

Actual Equipment Runtimes

Year 2 - Quarter 1 (July 1, 2020 - September 31, 2020)

Building	System ID	July			August			September			Quarterly Runtimes Savings		
		Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)
Garrard County High School	(97) Water-source heat pumps	0	397	(397)	0	337	(337)	0	295	(295)	0	1,029	(1,029)
Garrard County High School	(6) Exhaust Fans	172	124	48	172	124	48	166	120	46	509	368	141
Garrard County High School	Cafeteria AHU	209	262	(53)	214	251	(37)	217	224	(7)	640	737	(97)
Garrard County High School	Gym AHU	286	246	40	290	234	56	289	21	268	865	501	364
Garrard County High School	OA-1	166	0	166	166	0	166	161	0	161	493	0	493
Garrard County High School	OA-2	166	1	165	166	164	2	161	187	(26)	493	352	141
Garrard County High School	OA-3	166	124	42	166	164	2	161	36	125	493	324	169
Garrard County High School	OA-4	166	204	(38)	166	207	(41)	161	188	(27)	493	599	(106)
Garrard County Middle School	(36) Classroom WSHPs	240	198	42	250	164	86	265	106	159	755	468	287
Garrard County Middle School	(18) Admin WSHPs	281	302	(21)	285	302	(17)	284	245	39	850	849	1
Garrard County Middle School	(13) Library WSHPs	302	309	(7)	308	290	18	313	189	124	923	788	135
Garrard County Middle School	(2) Auditorium WSHPs	252	614	(362)	273	633	(360)	313	417	(104)	839	1,664	(825)
Garrard County Middle School	(3) Classroom MAUs	199	0	199	206	0	206	214	0	214	619	0	619
Garrard County Middle School	(1) Admin MAU	244	0	244	244	0	244	236	0	236	723	0	723
Garrard County Middle School	(1) Library MAU	270	0	270	270	0	270	261	0	261	802	0	802
Garrard County Middle School	(1) Kitchen RTU	273	424	(151)	288	0	288	315	0	315	876	424	452
Garrard County Middle School	(2) Cafeteria RTUs	273	2	271	280	0	279	286	0	286	838	2	836
Garrard County Middle School	(4) Gym RTUs	310	254	56	326	248	78	354	206	148	989	708	281
Garrard County Middle School	(6) Exhaust Air Fans	270	115	155	273	118	155	272	105	167	816	338	478
Garrard County Middle School	(2) Boiler circulation pumps	0	0	(0)	0	58	(58)	0	112	(112)		170	
Garrard County Middle School	(2) Hot water pumps	0	0	(0)	0	2	(2)	0	56	(56)		58	
Camp Dick Robinson Elementary	Area A - WSHPs	345	366	(21)	348	448	(100)	344	315	29	1,036	1,129	(93)
Camp Dick Robinson Elementary	Area B - WSHPs	345	370	(25)	348	308	40	344	202	142	1,036	880	156
Camp Dick Robinson Elementary	Area C - WSHPs	345	317	28	348	309	39	344	285	59	1,036	911	125
Camp Dick Robinson Elementary	Kitchen / Cafeteria WSHPs	365	315	50	368	231	137	363	190	173	1,096	736	360
Camp Dick Robinson Elementary	(2) Gym WSHPs	345	295	50	356	209	147	371	144	227	1,071	648	423
Camp Dick Robinson Elementary	(4) MAUs	312	66	246	312	60	252	302	40	262	927	166	761
Camp Dick Robinson Elementary	(11) Exhaust fans	345	92	253	348	95	253	344	83	261	1,036	270	766
Camp Dick Robinson Elementary	Zone 6 (additions) - (13) WSHPs	345	249	96	348	177	171	344	83	261	1,036	509	527
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	312	108	204	312	111	201	302	96	206	927	315	612
Lancaster Elementary	(6) Kitchen / Cafeteria WSHPs	328	216	112	338	206	132	350	175	175	1,016	597	419
Lancaster Elementary	(2) Gym WSHPs	330	0	330	336	100	236	340	77	263	1,007	177	830
Lancaster Elementary	(3) Office WSHPs	330	92	238	336	81	255	340	75	265	1,007	248	759
Lancaster Elementary	(4) Library WSHPs	330	228	102	336	155	181	340	132	208	1,007	515	492
Lancaster Elementary	(43) Classroom WSHPs	379	203	176	385	154	231	386	137	249	1,151	494	657
Lancaster Elementary	(18) Exhaust fans	319	446	(127)	319	446	(127)	309	432	(123)	946	1,324	(378)
Paint Lick Elementary	(28) Classroom WSHPs	355	260	95	358	238	120	354	215	139	1,066	713	353
Paint Lick Elementary	(3) Office WSHPs	355	255	100	358	240	118	354	218	136	1,066	713	353
Paint Lick Elementary	(3) Media Center WSHPs	355	239	116	358	219	139	354	194	160	1,066	652	414
Paint Lick Elementary	(5) Kitchen / Cafeteria WSHPs	345	186	159	348	186	162	344	176	168	1,036	548	488
Paint Lick Elementary	(3) Gym WSHPs	355	278	77	358	280	78	354	304	50	1,066	862	204
Paint Lick Elementary	(4) Exhaust fans	323	138	185	323	137	186	313	126	187	959	401	558
Garrard Education Center	(22) Classroom UV & FCUs	277	606	(329)	300	414	(114)	344	231	113	921	1,251	(330)
Garrard Education Center	(19) Common Area FCUs	277	621	(344)	300	449	(149)	344	271	73	921	1,341	(420)
Garrard Education Center	(4) Office FCUs	285	642	(357)	303	450	(147)	336	278	58	925	1,370	(445)
Garrard Education Center	(6) Kitchen / Cafeteria UV & FC	324	524	(200)	343	429	(86)	377	295	82	1,044	1,248	(204)
Garrard Education Center	Atrium AHU	285	640	(355)	306	448	(142)	346	272	74	937	1,360	(423)
Garrard Education Center	Gym AHU	363	568	(205)	368	382	(14)	369	293	76	1,100	1,243	(143)
Garrard Education Center	Locker Room AHU	281	570	(289)	292	381	(89)	307	302	5	880	1,253	(373)
Garrard Education Center	(6) Exhaust fans	248	0	248	264	0	264	294	0	294	806	0	806
Garrard Education Center	(14) ASHPs	285	639	(354)	303	426	(123)	336	258	78	925	1,323	(398)

