FACILITY CONDITION ASSESSMENT

Prepared for

Ann Arbor Public Schools
2555 South State Street
Ann Arbor, Michigan 48104
Jim Vibbart

FACILITY CONDITION ASSESSMENT

OF

MACK ELEMENTARY / OPEN SCHOOL
920 MILLER ROAD
ANN ARBOR, MICHIGAN 48103

PREPARED BY:
EMG
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EMG PROJECT #:
129010.18R000-018.354

DATE OF REPORT:
June 29, 2018

ONSITE DATE:
February 6, 2018

Immediate Repairs Report
Mack Elementary / Open School
6/29/2018

EMG Renamed Item Number	Location Description	ID	Cost Description	Quantity	Unit	Unit Cost *	Subtotal	Deficiency Repair Estimate *
D30	Interiors	937614	Air Conditioning, Central, Install	50000	SF	$11.50	$575,000	**$575,000**
A10	old boiler room	850400	Structural Flooring/Decking, Concrete, Replace	2500	SF	$33.62	$84,056	**$84,056**
B10	Upper Storage area	850972	Structural Frame, Concrete Cast-in-Place	1600	SF	$41.62	$66,590	**$66,590**
C10	Gymnasium	850278	Interior Floor Finish, Maple Sports Floor, Refinish	4600	SF	$5.21	$23,984	**$23,984**
C10	Throughout	850379	Interior Floor Finish, Terrazzo, Repair	100	SF	$26.74	$2,674	**$2,674**
C10	Gymnasium & office area	850284	Interior Ceiling Finish, Exposed/Generic, Prep & Paint	7500	SF	$2.61	$19,579	**$19,579**
	Site	958687	Davis Bacon Prevailing Wages, Surcharge for Prevailing Wages, 10% surcharge for prevailing wages	67932.83	LS	$1.15	$78,123	**$78,123**
G20	Front Lot	850141	Roadways, Asphalt Pavement, Full Depth (includes sub-base), Repair	23000	SF	$7.98	$183,563	**$183,563**
B10	Upper Level Storage Room	850975	Engineer, Structural, Superstructure, Evaluate/Report	1	EA	$11,500.00	$11,500	**$11,500**
B20	Throughout	850270	ADA, Door, Automatic Opener, Modify	6	EA	$1,150.00	$6,900	**$6,900**
Immediate Repairs Total								**$1,051,968**

* Location Factor (1.0) included in totals.

Replacement Reserves Report

Mack Elementary / Open School

10/23/2019

Location	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total Escalated Estimate
Mack Elementary / Open School	$1,051,947	$1,434,064	$329,861	$1,326,520	$1,720,925	$1,659,549	$648,854	$306,457	$137,902	$1,467,526	$168,711	$1,203,641	$207,280	$1,404,682	$835,507	$227,277	$256,273	$923,325	$622,071	$521,062	$235,850	**$16,689,284**
Grand Total	**$1,051,947**	**$1,434,064**	**$329,861**	**$1,326,520**	**$1,720,925**	**$1,659,549**	**$648,854**	**$306,457**	**$137,902**	**$1,467,526**	**$168,711**	**$1,203,641**	**$207,280**	**$1,404,682**	**$835,507**	**$227,277**	**$256,273**	**$923,325**	**$622,071**	**$521,062**	**$235,850**	**$16,689,284**

Uniformat Code	ID	Cost Description	Lifespan (EUL)	EAge	RUL	Quantity	Unit	Unit Cost *	Subtotal	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Deficiency Repair Estimate
_0001	937614	Air Conditioning, Central, Install	50	50	0	50000	SF	$11.50	$575,000	$575,000																					**$575,000**
B1012	850400	Structural Flooring/Decking, Concrete, Replace	50	97	0	2500	SF	$33.62	$84,056	$84,056																					**$84,056**
B101X	850972	Structural Frame, Concrete Cast-in-Place	50	97	0	1600	SF	$41.62	$66,590	$66,590																					**$66,590**
B2011	850272	Exterior Wall, Brick or Brick Veneer, 3+ Stories, Repoint	25	23	2	1200	SF	$52.27	$62,720			$62,720																			**$62,720**
B2011	851609	Exterior Wall, Joint Caulking 0" to 1/2", 3+ Stories, Replace	10	5	5	3000	LF	$3.55	$10,661						$10,661												$10,661				**$21,321**
B2011	850948	Exterior Wall, Aluminum Faced Insulated Panel System, Replace	40	31	9	1500	SF	$16.23	$24,349										$24,349												**$24,349**
B2032	851060	Exterior Door, Steel w/ Safety Glass, Replace	25	16	9	13	EA	$1,555.63	$20,223										$20,223												**$20,223**
B2032	851604	Exterior Door, Steel Insulated, Replace	25	11	14	21	EA	$1,814.16	$38,097															$38,097							**$38,097**
B3011	850135	Roof, Single-Ply EPDM Membrane, Replace	20	15	5	55500	SF	$12.10	$671,439						$671,439																**$671,439**
C1021	850437	Interior Door, Fire 90-Minutes and Over, Replace	20	11	9	16	EA	$1,896.42	$30,343										$30,343												**$30,343**
C1021	851642	Interior Door, Wood Solid-Core, Replace	20	9	11	102	EA	$1,636.58	$166,931												$166,931										**$166,931**
C1023	947073	Exterior Door Hardware, Electronic Door Locks ANSI F39 Lockset, Replace	30	29	1	13	EA	$1,546.75	$20,108		$20,108																				**$20,108**
C3012	850261	Interior Wall Finish, Concrete/Masonry, Prep & Paint	8	7	1	161900	SF	$1.67	$269,968		$269,968								$269,968							$269,968					**$809,905**
C3012	851635	Interior Wall Finish, Ceramic Tile, Replace	25	10	15	3000	SF	$19.03	$57,098																		$57,098					**$57,098**
C3021	851636	Interior Floor Finish, Epoxy Coating, Prep & Paint	10	7	3	800	SF	$10.05	$8,041				$8,041										$8,041									**$16,082**
C3024	850278	Interior Floor Finish, Maple Sports Floor, Refinish	10	10	0	4600	SF	$5.21	$23,964	$23,964										$23,964										$23,964		**$71,891**
C3024	850379	Interior Floor Finish, Terrazzo, Repair	0	97	0	100	SF	$26.74	$2,674	$2,674																						**$2,674**
C3024	850361	Interior Floor Finish, Vinyl Tile (VCT), Replace	15	13	2	28035	SF	$5.52	$154,753			$154,753														$154,753					**$309,506**
C3025	850259	Interior Floor Finish, Carpet Standard-Commercial Medium-Traffic, Replace	10	9	1	10000	SF	$8.35	$83,490		$83,490										$83,490										**$166,980**
C3025	850260	Interior Floor Finish, Carpet Standard-Commercial Medium-Traffic, Replace	10	6	4	10000	SF	$8.35	$83,490					$83,490										$83,490								**$166,980**
C3031	850284	Interior Ceiling Finish, Exposed/Generic, Prep & Paint	10	10	0	7500	SF	$2.61	$19,579	$19,579										$19,579										$19,579		**$58,736**
C3032	850968	Interior Wall Finish, Acoustical Tile (Wall) Fiberglass, Replace	20	19	1	2500	SF	$7.07	$17,675		$17,675																					**$17,675**
C3032	850263	Interior Ceiling Finish, Acoustical Tile (ACT) Dropped Fiberglass, Replace	20	11	9	55035	SF	$5.81	$319,616										$319,616												**$319,616**
D1011	850427	Elevator, Hydraulic, 1500 to 2500 LB, 3 Floors, Renovate	30	23	7	1	EA	$166,160.28	$166,160								$166,160														**$166,160**
D2011	850351	Toilet, Flush Tank (Water Closet), Replace	20	4	16	1	EA	$1,213.42	$1,213																	$1,213					**$1,213**
D2011	850353	Toilet, Tankless (Water Closet), Replace	20	3	17	31	EA	$969.42	$30,052																		$30,052				**$30,052**
D2012	850791	Urinal, Vitreous China, Replace	20	6	14	4	EA	$1,372.46	$5,490															$5,490							**$5,490**
D2014	850513	Sink, Stainless Steel, Replace	20	16	4	26	EA	$1,212.16	$31,516					$31,516																	**$31,516**
D2014	850350	Sink, Vitreous China, Replace	20	11	9	1	EA	$861.51	$862										$862												**$862**
D2018	850346	Drinking Fountain, Refrigerated, Replace	10	8	2	3	EA	$1,446.14	$4,338			$4,338										$4,338									**$8,677**
D2018	850807	Drinking Fountain, Vitreous China, Replace	15	10	5	4	EA	$2,229.84	$8,919						$8,919															$8,919	**$17,839**
D2019	850794	Emergency Eye Wash & Shower Station, Replace	15	11	4	1	EA	$2,431.91	$2,432					$2,432															$2,432		**$4,864**
D2021	850246	Backflow Preventer, 0.75", Replace	15	9	6	1	EA	$1,161.99	$1,162							$1,162															**$1,162**
D2023	850233	Water Softener, 10 GAL, Replace	15	12	3	1	EA	$3,958.84	$3,959				$3,959															$3,959			**$7,918**
D2023	850188	Water Storage Tank, 501 to 1,000 GAL, Replace	20	16	4	1	EA	$5,998.32	$5,998					$5,998																	**$5,998**
D2023	850220	Domestic Circulator or Booster Pump 1, 5 to 7.5 HP, Replace	20	12	8	1	EA	$13,387.54	$13,388									$13,388													**$13,388**
D2023	850179	Water Heater, Gas, Tankless, 17 GPM, Replace	15	7	8	1	EA	$3,963.65	$3,964									$3,964													**$3,964**
D2023	850227	Domestic Circulator or Booster Pump 2, 5 to 7.5 HP, Replace	20	12	8	1	EA	$13,387.54	$13,388									$13,388													**$13,388**
D2023	850435	Domestic Circulator or Booster Pump, 0.75 HP, Replace	20	6	14	1	EA	$4,619.73	$4,620															$4,620							**$4,620**
D2043	850409	Sump Pump, 3 HP, Replace	15	6	9	1	EA	$2,372.23	$2,372										$2,372												**$2,372**
D2043	850408	Sump Pump, 3 HP, Replace	15	6	9	1	EA	$2,372.23	$2,372										$2,372												**$2,372**
D2091	850159	Air Compressor, 2 HP, Replace	20	16	4	1	EA	$9,256.42	$9,256					$9,256																	**$9,256**
D2091	850151	Compressed Air Dryer, Replace	15	6	9	1	EA	$5,838.56	$5,839										$5,839												**$5,839**
D3016	960807	Solar Instillation Project, Roof Mounted Solar Instillation, Install	20	15	5	576000	SF	$1.15	$662,400						$662,400																**$662,400**
D3021	850205	Boiler #2, Gas, 4,201 to 10,000 MBH, Replace	25	12	13	1	EA	$382,797.63	$382,798														$382,798								**$382,798**
D3021	850202	Boiler #1, Gas, 4,201 to 10,000 MBH, Replace	25	12	13	1	EA	$382,797.63	$382,798														$382,798								**$382,798**
D3022	850198	Expansion Tank, 176 to 250 GAL, Replace	25	21	4	1	EA	$5,401.31	$5,401					$5,401																	**$5,401**
D3022	850232	Chemical Feed System, Replace	25	12	13	1	EA	$12,238.58	$12,239														$12,239								**$12,239**
D3022	850223	Boiler Blowdown System, Replace	25	12	13	1	EA	$6,111.80	$6,112														$6,112								**$6,112**
D3022	850216	Deaerator, Replace	25	12	13	1	EA	$86,410.63	$86,411														$86,411								**$86,411**

