

GRAPEVINE COLLEYVILLE ISD

F.I.R.S.T. MEETING

09.22.15

Huckabee



**MORE THAN
ARCHITECTS**



A grayscale background image showing several football helmets. One helmet on the right has the number '55' and the name 'FELDER' visible. The text 'MORE THAN ARCHITECTS' is overlaid in large, white, sans-serif capital letters.

MORE THAN ARCHITECTS

AGENDA REVIEW

Timeline of Process

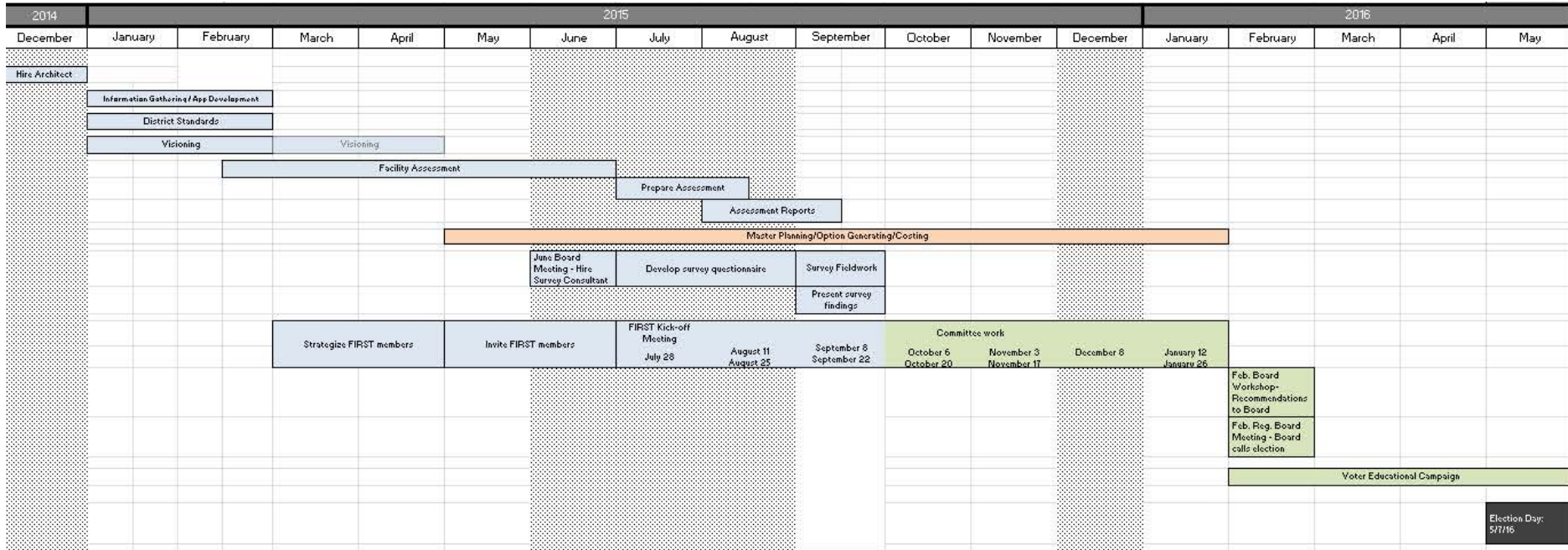
Facility Assessment Process

FIRST Subcommittees + More Details