Actual Equipment Runtimes

Year 2 - Quarter 2 (October 1, 2020 - December 31, 2020)

Building	System ID	October			November			December			Quarterly Runtimes Savings		
		Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)
Garrard County High School	(97) Water-source heat pumps	387	267	120	375	276	99	387	298	89	1,149	841	308
Garrard County High School	(6) Exhaust Fans	172	127	45	166	124	42	172	124	48	509	375	134
Garrard County High School	Cafeteria AHU	224	179	45	217	223	(6)	224	289	(65)	664	691	(27)
Garrard County High School	Gym AHU	299	169	130	289	207	82	299	226	73	886	602	284
Garrard County High School	OA-1	166	0	166	161	0	161	166	0	166	493	0	493
Garrard County High School	OA-2	166	152	14	161	40	121	166	0	166	493	192	301
Garrard County High School	OA-3	166	63	103	161	187	(26)	166	204	(38)	493	454	39
Garrard County High School	OA-4	166	152	14	161	22	139	166	0	166	493	174	319
Garrard County Middle School	(36) Classroom WSHPs	274	33	241	265	47	218	274	97	177	812	177	635
Garrard County Middle School	(18) Admin WSHPs	294	195	99	284	179	105	294	197	97	871	571	300
Garrard County Middle School	(13) Library WSHPs	324	58	266	313	75	238	324	136	188	960	269	691
Garrard County Middle School	(2) Auditorium WSHPs	324	77	247	313	112	201	324	149	175	960	338	622
Garrard County Middle School	(3) Classroom MAUs	221	0	221	214	0	214	221	49	172	657	49	608
Garrard County Middle School	(1) Admin MAU	244	0	244	236	0	236	244	0	244	723	0	723
Garrard County Middle School	(1) Library MAU	270	0	270	261	0	261	270	0	270	802	0	802
Garrard County Middle School	(1) Kitchen RTU	326	0	325	315	0	315	326	0	325	966	0	966
Garrard County Middle School	(2) Cafeteria RTUs	296	0	296	286	0	286	296	0	296	877	0	877
Garrard County Middle School	(4) Gym RTUs	365	356	9	354	185	169	365	208	157	1,084	749	335
Garrard County Middle School	(6) Exhaust Air Fans	281	82	199	272	80	192	281	88	193	835	250	585
Garrard County Middle School	(2) Boiler circulation pumps	0	428	(428)	0	545	(545)	0	702	(702)		1,675	
Garrard County Middle School	(2) Hot water pumps	0	214	(214)	0	272	(272)	0	351	(351)		837	
Camp Dick Robinson Elementary	Area A - WSHPs	355	252	103	344	295	49	355	382	(27)	1,055	929	126
Camp Dick Robinson Elementary	Area B - WSHPs	355	149	206	344	275	69	355	462	(107)	1,055	886	169
Camp Dick Robinson Elementary	Area C - WSHPs	355	265	90	344	302	42	355	421	(66)	1,055	988	67
Camp Dick Robinson Elementary	Kitchen / Cafeteria WSHPs	375	193	182	363	152	211	375	309	66	1,114	654	460
Camp Dick Robinson Elementary	(2) Gym WSHPs	383	112	271	371	171	200	383	281	102	1,138	564	574
Camp Dick Robinson Elementary	(4) MAUs	312	34	278	302	20	282	312	46	266	927	100	827
Camp Dick Robinson Elementary	(11) Exhaust fans	355	68	287	344	156	188	355	173	182	1,055	397	658
Camp Dick Robinson Elementary	Zone 6 (additions) - (13) WSHPs	355	44	311	344	120	224	355	305	50	1,055	469	586
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	312	80	232	302	98	204	312	107	205	927	285	642
Lancaster Elementary	(6) Kitchen / Cafeteria WSHPs	361	148	213	350	177	173	361	171	190	1,072	496	576
Lancaster Elementary	(2) Gym WSHPs	351	69	282	340	93	247	351	106	245	1,043	268	775
Lancaster Elementary	(3) Office WSHPs	351	47	304	340	61	279	351	88	263	1,043	196	847
Lancaster Elementary	(4) Library WSHPs	351	100	251	340	136	204	351	164	187	1,043	400	643
Lancaster Elementary	(43) Classroom WSHPs	399	80	319	386	102	284	399	126	273	1,185	308	877
Lancaster Elementary	(18) Exhaust fans	319	446	(127)	309	432	(123)	319	446	(127)	946	1,324	(378)
Paint Lick Elementary	(28) Classroom WSHPs	365	175	190	354	204	150	365	225	140	1,084	604	480
Paint Lick Elementary	(3) Office WSHPs	365	172	193	354	216	138	365	241	124	1,084	629	455
Paint Lick Elementary	(3) Media Center WSHPs	365	148	217	354	340	14	365	433	(68)	1,084	921	163
Paint Lick Elementary	(5) Kitchen / Cafeteria WSHPs	355	130	225	344	225	119	355	286	69	1,055	641	414
Paint Lick Elementary	(3) Gym WSHPs	365	259	106	354	444	(90)	365	663	(298)	1,084	1,366	(282)
Paint Lick Elementary	(4) Exhaust fans	323	225	98	313	341	(28)	323	138	185	959	704	255
Garrard Education Center	(22) Classroom UV & FCUs	355	152	203	344	199	145	355	211	144	1,055	562	493
Garrard Education Center	(19) Common Area FCUs	355	221	134	344	264	80	355	279	76	1,055	764	291
Garrard Education Center	(4) Office FCUs	347	119	228	336	98	238	347	83	264	1,031	300	731
Garrard Education Center	(6) Kitchen / Cafeteria UV & FCUs	389	246	143	377	282	95	389	290	99	1,155	818	337
Garrard Education Center	Atrium AHU	357	221	136	346	247	99	357	258	99	1,061	726	335
Garrard Education Center	Gym AHU	381	211	170	369	264	105	381	308	73	1,132	783	349
Garrard Education Center	Locker Room AHU	318	210	108	307	261	46	318	297	21	942	768	174
Garrard Education Center	(6) Exhaust fans	303	0	303	294	0	294	303	0	303	900	0	900
Garrard Education Center	(14) ASHPs	347	188	159	336	260	76	347	267	80	1,031	715	316

