reasonably good condition.

INSTRUCTION ROOMS

Table 2 below is a listing of instruction rooms: uses, sizes, student capacity, and utilization.

TABLE 2. USE, SIZE, CAPACITY AND UTILIZATION OF INSTRUCTION ROOMS AT GARFIELD SCHOOL – FALL, 2011.

Room Use	Room Size	Student Capacity	Class Size	Available Seats
Main Level				
Audit./Lunch	2000+	N/A	Varies	N/A
Spec. Educ.	700	N/A	Varies	N/A
Fac. Plng.	325	N/A	--	N/A
Gr. 4	700	23	23	0
Library	900	N/A	Varies	N/A
Admin.	Note 2	--	--	--
Gr. 4	700	23	23	0
Gr. 4	700	23	23	0
Gr. 4	700	23	23	0

Room Use	Room Size	Student Capacity	Class Size	Available Seats
Upper Level				
Gr. 4 New	750	25	23	2
Counselor	75	--	--	--
Gr. 5	700	23	26	-3
Spec. Educ.	700	N/A	Varies	N/A
Gr. 5	700	23	26	-3
Speech	140	N/A	Varies	N/A
Gr. 5 New	860	28	27	1
Gr. 5	700	23	27	-4
Title/Res.	325	N/A	Varies	N/A
Gr. 5	700	23	27	-4
Relocatable 1	600+			
Music		N/A	Varies	N/A
Relocatable 2				
Art	600	N/A	Varies	N/A
Computers	600	N/A	Varies	N/A

Notes:

1. Room size is given in approximate net square feet of floor area.
2. The administrative area is small – reception room/secretary, nurse's room, and principal's office.
3. N/A means "not applied" to calculating the student capacity of the building. To include these instructional spaces inflates the true capacity of an elementary school building.
4. The building is operating over capacity. Headcount enrollment on September 20, 2011 was 248 and building capacity is 237.

CAPITAL IMPROVEMENT NEEDS

While Garfield School is a fine example of a WPA school and enjoys recognition on the National Register of Historic Buildings, it does have some major capital improvement needs, in addition to the new roof obtained in 2012.

1. Installation of a new heating, air-conditioning, and ventilation generation and probable distribution system.
2. Additional classrooms are needed including expanded space for administration, counseling, and nurse. Removal of the relocatable classrooms and new space provided to cover these losses – art, music, and computers. Handicap accessibility is required.

These needs will be discussed later in this report, especially the need for additional classrooms.

KENNEDY SCHOOL

Grades K – 1

The Kennedy building is located at the east end of 15th Street at its intersection with Kuney Street, the east boundary of the site. The north and south boundaries are 16th Street and the Heartland Programs property, respectively. The east boundary is Olive Street.

The site is flat, very well planned, and outfitted with play equipment for small children. It features blacktop (asphalt) and grass playing surfaces. The site is appropriately fenced against street traffic. It was apparently developed as a joint venture between the community recreation commission and the school board.

BUILDING DESCRIPTION

The building was opened in 1963 and expanded in 2006 by a four-room addition at the west end of the main east/west corridor. It is an air-conditioned, well-designed, well built, school building characteristic of the thousands of others built throughout America in the 1960's in response to the post WWII Baby Boom. Classrooms are well equipped and well illuminated, windows are shaded, decorations are exciting to little kids, and floors feature both vinyl and carpet.

Corridors are very well lighted, assisted by skylights. Corridor walls are structural glazed tile with glass near the ceiling, which supplements classroom lighting and contributes to classroom ambiance.

The 2006 four-room addition is a good example of current elementary school classroom design.

Table 3 below shows the use, size, student capacity, and class sizes at Kennedy School. Readers need to notice while studying figures in the table that the kindergarten rooms are operating at capacity. The reason is that Kennedy was designed originally as a traditional Grades K – 6 elementary school. Only one larger room for Kindergarten was needed. Now there are six Kindergarten rooms. This fact does not diminish the school's quality.

TABLE 3. USE, SIZE, STUDENT CAPACITY, AND CLASS SIZES AT KENNEDY SCHOOL - FALL, 2011.

ROOM USE	ROOM SIZE	STUDENT CAPACITY	CLASS SIZE	AVAILABLE SEATS
Audit.	40 X 60	N/A	Varies	N/A
Spec. Educ.	1100	N/A	Varies	N/A
Kindr. A	920	23	22	1
Kindr. B	920	23	23	0
Booster*	920	23	12	11
Kindr. C	920	23	22	1
Library	920	N/A	Varies	N/A
Music	900	N/A	Varies	N/A
Art	900	N/A	Varies	N/A
Gr. 1 A	900	25	19	6
Kindr. D	900	22	22	0
Gr. 1 B	910	26	19	7
Kindr. E	910	23	23	0
Kindr. F	910	23	23	0
Gr. 1 C	910	26	19	7
Resource	900	N/A	Varies	N/A
Gr. 1 D	900	25	19	6
Gr. 1 E	900	25	19	6
Gr. 1 F	900	25	20	5
Admin.	See note below			

Notes:

*Booster Kindergarten is for youngsters in need of specialized enrichment in preparation for kindergarten.