Building a Bond Budget

Questions

TIMELINE OF PROCESS

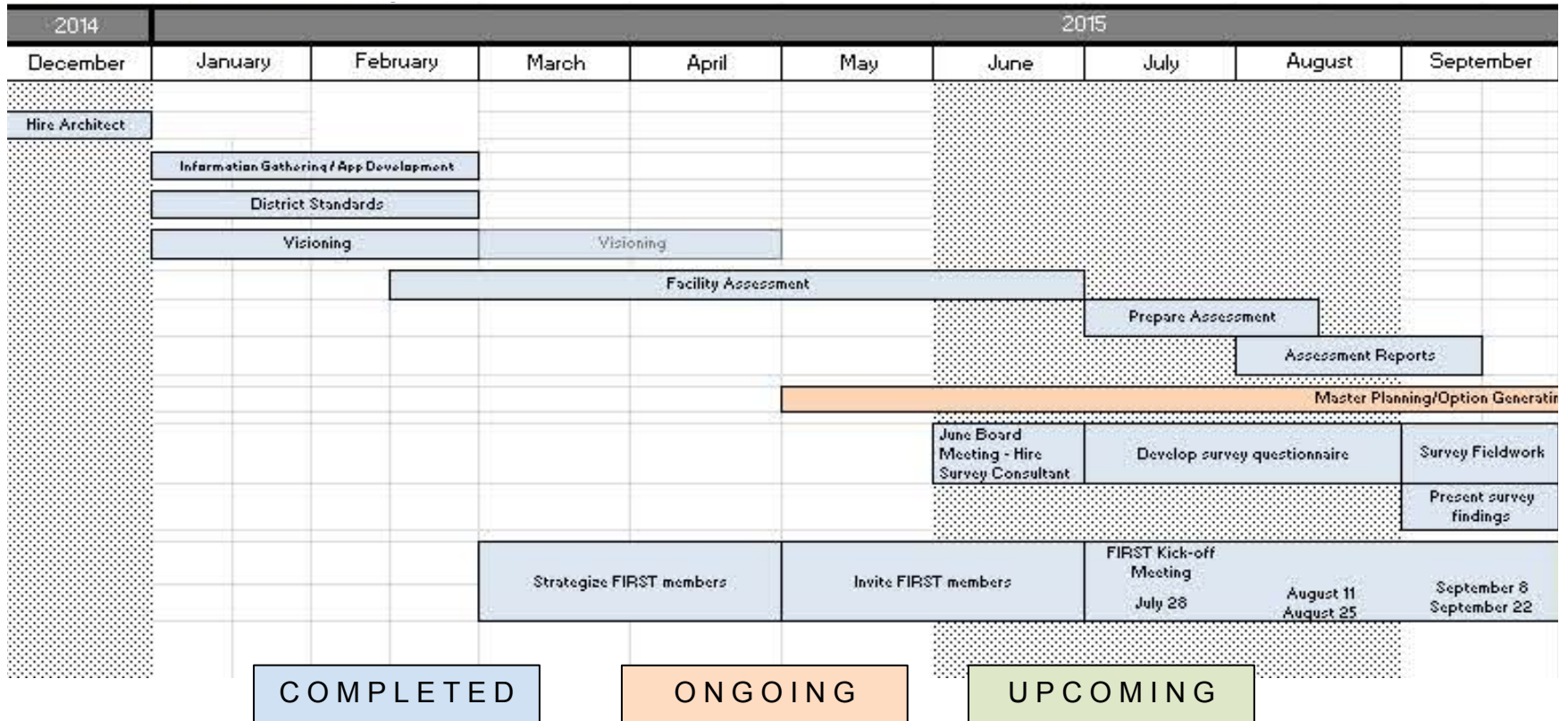


COMPLETED

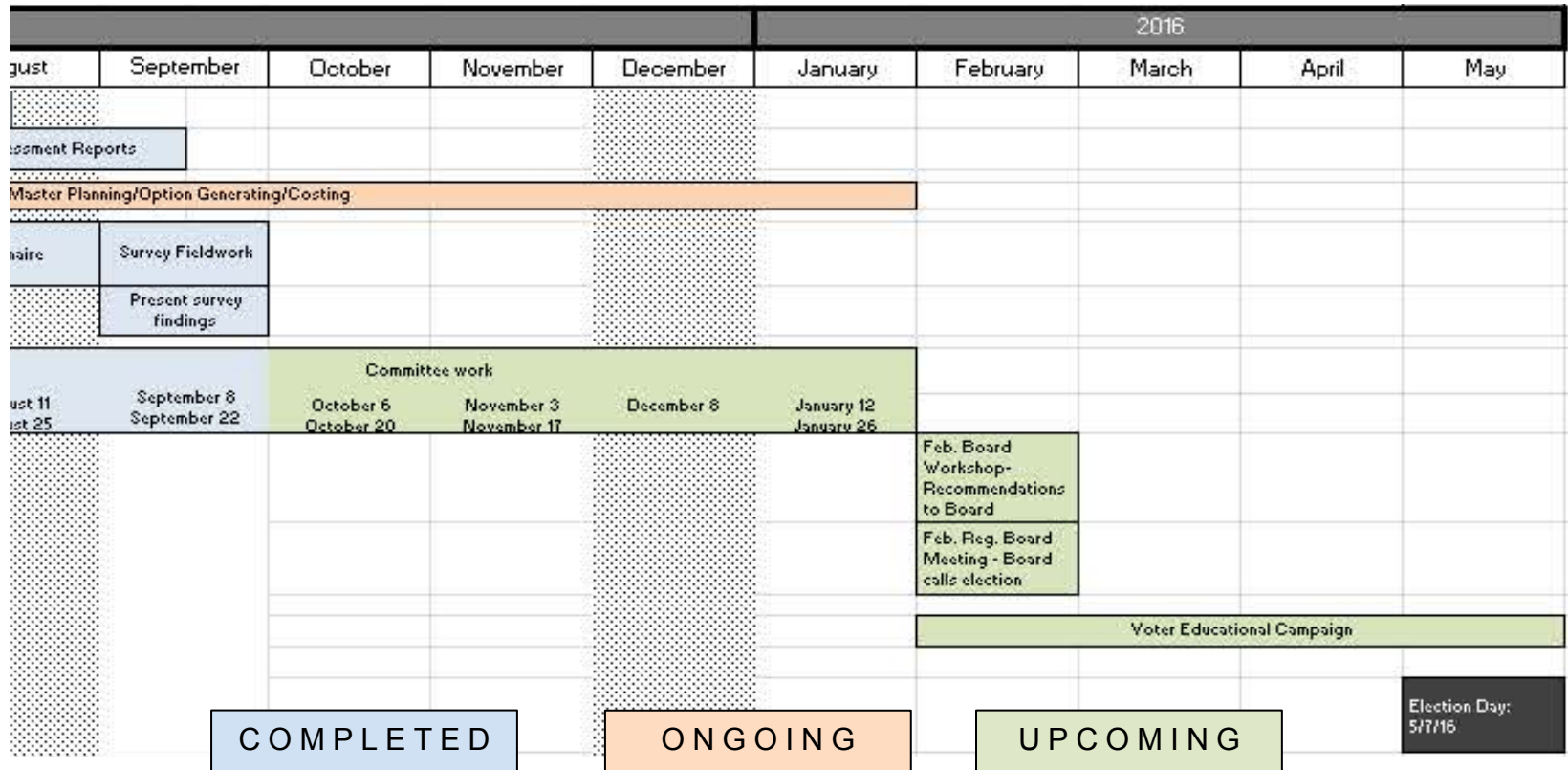
ONGOING

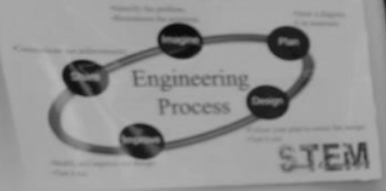
UPCOMING

TIMELINE OF PROCESS



TIMELINE OF PROCESS





Who can build the tallest structure using only 15 wood blocks?

Now try this: Who can build a structure that extends the furthest off from their desk?

MORE

FACILITY ASSESSMENT PROCESS

To observe, record and determine the present conditions of the facilities owned and maintained by Grapevine Colleyville ISD, with attention to existing building finishes & systems, classroom uses, and other facility information that will allow for comparison to future adopted district facility standards. The results allows for a determination of the level to which facilities are consistent and provide a reasonable level of equity across all district facilities for all learners.