Actual Equipment Runtimes

Year 2 - Quarter 3 (January 2, 2021 - March 31, 2021)

Building	System ID	January			February			March			Quarterly Runtimes Savings		
		Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)
Garrard County High School	(97) Water-source heat pumps	387	287	100	350	276	74	387	299	88	1,124	862	262
Garrard County High School	(6) Exhaust Fans	172	124	48	155	114	41	172	124	48	498	362	136
Garrard County High School	Cafeteria AHU	224	270	(46)	202	211	(9)	224	161	63	650	642	8
Garrard County High School	Gym AHU	299	209	90	270	203	67	299	230	69	867	642	225
Garrard County High School	OA-1	166	0	166	150	0	150	166	0	166	482	0	482
Garrard County High School	OA-2	166	0	166	150	2	148	166	0	166	482	2	480
Garrard County High School	OA-3	166	188	(22)	150	178	(28)	166	205	(39)	482	571	(89)
Garrard County High School	OA-4	166	0	166	150	28	122	166	0	166	482	28	454
Garrard County Middle School	(36) Classroom WSHPs	274	94	180	247	106	141	274	152	122	795	352	443
Garrard County Middle School	(18) Admin WSHPs	294	200	94	265	202	63	294	366	(72)	852	768	84
Garrard County Middle School	(13) Library WSHPs	324	136	188	292	155	137	324	242	82	939	533	406
Garrard County Middle School	(2) Auditorium WSHPs	324	164	160	292	194	98	324	189	135	939	547	392
Garrard County Middle School	(3) Classroom MAUs	221	53	168	200	50	150	221	58	163	643	161	482
Garrard County Middle School	(1) Admin MAU	244	0	244	220	0	220	244	0	244	707	0	707
Garrard County Middle School	(1) Library MAU	270	0	270	244	0	244	270	0	270	784	0	784
Garrard County Middle School	(1) Kitchen RTU	326	0	325	294	0	294	326	0	325	945	0	945
Garrard County Middle School	(2) Cafeteria RTUs	296	0	296	267	0	267	296	0	296	858	0	858
Garrard County Middle School	(4) Gym RTUs	365	196	169	330	132	198	365	158	207	1,061	486	575
Garrard County Middle School	(6) Exhaust Air Fans	281	81	200	254	77	177	281	88	193	816	246	570
Garrard County Middle School	(2) Boiler circulation pumps	0	723	(723)	0	644	(644)	0	554	(554)		1,921	
Garrard County Middle School	(2) Hot water pumps	0	361	(361)	0	321	(321)	0	275	(275)		957	
Camp Dick Robinson Elementary	Area A - WSHPs	355	417	(62)	321	403	(82)	355	364	(9)	1,032	1,184	(152)
Camp Dick Robinson Elementary	Area B - WSHPs	355	468	(113)	321	415	(94)	355	239	116	1,032	1,122	(90)
Camp Dick Robinson Elementary	Area C - WSHPs	355	413	(58)	321	446	(125)	355	293	62	1,032	1,152	(120)
Camp Dick Robinson Elementary	Kitchen / Cafeteria WSHPs	375	325	50	339	275	64	375	264	111	1,090	864	226
Camp Dick Robinson Elementary	(2) Gym WSHPs	383	254	129	346	255	91	383	115	268	1,113	624	489
Camp Dick Robinson Elementary	(4) MAUs	312	53	259	282	57	225	312	71	241	906	181	725
Camp Dick Robinson Elementary	(11) Exhaust fans	355	328	27	321	312	9	355	318	37	1,032	958	74
Camp Dick Robinson Elementary	Zone 6 (additions) - (13) WSHPs	355	327	28	321	383	(62)	355	214	141	1,032	924	108
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	312	348	(36)	282	447	(165)	312	495	(183)	906	1,290	(384)
Lancaster Elementary	(6) Kitchen / Cafeteria WSHPs	361	167	194	326	191	135	361	215	146	1,049	573	476
Lancaster Elementary	(2) Gym WSHPs	351	101	250	317	111	206	351	115	236	1,020	327	693
Lancaster Elementary	(3) Office WSHPs	351	73	278	317	71	246	351	90	261	1,020	234	786
Lancaster Elementary	(4) Library WSHPs	351	262	89	317	319	(2)	351	384	(33)	1,020	965	55
Lancaster Elementary	(43) Classroom WSHPs	399	109	290	361	114	247	399	149	250	1,159	372	787
Lancaster Elementary	(18) Exhaust fans	319	446	(127)	288	402	(114)	319	446	(127)	926	1,294	(368)
Paint Lick Elementary	(28) Classroom WSHPs	365	213	152	330	221	109	365	205	160	1,061	639	422
Paint Lick Elementary	(3) Office WSHPs	365	229	136	330	240	90	365	237	128	1,061	706	355
Paint Lick Elementary	(3) Media Center WSHPs	365	399	(34)	330	459	(129)	365	356	9	1,061	1,214	(153)
Paint Lick Elementary	(5) Kitchen / Cafeteria WSHPs	355	289	66	321	324	(3)	355	198	157	1,032	811	221
Paint Lick Elementary	(3) Gym WSHPs	365	742	(377)	330	643	(313)	365	352	13	1,061	1,737	(676)
Paint Lick Elementary	(4) Exhaust fans	323	126	197	292	133	159	323	138	185	939	397	542
Garrard Education Center	(22) Classroom UV & FCUs	355	207	148	321	196	125	355	207	148	1,032	610	422
Garrard Education Center	(19) Common Area FCUs	355	267	88	321	265	56	355	288	67	1,032	820	212
Garrard Education Center	(4) Office FCUs	347	88	259	314	73	241	347	89	258	1,009	250	759
Garrard Education Center	(6) Kitchen / Cafeteria UV & FCUs	389	278	111	352	253	99	389	299	90	1,130	830	300
Garrard Education Center	Atrium AHU	357	245	112	323	230	93	357	269	88	1,038	744	294
Garrard Education Center	Gym AHU	381	296	85	344	275	69	381	311	70	1,107	882	225
Garrard Education Center	Locker Room AHU	318	282	36	287	277	10	318	310	8	922	869	53
Garrard Education Center	(6) Exhaust fans	303	0	303	274	0	274	303	145	158	881	145	736
Garrard Education Center	(14) ASHPs	347	257	90	314	262	52	347	279	68	1,009	798	211