1. N/A means not applied to calculating school building capacity.
2. Room size is expressed in net square feet of floor area. The figures are reasonably accurate, but planners tend to measure rooms slightly differently.

Some include, while others exclude, bookcase tops, some subtract space taken by large furniture items, and some exclude while others include coat storage.

3. The administrative suite includes the reception area, principal's office, conference rooms, storage, and workroom. Students who become ill at school use the administration area to wait for parents.
4. Room capacity is calculated by allowing 40 square feet of floor area for Kindergarten rooms, and 35 square feet for Grade One. For Grades Two through Six, the standard used is usually 30 square feet per student.
5. The capacity of Kennedy School is 312 and enrollment is 262, well within capacity. However, readers should note that the Kindergarten rooms are operating essentially at capacity. The reason for this is explained elsewhere in the narrative about the school.

CAPITAL IMPROVEMENT NEEDS

Two major capital improvement needs at Kennedy School are first to upgrade windows with more energy efficient thermo-pane units. New windows do eventually pay for themselves in energy savings, the payback period requires several years. Second, it is time to plan for upgrading the toilet rooms with more up-to-date and efficient fixtures. This is not an emergency, but planning needs to begin fairly soon.

The building is centrally air-conditioned and the electrical service is adequate.

MCKINLEY SCHOOL
GRADES 2 AND 3

The McKinley building fronts on Rogers Avenue at its intersection and on the north with Second Street. The site is bounded on the west by Santa Fe Railroad property, and on the south by First Street.

BUILDING DESCRIPTION

McKinley is a single story brick building that opened in 1951 and was expanded by a library and support rooms in 1982, and again in 2010 by construction of a four-room addition at the west end of the south corridor. During its 61 years of service (original portion) it has enjoyed good care and regular maintenance.

Building materials reflect those in popular use during the post-WWII school construction years that began in the early 1950's. Corridor walls are structural glazed tile wainscot with block above. Floors are asphalt and vinyl tile. Ceilings have been replaced with modern ceiling tile and flush mounted lighting fixtures.

Classrooms are well sized, averaging over 750 square feet of floor area. They are quite well furnished and equipped. A typical room has venetian style window coverings, fans, carpeted floors, lay-in (grid) ceilings, newer lighting, water, and functional cabinetry. The newer rooms and the library are air-conditioned. The original rooms are cooled by wall/window air-conditioners.

The 2010 four-room addition is an excellent example of current elementary school construction materials and practices. Rooms contain about 810 square feet of floor area thereby meeting the currently popular standard of about 800 square feet.

The school site is rather unique because of size and configuration. It is somewhat of a joint venture between the city and the school district. It is a rather large site and features asphalt and grass surface play areas. There is very ample and up-to-date play equipment. The site is fenced for safety along adjacent streets and the railroad.

INSTRUCTION ROOMS

Table 4 that follows shows the use, size, student capacity, and class sizes at the school.

TABLE 4. USE, SIZE, STUDENT CAPACITY, CLASS SIZE AND AVAILABLE SEATS AT MCKINLEY SCHOOL - FALL, 2011.

Room Use	Room Size	Student Capacity	Class Size	Available Seats
North-South Corridor				
Gym/Lunch	40X60	N/A	Varies	N/A
Admin.	*	-	-	-
Gr. 2	750	25	22	3
Gr. 2	750	25	22	3
Gr. 2	750	25	23	2
Title Rdg.	750	N/A	Varies	N/A
Title Math	750	N/A	Varies	N/A
Gr. 3	750	25	20	5
Faculty	-	-	-	-
East-West Corridor				
Music	660	N/A	Varies	N/A
Art	660	N/A	Varies	N/A
Library	1500	N/A	Varies	N/A
Computers	500**	N/A	Varies	N/A
Gr. 3	810	27	19	8
Gr. 3	810	27	19	8
Gr. 3	800	27	19	8
Gr. 3	810	27	19	8

Room Use	Room Size	Student Capacity	Class Size	Available Seats
Gr. 2	810	27	23	4
Gr. 2	900	30	23	7
Gr. 3	900	30	20	10
Spec. Educ.	760	N/A	Varies	N/A
Spec. Educ.	760	N/A	Varies	N/A

Notes:

1. Room size is approximate square feet of floor space.
2. * The administrative area consists of three rooms – secretary, principal, and nurse.
3. ** Adjacent to the computer room is a 100 square foot speech therapy room.
4. N/A means "not applied" to calculating the student capacity of the building.
5. Room capacity is calculated at 30 square feet per student. This is a nationally recognized standard.
6. McKinley School is operating within its capacity. The official Fall 2011 enrollment according to the KASB enrollment study was 229 students; and building capacity was 295 students.
7. Two teachers are on a looping plan which means they work with the same groups of students for two years.
8. The large library features a two-step down recessed story/reading area very popular among young children.

