DMPS FACILITY ASSESSMENT | MADISON ELEMENTARY

12.19.2023

ARCHITECTS
ENGINEERS

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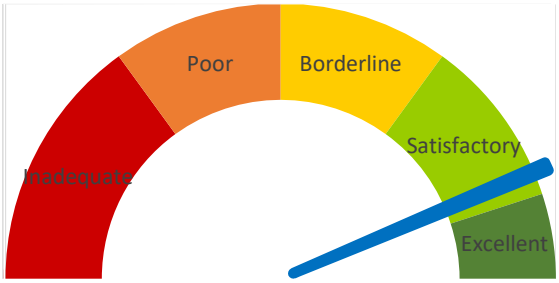


REPORT ORGANIZATION

EXECUTIVE BUILDING SUMMARY

Madison Elementary's on-site facility conditions assessment was conducted on December 19, 2023 and included visual conditions assessment from professionals covering interior architecture, exterior building envelope, the property's grounds (site), structural condition, mechanical (HVAC/Plumbing) systems, electrical systems (power, exterior lighting, interior lighting, fire alarm, and general IT), and the elevator conditions.

Our assessment noted a fair amount of maintenance items requiring attention. These include ductwork mounting and ceiling tile repairs, roof and drain cleaning, exterior door adjustments, exterior ductwork insulation, carbon monoxide detectors, mechanical equipment cleaning and maintenance, and electrical maintenance in the MDF room.

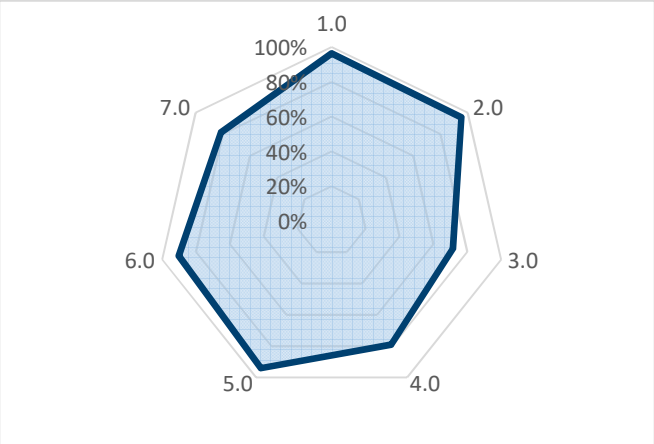
The recommended projects for Madison Elementary to be completed in the next 1-2 years are as follows:

- Kitchen Door Replacement
- Roof Sealant and Partial Roof Membrane Replacement
- Roof Access Installation
- Exterior Door Hardware Replacements
- Exterior Soffit Repainting
- Sidewalk and Pavement Replacements
- Concrete Stoop and Brick Masonry Repairs
- Carbon Dioxide Monitoring System Replacement
- Electrical Panel Replacements
- MDF Room Electrical Panel Capacity Improvement

These projects along with all of the recommended potential projects at the 3-4 year and 5-10 year priority levels are further described within this report.

Discipline Comparison				Building Health				
Assessment Category Summary		Max Pnts	Earned Pnts	Bldg Weight Factor	Max Pnts	Earned Pnts	%	Rating
1.0	Educational Adequacy	165	159	2.00	330	318	96%	Excellent
2.0	Environment for Education	350	334	0.60	210	200	95%	Excellent
3.0	Exterior Envelope	95	68	3.00	285	204	72%	Satisfactory
4.0	School Site	100	79	1.50	150	119	79%	Satisfactory
5.0	Structural Conditions	100	94	1.30	130	122	94%	Excellent
6.0	Mechanical Systems	695	627	0.80	556	502	90%	Excellent
7.0	Electrical Systems	375	306	0.75	281	230	82%	Satisfactory
Total					**1,942**	**1,694**	**87%**	**Satisfactory**

Madison Elementary
Discipline Comparison



Rating Table				
1-29%	30-49%	50-69%	70-89%	90-100%
Inadequate	Poor	Borderline	Satisfactory	Excellent

After totaling the scores from the various discipline assessment reports, Madison Elementary scored a building health rating of 87%, or SATISFACTORY, per the scale described above. Per the graph shown on the cover page of this report, scores within the "green" range are considered positive scores. The projects identified in this report that are focused on improving the building's exterior envelope and site have the greatest potential to improve the rating of this building from satisfactory to excellent.

Building Data Record

Building Name: **Madison Elementary**

Date: **December 19, 2023**

Address: **806 East Hoffman Street**
Des Moines, Iowa 50316

High School Feeder System: **North High School**

Building SF: **49,558 square feet**

Site Acreage: **6.07 acres**

Date(s) of Construction: **1952, 1956**

Date(s) of Roof Replacement: **2000, 2019**

Current/Scheduled Projects: **Cafeteria Acoustic Improvements - 2024**

Existing Building Data:

- [x] Egress Plans
- [ ] Original Docs
- [x] Major Renovations and Additions
- [ ] Minor Projects
- [ ] Maint. Reports

Site Items:

- [ ] Student Garden
- [x] Loading Dock
- [ ] Stormwater Detention

Energy Source:

- [x] Electric
- [ ] Gas
- [x] Geothermal
- [ ] Solar

Cooling:

- [ ] DX RTU or DOAS
- [x] Chiller
- [ ] VRF
- [ ] Water Source Heat Pump
- [ ] Fluid Cooler

Heating:

- [ ] Gas/Electric RTU or DOAS
- [ ] Boiler
- [x] Water-to-Water Heat Pump
- [ ] VRF
- [ ] Water Source Heat Pump

Structure Fireproofing:

- [x] No
- [ ] Yes

Construction:

- [x] Load Bearing Masonry
- [ ] Steel Frame
- [x] Concrete
- [ ] Wood
- [ ] Other

Exterior Facade:

- [x] Brick
- [ ] Stucco
- [x] Metal
- [x] Wood
- [ ] Other

Floor/Roof Structure:

- [ ] Wood Joists
- [x] Steel Joists/Beams
- [ ] Slab on Grade
- [ ] Struct. Slab
- [ ] Other

A | Architectural, Programming

ASSESSOR: Tim Bungert

1.0 Educational Adequacy

		Weight Factor	Rating	Points	Comments
General					
1.1	**Floor materials** are appropriate for space type.	2	5	10	Floor materials are appropriate, but classroom acoustics would benefit from adding carpet tile or area rugs.
Elective/Secondary Classroom					
1.2	**Gymnasium** is adequate for providing physical education programming.	2	5	10	
1.3	**Cafeteria** has adequate space, furniture, and acoustics for efficient lunch use.	2	5	10	
1.4	**Music room** is adequate for providing introductory music instruction.	2	4	8	Music room acoustics could be improved with carpet tile instead of VCT flooring.
1.5	**Art room** has sufficient accommodations for program.	2	5	10	
1.6	**Library/Resource/Media Center** provides appropriate and attractive space.	1	4	4	Library is a large space with plenty of varied seating, but the wood paneling on the walls makes the space feel very dated.
Core Classroom					
1.7	Classroom space permits arrangements for **small group activity.**	3	5	15	
1.8	**Student storage space** is adequate.	2	5	10	
1.9	**Teacher storage space** is adequate.	3	5	15	
1.10	Classroom **acoustical treatment** of ceiling, walls, and floors provide effective sound control.	3	4	12	Classroom acoustics would benefit from adding carpet tile or area rugs.