FACILITY ASSESSMENT PROCESS

Cross Timbers Middle School
CAMPUS DATA



CROSS TIMBERS MIDDLE SCHOOL
2301 Pool Road, Grapevine Texas 76051

Year Built	1975
Approx. Total Square Footage	202,320
Grades Served	6-8
Current Enrollment	730
Building Levels	2



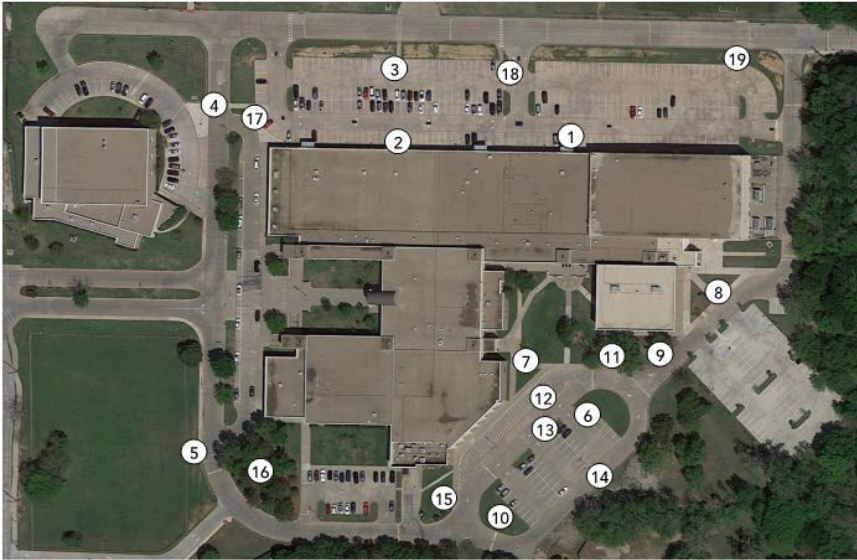
CROSS TIMBERS MIDDLE SCHOOL
2301 Pool Road, Grapevine Texas 76051

Year Built	1975
Approx. Total Square Footage	202,320
Grades Served	6-8
Current Enrollment	730
Building Levels	2

FACILITY ASSESSMENT PROCESS

FACILITY ASSESSMENT PROCESS

Cross Timbers Middle School
CIVIL - SITE



Broken curb inlet.



No positive drainage away from ma



Cracked concrete paving (typical).

FACILITY ASSESSMENT PROCESS

BUILDING CONDITION: EXTERIOR

General Conditions/Observations

Approximately 25% of hollow metal frames/doors/storefront windows need new finish. Some frames may require replacement due to be continued rusting and deterioration.

Approximately 25% of brick veneer stained and needs cleaning.

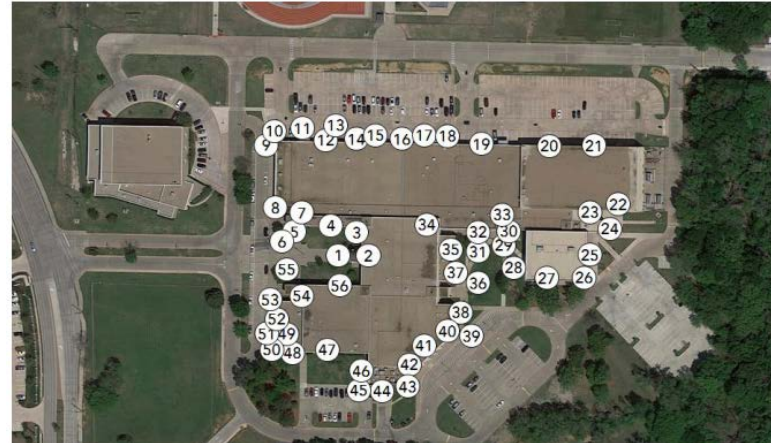
Approximately 50% of steel lintels above windows are rusting and need new protective finish.

Approximately 25% of window glazing stops around window frames are shrinking/potentially allowing water intrusion and need to be replaced.

Approximately 25% of brick control joint sealants cracking/separating and need to be replaced.

Approximately 30% of concrete paving/wall sealants need to be replaced.

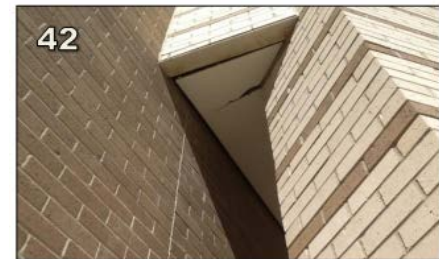
BUILDING CONDITION: EXTERIOR



Sealants around aluminum window frame are dry/cracked. Remove/replace.