CAPITAL IMPROVEMENT NEEDS

Like all 61-year-old school buildings, McKinley has some very important capital improvement needs. These include:

1. Heavy up of the electrical service.
2. Attention to aging heat distribution system.
3. Central air-conditioning.
4. Construction of general storage space.

MIDDLE SCHOOL

GRADES 6 - 8

The middle school building is located on the south side of Old US40 between the high school and Vine Street. The site is gently sloping to the south and is bounded on the north by Old US40, on the east by Walnut Street, on the south by 11th Street and on the west by Vine Street. It is a relatively large site.

The southeast portion of the site excludes private properties along Walnut Street and 11th Street, and another home nearer the SE corner of the school building.

BUILDING DESCRIPTION

The 1975 middle school design and construction materials represent state-of-the-art middle schools in the 1970's. The design has prevailed and remains popular today with only a few modifications. In 2004, several partitions were added, which changed the building from a series of relatively open classrooms to more closed, self-contained rooms. This did not diminish or otherwise embarrass the original design; rather, it brought the building design more in line with preferences of faculty and administrators involved in middle level education.

The building exterior is brick and cast concrete panels. Windows are conservative and the building is air-conditioned. Classrooms are ample size, well lighted, and well equipped. Corridors are wide and well lighted. Since the site slopes, the gymnasium and technology rooms are on the lower level. The technology laboratory was the former industrial arts shop, and the former industrial drafting room is now a language arts room, albeit, it is awkwardly located in relation to the other academic rooms. Handicapped students and adults have elevator access to the two floor levels in the building.

Since 1975, need for specialized attention for exceptional students, ranging from handicapped to gifted, has become commonplace. This requirement has resulted in every possible small instruction room being placed in special service use. At Abilene Middle School, this is most easily observed in the administrative suite. What originally were to be offices, conference, storage, nurse, and counselor space

has in recent years necessarily been converted and modified for supporting students with exceptionalities and special needs.

INSTRUCTION ROOMS

Table 5 that follows contains a listing of the instruction rooms at the middle school: uses, sizes, student capacity, and utilization.

TABLE 5. ROOM NUMBER, USE, SIZE, CAPACITY, AND UTILIZATION AT MIDDLE SCHOOL. FALL, 2011.

ROOM NUMBER	ROOM USE	ROOM SIZE	ROOM CAPACITY	CLASS SIZE RANGE	PERIODS USED
--	Commons	4000+	See Note 2	See Note 3	See Note 4
--	Instr. Music	1500	28		
--	Vocal Music	1100	28		
117	Science	1000	25		
119	Science	950	24		
--	Art	1200	28		
--	FACS	2500	28		
Note 2	Support	210	N/A		
Note 3	Support	320	N/A		
Note 4	Support	480	N/A		
144	Resource	675	N/A		
145	Spec. Educ.	700	N/A		
146	Keyboarding	760	21		
--	Library	1500	N/A		
--	Computers	500	N/A		
147	Spec. Educ.	480	N/A		
148	Math	820	27		
149	Literature	820	27		
150	Soc. Study	820	27		
151	Soc. Study	820	27		

ROOM NUMBER	ROOM USE	ROOM SIZE	ROOM CAPACITY	CLASS SIZE RANGE	PERIODS USED
152	Lang. Arts	820	27		
153	Literature	820	27		
154	Math	820	27		
155	Lang. Arts	820	27		
156	Math	820	27		
157	Literature	820	27		
158	Soc. Study	820	27		
159	Spec. Educ.	725	N/A		
Lower Level					
Gym	PE	Std.	N/A		
Tech	Technology	2500	28		
--	Lang. Arts	700	23		

Notes:

1. Room size is shown as approximate net square feet of floor area. Planners define net area in various ways. For example, some include bookcases while others do not.
2. Room capacity in a secondary school is determined by dividing net room size by the number of square feet required per student according to national standards that have prevailed for a long time. The following standards were applied for this school:

Regular classrooms	30 sq. ft. per student
Science labs	40 sq. ft. per student
Keyboarding/Business	35 sq. ft. per student

   For specialized large rooms like art, music, gym, and shops, capacity was capped at 28 students per room. This figure was chosen because it is slightly larger than the larger class sections. To assign more space unreasonably inflates student capacity of the building.
3. Class size ranges are determined by the number of class sections per grade. For example, if a grade has 100 students divided into four sections, each section would have 25 students. The same group divided into 5 sections would have 20 students per grade. Class sections at Abilene Middle School range form about 23 to 26 students each.
4. The school is organized into seven regular periods per day. Classrooms are for the most part used each period. This characteristic of most middle schools.

