

# WESTCHESTER92.5

facilities upgrade program 2013

by: EJM ARCHITECT





November 21, 2013

**WESTCHESTER92.5 - Facilities Upgrade Program 2013**

**PRODUCED BY**

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## INTRODUCTION

The following Facilities Upgrade Program is intended to assess the current condition of the four buildings that comprise Westchester School District 92.5. EJM Architect also offers direction on the projects we suggest that the District undertake to ensure that they maintain high quality learning environments for their students and staff. The formation of this plan recognizes the fact that each intervention to their facilities is working towards a common goal. Whether it is the renovation of a classroom, the renewal of a roofing system, or the replacement of a heating plant, these actions in aggregate are improving the overall quality of the built environment and/or the energy performance of the facility. Each building will be evaluated according to the following criteria which is included under the Capital Needs Assessment Survey as defined by the Illinois State Board of Education (ISBE) and the Capital Development Board (CDB): 00 GENERAL BUILDING INFORMATION, 01 TECHNOLOGY UPGRADES, 02 ARCHITECTURAL COMPONENTS, 03 STRUCTURAL COMPONENTS, 04 ROOFING SYSTEMS, 05 HVAC SYSTEMS, 06 ELECTRICAL SYSTEMS, 07 PLUMBING SYSTEMS, 08 EGRESS SYSTEMS, 09 FIRE PROTECTION SYSTEMS, 10 ASBESTOS / ENVIRONMENTAL ISSUES, 11 SECURITY SYSTEMS, 12 ENERGY CONSERVATION MEASURES, 13 SITE COMPONENTS, 14 ACCESSIBILITY COMPONENTS (EJM has inserted item "00 General Building Information" for the purposes of this report).

It is the philosophy of EJM Architect that the built environment has a profound impact on our lives and the way in which we learn. As an architecture firm that has specialized in educational design since its inception, we have leveraged this belief into creating environments where students can strive to their fullest potential. Much research has been done in recent years into the impact that learning spaces have on students; for instance, classrooms which have proper lighting levels and introduce daylight carefully have proven to be more conducive learning environments than those which do not. EJM uses specific

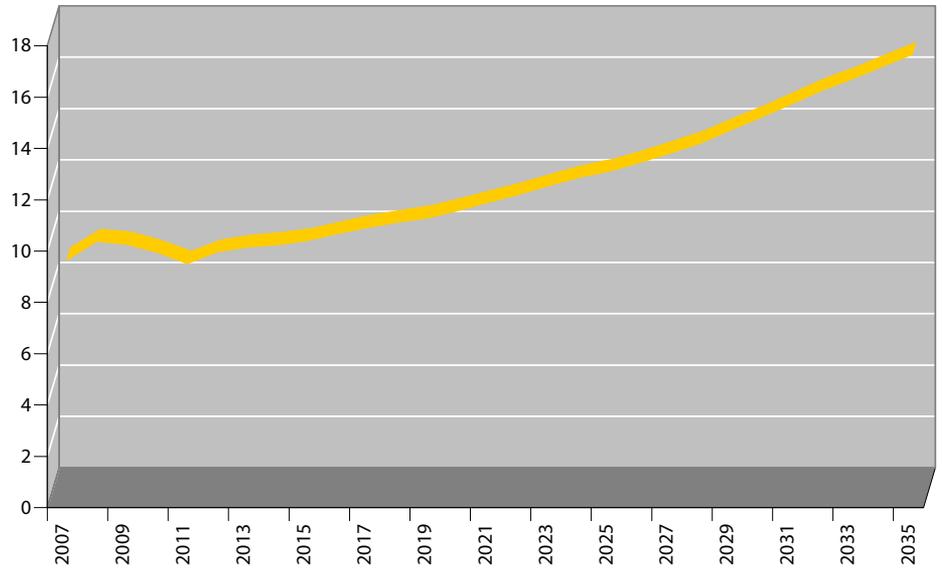
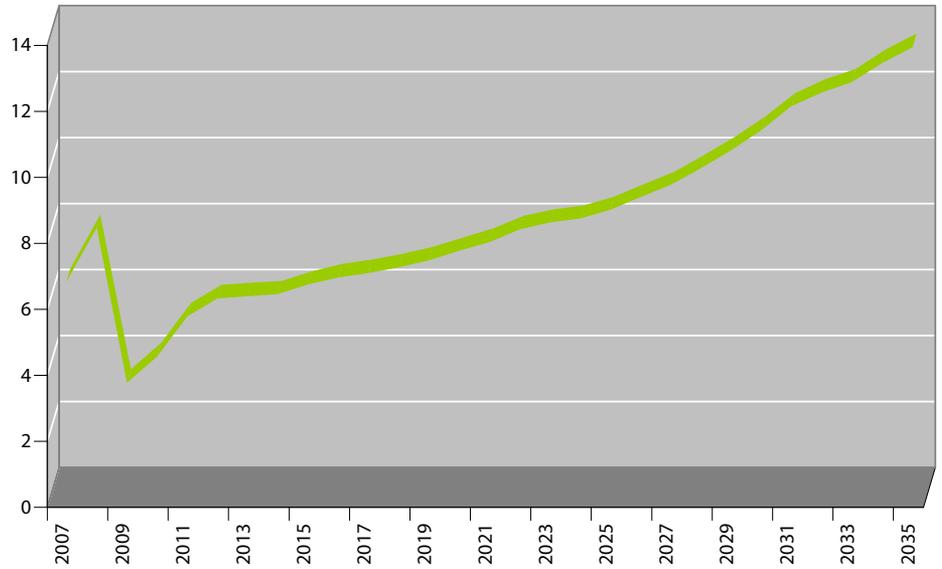
knowledge such as this to create spaces tailored to student learning by pursuing the highest quality built environment.

Energy prices are on a gradual upward trend as reflected by the graphs on the following page. According to the U.S. Energy Information Administration the price of natural gas paid by the average consumer is projected to increase 1.9% per year between 2007 and 2035 and electricity prices are projected to increase 2.1% over that same span<sup>4</sup>. Due to the vintage of the District's facilities we are suggesting several system upgrades because they have exceeded their useful life. All of the interventions we are proposing address the aforementioned, looming energy crisis. These projects would increase the energy efficiency of the building through thermal envelope enhancements (i.e. window replacement, roof replacement, etc.) or system upgrades (i.e. lighting replacement, boiler replacement, etc.) if undertaken.

Also to take under consideration with the inflation of energy prices, renewable energy systems are gaining popularity in many parts of the United States. This is in part due to near-term cost reduction of renewable energy production systems because of its increase in market share<sup>5</sup>. Many others are installing these systems not only for their long-term cost savings, but also because people are becoming much more aware of the impact that our energy consumption is having on the environment and human health. Most of the electricity produced in this part of the country is obtained through the burning of natural gas (mostly methane) or coal; both of which result in the release of CO<sub>2</sub> - the most prevalent greenhouse gas - into the atmosphere. Renewable energy inherently has much less impact on the environment because it is produced through the natural cycles of the planet. If the District so wishes EJM Architect can pursue the use of these systems in future projects.

### PROJECTED U.S. ENERGY COSTS <sup>4</sup>

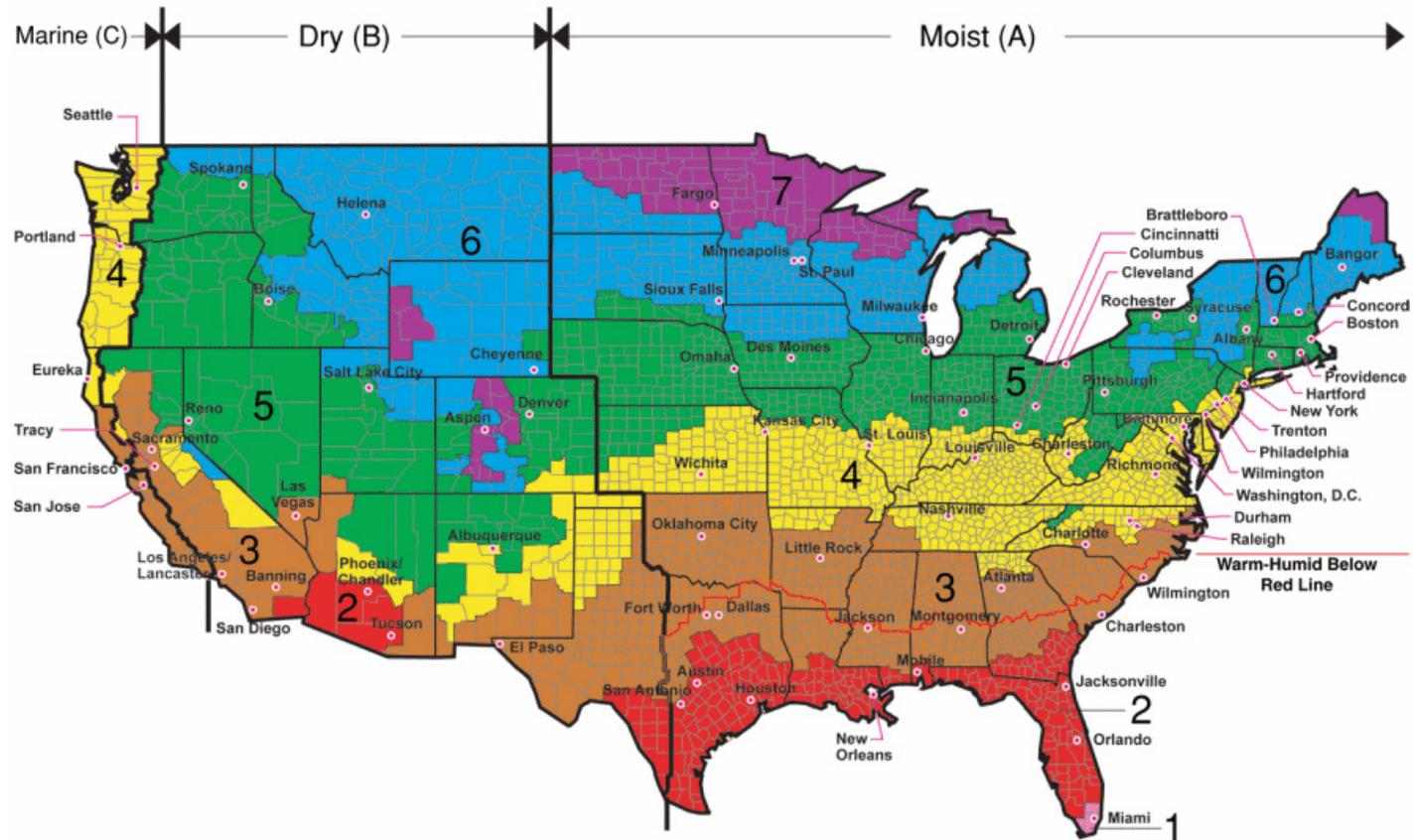
-  Natural Gas price per thousand cubic feet / therm (in cents)
-  Electricity price per kWh (in cents)



# CLIMATE DATA / GEOGRAPHICAL INFORMATION

## WESTCHESTER, IL

CLIMATE ZONE 5A - Cool / Humid



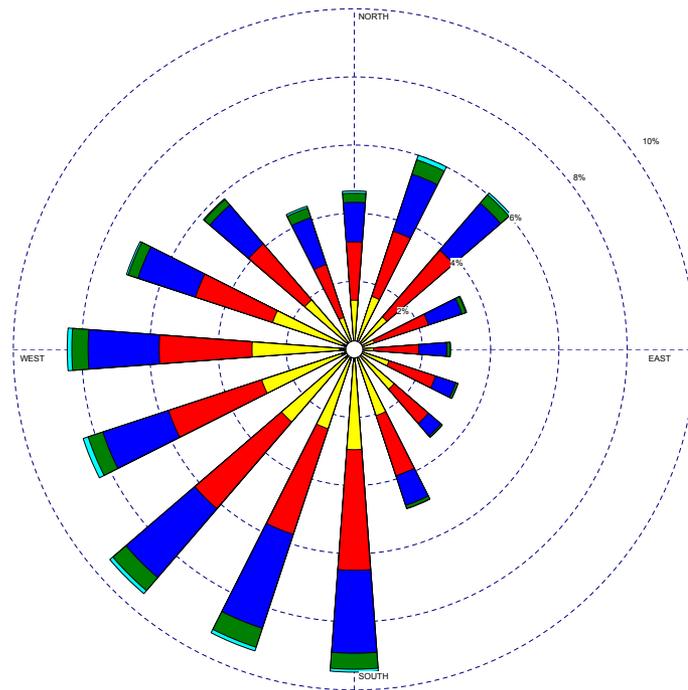
## NORMAL TEMPERATURES

MONTH	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	ANNUAL
MAX °F	30.7	36.1	47.4	59.2	71.3	80.8	84.7	82.3	75.1	63.2	48	35.6	59.5
AVG °F	23.5	28.7	39	49.7	61.1	70.8	75.5	73.7	65.9	54.1	40.8	28.9	51
MIN °F	16.2	21.3	30.6	40.2	50.9	60.7	66.3	65	56.7	44.9	33.6	22.2	42.4

## NORMAL PRECIPITATION

MONTH	JAN	FEB	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPT	OCT	NOV	DEC	ANNUAL
INCHES	1.95	1.78	2.83	3.82	3.86	4.16	3.82	3.91	3.45	2.79	3.22	2.76	38.35

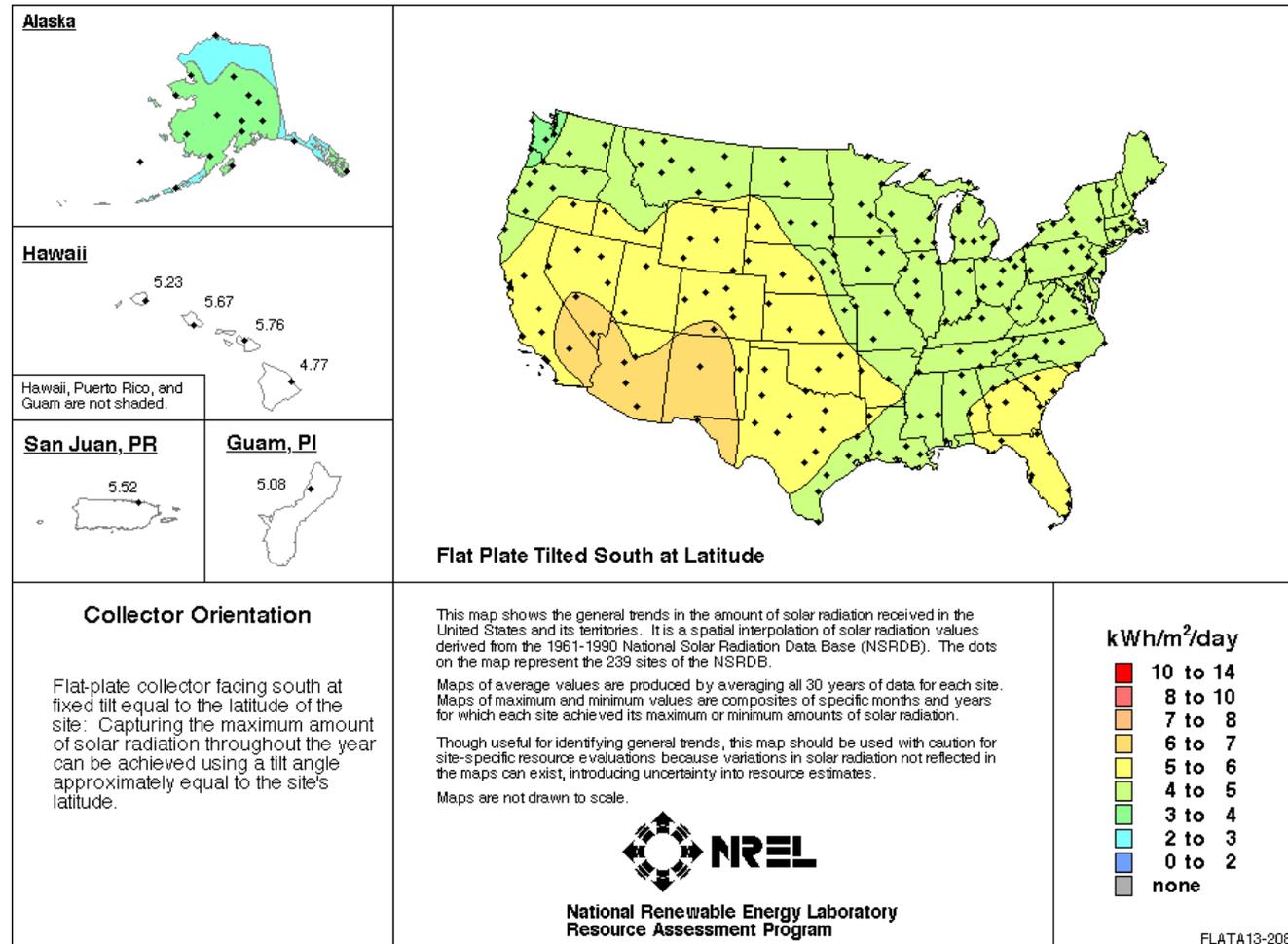
ANNUAL AVERAGE WIND SPEED (knots)



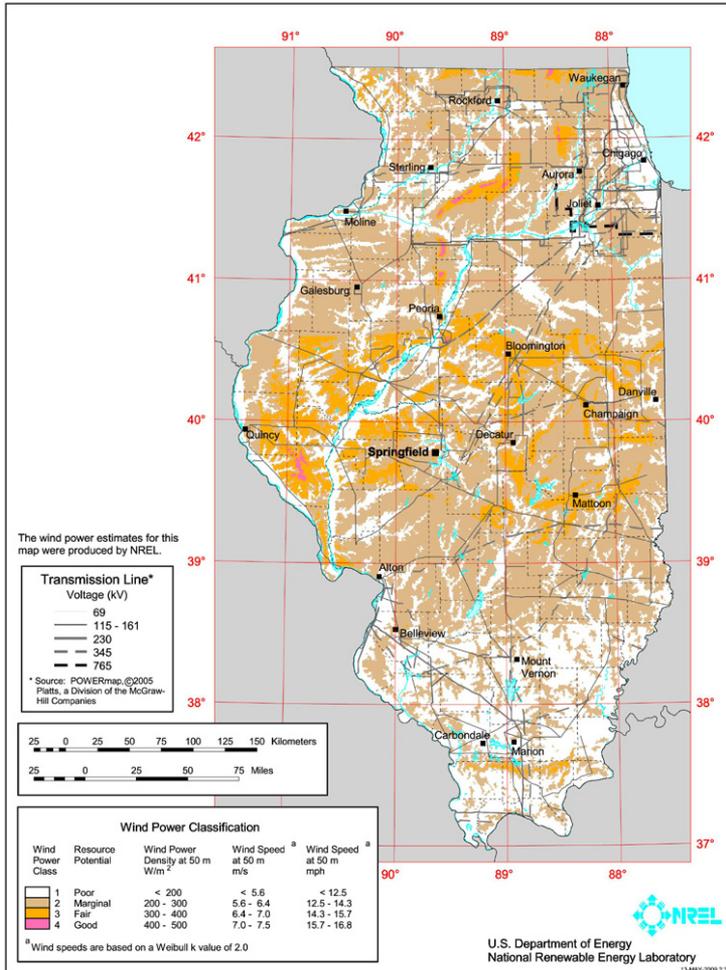
# CLIMATE DATA / GEOGRAPHICAL INFORMATION

WESTCHESTER, IL

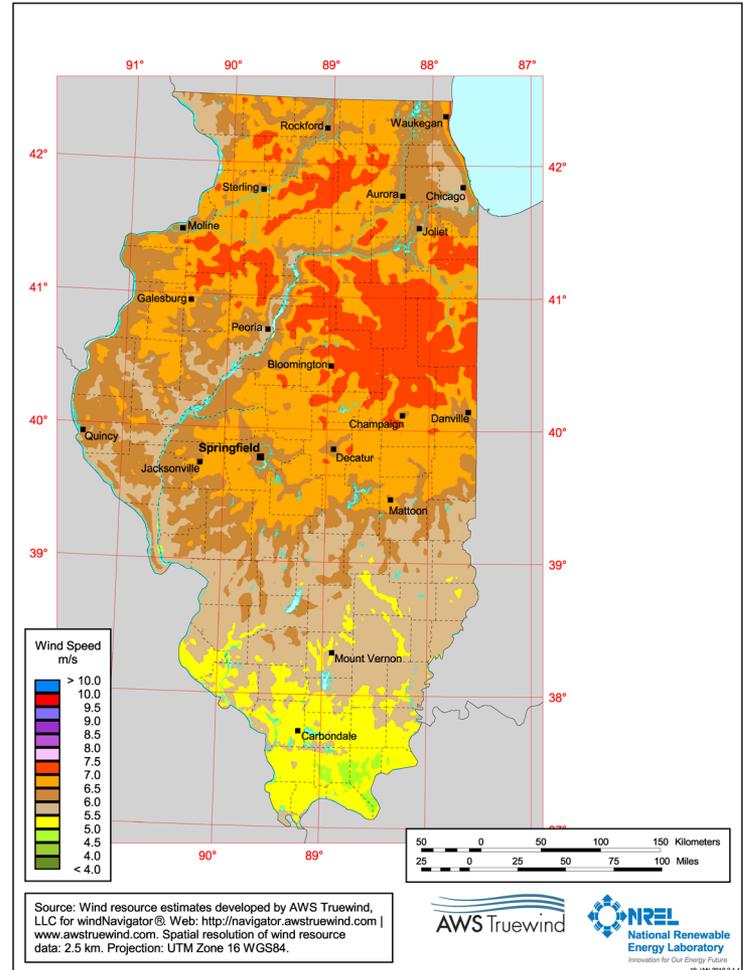
## ANNUAL AVERAGE DAILY SOLAR RADIATION <sup>1</sup>



## ILLINOIS WIND POWER CLASSIFICATION - 50m ALTITUDE <sup>2</sup>



## ILLINOIS ANNUAL AVERAGE WIND SPEED - 80m ALTITUDE <sup>3</sup>



**CLIMATE DATA / GEOGRAPHICAL INFORMATION**  
WESTCHESTER, IL

**WESTCHESTER SCHOOL  
DISTRICT 92.5**

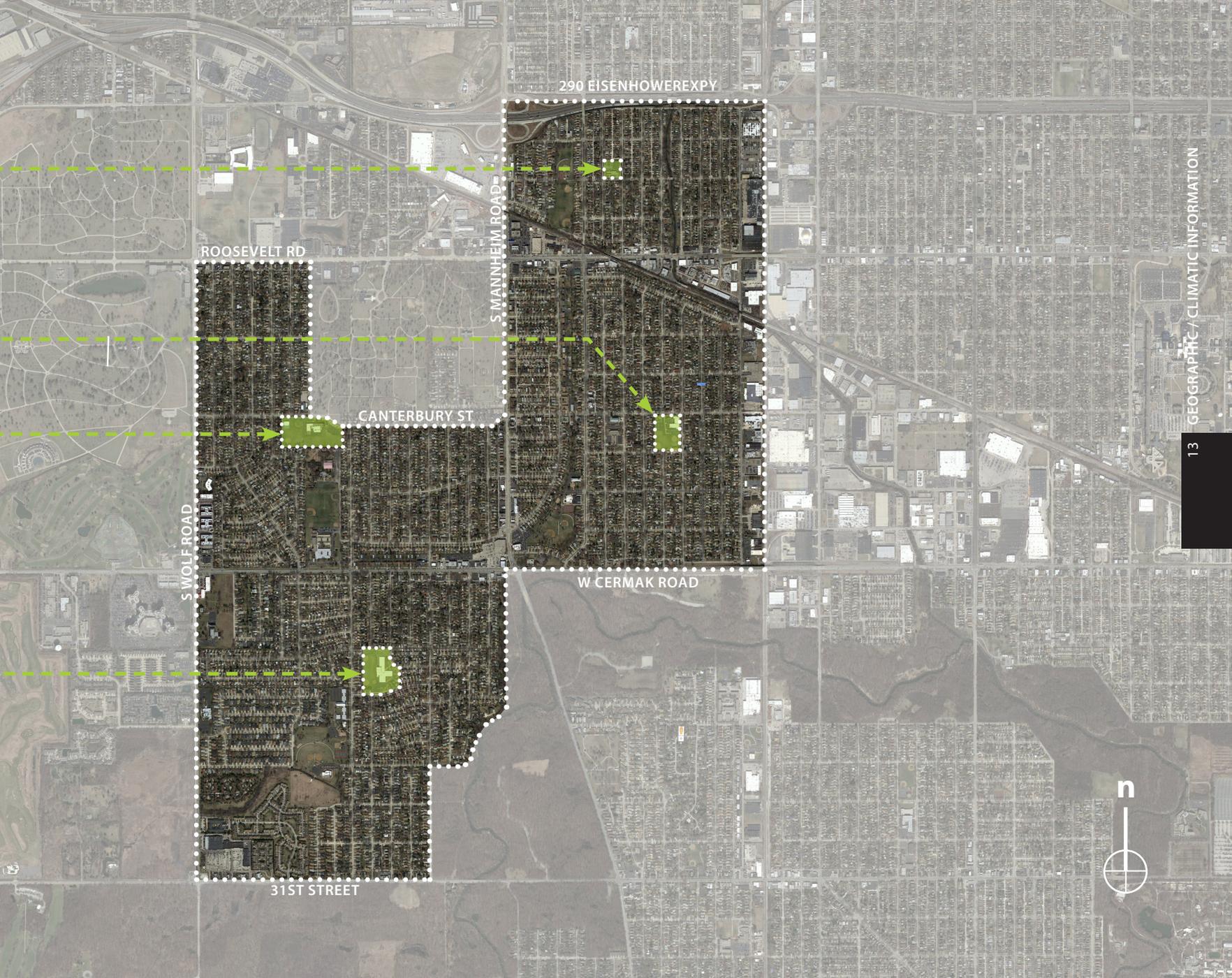
**BRITTEN BUILDING**

**WESTCHESTER MIDDLE SCHOOL**

**WESTCHESTER INTERMEDIATE SCHOOL**

**WESTCHESTER PRIMARY SCHOOL**





290 EISENHOWER EXPY

ROOSEVELT RD

S MANNHEIM ROAD

CANTERBURY ST

S WOLF ROAD

W CERMAK ROAD

31ST STREET





14

**WESTCHESTER  
PRIMARY SCHOOL**

2400 Downing Avenue  
Westchester, IL 60154  
Latitude: 41°52'02.00" N





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**00 GENERAL BUILDING INFORMATION**

## SPATIAL ANALYSIS - NET SQUARE FOOTAGE CALCULATION AND BUILDING TIMELINE

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
1	OFFICE: MAIN	374
1A	OFFICE: PRINCIPAL	402
2	OFFICE: NURSE	234
3	OFFICE: SOCIAL WORKER	174
4	OFFICE: SPEECH	174
6	MULTIPURPOSE ROOM / CAFETERIA	2,510
7	CLASSROOM: SPECIALISTS	1,037
7A	SOCIAL WORKER	175
7B	STORAGE	89
8	MEDIA CENTER	2,423
9	CLASSROOM: KINDERGARTEN/1ST/2ND	871
10	CLASSROOM: 1ST GRADE	1,001
11	CLASSROOM: 1ST GRADE	1,003
12	CLASSROOM: 1ST GRADE	1,003
13	CLASSROOM: KINDERGARTEN	1,194
13A	STORAGE: KINDERGARTEN	133
13B	COAT ROOM	350
14	CLASSROOM: KINDERGARTEN	1,192
15	CLASSROOM: 1ST GRADE	932
16	CLASSROOM: 1ST GRADE	932

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
17	CLASSROOM: 1ST GRADE	932
18	CLASSROOM: KINDERGARTEN	932
19	STAFF WORKROOM	1,035
20	CLASSROOM: ART	1,556
20A	STORAGE:ART	80
20B	STORAGE:ART	75
21	CLASSROOM: 2ND GRADE	934
21A	STORAGE	153
22	CLASSROOM: 2ND GRADE	934
23	CLASSROOM: 1ST / 2ND GRADE	934
24	CLASSROOM: EARLY CHILDHOOD	879
25	CLASSROOM: EARLY CHILDHOOD	880
26	CLASSROOM: EARLY CHILDHOOD	895
27	CLASSROOM: OCC/PHYSICAL THERAPY	932
28	CLASSROOM: 2ND GRADE	934
29	CLASSROOM: 2ND GRADE	934
30	CLASSROOM: 2ND GRADE	934
31	CLASSROOM: 2ND GRADE	934
32	GYMANSIUM	4,817
32A	STAGE	996

TOTAL NET SQUARE FOOTAGE: 36,903 ft<sup>2</sup>

**GROSS SQUARE FOOTAGE: 55,677 FT<sup>2</sup>**

- 1958 - ORIGINAL BUILDING
- 1964 - BUILDING ADDITION
- 1967 - BUILDING ADDITION

**NOTES:**

WPS was rented to a company for approximately 20 years, from c.1975 through 1993. Due to increased student population in the early 1990's the District completed a renovation project in 1994 in order to resume use of the building originally known as Mary Jane Kennedy School. This 1994 construction project incorporated new interior architectural finishes (such as new carpeting), new suspended ceiling systems, new corridor doors/hardware, and new mechanical equipment (2 hot water boilers, 4 new air handling units, and other related equipment.)