A | Architectural, Programming

ASSESSOR: Tim Bungert

		Weight Factor	Rating	Points	Comments
1.11	**Classroom power and data receptacles** are located to support current classroom instruction.	4	5	20	
1.12	Educational **technology** supports instruction.	4	5	20	
Administration					
1.13	**Conference/Private meeting rooms** are adequate for large and small meetings.	1	5	5	
1.14	**Main office** has a check-in and waiting area.	2	5	10	
	TOTAL			159	

A | Architectural, Interior

ASSESSOR: Tim Bungert

2.0 Environment for Education

Design

		Weight Factor	Rating	Points	Comments
2.1	**Traffic flow** is aided by appropriate foyers and corridors.	1	5	5	
2.2	Communication among students is enhanced by **common areas.**	1	5	5	
2.3	Areas for students to **interact are suitable to the age group.**	1	5	5	
2.4	Large group areas are designed for effective **management of students.**	2	5	10	
2.5	**Furniture Systems** are in good or like new condition.	1	5	5	
2.6	**Color schemes**, building materials, and decor are **engaging and unify** the school character.	2	3	6	Corridor colors and material scheme are uninteresting and feel very institutional instead of engaging.
2.7	Windows and skylights provide access to **adequately controlled daylight** for regularly occupied spaces.	3	5	15	
2.8	Windows provide access to **quality views** (to exterior, courtyards, artwork etc.) for regularly occupied spaces.	3	5	15	
2.9	**Lighting has proper controls** to provide the required light levels for various teaching and learning needs.	2	5	10	
2.10	**Staff dedicated spaces** include conference space, work space, and dedicated restrooms.	1	5	5	

A | Architectural, Interior

ASSESSOR: Tim Bungert

		Weight Factor	Rating	Points	Comments
2.11	**Main office** is visually connected to the entry and is welcoming to students, staff, and guests.	2	5	10	
2.12	**Break room** is adequately sized and furnished for proper use.	1	5	5	
2.13	**Mother's room** is a separate designated space properly furnished.	1	3	3	Mother's room provided in room 158. Space is very small and does not have a sink.
Maintainability					
2.14	**Floor surfaces** are durable and in good condition.	1	5	5	
2.15	**Ceilings** throughout the building – including services areas – are easily cleaned and resistant to stain.	1	4	4	Rooms 101, 104, 106, 116, 118, 121, and 130 all have ceiling tiles that are damaged or appear loose. Age and type of ceiling tile are indicators of possible asbestos material.
2.16	**Walls** throughout the building – including services areas – are easily cleaned and resistant to stain.	1	5	5	
2.17	**Built-in casework** is designed and constructed for ease of maintenance.	1	4	4	Wood veneer casework doors and trim are in need of minor repairs in nearly all classrooms.
2.18	**Doors** are either solid core wood or hollow metal with a hollow metal frame and well maintained.	3	4	12	All wood doors have minor finish damage at the bottom edge likely due to water from mopping of hard surface flooring. Consider adding kick plates to all wood doors.
2.19	**Facility doors** are keyed to standardized master keying system.	3	5	15	
2.20	**Restroom partitions** are securely mounted and of durable finish.	2	5	10	

A | Architectural, Interior

ASSESSOR: Tim Bungert

		Weight Factor	Rating	Points	Comments
2.21	**Adequate electrical outlets** are located to permit routine cleaning in corridors and large spaces.	1	5	5	
Occupant Safety					
2.22	Classroom doors are **recessed and open outward.**	4	5	20	
2.23	Door hardware (into classrooms or any occupied rooms off of corridors) include **intruder classroom locksets.**	3	5	15	
2.24	**Door panels** into classrooms and other occupied spaces contain **vision lite.**	3	5	15	
2.25	**Vision lite** in doors is clear and uncovered.	2	5	10	
2.26	**Glass** is properly located and protected to prevent accidental injury.	2	5	10	
2.27	**Flooring** is maintained in a **non-slip** condition	2	5	10	
2.28	**Traffic areas terminate at exit or** stairway leading to egress	5	5	25	
2.29	Multi-story buildings have at least **two stairways** from all upper levels for student egress.	5	N/A	0	
2.30	**Stairs (interior and exterior)** are well maintained and in good condition meeting current safety requirements.	5	4	20	Stairs risers at south corridor need to be repainted. Railings do not extend past top of bottom of stairs as required by current code, but are grandfathered as an existing condition.

A | Architectural, Interior

ASSESSOR: Tim Bungert

		Weight Factor	Rating	Points	Comments
2.31	At least **two independent exits** from any point in the building	5	5	25	
2.32	**Emergency lighting** is provided throughout the building.	5	5	25	
	TOTAL			334	

A | Architectural , Exterior

ASSESSOR: Matthew Gaul

3.0 Exterior Envelope

		Weight Factor	Rating	Points	Comments
Design					
3.1	Overall **design is aesthetically pleasing** and appropriate for the age of students.	2	4	8	Main entry lacks identifying features. A new coat of paint and signage could make this school more welcoming to students.
Maintainability					
3.2	**Roofs** appear sound, have positive drainage, and are water tight.	3	3	9	The west portion of the roof is significantly weathered and in need of replacement
3.3	**Roof access** is safe for all roofs.	3	3	9	Roof hatch lacks guardrails and multiple roof transitions lack access.
3.4	Exterior **window sealant** is fully intact without cracks or gaps.	3	3	9	Portions of window sealant are weathering and will need replacing in less than 5 years. Clerestory windows above main entry and east entry are wood and are significantly weathered.
3.5	**Glazing** is low-e coated, insulated, and overall in good condition.	1	5	5	Low-e coating cannot be determined, but windows are tinted.
3.6	**Operable windows** are functional and safe. Operable portion of window fully seals when closed without gapping or leaking.	2	5	10	
3.7	**Exterior doors** are of durable material requiring minimum maintenance.	2	4	8	Door frames of all but newest part of building are wood and require periodic repainting; typically these elements are steel or aluminum. Doors are hollow metal or plastic.
3.8	**Exterior walls** are of material and finish requiring little maintenance,	1	4	4	Soffits require repainting.
3.9	**Exterior Doors** open outward and are equipped with **panic hardware.**	1	3	3	2 doors from electrical room lack panic hardware.
3.10	**Exterior Doors are monitored** or controlled by an access control system.	1	3	3	01 - Doors do not latch 02 - Doors with card readers 08 - Doors with locks or no exterior lock 10 - Doors with no signage. 02 - Doors at courtyard with no monitoring.
	TOTAL			68	