5. Room capacity as indicated by the symbol N/A means the room capacity was not included in calculating student capacity of the building. Special education and instructional support rooms are always used extensively and regularly, but group sizes of students often vary from as few as one or two students. This is why the rooms themselves vary in size.
6. Capacity of the middle school is about 425 to 450. Enrollment is well within building capacity in as much as class section sizes are about the same as classroom capacity. If there were fewer class sections, then rooms would be crowded. Even though there is room in the building for some additional students, it is currently well utilized and operating near capacity.

Readers should note in reviewing Table 5 that the middle school has a large commons area with a stage, two music rooms, family and consumer science (FACS), a good-sized library, and a very nice gymnasium with seating along one side. It was an exemplary building when opened in 1975 and after nearly 40 years of service, remains an exemplary building.

CAPITAL IMPROVEMENT NEEDS

The mechanical and electrical systems seem quite adequate, especially since some updating occurred in 2004. Also, the classroom partitions were built in response to newer teaching methods and grade organization. There are four apparent capital improvement needs:

1. An additional general science room.
2. An additional special education instruction room.
3. Additional lighting in the library.
4. Consideration of a practice gymnasium to relieve pressure on the current gym that accommodates physical education, competition, and intramural practice, and games.

Note: If an addition is planned, the architect should be asked to show two and preferably three location choices including modifications to the technology laboratory and small English room as part of one choice to obtain a new science room.

HIGH SCHOOL
GRADES 9 - 12

The high school is Abilene's flagship school building. It is located on the south side of Old US40 (NW 14th Street) at its intersection with Cedar Street. The main building was opened in 1955 and has undergone only a few modifications during 57 years of service.

1955	Main building
1975+/-	Shops building
1991	Included library improvements
2004	Southwest addition included new math and technology rooms south of the wrestling and weight rooms on the lower level. The project also included improvements to the library.

THE SITE

The school site (high school property) is rather awkward and while barely adequate is actually too small. It extends south from the high school and involves Cedar and Mulberry and Walnut Streets. About 40 feet on to the site from the east side of Walnut Street is a small but distinct creek that extends along the whole west side of the site from Old US40 south to 11th Street.

The high school site outdoor athletic facility space is shared with the shops building, maintenance/transportation building, bus parking, and the school district support services building. In spite of the creek and these other facilities, there is some green space, tennis courts, and the football practice field. There is an apparent and important cooperative relationship between the school board and the city/county parks and recreation commissions.

There is limited parking on adjacent streets around the school, but a fairly large parking lot west of the building.

BUILDING DESCRIPTION

The SHOPS building was opened in the mid-1970s in response to the need for more space for technical instruction. The separate building south of the west parking lot houses:

Woodworking
General Agriculture
Automotive Mechanics
Carpentry
Drafting
Metals and Welding
Horticulture – housed in two heated greenhouses and one landscape material greenhouse

Shop buildings quickly show their age, not because of neglect, but because of hard use involving dirt and dust producing machinery and processes. The shops and related rooms are well sized and well equipped. Work produced by students is for the most part quite exemplary. The work most obvious and most impressive to the public is construction of the three-bedroom dwelling house annually and sold at auction at the conclusion of the school year.

The shops building consists of three large shop rooms – metals, woods, and automotive; and three large classrooms for technical instruction, agriculture instruction, and drafting. The metals shop is devoted mostly to agricultural mechanics.

The main HIGH SCHOOL building is a little unique in as much as it departs somewhat from traditional 1950s high school design. It is more square and more compact than many others built in the same era. The design was influenced by the shape and typography of the school site. The architect did a good job planning the building.

The construction methods and materials certainly reflect those popularly used in the 1950s. There is nothing cheap about the materials chosen to construct the high school. Corridor floors are terrazzo and vinyl tile. The walls feature a lot of structural glazed tile, ceilings have been modernized to a 2 by 4 grid system, lighting

is adequate, and lockers are functioning well, most of them after nearly 60 years of use.

Classrooms are well equipped and furnished. They are also well sized and well lighted. One shortcoming is the wide use of window air-conditioners. These are noisy, expensive to operate, and tend to produce uneven cooling.

Auxiliary spaces and specialized instruction rooms are quite well equipped and adequately sized. The food service facility is a very good operation; and the library/media center (modernized in 1991) is uncommonly outstanding. The high school auditorium, while somewhat underutilized, is exemplary.

Table 6 contains the listing of instructional spaces (rooms) in the high school and shops building. The sizes of the various rooms are not included because the high school instructional facilities are not part of the central issues of this study.

TABLE 6. LISTING OF INSTRUCTIONAL ROOMS AT ABILENE HIGH SCHOOL, FALL 2012.