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 02 ARCHITECTURAL COMPONENTS

### GENERAL INFORMATION AND FLOORING SYSTEMS ASSESSMENT

#### NOTES:

The following are areas that will be affected if the District chooses to perform the work as outlined in the Facilities Upgrade Program:

- a. Remove and replace existing carpeting. Refer to the following pages for complete scope of work and budgets for new flooring options.
- b. Remove and replace selected interior masonry walls at pipe chases for the Plumbing and Mechanical System Modernizations detailed in section 05, 07, and the Facilities Upgrade Program.
- c. The suspended ceiling system must be removed and replaced due to Mechanical System Modernizations.
- d. Remove existing lighting fixtures and reinstall in new suspended ceiling system. Refer to Lighting Analysis in section 06 for additional information.
- e. Selected interior partitions will need to be demolished, modified, or constructed for proposed School Security Entry Vestibule(s) (SSEV).

 AREAS INCLUDED IN BUDGET CALCULATION ON THE FOLLOWING PAGE



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 02 ARCHITECTURAL COMPONENTS

### FLOORING SYSTEMS ASSESSMENT (CONTINUED)

#### BUDGET CALCULATION FOR SUGGESTED AREAS OF REPLACEMENT

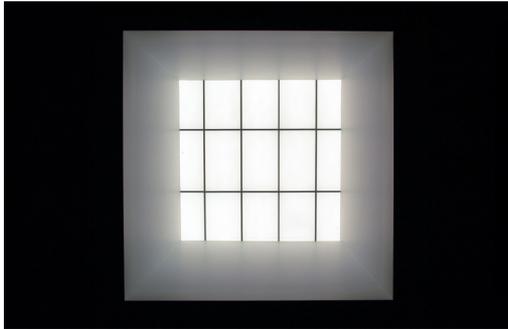
ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	DEMO	CARPET	VCT	AQT
1	OFFICE: MAIN	374	\$748	\$1,683	\$1,309	\$2,057
1A	OFFICE: PRINCIPAL	402	\$804	\$1,809	\$1,407	\$2,211
2	OFFICE: NURSE	234	\$468	\$1,053	\$819	\$1,287
3	OFFICE: SOCIAL WORKER	174	\$348	\$783	\$609	\$957
4	OFFICE: SPEECH	174	\$348	\$783	\$609	\$957
6	MULTIPURPOSE ROOM / CAFETERIA	2,510	\$5,020	\$11,295	\$8,785	\$13,805
7	CLASSROOM: SPECIALISTS	1,037	\$2,074	\$4,667	\$3,630	\$5,704
7A	SOCIAL WORKER	175	\$350	\$788	\$613	\$963
7B	STORAGE	89	\$178	\$401	\$312	\$490
8	MEDIA CENTER	2,423	\$4,846	\$10,904	\$8,481	\$13,327
9	CLASSROOM: KINDERGARTEN/1ST/2ND	871	\$1,742	\$3,920	\$3,049	\$4,791
10	CLASSROOM: 1ST GRADE	1,001	\$2,002	\$4,505	\$3,504	\$5,506
11	CLASSROOM: 1ST GRADE	1,003	\$2,006	\$4,514	\$3,511	\$5,517
12	CLASSROOM: 1ST GRADE	1,003	\$2,006	\$4,514	\$3,511	\$5,517
13	CLASSROOM: KINDERGARTEN	1,194	\$2,388	\$5,373	\$4,179	\$6,567
13A	STORAGE: KINDERGARTEN	133	\$266	\$599	\$466	\$732
13B	COAT ROOM	350	\$700	\$1,575	\$1,225	\$1,925
14	CLASSROOM: KINDERGARTEN	1,192	\$2,384	\$5,364	\$4,172	\$6,556
15	CLASSROOM: 1ST GRADE	932	\$1,864	\$4,194	\$3,262	\$5,126
16	CLASSROOM: 1ST GRADE	932	\$1,864	\$4,194	\$3,262	\$5,126

ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	DEMO	CARPET	VCT	AQT
17	CLASSROOM: 1ST GRADE	932	\$1,864	\$4,194	\$3,262	\$5,126
18	CLASSROOM: KINDERGARTEN	932	\$1,864	\$4,194	\$3,262	\$5,126
19	STAFF WORKROOM	1,035	\$2,070	\$4,658	\$3,623	\$5,693
20	CLASSROOM: ART	1,556	\$3,112	\$7,002	\$5,446	\$8,558
20A	STORAGE:ART	80	\$160	\$360	\$280	\$440
20B	STORAGE:ART	75	\$150	\$338	\$263	\$413
21	CLASSROOM: 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
21A	STORAGE	153	\$306	\$689	\$536	\$842
22	CLASSROOM: 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
23	CLASSROOM: 1ST / 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
24	CLASSROOM: EARLY CHILDHOOD	879	\$1,758	\$3,956	\$3,077	\$4,835
25	CLASSROOM: EARLY CHILDHOOD	880	\$1,760	\$3,960	\$3,080	\$4,840
26	CLASSROOM: EARLY CHILDHOOD	895	\$1,790	\$4,028	\$3,133	\$4,923
27	CLASSROOM: OCC/PHYSICAL THERAPY	932	\$1,864	\$4,194	\$3,262	\$5,126
28	CLASSROOM: 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
29	CLASSROOM: 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
30	CLASSROOM: 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
31	CLASSROOM: 2ND GRADE	934	\$1,868	\$4,203	\$3,269	\$5,137
CORRIDOR	--	8,417	\$16,834	\$37,877	\$29,460	\$46,294
TOTALS:		39,507	\$79,014 (\$2.00/ft <sup>2</sup> )	\$177,782 (\$4.50/ft <sup>2</sup> )	\$138,275 (\$3.50/ft <sup>2</sup> )	\$217,289 (\$5.50/ft <sup>2</sup> )

## 04 ROOFING SYSTEMS

### GENERAL INFORMATION AND WARRANTY STATUS

ROOF AREA	COMPLETION DATE	AREA(FT <sup>2</sup> )	MANUFACTURER	MATERIAL	WARRANTY #	EXPIRATION DATE	BUDGET
1	AUG-2010	60,143 FT <sup>2</sup>	CARLISLE	0.060mm "SURE-WHITE" EPDM	10057872	26-AUG-2030	\$ --

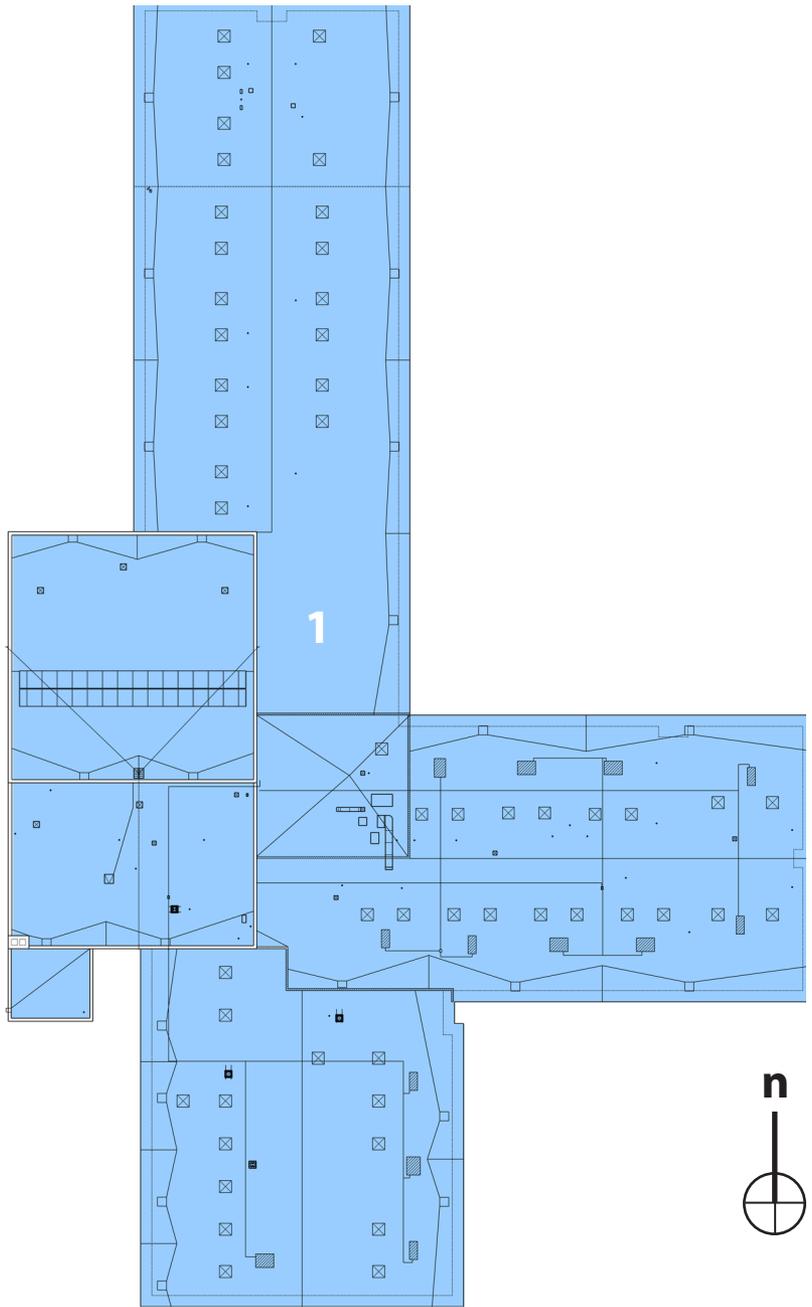


#### NOTES:

The 1958, 1964, and 1968 Building Areas were re-roofed in 2010. Penetrations for skylights were discovered during EJM's field work for this project. The original skylights were removed and the penetrations were sealed off due to water infiltration some time between original construction and 2010. New classroom skylights were installed with the re-roofing project in 2010. The gymnasium skylight unit was also removed and replaced in 2010.



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 05 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS (HVAC)

### GENERAL INFORMATION AND AIR CONDITIONING BY BUILDING AREA

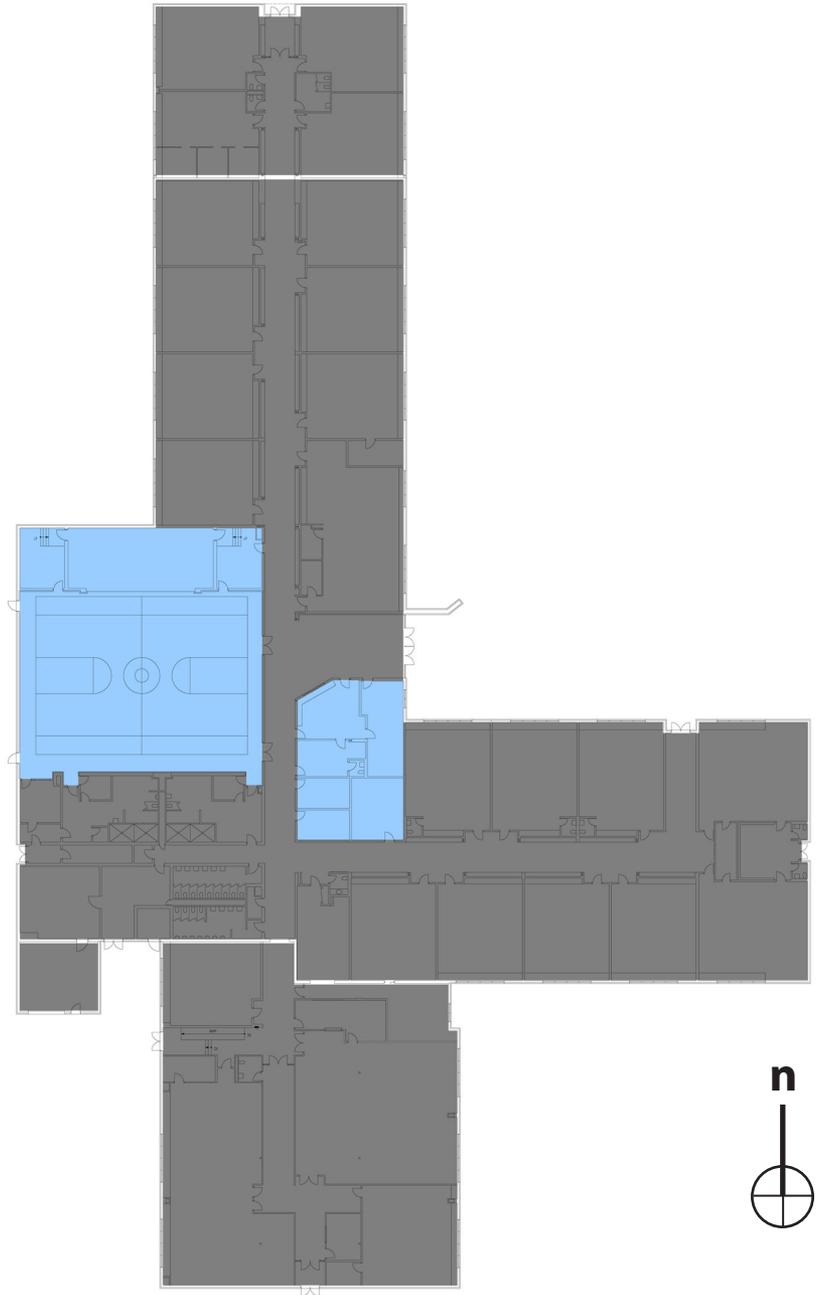
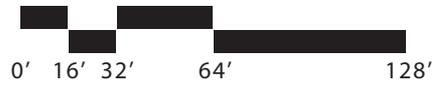
#### NOTES:

A Building Renovation project was completed in 1994. The following Mechanical System Upgrades were part of that project:

- a. Two new hot water boilers and related circulating pumps.
- b. Four new air handling units (AHU's) for space ventilation:
  1. AHU-1: Is located at west state mechanical room and services the ventilation and air-conditioning of the gymnasium space.
  2. AHU-2: Is located at the east stage mechanical room and services the ventilation only of the North (1964) Classroom Wing. This AHU-2 has a space allotted for a cooling coil which would be able to air condition the spaces serviced by this unit.
  3. AHU-3: Is located in the Mechanical Room in the east classroom wing and services the ventilation and air-conditioning of the School Office Suite.
  4. AHU-4: Is located in the Mechanical Room in the east classroom wing and services the ventilation only of the east classroom wing. This AHU-4 has a space allotted for a cooling coil which would be able to air-condition the spaces serviced by this unit.
- c. The original grade-mounted Air Cooled Condensing Unit (ACCU) unit has a capacity of 30 tons of cooling. This ACCU provides the cooling to the cooling coils at AHU-1 and AHU-3. This ACCU is approximately 45 years old.
- d. The other miscellaneous mechanical equipment incorporated in the 1994 project:
  - 1.
  - 2.
  - 3.
- e. Temperature Control System:
  1. New air compressor for the pneumatic control devices on the mechanical equipment.
  2. TAC, your service/maintenance contractor, has updated various pieces of mechanical equipment the past six years. TAC has updated the following equipment with Direct Digital Controls (DDC's):
- f. Rooftop Mechanical Units: RTMU's.
  1. There are numerous RTMU's which are no longer in service. These units were installed by the renter who occupied the building between c.1975 and 1993. Due to budget they were left in place.

 AIR-CONDITIONED  
 NOT AIR-CONDITIONED

**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 06 ELECTRICAL SYSTEMS

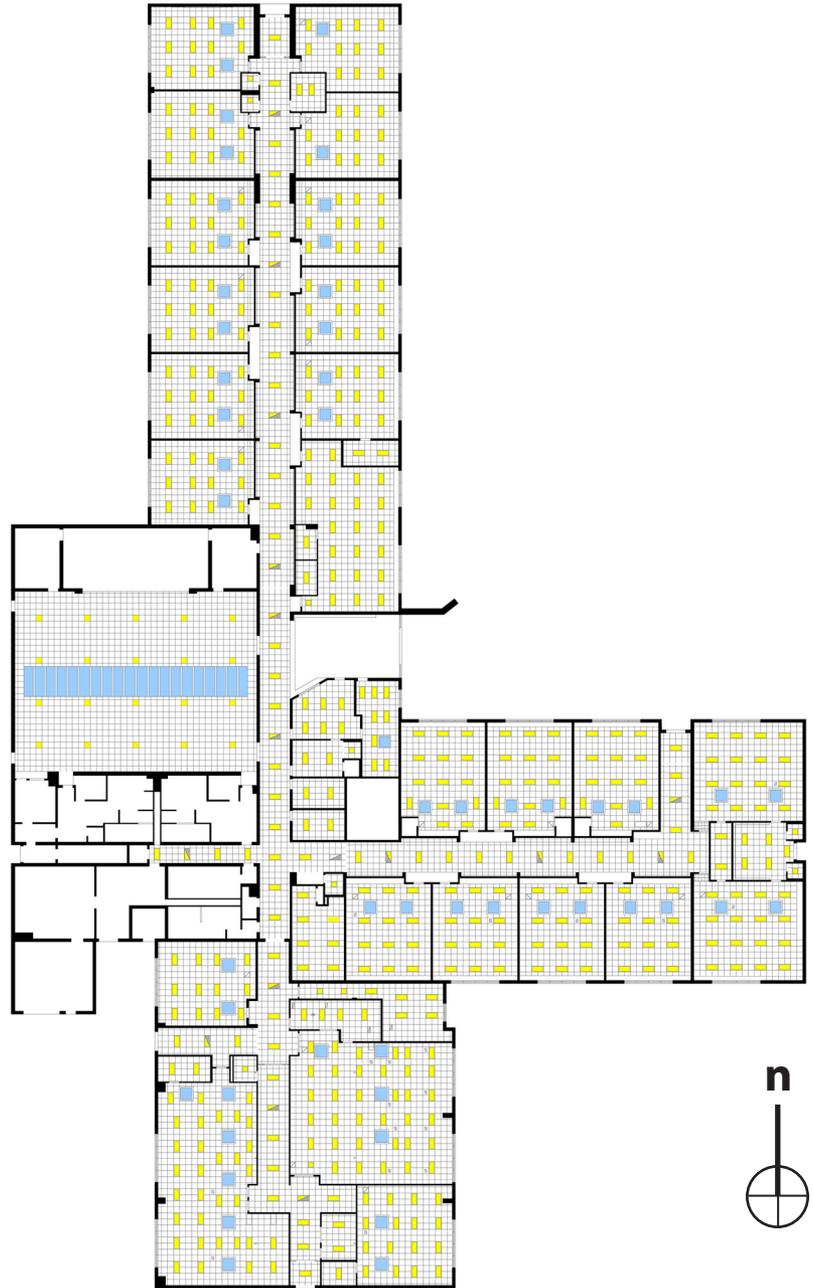
### GENERAL INFORMATION AND INTERIOR LIGHTING ASSESSMENT

#### NOTES:

- a. The 1994 Building Renovation incorporated the following Electrical System Upgrades:
  1. Main Electrical Service.
  2. Interior lighting fixtures.
  3. Power wiring for the mechanical equipment.
  4. Fire Alarm System and Fire Alarm Devices.
  5. School Intercom system.
  6. School Phone System.
  7. School Clock System.
  
- b. 2006 Electrical Upgrade Project:

This project incorporated the removal and replacement of the interior fluorescent light fixtures. Refer to the Interior Lighting Analysis on the following pages for a comparison of the existing systems in place to the standards required by the International Energy Conservation Code 2012. At this date, these fixtures will be reused. We propose incorporating new vacancy/occupancy sensors for all spaces as required by IECC-2012. These sensors turn lights off and on based upon space activity.
  
- c. Proposed Electrical System Upgrades:
  1. Main electrical services needs to be analyzed.
  2. Power and control wiring for the new mechanical equipment.
  3. New updated fire alarm control panel.
  4. New intercom.
  5. Discuss phone system.

**FIRST FLOOR REFLECTED CEILING PLAN**  
SCALE: 1/64" = 1'-0"



**06 ELECTRICAL SYSTEMS****INTERIOR LIGHTING ASSESSMENT (CONTINUED)**

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
1	OFFICE: MAIN	2006	374	6	96	576	1.1	0.44
1A	OFFICE: PRINCIPAL	2006	402	8	96	768	1.1	0.81
2	OFFICE: NURSE	2006	234	2	96			
				1	62	254	1.1	-0.01
3	OFFICE: SOCIAL WORKER	2006	174	2	96	192	1.1	0.00
4	OFFICE: SPEECH	2006	174	2	96	192	1.1	0.00
6	MULTIPURPOSE ROOM / CAFETERIA	2006	2,510	35	96			
				1	62	3,422	1.2	.016
6A	KITCHEN	2006	343	4	96	384	1.2	-0.08
7	CLASSROOM: SPECIALISTS	2006	1,037	16	96	1,536	1.3	0.18
7A	SOCIAL WORKER	2006	175	2	96	192	1.1	0.00
7B	STORAGE	2006	89	1	96	96	0.8	0.28
8	MEDIA CENTER	2006	2,423	34	96	3,264	1.2	0.15
9	CLASSROOM: KINDERGARTEN/1ST/2ND	2006	871	12	96	1,152	1.3	0.02
10	CLASSROOM: 1ST GRADE	2006	1,001	14	96	1,344	1.3	0.04
11	CLASSROOM: 1ST GRADE	2006	1,003	14	96	1,344	1.3	0.04
12	CLASSROOM: 1ST GRADE	2006	1,003	41	96	3,936	1.3	2.62
13	CLASSROOM: KINDERGARTEN	2006	1,194	16	96	1,536	1.3	-0.01
13A	STORAGE: KINDERGARTEN	2006	133	2	96	192	0.8	0.64
13B	COAT ROOM	2006	350	5	96	480	0.8	0.57
14	CLASSROOM: KINDERGARTEN	2006	1,192	16	96	1,536	1.3	-0.01
15	CLASSROOM: 1ST GRADE	2006	932	12	96	1,152	1.3	-0.06
16	CLASSROOM: 1ST GRADE	2006	932	12	96	1,152	1.3	-0.06

\* Lighting Power Density (LPD) is given in terms of Allowable Watts per Square Foot (W/ft<sup>2</sup>). This requirement is derived from the "SPACE-BY-SPACE" Method as stated in Table 405.5.2(2) of 2012 International Energy Conservation code. Total Watts given at the bottom of this

column are the total allowable watts for the building. Difference to Code is the amount the building must reduce to meet this standard. In this instance, though, WPS meets the overall energy code (hence the negative number in the last column).

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
17	CLASSROOM: 1ST GRADE	2006	932	12	96	1,152	1.3	-0.06
18	CLASSROOM: KINDERGARTEN	2006	932	12	96	1,152	1.3	-0.06
19	STAFF WORKROOM	2006	1,035	5 2	96 62	604	1.1	-0.52
20	CLASSROOM: ART	2006	1,556	22 1	96 62	2,174	1.3	0.10
20A	STORAGE:ART	2006	80	1	96	96	0.8	0.40
20B	STORAGE:ART	2006	75	1	96	96	0.8	0.48
21	CLASSROOM: 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
21A	STORAGE	2006	153	2	96	192	0.8	0.45
22	CLASSROOM: 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
23	CLASSROOM: 1ST / 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
24	CLASSROOM: EARLY CHILDHOOD	2006	879	11	96	1,056	1.3	-0.10
25	CLASSROOM: EARLY CHILDHOOD	2006	880	11	96	1,056	1.3	-0.10
26	CLASSROOM: EARLY CHILDHOOD	2006	895	11	96	1,056	1.3	-0.12
27	CLASSROOM: OCC/PHYSICAL THERAPY	2006	932	11	96	1,056	1.3	-0.17
28	CLASSROOM: 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
29	CLASSROOM: 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
30	CLASSROOM: 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
31	CLASSROOM: 2ND GRADE	2006	934	12	96	1,152	1.3	-0.07
32	GYMANSIUM	2006	4,817	20	240	4,800	1.4	-0.40
CORRIDOR	--	2006	8,417	68	96	6,528	1.0	-0.22
TOTALS:		--	44,667	532		53,782 (WATTS)	54,543 (WATTS)	-760.50 (WATTS)

## 07 PLUMBING SYSTEMS

### GENERAL INFORMATION

#### NOTES:

Due to the vintage of the Plumbing System in place and the recently completed "smoke test" that revealed poor domestic water circulation, EJM suggests that the District perform the following scope of work:

- a. Remove and replace domestic cold water, hot water, and hot water return piping. The domestic water lines within the original 1958 building were routed below the first floor concrete slab. We still need to confirm all existing pipe runs.
- b. Remove and replace all original toilet fixtures: lavs, urinals, water closets, electric water coolers, etc.
- c. Remove and replace existing hot water heater.
- d. Installation of new floor drains at all toilet rooms. This is required by the Illinois Plumbing Code – 2004 Edition.
- e. Remove and replace exterior hose bibs.
- f. Remove and replace water service main. The location of the Village Water Main is at Fleet Street. The new water service will be sized for the new Fire Protection/Sprinkler system.



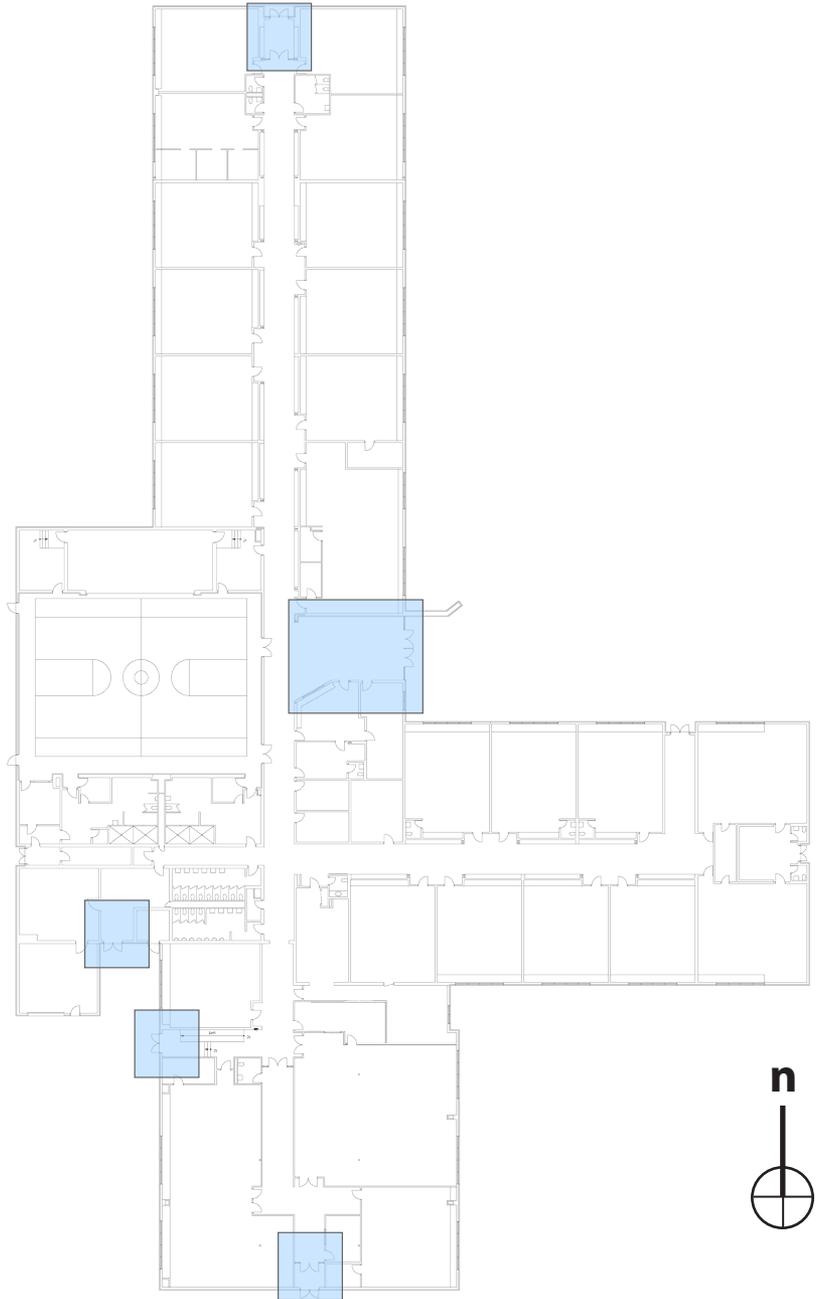
## 11 SECURITY SYSTEMS

### UPGRADE PROPOSAL

#### NOTES:

- a. At the direction of the District EJM has worked in conjunction with Assa Abloy to prepare a preliminary budget and scope of work for a School Security Entry Vestibule project. The entrances covered in this project are highlighted on the floor plan on the opposite page. All of these entrances will be updated with electronic card readers and tied into a centralized security system. For budget and full scope of work refer to the Facilities Update Program.