Uniformat Code	ID	Cost Description	Lifespan (EUL)	EAge	RUL	Quantity	Unit	Unit Cost *	Subtotal	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Deficiency Repair Estimate
D3023	850222	Heat Exchanger, Steam-to-Water, 41 to 75 GPM, Replace	35	31	4	1	EA	$10,906.84	$10,907					$10,907																		**$10,907**
D3031	851065	Chiller, Air-Cooled, 10 to 20 Ton, Replace	25	11	14	1	EA	$56,722.34	$56,722															$56,722								**$56,722**
D3032	851208	Condenser, Air-Cooled, 5 Ton, Replace	15	14	1	1	EA	$4,873.03	$4,873		$4,873															$4,873						**$9,746**
D3032	851089	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851143	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851178	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851179	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851078	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851093	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851197	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851212	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851213	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851199	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851176	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851189	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851135	Condenser, Air-Cooled, 3 Ton, Replace	15	12	3	1	EA	$3,168.40	$3,168				$3,168															$3,168				**$6,337**
D3032	851142	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851076	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851141	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851086	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	851097	Condenser, Air-Cooled, 2 Ton, Replace	15	12	3	1	EA	$2,975.91	$2,976				$2,976															$2,976				**$5,952**
D3032	850516	Condenser, Air-Cooled, 2 Ton, Replace	15	6	9	1	EA	$2,975.91	$2,976										$2,976													**$2,976**
D3032	850966	Condensing Unit/Heat Pump, Split System, 2.5 Ton, Replace	15	5	10	1	EA	$3,871.31	$3,871											$3,871												**$3,871**
D3041	850150	Air Handler, Exterior, 3,001 to 4,000 CFM, Replace	15	12	3	1	EA	$22,698.91	$22,699				$22,699															$22,699				**$45,398**
D3041	851052	Make-Up Air Unit, 12,001 to 20,000 CFM, Replace	20	17	3	1	EA	$70,279.79	$70,280				$70,280																			**$70,280**
D3041	851051	Make-Up Air Unit, 2,000 to 6,000 CFM, Replace	20	17	3	1	EA	$36,872.06	$36,872				$36,872																			**$36,872**
D3041	850348	Fan Coil Unit, Hydronic, 801 to 1,200 CFM, Replace	15	12	3	2	EA	$3,720.68	$7,441				$7,441															$7,441				**$14,883**
D3041	850269	Fan Coil Unit, Hydronic, 801 to 1,200 CFM, Replace	15	11	4	3	EA	$3,720.68	$11,162					$11,162															$11,162			**$22,324**
D3041	850287	Fan Coil Unit, Hydronic, 200 to 400 CFM, Replace	15	11	4	1	EA	$2,514.23	$2,514					$2,514															$2,514			**$5,028**
D3041	851050	Make-Up Air Unit, 2,000 to 6,000 CFM, Replace	20	11	9	1	EA	$36,872.06	$36,872										$36,872													**$36,872**
D3041	850440	Air Handler, Interior, 30,001 to 40,000 CFM, Replace	30	12	18	1	EA	$107,737.39	$107,737																			$107,737				**$107,737**
D3042	851053	Exhaust Fan, Centrifugal, 251 to 800 CFM, Replace	15	13	2	1	EA	$2,325.15	$2,325			$2,325															$2,325					**$4,650**
D3042	851054	Exhaust Fan, Centrifugal, 251 to 800 CFM, Replace	15	13	2	1	EA	$2,325.15	$2,325			$2,325															$2,325					**$4,650**
D3042	851214	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851182	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851204	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851077	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851210	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851140	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851211	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851202	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851091	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851180	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851196	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851191	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851074	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3042	851152	Supply Fan, Centrifugal, 251 to 800 CFM, Replace	15	12	3	1	EA	$2,325.15	$2,325				$2,325															$2,325				**$4,650**
D3051	850253	Packaged Terminal Air Conditioner (PTAC), 12,001 to 15,000 BTUH, Replace	10	8	2	1	EA	$3,170.52	$3,171			$3,171										$3,171										**$6,341**
D3051	850252	Packaged Terminal Air Conditioner (PTAC), 12,001 to 15,000 BTUH, Replace	10	8	2	1	EA	$3,170.52	$3,171			$3,171										$3,171										**$6,341**
D3052	851151	Heat Pump, Packaged (RTU), 3.5 to 5 Ton, Replace	15	12	3	1	EA	$10,267.45	$10,267				$10,267															$10,267				**$20,535**
D3052	851188	Heat Pump, Packaged (RTU), 21 to 25 Ton, Replace	15	12	3	1	EA	$48,863.27	$48,863				$48,863															$48,863				**$97,727**
D3052	851049	Heat Pump, Packaged (RTU), 2.5 to 3 Ton, Replace	15	6	9	1	EA	$6,636.57	$6,637										$6,637													**$6,637**
D3068	850158	Building Automation System (HVAC Controls), Upgrade	20	16	4	88513	SF	$6.16	$545,594					$545,594																		**$545,594**
D4019	854546	Sprinkler System, Full Retrofit, School (per SF), Renovate	50	47	3	87535	SF	$7.19	$629,158				$629,158																			**$629,158**
D4099	850815	Fire Shutter, Motor-Operated, 144 SF, Replace	30	16	14	2	EA	$8,184.47	$16,369															$16,369								**$16,369**
D5012	850416	Building/Main Switchgear, 208 Y, 120 V, 800 Amp, Replace	30	26	4	1	EA	$205,888.09	$205,888					$205,888																		**$205,888**
D5012	850167	Building/Main Switchgear, 208 Y, 120 V, 3,200 Amp, Replace	30	24	6	1	EA	$435,190.45	$435,190							$435,190																**$435,190**
D5012	850173	Distribution Panel, 208 Y, 120 V, 200 Amp, Replace	30	21	9	20	EA	$9,092.13	$181,843										$181,843													**$181,843**
D5012	850422	Building/Main Switchgear, 208 Y, 120 V, 600 Amp, Replace	30	11	19	1	EA	$186,779.53	$186,780																				$186,780			**$186,780**

Uniformat Code	ID	Cost Description	Lifespan (EUL)	EAge	RUL	Quantity	Unit	Unit Cost *	Subtotal	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Deficiency Repair Estimate
D5022	850265	Fluorescent Lighting Fixture, 80 W, Replace	20	17	3	66	EA	$278.15	$18,358				$18,358																		**$18,358**
D5022	850264	Fluorescent Lighting Fixture, 160 W, Replace	20	17	3	624	EA	$302.08	$188,499				$188,499																		**$188,499**
D5022	851393	LED Lighting Fixture, Basic, 100 W, Replace	20	3	17	25	EA	$387.41	$9,685																		$9,685				**$9,685**
D5032	947072	Intercom Master Station, Replace	20	19	1	1	EA	$4,386.68	$4,387		$4,387																				**$4,387**
D5036	945806	Clock and Bell System, Wireless or Ethernet Enabled, Up To 100 Total Clocks / Bells, Replace	15	14	1	87735	SF	$0.59	$51,457		$51,457															$51,457					**$102,913**
D5037	850809	Fire Alarm System, School, Install	20	19	1	87535	SF	$3.60	$315,082		$315,082																				**$315,082**
D5038	947071	Security/Surveillance System, Cameras and CCTV, Install	10	9	1	87535	SF	$5.00	$437,894		$437,894										$437,894										**$875,788**
D5092	850235	Emergency/Exit Combo LED, Replace	10	9	1	100	EA	$790.64	$79,064		$79,064										$79,064										**$158,127**
E1023	850407	Stage Curtain, Medium Weight Velour, Flameproof (per SF), Replace	15	11	4	750	SF	$14.95	$11,213					$11,213														$11,213			**$22,425**
E1027	850793	Sink, Epoxy Resin, Laboratory, Replace	15	6	9	8	EA	$746.93	$5,975										$5,975												**$5,975**
E1093	850817	Commercial Kitchen, Convection Oven, Double, Replace	10	6	4	1	EA	$9,939.45	$9,939					$9,939										$9,939							**$19,879**
E1093	850818	Commercial Kitchen, Steamer, Tabletop, Replace	10	6	4	1	EA	$7,295.60	$7,296					$7,296										$7,296							**$14,591**
E1093	850937	Commercial Kitchen, Refrigerator, 2-Door Reach-In, Replace	15	9	6	1	EA	$4,894.40	$4,894							$4,894															**$4,894**
E1093	850938	Commercial Kitchen, Refrigerator, 2-Door Reach-In, Replace	15	8	7	1	EA	$4,894.40	$4,894								$4,894														**$4,894**
E2012	850515	Kitchen Cabinet, Base and Wall Section, Wood, Replace	20	16	4	850	LF	$537.77	$457,108					$457,108																	**$457,108**
F1029	958687	Davis Bacon Prevailing Wages, Surcharge for Prevailing Wages, 10% surcharge for prevailing wages	1	1	0	67932.83	LS	$1.15	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	$78,123	**$1,640,578**
G2012	850141	Roadways, Asphalt Pavement, Full Depth (includes sub-base), Repair	0	19	0	23000	SF	$7.98	$183,563	$183,563																					**$183,563**
G2012	851300	Roadways, Asphalt Pavement, Mill & Overlay	25	13	12	15000	SF	$3.77	$56,580													$56,580									**$56,580**
G2012	850144	Roadways, Asphalt Pavement, Mill & Overlay	25	11	14	17000	SF	$3.77	$64,124															$64,124							**$64,124**
G2022	850139	Parking Lots, Asphalt Pavement, Seal & Stripe	5	4	1	55000	SF	$0.44	$24,035		$24,035					$24,035					$24,035					$24,035					**$96,140**
G2031	851402	Pedestrian Pavement, Sidewalk, Concrete Large Areas, Replace	30	26	4	500	SF	$10.35	$5,175					$5,175																	**$5,175**
G2041	847281	Fences & Gates, Chain Link, 4' High, Replace	30	29	1	175	LF	$35.09	$6,140		$6,140																				**$6,140**
G2041	850131	Fences & Gates, Chain Link, 8' High, Replace	30	21	9	2200	LF	$61.99	$136,367										$136,367												**$136,367**
G2041	850125	Fences & Gates, Chain Link, 4' High, Replace	30	16	14	1080	LF	$35.09	$37,896															$37,896							**$37,896**
G2042	850955	Retaining Wall, Brick/Stone (per SF Face), Replace	40	26	14	1000	SF	$150.20	$150,203															$150,203							**$150,203**
G2042	851539	Retaining Wall, Treated Timber (per SF Face), Replace	40	21	19	300	SF	$16.44	$4,932																				$4,932		**$4,932**
G2047	851420	Play Structure, Swing Set, 4 Seats, Replace	20	17	3	2	EA	$2,541.50	$5,083				$5,083																		**$5,083**
G2047	851421	Play Structure, Medium, Replace	20	16	4	1	EA	$46,006.47	$46,006					$46,006																	**$46,006**
G4021	851387	Pole Light, Exterior, 105 to 200 W LED (Fixture & Bracket Arm Only), Replace	20	3	17	3	EA	$3,798.45	$11,395																		$11,395				**$11,395**
P000X	850975	Engineer, Structural, Superstructure, Evaluate/Report	0	0	0	1	EA	$11,500.00	$11,500	$11,500																					**$11,500**
Z101X	850270	ADA, Door, Automatic Opener, Modify	0	5	0	6	EA	$1,150.00	$6,900	$6,900																					**$6,900**
Totals, Unescalated										**$1,051,947**	**$1,392,295**	**$310,925**	**$1,213,954**	**$1,529,019**	**$1,431,542**	**$543,405**	**$249,177**	**$108,861**	**$1,124,736**	**$125,537**	**$869,536**	**$145,382**	**$956,520**	**$552,369**	**$145,881**	**$159,701**	**$558,627**	**$365,401**	**$297,155**	**$130,585**	**$13,262,554**
Totals, Escalated (3.0% inflation, compounded annually)										**$1,051,947**	**$1,434,064**	**$329,861**	**$1,326,520**	**$1,720,925**	**$1,659,549**	**$648,854**	**$306,457**	**$137,902**	**$1,467,526**	**$168,711**	**$1,203,641**	**$207,280**	**$1,404,682**	**$835,507**	**$227,277**	**$256,273**	**$923,325**	**$622,071**	**$521,062**	**$235,850**	**$16,689,284**

* Markup/LocationFactor (1) has been included in unit costs. Markup includes a and 15% Ann Arbor Premium factors applied to the location adjusted unit cost.

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1. Executive Summary

1.1. Property Information and General Physical Condition

The property information is summarized in the table below. More detailed descriptions may be found in the various sections of the report and in the Appendices.

Property Information	
Address:	920 Miller Road, Ann Arbor, Washtenaw, Michigan 48103
Year Constructed/Renovated:	1921, Phase I / 1975 Phase II and Renovated 2007
Current Occupants:	Ann Arbor Public Schools
Percent Utilization:	How much estimate the approximate percentage of utilization of the total available, viable (readily usable with no, or only minor renovation) space in each facility listed.
Management Point of Contact:	Ann Arbor Public Schools/Physical Properties, Mr. Jim Vibbart 734-320-3613 phone
Property Type:	Classrooms
Site Area:	8.86 acres
Building Area:	87,535 SF
Number of Buildings:	1
Number of Stories:	3
Parking Type and Number of Spaces:	63 spaces in open lots
Building Construction:	Masonry bearing walls and concrete roof decks in the original building. Masonry bearing walls with steel joists and metal decking in the gym/pool addition. Structural steel framing with metal decking for the classroom addition.
Roof Construction:	Flat roofs with adherred EPDM membrane or ballasted EPDM membrane.
Exterior Finishes:	Brick Veneer
Heating, Ventilation & Air Conditioning:	Central system with boilers, air handlers, condensers, cooling tower feeding fan coil, hydronic baseboard radiators, steam raditors, PTAC, and terminal units. The media room is equipped with a mini-split system for cooling of the computer equipment.
Fire and Life/Safety:	Hydrants, smoke detectors, alarms, strobes, extinguishers, pull stations, alarm panel, and exit signs.
ADA :	This building does not have any major ADA issues
The building is 98,695 square feet, of which 87,535 square feet is occupied by the Ann Arbor Public Schools. The Ann Arbor Public Schools space is a combination of offices, classrooms, laboratory spaces and support spaces. The City of Ann Arbor occupies 11,160 square feet for their pool, locker rooms and support spaces. City of AnnArbor space and equipment was not included in this accessment.	
Most of the interior spaces were observed in order to gain a clear understanding of the property's overall condition. Other areas accessed included the site within the property boundaries, exterior of the property and the roof. Areas of note that were either inaccessible or not observed for other reasons are listed in the table below:	