Ground Level (10 TS plus 2 special education rooms)
Gymnasium
Café/Snack room/food prep and serving
Five academic instruction rooms
Two special education instruction rooms
Two newer (2004) math rooms
One newer (2004) technology laboratory
Health classroom
Weight training room
Wrestling room
Main Level (13 TS plus library and auditorium)
Administrative offices
Journalism room
Art laboratory
FACS (Former foods and fabrics laboratories)
Spanish room
Two computer/business laboratories
Guidance office
Four academic instruction rooms
Library/media center
Little theater/English room
Auditorium
Music (vocal room)
Music (instrumental room)

Upstairs Level (8 TS plus one special education room)
Three science laboratories
German room
Four academic instruction rooms
Special education room
Vocational/Technical Building (4 TS*)
Two greenhouses
Agricultural/metals shop
Wood shop
Auto shop
Two instruction classrooms
Drafting room
Greenhouses
(*Teaching stations are shops and drafting room as the classrooms and greenhouses are actually extensions or parts of the shops.)

Notes:

1. TS means teaching station – a room devoted to formal instruction.
2. The high school building contains 35 teaching stations, plus rooms for special education and the library, auditorium, and food service facility.
3. A 35-teaching station high school has a static capacity of about 875. This means some 875 students could be seated in the teaching stations at a given time. For high schools, static capacity must be reduced to operating capacity. This is necessary because class sizes vary widely from a few students in advanced classes to full sections in basic required classes. For high schools the size of Abilene, the operating capacity is about 75% to 83% of the static capacity. Operating capacity, therefore, ranges from 656 to 726 students, which is well below the estimated Fall 2016 enrollment of 504 students.

Readers should carefully study the footnotes following Table 6.

CAPITAL IMPROVEMENT NEEDS

There are five justifiable capital improvement needs at the high school. The first two are quite obvious to the general public, faculty, staff, and students.

1. The administrative suite is generally hidden from view from the main entrance, making it foreboding to visitors and creating a security problem for the office staff. This portion of the administrative area needs to be transparent.
2. Although a rather expensive project, the high school needs to be air-conditioned.

3. Water lines in the tunnels under the floor of the building are beginning to leak. They will soon need replacement.
4. Toilet rooms will soon need to be modernized. This will include water supply and drain work, wall and ceiling improvements, new lighting, and new fixtures.

Note: Before beginning work on items 2, 3, and 4 above, an engineering evaluation of the whole mechanical system should be done. This includes the shops building.

SCHOOL BUILDING CAPACITY

The student capacity of each building was discussed earlier in this chapter. The capacity figures compared to current and predicted enrollments are shown in the tabulation below.

Building Name	Student Capacity	Fall 2011 Enrollment	Fall 2016 Enrollment
Garfield Elementary	237	248	267
Kennedy Elementary	312	262	296
McKinley Elementary	295	229	269
Middle School	425-450	385	372
High School	756-726	486	504

Note: There are currently 16 special education students and 20 are expected in Fall 2016.

Readers should note that Garfield School is crowded and expected to remain crowded. By 2016, Kennedy School will be near capacity. The 2016 enrollment figures are estimates made by the Kansas Association of School Boards.

SCHOOL BUILDING AGE

The age of each building was shown earlier in this chapter. Most planners believe a school building passes through a series of life cycles. The idea was first forwarded by Benjamine Handler, of the University of Michigan in the 1950s in response to helping school boards plan for Baby Boom construction while caring for school buildings constructed from about 1890 through 1930. Few schools were constructed during the Depression and WWII years except for some like Garfield

Elementary that were WPA buildings built in the late 1930s and early 1940s. Handler's theory of life cycles of school buildings is outlined briefly below.

> Phase I. The first 20 years. During the first 20 years of life, school buildings require only routine maintenance and care.
>
> Phase II. Years from 21 – 30. Maintenance needs have included major attention to roofs and window/door upkeep.
>
> Phase III. Years from 31 – 40. Depending on construction materials and methods, maintenance needs are more pronounced and obvious. Furniture and equipment may need updating and electricity may need to be increased. Heating and plumbing systems require increasing attention.
>
> Phase IV. Years from 41 – 50. Maintenance needs become more prominent and maintenance costs tend to increase annually.
>
> Phase V. Years beyond 50. Depending on initial building quality and previous care, these are usually years of major maintenance on the building systems (see next chapter of this report). Perhaps more important are questions about building location, cost of maintenance, and whether the building contributes to good teaching and learning.

The age and life cycle phase of the Abilene buildings are listed below:

Building Name	Original Const.	Age	Life Phase	Comments
Garfield Elementary	1942	70	V	
Addition	1956	56	V	
Modernization	1990	22	II	
Modernization	2005	7	I	
Kennedy Elementary	1963	49	IV	Phase V in 2013
Addition	2006	6	I	
McKinley Elementary	1982	30	II	Phase III in 2013
Addition	2010	2	I	
Middle School	1975	37	III	
High School	1955	57	V	
Shops	1975	37	III	
Library Improv.	1991	21	II	
Math/Tech	2004	8	I	

The chapter that follows addresses school building maintenance and includes discussion of maintenance needs at the various buildings.