**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 12 ENERGY CONSERVATION MEASURES

### GENERAL INFORMATION AND AVAILABLE GRANTS

As mentioned in the introduction to this Program many of the actions that we are proposing address improving the energy performance of the facility. Each of these proposed projects would increase the energy efficiency of the facility in one of two areas: 1) Thermal envelope enhancements (i.e. window replacement, roof replacement, etc.); or 2) System upgrades (i.e. lighting replacement, boiler replacement, etc.). Undertaking the following projects would increase the energy performance of the building and reduce the amount of money spent by the District on utilities for years to come:

- 02 Architectural Components  
Window replacement, increased building insulation  
(At this time EJM would not recommend replacing any windows at WPS since a window replacement project was completed in the recent past by Honeywell)
- 04 Roofing Systems  
Roof replacement  
(At this time EJM would not recommend replacing any roof areas at WPS because of the project completed in 2010)
- 05 HVAC Systems  
Boiler replacement, increased thermal system insulation
- 06 Electrical Systems  
Light fixture replacement  
(At this time EJM would not recommend addressing lighting at WPS because of the project completed in 2006)
- 07 Plumbing Systems  
Fixture replacement

For a complete list and preliminary scope reviews of projects that EJM recommends the District complete in the near future see the Facilities Upgrade Program starting on page 84.

There are several grants available to the District for investing in energy conservation measures further increasing the incentive to do so. These include the following:

- 1) Illinois Department of Commerce and Economic Opportunity (DCEO) Energy Efficiency Program:

[http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/Energy/Energy+Efficiency/](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/Energy/Energy+Efficiency/)

<http://www.ildceo.net/NR/rdonlyres/951165DA-B9D5-4-B38-AFE7-23A51CF85358/0/20132014DCEOStandardandCustomAdobe080513.pdf>

This program offers a maximum incentive of up to \$300,000 that the District could qualify for through wattage reduction via lighting upgrades and/or HVAC system upgrades.

- 2) Illinois State Board of Education (ISBE) School Energy Efficiency Project Grants:

[http://www.isbe.net/sbss/ee\\_grants.htm](http://www.isbe.net/sbss/ee_grants.htm)

This grant offers a maximum incentive of up to \$250,000 in matching funds that the District could qualify for by enhancing the thermal envelope, reducing wattage used for lighting, installing an automated energy control system, and/or making HVAC system upgrades.

These avenues can be explored further after approval of individual projects at the District's request.

## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS

MONTH	PRICE PERTHERM	THERMS USED	TOTAL
June-11	\$0.44900	82.80	\$37.18
July-11	\$0.44800	82.73	\$37.06
August-11	\$0.45900	105.60	\$48.47
September-11	\$0.40600	109.97	\$44.65
October-11	\$0.40200	1,158.29	\$465.63
November-11	\$0.56600	2,730.28	\$1,545.34
December-11	\$0.56600	3,723.08	\$2,107.26
January-12	\$0.56600	4,334.18	\$2,453.15
February-12	\$0.56600	3,715.87	\$2,103.18
March-12	\$0.56600	1,500.88	\$849.50
April-12	\$0.22600	1,017.33	\$229.92
May-12*	\$0.41806	153.50	\$64.17

TOTALS \$0.47455 18,714.51 \$9,985.51

\* Information unavailable; based on projection.

MONTH	PRICE PER THERM	THERMS USED	TOTAL
June-12	\$0.27000	95.58	\$25.81
July-12	\$0.28900	91.47	\$26.43
August-12	\$0.32700	105.88	\$34.62
September-12	\$0.28600	107.62	\$30.78
October-12	\$0.32700	1,025.72	\$335.41
November-12	\$0.39400	2,391.78	\$942.36
December-12	\$0.39400	3,401.20	\$1,340.07
January-13	\$0.39400	4,574.01	\$1,802.16
February-13	\$0.39400	4,289.47	\$1,690.05
March-13	\$0.39400	3,883.82	\$1,530.23
April-13	\$0.42700	1,991.81	\$850.50
May-13	\$0.44300	153.50	\$68.00

TOTALS \$0.36158 22,111.86 \$8,676.43

## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS (CONTINUED)

TOTAL THERMS USED JUNE 2011 - MAY 2012

**18,714.51**

TOTAL \$ SPENT ON NATURAL GAS JUNE 2011 - MAY 2012

**\$9,985.51** \*

TOTAL THERMS USED JUNE 2012 - MAY 2013

**22,111.86**

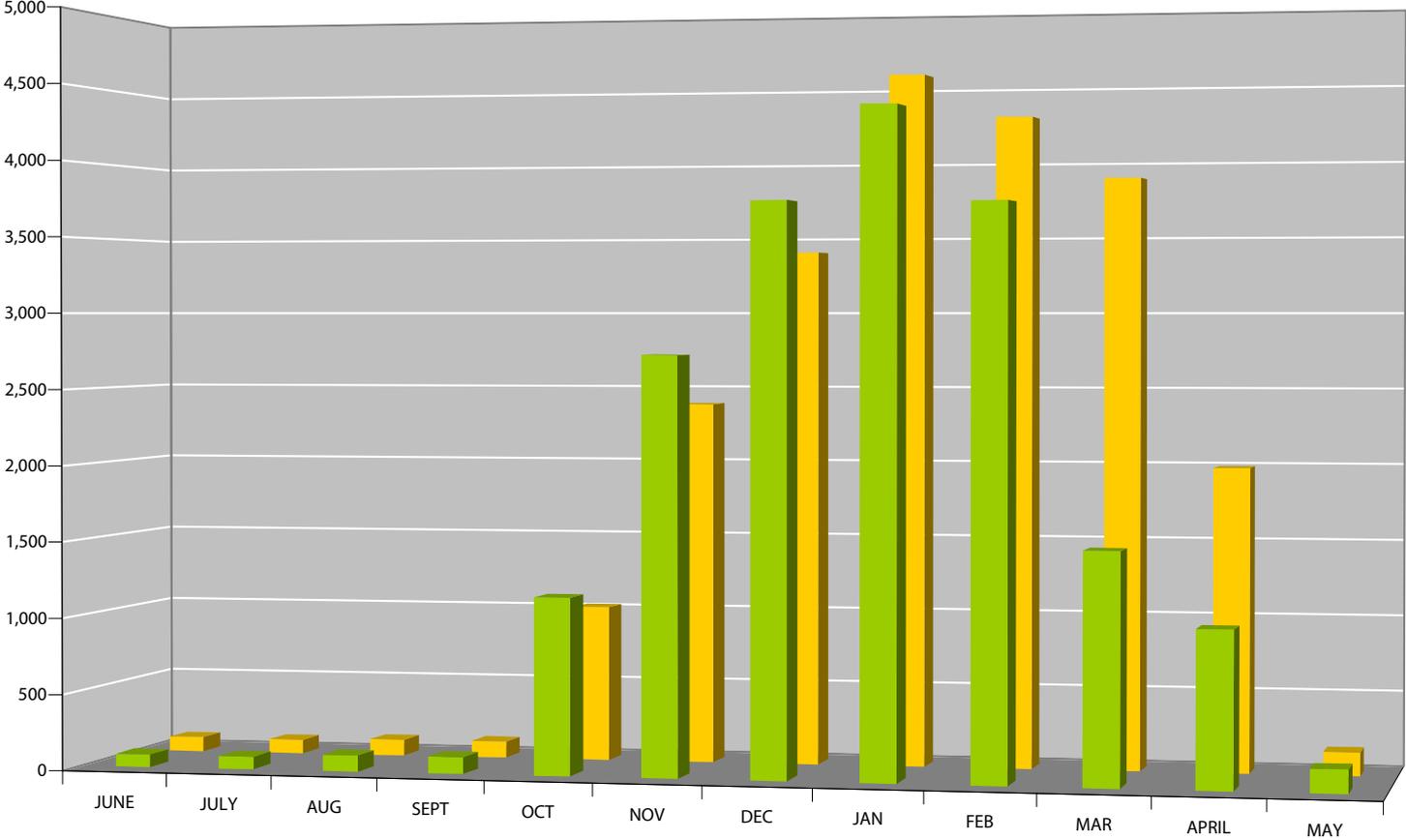
TOTAL \$ SPENT ON NATURAL GAS JUNE 2012 - MAY 2013

**\$8,676.43** \*

\* This dollar amount reflects only charges for the resource consumed (in this case natural gas). It does not include various other expenses such as miscellaneous service charges, management fees, etc.

ENERGY CONSUMPTION - MONTHLY NATURAL GAS USAGE

Therms Used 2011 - 2012 █  
Therms Used 2012 - 2013 █



## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS (CONTINUED)

Over the past two years WPS has used on average 20,414 therms of natural gas. This has released 225,018<sup>9</sup> pounds of CO<sub>2</sub> into the atmosphere per year - that is the equivalent of

**21.3 automobiles.** <sup>10</sup>



## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY

MONTH	PRICE PER kWh	kWh USED	TOTAL
June-11	\$0.048300	39,157	\$1,891.28
July-11	\$0.048300	23,794	\$1,149.25
August-11	\$0.048300	34,078	\$1,645.97
September-11	\$0.048300	39,516	\$1,908.62
October-11	\$0.048300	32,375	\$1,563.71
November-11	\$0.048300	31,927	\$1,542.07
December-11	\$0.048300	34,787	\$1,680.21
January-12	\$0.048300	33,281	\$1,607.47
February-12*	\$0.048300	30,721	\$1,483.82
March-12	\$0.048300	33,828	\$1,633.89
April-12	\$0.048300	33,657	\$1,625.63
May-12*	\$0.048300	34,380	\$1,660.55

TOTALS \$0.04830 401,501 \$19,392.50

\* Information unavailable; based on projection.

MONTH	PRICE PER kWh	kWh USED	TOTAL
June-12	\$0.048300	37,315	\$1,802.31
July-12	\$0.048300	51,656	\$2,494.98
August-12	\$0.048300	38,311	\$1,850.42
September-12	\$0.048300	46,878	\$2,264.21
October-12	\$0.048300	35,422	\$1,710.88
November-12	\$0.048300	31,963	\$1,543.81
December-12	\$0.048300	35,863	\$1,732.18
January-13	\$0.048300	31,837	\$1,537.73
February-13	\$0.048300	30,721	\$1,483.82
March-13	\$0.048300	28,904	\$1,396.06
April-13	\$0.048300	20,877	\$1,008.36
May-13*	\$0.048300	34,380	\$1,660.55

TOTALS \$0.04830 424,127 \$20,485.33

## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY (CONTINUED)

TOTAL KILOWATT HOURS USED JUNE 2011 - MAY 2012

**401,501**

TOTAL \$ SPENT ON ELECTRICITY JUNE 2011 - MAY 2012

**\$19,392.50**\*

TOTAL KILOWATT HOURS USED JUNE 2012 - MAY 2013

**424,127**

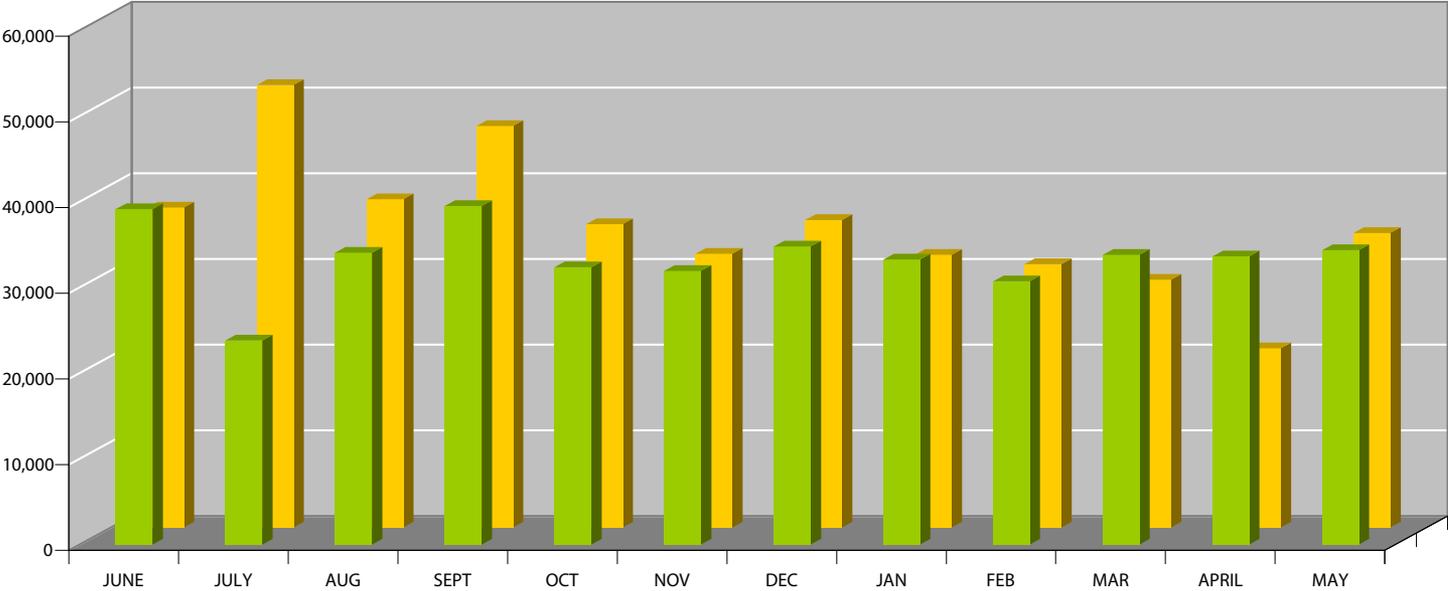
TOTAL \$ SPENT ON ELECTRICITY JUNE 2012 - MAY 2013

**\$20,485.33**\*

\* The dollar amount shown reflects only charges for the resource consumed (in this case electricity). It does not include various other expenses such as miscellaneous service charges, management fees, etc.

ENERGY CONSUMPTION - MONTHLY ELECTRICITY USAGE

kWh Used 2011 - 2012   
Therms Used 2012 - 2013 



## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY (CONTINUED)

Over the past two years WPS has used on average 412,814 kWh of electricity. This has released 652,246<sup>9</sup> pounds of CO<sub>2</sub> into the atmosphere - the equivalent of

**40.7 homes.**<sup>11</sup>



## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION COST PROJECTIONS\*

### ACTUAL UTILITIES COST - 2012-2013 (AVG.)

GAS	\$9,330.97
ELECTRIC	\$19,938.92

**\$29,269.88**

### PROJECTION - 2023\*

GAS	\$12,540.04
ELECTRIC	\$26,796.24

**\$39,336.28**

### PROJECTION - 2033\*

GAS	\$16,852.77
ELECTRIC	\$36,011.90

**\$52,864.67**

\*The following dollar amounts are based on projected cost analysis using an estimated discount rate of 3% increase per year.

TOTAL PROJECTED UTILITIES COST 2013-2033:

**\$839,357.41**

# WESTCHESTER INTERMEDIATE SCHOOL

10900 Canterbury Street  
Westchester, IL 60154  
Latitude: 41°51'19.50" N





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**00 GENERAL BUILDING INFORMATION****SPATIAL ANALYSIS - NET SQUARE FOOTAGE CALCULATION AND BUILDING TIMELINE**

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )	ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
100	CLASSROOM: INTERVENTION THERAPY	3,144	116B	STAGE	610
101 / 102	MEDIA CENTER	2,159	116C	STAGE SOUTH	174
101A	SERVER ROOM	135	116D	OFFICE: GYM	114
101B	STORAGE: MEDIA CENTER	33	116F	LOCKER ROOM: GIRLS'	555
101C	STORAGE: MEDIA CENTER	159	116G	LOCKER ROOM: BOYS'	611
101D	VESTIBULE	37	118	COPY ROOM	86
101F	STORAGE: MEDIA CENTER	16	119	CAFETERIA / MULTIPURPOSE ROOM	3,144
103	COMPUTER LAB	840	119A	KITCHEN	584
104	CLASSROOM: ART	1,295	201	CLASSROOM: SPEECH ROOM	329
104A	KILN ROOM	55	202	CLASSROOM: 3RD / 4TH GRADE	808
104D	STORAGE: ART	164	203	CLASSROOM: 3RD GRADE	829
104E	STORAGE: ART	74	204	CLASSROOM: 3RD GRADE	830
104F	STORAGE: ART	82	205	CLASSROOM: 3RD GRADE	836
105	CLASSROOM: 5TH GRADE	832	206	CLASSROOM: 3RD GRADE	805
106	CLASSROOM: 5TH GRADE	827	207	CLASSROOM: 3RD GRADE	842
107	CLASSROOM: 4TH GRADE / 5TH GRADE	808	208	CLASSROOM: E.L.L.	833
108	CLASSROOM: INTERVENTION ROOM	803	209	CLASSROOM: 4TH GRADE	822
109	CLASSROOM: 5TH GRADE	837	210	CLASSROOM: 4TH GRADE	844
110	CLASSROOM: 5TH GRADE	833	211	CLASSROOM: 4TH GRADE	803
111	CLASSROOM: 5TH GRADE	838	212	CLASSROOM: 4TH GRADE	895
112	CLASSROOM: LADSE	832	213	CLASSROOM: 4TH GRADE	852
113	CLASSROOM: LADSE	835	214	CLASSROOM: READING	794
114	OFFICE: MAIN	459	215	RESOURCE ROOM	441
114A	OFFICE: PRINCIPAL	339	216	STAFF LOUNGE	1,035
114B	STORAGE	46	216A	STORAGE	139
115	OFFICE: NURSE	376	217	OFFICE: SOCIAL WORK	415
116	GYMNASIUM	5,018	218	CLASSROOM: MUSIC	837
116A	STAGE NORTH	166	219	CLASSROOM: BAND	1,162

TOTAL NET SQUARE FOOTAGE: 43,071 ft<sup>2</sup>

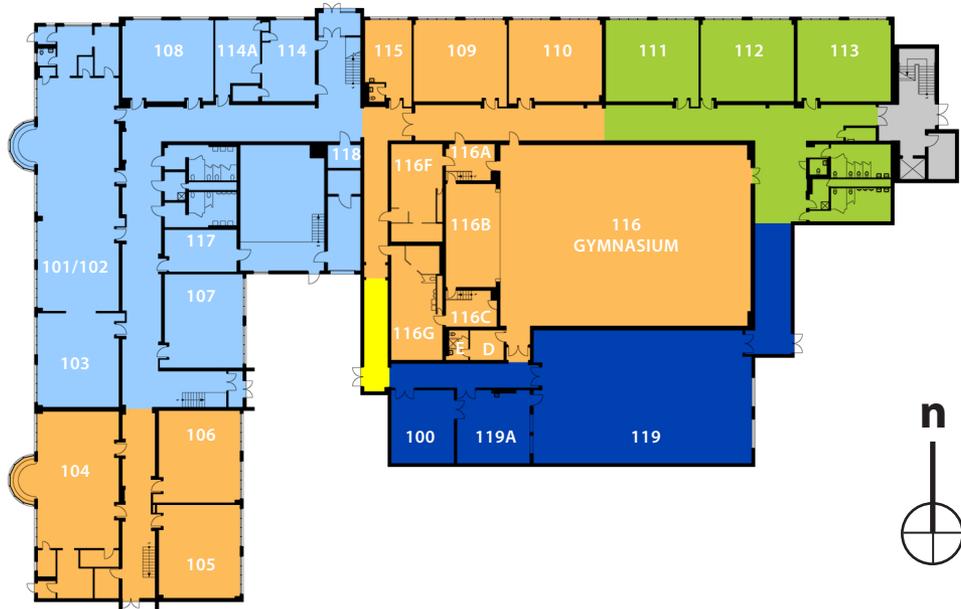
**GROSS SQUARE FOOTAGE: 66,037 FT<sup>2</sup>**

- 1953 - ORIGINAL BUILDING
- 1956 - CLASSROOM / GYMNASIUM BUILDING ADDITION
- 1960 - CLASSROOM BUILDING ADDITION
- 1986 - CAFETERIA / MULTI-PURPOSE ROOM BUILDING ADDITION
- 1987 - CORRIDOR ADDITION
- 2001 - ELEVATOR / STAIRS BUILDING ADDITION

**SECOND FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 02 ARCHITECTURAL COMPONENTS

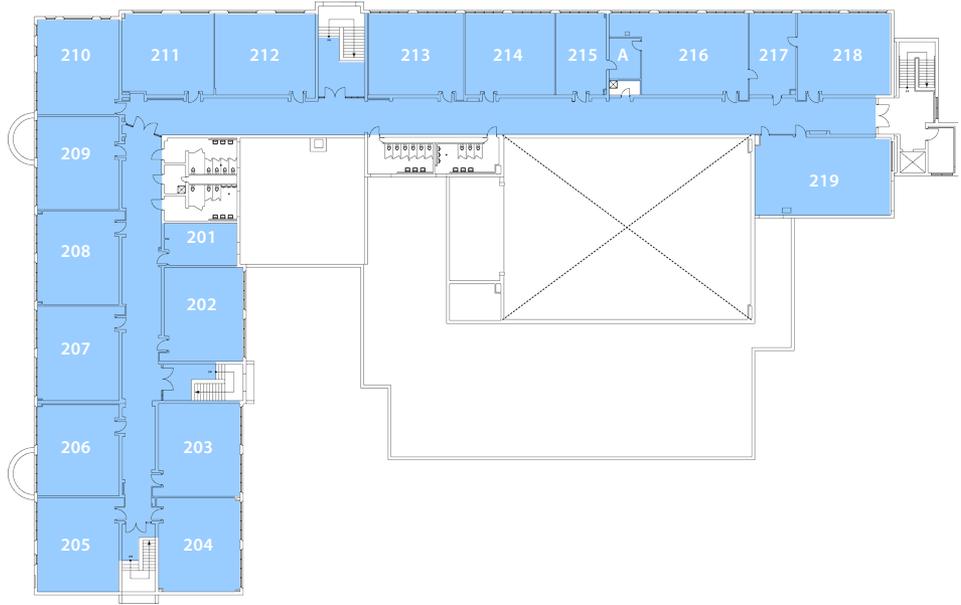
### GENERAL INFORMATION AND FLOORING SYSTEMS ASSESSMENT

#### NOTES:

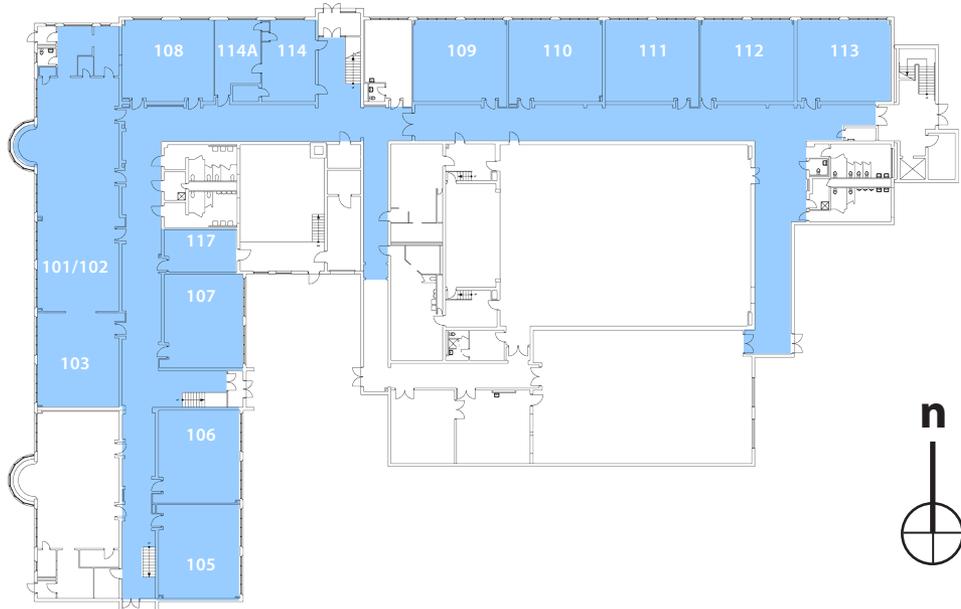
The following are areas that will be affected if the District chooses to perform the work as outlined in the Facilities Upgrade Program:

- a. Remove existing flooring that is currently carpeted. Below the carpeted areas is the original asbestos tile flooring and mastic. Refer to section 10 Asbestos/Environmental Issues for additional information.
- b. Remove selected interior masonry walls at pipe chases for the Mechanical System Modernizations.
- c. Remove and replace suspended ceiling systems due to Mechanical System Modernizations.
- d. Remove existing lighting fixtures in the following building areas: 1953, 1956, 1960, 1986, 1987, and 2001.
- e. Selected interior partitions will need to be demolished, modified, or constructed for proposed School Security Entry Vestibule(s) (SSEV).