Actual Equipment Runtimes

Year 2 - Quarter 4 (April 1, 2021 - June 30, 2021)

Building	System ID	April			May			June			Quarterly Runtimes Savings		
		Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)	Guar. (Hours)	Actual (Hours)	Difference (Hours)
Garrard County High School	(97) Water-source heat pumps	375	297	78	0	306	(306)	0	343	(343)	375	946	(571)
Garrard County High School	(6) Exhaust Fans	166	120	46	172	145	27	166	120	46	504	385	119
Garrard County High School	Cafeteria AHU	217	144	73	224	228	(4)	203	210	(7)	643	582	61
Garrard County High School	Gym AHU	289	223	66	299	218	81	277	236	41	865	677	188
Garrard County High School	OA-1	161	0	161	166	0	166	161	0	161	488	0	487
Garrard County High School	OA-2	161	0	161	166	179	(13)	161	196	(35)	488	375	112
Garrard County High School	OA-3	161	197	(36)	166	187	(21)	161	196	(35)	488	580	(93)
Garrard County High School	OA-4	161	0	161	166	170	(4)	161	116	45	488	286	201
Garrard County Middle School	(36) Classroom WSHPs	265	46	219	274	86	188	232	123	109	771	255	516
Garrard County Middle School	(18) Admin WSHPs	284	147	137	294	172	122	272	209	63	850	528	322
Garrard County Middle School	(13) Library WSHPs	313	68	245	324	119	205	292	169	123	928	356	572
Garrard County Middle School	(2) Auditorium WSHPs	313	301	12	324	141	183	244	171	73	881	613	268
Garrard County Middle School	(3) Classroom MAUs	214	55	159	221	52	169	193	55	138	629	162	467
Garrard County Middle School	(1) Admin MAU	236	0	236	244	0	244	236	0	236	715	0	715
Garrard County Middle School	(1) Library MAU	261	0	261	270	0	270	261	0	261	793	0	793
Garrard County Middle School	(1) Kitchen RTU	315	0	315	326	0	325	264	0	264	905	0	905
Garrard County Middle School	(2) Cafeteria RTUs	286	0	286	296	0	296	264	0	264	846	0	846
Garrard County Middle School	(4) Gym RTUs	354	24	330	365	81	284	300	170	130	1,019	275	744
Garrard County Middle School	(6) Exhaust Air Fans	272	84	188	281	80	201	261	64	197	815	228	587
Garrard County Middle School	(2) Boiler circulation pumps	0	441	(441)	0	272	(272)	0	22	(22)		735	
Garrard County Middle School	(2) Hot water pumps	0	220	(220)	0	136	(136)	0	11	(11)		367	
Camp Dick Robinson Elementary	Area A - WSHPs	344	346	(2)	355	221	134	333	274	59	1,033	841	192
Camp Dick Robinson Elementary	Area B - WSHPs	344	218	126	355	208	147	333	296	37	1,033	722	311
Camp Dick Robinson Elementary	Area C - WSHPs	344	257	87	355	193	162	333	199	134	1,033	649	384
Camp Dick Robinson Elementary	Kitchen / Cafeteria WSHPs	363	289	74	375	199	176	353	194	159	1,092	682	410
Camp Dick Robinson Elementary	(2) Gym WSHPs	371	96	275	383	95	288	333	217	116	1,088	408	680
Camp Dick Robinson Elementary	(4) MAUs	302	69	233	312	72	240	302	71	231	917	212	705
Camp Dick Robinson Elementary	(11) Exhaust fans	344	309	35	355	319	36	333	309	24	1,033	937	96
Camp Dick Robinson Elementary	Zone 6 (additions) - (13) WSHPs	344	148	196	355	178	177	333	288	45	1,033	614	419
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	302	480	(178)	312	496	(184)	302	480	(178)	917	1,456	(540)
Lancaster Elementary	(6) Kitchen / Cafeteria WSHPs	350	218	132	361	207	154	318	221	97	1,029	646	383
Lancaster Elementary	(2) Gym WSHPs	340	112	228	351	105	246	320	118	202	1,011	335	676
Lancaster Elementary	(3) Office WSHPs	340	111	229	351	112	239	320	124	196	1,011	347	664
Lancaster Elementary	(4) Library WSHPs	340	388	(48)	351	386	(35)	320	527	(207)	1,011	1,301	(290)
Lancaster Elementary	(43) Classroom WSHPs	386	176	210	399	178	221	367	199	168	1,153	553	600
Lancaster Elementary	(18) Exhaust fans	309	432	(123)	319	446	(127)	309	432	(123)	936	1,310	(374)
Paint Lick Elementary	(28) Classroom WSHPs	354	196	158	365	200	165	343	220	123	1,062	616	446
Paint Lick Elementary	(3) Office WSHPs	354	224	130	365	214	151	343	229	114	1,062	667	395
Paint Lick Elementary	(3) Media Center WSHPs	354	260	94	365	224	141	343	225	118	1,062	709	353
Paint Lick Elementary	(5) Kitchen / Cafeteria WSHPs	344	186	158	355	169	186	333	141	192	1,033	496	537
Paint Lick Elementary	(3) Gym WSHPs	354	0	354	365	0	365	343	0	343	1,062	0	1,062
Paint Lick Elementary	(4) Exhaust fans	313	198	115	323	126	197	313	132	181	949	456	493
Garrard Education Center	(22) Classroom UV & FCUs	344	209	135	355	191	164	268	396	(128)	967	796	171
Garrard Education Center	(19) Common Area FCUs	344	285	59	355	263	92	268	454	(186)	967	1,002	(35)
Garrard Education Center	(4) Office FCUs	336	121	215	347	166	181	276	372	(96)	960	659	301
Garrard Education Center	(6) Kitchen / Cafeteria UV & FCUs	377	293	84	389	283	106	314	546	(232)	1,080	1,122	(42)
Garrard Education Center	Atrium AHU	346	264	82	357	239	118	276	534	(258)	979	1,037	(58)
Garrard Education Center	Gym AHU	369	299	70	381	277	104	351	572	(221)	1,102	1,148	(46)
Garrard Education Center	Locker Room AHU	307	298	9	318	277	41	272	569	(297)	897	1,144	(247)
Garrard Education Center	(6) Exhaust fans	294	134	160	303	119	184	240	149	91	837	402	435
Garrard Education Center	(14) ASHPs	336	270	66	347	236	111	276	510	(234)	960	1,016	(56)