C | Civil

ASSESSOR: Jack Gorman / Joel Jackson

4.0 Madison Elementary

		Weight Factor	Rating	Points	Comments
4.1	**Site topography** and grading drains water away from the building and retaining walls.	1	5	5	Site was flat with good drainage away from the building, no issues observed.
4.2	**Parking areas** are in good condition.	5	4	20	There were small sections where the asphalt was cracking but not failing.
4.3	**Drive areas** are in good condition.	3	4	12	A couple of the access drives need repair and there were some deteriorated sections of asphalt in the main drive of the parking lot
4.4	**Sufficient on-site, solid surface parking** is provided for faculty, staff, and community.	1	2	2	Some street parking for events but not a ton. Site is short on parking.
4.5	**Sidewalks** around the facility are in good **condition.**	1	3	3	The east side of the site had sections needing replacement and there were portions of sidewalk by the south entrance also needing replacement.
4.6	**Sidewalks are located** in appropriate areas with adequate building access.	1	4	4	Site was easy to navigate by sidewalk. Some of the playground areas are inaccessible by sidewalk.
4.7	**Hard surface** playground surfaces are in good condition.	3	4	12	Some of the asphalt on the western side is cracking and needs replacement, all other playground surfaces were good.
4.8	**Fencing** around the site is in good condition.	1	5	5	Some minor repairs needed (reattach broken connections) but no areas in need of replacement
4.9	**Trash enclosure** is in good condition.	1	4	4	Masonry brick and gate were in good condition, there was a crack through the trash enclosure pavement but it did not appear to be at risk of failing.
4.10	**Utilities** are in newly constructed conditions and placed in suitable locations.	1	4	4	The circular intake at the east end of the parking lot is too small and was clogged. Replacing with a standard back of curb intake

		Weight Factor	Rating	Points	Comments
4.11	**Site has sufficient room** for both building and parking expansion.	1	4	4	There is a lot of room to the north of the existing parking area for expansion, the play area could be shifted east for a building expansion.
4.12	Site has **onsite bus and parent pickup** up with adequate length, good separation and general good site circulation.	1	4	4	Seems to be well separated, unclear if issues exist on site (Need Jamie)
	TOTAL		79		

S | Structural

ASSESSOR: Erik Raker

5.0 Structural Conditions

		Weight Factor	Rating	Points	Comments
Foundations					
5.1	**Foundations** appear to be in good condition with no visible cracks.	1	5	5	
5.2	There does not appear to be any **foundation settlement.**	2	5	10	
5.3	**Basement walls** do not appear to have any cracks.	1	N/A	0	
5.4	**Stoops** appear to be in good condition.	1	4	4	Stoop between rooms 100 and 101 and 113 and 115 need repair in the near future.
Slab on Grade					
5.5	**Slabs on grade** do not appear to have any cracks	1	5	5	
5.6	Slabs on grade do not appear to have any **settlement.**	1	5	5	
Exterior Walls					
5.7	**Brick masonry** appears to be in good condition.	2	5	10	
5.8	**Lintels** appear in good condition (no visible deflection or rust).	1	5	5	
5.9	**CMU** is in good condition.	1	5	5	
5.10	**Precast** is in good condition.	1	N/A	0	

S | Structural

ASSESSOR: Erik Raker

		Weight Factor	Rating	Points	Comments
Interior Walls					
5.11	**Interior walls** appear to be in good condition.	1	5	5	
Floor Framing (Elevated)					
5.12	**Floor framing** appears to be in good condition.	3	N/A	0	
5.13	Floor framing appears to meet the **code requirements.**	3	N/A	0	
Roof Framing					
5.14	**Roof framing** appears to be in good condition.	3	5	15	
Miscellaneous					
5.15	**Retaining walls** appear to be in good condition.	1	N/A	0	
5.16	**Canopies** appear to be in good condition.	1	5	5	
5.17	**Loading dock concrete** appears to be in good condition.	2	5	10	
5.18	**Mechanical screening** appears to be in good condition.	2	N/A	0	
5.19	**Stairs** appear to be in good condition.	1	5	5	
5.20	**Stair railings** appear to be in good condition.	1	5	5	

S | Structural

ASSESSOR: Erik Raker

		Weight Factor	Rating	Points	Comments
5.21	**Tunnels** appear to be in good condition without cracks.	1	N/A	0	
5.22	There is a **designated hardened area** in the building.	1	0	0	No hardened area observed.
5.23	The hardened area appears consistent with the **ICC 2018 code.**	1	N/A	0	
	TOTAL		94		

MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

6.0 Mechanical Systems

HVAC Design

		Weight Factor	Rating	Points	Comments
6.1	**Zone Control.** Thermostats are provided in each space for individual zone control of space temperatures.	3	5	15	
6.2	**Thermostat location.** Thermostats are properly located in the space.	3	5	15	
6.3	Appropriate **amount of ventilation** are provided to each space.	5	4	20	Aircuity System installed at school to measure CO2 level in rooms and adjust ventilation. Maintenance reports issues with the Aircuity system operation.
6.4	**Ventilation** is provided during occupied hours.	5	5	25	
6.5	**Outdoor air intake locations** are appropriate.	4	3	12	The intakes for the Gym addition are not separated and flue discharge from furnace is in close proximity to intakes.
6.6	Appropriate **levels of exhaust** are provided for areas requiring this such as restrooms, janitor's closets and locker rooms.	5	4	20	Exhaust at Gym addition is done by residential style bathroom exhaust fans.
6.7	**Building pressurization.** The design takes into account the balance between ventilation and exhaust air	2	5	10	
6.8	**Major HVAC Equipment** appears to be within it's acceptable **service life.**	5	5	25	All equipment is in its mid-life at 13 years with the exception of the water to water heat-pump. Heat-pump installed in 2023? Two pipe system continues to not perform. Recommend considering a 3 pipe or 4 pipe upgrade. Gym addition has residential equipment installed in 2017.
6.9	**Cooling loads** are within equipment operational capacity.	5	4	20	Challenges with 2 pipe system control and operation.
6.10	**Heating loads** are within equipment operations capacity.	5	5	25	

MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

		Weight Factor	Rating	Points	Comments
6.11	**Dehumidification** is provided and addressed humidity loads in incoming outside air.	3	4	12	ERV and reheat system able to provide dehumidification mode with proper control sequence. Could be improved with DOAS equipment.
Plumbing Design					
6.12	**Water Supply Pressure** is adequate to allow for operation of plumbing fixtures.	5	5	25	
6.13	Appropriate **backflow preventer** is provided at connection to city water supply.	5	5	25	
6.14	**Domestic hot-water systems** are within equipment operational capacity.	5	5	25	
6.15	Domestic **hot-water recirculating systems** allow for hot-water at fixtures within a reasonable amount of time.	3	5	15	
6.16	**Sanitary sewer systems** are sized and sloped to allow for proper drainage.	5	5	25	
6.17	Appropriately sized **grease interceptors** are provided for facilities with food service.	3	5	15	
6.18	**Roof drainage** systems are sized appropriately and overflow drainage systems are installed.	5	5	25	
6.19	**Restroom fixtures** are in good condition and comply with current DMPS standards.	3	5	15	
Maintainability					
6.20	Equipment is provided with **adequate service clearance** to allow for regular maintenance	3	4	12	Tight conditions for indoor fresh-air unit AHU-1.

MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

		Weight Factor	Rating	Points	Comments
6.21	AHUs and chiller are provided with **coil pull space.**	2	4	8	AHU-1 requires coil pull space for the cooling/heating coil. Space is available, though it is tight.
6.22	**Filter** sizes are standard and filter types are standard.	2	4	8	Varies with equipment type.
6.23	**Equipment mounting heights** are reasonable.	3	4	12	Some equipment above ceiling and at ceiling of multipurpose room.
6.24	**Floor surfaces** throughout the mechanical room are non-slip and are dry.	2	5	10	
6.25	**Isolation valves** are located in the plumbing and hydronic systems to allow for isolation of only portions of the system for servicing.	2	5	10	
6.26	Appropriate means are provided for **airflow and water balancing.**	3	5	15	
6.27	**Hose Bibbs** located in proximity to **outdoor condensers and condensing units**. Is cottonwood an issue at this location?	2	4	8	Gym unit requires cleaning. No hydrant on roof, though there are wall hydrants at Level 1.
6.28	**Fall protection** is provided for equipment within 15 ft of roof edge as per OSHA standard 1910.28(b).	2	5	10	
6.29	**Building devices are on DDC controls** and fully visible through Building Automation System. No pneumatic controls remain.	4	5	20	
Occupant Safety					
6.30	**Backflow prevention** is provided at all **cross-connections** to non-potable water.	5	5	25	

MP | Mechanical & Plumbing

ASSESSOR: Chuck Heldenbrand

		Weight Factor	Rating	Points	Comments
6.31	Building is fully **sprinklered.**	5	5	25	
6.32	**Domestic hot-water temperature** at lavatories used by students or staff is provided with a thermostatic mixing valve and adjusted properly.	5	5	25	Mixing valves observed below lavatories.
6.33	**Emergency eye-washes and tempering valves** are located where required.	5	0	0	None observed. Recommend evaluation with an occupational safety and health professional to determine necessity of eye wash(es) for facility spaces.
6.34	**Emergency boiler stop switches** are located at exits from boiler rooms.	5	5	25	
6.35	**Refrigeration evacuation systems** are provided in rooms with chillers.	5	4	20	No refrigeration detection noted in mechanical room with refrigerant based equipment. May not be required based on equipment size, but should be confirmed.
6.36	**Carbon Monoxide monitoring** and alarming is provided for areas with gas-fired equipment.	5	5	25	
	TOTAL			627	

E | Electrical

ASSESSOR: David Carlson

7.0 Electrical Systems

Electrical Design

		Weight Factor	Rating	Points	Comments
7.1	**Transformer location** is easily accessible by utility line truck to allow for rapid transformer replacement in the event of an issue.	5	5	25	Building transformer consists of three individual single-phase transformers mounted to power pole at north end of the building. Recommend communications with MidAmerican Energy to replace with standard pad-mount transformer.
7.2	**Transformer** has adequate clearance from non-combustible building components, paths of egress, etc. 10' clear working area in front of doors.	5	5	25	
7.3	**The MDP environment** is safe, has adequate clearances and exiting.	3	3	9	A condensate drain line runs across the clear area of the MDP. MDP consists of Square D HCM0 I-Line Panelboard rated at 1000A. Service is 208/120V.
7.4	The **MDP** appears serviceable.	4	4	16	MDP manufactured in 2010. -1 point for age greater than 10 years.
7.5	The MDP is **maintainable.**	3	5	15	All Square D equipment is supported.
7.6	The MDP will support **future expansion.**	4	4	16	MDP has 108" of mounting space available, with 40.5" remaining. -1 point for less than 50% spare capacity, but amount available is excellent.
7.7	The Distribution Panel **environment is safe**, has adequate clearances and exiting.	4	N/A	0	No distribution panels present.
7.8	The Distribution Panel appears **serviceable.**	4	N/A	0	No distribution panels present.
7.9	The Distribution Panel is **maintainable.**	4	N/A	0	No distribution panels present.
7.10	The Distribution Panel will support **future expansion.**	4	N/A	0	No distribution panels present.