AREAS INCLUDED IN BUDGET  
CALCULATION ON THE FOLLOWING  
PAGE



**SECOND FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 02 ARCHITECTURAL COMPONENTS

### FLOORING SYSTEMS ASSESSMENT (CONTINUED)

#### BUDGET CALCULATION FOR SUGGESTED AREAS OF REPLACEMENT

ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	ABATEMENT/ DEMO	CARPET	VCT	AQT
101/102	MEDIA CENTER	2,159	\$15,113	\$9,716	\$7,557	\$11,875
101A	SERVER ROOM	135	\$945	\$608	\$473	\$743
101B	STORAGE: MEDIA CENTER	33	\$231	\$149	\$116	\$182
101C	STORAGE: MEDIA CENTER	159	\$1,113	\$716	\$557	\$875
101D	VESTIBULE	37	\$259	\$167	\$130	\$204
101F	STORAGE: MEDIA CENTER	16	\$112	\$72	\$56	\$88
103	COMPUTER LAB	840	\$5,880	\$3,780	\$2,940	\$4,620
105	CLASSROOM: 5TH GRADE	832	\$5,824	\$3,744	\$2,912	\$4,576
106	CLASSROOM: 5TH GRADE	827	\$5,789	\$3,722	\$2,895	\$4,549
107	CLASSROOM: 4TH GRADE / 5TH GRADE	808	\$5,656	\$3,636	\$2,828	\$4,444
108	CLASSROOM: INTERVENTION ROOM	803	\$5,621	\$3,614	\$2,811	\$4,417
109	CLASSROOM: 5TH GRADE	837	\$5,859	\$3,767	\$2,930	\$4,604
110	CLASSROOM: 5TH GRADE	833	\$5,831	\$3,749	\$2,916	\$4,582
111	CLASSROOM: 5TH GRADE	838	\$5,866	\$3,771	\$2,933	\$4,609
112	CLASSROOM: LADSE	832	\$5,824	\$3,744	\$2,912	\$4,576
113	CLASSROOM: LADSE	835	\$5,845	\$3,758	\$2,923	\$4,593
114	OFFICE: MAIN	459	\$3,213	\$2,066	\$1,607	\$2,525
114A	OFFICE: PRINCIPAL	339	\$2,373	\$1,526	\$1,187	\$1,865
114B	STORAGE	46	\$322	\$207	\$161	\$253
118	COPY ROOM	86	\$602	\$387	\$301	\$473
CORRIDOR	--	7,346	\$51,422	\$33,057	\$25,711	\$40,403

ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	ABATEMENT/ DEMO	CARPET	VCT	AQT
201	CLASSROOM: SPEECH ROOM	329	\$2,303	\$1,481	\$1,152	\$1,810
202	CLASSROOM: 3RD / 4TH GRADE	808	\$5,656	\$3,636	\$2,828	\$4,444
203	CLASSROOM: 3RD GRADE	829	\$5,803	\$3,731	\$2,902	\$4,560
204	CLASSROOM: 3RD GRADE	830	\$5,810	\$3,735	\$2,905	\$4,565
205	CLASSROOM: 3RD GRADE	836	\$5,852	\$3,762	\$2,926	\$4,598
206	CLASSROOM: 3RD GRADE	805	\$5,635	\$3,623	\$2,818	\$4,428
207	CLASSROOM: 3RD GRADE	842	\$5,894	\$3,789	\$2,947	\$4,631
208	CLASSROOM: E.L.L.	833	\$5,831	\$3,749	\$2,916	\$4,582
209	CLASSROOM: 4TH GRADE	822	\$5,754	\$3,699	\$2,877	\$4,521
210	CLASSROOM: 4TH GRADE	844	\$5,908	\$3,798	\$2,954	\$4,642
211	CLASSROOM: 4TH GRADE	803	\$5,621	\$3,614	\$2,811	\$4,417
212	CLASSROOM: 4TH GRADE	895	\$6,265	\$4,028	\$3,133	\$4,923
213	CLASSROOM: 4TH GRADE	852	\$5,964	\$3,834	\$2,982	\$4,686
214	CLASSROOM: READING	794	\$5,558	\$3,573	\$2,779	\$4,367
215	RESOURCE ROOM	441	\$3,087	\$1,985	\$1,544	\$2,426
216	STAFF LOUNGE	1,035	\$7,245	\$4,658	\$3,623	\$5,693
216A	STORAGE	139	\$973	\$626	\$487	\$765
217	OFFICE: SOCIAL WORK	415	\$2,905	\$1,868	\$1,453	\$2,283
218	CLASSROOM: MUSIC	837	\$5,859	\$3,767	\$2,930	\$4,604
219	CLASSROOM: BAND	1,162	\$8,134	\$5,229	\$4,067	\$6,391
CORRIDOR	--	5,091	\$35,637	\$22,910	\$17,819	\$28,001
TOTALS:		39,342	\$275,394 (\$7.00/ft <sup>2</sup> )	\$177,039 (\$4.50/ft <sup>2</sup> )	\$137,697 (\$3.50/ft <sup>2</sup> )	\$216,381 (\$5.50/ft <sup>2</sup> )

### 03 STRUCTURAL COMPONENTS

#### GENERAL INFORMATION



NORTH FACADE

#### NOTES:

- a. Lintels installed above windows from the original 1951 building and the 1956 and 1960 building additions are experiencing various levels of decay and are creating a potentially dangerous condition. We suggested removing these existing lintels and replacing with new to ensure that this condition does not arise again. This project would be very similar in scope to the 2013 Masonry Restoration project completed OCT 2013 at the Britten Building which remedied the south and east facade of the 1951 building (p.142). Since we were already addressing these wall areas we suggested that the District replace the poorly performing existing window units.

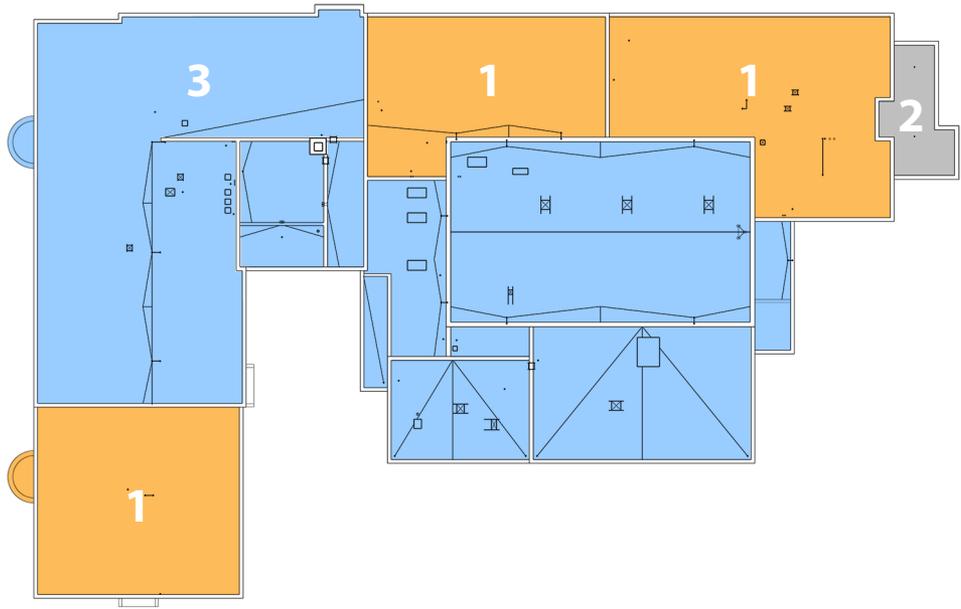


IMAGES DEPICTING VARIOUS LEVELS OF LINTEL DECAY

**04 ROOFING SYSTEMS**

## GENERAL INFORMATION AND WARRANTY STATUS

ROOF AREA	COMPLETION DATE	AREA (FT <sup>2</sup> )	MANUFACTURER	MATERIAL	WARRANTY #	EXPIRATION DATE	BUDGET
1	OCT-1985	12,494 FT <sup>2</sup>	CARLISLE	0.060mm BLACK EPDM	88059	EXPIRED 4-OCT-2009	\$ 250,000
2	AUG-2001	736 FT <sup>2</sup>	CARLISLE	0.060mm BLACK EPDM	TS3880	17-AUG-2017	\$ --
3	AUG-2010	25,535 FT <sup>2</sup>	CARLISLE	0.060mm "SURE-WHITE" EPDM	10057873	26-AUG-2030	\$ --



**ROOF PLAN**  
 SCALE: 1/64" = 1'-0"



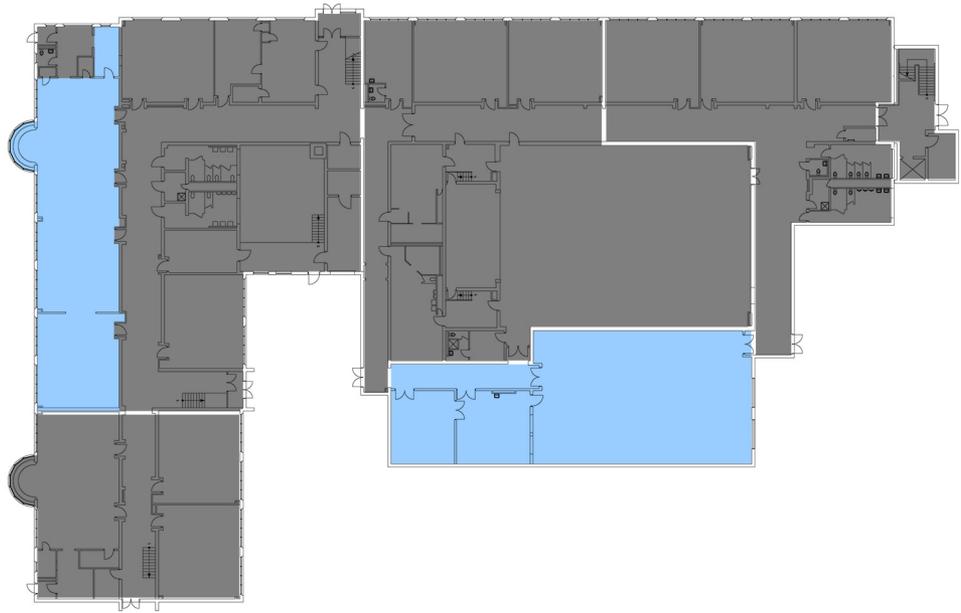
## 05 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS (HVAC)

### GENERAL INFORMATION AND AIR CONDITIONING BY BUILDING AREA

#### NOTES:

- a. The original 1953 and 1956 steam boilers were not modified with steam-to-hot-water converters as in some of the District's other facilities. This heating plant provides steam heat to the various classroom unit ventilators, cabinet heaters, and thin tube radiation systems throughout the building complex.
- b. The 1953, 1956, and 1960 Building Areas have their original classroom unit ventilators, cabinet heaters, and thin tube radiation systems in operation.
- c. The 1953, 1956, and 1960 Building Areas have their original roof-mounted exhaust fans in operation.
- d. The complete building complex's temperature control system is a pneumatic air type system. The temperature control air compressor was replaced in the past.
- e. The 1956 Gymnasium is still ventilated by the original "Herman Nelson Auditorium Unit," 10,000 cfm. The gymnasium exhaust air is provided by the original roof-mounted ventilators which are equipped with automatic dampers. The corridor spaces within the 1956 building areas are ventilated/exhaust air by original roof-mounted ventilators which are equipped with automatic dampers.
- f. The 1960 Building Area corridor area is ventilated/exhaust air by original gravity type ventilator.
- g. The 1986 Building Area is provided with the following mechanical equipment:
  1. Rooftop Unit RT-1-S1, Trane Model BTC200G3, 6000 cfm, cooling only. There is a steam coil located in the supply duct.
  2. There are miscellaneous until ventilators, cabinet heaters, air intake ventilators, and exhaust fans.
- h. The 2001 Elevator/Stairway Addition connected into the main steam piping system for the thin tube radiation units and the cabinet unit heater. There is one thru-wall exhaust fan for the elevator equipment room.

 AIR-CONDITIONED  
 NOT AIR-CONDITIONED



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



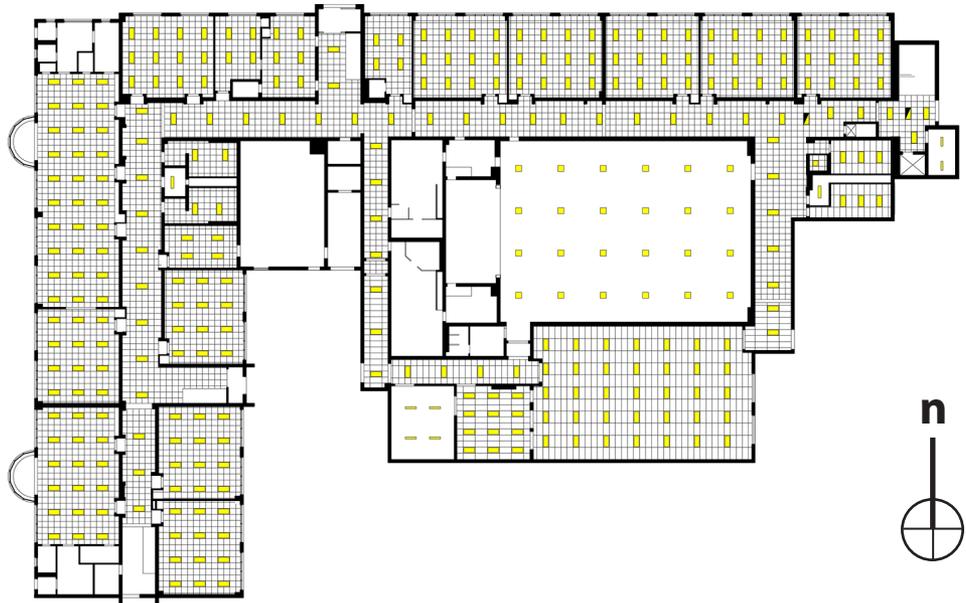
## 06 ELECTRICAL SYSTEMS

### GENERAL INFORMATION AND INTERIOR LIGHTING ASSESSMENT

**SECOND FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 06 ELECTRICAL SYSTEMS

### INTERIOR LIGHTING ASSESSMENT (CONTINUED)

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
100	CLASSROOM: INTERVENTION THERAPY	1986	3,144	4	80	320	1.3	-1.20
101 / 102	MEDIA CENTER	N/A	2,159	30	136	4,080	1.3	0.59
101A	SERVER ROOM	N/A	135	N/A	--	--	--	--
101B	STORAGE: MEDIA CENTER	N/A	33	N/A	--	--	--	--
101C	STORAGE: MEDIA CENTER	N/A	159	N/A	--	--	--	--
101D	VESTIBULE	N/A	37	N/A	--	--	--	--
101F	STORAGE: MEDIA CENTER	N/A	16	N/A	--	--	--	--
103	COMPUTER LAB	N/A	840	12	136	1,632	1.3	0.64
104	CLASSROOM: ART	N/A	1,295	18	136	2,448	1.3	0.59
104A	KILN ROOM	N/A	55	N/A	--	--	--	--
104D	STORAGE: ART	N/A	164	N/A	--	--	--	--
104E	STORAGE: ART	N/A	74	N/A	--	--	--	--
104F	STORAGE: ART	N/A	82	N/A	--	--	--	--
105	CLASSROOM: 5TH GRADE	N/A	832	12	136	1,632	1.3	0.66
106	CLASSROOM: 5TH GRADE	N/A	827	12				
107	CLASSROOM: 4TH GRADE / 5TH GRADE	N/A	808	12				
108	CLASSROOM: INTERVENTION ROOM	N/A	803	12				
109	CLASSROOM: 5TH GRADE	1993	837	12	136	1,632	1.3	0.65
110	CLASSROOM: 5TH GRADE	1993	833	12	136	1,632	1.3	0.66
111	CLASSROOM: 5TH GRADE	1993	838	12	136	1,632	1.3	0.65
112	CLASSROOM: LADSE	1993	832	12	136	1,632	1.3	0.66
113	CLASSROOM: LADSE	1993	835	12	136	1,632	1.3	0.65
114	OFFICE: MAIN	N/A	459	6	136	816	1.3	0.48

\* Lighting Power Density (LPD) is given in terms of Allowable Watts per Square Foot (W/ft<sup>2</sup>). This requirement is derived from the "SPACE-BY-SPACE" Method as stated in Table 405.5.2(2) of 2012 International

Energy Conservation code. Total Watts given at the bottom of this column are the total allowable watts for the building. Difference to code is the amount the building must reduce to meet this standard.

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
114A	OFFICE: PRINCIPAL	N/A	339	4				
114B	STORAGE	N/A	46	N/A	--	--	--	--
115	OFFICE: NURSE	1993 1993	376	4 1	136 68	612	1.3	0.33
116	GYMNASIUM	2006	5,018	24	240	5,760	1.4	-0.25
116A	STAGE NORTH	N/A	166	N/A	--	--	--	--
116B	STAGE	N/A	610	N/A	--	--	--	--
116C	STAGE SOUTH	N/A	174	N/A	--	--	--	--
116D	OFFICE: GYM	N/A	114	N/A	--	--	--	--
116F	LOCKER ROOM: GIRLS'	N/A	555	N/A	--	--	--	--
116G	LOCKER ROOM: BOYS'	N/A	611	N/A	--	--	--	--
118	COPY ROOM	N/A	86	N/A	--	--	--	--
119	CAFETERIA / MULTIPURPOSE ROOM	1986	3,144	35	160	5,600	1.4	0.38
119A	KITCHEN	1986	584	12	160	1,920	1.4	1.89
CORRIDOR	--	N/A 1986 1987 1993 2001	7,346	20 6 3 21 7	136 80 160 136 96	7,208	1.0	-0.02
201	CLASSROOM: SPEECH ROOM	1993	329	4	136	544	1.3	0.35
202	CLASSROOM: 3RD / 4TH GRADE	1993	808	12	136	1,632	1.3	0.72
203	CLASSROOM: 3RD GRADE	1993	829	12	136	1,632	1.3	0.67

## 06 ELECTRICAL SYSTEMS

### INTERIOR LIGHTING ASSESSMENT (CONTINUED)

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
204	CLASSROOM: 3RD GRADE	1993	830	12	136	1,632	1.3	0.67
205	CLASSROOM: 3RD GRADE	1993	836	12	136	1,632	1.3	0.65
206	CLASSROOM: 3RD GRADE	1993	805	12	136	1,632	1.3	0.73
207	CLASSROOM: 3RD GRADE	1993	842	12	136	1,632	1.3	0.64
208	CLASSROOM: E.L.L.	1993	833	12	136	1,632	1.3	0.66
209	CLASSROOM: 4TH GRADE	1993	822	12	136	1,632	1.3	0.69
210	CLASSROOM: 4TH GRADE	1993	844	12	136	1,632	1.3	0.63
211	CLASSROOM: 4TH GRADE	1993	803	12	136	1,632	1.3	0.73
212	CLASSROOM: 4TH GRADE	1993	895	12	136	1,632	1.3	0.52
213	CLASSROOM: 4TH GRADE	N/A	852	12	136	1,632	1.3	0.62
214	CLASSROOM: READING	N/A	794	12	136	1,632	1.3	0.76
215	RESOURCE ROOM	N/A	441	6	136	816	1.3	0.55
216	STAFF LOUNGE	N/A	1,035	14	136	1,904	1.3	0.54
216A	STORAGE	N/A	139	N/A	--	--	--	--
217	OFFICE: SOCIAL WORK	N/A	415	6	136	816	1.3	0.67
218	CLASSROOM: MUSIC	N/A	837	12	136	1,632	1.3	0.65
219	CLASSROOM: BAND	N/A	1,162	18	136	2,448	1.3	0.81
CORRIDOR	--	N/A 1993 1993 2001	5,091	13 17 1 9	136 136 68 96	5,012	1.0	-0.02
TOTALS:		--	55,508	571		74,576 (WATTS)	61,461 (WATTS)	13,115.00 (WATTS)

## 07 PLUMBING SYSTEMS

### GENERAL INFORMATION

#### NOTES:

- a. In 2008, a Plumbing Renovation Project was completed affecting the 1953 Building and the two additions completed in 1956 and 1960 respectively. The following systems were provided: new domestic water piping, plumbing fixtures, and related plumbing work. Staff Toilet 100E, Art Room 104, Nurse's Toilet 115A, Staff Toilet 116E, and Second Floor Janitor's closet were included in this Plumbing Project.

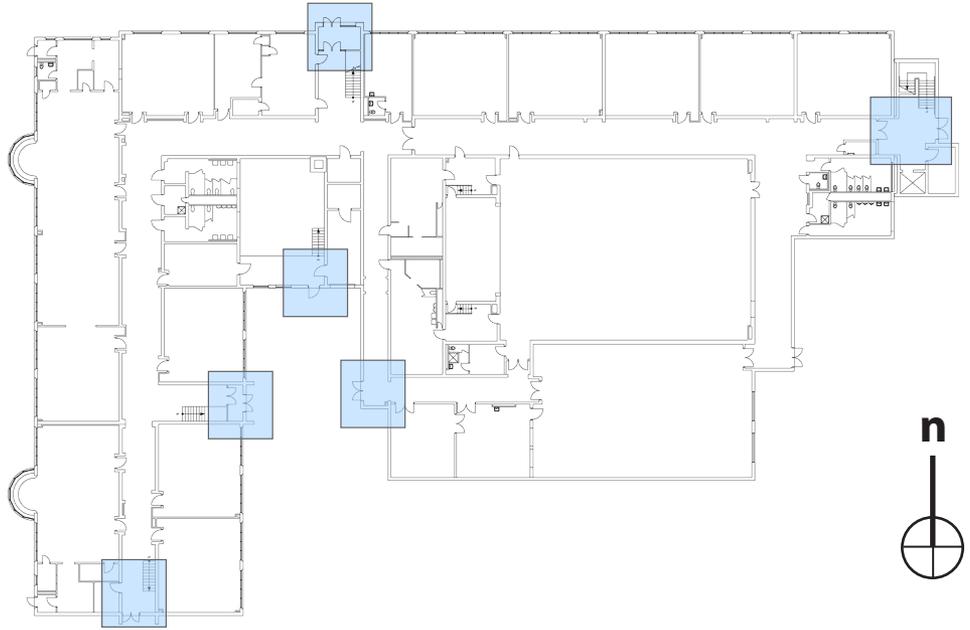


## 11 SECURITY SYSTEMS UPGRADE PROPOSAL

### NOTES:

- a. At the direction of the District EJM has worked in conjunction with Assa Abloy to prepare a preliminary budget and scope of work for a School Security Entry Vestibule project. The entrances covered in this project are highlighted on the floor plan on the opposite page. All of these entrances will be updated with electronic card readers and tied into a centralized security system. For budget and full scope of work refer to the Facilities Update Program.

**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## **12 ENERGY CONSERVATION MEASURES**

### GENERAL INFORMATION AND AVAILABLE GRANTS

As mentioned in the introduction to this Program many of the actions that we are proposing address improving the energy performance of the facility. Each of these proposed projects would increase the energy efficiency of the facility in one of two areas: 1) Thermal envelope enhancements (i.e. window replacement, roof replacement, etc.); or 2) System upgrades (i.e. lighting replacement, boiler replacement, etc.). Undertaking the following projects would increase the energy performance of the building and reduce the amount of money spent by the District on utilities for years to come:

- 02 Architectural Components  
Window replacement, increased building insulation  
(At this time EJM would not recommend replacing any windows at WIS since a window replacement project was completed in the recent past by Honeywell)
- 04 Roofing Systems  
Roof replacement
- 05 HVAC Systems  
Boiler replacement, increased thermal system insulation
- 06 Electrical Systems  
Light fixture replacement
- 07 Plumbing Systems  
Fixture replacement

For a complete list and preliminary scope reviews of projects that EJM recommends the District complete in the near future see the Facilities Upgrade Program starting on page 84.

There are several grants available to the District for investing in energy conservation measures further increasing the incentive to do so. These include the following:

- 1) Illinois Department of Commerce and Economic Opportunity (DCEO) Energy Efficiency Program:

[http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/Energy/Energy+Efficiency/](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/Energy/Energy+Efficiency/)

<http://www.ildceo.net/NR/rdonlyres/951165DA-B9D5-4B38-AFE7-23A51CF85358/0/20132014DCEOStandardandCustomAdobe080513.pdf>

This program offers a maximum incentive of up to \$300,000 that the District could qualify for through wattage reduction via lighting upgrades and/or HVAC system upgrades.

- 2) Illinois State Board of Education (ISBE) School Energy Efficiency Project Grants:

[http://www.isbe.net/sbss/ee\\_grants.htm](http://www.isbe.net/sbss/ee_grants.htm)

This grant offers a maximum incentive of up to \$250,000 in matching funds that the District could qualify for by enhancing the thermal envelope, reducing wattage used for lighting, installing an automated energy control system, and/or making HVAC system upgrades.

These avenues can be explored further after approval of individual projects at the District's request.

## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS

MONTH	PRICE PER THERM	THERMS USED	TOTAL
June-11	\$0.44900	108.37	\$48.66
July-11	\$0.44800	104.26	\$46.71
August-11	\$0.45900	132.26	\$60.71
September-11	\$0.40600	113.06	\$45.90
October-11	\$0.40200	873.33	\$351.08
November-11	\$0.56600	2,403.14	\$1,360.18
December-11	\$0.56600	5,854.76	\$3,313.79
January-12	\$0.56600	6,549.20	\$3,706.85
February-12	\$0.56600	5,370.17	\$3,039.52
March-12	\$0.56600	1,515.30	\$857.66
April-12	\$0.22600	1,514.23	\$342.22
May-12*	\$0.41806	275.14	\$115.03

TOTALS \$0.47455 24,813.22 \$13,288.29

\* Information unavailable; based on projection.

MONTH	PRICE PER THERM	THERMS USED	TOTAL
June-12	\$0.27000	103.81	\$28.03
July-12	\$0.28900	93.53	\$27.03
August-12	\$0.32700	120.29	\$39.33
September-12	\$0.28600	158.98	\$45.47
October-12	\$0.32700	1,185.89	\$387.79
November-12	\$0.39400	2,874.91	\$1,132.71
December-12	\$0.39400	4,890.63	\$1,926.91
January-13	\$0.39400	6,669.91	\$2,627.94
February-13	\$0.39400	6,393.59	\$2,519.07
March-13	\$0.39400	5,831.41	\$2,297.58
April-13	\$0.42700	2,045.37	\$873.37
May-13	\$0.44300	275.14	\$121.89

TOTALS \$0.36158 30,643.46 \$12,027.13

## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS (CONTINUED)

TOTAL THERMS USED JUNE 2011 - MAY 2012

**24,813.22**

TOTAL \$ SPENT ON NATURAL GAS JUNE 2011 - MAY 2012

**\$13,288.29\***

TOTAL THERMS USED JUNE 2012 - MAY 2013

**30,643.46**

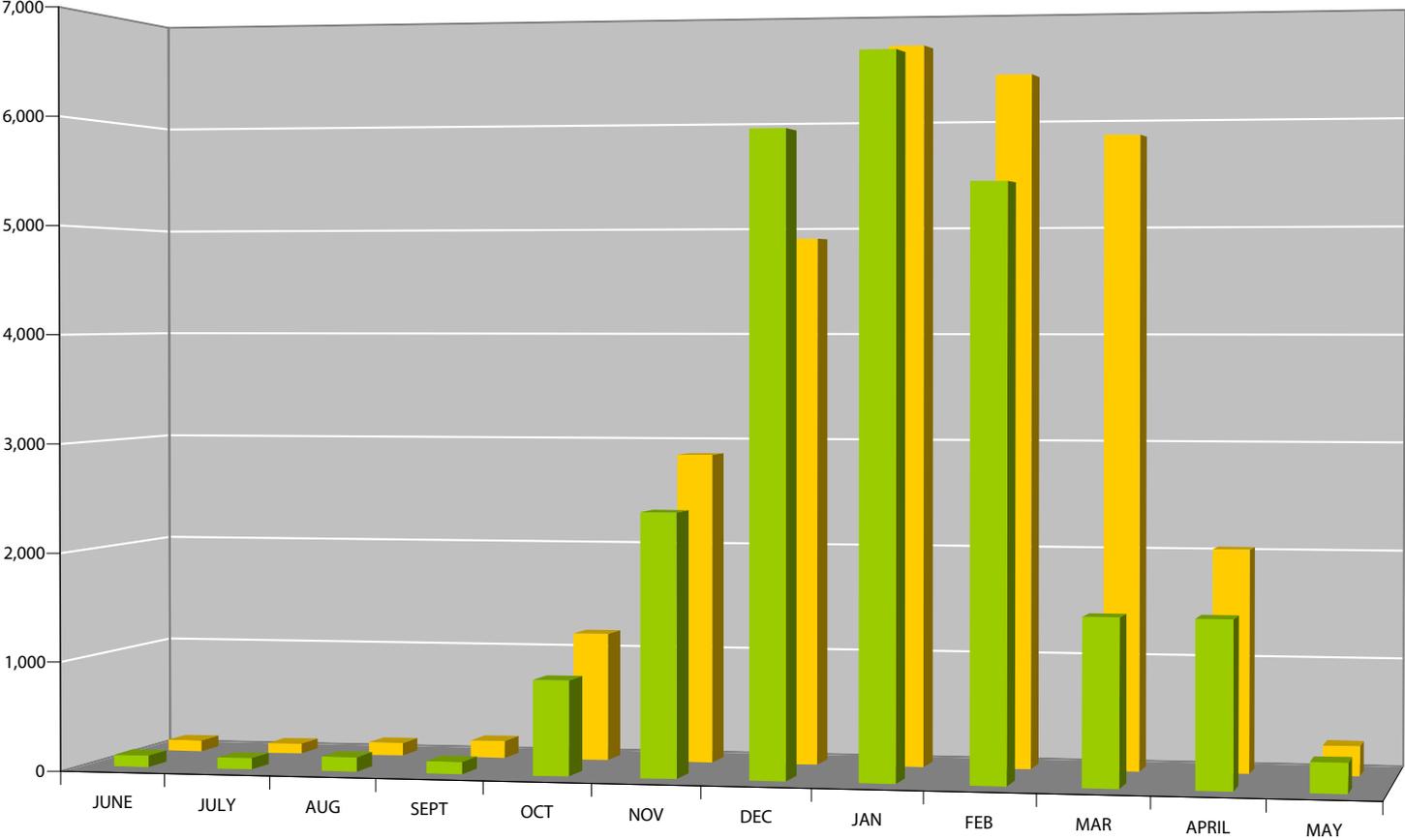
TOTAL \$ SPENT ON NATURAL GAS JUNE 2012 - MAY 2013

**\$12,027.13\***

\*This dollar amount reflects only charges for the resource consumed (in this case natural gas). It does not include various other expenses such as miscellaneous service charges, management fees, etc.