Handrails are rusted. Refinish.



Plaster soffit cracked at corner of column.

FACILITY ASSESSMENT PROCESS

Cross Timbers Middle School ENGINEERING REPORT - MECHANICAL / ELECTRICAL / PLUMBING

Cross Timbers Middle School was originally constructed in 1990, with upgrade renovations and gymnasium addition built in 2006, and additional renovations in 2013. MEP upgrade work has been carried over the last 10 years under previous Bond Programs, including replacement of chillers, boilers and pumps, AHU replacement with new rooftop A/C units for Gym, lockers, computer labs and Kitchen, upgrade of JCI DDC, capacity and control upgrades for AHU's and FPAV terminals, DDC control for exterior lighting, replacement of water heaters, plumbing fixtures & showers. A lighting upgrade was also implemented recently utilizing conversions to more efficient T8 fluorescent, and TSHO lighting in Gymnasiums, as part of a District-wide lighting upgrade program.

The majority of the original building is served by 4-pipe heating and chilled water systems with three package air cooled chillers, two gas fired boilers and circulating pumps. System serves central air handling units including VAV & MZU systems serving the classrooms, Fine Arts, Library and Administration areas, and single zone units serving the Cafeteria. While replacement and control upgrade work has been completed for the central equipment, all of the air handling units, fan-powered VAV terminals, piping and duct systems are original to the building and would be due for replacement in the next 5-10 years. While not very efficient, systems are generally functional and would not warrant major replacement at this time considering the magnitude of upgrade work that has already been completed. However, with flat roof building construction it is strongly recommended that consideration and planning be given to future replacement of all central systems with new rooftop A/C units, in order to maintain long-term performance and operating reliability, improve maintenance efficiencies, and to provide effective energy savings with higher efficient equipment to support the District 2021 LEAD Program.

The Administration area is served by a VAV air handling system (AHU#7). The Library is served by a multizone system as part of the central classroom AHU#B. These areas have continued to experience cooling problems despite control upgrades and capacity adjustments. It is recommended that new dedicated rooftop A/C systems be provided for these areas, to replace AHU#7 for Administration, and to remove the Library from the multizone AHU#B. New units would be properly sized to provide effective cooling & heating, will allow independent operation of these areas separate from the central building systems, and will provide energy savings using higher efficient equipment.

The existing building DDC system is a Johnson Controls (JCI) Metasys system. While some upgrades have been implemented, the JCI system continues to be plagued with ongoing control problems relating to poor performance, improper setting and programming, and component failures. Replacement parts are expensive, and service representation has generally been nonresponsive and frequently unsuccessful in correcting deficiencies. It is strongly recommended that the DDC system be completely replaced with a new Alerton DDC system throughout the building and tied to the District energy management system, to re-establish proper control and operation for this building.

The IDF rooms are served by mini-split A/C units of the type that is subject to component failure with expensive parts and service. All IDF units should be replaced with new rooftop A/C units in order to locate units and associated condensate out of the space.

The building electrical service is 277/480 volt, 3-phase, with a 4000A main circuit breaker, served from a power company pad-mounted transformer. The building interior lighting system utilizes predominantly T8 fluorescent lamps. TSHO fluorescent fixtures serve the gym and 100W metal halide down lights serve most corridors. Parking lot lights and wall pack lights are HID type fixtures. The entire building is equipped with a fire alarm system that is in good condition and code-compliant.

Cross Timbers Middle School ENGINEERING REPORT - MECHANICAL / ELECTRICAL / PLUMBING



Parking lot HID light fixture.



Wall flood HID light fixture.

FACILITY ASSESSMENT PROCESS



Field of View.



Roof top Vents.

FACILITY ASSESSMENT PROCESS

Cross Timbers Middle School FOODSERVICE REPORT

SNACK BAR:

1. The following pieces of equipment are in poor condition:
 - a. Serving Counter
 - b. Mobile Serving Counter
 - c. Ice Cream Cabinet
2. The following pieces of equipment are in fair to poor condition:
 - a. Mobile Heated Cabinet
3. The following pieces of equipment are in fair condition:
 - a. Worktable
 - b. IDR Reach-In Refrigerator
 - c. Heated Merchandiser
4. It appears this space is not currently being used.