Property Information		
Key Spaces Not Observed		
Room Number	Area	Access Issues
259	Computer Lab	Locked room and no key / Classes in session
"Social Worker"	Meeting Area	In Use
Assessment Information		
Dates of Visit:	February 5, 2018 and February 6, 2018	
On-Site Point of Contact (POC):	Jim Vibbart	
Assessment and Report Prepared by:	Randall Patzke	
Reviewed by:	Al Diefert Program Manager adiefert@emgcorp.com 800.733.0660 x6231	

1.2. Key Findings

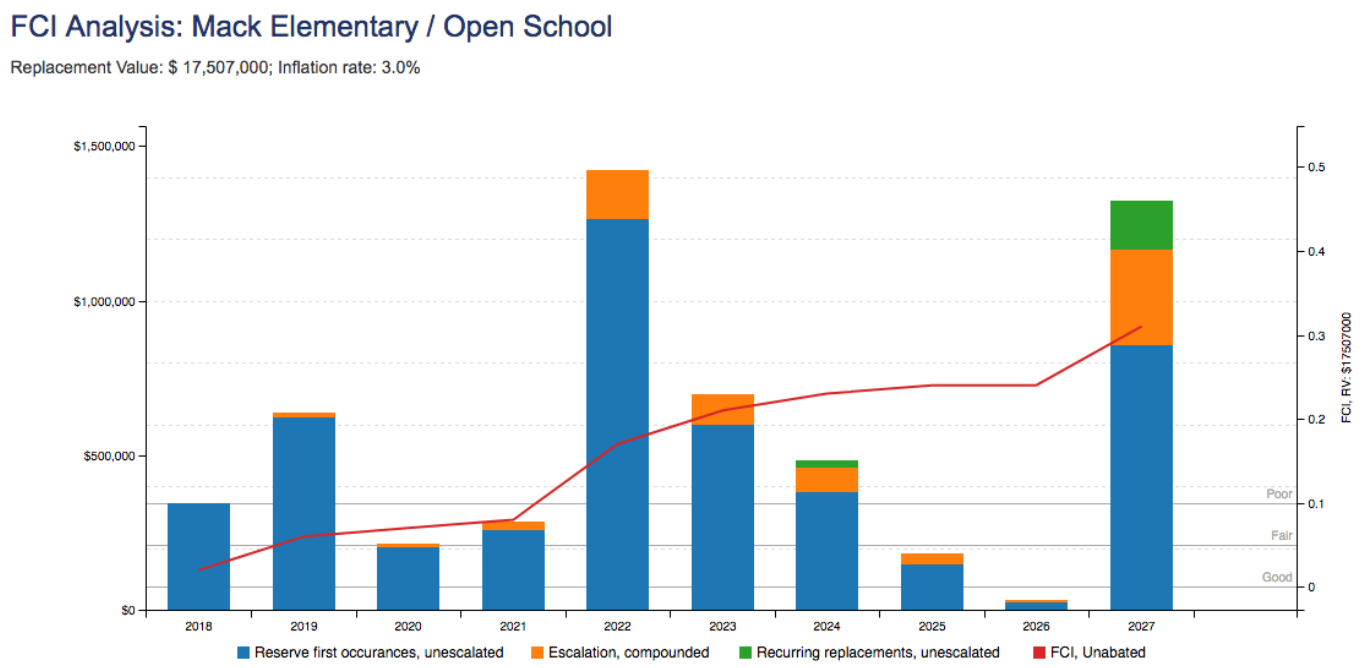
Site : The parking lot off Red Oak Drive has numerous large cracks and will require full mill and overlay include the subbase. The fences on the front of the facility have bentpoles and stretched fabric.

Architectural : The facility does have some cracks in the "T" of the poured concrete deck of the upper storage room roof. The painted decking in the office area and gym have peeling paint conditions. Floor in the old boiler room has integrity issues, moss was present in areas.

The concrete beams are in poor condition. These beams have wide deep cracks in them, they are located in the stairwell of the upper storage rooms. A professional engineer must be retained to analyze the existing condition, provide recommendations and, if necessary, estimate the scope and cost of any required repairs. The cost of this study is included in the cost tables. Due to the ambiguity of the required repair scope at the time of this assessment, the cost for any possible subsequent repairs is not included.

MEPF : The fire alarm and building automation systems are old technology and outdated. Some of the roof top mechanical equipment are approaching their end of life. The electrical switch boards in the boiler room and the old boiler room are older models. Availablity of replacement parts could become an issue.

1.3. Facility Condition Index (FCI)



One of the major goals of the FCA is to calculate the FCI, which gives an indication of a building's overall condition. Two FCI ratios are calculated and presented, the Current Year and Ten-Year. The Current Year FCI is the ratio of Immediate Repair Costs to the building's Current Replacement Value. Similarly, the Ten-Year FCI is the ratio of anticipated Capital Reserve Needs over the next ten years to the Current Replacement Value.

Fci Condition Rating	Definition	Percentage Value
Good	In new or well-maintained condition, with no visual evidence of wear, soiling or other deficiencies.	0 to .05
Fair	Subjected to wear and soiling but is still in a serviceable and functioning condition.	> than .05 to .10
Poor	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.	> than .10 to .60
Very Poor	Has reached the end of its useful or serviceable life. Renewal is now necessary.	> than .60

The graphs above and tables below represent summary-level findings for the FCA. The deficiencies identified in this assessment can be combined with potential new construction requirements to develop an overall strategy that can serve as the basis for a portfolio-wide capital improvement funding strategy. Key findings from the assessment include:

KEY FINDING	METRIC
Current Year Facility Condition Index (FCI) FCI = (IR)/(CRV):	1.98%
Current Year FCI Rating:	2018
10-Year Facility Condition Index (FCI) FCI = (RR)/(CRV):	32.15%
10-Year FCI Rating	0.31
Current Replacement Value (CRV):	$17,507,000
Year 0 (Current Year) - Immediate Repairs (IR):	$346,822
Years 1-10 - Replacement Reserves (RR):	$5,281,012
Total Capital Needs:	$5,627,834

Further detail on the specific costs that make up the Immediate Repair Costs can be found in the cost tables at the beginning of this report.

2. Building Structure

A10 Foundations

Building Foundation		
Item	Description	Condition
Foundation	Masonry foundation walls	Fair
Basement and Crawl Space	Concrete slab and masonry walls	Poor

Anticipated Lifecycle Replacements

- Replacement of the old boiler room floor

Actions/Comments:

- The foundations and footings cannot be directly observed. However, there are isolated areas of cracking, movement, it was quite noticeable in the exterior wall of the media room coming from the corner of the window. This condition typically indicates excessive settlement or other potential problems with the foundation system. There are signs of foundation movement in the CMU block wall within the gym.
- The basement exhibits evidence of water penetrating through the perimeter foundation walls and from below the floor slab. On the day of the site inspection the old boiler room floor had signs of moss growth, and crumbing concrete. The walls show different signs of moisture peneratration, both high and low on the walls.

B10 Superstructure

B1010 Floor Construction and B1020 Roof Construction		
Item	Description	Condition
Framing / Load-Bearing Walls	Masonry walls	Fair
Ground Floor	Concrete slab	Poor
Upper Floor Framing	Concrete, cast in-place	Fair
Upper Floor Decking	Concrete, cast-in-place	Fair
Balcony Framing	None	Fair
Balcony Decking	Concrete	Fair
Balcony Deck Toppings	Concrete topping	Fair
Balcony Guardrails	Concrete, cast-in-place w steel extensions	Fair
Roof Framing	Concrete beams/structural steel	Poor
Roof Decking	Concrete, cast-in-place/ steel	Fair

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Caulk minor cracking	☐	Monitor cracking for growth	☐

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- No components of significance

Actions/Comments:

- The superstructure is exposed in some locations, which allows for limited observation. There is isolated evidence of cracking of the "T" casted with the roof decking. These cracks are visible in the stairwell to the upper floor storage area. A Professional Engineer with specific expertise in structural design and construction in this geographical area must be retained to evaluate the structure and to provide remedial recommendations consistent with local regulatory and code requirements.

B1080 Stairs					
Type	Description	Riser	Handrail	Balusters	Condition
Building Exterior Stairs	Concrete stairs	Closed	Metal	None	Good
Building Interior Stairs	Concrete stairs	Closed	Wood	None	Fair

Anticipated Lifecycle Replacements:

- No components of significance

Actions/Comments:

- The VCT at the intermediate landings will require replacement.
- The Terrazzo stairs have isolated areas of damaged terrazzo surfaces, stairs by teacher lounge, landing by graffiti artist work. The damaged portions of the stairs must be repaired. There are other location with small holes in the risers that need patching. The patching work could be done as routine maintenance.

3. Building Envelope

B20 Exterior Vertical Enclosures

B2010 Exterior Walls		
Type	Location	Condition
Primary Finish	Brick veneer	Good
Secondary Finish	Metal siding	Good
Accented with	Stone veneer	Fair
Soffits	Concealed	Good
Building sealants	Between dissimilar materials, at joints, around windows and doors	Fair

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Graffiti	☒	Efflorescence	☒
Repointing	☒	Other	☐

Anticipated Lifecycle Replacements:

- Metal siding
- Brick veneer
- Caulking

Actions/Comments:

- On-going periodic maintenance, including patching repairs, graffiti removal, and re-caulking, is highly recommended.
- The brick veneer has isolated areas of loose units and deteriorated mortar joints (some locations are on the back wall of the gym, on the original building facility the pool building). The damaged veneer must be repaired.

B2020 Exterior Windows				
Window Framing	Glazing	Location	Window Screen	Condition
Aluminum framed, fixed	Double glaze	Around Facility	☐	Good
Aluminum framed, operable	Double glaze	Around Facility	☒	Good

B2050 Exterior Doors		
Main Entrance Doors	Door Type	Condition
	Fully glazed, metal framed	Good
Secondary Entrance Doors	Fully glazed, metal framed	Good
Service Doors	Metal, insulated	Fair
Overhead Doors	None	--

Anticipated Lifecycle Replacements:

- Windows
- Exterior doors

Actions/Comments:

- No significant actions are identified at the present time. On-going periodic maintenance is highly recommended. Future lifecycle replacements of the components listed above will be required. Windows are recently replaced.

B30 Roof

B3010 Primary Roof			
Location	Over addditions	Finish	Single-ply membrane
Type / Geometry	Flat	Roof Age	19 Yrs
Flashing	Membrane	Warranties	Unknown
Parapet Copings	Parapet with sheet metal coping	Roof Drains	Internal drains
Fascia	None	Insulation	Rigid Board
Soffits	Concealed Soffits	Skylights	No
Attics	Truss Joists	Ventilation Source-1	N/A
Roof Condition	Fair	Ventilation Source-2	--

B3010 Secondary Roof			
Location	Original building	Finish	Rubber membrane with stone ballast
Type / Geometry	Flat	Roof Age	19 Yrs
Flashing	Membrane	Warranties	Unknown
Parapet Copings	Exposed copings	Roof Drains	Internal drains
Fascia	None	Insulation	None
Soffits	None	Skylights	No
Attics	None		
Ventilation Source-1			

B3010 Secondary Roof			
Roof Condition	Fair	Roof Location	Original Building

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Drainage components broken/missing	☐	Vegetation/fungal growth	☐
Blocked Drains	☐	Debris	☐
Other	☐	Other	☐

Degradation Issues			
Observation	Exists At Site	Observation	Exists At Site
Evidence of roof leaks	☒	Significant ponding	☐
Excessive patching or repairs	☐	Blistering or ridging	☐
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- EPDM roof membrane
- Roof flashings (included as part of overall membrane replacement)
- Parapet wall copings (included as part of overall membrane replacement)

Actions/Comments:

- The roof finishes were installed about 1999. Information regarding roof warranties or bonds was not available. The roofs are maintained by an outside contractor. The roofing report was not made available.
- There is no evidence of roof deck or insulation deterioration. The roof substrate and insulation should be inspected during any future roof repair or replacement work.
- Roof drainage appears to be adequate. Clearing and minor repair of drain system components should be performed regularly as part of the property management's routine maintenance and operations program.
- There is no evidence of moisture, water intrusion, or excessive daylight in the attics. The insulation in the attics appears to be adequate.
- The roof inspection was limited do to the snow cover during the assessment.
- During severe wind storms, roofing aggregate (ballast) may become wind-borne and may harm nearby persons or may damage surrounding properties or building or site elements of the subject property. National, regional, and local building codes vary widely in the treatment of this issue and should be consulted during any future roofing repairs or replacements.
- Roof leaks have occurred within the past year, and some of these leaks remain active. The leaks occur (in the gym near the office/storeroom door, above the main office block. There are other areas within the gym with failing paint at the deck). All active leaks must be repaired.