ENERGY CONSUMPTION - MONTHLY NATURAL GAS USAGE

Therms Used 2011 - 2012 ■  
Therms Used 2012 - 2013 ■



## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS (CONTINUED)

Over the past two years WIS has used on average 27,728 therms of natural gas. This has released 305,646<sup>9</sup> pounds of CO<sub>2</sub> into the atmosphere per year - that is the equivalent of

**28.9 automobiles.**<sup>10</sup>



## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY

MONTH	PRICE PER kWh	kWh USED	TOTAL
June-11	\$0.048300	18,946	\$915.09
July-11	\$0.048300	7,085	\$342.21
August-11	\$0.048300	9,894	\$477.88
September-11	\$0.048300	17,585	\$849.36
October-11	\$0.048300	17,517	\$846.07
November-11	\$0.048300	17,989	\$868.87
December-11	\$0.048300	19,861	\$959.29
January-12	\$0.048300	16,118	\$778.50
February-12*	\$0.048300	20,430	\$986.77
March-12	\$0.048300	17,812	\$860.32
April-12	\$0.048300	17,898	\$864.47
May-12*	\$0.048300	16,423	\$793.23

TOTALS \$0.04830 197,558 \$9,542.05

\* Information unavailable; based on projection.

MONTH	PRICE PER kWh	kWh USED	TOTAL
June-12	\$0.048300	17,124	\$827.09
July-12	\$0.048300	8,940	\$431.80
August-12	\$0.048300	14,346	\$692.91
September-12	\$0.048300	19,457	\$939.77
October-12	\$0.048300	18,887	\$912.24
November-12	\$0.048300	18,289	\$883.36
December-12	\$0.048300	17,255	\$833.42
January-13	\$0.048300	18,219	\$879.98
February-13	\$0.048300	20,430	\$986.77
March-13	\$0.048300	17,726	\$856.17
April-13	\$0.048300	13,857	\$669.29
May-13*	\$0.048300	16,423	\$793.23

TOTALS \$0.04830 200,953 \$9,706.03

## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY (CONTINUED)

TOTAL KILOWATT HOURS USED JUNE 2012 - MAY 2013

**197,558**

TOTAL \$ SPENT ON ELECTRICITY JUNE 2012 - MAY 2013

**\$9,542.05**\*

TOTAL KILOWATT HOURS JUNE 2012 - MAY 2013

**200,953**

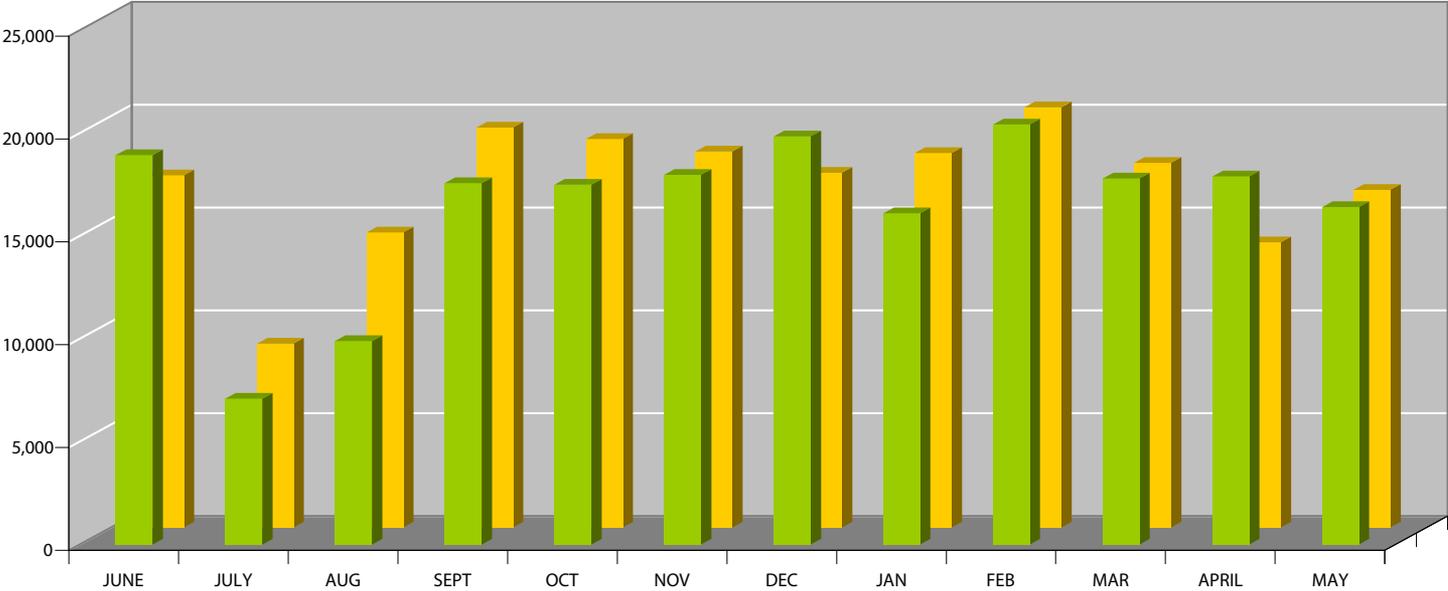
TOTAL \$ SPENT ON ELECTRICITY JUNE 2012 - MAY 2013

**\$9,706.03**\*

\* The dollar amount shown reflects only charges for the resource consumed (in this case electricity). It does not include various other expenses such as miscellaneous service charges, management fees, etc.

ENERGY CONSUMPTION - MONTHLY ELECTRICITY USAGE

kWh Used 2011 - 2012   
kWh Used 2012 - 2013 

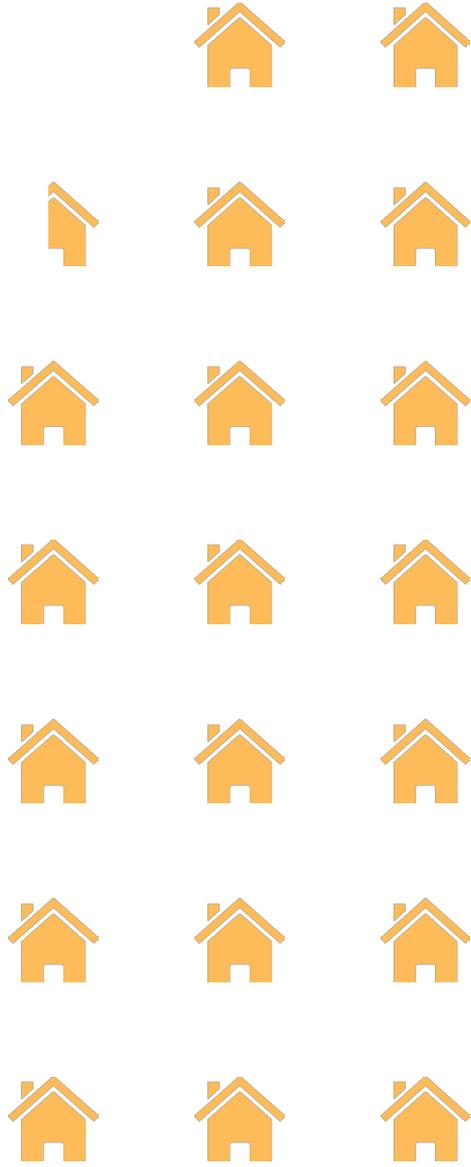


## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY (CONTINUED)

Over the past two years WIS has used on average 199,256 kWh of electricity. This has released 314,824<sup>9</sup> pounds of CO<sub>2</sub> into the atmosphere - the equivalent of

**19.6 homes.**<sup>11</sup>



## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION COST PROJECTIONS

#### ACTUAL UTILITIES COST - 2012-2013 (AVG.)

GAS	\$12,657.71
ELECTRIC	\$9,624.04

**\$22,281.75**

#### PROJECTION - 2023\*

GAS	\$17,010.90
ELECTRIC	\$12,933.31

**\$29,944.81**

#### PROJECTION - 2033\*

GAS	\$22,861.23
ELECTRIC	\$17,382.09

**\$40,243.32**

\*The following dollar amounts are based on projected cost analysis using an estimated discount rate of 3% increase per year.

TOTAL PROJECTED UTILITIES COST 2013-2033:

**\$638,962.25**

# WESTCHESTER MIDDLE SCHOOL

1620 Norfolk Avenue  
Westchester, IL 60154  
Latitude: 41°51'21.80" N





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## 00 GENERAL BUILDING INFORMATION

### SPATIAL ANALYSIS - BUILDING TIMELINE

**GROSS SQUARE FOOTAGE: 69,904 FT<sup>2</sup>**

-  c.1940 - ORIGINAL BUILDING
-  1955 - NEW BUILDING
-  1962 - LOCKER ROOM BUILDING ADDITION
-  2000 - BUILDING ADDITION



## 00 GENERAL BUILDING INFORMATION

### SPATIAL ANALYSIS - NET SQUARE FOOTAGE CALCULATION

NET SQUARE FOOTAGE: 46,216 FT<sup>2</sup>

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
101	CLASSROOM: SCIENCE	1,234
101A	STORAGE: SCIENCE	121
101B	STORAGE: SCIENCE	183
101C	STORAGE: SCIENCE	26
101D	VESTIBULE	21
102	CLASSROOM:	828
103	CLASSROOM: SCIENCE	832
104	CLASSROOM:	831
105	OFFICE: ASSISTANT PRINCIPAL	421
106	CLASSROOM:	832
107	OFFICE: NURSE	440
108	CLASSROOM:	828
109	CLASSROOM: HOME ECONOMICS	2,162
109A	STORAGE: HOME ECONOMICS	149
110	CLASSROOM:	394
112	CLASSROOM:	838
113	GYMNASIUM	5,052
113A	STAGE	1,301
113B	STORAGE: GYMASIUM	181
113C	STORAGE: GYMASIUM	314
113D	STORAGE: GYMASIUM	71
113E	STORAGE: GYMASIUM	18
113F	STORAGE: GYMASIUM	79
114	OFFICE: MAIN	355
114A	STORAGE	34
115	LOCKER ROOM: BOYS'	647
116	OFFICE: PRINCIPAL	222
116A	COPY ROOM	138
116B	STORAGE	36
117	LOCKER ROOM: GIRLS'	719
119	OFFICE: PHYSICAL EDUCATION	241
133	MEDIA CENTER / LIBRARY	3,039
133B	STUDY ROOM	157
133C	WORK ROOM	124
133D	STORAGE: A/V	124
135	COMPUTER LAB	1,407

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
135A	STORAGE: COMPUTER LAB	42
137	CLASSROOM:	1,302
137C	CLASSROOM: VIDEO ROOM	224
139	CLASSROOM: BAND	2,112
139A	VESTIBULE	85
139B	STORAGE: BAND	274
139C	PRACTICE ROOM	99
139D	OFFICE: BAND	179
139E	STORAGE: BAND	468
140	MULTI-PURPOSE / CAFETERIA	2,695
140A	STORAGE: MULTI-PURPOSE	183
140B	KITCHEN	326
141	FACULTY WORK ROOM	734
141A	FACULTY LUNCH ROOM	128
142	CLASSROOM: MUSIC	746
144	OFFICE: MUSIC	222
201	CLASSROOM: ART	1,225
201A	STORAGE: ART	189
201B	KILN ROOM	31
202	CLASSROOM:	829
203	CLASSROOM: SCIENCE	1,250
203A	STORAGE: SCIENCE	163
204	CLASSROOM:	832
205	CLASSROOM:	847
206	CLASSROOM:	832
207	CLASSROOM:	841
208	CLASSROOM:	832
209	CLASSROOM:	832
209A	CLASSROOM:	234
210	CLASSROOM:	832
212	CLASSROOM:	825
214	CLASSROOM:	838
215	FILM PROJECTION BOOTH	261
215A	STORAGE: FILM PROJECTION	47
215B	STORAGE: FILM PROJECTION	43
217	STORAGE	215

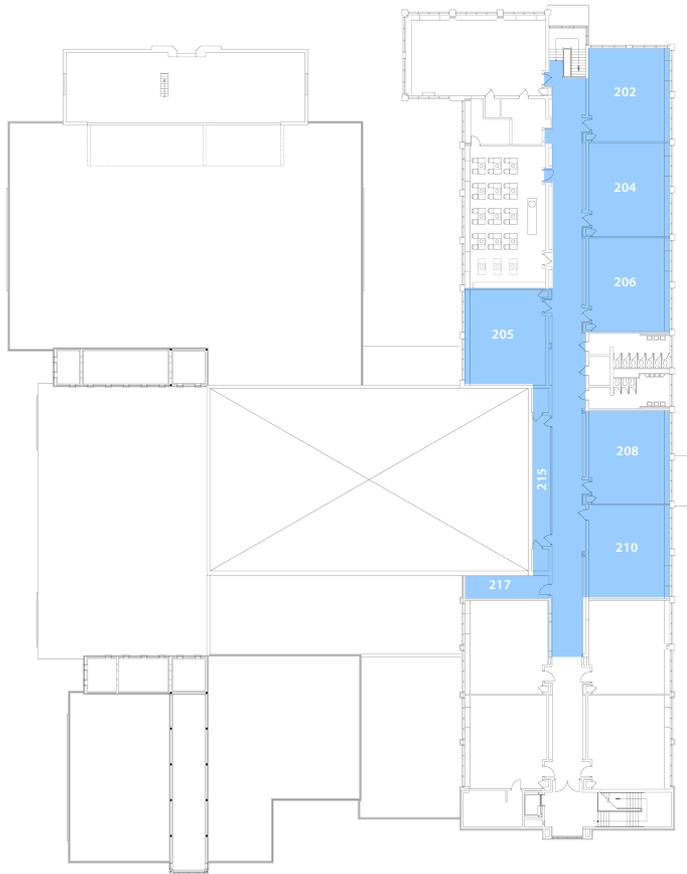
## 02 ARCHITECTURAL COMPONENTS

### GENERAL INFORMATION AND FLOORING SYSTEMS ASSESSMENT

#### NOTES:

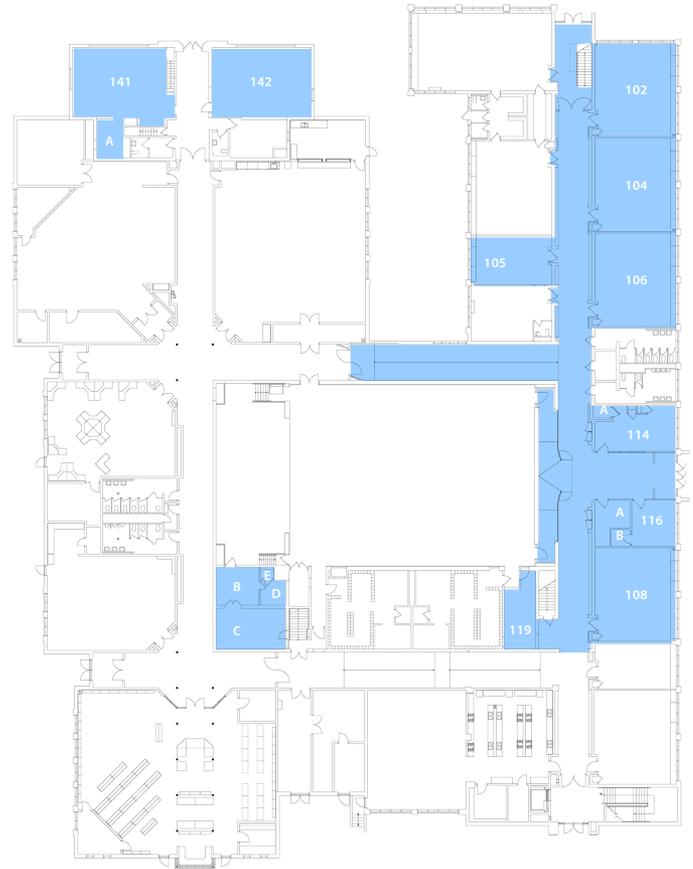
The following are areas that will be affected if the District chooses to perform the work as outlined in the Facilities Upgrade Program:

- a. Remove existing flooring that is currently carpeted. Below the carpeted areas is the original asbestos tile flooring and mastic. Refer to section 10 Asbestos /Environmental Issues for additional information. Replace existing carpeting. Refer to the following pages for complete scope of work and budgets for new flooring options.
- b. Remove and replace selected interior masonry walls at pipe chases for the Mechanical System Modernizations.
- c. Remove and replace suspended ceiling system due to Mechanical System Modernizations.
- d. Remove existing light fixtures from existing suspended ceiling system. Certain fixtures can be reinstalled in the new suspended ceiling system. Others shall be replaced with new energy efficient models. Refer to Interior Lighting Analysis in section 06 for additional information.
- e. Selected interior partitions will need to be demolished, modified, or constructed for proposed School Security Entry Vestibule(s) (SSEV).



**SECOND FLOOR PLAN**

SCALE: 1/64" = 1'-0"



**FIRST FLOOR PLAN**

SCALE: 1/64" = 1'-0"

 AREAS INCLUDED IN BUDGET CALCULATION ON THE FOLLOWING PAGE



## 02 ARCHITECTURAL COMPONENTS

### FLOORING SYSTEMS ASSESSMENT (CONTINUED)

#### BUDGET CALCULATION FOR SUGGESTED AREAS OF REPLACEMENT

ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	ABATEMENT/ DEMO	CARPET	VCT	AQT
102	CLASSROOM:	828	\$5,796	\$3,726	\$2,898	\$4,554
103	CLASSROOM: SCIENCE	832	\$5,824	\$3,744	\$2,912	\$4,576
104	CLASSROOM:	831	\$5,817	\$3,740	\$2,909	\$4,571
105	OFFICE: ASSISTANT PRINCIPAL	421	\$2,947	\$1,895	\$1,474	\$2,316
106	CLASSROOM:	832	\$5,824	\$3,744	\$2,912	\$4,576
108	CLASSROOM:	828	\$5,796	\$3,726	\$2,898	\$4,554
113B	STORAGE: GYMASIUM	181	\$1,267	\$815	\$634	\$996
113C	STORAGE: GYMASIUM	314	\$2,198	\$1,413	\$1,099	\$1,727
113D	STORAGE: GYMASIUM	71	\$497	\$320	\$249	\$391
113E	STORAGE: GYMASIUM	18	\$126	\$81	\$63	\$99
114	OFFICE: MAIN	355	\$2,485	\$1,598	\$1,243	\$1,953
114A	STORAGE	34	\$238	\$153	\$119	\$187
115	LOCKER ROOM: BOYS'	647	\$4,529	\$2,912	\$2,265	\$3,559
116	OFFICE: PRINCIPAL	222	\$1,554	\$999	\$777	\$1,221
116A	COPY ROOM	138	\$966	\$621	\$483	\$759
116B	STORAGE	36	\$252	\$162	\$126	\$198
119	OFFICE: PHYSICAL EDUCATION	241	\$1,687	\$1,085	\$844	\$1,326
141	FACULTY WORK ROOM	734	\$5,138	\$3,303	\$2,569	\$4,037
141A	FACULTY LUNCH ROOM	128	\$896	\$576	\$448	\$704

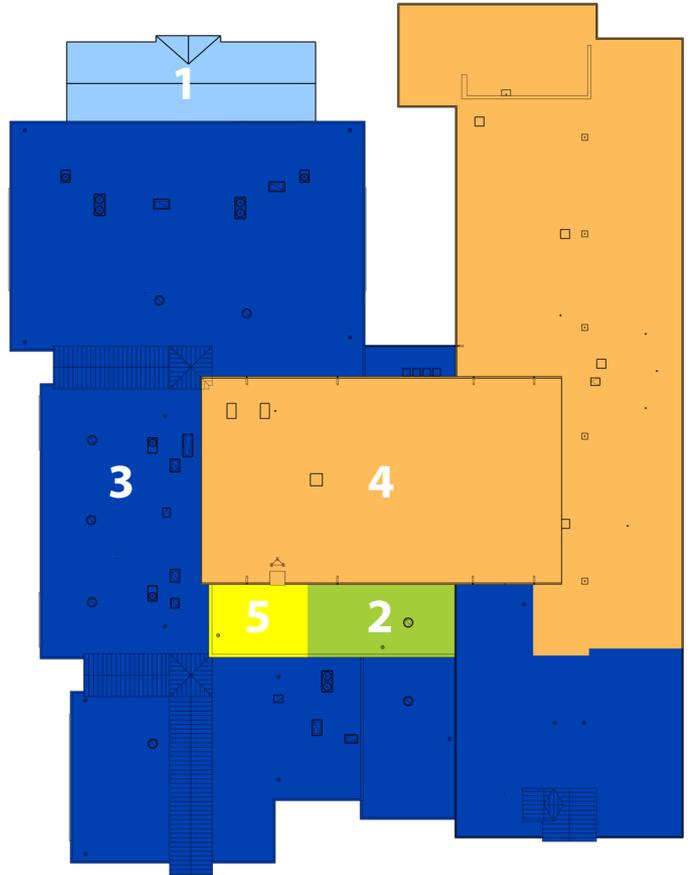
ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	ABATEMENT/ DEMO	CARPET	VCT	AQT
142	CLASSROOM: MUSIC	746	\$5,222	\$3,357	\$2,611	\$4,103
144	OFFICE: MUSIC	222	\$1,554	\$999	\$777	\$1,221
CORRIDOR	--	4,017	\$28,119	\$18,077	\$14,060	\$22,094
202	CLASSROOM:	829	\$5,803	\$3,731	\$2,902	\$4,560
204	CLASSROOM:	832	\$5,824	\$3,744	\$2,912	\$4,576
205	CLASSROOM:	847	\$5,929	\$3,812	\$2,965	\$4,659
206	CLASSROOM:	832	\$5,824	\$3,744	\$2,912	\$4,576
207	CLASSROOM:	841	\$5,887	\$3,785	\$2,944	\$4,626
208	CLASSROOM:	832	\$5,824	\$3,744	\$2,912	\$4,576
209	CLASSROOM:	832	\$5,824	\$3,744	\$2,912	\$4,576
209A	CLASSROOM:	234	\$1,638	\$1,053	\$819	\$1,287
210	CLASSROOM:	832	\$5,824	\$3,744	\$2,912	\$4,576
212	CLASSROOM:	825	\$5,775	\$3,713	\$2,888	\$4,538
214	CLASSROOM:	838	\$5,866	\$3,771	\$2,933	\$4,609
215	FILM PROJECTION BOOTH	261	\$1,827	\$1,175	\$914	\$1,436
215A	STORAGE: FILM PROJECTION	47	\$329	\$212	\$165	\$259
215B	STORAGE: FILM PROJECTION	43	\$301	\$194	\$151	\$237
217	STORAGE	215	\$1,505	\$968	\$753	\$1,183
CORRIDOR	--	2,281	\$15,967	\$10,265	\$7,984	\$12,546
TOTALS:		24,097	\$168,679 (\$7.00/ft <sup>2</sup> )	\$108,437 (\$4.50/ft <sup>2</sup> )	\$84,340 (\$3.50/ft <sup>2</sup> )	\$132,534 (\$5.50/ft <sup>2</sup> )

## 04 ROOFING SYSTEMS

### GENERAL INFORMATION AND WARRANTY STATUS

ROOF AREA	COMPLETION DATE	AREA (FT <sup>2</sup> )	MANUFACTURER	MATERIAL	WARRANTY #	EXPIRATION DATE	BUDGET
1	c.1940	2,208 FT <sup>2</sup>	UNKNOWN	CLAY TILE	--	EXPIRED	\$ --
2	1986	1,550 FT <sup>2</sup>	CARLISLE	0.060mm BLACK EPDM	NOT KNOWN	EXPIRED 2006	\$ 45,000
3	JUN-2000	19,381 FT <sup>2</sup>	CARLISLE	0.060mm BLACK EPDM	CMD990846C	EXPIRED 18-JUN-2010	\$ 30,000*
4	AUG-2010	26,695 FT <sup>2</sup>	CARLISLE	0.060mm "SURE-WHITE" EPDM	10057874	26-AUG-2030	\$ --
5	2013	685 FT <sup>2</sup>	CARLISLE	0.060mm "SURE-WHITE" EPDM	NOT YET AVAILABLE	2033	\$ 36,000

\* Budget includes a Carlisle approved roofing contractor to survey roofing system membrane and provide all required preventative maintenance at membrane seams and flashings.



**ROOF PLAN**  
 SCALE: 1/64" = 1'-0"



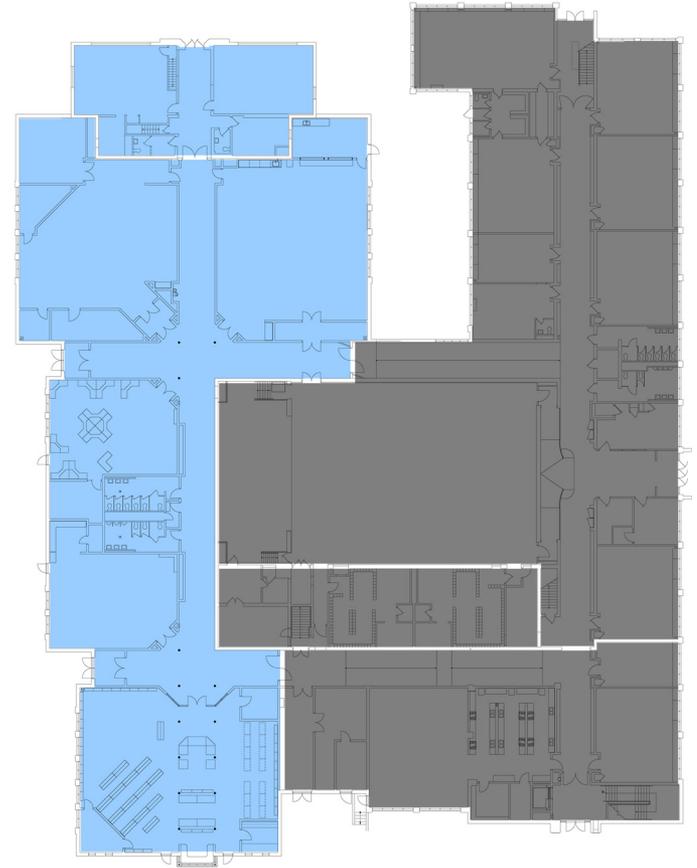
## 05 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS (HVAC)

### GENERAL INFORMATION AND AIR CONDITIONING BY BUILDING AREA

#### NOTES:

- a. The original steam boilers were modified with the 2000 Building Addition Project. A new steam-to-hot water converter was incorporated.
- b. The 1958 2-Story East Classroom Wing has its original mechanical system components. The classrooms employ unit ventilators to supply the spaces with heating and fresh air. The original hydronic (heating) piping system is still in operation. After 40+ years of operation we suspect that the hydronic piping is corroding due to reports that various parts of the building are experiencing differing temperature levels. This corrosion reduces water flow through the pipes and reduces its overall effectiveness. Additionally, the associated debris created from this corrosion flows back to recirculating pumps - creating a maintenance issue and reduces the useful life of these components.
- c. The District has worked directly with a Temperature Control Contractor to incorporate Direct Digital Controls (DDC's) on selected pieces of mechanical equipment. Refer to the following pages of the Facilities Upgrade Program for a complete list.