CODE DEFICIENCIES:

1. No hand sink in restroom.
2. Wood undershelf in warewash.
3. Various pieces of equipment are either rusting or corroded.
4. Exhaust hood does not have proper overhang. Removal of wall between hoods would allow reuse of these hoods and provide proper overhang.
5. Snack bar counter height does not meet ADA requirements.
6. Quantity of hand sinks are not sufficient. Add additional hand sinks.
7. Ceiling grid is starting to show signs of rust.

ARCHITECTURAL:

1. Floor is in poor condition.
2. Floor below counters are patched.
3. Ceiling panels & grids are soiled.
4. Appears that the roof is leaking.

RATING CRITERIA:

1. Priority 1: Poor – Immediate replacement (0-5 life expectancy)
2. Priority 2: Fair – Should be replaced (5-15 year life expectancy)
3. Priority 3: Good – Replacement not needed currently (15-20 year life expectancy)
4. Priority 4: Excellent – Replacement not needed (20-25 year life expectancy)

PROJECT NOTES:

Student Population: 778
Kitchen Square Footage: 4530 sq. ft.



Double Stack Convection Ovens



Disposer



MORE

FIRST SUBCOMMITTEES + MORE DETAILS

Grapevine-Colleyville ISD Subcommittees

Aging		Growth		Evolution	
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
<p>Main Resources:</p> <ul style="list-style-type: none"> • Facilities Assessment • Administrative Liaison 	<p>Main Resources:</p> <ul style="list-style-type: none"> • Demographic studies • Current campus capacities (Operational, Functional, Designed) • Administrative Liaison <p>.....</p> <p>facilities (offices, PD spaces, teacher collaboration spaces, book rooms, etc.)</p> <ul style="list-style-type: none"> • Controlled vestibules in instructional facilities • Furniture, fixtures, equip. & tech. that correspond with these spaces 	<p>Main Resources:</p> <ul style="list-style-type: none"> • Lead 2021 • Administrative Liaison <p>.....</p> <ul style="list-style-type: none"> • Non-Transition SPED Spaces (Subject specialists, etc.) • Furniture, fixtures, equip. & tech. that correspond with these spaces 	<p>Main Resources:</p> <ul style="list-style-type: none"> • Lead 2021 • Administrative Liaison <p>.....</p> <p>facility support of all district facilities (custodial spaces, mechanical spaces, etc.)</p> <ul style="list-style-type: none"> • Cafeterias & Kitchens of all district facilities • General surveillance (hallways, building site, etc.) of all district facilities • Furniture, fixtures, equip. & tech. that correspond with these spaces 	<p>Main Resources:</p> <ul style="list-style-type: none"> • Lead 2021 • Administrative Liaison <p>.....</p>	<p>Main Resources:</p> <ul style="list-style-type: none"> • Lead 2021 • Administrative Liaison <p>.....</p> <p>equip. & tech. that correspond with these spaces</p>