4. Interiors

C10 Interior Construction

C1030 Interior Doors		
Item	Type	Condition
Interior Doors	Solid core wood	Fair
Door Framing	Metal	Fair
Fire Doors	Yes	Fair
Closet Doors		--

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Improperly adjusted door closures	☐	Damaged/loose door hardware	☐
Other	☐	Other	☐

C2010 Wall Finishes; C2030 Floor Finishes; C2050 Ceiling Finishes: The following table generally describes the locations and typical conditions of the interior finishes within the facility:

Interior Finishes - MACK ELEMENTARY/OPEN SCHOOL

Location	Finish		Quantity (SF)	Condition	Action	RUL	Est. Cost
Bathroom	Wall	Ceramic Tile	3000	Fair	Replace	15	49,662
Gymnasium	Floor	Maple Sports Floor	4600	Poor	Sand & Refinish	0	20,856
Gymnasium & office area	Ceiling	Exposed/Generic	7500	Poor	Prep & Paint	0	17,025
Hallway	Floor	Terrazzo	6000	Fair	Replace	24	72,334
Office Area	Wall	Acoustical Tile (ACT) Dropped Fiberglass	2500	Poor	Replace	1	15,774
Throughout	Floor	Carpet	10000	Fair	Replace	4	72,563
Throughout	Floor	Carpet	10000	Fair	Replace	1	72,563
Throughout	Wall	Concrete/Masonry	110000	Poor	Prep & Paint	1	159,610
Throughout	Ceiling	Acoustical Tile (ACT) Dropped Fiberglass	55035	Fair	Replace	9	277,806
Throughout	Floor	Vinyl Tile (VCT)	28035	Poor	Replace	2	134,585
Throughout	Floor	Terrazzo	100	Fair	Repair	0	2,325
Toilet rooms	Floor	Epoxy Coating	800	Poor	Prep & Paint	3	6,992

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Loose carpeting/flooring	☐	Minor areas of stained ceiling tiles	☒
Minor paint touch-up	☒	Areas of damaged/missing baseboard	☒

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- Interior painting
- Carpet
- Ceramic tile
- Vinyl tile
- Interior doors

Actions/Comments:

- The interior areas were last renovated in about 2007.
- On-going periodic maintenance is highly recommended. Future lifecycle replacements of the components listed above will be required.
- The casework in the classrooms is worn and damaged in some cases. Doors not closing
- The painted ceiling above the office and in the gym is peeling.
- Floors in the toilet rooms are stained and unable to be cleaned.
- The sound proofing panels near the office are seperating from the adjancent panel and are dirty.
- The gym floor is discolored as water damage and needs to be refinished.
- The exisiting VCT and carpets are wearing and areas need to be replaced.
- The existing wall finishes are worn and, in some areas, have had grafetti on them.

5. Services (MEPF)

See the Mechanical Equipment List in the Appendices for the quantity, manufacturer's name, model number, capacity and year of manufacturer of the major mechanical equipment, if available.

D10 Conveying Systems

D1030 Vertical Conveying (Building Elevators) – Building 1			
Manufacturer	Dover	Machinery Location	Ground floor or basement adjacent to shaft
Safety Stops	Electronic	Emergency Communication Equipment	Yes
Cab Floor Finish	Vinyl-tiled	Cab Wall Finish	Plastic laminate and Stainless steel
Cab Finish Condition	Fair	Elevator Cabin Lighting	F42T8
Hydraulic Elevators	1 car at 2,500 LB each		
Overhead Traction Elevators	None		
Freight Elevators	None		
Machinery Condition	Fair	Controls Condition	Fair
Other Conveyances	None	Other Conveyance Condition	--

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Inspection certificate not available	☐	Inspection certificate expired	☐
Service call needed	☒	Minor cab finish repairs	☒
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- Elevator controls
- Hydraulic machinery
- Elevator cab finishes

Actions/Comments:

- The elevator is serviced on a routine basis. The elevator machinery and controls are the originally installed system and appear to be about 20 years old. The elevators will require continued periodic maintenance. The elevators are utilizing outdated controls and equipment. Full modernization is recommended. A budgetary cost for this work is included.
- The elevators are inspected on an annual basis by the State, and a certificate of inspection is in the elevator equipment room. The tag is current, dated November 22, 2018.
- The emergency communication equipment in the elevator cabs appears to be functional. Equipment testing is not within the scope of the work.

D20 Plumbing

D2010 Domestic Water Distribution		
Type	Description	Condition
Water Supply Piping	Copper	Good
Water Meter Location	Boiler Room	

Domestic Water Heaters or Boilers	
Components	Water Heaters
Fuel	Natural gas
Boiler or Water Heater Condition	Good
Supplementary Storage Tanks?	Yes
Adequacy of Hot Water	Adequate
Adequacy of Water Pressure	Adequate

D2020 Sanitary Drainage		
Type	Description	Condition
Waste/Sewer Piping	Cast iron	Fair
Vent Piping	Cast iron	Fair

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Hot water temperature too hot or cold	☐	Minor or isolated leaks	☐
Other	☒	Other	☐

Plumbing Systems - Mack Elementary / Open School

Location	Component	Component Description	Quantity	Condition	Action	RUL	Est. Cost
Air Handler Room	Domestic Circulator or Booster Pump	0.75 HP	1	Good	Replace	14	4,017
Boiler room	Water Heater	Tankless, 6.5 to 9.5 GPM	1	Fair	Replace	8	3,687
Boiler room	Water Storage Tank	501 to 1,000 GAL	1	Fair	Replace	4	5,216
Boiler room	Domestic Circulator or Booster Pump 1	5 to 7.5 HP	1	Fair	Replace	8	11,641
Boiler room	Domestic Circulator or Booster Pump 2	5 to 7.5 HP	1	Fair	Replace	8	11,641
Boiler room	Water Softener	10 GAL	1	Fair	Replace	3	3,535
Boiler room	Compressed Air Dryer	Compressed Air Dryer	1	Fair	Replace	9	5,077
Boiler room	Air Compressor	2 HP	1	Fair	Replace	4	8,265
Old boiler room front	Sump Pump	3 HP	1	Fair	Replace	9	2,063
Old boiler room rear	Sump Pump	3 HP	1	Fair	Replace	9	2,063
Science Class room	Emergency Eye Wash & Shower Station	Emergency Eye Wash & Shower Station	1	Fair	Replace	4	2,115
Store Room (Homeless) NW stair	Backflow Preventer	0.75"	1	Fair	Replace	6	1,010
Throughout	Toilet	Tankless (Water Closet)	31	Good	Replace	17	26,132
Throughout	Urinal	Vitreous China	4	Good	Replace	14	4,774
Throughout	Sink	Vitreous China	1	Fair	Replace	9	862
Throughout	Sink	Stainless Steel	26	Fair	Replace	4	27,405
Throughout	Drinking Fountain	Refrigerated	3	Fair	Replace	2	3,773
Throughout	Drinking Fountain	Vitreous China	4	Fair	Replace	5	7,756
Unisex bathroom by Office	Toilet	Flush Tank (Water Closet)	1	Good	Replace	16	1,055

Anticipated Lifecycle Replacements:

- Circulation pumps
- Water heater
- Toilets
- Urinals
- Sinks
- Drinking Fountains

Actions/Comments:

- The plumbing systems appear to be well maintained and functioning adequately. The water pressure appears to be sufficient. No significant repair actions or short term replacement costs are required. Routine and periodic maintenance is recommended. Future lifecycle replacements of the components or systems listed above will be required90960.

D30 Building Heating, Ventilating, and Air Conditioning (HVAC)

Building Central Heating System	
Primary Heating System Type	Steam boilers
Heating Fuel	Natural gas
Location of Major Equipment	Mechanical rooms
Space Served by System	Entire building

Building Central Cooling System	
Primary Cooling System Type	Air-cooled chillers
Refrigerant	Unknown
Cooling Towers	None
Location of Major Equipment	Rooftop
Space Served by System	Original Building

Distribution System	
HVAC Water Distribution System	Two-pipe
Air Distribution System	Constant
Location of Air Handlers	Mechanical rooms
Terminal Units	Radiators and/or cabinet units and Fan coils
Quantity and Capacity of Terminal Units	Approximately 18 fan coil units rate at 2-4 tons
Location of Terminal Units	Adjacent to windows

Packaged, Split and Individual Units	
Primary Components	Package units
Cooling (if separate from above)	performed via components above
Heating Fuel	Electric
Location of Equipment	Rooftop
Space Served by System	Classroom Addition

Supplemental/Secondary Components	
Supplemental Component #1	Ductless mini-split systems
Location / Space Served by Mini-Split	Media Room
Mini-Split Condition	Good
Supplemental Component #2	PTAC units
Location / Space Served by PTAC	Former Clinic
PTAC Condition	Fair

Controls and Ventilation	
HVAC Control System	BAS, hybrid pneumatic/electronic system
HVAC Control System Condition	Poor
Building Ventilation	Central AHU, with fresh air intake
Ventilation System Condition	Fair

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Ductwork/grills need cleaned	☒	Minor control adjustments needed	☒

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Leaking condensate lines	☐	Poor mechanical area access	☐
Other	☐	Other	☐

Degradation Issues			
Observation	Exists At Site	Observation	Exists At Site
Heating, Cooling or Ventilation is not adequate	☐	Major system inefficiencies	☐
HVAC controls pneumatic or antiquated	☒	Obsolete refrigerants : R11, R12, R22, R123, R502	☐
Damaged insulation	☒	Heating lacks control	☒

Mechanical Systems - Mack Elementary / Open School

Location	Component	Component Description	Quantity	Unit	Condition	Action	RUL	Est. Cost
Above front entry	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	9	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 3 Ton	1	EA	Fair	Replace	3	2,755
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 5 Ton	1	EA	Fair	Replace	1	4,237
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Condenser	Air-Cooled, 2 Ton	1	EA	Fair	Replace	3	2,588
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Supply Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	3	2,022
Addition Roof	Heat Pump	RTU, 3.5 to 5 Ton	1	EA	Fair	Replace	3	8,928
Air Handler Room	Air Handler	Interior, 30,001 to 40,000 CFM	1	EA	Fair	Replace	18	93,685
Boiler room	Boiler #1	Gas, 4,201 to 10,000 MBH	1	EA	Fair	Replace	13	332,867
Boiler room	Boiler #2	Gas, 4,201 to 10,000 MBH	1	EA	Fair	Replace	13	332,867
Boiler room	Expansion Tank	176 to 250 GAL	1	EA	Fair	Replace	4	4,697
Boiler room	Deaerator	Deaerator	1	EA	Fair	Replace	13	75,140
Boiler room	Boiler Blowdown System	Boiler Blowdown System	1	EA	Fair	Replace	13	5,315
Boiler room	Chemical Feed System	Chemical Feed System	1	EA	Fair	Replace	13	10,642
Boiler room	Heat Exchanger	Steam-to-Water, 41 to 75 GPM	1	EA	Fair	Replace	4	9,484
Boiler room	Air Handler	Exterior, 3,001 to 4,000 CFM	1	EA	Fair	Replace	3	19,738
Clinic	Packaged Terminal Air Conditioner (PTAC)	12,001 to 15,000 BTUH	1	EA	Fair	Replace	2	2,757
Clinic	Packaged Terminal Air Conditioner (PTAC)	12,001 to 15,000 BTUH	1	EA	Fair	Replace	2	2,757
Connector Roof	Heat Pump	RTU, 2.5 to 3 Ton	1	EA	Fair	Replace	9	5,771
Gym Hall	Fan Coil Unit	Hydronic, 801 to 1,200 CFM	3	EA	Fair	Replace	4	9,706
Gym Offices	Fan Coil Unit	Hydronic, 801 to 1,200 CFM	2	EA	Fair	Replace	3	6,471
Gym store room	Fan Coil Unit	Hydronic, 801 to 1,200 CFM	1	EA	Fair	Replace	4	2,186
Gymnasium Roof	Make-Up Air Unit	2,000 to 6,000 CFM	1	EA	Fair	Replace	9	32,063
Gymnasium Roof	Make-Up Air Unit	2,000 to 6,000 CFM	1	EA	Fair	Replace	3	32,063
Media Room	Condensing Unit/Heat Pump	Split System, 2.5 Ton	1	EA	Good	Replace	10	3,366
old boiler room	Condensate Return Station	15 GAL	1	EA	Good	Replace	23	7,733
Roof Addition	Heat Pump	RTU, 21 to 25 Ton	1	EA	Fair	Replace	3	42,490
Roof original	Chiller	Air-Cooled, 10 to 20 Ton	1	EA	Fair	Replace	14	49,324
Roof Original Bldg	Make-Up Air Unit	12,001 to 20,000 CFM	1	EA	Fair	Replace	3	61,113
Roof Original Bldg	Exhaust Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	2	2,022
Roof Original Bldg	Exhaust Fan	Centrifugal, 251 to 800 CFM	1	EA	Fair	Replace	2	2,022
Throughout	Building Automation System	HVAC Controls	88513	SF	Fair	Upgrade	4	474,651

Anticipated Lifecycle Replacements:

- Boilers
- Chiller
- Air handling units
- Distribution pumps and motors
- Fan coil units
- Package units
- Heat Exchanger
- Water Softener and boiler support equipment
- Condensate pumps
- Condensing units
- Mini-Split systems

- Electric wall heaters
- Electric unit heaters
- PTAC's
- Baseboard heaters
- Rooftop exhaust fans
- Heat Pumps
- Air Compressors
- Supply Fans

Actions/Comments:

- The HVAC systems are maintained by an outside contractor. Records of the installation, maintenance, upgrades, and replacement of the HVAC equipment at the property have not been maintained since the property was first occupied.
- The HVAC equipment varies in age. The facility has had major remodeling of the mechanical system in 2007. HVAC equipment is replaced on an "as needed" basis.
- Some of the supply fans, fan coils, condesors and exhaust fans are approaching when replacement needs to be considered in the next few years.
- The HVAC equipment appears to be functioning adequately overall.
- The facility HVAC is controlled using an outdated pneumatic system supplied by an air compressor. For modernization, reliability, and increased control, full conversion to a web-based direct digital control (DDC) platform is highly recommended.