CHAPTER THREE
SCHOOL BUILDING MAINTENANCE

Kansans place high value on caring for their material possessions. It is a time-tested and respected value. The public expects its elected officials to maintain the communities capital assets. It is good business and good stewardship. This work is accomplished by maintenance.

Maintenance is defined as keeping a building in as nearly original condition as possible. This work is accomplished by repairing or replacing various component parts of the building.

COMPONENT PARTS OF BUILDINGS

The major parts of a building are called components or systems, and include:

1. Footings, foundation, basement and on-grade floor slab
2. Structural system
3. Walls – exterior and interior
4. Roof, flashing, soffit, rain gutters
5. Doors and windows, including frames
6. Floors and ceilings
7. Mechanical system – heating, plumbing, and air-conditioning
8. Electricity and electronics
9. Lighting fixtures
10. Fixed equipment and furnishing
11. Moveable equipment and furnishings
12. ADA/handicap accommodations
13. Energy management
14. Safety and security
15. Grounds, drives, walkways, and parking lots

Planning for maintenance requires that these component systems and their sub-parts be evaluated regularly. Evaluators are teachers, administrators, custodians, and maintenance persons. Also, some systems require evaluations by specifically trained specialists. These include mechanical, electrical, and structural engineers.

Some component systems have a variety of sub-systems. For example, the school grounds include play areas, athletic fields, spectator seating, concession and storage facilities, outdoor lighting, walkways, driveways, grass areas, and parking areas.

Planning for regular maintenance requires 1) identifying needed projects, 2) calculating project costs, 3) prioritizing the projects by years, and 4) financing the projects.

IDENTIFYING MAINTENANCE PROJECTS

The first step in planning maintenance projects is to evaluate the component systems of the building. The evaluation result shows all needed maintenance work in each component system. Considerable thought and planning go into these evaluations. Each project is listed regardless of size. When all needs have been listed, the routine maintenance projects are separated from the list.

Routine maintenance includes jobs like cleaning air-conditioner filters, replacing motor belts, adjusting door locks and closers, or replacing water faucet washers. Some routine maintenance jobs are done by custodians. Custodians are "building operations" people. Operations is defined by keeping a building operationally ready for its intended purpose.

In small enrollment school districts, one person may do both maintenance and custodial work. Their most popular maintenance jobs involve painting and carpentry followed by basic plumbing, electrical, and cement work. In small districts, grounds care is often shared by custodial and maintenance persons. Attractive grounds are important to maintaining a positive public image of the schools.

Once all non-routine maintenance needs have been identified, they are listed and the current cost of doing each job (project) is calculated. The labor cost will depend largely on whether the maintenance project can be done by in-house people or contracted out to independent contractors.

PRIORITIZING MAINTENANCE PROJECTS

Once costs are known, the projects have to be prioritized. Whether the school district has large enrollment and many buildings or a few students in only one building, maintenance needs nearly always exceed what can be accomplished or paid for in a single year.

Prioritizing usually results in a five-year maintenance plan. These are fiscal years that include the school year. For example, Fiscal Year (FY) 2013 begins July 1, 2012 and ends June 30, 2013, and includes the 2012 – 2013 school year.

The most pressing maintenance projects are prioritized into the first fiscal year. The next level of need goes to the following year (FY 2014) and a percentage for inflation is added to the estimated costs of the projects. The same process is used to include projects for the next three fiscal years. It is difficult to estimate inflation for more than one year. Some administrators are using an annual inflation figure of +3%. That means a project estimated to cost $4000 this year will approach $4250 two years from now, and will exceed $4500 in four years.

At the close of each year, completed projects are removed from the list and another year is added showing maintenance projects that will need to be done that year. Administrators find it difficult to write the first five-year plan, but easy to work with and update each year thereafter.

FINANCING MAINTENANCE PROJECTS

There are five ways to finance maintenance projects. First, there may be state or federal grant money available. These are usually limited to projects involving energy conservation.

A second funding source is the maintenance account of the current operating budget.

A third choice is the capital outlay account. There is a fairly fine line defining a maintenance project and a capital improvement project.

Fourth is the lease-purchase option. This is generally used for larger projects that are more like capital improvements than maintenance projects.

A fifth choice is to finance the project with short or longer-term bonds. To do so requires voter approval; so bonds are used mostly for large projects like those financed by a lease-purchase arrangement.

MAINTENANCE NEEDS IN USD 435

Following is a listing of the more obvious or most pressing maintenance projects that need to be undertaken in USD 435:

Garfield Elementary School (1942)

1. Install the new heating boiler as planned for Summer 2012.
2. Proceed with the elevator project as planned.
3. Obtain engineering evaluation of the necessity and cost of updating the heating and air-conditioning distribution system.
4. Obtain architectural sketches to show two or three options for constructing an addition to the school for art, music, computers, a general classroom, and additional administration, guidance, and student services space.
5. Convene a citizen advisory committee to study the question of expanding/modernizing versus replacing Garfield School. This recommendation will be discussed in more detail in Chapter Four.