**Opinion of Probable Cost - Potential Projects
Heritage M.S.**

Sub-com	ID #	Tier	Location	Description	Discipline	Project Type (New, Addition, Renovation, FFE)	Total Const. Cost	Total Soft Costs	Total Project Cost
M4	M04.000			Heritage Middle School					
1	M04.001		All Campus modified in 2016 Bond	Remove mauve paint on pipes in corridor and replace with school color in 7th Grade Hall	ARCH	Renovation	\$8,162	\$1,531	\$13,130
1	M04.009		Fine Arts	Replace all flooring in the fine arts wing	ARCH	Renovation	\$24,049	\$4,511	\$38,687
1	M04.010		Grounds	Add central control for irrigation system	SITE	Renovation	\$3,498	\$1,501	\$6,472
1	M04.011		Hallways	Add lighting to corridors	MEP	Renovation	\$17,490	\$3,306	\$28,161
1	M04.015		Outside	Expand sidewalks to ancillary practice field	SITE	Renovation	\$8,745	\$3,753	\$16,181
1	M04.021			Paint gas piping on roof over band area	MEP	Renovation	\$2,332	\$441	\$3,755
1	M04.402			Add Fire Suppression - Concessions	MEP	Addition	\$38,245	\$10,897	\$65,246
1	M04.403			Upgrade PA system	MEP	Renovation	\$78,810	\$14,895	\$126,891
1	M04.404			New 25' Genie electric lift	FFE	FFE	\$0	\$0	\$0
1	M04.406			Complete paint job inside and out. Including sand blasting	ARCH	Renovation	\$81,620	\$15,311	\$131,300
1	M04.407			Replace all exterior doors	ARCH	Renovation	\$233,200	\$43,745	\$375,142
1	M04.408			Replace all lockers	ARCH	Renovation	\$262,350	\$49,213	\$422,035
1	M04.409			Replace all ceramic tiles (floor) in main hallway	ARCH	Renovation	\$559,680	\$104,987	\$900,342
1	M04.410			Replace ceramic tile in hallway floors as it is not available for	ARCH	Renovation	\$559,680	\$104,987	\$900,342
1	M04.411			Add 30 foot man lift	FFE	FFE	\$0	\$0	\$0
1	M04.413		Tennis Court	Resurface and paint	ARCH	Renovation	\$104,940	\$19,685	\$168,814
1	M04.414		Locker Rooms	Painted concrete floors - install vinyl non-slip flooring	ARCH	Renovation	\$29,850	\$5,599	\$48,018
1	M04.417		Grounds	Seal all joints in concrete drive, parking lot, sidewalk	SITE	Renovation	\$11,660	\$5,004	\$21,574
1	M04.418		Grounds	Seal all joints at sidewalk to building joints	SITE	Renovation	\$5,830	\$2,502	\$10,787
1	M04.419		Grounds	Repair approx. 18 LF of concrete curb	SITE	Renovation	\$210	\$90	\$388
1	M04.420		Grounds	Repair concrete drive (10'x40') (6'x30')	SITE	Renovation	\$6,087	\$2,612	\$11,262

**Opinion of Probable Cost - Potential Projects
Heritage M.S.**

	1	M04.813	Kitchen	Fly Fan	KITCHEN	Renovation	\$1,166	\$293	\$1,950
	1	M04.814	Kitchen	Exhaust Hood and Fire Suppression System 36'	KITCHEN	Renovation	\$44,623	\$11,224	\$74,637
	1	M04.815	Grounds	Concrete barrier free ramp and landing	SITE	Renovation	\$5,830	\$2,502	\$10,787
	1	M04.816	Grounds	Concrete sidewalk/flatwork	SITE	Renovation	\$26,527	\$7,615	\$45,311
	1	M04.817	Grounds	Concrete curb	SITE	Renovation	\$7,521	\$3,228	\$13,915
	1	M04.818	Grounds	Concrete pavement	SITE	Renovation	\$173,588	\$49,830	\$296,515
	1	M04.819	Grounds	Concrete crack repair & seal	SITE	Renovation	\$11,660	\$5,004	\$21,574
	1	M04.820	Grounds	Grade area to drain	SITE	Renovation	\$1,224	\$525	\$2,265
	1	M04.821	Grounds	Alternate - down spout civil cost	SITE	Renovation	\$35,942	\$10,317	\$61,394
	1	M04.822	ADA	Deficiencies	ARCH	Renovation	\$47,905	\$8,986	\$77,064
	1	M04.823	Door	Deficiencies	ARCH	Renovation	\$114,618	\$21,500	\$184,382
	1	M04.824	Finishes	Deficiencies	ARCH	Renovation	\$1,284,080	\$240,872	\$2,065,664
	1	M04.825	Exterior	Deficiencies	ARCH	Renovation	\$215,897	\$40,499	\$347,307
	1	M04.826	MEP	Deficiencies	MEP	Renovation	\$1,682,771	\$318,052	\$2,709,419
	1	M04.830	Security	Deficiencies	ARCH	Renovation	\$357,618	\$67,083	\$575,290
	2	M04.425		Enlarge Cafeteria	ARCH	Addition	\$1,136,850	\$408,738	\$2,024,303
	2	M04.426		Secured storage for PE and Athletics	ARCH	Addition	\$87,450	\$31,441	\$155,716
	3	M04.012	Lecture Hall	Remove old projection room; add seating in its place	ARCH	Renovation	\$9,969	\$1,870	\$16,037
	3	M04.013	Library	Replace window blinds with blackout shades	FFE	FFE	\$5,000	\$199	\$6,137
	3	M04.016	Outside	Grade area where portables were add sod and create outdoor classroom area (like CMS)	SITE	Renovation	\$29,150	\$8,368	\$49,793
	3	M04.017	Science Labs	Add individual safety shut-offs for gas, electric, and water (per	MEP	Renovation	\$58,300	\$11,019	\$93,868
	3	M04.434		Add centralized teacher pods/workstations for better collaboration	ARCH	Addition	\$874,500	\$314,414	\$1,557,156
	3	M04.435		Renovate to create makerspaces and collaboration pods	ARCH	Renovation	\$1,136,850	\$213,255	\$1,828,819
	3	M04.436		Add technology, furniture and equipment to larger spaces in order to transform these areas into multipurpose uses	FFE	FFE	\$0	\$0	\$0
	3	M04.438		Renovate to increase use of natural light (windows, skylights,	ARCH	Renovation	\$29,150	\$5,468	\$46,893
	3	M04.439		Renovate to create multifunctional instructional and meeting	ARCH	Renovation	\$874,500	\$164,042	\$1,406,784
	3	M04.440		Upgrade outdoor instructional areas	ARCH	Renovation	\$29,150	\$5,468	\$46,893
	3	M04.441		Add multi-device charging stations in common areas (ex. Kwik Boost)	FFE	FFE	\$0	\$0	\$0