E | Electrical

ASSESSOR: David Carlson

		Weight Factor	Rating	Points	Comments
7.11	**Electrical panels and disconnect switches** observed during assessment are safe, serviceable, and maintainable.	2	2	4	Panels A, B, and C are original Frank Adam panels and should be replaced. All other panels observed are newer Square D or Square D interior retrofits.
7.12	Building has adequate and appropriately located, **safe exterior power** to allow for regular maintenance activities.	1	5	5	No exterior receptacles observed save for a NEMA 14-50 receptacle for dentist/eyewear/outside contractor use. Noted as maintenance project by DMPS as Madison personnel request them.
7.13	Building has adequate **exterior lighting** to promote safety and security of the property.	5	4	20	East end of parking lot is dark and could use another pole mounted light. Playground on north side dark. Lighting at entry on east side does not support cameras.
Electronic System Design					
7.14	MDF is **neatly organized** and has appropriate clearances and working spaces. Cables are neatly laced or trained. Entry to the room is restricted.	4	4	16	MDF is in excellent condition, but has no Card Reader securing access. Medeco keyed only. (-1 point)
7.15	MDF Equipment Racks have adequate space for **future growth.**	4	4	16	45U data rack has 15 rack units remaining. -1 point for less than 50% spare capacity.
7.16	MDF is equipped with UPS to back up main switch(es), providing **backup power** to necessary equipment in the event of a power outage.	5	5	25	
7.17	MDF Power is supplied by **20A circuits and receptacles.**	1	4	4	MDF is supplied by 20A receptacles, but data rack has only one duplex receptacle with power strips in use. Recommend increasing size to quad receptacle.
7.18	MDF Power is supplied from a branch panel located in the room with **adequate spare circuit capacity.**	1	1	1	Panel I in MDF is at capacity with only two breaker positions remaining in the 42 position panelboard. Recommend adding a dedicated mechanical panel in the attached fan room to leave Panel I for MDF and surrounding loads.
7.19	MDF employs up-to-date **network cabling.**	2	4	8	Majority of cabling present is CAT5e. -1 point for less than CAT6/6A.
7.20	MDF is connected to Intermediate Distribution Frame (IDF) closets with **fiber optic cabling.**	1	3	3	Connection to IDF is multi-mode (armored 12-strand orange, unable to verify strand size). -2 points for less than single-mode.

E | Electrical

ASSESSOR: David Carlson

		Weight Factor	Rating	Points	Comments
7.21	MDF has adequate **grounding busbar capacity.**	2	3	6	Grounding busbar has 4 of 11 lug spaces remaining as currently configured (36%, -1 point for less than 50% capacity). There is no main connection to the building MDP grounding bus (-1 point).
7.22	Building is equipped with an **addressable fire alarm system.**	5	5	25	DMPS standard Simplex 4100 series FACP. Second FACP in gym addition.
7.23	Building is equipped with an **access control system.**	5	3	15	7/10=70%
7.24	Building is equipped with a **CCTV system.**	5	4	20	East entry and west end cameras not supported well by exterior lighting.
7.25	Building is equipped with an **intercom system.**	4	5	20	DMPS standard Bogen Intercom System.
7.26	Building is equipped with a **master clock system.**	4	3	12	DMPS standard Primex clock. Error light flashing when observed, maintenance required by DMPS (-2 points).
	TOTAL			306	

RECOMMENDED PROJECTS AND COST ESTIMATING METHODOLOGIES

One of the major impetuses for our facility condition assessment work is the need to support strategic fiscal and maintenance planning for their facilities. As such, DMPS requires that recommended projects be assigned a total project cost in order to support the strategic planning needs of the District. A total project cost is a cost that includes the estimated construction cost as well as the various other 'hard' and 'soft' costs of a construction project such as professional design fees, contractor overhead, required contingencies, inflation, direct costs (e.g. permitting costs), etc. The full list of these hard and soft costs are defined later in this section.

Project Descriptions

Every building assessment report includes a section titled Recommended Projects and Priorities. This section is divided into the following subcategories: "Short Term Maintenance", "1-2 Year Project Priorities", "3-4 Year Project Priorities", "5 - 10 Year Project Priorities", and "Projects Requiring a Study". Each of these subcategories includes a list of project recommendations. The projects listed in each subcategory are grouped by discipline and listed in the following order: interior architecture, exterior architecture, civil (site), structural, mechanical, electrical, and elevator projects. The discipline order as described mirrors the order of the discipline Scoring Reports section found earlier in the building assessment report. The projects listed within Short Term Maintenance section do not include a cost. It is assumed that DMPS will perform this work. Additionally, projects which recommend furniture repair or replacement do not include a cost since furniture systems are selected and procured via a separate process. All other projects associated with the remaining subcategories, other than "Projects Requiring a Study" are provided an estimated total project cost.

Projects Requiring a Study

The projects listed within Projects Requiring a Study are provided estimated professional design fees to produce the recommended design study. In the future, once commissioned and completed, these recommended studies will not produce a completed design. Rather, the completed study will provide recommended project descriptions and estimated total project costs similar to the projects listed in this assessment report. For studies that most likely will result in a substantial project with a substantial cost associated, an "anticipated capital investment" cost number has been provided to help assist the District's strategic planning. This anticipated capital investment cost is based on a 5-10 Year Priority completion date and very high level general 'rules of thumb' estimations since it is unknown exactly what conclusions or recommendations will be determined by the study before the study is commissioned and completed.

Cost Estimating

To achieve the total project cost reflected in this building report, the recommended projects incorporate construction costs with added percentages to account for professional design services, design phase contingency, construction contingency, general contractor overhead and profit, other direct costs incurred by the project, and year-over-year inflation dependent on how many years out the recommended project is recommended to be completed. Not included in the total project cost are costs associated with hazardous materials abatement, testing, surveys, or site exploration (geotechnical testing, etc.). Additionally, for projects that are expected to produce a minimal amount of waste that is normally acceptable to City of Des Moines collection, costs for dumpsters have been excluded. To arrive at the final estimated total project cost as described above, the following methodology was used by the assessment team for each recommended project:

Step 1: Determine estimated direct cost of construction in 2024 dollars.

The recommended projects are conceptual in nature; therefore, all cost multipliers are overall systems level and/or unit costs. (These costs are not based on itemized breakdowns.) The cost information used is based on current available information which is in 2024 dollars and is a mixture of recent bids, firm experience, manufacturer provided information, and RS Means costing data.

Step 2: For recommended projects that are smaller in scale, scope, and estimated cost, a "small project fee" additive cost is applied to the estimated direct cost of construction determined in Step 1. This additive cost works to cover outsized mobilization, staffing, and equipment costs that are incurred on a small scale project the same as for a large project with a large economy of scale. These costs are as follows:

For projects with a Step 1 cost of $4,999.99 or less, an additive cost of $5,000.00 has been added.

For projects with a Step 1 cost of $5,000.00 to $14,999.99, a graduated additive cost from $5,000.00 to $0 has been added.

For all other projects (Step 1 cost of $15,000.00 and above) this step is skipped.

Step 3: Add 10% of the estimated direct construction cost for construction contingency.

RECOMMENDED PROJECTS AND COST ESTIMATING METHODOLOGIES

Step 4: Add a percentage of estimated direct construction cost plus construction contingency for inflation.
The projects are grouped based on how many years out it is recommended that the project is started. Projects closer to 2024 are more urgent projects. As project start times move further and further away from 2024, inflation must be added to best estimate how 2024 dollars will translate into the future. 5% year-over-year inflation was chosen as a reasonable assumption for this work.