FAN MOTOR RUNTIME SAVINGS											
Building	System ID	Motor HP	Break HP / Motor HP	kW / HP	Fan Speed	Fan kW	Saved Hrs / Yr	Motor Efficiency	Savings (kWh)	Rate (kWh)	Savings (\$)
Garrard County High School	(101) Water-source heat pumps	44.5	0.80	0.746	100%	31	452	85%	14,134	\$ 0.093	\$ 1,314
Garrard County High School	Cafeteria AHU	22.5	0.80	0.746	100%	16	457	85%	7,216	\$ 0.093	\$ 671
Garrard County High School	Gym AHU	27.5	0.80	0.746	100%	19	391	85%	7,552	\$ 0.093	\$ 702
Subtotal									28,902		\$ 2,688
Garrard Middle School	(36) Classroom WSHPs	16.2	0.80	0.746	100%	11	687	85%	7,804	\$ 0.045	\$ 353
Garrard Middle School	(3) Classroom MAUs	17.5	0.80	0.746	100%	12	320	85%	3,932	\$ 0.045	\$ 178
Garrard Middle School	(16) Admin WSHPs	4.5	0.80	0.746	100%	3	832	85%	2,603	\$ 0.045	\$ 118
Garrard Middle School	(1) Admin MAU	5.0	0.80	0.746	100%	4	520	85%	1,826	\$ 0.045	\$ 83
Garrard Middle School	(13) Library WSHPs	3.6	0.80	0.746	100%	3	419	85%	1,059	\$ 0.045	\$ 48
Garrard Middle School	(1) Library MAU	5.0	0.80	0.746	100%	4	104	85%	365	\$ 0.045	\$ 17
Garrard Middle School	(2) Auditorium WSHPs	10.0	0.80	0.746	100%	7	378	85%	2,651	\$ 0.045	\$ 120
Garrard Middle School	(2) Auditorium RA Fans	6.0	0.80	0.746	100%	4	378	85%	1,591	\$ 0.045	\$ 72
Garrard Middle School	(1) Kitchen RTU	2.0	0.80	0.746	100%	1	435	85%	611	\$ 0.045	\$ 28
Garrard Middle School	(2) Cafeteria RTUs	4.0	0.80	0.746	100%	3	269	85%	755	\$ 0.045	\$ 34
Garrard Middle School	(4) Gym RTUs	30.0	0.80	0.746	100%	21	455	85%	9,575	\$ 0.045	\$ 433
Garrard Middle School	(19) Exhaust Air Fans	3.8	0.80	0.746	100%	3	4	85%	11	\$ 0.045	\$ 0
Subtotal									32,782		\$ 1,483
Camp Dick Robinson Elementary	Area A - WSHPs	2.4	0.80	0.746	100%	2	930	85%	1,574	\$ 0.094	\$ 148
Camp Dick Robinson Elementary	Area B - WSHPs	4.3	0.80	0.746	100%	3	930	85%	2,786	\$ 0.094	\$ 262
Camp Dick Robinson Elementary	Area C - WSHPs	5.3	0.80	0.746	100%	4	930	85%	3,438	\$ 0.094	\$ 323
Camp Dick Robinson Elementary	Kitchen / Cafeteria WSHPs	2.6	0.80	0.746	100%	2	694	85%	1,280	\$ 0.094	\$ 120
Camp Dick Robinson Elementary	(2) Gym WSHPs	12.0	0.80	0.746	100%	8	678	85%	5,711	\$ 0.094	\$ 536
Camp Dick Robinson Elementary	(4) MAUs	9.0	0.80	0.746	100%	6	702	85%	4,436	\$ 0.094	\$ 417
Camp Dick Robinson Elementary	(11) Exhaust fans	3.0	0.80	0.746	100%	2	224	85%	477	\$ 0.094	\$ 45
Camp Dick Robinson Elementary	Zone 6 (additions) - (13) WSHPs	6.5	0.80	0.746	100%	5	930	85%	4,244	\$ 0.094	\$ 399
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	5.0	0.80	0.746	100%	4	702	85%	2,464	\$ 0.094	\$ 231
Subtotal									26,410		\$ 2,480
Lancaster Elementary School	(6) Kitchen / Cafeteria WSHPs	10.8	0.80	0.746	100%	8	1,269	85%	9,578	\$ 0.036	\$ 347
Lancaster Elementary School	(2) Gym WSHPs	10.0	0.80	0.746	100%	7	1,354	85%	9,503	\$ 0.036	\$ 344
Lancaster Elementary School	(4) Office WSHPs	2.0	0.80	0.746	100%	1	1,354	85%	1,853	\$ 0.036	\$ 67
Lancaster Elementary School	(4) Library WSHPs	5.3	0.80	0.746	100%	4	1,354	85%	4,989	\$ 0.036	\$ 181
Lancaster Elementary School	(41) Classroom WSHPs	23.5	0.80	0.746	100%	16	788	85%	13,007	\$ 0.036	\$ 471
Lancaster Elementary School	(18) Exhaust fans	5.1	0.80	0.746	100%	4	1,040	85%	3,692	\$ 0.036	\$ 134
Subtotal									42,623		\$ 1,543
Paint Lick Elementary School	(28) Classroom WSHPs	22.3	0.80	0.746	100%	16	356	85%	5,554	\$ 0.092	\$ 512
Paint Lick Elementary School	(3) Office WSHPs	2.5	0.80	0.746	100%	2	356	85%	624	\$ 0.092	\$ 58