Kennedy Elementary School (1963)

1. Plan to upgrade windows to energy efficient thermo-pane units.
2. Plan to upgrade toilet rooms including supply and drain piping as necessary.

McKinley Elementary School (1951)

1. Heavy-up electrical service and place additional electric outlets in classrooms and other locations as needed.
2. Obtain engineering evaluation of the heat distribution system and the plumbing supply and distribution system.
3. Add central air-conditioning.
4. If found feasible, add some additional storage space. The building is short on storage space, yet to add storage space is difficult because it is hard to justify the cost.

Middle School (1975)

1. Evaluate the adequacy of lighting in the library.
2. Obtain architectural sketches showing two or three choices to expand the middle school by adding a general science room, perhaps an English room, and one or two smaller sized rooms for specialized services to exceptional students. This expansion project should include consideration and costing of a practice gymnasium – more commonly referred to as a physical education teaching facility. It could be planned as a joint venture between the Board of Education and the city and county commissions as a facility for broader recreational use.

High School (1955)

1. Open the closed walls at the north and east of the general office to provide visual access to the main entrance to the building.
2. Add central air-conditioning to the building.
3. Replace deteriorating water and drain lines as needed.
4. Plan for a phased modernization of toilet rooms similar to the project recommended at Kennedy School. This is not an emergency, but will eventually need to be undertaken.
5. Before beginning major maintenance and/or improvement projects at the high school, a general mechanical engineering evaluation of the building should be conducted.

General Note: While not specifically mentioned in the text of this report, attention needs to be given to the necessity of being constantly alert to school building security. This is addressed in more detail as the closing recommendation in the next chapter of this report.

CHAPTER FOUR

RECOMMENDATIONS

The recommendations that follow evolved from the content of this report and are targeted to answer the two questions highlighted in the Preface. The questions were:

1. What are the major maintenance needs at each school?
2. What is the future of Garfield School; and should interest in expanding the Middle School be considered concurrently with resolving the Garfield question?

Each recommendation is followed by brief discussion. The purpose of the discussion is to provide a departure point for additional public discussion of the recommendation.

In the Abilene school situation, public discussion is important. The Board of Education should not respond alone to the recommendations that follow; particularly to those involving Garfield School. The solution to the Garfield question and the related question involving Middle School expansion should be resolved co-operatively between the Board and the public who elected the Board. To involve the electorate is not to give away power or avoid responsibility. Rather, public involvement confers more power to the Board and shares responsibility for decisions the Board will need to reach concerning aging school buildings in Abilene School District, particularly the 70-year-old Garfield School.

RECOMMENDATION 1. Celebrate school excellence to enhance public understanding of the quality of education in Abilene.

Discussion. This seems outside the findings of this report, but is a very important recommendation. Its importance is imbedded in the school-community relation's component of educational administration. The bedrock goals of school community relations are "to obtain public understanding and to achieve goodwill of the public" (Lundblad and Stewart, 2005, p. 3). One proven way to achieve public understanding and good will is to communicate to the citizenry the good work of their schools. "As a general rule people do not actively seek out information about schools. It becomes the job of school leaders to reach out to patrons and parents to

maintain and establish understanding and support for schools" (Lundblad and Stewart, 2005, p. 9).

RECOMMENDATION 2. Prepare a five-year maintenance plan.

Discussion. As stated in Chapter Four, it is rather difficult to write a first time five-year maintenance plan, but once written it is easy to use. At the close of year one, completed projects are checked off the list and a new year five is added to the plan so it always shows projects to be undertaken the coming year and shows those that will be done during each of the four years that follow.

RECOMMENDATION 3. Provide as much support as possible to the maintenance and custodial personnel responsible for caring for the buildings.

Discussion. School buildings in Abilene have enjoyed and are continuing to enjoy very good care by custodial and maintenance personnel. Some additional part-time or full-time custodial help may be justified especially at the high school during portions of the year when the building is receiving heavy public use such as music and dramatic productions and athletic events. Custodial responsibility is also especially taxing during the winter months when floors require additional care.

It is common knowledge that in-house maintenance projects cost less than projects done by outside contractors. Skills most commonly needed for in-house maintenance and minor capital improvement work are painting, carpentry, plumbing, and electrical including electronics. USD 435 has two individuals with these skills.

RECOMMENDATION 4. Commission engineering study of the mechanical and electrical systems, particularly at McKinley School and at the high school. Include evaluation of lighting in the Middle School library.

Discussion. Unfortunately, the school buildings in Abilene are mostly in Phases IV and V of their life cycles. These are the ages of 40 to 50 years and beyond 50 years. These are years of increasing need for maintenance. The maintenance needs listed at the close of Chapter Four seem to contain a common thread of concern about the mechanical and electrical systems. The mechanical systems include heating, air-conditioning, and ventilation and plumbing.