D40 Fire Protection

Item	Description					
Type	Wet pipe					
Sprinkler System	None	☒	Standpipes	☐	Backflow Preventer	☐
	Hose Cabinets	☐	Fire Pumps	☐	Siamese Connections	☐
Sprinkler System Condition	Only 1 sprinkler head was found in a store room. Backflow preventor is installed on the water line.					
Fire Extinguishers	Last Service Date		Servicing Current?			
	August 2017		Yes			
Hydrant Location	Rear parking lot drive					
Siamese Location	None					
Special Systems	Kitchen Suppression System	☐	Computer Room Suppression System	☐		

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Extinguisher tag expired	☒	Riser tag expired (5 year)	☐
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- No components of significance

Actions/Comments:

- The vast majority of the building is not protected by fire suppression; sprinkler heads are currently limited to one store room. Due to its construction date, the facility is most likely "grandfathered" by code and the installation of fire sprinklers not required until major renovations are performed. Regardless of when or if installation of facility-wide fire suppression is required by the governing municipality, EMG recommends a retrofit be performed.

D50 Electrical

Distribution and Lighting			
Electrical Lines	Underground	Transformer	Pad-mounted
Main Service Size	2500 Amps	Volts	120/208 Volt, three-phase
Meter & Panel Location	Boiler Room	Branch Wiring	Copper
Conduit	Metallic	Step-Down Transformers?	No
Security / Surveillance System?	Yes	Building Intercom System?	Yes
Lighting Fixtures	T-8, T-5 in gym		
Main Distribution Condition	Fair		
Secondary Panel and Transformer Condition	Good		
Lighting Condition	Good		

Building Emergency Systems			
Size	None	Fuel	--
Generator / UPS Serves	--	Tank Location	--
Testing Frequency	--	Tank Type	--
Generator / UPS Condition	--		

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Improperly stored material	☐	Unsecured high voltage area	☐
Loose cables or impoper use of conduit	☐	Poor electrical room ventilation	☐
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- Circuit breaker panels
- Main switchgear
- Switchboards
- Interior light fixtures

Actions/Comments:

- The onsite electrical systems up to the meter are owned and maintained by the respective utility company.
- The electrical service and capacity appear to be adequate for the property's demands.
- The panels and switchboards are mostly original 1970's components. The electrical service appears to be adequate for the facility's needs. However, due to the age of the panels and switchboards and increasing difficulty of obtaining replacement parts over time, lifecycle replacements are recommended per above.
- The main electrical service and some of the higher capacity distribution circuits are likely installed with aluminum wiring. These services should be inspected on a biennial basis by performing an infrared inspection and by performing any necessary repairs such as tightening connections that may become loose. These inspections and typical repairs are considered part of the operations program.

D60 Communications

D6060 Public Address Systems						
Item	Description					
Communication Equipment	Public Address System	☒	Nurse Call System	☐	Clock	☐

D70 Electronic Safety and Security

D7010 Access Control and Intrusion Detection / D7050 Detection and Alarm						
Item	Description					
Access Control and Intrusion Detection	Exterior Camera	☐	Interior Camera	☐	Front Door Camera Only	☐
	Cameras monitored	☐	Security Personnel On-Site	☐	Intercom/Door Buzzer	☒
Fire Alarm System	Central Alarm Panel	☒	Battery-Operated Smoke Detectors	☐	Alarm Horns	☒
	Annunciator Panels	☐	Hard-Wired Smoke Detectors	☒	Strobe Light Alarms	☒
	Pull Stations	☒	Emergency Battery-Pack Lighting	☐	Illuminated EXIT Signs	☒
Fire Alarm System Condition	Poor					
Central Alarm Panel System	Location of Alarm Panel		Installation Date of Alarm Panel			
	Teacher's lounge		Approx. 2000			

Anticipated Lifecycle Replacements:

- No components of significance

Actions/Comments:

- The fire alarm systems appear somewhat antiquated and not up to current standards. Due to the age of the components and apparent shortcomings, a full modernization project is recommended. A budgetary cost is included.

6. Equipment & Furnishings

E10 Equipment

The cafeteria area has limited commercial kitchen appliances, fixtures, and equipment, since they only maintain temperature and serve meals. The equipment is owned and maintained in-house.

The cafeteria kitchen includes the following major appliances, fixtures, and equipment:

E1030 Commercial Kitchen Equipment		
Appliance	Comment	Condition
Refrigerators	Up-right	Good
Freezers	☐	--
Ranges	☐	--
Ovens	Electric	Good
Griddles / Grills	☐	--
Fryers	☐	--
Hood	☐	--
Dishwasher	☐	--
Microwave	☒	Fair
Ice Machines	☐	--
Steam Tables	☒	Good
Work Tables	☒	--
Shelving	☒	Good

E1030 Commercial Laundry		
Equipment	Comment	Condition
Commercial Washing Machines	☐	--
Commercial Dryers	☐	--
Residential Washers	☐	--
Residential Dryers	☐	--

Anticipated Lifecycle Replacements:

- Milk Cooler
- Double Door Refrigerator
- Convection warming oven
- Steam Table

- Roll-up Doors

Actions/Comments:

- No significant actions are identified at the present time. On-going periodic maintenance is highly recommended.

7. Sitework

G20 Site Improvements

G2020 Parking Lots and G2030 Pedestrian Walkways		
Item	Material	Condition
Entrance Driveway Apron	Asphalt	Fair
Parking Lot	Asphalt	Fair
Drive Aisles	Asphalt	Poor
Service Aisles	Asphalt	Fair
Sidewalks	Concrete	Good
Curbs	Concrete	Fair
Pedestrian Ramps	None	--
Ground Floor Patio or Terrace	Concrete	Fair

Parking Count				
Open Lot	Carport	Private Garage	Subterranean Garage	Freestanding Parking Structure
63	-	-	-	-
Total Number of ADA Compliant Spaces			2	
Number of ADA Compliant Spaces for Vans			1	
Total Parking Spaces			63	

Site Stairs			
Location	Material	Handrails	Condition
Southwest side	Concrete stairs	Metal	Good
Northwest side	Concrete stairs	Metal	Good
South side	Concrete stairs	Metal	Good

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Pavement oil stains	☐	Vegetation growth in joints	☐
Stair/ramp rails loose	☐	Stair/ramp rail needs scraped and painted	☐

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Other	☐	Other	☐

Degradation Issues			
Observation	Exists At Site	Observation	Exists At Site
Potholes/depressions	☒	Alligator cracking	☐
Concrete spalling	☐	Trip hazards (settlement/heaving)	☒
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- Asphalt seal coating
- Asphalt pavement
- Sidewalks
- Playground, basketball court and tennis court

Actions/Comments:

- The asphalt pavement exhibits significant areas of failure and deterioration, such as alligator cracking, transverse cracking, extensive raveling, heavy overall surface wear, and localized depressions (East side of main entry parking lot). The damaged areas of has been repaired in the past and appears to be at the point that full depth mailing are repair to the base will be required for at least the drive lanes.
- The concrete sidewalks has isolated areas of vertically-displaced concrete due to settlement. The is causing water to pond. These areas occur outside the Red Oak Playground school entrance. The damaged areas of concrete sidewalks require replacement.

G2060 Site Development	
Property Signage	
Property Signage	Monument
Street Address Displayed?	Yes

Site Fencing		
Type	Location	Condition
Chain link with metal posts	Red Oak Street Side	Poor
Chain link with metal posts	Site Perimeter	Fair

Refuse Disposal	
Refuse Disposal	Common area dumpsters

Refuse Disposal				
Dumpster Locations	Mounting	Enclosure	Contracted?	Condition
North side	Concrete pad	Chain link fence	Yes	Good

Other Site Amenities			
	Description	Location	Condition
Playground Equipment	Plastic and metal	Around facility	Fair
Tennis Courts	Asphalt	South side	--
Basketball Court	Asphalt	Northwest side	--
Swimming Pool	None	--	--

The tennis courts and basketball courts are partially surrounded by a chain link fence.

Anticipated Lifecycle Replacements:

- Signage
- Site fencing
- Playground equipment
- Playground surfaces
- Tennis court seal coating

Actions/Comments:

- The fences . on the Red Oak street side of the site, have significant areas of damage horizontal top bars and stretched fabric.
- Some of the playground equipment is weathered, and will require replacement to mitigate potential injuries.

G2080 Landscaping		
Drainage System and Erosion Control		
System	Exists At Site	Condition
Surface Flow	☒	Fair
Inlets	☒	Fair
Swales	☐	--
Detention pond	☐	--
Lagoons	☐	--
Ponds	☐	--
Underground Piping	☒	Fair
Pits	☐	--
Municipal System	☒	Fair
Dry Well	☐	--

Anticipated Lifecycle Replacements:

- No components of significance

Actions/Comments:

- There is no evidence of storm water runoff from adjacent properties. The storm water system appears to provide adequate runoff capacity. There is no evidence of major ponding or erosion.

Item	Description						
Site Topography	Slopes gently down from the northeast side of the property to the southwest property line.						
Landscaping	Trees	Grass	Flower Beds	Planters	Drought Tolerant Plants	Decorative Stone	None
	☒	☒	☐	☐	☐	☐	☐
Landscaping Condition	--						
Irrigation	Automatic Underground	Drip	Hand Watering	None			
	☐	☐	☐	☒			
Irrigation Condition	--						

Retaining Walls		
Type	Location	Condition
Timber	East parking lot	Good
Timber	North corner	Good
Brick	Southeast side	Fair

Anticipated Lifecycle Replacements:

- Landscaping materials
- Timber retaining walls

Actions/Comments:

- The topography and adjacent uses do not appear to present conditions detrimental to the property.
- Because of snow cover during assessment some site conditions are hidden.

G30 Liquid & Gas Site Utilities

G3060 Site Fuel Distribution	
Item	Description
Natural Gas	Gas service is supplied from the gas main on the adjacent public street. The gas meter and regulator are located along the exterior wall of the building. The gas distribution piping within the building is malleable steel (black iron).

Anticipated Lifecycle Replacements:

- No components of significance

Actions/Comments:

- The pressure and quantity of gas appear to be adequate.

- The gas meter and regulator appear to be functioning adequately and will require routine maintenance.
- Only limited observation of the gas distribution piping can be made due to hidden conditions.
- Portions of the gas piping are corroded and need to be scraped and painted to prevent degradation of the piping system. The cost to address the gas piping is relatively insignificant and the work can be performed as part of the property management's operations program.

G40 Electrical Site Improvements

G4050 Site Lighting					
Site Lighting	None	Pole Mounted	Bollard Lights	Ground Mounted	Parking Lot Pole Type
	☐	☐	☐	☐	☒
	Good				
Building Lighting	None		Wall Mounted		Recessed Soffit
	☐		☒		☒
	Good				

Maintenance Issues			
Observation	Exists At Site	Observation	Exists At Site
Isolated bulb/lamp replacement	☒	Discolored/dirty lens cover	☐
Other	☐	Other	☐

Anticipated Lifecycle Replacements:

- Exterior lighting

Actions/Comments:

- No significant actions are identified at the present time. On-going periodic maintenance is highly recommended.

8. Ancillary Structures

Not applicable. There are no major accessory structures.

9. Opinions of Probable Costs

Cost estimates are attached at the front of this report (following the cover page).

These estimates are based on Invoice or Bid Document/s provided either by the Owner/facility and construction costs developed by construction resources such as *R.S. Means* and *Marshall & Swift,* EMG's experience with past costs for similar properties, city cost indexes, and assumptions regarding future economic conditions.

Opinions of probable costs should only be construed as preliminary, order of magnitude budgets. Actual costs most probably will vary from the consultant's opinions of probable costs depending on such matters as type and design of suggested remedy, quality of materials and installation, manufacturer and type of equipment or system selected, field conditions, whether a physical deficiency is repaired or replaced in whole, phasing of the work (if applicable), quality of contractor, quality of project management exercised, market conditions, and whether competitive pricing is solicited, etc. ASTM E2018-08 recognizes that certain opinions of probable costs cannot be developed within the scope of this guide without further study. Opinions of probable cost for further study should be included in the FCA.

9.1 Methodology

Based upon site observations, research, and judgment, along with referencing Expected Useful Life (EUL) tables from various industry sources, EMG opines as to when a system or component will most probably necessitate replacement. Accurate historical replacement records, if provided, are typically the best source of information. Exposure to the elements, initial quality and installation, extent of use, the quality and amount of preventive maintenance exercised, etc., are all factors that impact the effective age of a system or component. As a result, a system or component may have an effective age that is greater or less than its actual chronological age. The Remaining Useful Life (RUL) of a component or system equals the EUL less its effective age. Projections of Remaining Useful Life (RUL) are based on continued use of the Property similar to the reported past use. Significant changes in occupants and/or usage may affect the service life of some systems or components.

Where quantities could not be derived from an actual take-off, lump sum costs or allowances are used. Estimated costs are based on professional judgment and the probable or actual extent of the observed defect, inclusive of the cost to design, procure, construct and manage the corrections.