 AIR-CONDITIONED  
 NOT AIR-CONDITIONED



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"

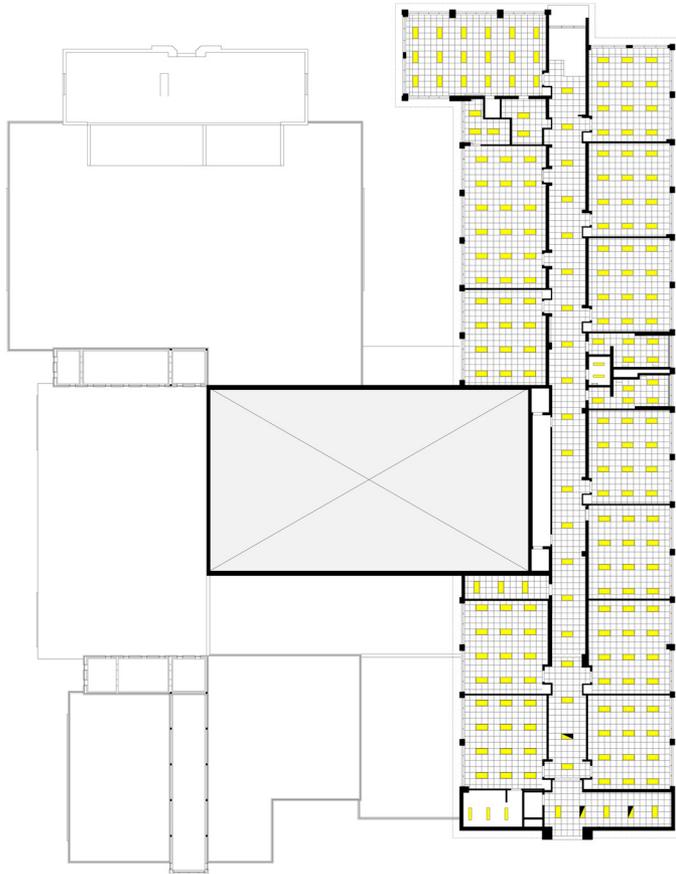


## 06 ELECTRICAL SYSTEMS

### GENERAL INFORMATION AND INTERIOR LIGHTING ASSESSMENT

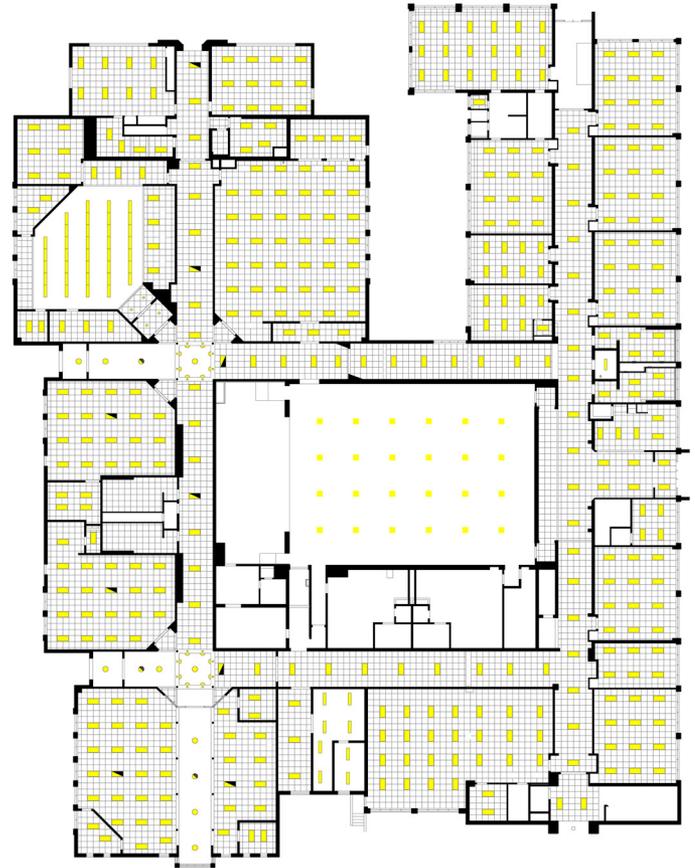
#### NOTES:

- a. With the 2000 Building Addition, the electrical service was upgraded to a 1600 amp, 480-volt, 3-phase service. There are transformers located in the basement level which reduce the 480v to 208v at selected power and lighting panels throughout the 2000 Building Area. Also included in this scope of work were the following items:
  1. Interior light fixtures.
  2. Power wiring for the mechanical equipment.
  3. Fire Alarm System and Fire Alarm Devices.
  4. School Intercom system.
  5. School Phone System.
  6. School Clock System.
- b. In 1993 selected areas of the 2-story East Classroom Wing were renovated with new interior lighting fixtures. Only the first floor level rooms and spaces were included in this renovation project.



**SECOND FLOOR PLAN**

SCALE: 1/64" = 1'-0"



**FIRST FLOOR PLAN**

SCALE: 1/64" = 1'-0"



## 06 ELECTRICAL SYSTEMS

### INTERIOR LIGHTING ASSESSMENT (CONTINUED)

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
100	OFFICE: MAIN	1993	355	5	136	680	1.3	0.62
100A	OFFICE: PRINCIPAL	1993	222	4	136	544	1.1	1.35
100B	STORAGE		36	N/A	--	--	0.8	--
100C	COPY ROOM		138	N/A	--	--	0.8	--
100D	STORAGE		34	N/A	--	--	0.8	--
101	CLASSROOM: SCIENCE	1993	1,234	18	136	2,448	1.3	0.68
101A	STORAGE: SCIENCE		121	N/A	--	--	0.8	--
101B	STORAGE: SCIENCE		183	N/A	--	--	0.8	--
101C	STORAGE: SCIENCE		26	N/A	--	--	0.8	--
101D	VESTIBULE		21	N/A	--	--	0.8	--
102	CLASSROOM:	1993	828	12	136	1,632	1.3	0.67
103	CLASSROOM: SCIENCE	1993	832	12	136	1,632	1.3	0.66
104	CLASSROOM:	1993	831	12	136	1,632	1.3	0.66
105	OFFICE: ASSISTANT PRINCIPAL	1993	421	8	136	1,088	1.1	1.48
106	CLASSROOM:	1993	832	12	136	1,632	1.3	0.66
107	OFFICE: NURSE	1993	440	7	136	952	1.1	1.06
108	CLASSROOM:	1993	828	12	136	1,632	1.3	0.67
109	CLASSROOM: HOME ECONOMICS	2000	2,162	25	96	2,400	1.3	-0.19
109A	STORAGE: HOME ECONOMICS	2000	149	2	96	192	0.8	0.49
110	CLASSROOM:	2000	394	6	96	576	1.3	0.16
112	CLASSROOM:	2000	838	12	96	1,152	1.3	0.07
113	GYMNASIUM	1993	5,052	24	240	5,760	1.4	-0.26
113A	STAGE		1,301	N/A	--	--	1.6	--
113B	STORAGE: GYMASIUM		181	N/A	--	--	0.8	--
113C	STORAGE: GYMASIUM		314	N/A	--	--	0.8	--
113D	STORAGE: GYMASIUM		71	N/A	--	--	0.8	--
113E	STORAGE: GYMASIUM		18	N/A	--	--	0.8	--
113F	STORAGE: GYMASIUM		79	N/A	--	--	0.8	--

\* Lighting Power Density (LPD) is given in terms of Allowable Watts per Square Foot (W/ft<sup>2</sup>). This requirement is derived from the "SPACE-BY-SPACE" Method as stated in Table 405.5.2(2) of 2012 International

Energy Conservation code. Total Watts given at the bottom of this column are the total allowable watts for the building. Difference to code is the amount the building must reduce to meet this standard.

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
115	LOCKER ROOM: BOYS'		647	N/A	--	--	0.8	--
117	LOCKER ROOM: GIRLS'		719	N/A	--	--	0.8	--
119	OFFICE: PHYSICAL EDUCATION		241	N/A	--	--	1.1	--
133	MEDIA CENTER / LIBRARY	2000	3,039	34 4	96 110	3,704	1.2	0.02
133B	STUDY ROOM	2000	157	2	96	192	1.3	-0.08
133C	WORK ROOM	2000	124	2	96	192	1.3	0.25
133D	STORAGE: A/V	2000	124	2	96	192	0.8	0.75
135	COMPUTER LAB	2000	1,407	20	96	1,920	1.3	0.06
135A	STORAGE: COMPUTER LAB	2000	42	1	96	96	0.8	1.49
137	CLASSROOM:	2000	1,302	19	96	1,824	1.3	0.10
137C	CLASSROOM: VIDEO ROOM	2000	224	4	96	384	1.3	0.41
139	CLASSROOM: BAND	2000	2,112	35 7	64 96	2,912	1.3	0.08
139A	VESTIBULE	2000	85	4	18	72	1.3	-0.45
139B	STORAGE: BAND	2000	274	3	96	288	0.8	0.25
139C	PRACTICE ROOM	2000	99	2	96	192	1.3	0.64
139D	OFFICE: BAND	2000	179	2	96	192	1.1	-0.03
139E	STORAGE: BAND	2000	468	6	96	576	0.8	0.43
140	MULTI-PURPOSE / CAFETERIA	2000	2,695	33 16	96 34	3,712	1.2	0.18
140A	STORAGE: MULTI-PURPOSE	2000	183	3	96	288	0.8	0.77
140B	KITCHEN	2000	326	4	96	384	1.2	-0.02
141	FACULTY WORK ROOM	2000	734	8	96	768	1.1	-0.05
141A	FACULTY LUNCH ROOM	2000	128	2	96	192	1.2	0.30
142	CLASSROOM: MUSIC	2000	746	12	96	1,152	1.3	0.24
144	OFFICE: MUSIC	2000	222	4	96	384	1.1	0.63

CONTINUED &gt;

## 06 ELECTRICAL SYSTEMS

### INTERIOR LIGHTING ASSESSMENT (CONTINUED)

ROOM NUMBER	ROOM USE	INSTALLATION DATE	AREA (FT <sup>2</sup> )	FIXTURE COUNT	FIXTURE WATTS	TOTAL WATTS	LPD ALLOWANCE*	DIFFERENCE TO CODE*
CORRIDOR (1ST)	--	1993 2000 2000	4,017	25 41 8	136 96 110	8,216	1.0	1.05
201	CLASSROOM: ART	1993	1,225	18	136	2,448	1.3	0.70
201A	STORAGE: ART	2000	189	2	96	192	0.8	0.22
201B	KILN ROOM		31	N/A	--	--	0.8	--
202	CLASSROOM:	1993	829	12	136	1,632	1.3	0.67
203	CLASSROOM: SCIENCE	2000	1,250	18	96	1,728	1.3	0.08
203A	STORAGE: SCIENCE	2000	163	3	96	288	0.8	0.97
204	CLASSROOM:	1993	832	12	136	1,632	1.3	0.66
205	CLASSROOM:	2000	847	12	96	1,152	1.3	0.06
206	CLASSROOM:	1993	832	12	136	1,632	1.3	0.66
207	CLASSROOM:	1993	841	12	136	1,632	1.3	0.64
208	CLASSROOM:	2000	832	12	96	1,152	1.3	0.08
209	CLASSROOM:	2000	832	12	96	1,152	1.3	0.08
209A	STORAGE	2000	234	3	64	192	0.8	0.02
210	CLASSROOM:	2000	832	12	96	1,152	1.3	0.08
212	CLASSROOM:	2000	825	12	96	1,152	1.3	0.10
214	CLASSROOM:	2000	838	12	96	1,152	1.3	0.07
215	FILM PROJECTION BOOTH		261	N/A	--	--	0.8	--
215A	STORAGE: FILM PROJECTION		47	N/A	--	--	0.8	--
215B	STORAGE: FILM PROJECTION		43	N/A	--	--	0.8	--
217	STORAGE	2000	215	3	96	288	0.8	0.54
CORRIDOR (2ND)	--	1993 2000	2,281	16 6	136 96	2,752	1.0	0.21
STAIRS	--	2000	552	5	96	1,056	0.7	1.21
TOTALS:		--	53,066	668	6,504	74,168 (WATTS)	59,322 (WATTS)	14,846.10 (WATTS)

## 07 PLUMBING SYSTEMS

### GENERAL INFORMATION

#### NOTES:

- a. In 2011, a Plumbing Renovation Project was completed affecting the 1958 2-story East Classroom Wing. The following systems were provided: new domestic water piping, plumbing fixtures and related plumbing work. First floor Science Room 101 and second floor Art Room 201 were included in this Plumbing Project.

We propose the following scope of work as part of the Facility Upgrade Program:

- a. Remove and replace water service from Norfolk. There is currently a Reduced Backflow Preventer (RPZ) on the water service connection in the first floor Janitor Closet. This RPZ was installed in 2010.



## 09 FIRE PROTECTION SYSTEMS

### NOTES:

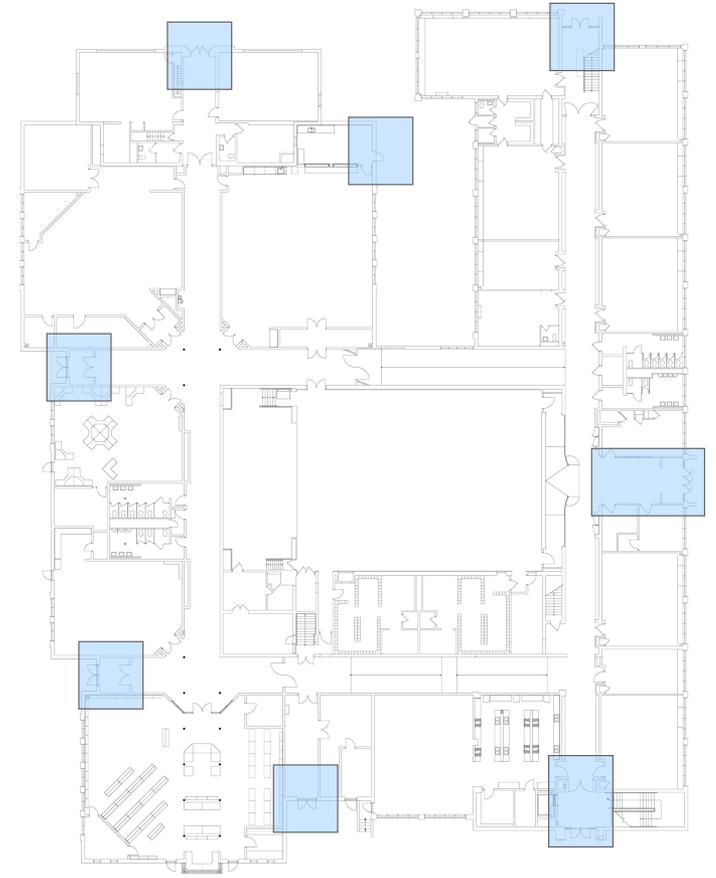
- a. Installed with the 2000 Building Addition, the Fire Protection Water Assembly is located in the first floor Mechanical Room 105.
- b. The 2000 Building Addition is 100% protected with a Fire Protection/Sprinkler System.
- c. With the planned renovation projects listed in the Facility Upgrade Program near the end of this document, an extension of the Fire Protection/Sprinkler System is included which would make the building complex 100% protected.



## 11 SECURITY SYSTEMS UPGRADE PROPOSAL

### NOTES:

- a. At the direction of the District EJM has worked in conjunction with Assa Abloy to prepare a preliminary budget and scope of work for a School Security Entry Vestibule project. The entrances covered in this project are highlighted on the floor plan on the opposite page. All of these entrances will be updated with electronic card readers and tied into a centralized security system. For budget and full scope of work refer to the Facilities Update Program.



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## **12 ENERGY CONSERVATION MEASURES**

### GENERAL INFORMATION AND AVAILABLE GRANTS

As mentioned in the introduction to this Program many of the actions that we are proposing address improving the energy performance of the facility. Each of these proposed projects would increase the energy efficiency of the facility in one of two areas: 1) Thermal envelope enhancements (i.e. window replacement, roof replacement, etc.); or 2) System upgrades (i.e. lighting replacement, boiler replacement, etc.). Undertaking the following projects would increase the energy performance of the building and reduce the amount of money spent by the District on utilities for years to come:

- 02 Architectural Components  
Window replacement, increased building insulation  
(At this time EJM would not recommend replacing any windows at WMS since a window replacement project was completed in the recent past by Honeywell)
- 04 Roofing Systems  
Roof replacement  
(At this time EJM would not recommend replacing any roof areas at WMS because of the project completed in 2010)
- 05 HVAC Systems  
Boiler replacement, increased thermal system insulation
- 06 Electrical Systems  
Light fixture replacement
- 07 Plumbing Systems  
Fixture replacement

For a complete list and preliminary scope reviews of projects that EJM recommends the District complete in the near future see the Facilities Upgrade Program starting on page 84.

There are several grants available to the District for investing in energy conservation measures further increasing the incentive to do so. These include the following:

- 1) Illinois Department of Commerce and Economic Opportunity (DCEO) Energy Efficiency Program:

[http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/Energy/Energy+Efficiency/](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/Energy/Energy+Efficiency/)

<http://www.ildceo.net/NR/rdonlyres/951165DA-B9D5-4B38-AFE7-23A51CF85358/0/20132014DCEOStandardandCustomAdobe080513.pdf>

This program offers a maximum incentive of up to \$300,000 that the District could qualify for through wattage reduction via lighting upgrades and/or HVAC system upgrades.

- 2) Illinois State Board of Education (ISBE) School Energy Efficiency Project Grants:

[http://www.isbe.net/sbss/ee\\_grants.htm](http://www.isbe.net/sbss/ee_grants.htm)

This grant offers a maximum incentive of up to \$250,000 in matching funds that the District could qualify for by enhancing the thermal envelope, reducing wattage used for lighting, installing an automated energy control system, and/or making HVAC system upgrades.

These avenues can be explored further after approval of individual projects at the District's request.

## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS

MONTH	PRICE PERTHERM	THERMS USED	TOTAL
June-11	\$0.44900	67.37	\$30.25
July-11	\$0.44800	62.28	\$27.90
August-11	\$0.45900	308.61	\$141.65
September-11	\$0.40600	361.78	\$146.88
October-11	\$0.40200	2,298.22	\$923.88
November-11	\$0.56600	10,001.85	\$5,661.05
December-11	\$0.56600	13,976.11	\$7,910.48
January-12	\$0.56600	14,506.98	\$8,210.95
February-12	\$0.56600	12,385.56	\$7,010.23
March-12	\$0.56600	4,553.34	\$2,577.19
April-12	\$0.22600	2,998.81	\$677.73
May-12*	\$0.41806	1,588.55	\$664.11

TOTALS \$0.47455 (AVG) 63,109.46 \$33,982.30

\* Information unavailable; based on projection.

MONTH	PRICE PER THERM	THERMS USED	TOTAL
June-12	\$0.27000	362.02	\$97.75
July-12	\$0.28900	309.51	\$89.45
August-12	\$0.32700	372.20	\$121.71
September-12	\$0.28600	369.55	\$105.69
October-12	\$0.32700	4,459.64	\$1,458.30
November-12	\$0.39400	10,814.45	\$4,260.89
December-12	\$0.39400	11,381.88	\$4,484.46
January-13	\$0.39400	15,456.46	\$6,089.85
February-13	\$0.39400	15,153.79	\$5,970.59
March-13	\$0.39400	14,003.96	\$5,517.56
April-13	\$0.42700	8,715.24	\$3,721.41
May-13	\$0.44300	1,588.55	\$703.73
TOTALS	\$0.36158	82,987.25	\$32,621.38

## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS (CONTINUED)

TOTAL THERMS USED JUNE 2011 - MAY 2012

**63,109.46**

TOTAL \$ SPENT ON NATURAL GAS JUNE 2011 - MAY 2012

**\$33,982.30**\*

TOTAL THERMS USED JUNE 2012 - MAY 2013

**82,987.25**

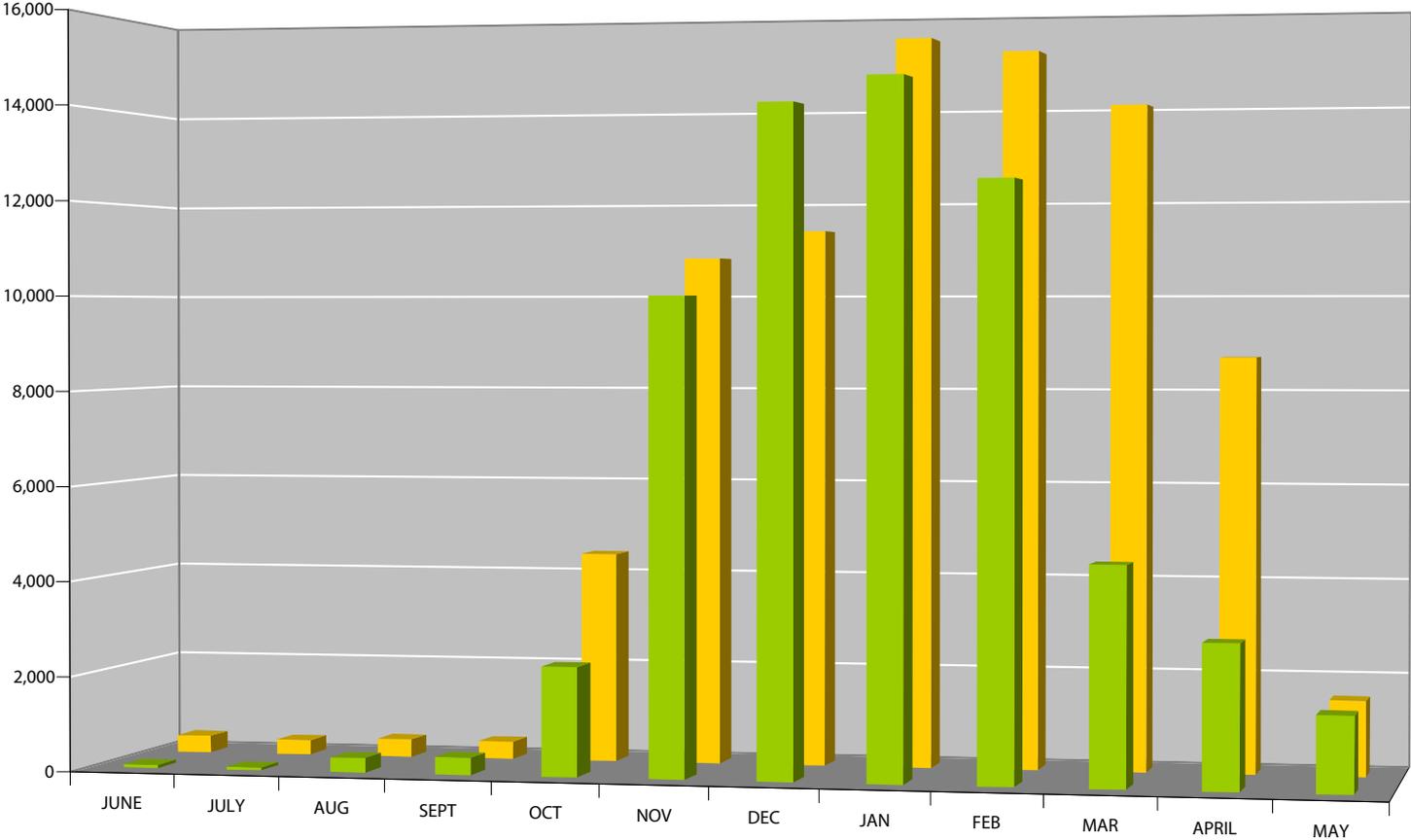
TOTAL \$ SPENT ON NATURAL GAS JUNE 2012 - MAY 2013

**\$32,621.38**\*

\*This dollar amount reflects only charges for the resource consumed (in this case natural gas). It does not include various other expenses such as miscellaneous service charges, management fees, etc.

ENERGY CONSUMPTION - MONTHLY NATURAL GAS USAGE

Therms Used 2011 - 2012 ■  
Therms Used 2012 - 2013 ■

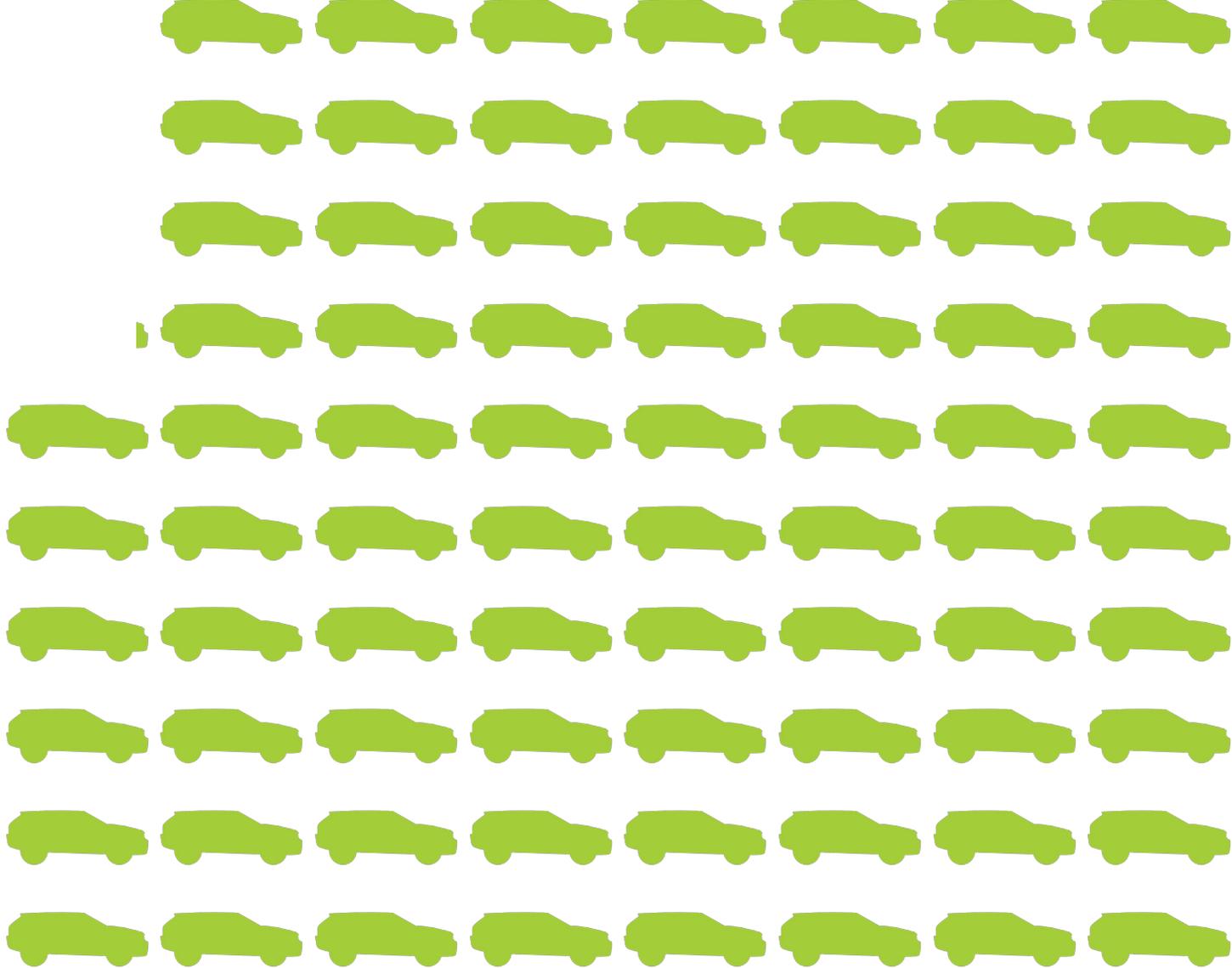


## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - NATURAL GAS (CONTINUED)

Over the past two years WMS has used on average 73,048 therms of natural gas. This has released 805,208<sup>9</sup> pounds of CO<sub>2</sub> into the atmosphere per year - that is the equivalent of

**76.1 automobiles.** <sup>10</sup>



## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY

MONTH	PRICE PER kWh	kWh USED	TOTAL
June-11	\$0.048300	31,535	\$1,523.14
July-11	\$0.048300	29,218	\$1,411.23
August-11	\$0.048300	38,052	\$1,837.91
September-11	\$0.048300	46,466	\$2,244.31
October-11	\$0.048300	35,471	\$1,713.25
November-11	\$0.048300	37,885	\$1,829.85
December-11	\$0.048300	48,743	\$2,354.29
January-12	\$0.048300	43,972	\$2,123.85
February-12	\$0.048300	37,477	\$1,810.14
March-12	\$0.048300	38,626	\$1,865.64
April-12	\$0.048300	39,269	\$1,896.69
May-12*	\$0.048300	37,567	\$1,814.49

TOTALS \$0.04830 464,281 \$22,424.77

\* Information unavailable; based on projection.