- For projects assigned the 1-2 Year Priority add 10% of the estimated construction cost.
- For projects assigned the 3-4 Year Priority add 20% of the estimated construction cost.
- For projects assigned the 5-10 Year Priority add 50% of the estimated construction cost.

Step 5: Add 5% of the estimated direct construction cost, construction contingency, plus inflation for general conditions.
This cost covers the incidental costs incurred by the contractor to perform the work that are not directly tied to the specific materials and labor; examples include mobilizing to the site and final cleaning.

Step 6: Add 10% of the estimated direct construction cost, construction contingency, inflation, plus inflation for general contractor overhead and profit; combined, this is the total construction cost.

Step 7: Add 10% of the total construction cost for professional design services.
These services include, when appropriate: architectural design and project management, civil engineering, structural engineering, mechanical engineering, and electrical engineering. These services are for conceptual design through construction phase work.

Step 8: Add 5% of the total construction cost and professional design services for other direct costs.
These costs cover various other costs directly associated with the project such as printing, equipment, required permits, etc.

At the conclusion of Step 8, the total project cost for the recommended project is finalized.

PROJECT RECOMMENDATIONS

Below are recommended maintenance, projects, and studies based on the previous assessment scoring information. Short Term Maintenance items are items requiring DMPS attention in less than a year's time and is less than approximately $5,000. Costs for these items are not estimated. 1-2 year priority projects are projects that require attention within the next 2 years. 3-4 year priority projects are projects that require attention within the next 4 years. 5+ year priority projects are projects that require attention within the next 10 years. Project costs are listed. Project requiring Study are items where project scope is not able to be defined at this time and further investigation is required. Costs for these items are design service fees, not project costs. See the Cost Methodology description in the appendix for additional information.

Short Term Maintenance

Ductwork Mounting	Exposed ductwork in room 106 not adequately attached to supporting structure and is causing damage to adhered ceiling tiles. Modify ductwork supports to anchor properly to building structure. A similar condition was recently repaired in room 105 after a segment of ductwork became detached from the ceiling.
Ceiling Tile Repairs	Repair damaged, loose, or missing adhered ceiling tiles in rooms 101, 104, 106, 116, 118, 121, and 130. Approximately 60 SF total.
Roof Cleaning	Remove debris from roof low spots, drains, overflows, and other areas where it collects so that the roof membrane remains in good condition and sheds water as intended.
Exterior Door Adjustment	Adjust 1 exterior door at NW corner of courtyard so that it latches from any closing position.
Fence Connection Bar Repair	Reattach the disconnected piece of fencing. For location, refer to the civil site plan exhibit found in the appendix of this report.
CO Detector Installation	Gas fired equipment in gym addition requires CO detector.
Fan Coils and Reheat Coils Cleaning	Remove dust and debris from all hydronic coils to improve performance.

Wall Grille Replacement	Replace damaged wall grille in corridor outside library entrance.	
MDF Duplex Receptacle Replacement	Replace existing duplex receptacle serving MDF data rack with quad receptacle to reduce need for power strips.	
Exterior Receptacle Installation	Add exterior receptacles in the event of Madison personnel requesting them.	
MDF Grounding Busbar Connection Installation	Add 2/0AWG conductor from MDP grounding bus to telecom grounding busbar.	
Master Clock Error Light	Investigate error code on master clock head end.	

1 - 2 Year Priority

		Project Costs
Kitchen Door Replacement	Replace the wood door from cafeteria 121 to kitchen 123 with a new painted hollow metal door. The existing wood door is heavily damaged, but the hollow metal frame is likely suitable for reuse.	$12,000
Roof Replacement	Remove 13,600 SF of coated modified bitumen roofing and insulation over roof areas A, B, and C. Remove 3,800 SF of ballasted modified bitumen roofing and insulation over roof areas H, I, J, K, and L. Install code compliant insulation and TPO roofing. Add overflow roof drains to area A. Remove chimney at roof area B: 4'Wx4'Lx10'H.	$440,000
Roof Sealant Replacement	Replace sealant at 10 LF of parapet cap; NE and NW corners of roof E; SE corner of roof D; and NE corner roof F. Replace sealant at 160 LF of reglet flashing: NE and SE edges roof K; pop-up in the middle of roof K.	$7,000
Roof Access Installation	Install guardrails at roof hatch. Install ladders or steps at the following locations: 4 feet roof area A to D; 4 feet roof area H to K; 6 feet roof area J to K; 6 feet roof area H to G; 6 feet roof area D to F.	$15,000

Exterior Door Hardware Replacement	Two successive single doors out of room 137 lack panic hardware. Replace hardware at both to provide panic hardware.	$13,000
Soffit Repaint	Repaint 500 SF of galvanized metal soffit: this includes the entire main entry soffit as well as patch painting at soffits where paint has flaked off at west façade, south facade, east façade, and north façade of courtyard.	$9,000
Sidewalk Repair	Repair damaged sidewalks across the site. Approximately 41 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$11,000
Pavement Replacement	Remove and replace 27 SY of asphalt. For locations, refer to civil site plan exhibit found in the appendix of this report.	$9,000
Concrete Stoop Repair and Brick Masonry Tuckpointing	At the northwest entrance near room 101 a previous patch to the concrete stoop and steps shows signs of failure. Remove and replace 4 SF concrete patch on stoop and stair. Tuckpoint 10 SF of mortar joints in brick masonry adjacent to the stoop.	$8,000
Gym RTU Duct Insulation	Add insulation and weatherproof jacket to Supply and Return ductwork on roof for RTU at gymnasium.	
Aircuity CO2 Monitoring System Assessment	Repair or remove "Aircuity" CO2 monitoring system. If system is removed, VAV box control sequence should be revised to maintain design level ventilation rates to all spaces.	$25,000
Domestic Water Heater Removal	Remove older water heater DWH-1 in Mechanical Rm. Re-connect any fixtures currenly served by this to the newer water heater, DWH-2. DWH-2 should be capable of meeting hot-water loads in the building.	$12,000
Gym Addition Exhaust Modification	At gym addition, use ERV to exhaust restrooms and storage room in place of standalone residential style exhaust fans.	$20,000
Panel Replacement	Replace (4) existing Frank Adam panelboards with equivalent modern panelboard interiors and breakers.	$40,000

MDF Panel Capacity Installation	Provide additional ~200A panelboard to remove mechanical loads from Panel I serving MDF equipment. Intercept and reterminate all mechanical connections to new panel to allow for future telecom expansion needs.	$15,000
	Total 1-2 Year Project Costs:	**$636,000.00**