FAN MOTOR RUNTIME SAVINGS ADJUSTMENT

Building	System ID	Motor HP	Break HP / Motor HP	kW / HP	Fan Speed	Fan kW	Saved Hrs / Yr	Motor Efficiency	Savings (kWh)	Rate (kWh)	Savings (\$)
Garrard County High School	(101) Water-source heat pumps	44.5	0.80	0.746	100%	31	(1,030)	85%	(32,171)	\$ 0.093	\$ (2,992)
Garrard County High School	Cafeteria AHU	22.5	0.80	0.746	100%	16	(55)	85%	(867)	\$ 0.093	\$ (81)
Garrard County High School	Gym AHU	27.5	0.80	0.746	100%	19	1,061	85%	20,478	\$ 0.093	\$ 1,904
Subtotal									(6,367)		\$ (592)
Garrard Middle School	(36) Classroom WSHPs	16.2	0.80	0.746	100%	11	1,881	85%	21,380	\$ 0.045	\$ 967
Garrard Middle School	(3) Classroom MAUs	17.5	0.80	0.746	100%	12	2,176	85%	26,734	\$ 0.045	\$ 1,210
Garrard Middle School	(16) Admin WSHPs	4.5	0.80	0.746	100%	3	708	85%	2,215	\$ 0.045	\$ 100
Garrard Middle School	(1) Admin MAU	5.0	0.80	0.746	100%	4	2,863	85%	10,067	\$ 0.045	\$ 456
Garrard Middle School	(13) Library WSHPs	3.6	0.80	0.746	100%	3	1,804	85%	4,561	\$ 0.045	\$ 206
Garrard Middle School	(1) Library MAU	5.0	0.80	0.746	100%	4	3,181	85%	11,166	\$ 0.045	\$ 505
Garrard Middle School	(2) Auditorium WSHPs	10.0	0.80	0.746	100%	7	457	85%	3,207	\$ 0.045	\$ 145
Garrard Middle School	(1) Kitchen RTU	2.0	0.80	0.746	100%	1	3,268	85%	4,588	\$ 0.045	\$ 208
Garrard Middle School	(2) Cafeteria RTUs	4.0	0.80	0.746	100%	3	3,418	85%	9,598	\$ 0.045	\$ 434
Garrard Middle School	(4) Gym RTUs	30.0	0.80	0.746	100%	21	1,935	85%	40,757	\$ 0.045	\$ 1,844
Garrard Middle School	(19) Exhaust Air Fans	3.8	0.80	0.746	100%	3	2,219	85%	5,876	\$ 0.045	\$ 266
Subtotal									140,150		\$ 6,341
Camp Dick Robinson Elementary	Area A - WSHPs	2.4	0.80	0.746	100%	2	73	85%	123	\$ 0.094	\$ 12
Camp Dick Robinson Elementary	Area B - WSHPs	4.3	0.80	0.746	100%	3	546	85%	1,634	\$ 0.094	\$ 153
Camp Dick Robinson Elementary	Area C - WSHPs	5.3	0.80	0.746	100%	4	456	85%	1,685	\$ 0.094	\$ 158
Camp Dick Robinson Elementary	Kitchen / Cafeteria WSHPs	2.6	0.80	0.746	100%	2	1,456	85%	2,683	\$ 0.094	\$ 252
Camp Dick Robinson Elementary	(2) Gym WSHPs	12.0	0.80	0.746	100%	8	2,165	85%	18,244	\$ 0.094	\$ 1,713
Camp Dick Robinson Elementary	(4) MAUs	9.0	0.80	0.746	100%	6	3,017	85%	19,065	\$ 0.094	\$ 1,790
Camp Dick Robinson Elementary	(11) Exhaust fans	3.0	0.80	0.746	100%	2	1,594	85%	3,390	\$ 0.094	\$ 318
Camp Dick Robinson Elementary	Zone 6 (additions) - (13) WSHPs	6.5	0.80	0.746	100%	5	1,640	85%	7,483	\$ 0.094	\$ 703
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	5.0	0.80	0.746	100%	4	330	85%	1,159	\$ 0.094	\$ 109
Subtotal									55,465		\$ 5,209
Lancaster Elementary School	(6) Kitchen / Cafeteria WSHPs	10.8	0.80	0.746	100%	8	1,854	85%	13,994	\$ 0.036	\$ 506
Lancaster Elementary School	(2) Gym WSHPs	10.0	0.80	0.746	100%	7	2,974	85%	20,880	\$ 0.036	\$ 756
Lancaster Elementary School	(4) Office WSHPs	2.0	0.80	0.746	100%	1	3,056	85%	4,184	\$ 0.036	\$ 151
Lancaster Elementary School	(4) Library WSHPs	5.3	0.80	0.746	100%	4	900	85%	3,317	\$ 0.036	\$ 120
Lancaster Elementary School	(41) Classroom WSHPs	23.5	0.80	0.746	100%	16	2,921	85%	48,190	\$ 0.036	\$ 1,744
Lancaster Elementary School	(18) Exhaust fans	5.1	0.80	0.746	100%	4	(1,498)	85%	(5,317)	\$ 0.036	\$ (192)
Subtotal									85,248		\$ 3,085
Paint Lick Elementary School	(28) Classroom WSHPs	22.3	0.80	0.746	100%	16	1,702	85%	26,583	\$ 0.092	\$ 2,450
Paint Lick Elementary School	(3) Office WSHPs	2.5	0.80	0.746	100%	2	1,559	85%	2,736	\$ 0.092	\$ 252
Subtotal									29,319		\$ 2,702