MONTH	PRICE PER kWh	kWh USED	TOTAL
June-12	\$0.048300	36,702	\$1,772.71
July-12	\$0.048300	29,014	\$1,401.38
August-12	\$0.048300	34,378	\$1,660.46
September-12	\$0.048300	40,647	\$1,963.25
October-12	\$0.048300	34,998	\$1,690.40
November-12	\$0.048300	35,734	\$1,725.95
December-12	\$0.048300	40,291	\$1,946.06
January-13	\$0.048300	36,975	\$1,785.89
February-13	\$0.048300	43,536	\$2,102.79
March-13	\$0.048300	35,077	\$1,694.22
April-13	\$0.048300	32,224	\$1,556.42
May-13*	\$0.048300	37,567	\$1,814.49

TOTALS \$0.04830 437,143 \$21,114.01

## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY (CONTINUED)

TOTAL KILOWATT HOURS USED JUNE 2012 - MAY 2013

**464,281**

TOTAL \$ SPENT ON ELECTRICITY JUNE 2012 - MAY 2013

**\$22,424.77**\*

TOTAL KILOWATT HOURS JUNE 2012 - MAY 2013

**437,143**

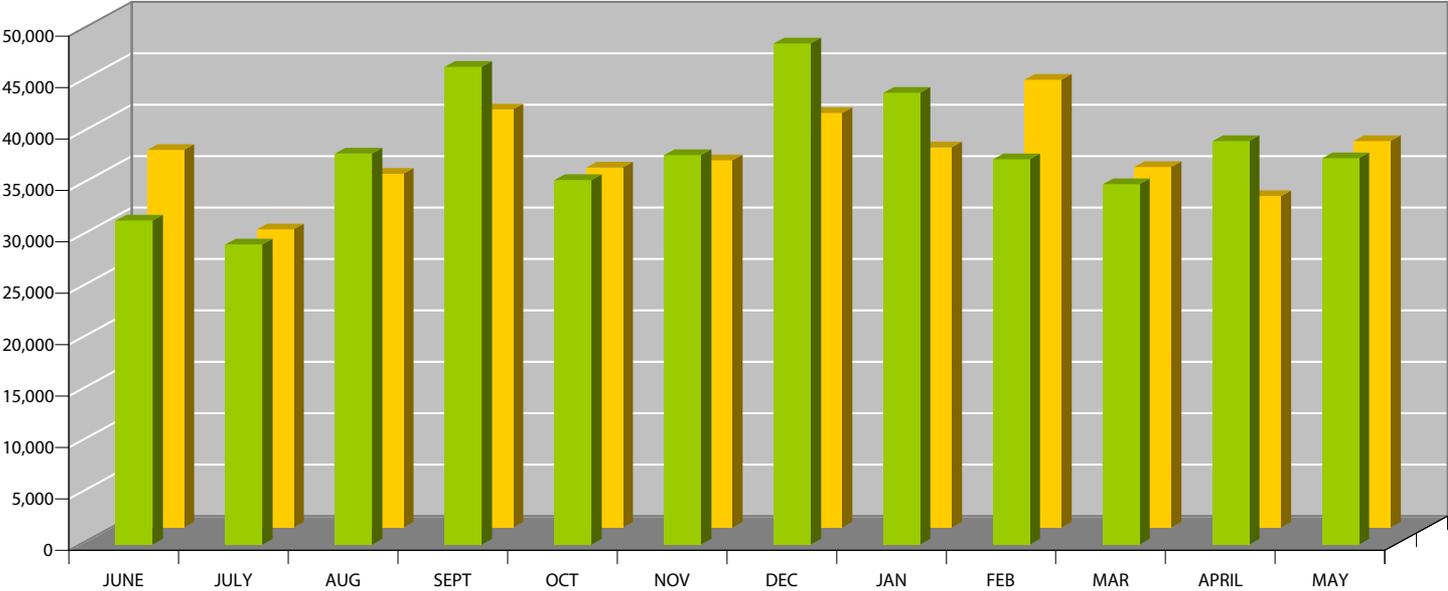
TOTAL \$ SPENT ON ELECTRICITY JUNE 2012 - MAY 2013

**\$21,114.01**\*

\* The dollar amount shown reflects only charges for the resource consumed (in this case electricity). It does not include various other expenses such as miscellaneous service charges, management fees, etc.

ENERGY CONSUMPTION - MONTHLY ELECTRICITY USAGE

kWh Used 2011 - 2012 █  
Therms Used 2012 - 2013 █

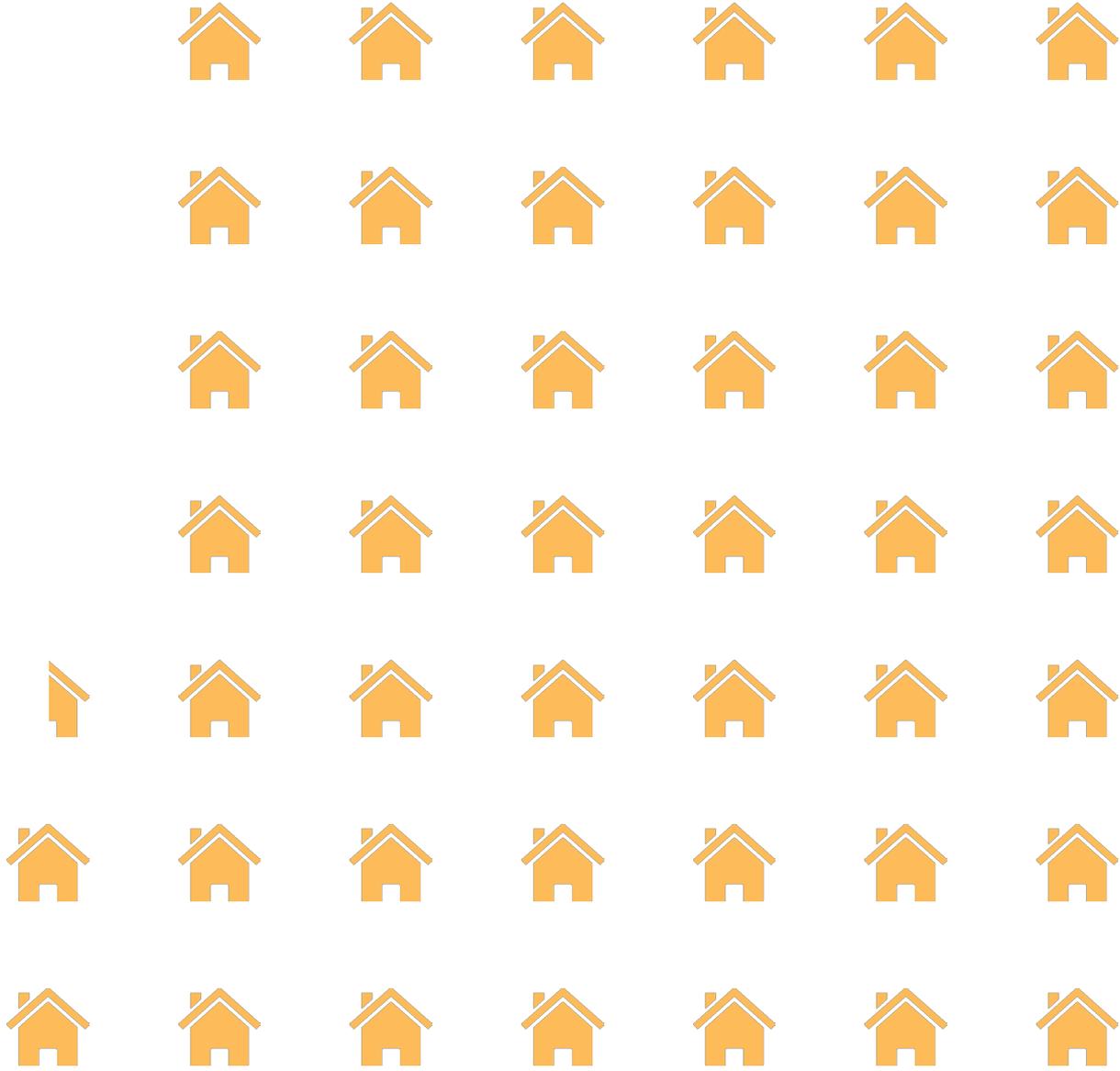


## 12 ENERGY CONSERVATION MEASURES

ENERGY CONSUMPTION BREAKDOWN - ELECTRICITY (CONTINUED)

Over the past two years WMS has used on average 450,712 kWh of electricity. This has released 712,125<sup>9</sup> pounds of CO<sub>2</sub> into the atmosphere - the equivalent of

**44.4 homes.**<sup>11</sup>



## 12 ENERGY CONSERVATION MEASURES

### ENERGY CONSUMPTION COST PROJECTIONS

#### ACTUAL UTILITIES COST - 2012-2013 (AVG.)

GAS	\$33,301.84
ELECTRIC	\$21,769.39

**\$55,071.23**

#### PROJECTION - 2023\*

GAS	\$44,754.89
ELECTRIC	\$29,256.24

**\$74,011.13**

#### PROJECTION - 2033\*

GAS	\$60,146.83
ELECTRIC	\$39,317.94

**\$99,464.77**

\*The following dollar amounts are based on projected cost analysis using an estimated discount rate of 3% increase per year.

TOTAL PROJECTED UTILITIES COST 2013-2033:

**\$1,579,249.44**

## 13 SITE COMPONENTS

### GENERAL INFORMATION

#### NOTES:

- a. Paving Systems:
  1. West Parking Lot, Visitor Street Parking, West Driveway/ Street, and South Driveway. Total Bituminous Pavement area = 45,470ft<sup>2</sup>
  2. Bus Parking Lot: Total Bituminous Pavement area = 9,180ft<sup>2</sup>
  3. Delivery Driveway: Total Bituminous Pavement area = 1,400ft<sup>2</sup>
  4. Driveways: 4.
- b. Concrete Walks:
  1. Concrete Walks on site = 5,290ft<sup>2</sup>
  2. Public Concrete Walks = 6,890ft<sup>2</sup>



**BRITTEN BUILDING**

10110 Gladstone Street  
Westchester, IL 60154  
Latitude: 41°52'01.59" N





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## 00 GENERAL BUILDING INFORMATION

### SPATIAL ANALYSIS - NET SQUARE FOOTAGE CALCULATION AND BUILDING TIMELINE

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
100	CLASSROOM	823
101	CLASSROOM	826
102	CLASSROOM	547
102A	CLASSROOM	240
102B	STORAGE	404
102C	STORAGE	62
102D	STORAGE	22
102E	STORAGE	146
102F	STORAGE	67
103	CLASSROOM	841
104	CLASSROOM	882
105	OFFICE: MAIN	393
106	CLASSROOM	861
107	CLASSROOM	274
108	STAFF LOUNGE	801
109	OFFICE: PRINCIPAL	340
109A	CLASSROOM	144
110	OFFICE: NURSE	313
110A	STORAGE	20
110B	STORAGE	18
111	GYMNASIUM	4,802
111A	STAGE	606
111B	STAGE LEFT	173
111C	STAGE RIGHT	169

- 1930 - ORIGINAL BUILDING
- 1943 - BUILDING ADDITION
- 1951 - BUILDING ADDITION
- 1956 - BUILDING ADDITION
- 1971 - BUILDING ADDITION

ROOM NUMBER	ROOM NAME	AREA (FT <sup>2</sup> )
111D	LOCKER ROOM: BOYS'	446
111E	LOCKER ROOM: GIRLS'	418
111F	STORAGE	31
111G	VESTIBULE	40
111H	OFFICE	110
111I	TOILET ROOM	77
111J	STORAGE	176
111K	STORAGE	198
200	CLASSROOM	825
200A	OFFICE	186
200B	OFFICE	170
201	LUNCH ROOM	1,290
202	CLASSROOM	841
203	CLASSROOM	882
204	CLASSROOM	832
205	CLASSROOM	803
205A	STAFF LOUNGE	243
206	CLASSROOM	861
207	OFFICE	305
208	BIG ROOM	3,011
208A	LUNCH ROOM	191
<b>1930+1943 BUILDINGS</b>		
1	OFFICE	697
1A	STORAGE	132
1B	STORAGE	218
2	OFFICE	704
3	OFFICE	699
4	OFFICE	550
4A	STORAGE	156
<b>TOTAL NET SQUARE FOOTAGE:</b>		
		<b>28,866 FT<sup>2</sup></b>



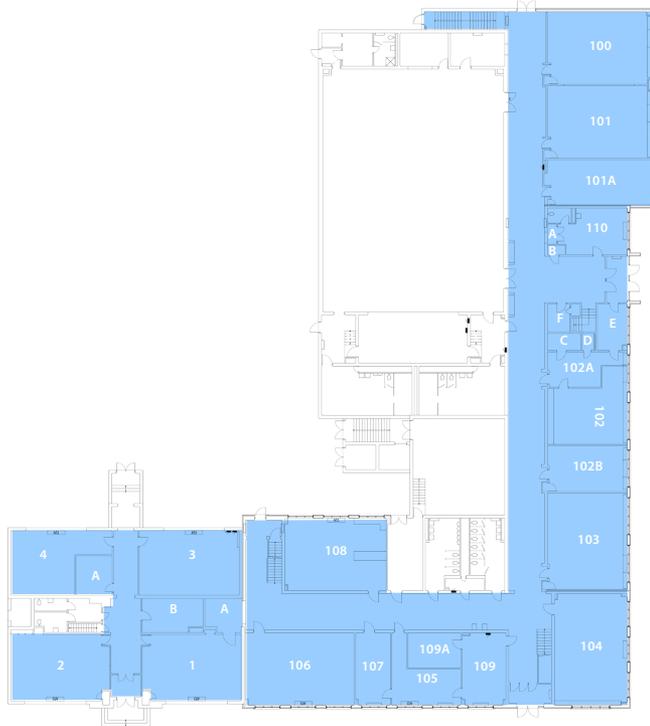
## 02 ARCHITECTURAL COMPONENTS

### GENERAL INFORMATION AND FLOORING SYSTEMS ASSESSMENT

#### NOTES:

The following are areas that will be affected if the District chooses to perform the work as outlined in the Facilities Upgrade Program:

- a. Remove existing asbestos floor tile and mastic.
- b. Remove and replace existing carpeting. Refer to the following pages for new flooring options.
- c. Remove and replace selected interior masonry walls at pipe chases for the Plumbing and Mechanical System Modernizations.
- d. Remove and replace suspended ceiling system due to Mechanical System Modernizations.
- e. Selected interior demolition for Proposed School Security Entry Vestibule (SSEV) and Proposed Toilet Room Renovations.
- f. The removal and replacement of the original window units at the 1943, 1951, 1956, and 1971 building areas when the masonry restoration project is completed (see Section 03).



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



**SECOND FLOOR PLAN**  
SCALE: 1/64" = 1'-0"

 AREAS INCLUDED IN BUDGET CALCULATION ON THE FOLLOWING PAGE



## 02 ARCHITECTURAL COMPONENTS

### FLOORING SYSTEMS ASSESSMENT (CONTINUED)

ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	DEMO	CARPET	VCT	AQT
100	CLASSROOM	823	\$5,761	\$3,704	\$2,881	\$4,527
101	CLASSROOM	826	\$5,782	\$3,717	\$2,891	\$4,543
102	CLASSROOM	547	\$3,829	\$2,462	\$1,915	\$3,009
102A	CLASSROOM	240	\$1,680	\$1,080	\$840	\$1,320
102B	STORAGE	404	\$2,828	\$1,818	\$1,414	\$2,222
102C	STORAGE	62	\$434	\$279	\$217	\$341
102D	STORAGE	22	\$154	\$99	\$77	\$121
102E	STORAGE	146	\$1,022	\$657	\$511	\$803
102F	STORAGE	67	\$469	\$302	\$235	\$369
103	CLASSROOM	841	\$5,887	\$3,785	\$2,944	\$4,626
104	CLASSROOM	882	\$6,174	\$3,969	\$3,087	\$4,851
105	OFFICE: MAIN	393	\$2,751	\$1,769	\$1,376	\$2,162
106	CLASSROOM	861	\$6,027	\$3,875	\$3,014	\$4,736
107	CLASSROOM	274	\$1,918	\$1,233	\$959	\$1,507
108	STAFF LOUNGE	801	\$5,607	\$3,605	\$2,804	\$4,406
109	OFFICE: PRINCIPAL	340	\$2,380	\$1,530	\$1,190	\$1,870
109A	CLASSROOM	144	\$1,008	\$648	\$504	\$792
110	OFFICE: NURSE	313	\$2,191	\$1,409	\$1,096	\$1,722
110A	STORAGE	20	\$140	\$90	\$70	\$110
110B	STORAGE	18	\$126	\$81	\$63	\$99
111B	STAGE LEFT	173	\$1,211	\$779	\$606	\$952
111C	STAGE RIGHT	169	\$1,183	\$761	\$592	\$930
111D	LOCKER ROOM: BOYS'	446	\$3,122	\$2,007	\$1,561	\$2,453
111E	LOCKER ROOM: GIRLS'	418	\$2,926	\$1,881	\$1,463	\$2,299
111F	STORAGE	31	\$217	\$140	\$109	\$171
111G	VESTIBULE	40	\$280	\$180	\$140	\$220
111H	OFFICE	110	\$770	\$495	\$385	\$605
111I	TOILET ROOM	77	\$539	\$347	\$270	\$424

ROOM NUMBER	ROOM USE	AREA (FT <sup>2</sup> )	DEMO	CARPET	VCT	AQT
111J	STORAGE	176	\$1,232	\$792	\$616	\$968
111K	STORAGE	198	\$1,386	\$891	\$693	\$1,089
CORRIDOR	--	4,610	\$32,270	\$20,745	\$16,135	\$25,355
200	CLASSROOM	825	\$5,775	\$3,713	\$2,888	\$4,538
200A	OFFICE	186	\$1,302	\$837	\$651	\$1,023
200B	OFFICE	170	\$1,190	\$765	\$595	\$935
201	LUNCH ROOM	1,290	\$9,030	\$5,805	\$4,515	\$7,095
202	CLASSROOM	841	\$5,887	\$3,785	\$2,944	\$4,626
203	CLASSROOM	882	\$6,174	\$3,969	\$3,087	\$4,851
204	CLASSROOM	832	\$5,824	\$3,744	\$2,912	\$4,576
205	CLASSROOM	803	\$5,621	\$3,614	\$2,811	\$4,417
205A	STAFF LOUNGE	243	\$1,701	\$1,094	\$851	\$1,337
206	CLASSROOM	861	\$6,027	\$3,875	\$3,014	\$4,736
207	OFFICE	305	\$2,135	\$1,373	\$1,068	\$1,678
208	BIG ROOM	3,011	\$21,077	\$13,550	\$10,539	\$16,561
208A	LUNCH ROOM	191	\$1,337	\$860	\$669	\$1,051
CORRIDOR	--	2,858	\$20,006	\$12,861	\$10,003	\$15,719
<b>1930+1943 BUILDINGS</b>						
1	OFFICE	697	\$4,879	\$3,137	\$2,440	\$3,834
1A	STORAGE	132	\$924	\$594	\$462	\$726
1B	STORAGE	218	\$1,526	\$981	\$763	\$1,199
2	OFFICE	704	\$4,928	\$3,168	\$2,464	\$3,872
3	OFFICE	699	\$4,893	\$3,146	\$2,447	\$3,845
4	OFFICE	550	\$3,850	\$2,475	\$1,925	\$3,025
4A	STORAGE	156	\$1,092	\$702	\$546	\$858
CORRIDOR	--	712	\$4,984	\$3,204	\$2,492	\$3,916
<b>TOTALS:</b>		<b>31,638</b>	<b>\$221,466</b>	<b>\$142,371</b>	<b>\$110,733</b>	<b>\$174,009</b>
			<b>(\$7.00/ft<sup>2</sup>)</b>	<b>(\$4.50/ft<sup>2</sup>)</b>	<b>(\$3.50/ft<sup>2</sup>)</b>	<b>(\$5.50/ft<sup>2</sup>)</b>

### 03 STRUCTURAL COMPONENTS

#### GENERAL INFORMATION



SOUTH FACADE  
(TAKEN PRIOR TO 2013 MASONRY RESTORATION PROJECT)

#### NOTES:

- a. At the direction of the District, EJM surveyed the Britten Building and developed a report assessing the structural condition of the exterior walls. The original lintels installed above windows from the 1951 building addition had experienced advanced levels of decay and were creating a dangerous condition. We suggested removing these existing lintels and replacing with new to ensure that this condition would not arise again. The 2013 Masonry Restoration project completed OCT 2013 remedied the south and east facade of the 1951 building. Since we were already addressing these wall areas we suggested that the District replace the poorly performing existing window units. As part of this project EJM installed new windows that achieved higher insulation values, more natural ventilation, and better light distribution and control.
- b. The north facade of the 1951 building is experiencing the same issues as the south and east facade previously mentioned in item 'a'.
- c. The 1956 building is experiencing similar decay as the other parts of the building albeit not as severe. Eventually these window areas will need to be remedied as well.



IMAGES DEPICTING VARIOUS LEVELS OF LINTEL DECAY  
(TAKEN PRIOR TO 2013 MASONRY RESTORATION PROJECT)

### 03 STRUCTURAL COMPONENTS GENERAL INFORMATION (CONT'D)



SOUTH FACADE - TAKEN POST 2013 MASONRY RESTORATION PROJECT



SOUTH FACADE DETAIL



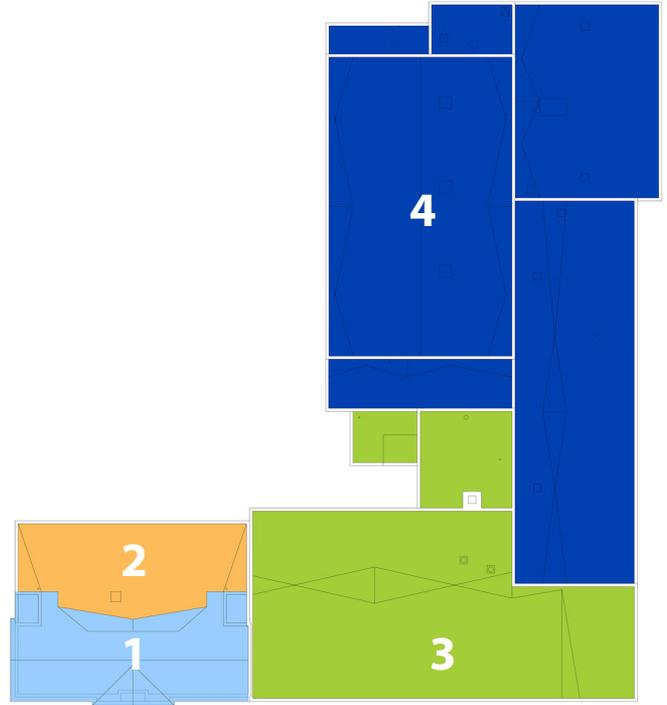
INTERIOR - DEPICTING INSULATED, LIGHT-DIFFUSING PANEL

## 04 ROOFING SYSTEMS

### GENERAL INFORMATION AND WARRANTY STATUS

ROOF AREA	COMPLETION DATE	AREA (FT <sup>2</sup> )	MANUFACTURER	MATERIAL	WARRANTY #	EXPIRATION DATE	BUDGET
1	1930	2,527 FT <sup>2</sup>	UNKNOWN	CLAY TILE	--	EXPIRED	\$ --
2	1943	2,046FT <sup>2</sup>	UNKNOWN	MULTI-PLY BUILT-UP	--	EXPIRED	\$ 30,179
3	1951	8,111FT <sup>2</sup>	UNKNOWN	MULTI-PLY BUILT-UP	--	EXPIRED	\$ 119,637
4	SEPT-1988	15,744 FT <sup>2</sup>	CARLISLE	0.060mm BLACK EPDM	76862	EXPIRED 21-SEPT-2008	\$ 232,224





**ROOF PLAN**  
SCALE: 1/64" = 1'-0"



## 05 HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS (HVAC)

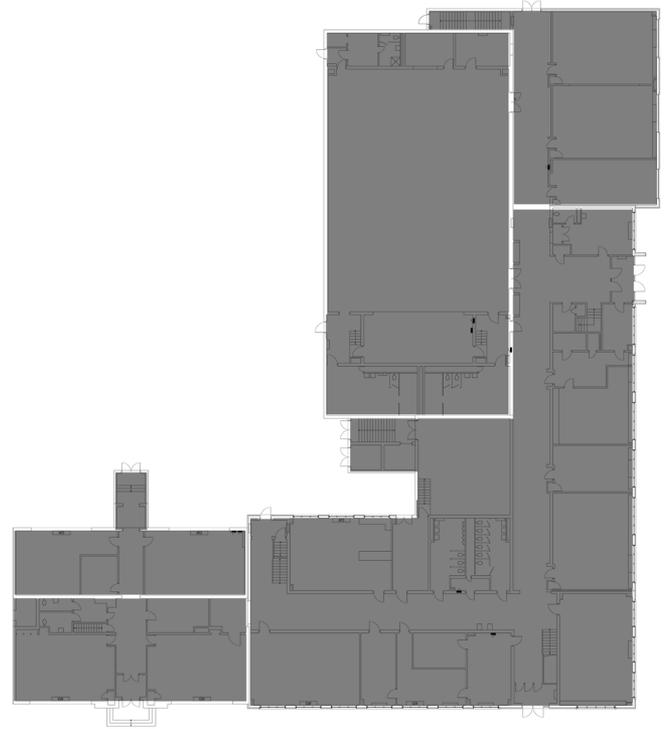
### GENERAL INFORMATION AND AIR CONDITIONING BY BUILDING AREA



#### NOTES:

- a. The original steam boilers and associated condensate return pumps and piping systems are still in operation. Classrooms and other interior rooms are provided with ventilation and heating via original Herman Nelson Unit Ventilators.
- b. The original hydronic (heating) piping system is still in operation. After 60+ years of operation we suspect that the hydronic piping is corroding due to reports that various parts of the building are experiencing differing temperature levels. This corrosion reduces water flow through the pipes and its overall effectiveness. Additionally, the associated debris created from the corrosion flows back to re-circulating pumps – creating a maintenance issue and reduces the useful life of these components
- c. The building complex is still operating with a pneumatic (air) system for equipment controls.

 AIR-CONDITIONED  
 NOT AIR-CONDITIONED



**FIRST FLOOR PLAN**  
SCALE: 1/64" = 1'-0"



## 06 ELECTRICAL SYSTEMS

### GENERAL INFORMATION

#### NOTES:

- a. In 2005 an electrical Upgrade Project was completed. The project included the following:
  1. New ComEd transformer (this transformer has already been replaced by ComEd in the summer of 2013)
  2. New Electrical Switch Gear
  3. New Electrical distribution wiring and power / lighting panels
  4. Interior lighting fixtures were re-wired for code compliance
  5. New interior exit / emergency lighting systems
- b. The fire alarm system servicing the building complex was installed c. 1986.
- c. The building intercom, phone, and clock systems are original.



## 07 PLUMBING SYSTEMS

### GENERAL INFORMATION

#### NOTES:

- a. The building complex is still operating with original plumbing fixtures and domestic water piping systems.
  1. Due to the age of the domestic water piping system it can be assumed that the hot water pipes are severely corroded. This corrosion reduces the flow of hot water to the building's lavatories.
- b. Toilet rooms are not provided with floor drains. Once a plumbing renovation project is completed it becomes a code requirement that floor drains be incorporated.
- c. Discussions with the District need to be made regarding the gymnasium locker room facilities and whether they should be renovated or removed.
- d. The building complex is code deficient regarding staff toilet rooms.
- e. A new water main will be required to service the building complex due to a planned fire protection system.