3 - 4 Year Priority

		Project Costs
Wood Door Finish Restoration and Kick Plate Installation	On all wood doors in the building, repair damage to clear protective finish on door faces. Add stainless steel kick plates to both sides to protect doors from further damage from floor mopping and traffic (approximately 42 doors).	$30,000
Interior Refinish	Music room requires acoustic improvements. Remove VCT flooring from music room 127 and install 750 SF of carpet tile to reduce reverberation time in the room.	$11,000
Casework Repairs	In all classrooms, repair minor veneer damage on wood casework (total of 550 SF) and repair finish damage on wood base trim under casework (total of 80 SF). Remove and replace countertop (13 LF) and one sink in art room 125.	$45,000
Band Practice Room Accessibility and Acoustics Upgrades	Demolish the stairs and raised platform in band practice room 152 (100 SF). Install new carpet tile and acoustic panel ceiling system in rooms 151 and 152 (220 SF total).	$9,000
Roof Sealant Replacement	Replace sealant at 10 LF of parapet cap; NE and NW corners of roof E; SE corner of roof D; and NE corner roof F. Replace sealant at 160 LF of reglet flashing: NE and SE edges roof K; pop-up in the middle of roof K.	$8,000
Exterior Sealant Replacement	Replace sealant at the following locations. 22 LF masonry soft joints at N and E sides of roof area J and NW corner of roof area K. 8 LF at NW corner of roof area L and SW corner of roof area H. 500 LF at window sills and jambs: east façade, south façade, west facade of courtyard, and outside rooms 102, 104, and 106. 90 LF at window heads: south facade, and north facade of courtyard. 40 LF at inside corners of exterior walls: west facade, near SE corner, near NE corner, and NE corner of courtyard. 20 LF at masonry soft joints: SW corner and NW corner of courtyard.	$12,000

Pavement Replacement	Remove and replace 12 SY of PCC and 45 SY of asphalt. For locations, refer to civil site plan exhibit found in the appendix of this report.	$12,000
Sidewalk Repair	Repair damaged sidewalks across the site. Approximately 19 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$9,000
	Total 3-4 Year Project Costs:	**$136,000.00**

5+ Year Priority

		Project Costs
Classroom Acoustic Improvements - Ceilings	Remove existing adhered ceiling tile system in all classrooms. Install suspended acoustic panel ceiling systems in all classrooms. 21 classrooms total, approximately 860 SF per room.	$430,000
Classroom Acoustic Improvements - Flooring	This project is proposed as an alternative to removing and replacing existing ceilings in all classrooms. Install carpet tile in all classrooms (excluding the art room) equal to approximately 75% of each room's total area. (Approximately 10,500 SF).	$120,000
Pavement Replacement	Remove and replace 21 SY of PCC and 390 SY of asphalt. For locations, refer to civil site plan exhibit found in the appendix of this report.	$75,000
Sidewalk Repair	Repair damaged sidewalks across the site. Approximately 52 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$14,000
Playground Asphalt Replacement	Take out and restore deteriorated playground asphalt. Approximately 92 SY. For locations, refer to civil site plan exhibit found in the appendix of this report.	$20,000
Intake Replacement	Replace small circular intake with standard back of curb intake. For location, refer to civil site plan exhibit found in the appendix of this report.	$25,000
Screen Brick Wall Replacement	Replace brick wall that is leaning over or just remove wall. For location, refer to civil site plan exhibit found in the appendix of this report.	$35,000

Replace Gym RTU	Replace GYM RTU with packaged rooftop with integral heating.	$730,000
Replace Furnace in Gym Addition	Install fan coil unit and connect to central dual temp system.	$80,000
Exterior Railing Replacement	Remove rust-damaged exterior railings outside the main entrance and replace with two new 12' railings.	$15,000