Interior and Exterior Lighting Retrofit Savings

Building:	Current Usage		Exterior Lighting Savings		Interior Lighting Savings		TOTAL SAVINGS		Estimated Utility Rebate Incentive (\$)
	Annual Electricity Usage (kWh)	Annual Electricity Cost (\$)	Annual Electricity Savings (kWh)	Annual Electricity Cost Savings (\$)	Annual Electricity Savings (kWh)	Annual Electricity Cost Savings (\$)	Annual Electricity Savings (kWh)	Annual Electricity Savings (\$)	
Garrard County High School	1,950,624	\$ 165,020	68,766	\$ 6,395	60,648	\$ 5,640	129,414	\$ 12,034	\$ 5,587
Garrard Middle School	1,176,960	\$ 98,674	23,893	\$ 1,081	211,618	\$ 24,566	235,511	\$ 25,647	\$ 12,590
Camp Dick Robinson Elementary	891,648	\$ 74,166	6,202	\$ 582	87,628	\$ 8,229	93,830	\$ 8,812	\$ 5,275
Lancaster Elementary School	726,144	\$ 73,647	11,721	\$ 424	117,035	\$ 17,266	128,756	\$ 17,690	\$ 4,379
Paint Lick Elementary School	556,560	\$ 47,106	15,282	\$ 1,408	87,269	\$ 8,043	102,551	\$ 9,452	\$ 8,509
Garrard Education Center	672,240	\$ 56,723	26,354	\$ 954	123,331	\$ 19,740	149,685	\$ 20,694	\$ 5,830
Board of Education Office	98,194	\$ 11,913	1,669	\$ 202	15,437	\$ 1,871	17,105	\$ 2,073	\$ 539
Merritt-Little Building	59,600	\$ 6,541	2,413	\$ 305	11,896	\$ 1,503	14,310	\$ 1,808	\$ 643
Bus Garage	51,468	\$ 6,946	2,045	\$ 298	7,415	\$ 1,082	9,461	\$ 1,380	\$ 405
High School Field House	75,120	\$ 8,250	7,236	\$ 910	1,537	\$ 193	8,773	\$ 1,103	\$ 707
Total	6,258,558	\$ 548,986	165,582	\$ 12,560	723,813	\$ 88,134	889,395	\$ 100,694	\$ 44,465

Water Retrofit Savings

Buildings:	Current Usage		Proposed Savings	
	Annual Water Usage (gal)	Annual Water & Sewer Cost (\$)	Annual Water Savings (gal)	Annual Water & Sewer Cost Savings (\$)
Garrard County High School	1,178,719	\$ 24,541	148,396	\$ 2,285
Garrard Middle School & Area Technology Center	1,327,883	\$ 17,991	436,257	\$ 5,628
Camp Dick Robinson Elementary	733,600	\$ 3,582	68,738	\$ 887
Lancaster Elementary School	939,200	\$ 16,494	222,645	\$ 913
Paint Lick Elementary School	560,800	\$ 2,928	385,077	\$ 5,045
Garrard Education Center	164,600	\$ 2,694	193,467	\$ 793
Board of Education Office	25,105	\$ 769	65,737	\$ 927
Merritt-Little Building	7,160	\$ 1,614	9,072	\$ 152
Bus Garage	79,577	\$ 1,398	2,471	\$ 20
TOTAL	5,016,644	\$ 72,011	1,536,569	\$ 16,723

Outside Air Heating & Cooling Costs Resulting From HVAC System Modifications

Building	Unit Type	Quantity	Current Hours		Future Hours		Reduced Hours		Current OA		Energy Savings/Penalties		Savings/Costs		
			Winter (Hours)	Summer (Hours)	Winter (Hours)	Summer (Hours)	Winter (Hours)	Summer (Hours)	Heating (CFM)	Cooling (CFM)	Heating (BTU)	Cooling (BTU)	Gas Heating (BTU)	Electric Heating (BTU)	Electric Cooling (BTU)
Garrard Middle School	(3) Classroom MAUs	1	1,980	880	1,800	740	180	140	11,190	11,190	(76,489,245)	(42,316,216)	\$ 414	\$ 101	\$ 160
Garrard Middle School	(1) Admin MAU	1	2,340	1,040	1,980	880	360	160	2,500	2,500	(34,177,500)	(10,804,600)	\$ 185	\$ 45	\$ 41
Garrard Middle School	(1) Library MAU	1	2,268	1,008	2,196	976	72	32	4,100	4,100	(11,210,220)	(3,543,909)	\$ 61	\$ 15	\$ 13
Garrard Middle School	(1) Kitchen RTU	1	2,804	1,310	2,646	1,034	158	277	680	680	(4,090,363)	(5,078,702)	\$ 22	\$ 5	\$ 19
Garrard Middle School	(2) Cafeteria RTUs	1	2,498	1,180	2,403	1,007	95	174	1,200	1,200	(4,347,378)	(5,623,794)	\$ 24	\$ 6	\$ 21
Garrard Middle School	(4) Gym RTUs	1	3,141	1,453	2,970	1,169	171	284	1,800	1,800	(11,668,705)	(13,788,831)	\$ 63	\$ 15	\$ 52
Subtotal											(142,003,411)	(81,156,052)	\$ 768	\$ 188	\$ 307
Camp Dick Robinson Elementary	(4) MAUs	1	3,024	1,344	2,538	1,128	486	216	12,150	12,150	(224,238,578)	(70,888,981)	\$	1,371	\$ 390
Camp Dick Robinson Elementary	Zone 6 (additions) - (3) MAUs	1	3,024	1,344	2,538	1,128	486	216	5,400	5,400	(99,661,590)	(31,506,214)	\$	609	\$ 173
Subtotal											(323,900,168)	(102,395,194)	\$	1,980	\$ 563
												Gas Heating	Electric Heating	Electric Cooling	
Lancaster Elementary School	(6) Kitchen / Cafeteria WSHPs	1	3,722	1,700	2,938	1,216	785	484	1,600	1,600	(47,684,448)	(20,925,510)	\$ 233	\$ 51	\$ 49
Lancaster Elementary School	(2) Gym WSHPs	1	3,722	1,700	2,857	1,212	866	488	3,600	3,600	(118,363,518)	(47,424,631)	\$ 579	\$ 125	\$ 112
Lancaster Elementary School	(4) Office WSHPs	1	3,722	1,700	2,857	1,212	866	488	184	184	(6,049,691)	(2,423,926)	\$ 30	\$ 6	\$ 6
Lancaster Elementary School	(4) Library WSHPs	1	3,722	1,700	2,857	1,212	866	488	240	240	(7,890,901)	(3,161,642)	\$ 39	\$ 8	\$ 7
Lancaster Elementary School	(41) Classroom WSHPs	1	3,722	1,700	3,245	1,389	477	311	6,892	6,892	(124,842,205)	(57,952,622)	\$ 611	\$ 132	\$ 137
Subtotal											(304,830,763)	(131,891,331)	\$ 1,491	\$ 323	\$ 311