9.2 Immediate Repairs

Immediate repairs are opinions of probable costs that require immediate action as a result of: (1) material existing or potential unsafe conditions, (2) material building or fire code violations, or (3) conditions that, if not addressed, have the potential to result in, or contribute to, critical element or system failure within one year or will most probably result in a significant escalation of its remedial cost.

9.3 Replacement Reserves

Replacement Reserves are for recurring probable expenditures, which are not classified as operation or maintenance expenses. The replacement reserves should be budgeted for in advance on an annual basis. Replacement Reserves are reasonably predictable both in terms of frequency and cost. However, Replacement Reserves may also include components or systems that have an indeterminable life but, nonetheless, have a potential for failure within an estimated time period.

Replacement Reserves exclude systems or components that are estimated to expire after the reserve term and are not considered material to the structural and mechanical integrity of the subject property. Furthermore, systems and components that are not deemed to have a material effect on the use of the Property are also excluded. Costs that are caused by acts of God, accidents, or other occurrences that are typically covered by insurance, rather than reserved for, are also excluded.

Replacement costs are solicited from ownership/property management, EMG's discussions with service companies, manufacturers' representatives, and previous experience in preparing such schedules for other similar facilities. Costs for work performed by the ownership's or property management's maintenance staff are also considered.

EMG's reserve methodology involves identification and quantification of those systems or components requiring capital reserve funds within the assessment period. The assessment period is defined as the effective age plus the reserve term. Additional information concerning system's or component's respective replacement costs (in today's dollars), typical expected useful lives, and remaining useful lives were estimated so that a funding schedule could be prepared. The Replacement Reserves Schedule presupposes that all required remedial work has been performed or that monies for remediation have been budgeted for items defined in the Immediate Repair Cost Estimate

10. Purpose and Scope

10.1. Purpose

EMG was retained by the client to render an opinion as to the Property's current general physical condition on the day of the site visit.

Based on the observations, interviews and document review outlined below, this report identifies significant deferred maintenance issues, existing deficiencies, and material code violations of record at municipal offices, which affect the Property's use. Opinions are rendered as to its structural integrity, building system condition and the Property's overall condition. The report also notes building systems or components that have realized or exceeded their typical expected useful lives.

CONDITIONS:

The physical condition of building systems and related components are typically defined as being in one of five conditions: Excellent, Good, Fair, Poor, Failed or a combination thereof. For the purposes of this report, the following definitions are used:

Excellent	=	New or very close to new; component or system typically has been installed within the past year, sound and performing its function. Eventual repair or replacement will be required when the component or system either reaches the end of its useful life or fails in service.
Good	=	Satisfactory as-is. Component or system is sound and performing its function, typically within the first third of its lifecycle. However, it may show minor signs of normal wear and tear. Repair or replacement will be required when the component or system either reaches the end of its useful life or fails in service.
Fair	=	Showing signs of wear and use but still satisfactory as-is, typically near the median of its estimated useful life. Component or system is performing adequately at this time but may exhibit some signs of wear, deferred maintenance, or evidence of previous repairs. Repair or replacement will be required due to the component or system's condition and/or its estimated remaining useful life.
Poor	=	Component or system is significantly aged, flawed, functioning intermittently or unreliably; displays obvious signs of deferred maintenance; shows evidence of previous repair or workmanship not in compliance with commonly accepted standards; has become obsolete; or exhibits an inherent deficiency. The present condition could contribute to or cause the deterioration of contiguous elements or systems. Either full component replacement is needed or repairs are required to restore to good condition, prevent premature failure, and/or prolong useful life.
Failed	=	Component or system has ceased functioning or performing as intended. Replacement, repair, or other significant corrective action is recommended or required.
Not Applicable	=	Assigning a condition does not apply or make logical sense, most commonly due to the item in question not being present.

FORMAT OF THE BODY OF THE REPORT:

Throughout sections 5 through 9 of this report, each report section will typically contain three subsections organized in the following sequence:

- A descriptive table (and/or narrative), which identifies the components assessed, their condition, and other key data points.
- A simple bulleted list of Anticipated Lifecycle Replacements, which lists components and assets typically in Excellent, Good, or Fair condition at the time of the assessment but that will require replacement or some other attention once aged past their estimated useful life. These listed components are typically included in the associated inventory database with costs identified and budgeted beyond the first several years.
- A bulleted cluster of Actions/Comments, which include more detailed narratives describing deficiencies, recommended repairs, and short term replacements. The assets and components associated with these bullets are/were typically problematic and in Poor or Failed condition at the time of the assessment, with corresponding costs included within the first few years.

PLAN TYPES:

Each line item in the cost database is assigned a Plan Type, which is the primary reason or rationale for the recommended replacement, repair, or other corrective action. This is the "why" part of the equation. A cost or line item may commonly have more than one applicable Plan Type; however, only one Plan Type will be assigned based on the "best" fit, typically the one with the greatest significance. The following Plan Types are listed in general weighted order of importance:

Safety	=	An observed or reported unsafe condition that if left unaddressed could result in an injury; a system or component that presents a potential liability risk.
Performance/Integrity	=	Component or system has failed, is almost failing, performs unreliably, does not perform as intended, and/or poses a risk to overall system stability.
Accessibility	=	Does not meet ADA, UFAS, and/or other handicap accessibility requirements.
Environmental	=	Improvements to air or water quality, including removal of hazardous materials from the building or site.
Modernization/Adaptation	=	Conditions, systems, or spaces that need to be upgraded in appearance or function to meet current standards, facility usage, or client/occupant needs.
Lifecycle/Renewal	=	Any component or system in which future repair or replacement is anticipated beyond the next several years and/or is of minimal substantial early-term consequence.

10.2. Scope

The standard scope of the Facility Condition Assessment includes the following:

- Visit the Property to evaluate the general condition of the building and site improvements, review available construction documents in order to familiarize ourselves with, and be able to comment on, the in-place construction systems, life safety, mechanical, electrical, and plumbing systems, and the general built environment.
- Identify those components that are exhibiting deferred maintenance issues and provide cost estimates for Immediate Costs and Replacement Reserves based on observed conditions, maintenance history and industry standard useful life estimates. This will include the review of documented capital improvements completed within the last five-year period and work currently contracted for, if applicable.
- Provide a full description of the Property with descriptions of in-place systems and commentary on observed conditions.
- Provide a general statement of the subject Property's compliance to Title III of the Americans with Disabilities Act. This will not constitute a full ADA survey, but will help identify exposure to issues and the need for further review.
- Perform a limited assessment of accessible areas of the building(s) for the presence of fungal growth, conditions conducive to fungal growth, and/or evidence of moisture. EMG will also interview Project personnel regarding the presence of any known or suspected fungal growth, elevated relative humidity, water intrusion, or mildew-like odors. Potentially affected areas will be photographed. Sampling will not be considered in routine assessments.
- List the current utility service providers.
- Review maintenance records and procedures with the in-place maintenance personnel.
- Observe a representative sample of the interior spaces/units, including vacant spaces/units, in order to gain a clear understanding of the property's overall condition. Other areas to be observed include the exterior of the property, the roofs, interior common areas, and the significant mechanical, electrical and elevator equipment rooms.
- Determination of the current flood plain zone.
- Provide recommendations for additional studies, if required, with related budgetary information.
- Provide an Executive Summary at the beginning of this report.
- Prepare a mechanical inventory list.

11. Accessibility and Property Research

11.1. ADA Accessibility

Generally, Title III of the Americans with Disabilities Act (ADA) prohibits discrimination by entities to access and use of “areas of public accommodations” and “commercial facilities” on the basis of disability. Regardless of its age, these areas and facilities must be maintained and operated to comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Buildings completed and occupied after January 26, 1992 are required to comply fully with the ADAAG. Existing facilities constructed prior to this date are held to the lesser standard of compliance to the extent allowed by structural feasibility and the financial resources available. As an alternative, a reasonable accommodation pertaining to the deficiency must be made.

During the FCA, a limited visual observation for ADA accessibility compliance was conducted. The scope of the visual observation was limited to those areas set forth in *EMG’s Abbreviated Accessibility Checklist* provided in Appendix D of this report. It is understood by the Client that the limited observations described herein does not comprise a full ADA Compliance Survey, and that such a survey is beyond the scope of EMG’s undertaking. Only a representative sample of areas was observed and, other than as shown on the Abbreviated Accessibility Checklist, actual measurements were not taken to verify compliance.

The facility generally appears to be accessible as stated within the defined priorities of Title III of the Americans with Disabilities Act.

A full ADA Compliance Survey may reveal aspects of the property that are not in compliance.

Corrections of these conditions should be addressed from a liability standpoint, but are not necessarily code violations. The Americans with Disabilities Act Accessibility Guidelines concern civil rights issues as they pertain to the disabled and are not a construction code, although many local jurisdictions have adopted the Guidelines as such.

11.2. Flood Zone and Seismic Zone

According to the Flood Insurance Rate Map, published by the Federal Emergency Management Agency (FEMA) and dated April 3, 2012, the property is located in:Zone X, defined as an area outside the 500-year flood plain with less than 0.2% annual probability of flooding. Annual Probability of Flooding of Less than one percent.

According to the 1997 Uniform Building Code Seismic Zone Map of the United States, the property is located in Seismic Zone 1, defined as an area of low probability of damaging ground motion.

12. Certification

Ann Arbor Public Schools retained EMG to perform this Facility Condition Assessment in connection with its continued operation of Mack Elementary / Open School, 920 Miller Road, Ann Arbor, Michigan, the "Property". It is our understanding that the primary interest of Ann Arbor Public Schools is to locate and evaluate materials and building system defects that might significantly affect the value of the property and to determine if the present Property has conditions that will have a significant impact on its continued operations.

The conclusions and recommendations presented in this report are based on the brief review of the plans and records made available to our Project Manager during the site visit, interviews of available property management personnel and maintenance contractors familiar with the Property, appropriate inquiry of municipal authorities, our Project Manager's walk-through observations during the site visit, and our experience with similar properties.

No testing, exploratory probing, dismantling or operating of equipment or in depth studies were performed unless specifically required under Section 2 of this report. This assessment did not include engineering calculations to determine the adequacy of the Property's original design or existing systems. Although walk-through observations were performed, not all areas were observed (See Section 4.2 for areas observed). There may be defects in the Property, which were in areas not observed or readily accessible, may not have been visible, or were not disclosed by management personnel when questioned. The report describes property conditions at the time that the observations and research were conducted.

This report has been prepared on behalf of and exclusively for the use of Ann Arbor Public Schools for the purpose stated within Section 10.1 of this report. The report, or any excerpt thereof, shall not be used by any party other than Ann Arbor Public Schools or for any other purpose than that specifically stated in our agreement or within Section 10.1 of this report without the express written consent of EMG.

Any reuse or distribution of this report without such consent shall be at Ann Arbor Public Schools and the recipient's sole risk, without liability to EMG.

Prepared by: Randall Patzke,
Project Manager

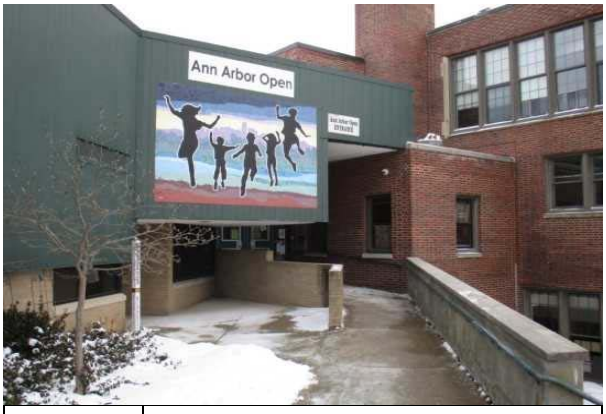
Reviewed by:

Al Diefert
Technical Report Reviewer
For
Andrew Hupp
Program Manager

13. Appendices

Appendix A: Photographic Record
Appendix B: Site and Floor Plans
Appendix C: Supporting Documentation
Appendix D: Pre-Survey Questionnaire