Concerning interests in modernizing toilet rooms, there is no emergency at this time; but as fixtures age and especially as piping – both supply pipes and drain pipes – ages, maintenance/replacement will become necessary. At that time, school boards generally modernize toilet rooms. Some very exemplary work has been recently completed at the Emporia Public Schools.

RECOMMENDATION 5. Form a citizen advisory committee to study whether to replace or expand Garfield School and whether to include in the resultant project construction of some additional space at the Middle School.

Discussion. Most school boards want the consultant's recommendation rather than form a citizen advisory committee. If the Board wants a specific recommendation in the place of or in addition to an advisory committee recommendation, the consultant offers the following:

Concerning Garfield School, to expand or build anew provides positives and negatives. To expand the building by constructing an addition will eliminate the relocatable units, provide a coherent grouping of new classrooms, guarantee continued use of the building for many years, respect the reputation and historic value of the building, cost less than a new building on a new site, and avoid the problem of finding a new owner or new use for the building.

To construct a new building will provide a new facility that will last as long or longer than the old building has lasted, will feature the latest construction materials, design, and instructional technology hardware, utilize a site near the middle school, place Grades 4 - 8 in adjacent buildings (Grades 4 and 5 at new Garfield and Grades 6 - 8 at the middle school), and be paid for in 20 years.

In considering these facts, the Board needs to remember that the Garfield School is on the Historic Register, and that WPA buildings were unusually well constructed and with care were built to last more than 100 years. At age 70, Garfield is an exemplary building with a proud tradition as a very prominent part of Abilene.

It seems to this writer that whether to expand or replace Garfield is a question that must be debated publicly by a broadly representative committee of the citizenry.

Concerning expansion of the Middle School, the type of expansion may depend somewhat on whether Garfield is expanded or replaced. For example, if it is replaced on a site near the Middle School, could a gymnasium/physical education teaching facility/recreational building be constructed as part of the new Garfield School and at the same time meet the need for additional gym space at the Middle School? Also, if Garfield is replaced, should the new building relate to the Middle School in a fashion that would provide a cluster of rooms for Science/Math, another for English/Social Studies and perhaps another for the Arts with each cluster serving students in Grades 4 - 8?

These are possibilities, but they should be weighed by the citizenry rather than by a consultant or the Board alone. Ultimately, whatever the decision, it will have to be approved at the polls by the citizenry in referendum. The citizenry therefore needs to be involved early in the decision process. So, by way of

assistance, the consultant is recommending a citizen advisory committee to study the Garfield and Middle School questions. If the Board decides to appoint a citizen advisory committee, the consultant will provide written guidance concerning the process of selecting, leading, and utilizing a committee.

In the mean time, the Garfield and Middle School principals need to provide reports describing and justifying the kind of additional space that is needed at each school. A report outline for their work is provided below:

I. School Name
II. Description of needed additional spaces and/or changes in existing space.
III. Reasons additional space is needed.
IV. How additional space will improve teaching and learning, will broaden the curriculum, and improve efficiency of the school.
V. How additional space will change the student capacity of the building.

These reports need to be completed prior to either a citizen committee being convened or an architect being retained.

RECOMMENDATION 6. Support the importance of school personnel always being alert to school security.

Discussion. School building safety and especially security are important concerns of parents, teachers, and administrators. Safety issues are related to maintenance in that maintenance projects can often correct safety problems. For example, a loose stair rail, a faulty stair step, or a non-working door closure can be corrected by maintenance.

Security is a larger and more complicated question. Maintenance projects can be directed at solving security problems; but first a standard for desired security needs to be established. Stewart (2007; p. 156) stated, "Security ranges from what people believe to be too much in large urban schools to not enough in small rural schools. A school building is either safe and secure or it isn't; there is not much in between." Yet, a standard or level of desired security is determined by local choice.

Security can be enhanced by installing cameras to monitor entry doors. The locked door can be "buzzed" open by office personnel or opened in person once the individual seeking entry has been identified as an appropriate visitor. However, difficult public relations questions accompany security. School principals need to help parents understand reasons for various security measures. As a school principal aptly stated in a presentation at a convention, "Once an unwanted intruder is in the building, you are in trouble and everyone is jeopardized." Security is an increasingly important topic among school leaders and school boards.

Since safety and particularly security are mostly matters of local preference as to how much of each is enough, the foregoing discussion was included to provide a departure point for public discussion.

Decisions accruing from this study need to be:

Educationally sound
Politically feasible
Financially realistic

Sources cited:

Lundblad, Sally S. and Stewart, G. Kent (2005) Public Relations for Schools. Information Age Publishing, Inc. Charlotte, NC.

Stewart, G. Kent (2007) Avoiding School Facility Issues. Information Age Publishing, Inc. Charlotte, NC.