PUMP MOTOR REPLACEMENT									
Building	System ID	HP	Speed	Motor Effic.	Power (kW)	Operating Hours / Year	Usage (kWh)	Rate (kWh)	Cost (\$)
Existing									
Garrard Middle School	(2) Boiler circulation pumps	4.0	100%	87%	2.8	2,590	7,148	\$ 0.045	\$ 323
Garrard Middle School	(2) Hot water pumps	3.0	100%	87%	2.1	2,590	5,361	\$ 0.045	\$ 243
Proposed									
Garrard Middle School	(2) Boiler circulation pumps	6.0	100%	90%	4.0	2,225	8,852	\$ 0.045	\$ 400
Garrard Middle School	(2) Hot water pumps	3.0	100%	90%	2.0	2,225	4,426	\$ 0.045	\$ 200
TOTAL					(1.1)		(768)		\$ (35)



Constant Volume to Variable Speed Fan Conversion

Electric Fan Motor Savings

Description	Full Load Power		Fan Speed		Average kW Savings (kWh)	Future Operating Hours	Savings (kWh)	Energy Savings Rate (\$)	Utility Savings (\$)
	(HP)	(kW)	Current Average Amount	Future Average Amount					
Garrard Education Center									
Atrium AHU	1.50	1.053	100%	60%	0.83	4,001	3,303	\$ 0.036	\$ 120
Gym AHU	7.50	5.266	100%	60%	4.13	4,428	18,280	\$ 0.036	\$ 662
Subtotal							21,583		\$ 781

BOILER REPLACEMENT SAVINGS

Garrard Middle School

Existing Boiler Data

* Burner manufacturer, age, model number:	1996 Sellers 80HP 15 Commodore
* Burner size:	Fire-tubed, hot water boilers
* Number of boilers:	2
* Catalog boiler seasonal efficiency:	80%
* Jacket losses (radiation & convection)	3%
* Burner firing rate losses	7%
* Average seasonal efficiency	70%

* Fuel type:	Natural gas
* Cost of fuel:	\$0.72 / therm
* Fuel conversion factor:	100,000 BTU / therm

* Total heating cost:	\$	15,520 / year
* Kitchen fuel cost:	\$	1,552 / year
* Domestic HW heating costs:	\$	3,104 / year
* Building heating costs:	\$	10,864 / year

* Building heating requirement boiler output:	1,055,110,992 BTU / year
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Proposed Boiler Data

* Number of boilers:	2
* Percent "design day" load carried per boiler:	50%
* Proposed boiler seasonal heating efficiency:	92%
* Building heating costs:	\$ 8,272 / year

Boiler replacement savings:	\$	2,592 / year
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BOILER REPLACEMENT SAVINGS

Garrard Education Center

Existing Boiler Data

* Burner manufacturer, age, model number:	1989 Weil-McClain PG-788-WP
* Burner size:	hot water boiler
* Number of boilers:	1
* Catalog boiler seasonal efficiency:	80%
* Jacket losses (radiation & convection)	3%
* Burner firing rate losses	7%
* Average seasonal efficiency	70%
* Fuel type:	Natural gas
* Cost of fuel:	\$0.72 / therm
* Fuel conversion factor:	100,000 BTU / therm
* Total heating cost:	\$ 17,503 / year
* Kitchen fuel cost:	\$ 875 / year
* Domestic HW heating costs:	\$ 1,750 / year
* Building heating costs:	\$ 14,878 / year
* Building heating requirement boiler output:	1,436,347,964 BTU / year

Proposed Boiler Data

* Number of boilers:	2
* Percent "design day" load carried per boiler:	50%
* Proposed boiler seasonal heating efficiency:	92%
* Building heating costs:	\$ 11,263 / year

Boiler replacement savings:	\$	3,615 / year
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BOILER REPLACEMENT SAVINGS

Area Technology Center

Existing Boiler Data

* Burner manufacturer, age, model number:	1967 National US 66A Series
* Burner size:	Atmospheric hot water boiler
* Number of boilers:	1
* Catalog boiler seasonal efficiency:	80%
* Jacket losses (radiation & convection)	3%
* Burner firing rate losses	7%
* Average seasonal efficiency	70%
* Fuel type:	Natural gas
* Cost of fuel:	\$0.73 / therm
* Fuel conversion factor:	100,000 BTU / therm
* Total heating cost:	\$ 15,538 / year
* Kitchen fuel cost:	\$ - / year
* Domestic HW heating costs:	\$ 1,554 / year
* Building heating costs:	\$ 13,985 / year
* Building heating requirement boiler output:	1,335,766,379 BTU / year

Proposed Boiler Data

* Number of boilers:	1
* Percent "design day" load carried per boiler:	100%
* Proposed boiler seasonal heating efficiency:	92%
* Building heating costs:	\$ 10,640 / year

Boiler replacement savings:	\$ 3,344 / year
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Chiller Efficiency Savings											
Garrard County Schools											
System ID	Quantity	Efficiency (kW / Ton)	Total Tonage	Total kW	Average Output	Average kW	Average Tonage	Operating Hours / Year	Usage (kWh/yr)	Rate (\$/kWh)	Usage (\$/yr)
Garrard Education Center											
<i>Existing</i>											
Air Cooled Chiller	1	1.12	100	112.15	50%	56.07	50.00	1,799	100,905	\$ 0.160	\$ 16,150
<i>Proposed</i>											
Air Cooled Chiller	1	1.03	100	102.56	50%	51.28	50.00	1,678	86,048	\$ 0.160	\$ 13,773
Total Savings									14,857		\$ 2,378