## 12 ENERGY CONSERVATION MEASURES

### GENERAL INFORMATION AND AVAILABLE GRANTS

As mentioned in the introduction to this Program many of the actions that we are proposing address improving the energy performance of the facility. Each of these proposed projects would increase the energy efficiency of the facility in one of two areas: 1) Thermal envelope enhancements (i.e. window replacement, roof replacement, etc.); or 2) System upgrades (i.e. lighting replacement, boiler replacement, etc.). Undertaking the following projects would increase the energy performance of the building and reduce the amount of money spent by the District on utilities for years to come:

- 02 Architectural Components  
Window replacement, increased building insulation
- 04 Roofing Systems  
Roof replacement
- 05 HVAC Systems  
Boiler replacement, increased thermal system insulation
- 06 Electrical Systems  
Light fixture replacement
- 07 Plumbing Systems  
Fixture replacement

For a complete list and preliminary scope reviews of projects that EJM recommends the District complete in the near future see the Facilities Upgrade Program starting on page 84.

There are several grants available to the District for investing in energy conservation measures further increasing the incentive to do so. These include the following:

- 1) Illinois Department of Commerce and Economic Opportunity (DCEO) Energy Efficiency Program:

[http://www.ildceo.net/dceo/Bureaus/Energy\\_Recycling/Energy/Energy+Efficiency/](http://www.ildceo.net/dceo/Bureaus/Energy_Recycling/Energy/Energy+Efficiency/)

<http://www.ildceo.net/NR/rdoonlyres/951165DA-B9D5-4B38-AFE7-23A51CF85358/0/20132014DCEOStandardandCustomAdobe080513.pdf>

This program offers a maximum incentive of up to \$300,000 that the District could qualify for through wattage reduction via lighting upgrades and/or HVAC system upgrades.

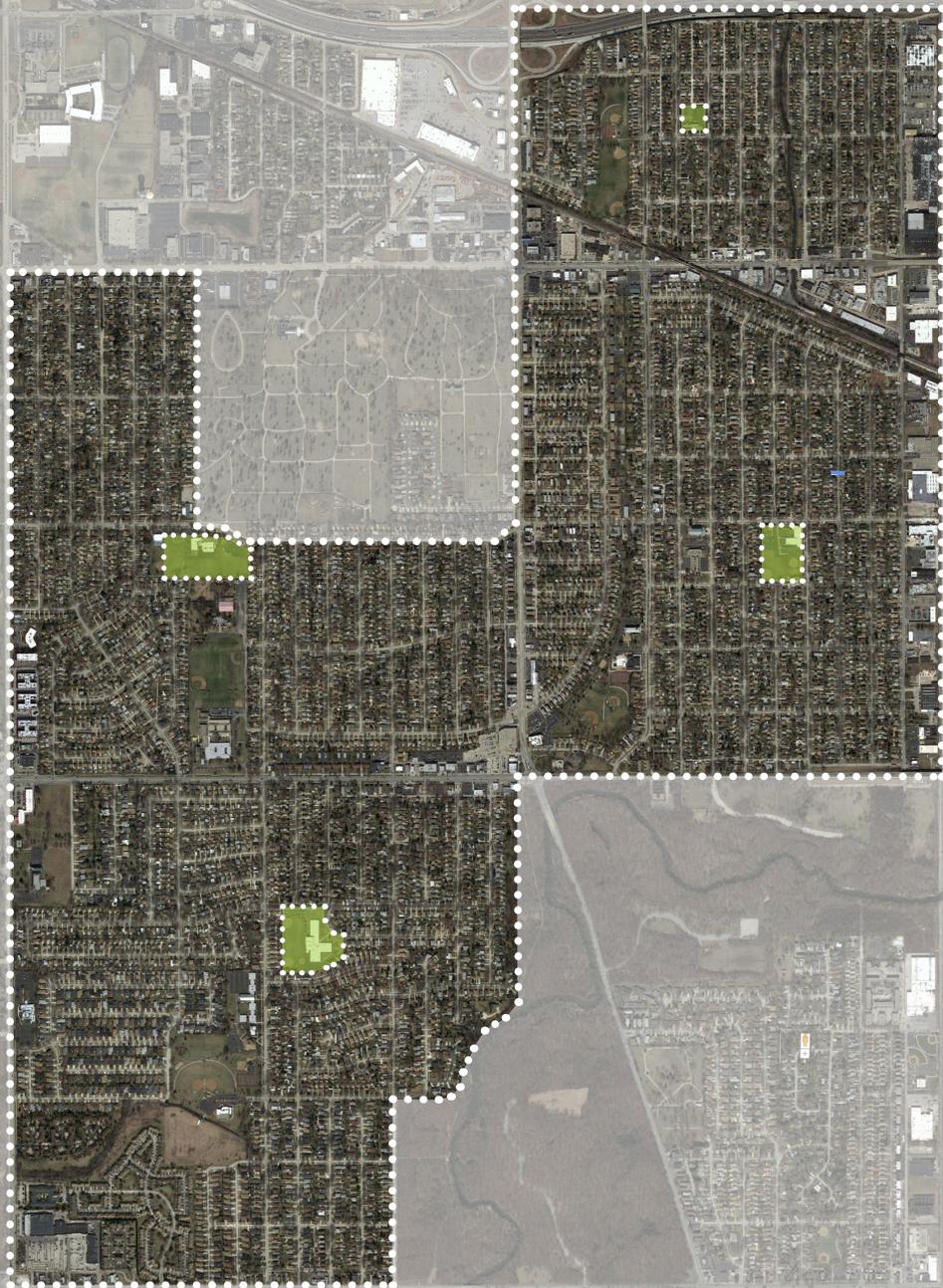
- 2) Illinois State Board of Education (ISBE) School Energy Efficiency Project Grants:

[http://www.isbe.net/sbss/ee\\_grants.htm](http://www.isbe.net/sbss/ee_grants.htm)

This grant offers a maximum incentive of up to \$250,000 in matching funds that the District could qualify for by enhancing the thermal envelope, reducing wattage used for lighting, installing an automated energy control system, and/or making HVAC system upgrades.

These avenues can be explored further after approval of individual projects at the District's request.

WESTCHESTER 92.5  
FACILITIES UPGRADE  
PROGRAM 2014 - 2017





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## FACILITIES UPGRADE PROGRAM 2014-2017

### SUMMARY

The chart below is a tabulation of the total project cost estimate of the work that EJM recommends that the District undertake to ensure that their buildings continue to function properly, to address programmatic issues raised by the district, and/or to continue to provide the students and staff with high quality learning environments. The following pages elaborate on these estimates, offer a suggested timeline of events, prioritize each item to be addressed, and categorize them by area of need.

BUILDING	BUDGET
WESTCHESTER PRIMARY SCHOOL	\$2,797,500.00
WESTCHESTER INTERMEDIATE SCHOOL	\$7,560,000.00
WESTCHESTER MIDDLE SCHOOL	\$4,500,000.00
BRITTEN BUILDING	\$7,681,000.00
TOTAL CONSTRUCTION BUDGET ESTIMATE	\$22,538,500.00
20% PROJECT CONTINGENCY	\$4,507,700.00
10% ARCHITECTURAL / ENGINEERING FEE	\$2,704,620.00
<b>TOTAL PROJECT COST ESTIMATE</b>	<b>\$29,750,820.00</b>

**KEY**

ABBR.	DESCRIPTION
HLS	HEALTH / LIFE SAFETY CODE
O+M	OPERATIONS AND MAINTENANCE
ENVIRO	ASBESTOS / ENVIRONMENTAL ISSUE
STRUCT	STRUCTURAL ISSUE
BSM	BUILDING SECURITY MEASURE
IBC	INTERNATIONAL BUILDING CODE - 2012 EDITION
IECC	INTERNATIONAL ENERGY CONSERVATION CODE - 2012 EDITION

**PRIORITY DEFINITIONS**

#	DESCRIPTION
1	Item that is in need of immediate attention.
2	Item that should be monitored closely and addressed in the near future (1-3 yrs.).
3	Item that is performing adequately presently but will eventually need to be completed (3-5 yrs.).
4	Item to be addressed at the discretion of the District or when it makes economical sense to be grouped in with another project (5-10 yrs.).

## SUGGESTED PROJECTS 2014

### WESTCHESTER PRIMARY SCHOOL - PRELIMINARY SCOPE OF WORK AND CONSTRUCTION BUDGETS

For economies of scale and to avoid the wasted dollars and materials created by performing work over an extended period of time, EJM suggests executing the following renovation projects at the WESTCHESTER PRIMARY SCHOOL simultaneously during the Summer of 2014:

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
<b>02</b>	<b>ARCHITECTURAL COMPONENTS</b>			
A	General Trade Scope of Work associated with the Demolition and New Construction related to Plumbing, Mechanical and Electrical Renovation Projects.	\$450,000.00	HLS	2
B	New Flooring 39,500 Square Feet	\$217,500.00	HLS	2
C	New Ceilings 35,000 Square Feet	\$210,000.00	HLS	2
<b>03</b>	<b>STRUCTURAL COMPONENTS</b>			
A	Masonry Restoration Projects Exterior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
B	Masonry Restoration Projects Interior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
<b>05</b>	<b>HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS</b>			
A	Removal and replacement of Mechanical System components including the following: Boiler plant and circulation systems, removal and replacement of exterior grade mounted chiller unit, selected hydronic piping systems, installation of chilled water coils at selected air handling units, selected classroom unit ventilators, new building automation/control system (BAS), incorporation of new classroom ductwork and fan-powered boxes related to mechanical system upgrade. The building will be 100% air conditioned.	\$650,000.00	HLS/ECM/IECC	1
<b>06</b>	<b>ELECTRICAL SYSTEMS</b>	<b>\$375,000.00*</b>		
A	The required demolition and new work associated with the Mechanical Project. Including the following: new power wiring for various mechanical equipment, control wiring for Building Automation Systems (BAS).		O+M	2
B	Installation of Vacancy/Occupancy Sensors at interior lighting fixtures.		IECC	4
C	Replacement of Fire Alarm System.		HLS	3
D	Replacement of School Intercom System.		O+M	4
E	Installation of Emergency Generator System.		HLS	4
F	Modification to Gymnasium Stage Lighting	\$75,000.00	O+M	4

\* This figure is a total for categories 06: A,B,C,D, and E.

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
07	<b>PLUMBING SYSTEMS</b>			
A	Removal and replacement of complete domestic water piping systems including the following: New water main installation from Fleet Street. Removal and replacement of domestic water piping system. Removal and replacement of all plumbing fixtures. Installation of Code required floor drains. Installation of new Staff Toilet rooms.	\$290,000.00	HLS/ECM/IECC	1
09	<b>FIRE PROTECTION SYSTEMS</b>			
A	Installation of a new sprinkler system for complete building area.	\$195,000.00	IBC/HLS	4
10	<b>ASBESTOS/ENVIRONMENTAL ISSUES</b>			
A	The asbestos abatement of the Thermal System Insulation (TSI) of the Hydronic (Heating) Piping system and the Domestic Water Piping system. Removal of glued on acoustic tile ceiling panels at gymnasium.	\$160,000.00	ENVIRO	1
11	<b>SECURITY SYSTEMS</b>			
A	Provide selected entrances with electronic card readers and appropriate door hardware to be tied into a centralized security system. Construct interior partition(s), door(s), and/or frame(s) where new entry vestibules are suggested.	\$75,000.00	BSM	1
12	<b>ENERGY CONSERVATION MEASURES</b>			
A	(Included within budgets of other projects; estimates for grant dollars available can be completed with further project development)		IECC	
13	<b>SITE COMPONENTS</b>			
A	New exterior lighting fixtures: parking lot lighting and building lighting fixtures.	\$50,000.00	IECC	4
B	Concrete walks: Public walks and on-site walks.			4
C	Pavement Systems: Total parking lot, on-site driveways and playground. 80,500 square feet.			4
<b>TOTAL</b>		<b>2,797,500.00</b>		

## SUGGESTED PROJECTS 2015

### WESTCHESTER INTERMEDIATE SCHOOL - PRELIMINARY SCOPE OF WORK AND CONSTRUCTION BUDGETS

For economies of scale and to avoid the wasted dollars and materials created by performing work over an extended period of time, EJM suggests executing the following renovation projects at the WESTCHESTER INTERMEDIATE SCHOOL simultaneously during the Summer of 2015:

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
<b>02</b>	<b>ARCHITECTURAL COMPONENTS</b>			
A	General Trade Scope of Work associated with the Demolition and New Construction related to Entry Door Vestibules, Mechanical and Electrical Renovation Projects.	\$480,000.00	HLS	2
B	New Flooring 39,300 Square Feet	\$216,000.00	HLS	2
C	New Ceilings 50,900 Square Feet	\$355,000.00	HLS	2
D	New Interior Doors/Frames/Hardware 112 Total Door Openings.	\$349,000.00	HLS/IBC	4
<b>03</b>	<b>STRUCTURAL COMPONENTS</b>			
A	Removal and replacement of steel lintels at various window openings. Includes the temporary removal and reinstallation of the current aluminum window units. 67 total window openings included within Project Budget.	\$1,000,000.00	STRUCT	2
B	Masonry Restoration Projects - Exterior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
C	Masonry Restoration Projects - Interior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
<b>04</b>	<b>ROOFING SYSTEMS</b>			
A	New Roofing 12,500 Square Feet	\$250,000.00	HLS/IECC	3
<b>05</b>	<b>HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS</b>			
A	Removal and replacement of mechanical system components including the following: Boiler plant and circulation systems, hydronic piping systems, new grade mounted chiller unit, new classroom unit ventilators, new building automation/control system (BAS). The building will be 100% air conditioned.	\$2,982,000.00	HLS/IBC/IECC	1
<b>06</b>	<b>ELECTRICAL SYSTEMS</b>	<b>\$858,000.00*</b>		
A	Replace existing light fixtures with new energy efficient models		IECC/O+M	2
B	The required demolition and new work associated with the Mechanical Project. Including the following: new power wiring for mechanical equipment and modification of electrical switch gear.		HLS/IECC	2
C	Installation of Vacancy/Occupancy Sensors at interior lighting fixtures.		IECC	4

\* This figure is a total for categories 06: A, B,C,D,E, and F.

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
06	ELECTRICAL SYSTEMS (CONT'D)			
D	Replacement of Fire Alarm System.		HLS/IBC	3
E	Replacement of School Intercom System.		HLS	4
F	Installation of Emergency Generator System.		HLS	4
G	Modification to Gymnasium Stage Lighting	\$75,000.00	HLS	4
07	PLUMBING SYSTEMS			
A	New water main installation to prevent future breaks and to increase capacity related to new fire protection system. Village water main is located within Canterbury	\$40,000.00	HLS/O+M	4
B	Basement level ejector pump replacement.	\$25,000.00	O + M	1
09	FIRE PROTECTION SYSTEMS			
A	Installation of a new sprinkler system for complete building area.	\$230,000.00	IBC/HLS	4
10	ASBESTOS/ENVIRONMENTAL ISSUES			
A	The asbestos abatement of the Thermal System Insulation (TSI) of the Hydronic (Heating) Piping system. Removal of existing carpeting, asbestos floor tile and mastic. Budget Cost includes Environmental Consulting Services.	\$550,000.00	ENVIRO	1
11	SECURITY SYSTEMS			
A	Provide selected entrances with electronic card readers and appropriate door hardware to be tied into a centralized security system		BSM	1
12	ENERGY CONSERVATION MEASURES			
A	(Included within budgets of other projects; estimates for grant dollars available can be completed with further project development)		IECC	
13	SITE COMPONENTS			
A	New exterior lighting fixtures, parking lot lighting and building lighting fixtures.	\$50,000.00	IECC	4
B	Concrete walks: Public walks and on-site walks.			4
C	Pavement areas: Total parking lot, on-site driveways and playground areas: 92,500 Square Feet			4
TOTAL		\$7,560,000.00		

## SUGGESTED PROJECTS 2016

### WESTCHESTER MIDDLE SCHOOL - PRELIMINARY SCOPE OF WORK AND CONSTRUCTION BUDGETS

For economies of scale and to avoid the wasted dollars and materials created by performing work over an extended period of time, EJM suggests executing the following renovation projects at the WESTCHESTER MIDDLE SCHOOL simultaneously during the Summer of 2016:

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
<b>02</b>	<b>ARCHITECTURAL COMPONENTS</b>			
A	General Trade Scope of Work associated with the Demolition and New Construction related to Entry Door Vestibules, Mechanical and Electrical Renovation Projects.	\$400,000.00	HLS/IBC	2
B	New Flooring 24,000 Square Feet	\$132,000.00	HLS/IBC	2
C	New Ceilings 30,000 Square Feet	\$210,000.00	HLS/IBC	2
D	Move school office to new location: relocate school office from the east side of the building along Norflok Ave to the west side of the building so that it is adjacent to the staff parking lot.	\$125,000.00	O+M	4
E	New Doors/Frames/Hardware. 32 Door Openings, 31 Storage Room Type Doors; and 11 Typical Classroom Closet Doors.	\$274,000.00	HLS/IBC	4
F	New Aluminum Window Unit. One Opening at North Stairway	\$30,000.00	HLS/IECC	2
G	Corridor area Lockers Allowance cost for repair/replacement at selected units.		O+M	4
<b>03</b>	<b>STRUCTURAL COMPONENTS</b>			
A	Masonry Restoration Projects - Exterior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
B	Masonry Restoration Projects - Interior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
<b>04</b>	<b>ROOFING SYSTEMS</b>			
E	New Roof 1962 Locker Room Roof 1,500 SF	\$75,000.00	HLS/IECC	2
<b>05</b>	<b>HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS</b>			
A	Removal and replacement of mechanical system components including the following: Boiler plant and circulation systems, selected hydronic piping systems, selected classroom unit ventilators, new grade mounted Air Cooled Chiller Plant and new building automation/control system (BAS). The building will be 100% air conditioned.	\$2,225,000.00	HLS/IBC	1
B	Incorporation of new BAS components at existing mechanical equipment in 2000 Building Area.		IECC/O+M	2
<b>06</b>	<b>ELECTRICAL SYSTEMS</b>	\$275,000.00*		

\* This figure is a total for categories 06: A,B,C,D,E, and F.

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
06	ELECTRICAL SYSTEMS (CONT'D)			
A	Replace existing light fixtures with new energy efficient models		IECC/O+M	2
B	The required power wiring demolition and new work associated with the mechanical system upgrades.		HLS/IECC	2
C	Installation of Vacancy/Occupancy Sensors at interior lighting fixtures.		IECC	4
D	Replacement of Fire Alarm System.		HLS/IBC	3
E	Replacement of School Intercom System.		HLS	4
F	Installation of Emergency Generator System.		HLS	4
G	Modification to Gymnasium Stage Lighting	\$75,000.00		4
07	PLUMBING SYSTEMS			
A	New water main installation to prevent future breaks and to increase capacity related to new fire protection system.	\$50,000.00	O+M	4
	Basement level ejector pump replacement.	\$25,000.00	O+M	1
09	FIRE PROTECTION SYSTEMS			
A	Installation of a new sprinkler system for complete building renovation area.	\$154,000.00	HLS/IBC	4
10	ASBESTOS/ENVIRONMENTAL ISSUES			
A	The asbestos abatement of the Theraml System Insulation-TSI of the Hydronic (Heating) Piping system. Removal of existing carpeting, asbestos floor tile and mastic. Budget Cost includes Environmental Consulting Services Fee.	\$290,000.00	ENVIRO	1
11	SECURITY SYSTEMS			
A	Provide selected entrances with electronic card readers and appropriate door hardware to be tied into a centralized security system	\$55,000.00	BSM	1
12	ENERGY CONSERVATION MEASURES			
A	(Included within budgets of other projects; estimates for grant dollars available can be completed with further project development)		IECC	
13	SITE COMPONENTS			
A	New exterior lighting fixtures: parking lot and building lighting fixtures.	\$50,000.00	BSM	4
B	Concrete Walks: Public walks and on-site walks.		O + M	4
C	Pavement Areas: Total parking lot, on-site driveways and playgrounds 56,000 Square Feet.		O + M	4
TOTAL		\$4,500,000.00		

## SUGGESTED PROJECTS 2017

### BRITTEN BUILDING - PRELIMINARY SCOPE OF WORK AND CONSTRUCTION BUDGETS

For economies of scale and to avoid the wasted dollars and materials created by performing work over an extended period of time, EJM suggests executing the following renovation projects at the BRITTEN BUILDING simultaneously during the Summer of 2017:

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
<b>02</b>	<b>ARCHITECTURAL COMPONENTS</b>			
A	General Trade Scope of Work associated with the Demolition and New Construction related to the Entry Door Vestibules, Plumbing, Mechanical and Electrical Renovation Projects.	\$650,000.00	HLS/IBC	2
B	New Flooring Systems 21,300 Square Feet	\$117,000.00	HLS	2
C	New Ceiling Systems 40,000 Square Feet	\$280,000.00	HLS	2
D	New Interior Doors/Frames/Hardware 95 Door Openings	\$322,000.00	HLS/IBC	4
E	New Window Repacement Project 31 Window Openings	\$496,000.00	HLS/ECM	1
<b>03</b>	<b>STRUCTURAL COMPONENTS</b>			
A	Removal and replacement of steel lintels and face brick at various window openings. 31 Window Openings	\$465,000.00	STRUCT	1
B	Masonry Restoration Exterior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
C	Masonry Restoration Interior Tuck-Pointing Allowance Cost	\$50,000.00	STRUCT	4
<b>04</b>	<b>ROOFING SYSTEMS</b>			
D	New Roofing Systems (approx. 25,900 Total Square Feet)	\$382,000.00	HLS/IECC	1
<b>05</b>	<b>HEATING, VENTILATION, AND AIR CONDITIONING SYSTEMS</b>			
A	Removal and replacement of mechanical system components including the following: Boiler plant and circulation systems, new grade mounted Air Cooled Chiller Unit, hydronic (Dual-Piping) systems, new classroom unit ventilators, building automation/control system (BAS). The building will be 100% air conditioned.	\$3,025,000.00	HLS/IECC	1
<b>06</b>	<b>ELECTRICAL SYSTEMS</b>	\$615,000.00 *		
A	Replace existing light fixtures with new energy efficient models		IECC/O+M	2
B	The required power wiring demolition and new work associated with the mechanical system upgrades.		HLS/IECC	2
C	Installation of Vacancy/Occupancy Sensors at interior lighting fixtures.		IECC	4

\* This figure is a total for categories 06: A,B,C,D,E, and F.

SECTION	DESCRIPTION	BUDGET	PROJECT TYPE	PRIORITY
06	ELECTRICAL SYSTEMS (CONT'D)			
D	Replacement of Fire Alarm System.		HLS/IBC	3
E	Replacement of School Intercom System.		HLS	4
F	Installation of Emergency Generator System.		HLS	4
G	Modification to Gymnasium Stage Lighting	\$75,000.00	O + M	4
07	PLUMBING SYSTEMS			
A	"Removal and replacement of complete domestic water piping systems including the following: New water main installation from Fleet Street. Removal and replacement of domestic water piping system. Removal and replacement of all plumbing fixtures. Installation of Code required floor drains. Installation of new Staff Toilet rooms."	\$282,000.00	HLS/ECM/IECC	1
B	Basement level ejector pump replacement.	\$25,000.00	O+M	1
09	FIRE PROTECTION SYSTEMS			
A	Installation of a new sprinkler system for complete building area.	\$163,000.00	HLS/IBC	4
10	ASBESTOS/ENVIRONMENTAL ISSUES			
A	The asbestos abatement of the Thermal System Insulation (TSI) of the Hydronic (Heating) system and domestic water piping system. Removal of existing asbestos floor tile and mastic. Budget Cost includes Environmental Consulting Services.	\$395,000.00	ENVIRO	1
12	ENERGY CONSERVATION MEASURES			
A	(Included within budgets of other projects; estimates for grant dollars available can be completed with further project development)		IECC	
13	SITE COMPONENTS			
A	New exterior lighting fixtures: parking lot and building lighting fixtures.	\$30,000.00	HLS/O+M	4
B	Concrete Walks: Public walks and on-site walks.		HLS/O+M	4
C	Pavement Systems: Total parking lot, on-site driveways and playgrounds.32,400 Square Feet	\$259,000.00	HLS/O+M	4
TOTAL		\$7,681,000.00		

## WORKS CITED

- 1 Annual Average Solar Radiation figures based on information from the National Renewable Energy Laboratory (NREL): [http://rredc.nrel.gov/solar/old\\_data/nsrdb/redbook/atlas/](http://rredc.nrel.gov/solar/old_data/nsrdb/redbook/atlas/)
- 2 Illinois Wind Power Classification at 50m Altitude information obtained from the U.S. Department of Energy: [http://www.windpoweringamerica.gov/maps\\_template.asp?stateab=il](http://www.windpoweringamerica.gov/maps_template.asp?stateab=il)
- 3 Illinois Annual Average Wind Speed at 80m Altitude information obtained from U.S. Department of Energy: [http://www.windpoweringamerica.gov/wind\\_resource\\_maps.asp?stateab=il](http://www.windpoweringamerica.gov/wind_resource_maps.asp?stateab=il)
- 4 U.S. Energy Information Administration Data and Projections <http://www.eia.doe.gov/oiaf/forecasting.html>
- 5 Long, JT. "Photovoltaic System Prices Drop as U.S. Market Grows". Engineering News Record; January: Page 29.
- 6 Union of Concerned Scientists. "How Geothermal Energy Works". [http://www.ucsusa.org/clean\\_energy/technology\\_and\\_impacts/energy\\_technologies/how-geothermal-energy-works.html](http://www.ucsusa.org/clean_energy/technology_and_impacts/energy_technologies/how-geothermal-energy-works.html)
- 7 "Occupant Load by Code" determined from International Building Code 2009: "Section 1004 Occupant Load; Table 1104.1.2 Maximum Floor Area Allowances per Occupant"
- 8 "LEED EA Credit 8.1 Daylight 75% of Spaces" is defined by the United States Green Building Council using the Leadership in Energy and Environmental Design green building certification program: <http://www.usgbc.org/DisplayPage.aspx?CategoryID=19>
- 9 Carbon Dioxide (CO<sub>2</sub>) emissions information based on results from the Environmental Protection Agency's (EPA) "Greenhouse Gas Equivalencies Calculator": <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>
- 10 Vehicle emissions equivalency based on figures from the EPA's website: <http://www.epa.gov/cleanenergy/energy-resources/refs.html#vehicles>
- 11 Home energy emissions equivalency based on figures from the EPA's website: <http://www.epa.gov/cleanenergy/energy-resources/refs.html#houseelec>
- 12 Tree seedling CO<sub>2</sub> sequestration equivalency based on figures from the EPA's website: <http://www.epa.gov/cleanenergy/energy-resources/refs.html#seedlings>
- 13 Wind Turbine Power Calculator estimates were obtained from the Danish Wind Industry Association: <http://guidedtour.windpower.org/en/tour/wres/pow/index.htm>
- 14 Vettel, Frank. "An Individual Solution to Municipal Construction". *Detail: Serie 2009; Volume 9*.
- 15 Abdou, Ossama. *Effects of Luminous Environment on Worker Productivity in Building Spaces*. J. Arch. Engrg.: Volume 3, 124 – 132. 1997. <http://www.coe.uga.edu/sdpl/research/daylightingstudy.pdf>
- 16 Boyce, Peter; Hunter, Claudia; and Howlett, Owen. *The Benefits of Daylight through Windows*. 2003. [http://www.usp.br/fau/cursos/graduacao/arq\\_urbanismo/disciplinas/aut0213/Arquivos\\_Anteriores/Publicacoes\\_e\\_Referencias\\_Eletronicas/The\\_Benefits\\_Of\\_Daylight\\_Through\\_Windows.pdf](http://www.usp.br/fau/cursos/graduacao/arq_urbanismo/disciplinas/aut0213/Arquivos_Anteriores/Publicacoes_e_Referencias_Eletronicas/The_Benefits_Of_Daylight_Through_Windows.pdf)
- 17 Heschong Mahone Group. *Daylighting in Schools: An Investigation into the Relationship Between Daylighting and Human Performance*. 1999. <http://www.coe.uga.edu/sdpl/research/daylightingstudy.pdf>

- 18 Heschong Mahone Group. *Daylighting in Schools: An Investigation into the Relationship Between Daylighting and Human Performance*. 1999. (Condensed).  
<http://www.h-m-g.com/downloads/Daylighting/schoolc.pdf>
- 19 Kats, Gregory. *Greening America's Schools: Costs and Benefits*. 2006.  
<http://www.cap-e.com/ewebeditpro/items/O59F11233.pdf>

All aerial photographs provided courtesy of Google Earth.