Appendix A:
Photographic Record



#1:	MAIN ENTRY

#2:	WEST ELEVATION

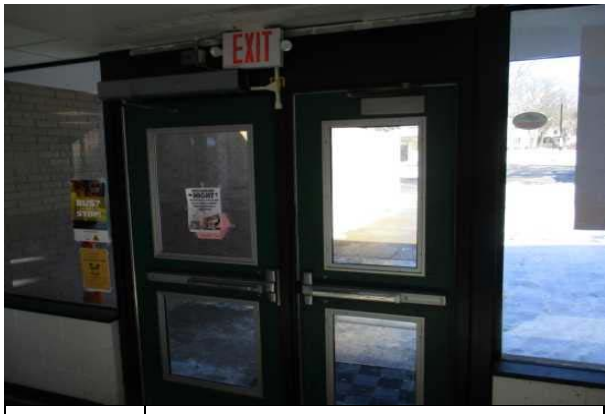
#3:	EAST ELEVATION

#4:	OLD BOILER ROOM FLOOR, CRUMBLING AND MOISTURE

#5:	OLD BOILER ROOM FLOOR, CRUMBLING

#6:	CRACKED ROOF SUPPORT

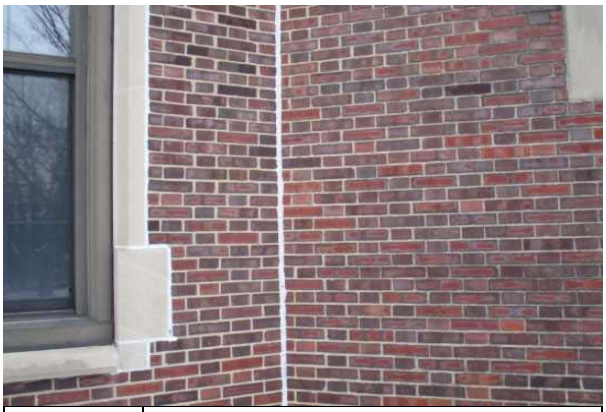
#7:	CRACKED ROOF SUPPORT



#8:	EXTERIOR DOORS WITH POWER OPENER

#9:	WINDOWS, CASEWORK AND VCT IN CLASSROOM

#10:	ALUMINUM FACED INSULATED PANEL SYSTEM



#11:	WINDOW AND EXPANSION JOINT CAULKING

#12:	EXTERIOR DOOR ROOF ACCESS

#13:	WINDOWS AND PLAYGROUND EQUIPMENT

#14:	RE-POINTING OF WALL

#15:	EXTERIOR DOOR AND INTERIOR DOOR

#16:	ROOF BALLASTED SECTION

#17:	ROOF, BALLASTED WITH EXHAUST FAN

#18:	FIRE RATED INTERIOR DOORS

#19:	SOUND DAMPENING SURFACE TREATMENT

#20:	STAINED EPOXY FLOORING

#21:	TERRAZZO FLOORING

#22:	TERRAZZO DAMAGE AND AREA TO BE IN FILLED

#23:	MISSING TERRAZZO BASE

#24:	DAMAGED TERRAZZO

#25:	ADA RESTROOM WITH CERAMIC FLOOR TILE

#26:	PAINTED CEILING WITH PEELING PAINT AND SOUND DAMPENING PANELS

#27:	GYM CEILING WITH PEELING PAINT

#28:	STAGE CURTAIN

#29:	CARPETED AREA

#30:	WATER DAMAGED AREA OF GYM FLOOR

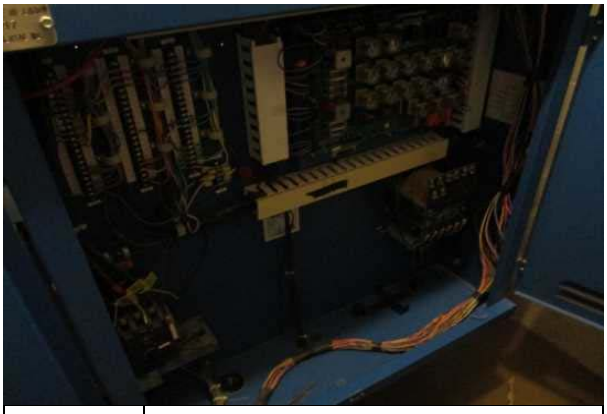
#31:	FIRE DOOR TAG

#32:	STAINLESS SINK WITH KITCHEN CABINETS

#33:	CRACKED VINYL TILE (VCT)