Total 5-10 Year Project Costs: $1,544,000.00

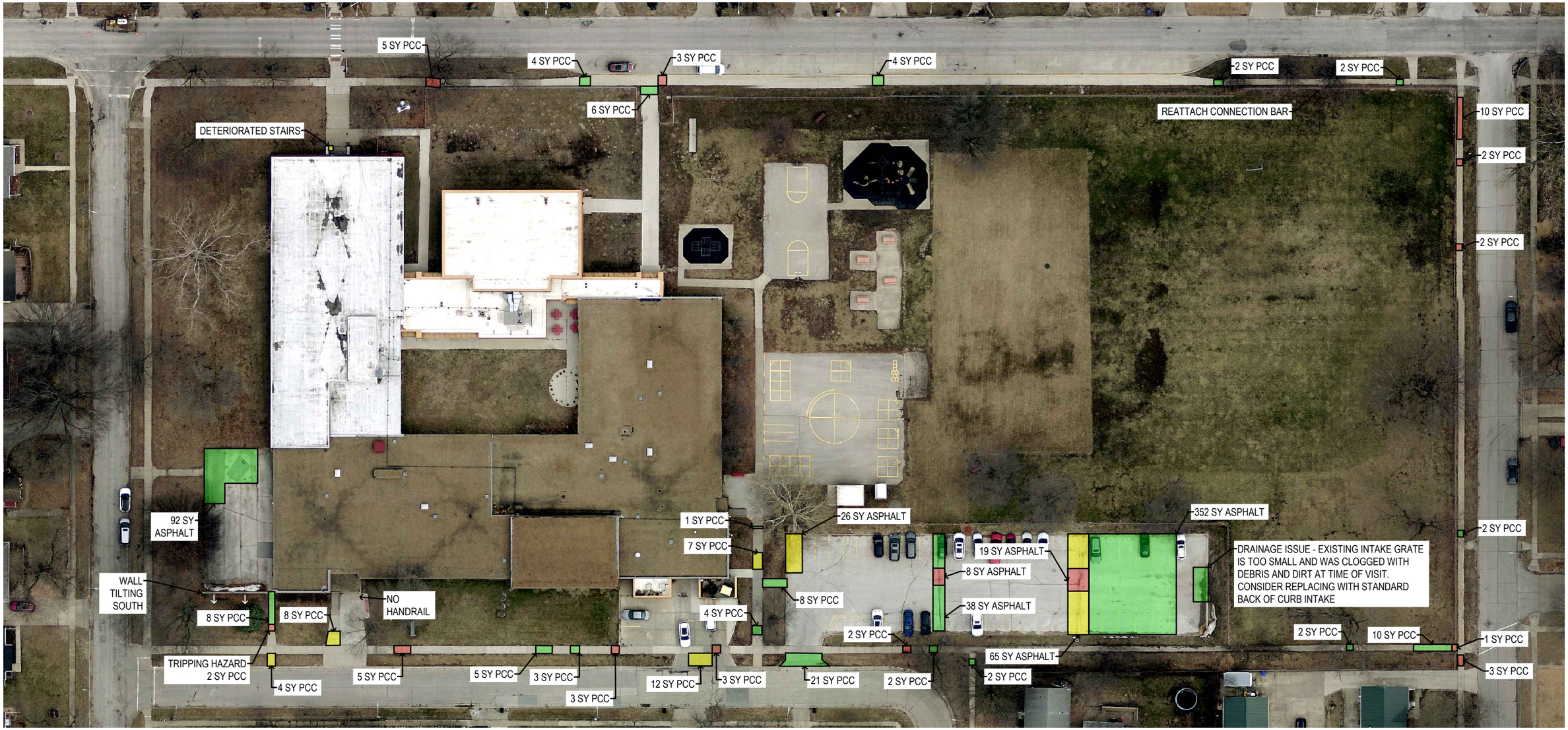
Projects Requiring Study

		Design Services Fee
Library Finishes Renovation	Design for upgrades to interior finishes in the library. Improvements may include new carpeting, wall finishes, casework, ceilings, and lighting. Existing furniture is appropriate and could be considered for reuse.	$5,000
Exterior Masonry and Window Replacement	Evaluate the current condition of glass and windows at roof area C that provide light to bathrooms below. Determine if full demo of these walls and replacement with windows is possible and desirable.	$5,000
Exterior Window Restoration or Replacement	Investigate the current condition of clerestory windows above main entry and east entry to determine whether they can be restored in place or need to be replaced. These windows are part of the wood door and window framing below; this framing below must be considered.	$5,000
Parking Expansion	Determine the number of stalls, location, associated utility work, and construction cost of increasing on-site parking.	$2,500
Designated Hardened Area	No designated hardened area was observed. Study to determine the feasibility of adding a designated hardened area to the building including location within the existing building, schematic design concept if deemed feasible, and preliminary project costs.	$2,500

Replace 2-pipe fan hydronic system with 4-pipe	Consider upgrading the current system to a 4 pipe system and replace fan coils unit with new compatible type.	$10,000

Total Study Design Service Fees:	**$30,000**

APPENDIX



NORTH

GRAPHIC SCALE

60 0 30 60 120

5+ YEAR REPLACEMENT

3-4 YEAR REPLACEMENT

1-2 YEAR REPLACEMENT

bbs ARCHITECTS ENGINEERS

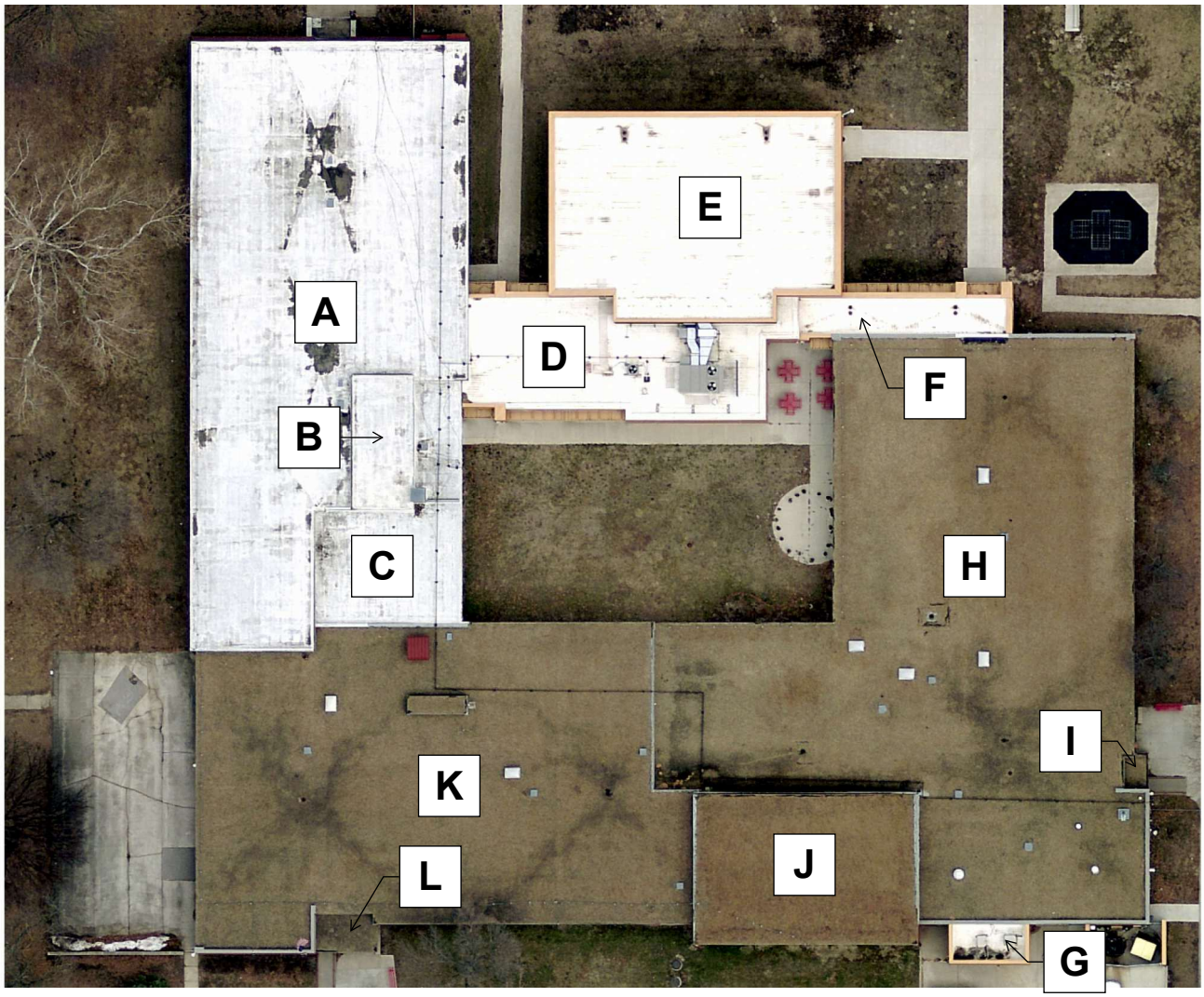
BISHOP ENGINEERING +

MADISON ELEMENTARY

EXHIBIT

PROJECT # 230286-19

DATE 11/6/2023



N

bbs ARCHITECTS ENGINEERS

23055 - DMPS Facility Conditions Assessment
Roof Identification Image
Madison Elementary
December 19, 2023

MADISON ELEMENTARY SCHOOL

806 HOFFMAN AVENUE
DES MOINES, IOWA 50316

FIRST FLOOR

NORTH