#34:	CEILING TILES AND HEATER

#35:	DAMAGED WALL



#36:	ELEVATOR RELAY CONTROLS

#37:	ELEVATOR INSPECTION TAG

#38:	HOT WATER STORAGE TANK

#39:	TANKLESS WATER HEATER

#40:	CHINA SINKS WITH WRAPPED PIPES

#41:	URINAL

#42:	EPOXY RESIN SINKS

#43:	TANKLESS TOILET

#44:	DRINKING FOUNTAIN

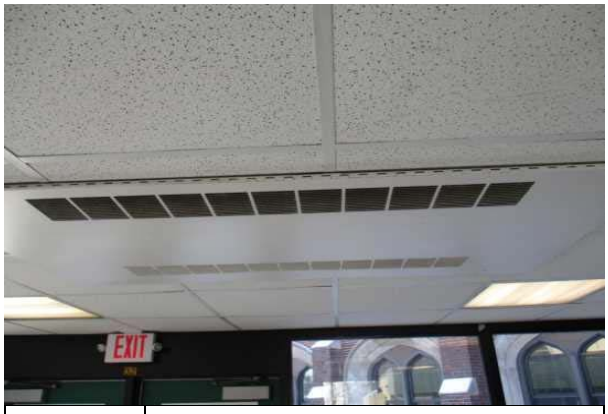
#45:	BUILDING AUTOMATION SYSTEM

#46:	BUILDING AUTOMATION SYSTEM

#47:	MAKE-UP AIR UNIT

#48:	RTU

#49:	HEAT EXCHANGER AND BOOSTER PUMPS



#50:	FAN COIL UNIT, HYDRONIC

#51:	CONDENSER, AIR-COOLED

#52:	BOILER

#53:	MAKE-UP AIR UNIT

#54:	MAKE-UP AIR UNIT

#55:	DEAERATOR

#56:	COOLING TOWER

#57:	SUPPLY FAN FOR CLASSROOM

#58:	SPRINKLER HEAD AND BACKFLOW PREVENTER

#59:	BUILDING MAIN PANEL

#60:	DISTRIBUTION PANEL

#61:	SUB-PANEL SWITCHGEAR

#62:	FIRE SHUTTER

#63:	CONVECTION OVEN DOUBLE DOOR

#64:	RETAINING WALL AND FENCING

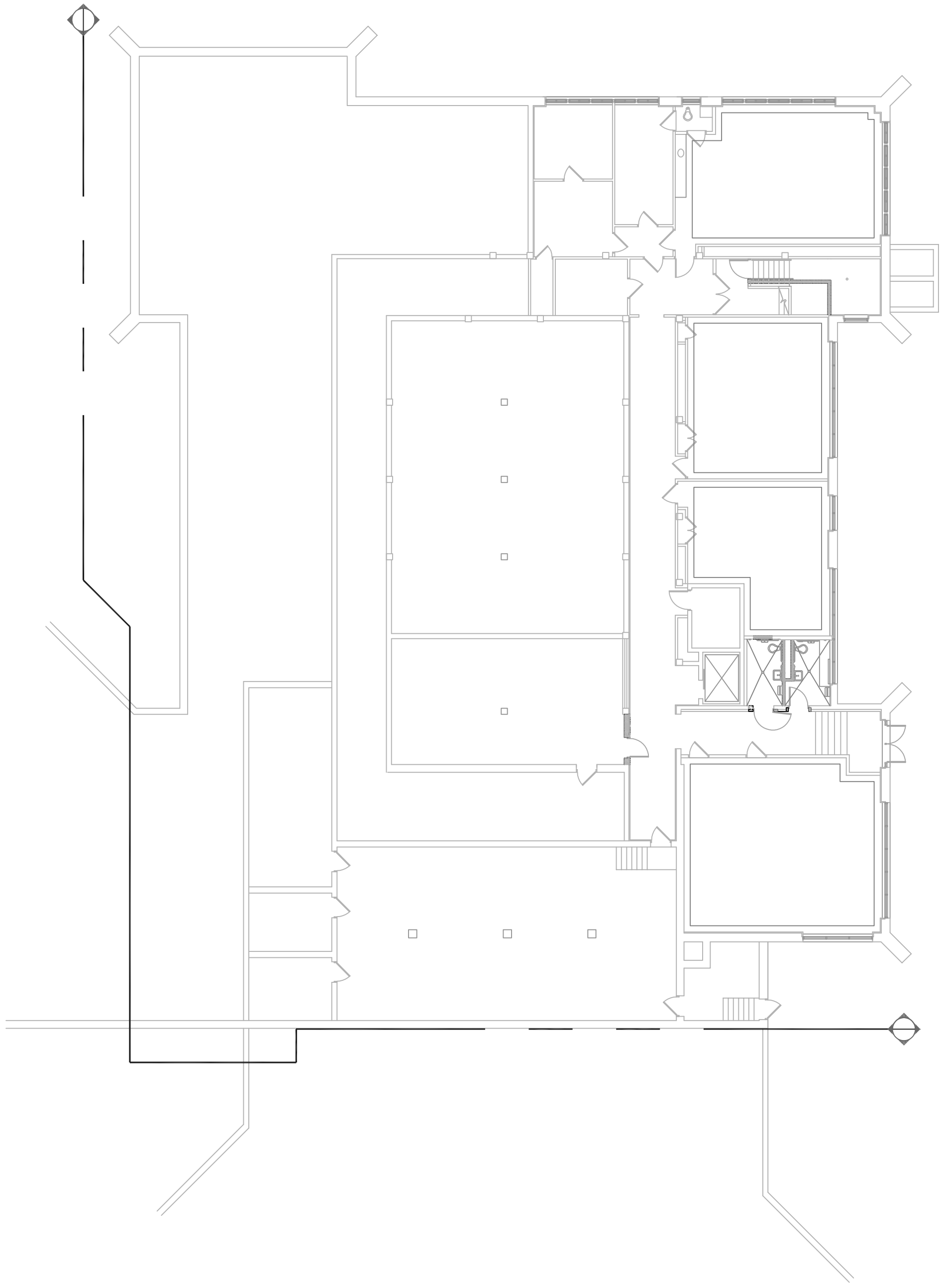
#65:	PLAYGROUND EQUIPMENT

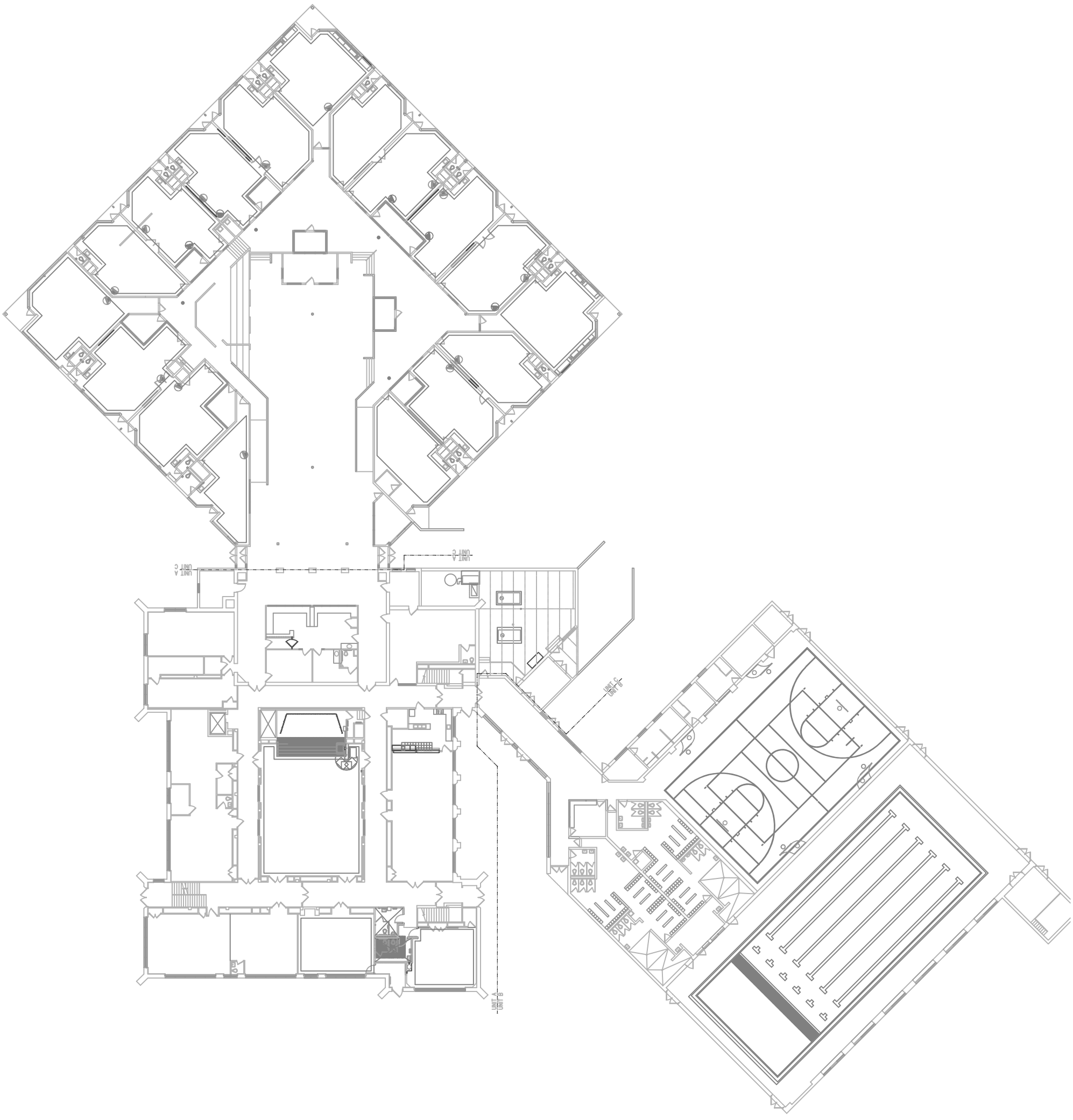
#66:	PLAYGROUND EQUIPMENT

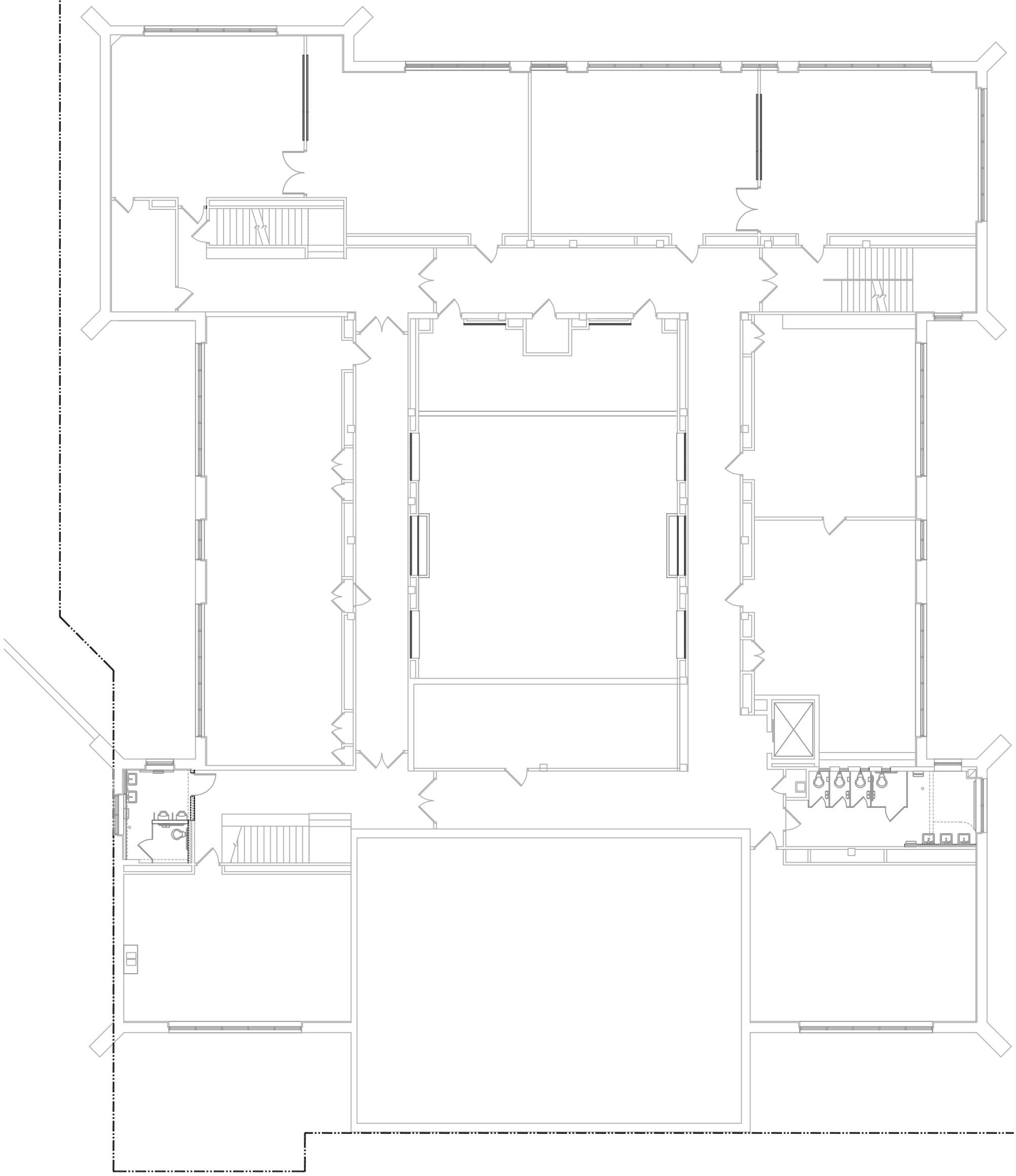
Appendix B:
Site and Floor Plans

Site Plan

emg	**Project Name:** Mack Elementary / Open School	**Project Number:** 129010.18R000-018.354
	Source: Google Earth Pro	**On-Site Date:** February 5, 2018

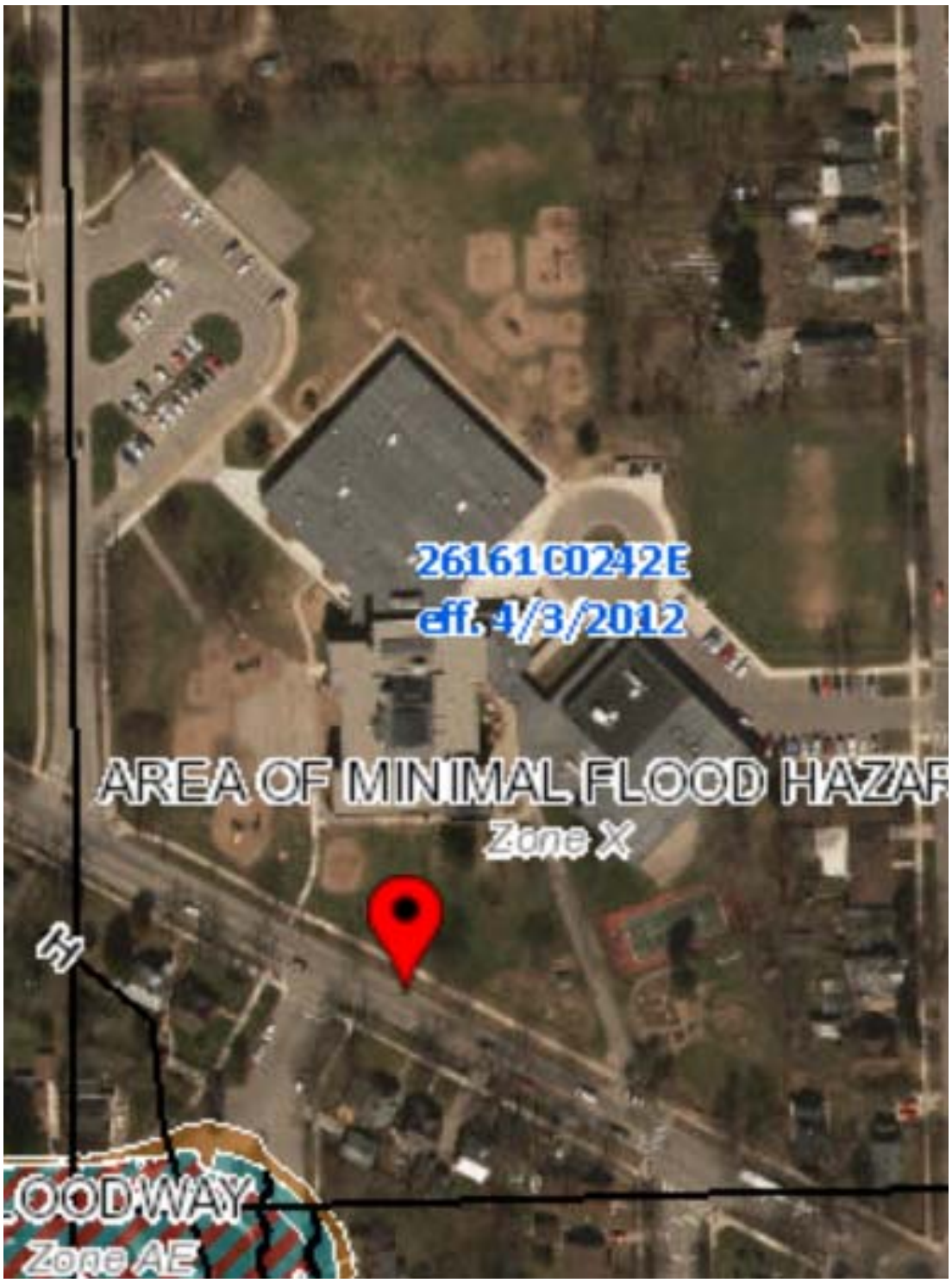



UNIT C
UNIT A
UNIT C
UNIT B
UNIT A
UNIT B



Appendix C:
Supporting Documentation

Flood Map



emg	**Project Name:** Mack Elementary / Open School	**Project Number:** 129010.18R000-018.354
	Source: FEMA Map Number: 26161CO242E Dated: March 3, 2012	**On-Site Date:** February 5, 2018

Appendix D:
Pre-Survey Questionnaire

PRE-SURVEY QUESTIONNAIRE	
Name of Person Completing Questionnaire:	N/A - Not returned to EMG
Association with Property:	
Length of Assocation with Property:	
Date Completed:	
Phone Number:	
Property Name:	
EMG Project Number:	

	Inspections	Date Last Inspected	List any Outstanding Repairs Required
1	Elevators		
2	HVAC, Mechanical, Electric, Plumbing		
3	Life-Safety/Fire		
4	Roofs		

	Question	Response
5	List any major capital improvement within the last three years.	
6	List any major capital expenditures planned for the next year.	
7	What is the age of the roof(s)?	
8	What building systems (HVAC, roof, interior/exterior finishes, paving, etc.) are the responsibilities of the tenant to maintain and replace?	

	Question	Yes	No	Unk	N/A	Comments
9	Are there any unresolved building, fire, or zoning code issues?					
10	Are there any "down" or unusable units?					
11	Are there any problems with erosion, stormwater drainage or areas of paving that do not drain?					
12	Is the property served by a private water well?					
13	Is the property served by a private septic system or other waste treatment systems?					
14	Are there any problems with foundations or structures?					
15	Is there any water infiltration in basements or crawl spaces?					
16	Are there any wall, or window leaks?					
17	Are there any roof leaks?					
18	Is the roofing covered by a warranty or bond?					
19	Are there any poorly insulated areas?					
20	Is Fire Retardant Treated (FRT) plywood used?					

PRE-SURVEY QUESTIONNAIRE						
Question		Yes	No	Unk	N/A	Comments
21	Is exterior insulation and finish system (EIFS) or a synthetic stucco finish used?					
22	Are there any problems with the utilities, such as inadequate capacities?					
23	Are there any problems with the landscape irrigation systems?					
24	Has a termite/wood boring insect inspection been performed within the last year?					
25	Do any of the HVAC systems use R-11, 12, or 22 refrigerants?					
26	Has any part of the property ever contained visible suspect mold growth?					
27	Is there a mold Operations and Maintenance Plan?					
28	Have there been indoor air quality or mold related complaints from tenants?					
29	Is polybutylene piping used?					
30	Are there any plumbing leaks or water pressure problems?					
31	Are there any leaks or pressure problems with natural gas service?					
32	Does any part of the electrical system use aluminum wiring?					
33	Do Residential units have a less than 60-Amp service?					
34	Do Commercial units have less than 200-Amp service?					
35	Are there any recalled fire sprinkler heads (Star, GEM, Central, Omega)?					
36	Is there any pending litigation concerning the property?					
37	Has the management previously completed an ADA review?					
38	Have any ADA improvements been made to the property?					
39	Does a Barrier Removal Plan exist for the property?					
40	Has the Barrier Removal Plan been approved by an arms-length third party?					
41	Has building ownership or management received any ADA related complaints?					
42	Does elevator equipment require upgrades to meet ADA standards?					
43	Are there any problems with exterior lighting?					
44	Are there any other significant issues/hazards with the property?					

PRE-SURVEY QUESTIONNAIRE						
Question		Yes	No	Unk	N/A	Comments
45	Are there any unresolved construction defects at the property?					

Comments

On the day of the site visit, provide EMG's Field Observer access to all of the available documents listed below. Provide copies if possible.

INFORMATION REQUIRED	
1. All available construction documents (blueprints) for the original construction of the building or for any tenant improvement work or other recent construction work. 2. A site plan, preferably 8 1/2" X 11", which depicts the arrangement of buildings, roads, parking stalls, and other site features. 3. For commercial properties, provide a tenant list which identifies the names of each tenant, vacant tenant units, the floor area of each tenant space, and the gross and net leasable area of the building(s). 4. For apartment properties, provide a summary of the apartment unit types and apartment unit type quantities, including the floor area of each apartment unit as measured in square feet. 5. For hotel or nursing home properties, provide a summary of the room types and room type quantities. 6. Copies of Certificates of Occupancy, building permits, fire or health department inspection reports, elevator inspection certificates, roof or HVAC warranties, or any other similar, relevant documents. 7. The names of the local utility companies which serve the property, including the water, sewer, electric, gas, and phone companies.	8. The company name, phone number, and contact person of all outside vendors who serve the property, such as mechanical contractors, roof contractors, fire sprinkler or fire extinguisher testing contractors, and elevator contractors. 9. A summary of recent (over the last 5 years) capital improvement work which describes the scope of the work and the estimated cost of the improvements. Executed contracts or proposals for improvements. Historical costs for repairs, improvements, and replacements. 10. Records of system & material ages (roof, MEP, paving, finishes, furnishings). 11. Any brochures or marketing information. 12. Appraisal, either current or previously prepared. 13. Current occupancy percentage and typical turnover rate records (for commercial and apartment properties). 14. Previous reports pertaining to the physical condition of property. 15. ADA survey and status of improvements implemented. 16. Current / pending litigation related to property condition.

Your timely compliance with this request is greatly appreciated.