**Opinion of Probable Cost - Potential Projects
Heritage M.S.**

3	M04.456	Library	Doors to a covered reading garden	ARCH	Renovation	\$6,996	\$1,312	\$11,254
3	M04.457	Cafeteria	Add stand-up counter tops for students to eat and use laptops at lunch	FFE	FFE	\$0	\$0	\$0
3	M04.475	FFE	FFE Needs - ref. Purchasing spreadsheet	FFE	FFE	\$562,901	\$22,455	\$690,919
4	M04.014	Lockers	Remove lockers	ARCH	Renovation	\$35,097	\$6,584	\$56,459
4	M04.400		Add secure / controlled vestibule	ARCH	Renovation	\$116,600	\$21,872	\$187,571
4	M04.427		New Office Furniture	FFE	FFE	\$0	\$0	\$0
4	M04.428		Redesign front drive for student safety	SITE	Renovation	\$0	\$0	\$0
4	M04.437		Add acoustical changes for multipurpose environments	ARCH	Renovation	\$29,150	\$5,468	\$46,893
4	M04.458	Exterior	New Marquee, not scrolling	TECH	Addition	\$0	\$0	\$0
4	M04.459	Office	Redesign office to be more efficient	ARCH	Renovation	\$174,900	\$32,808	\$281,357
4	M04.460	SAC	Expand SAC and back hallway access to SAC for conjection	ARCH	Renovation	\$1,136,850	\$213,255	\$1,828,819
4	M04.461	Interior	Add new surveillance cameras to interior of facility	MEP	New	\$23,320	\$6,147	\$39,287
4	M04.462	Interior	Replace existing surveillance cameras to interior of facility as	MEP	Renovation	\$67,045	\$12,672	\$107,949
4	M04.463	Exterior	Add new surveillance cameras to exterior of facility	MEP	New	\$29,150	\$7,684	\$49,109
4	M04.464	Exterior	Replace existing surveillance cameras on exterior of facility as	MEP	Renovation	\$29,150	\$5,509	\$46,934
4	M04.465	Interior	Add card readers to office doors from hallways (2) locations	MEP	Renovation	\$12,126	\$2,292	\$19,525
4	M04.466	Interior	Add new surveillance cameras to interior of facility	MEP	New	\$23,320	\$6,147	\$39,287
4	M04.467	Interior	Replace existing surveillance cameras to interior of facility as	MEP	Renovation	\$67,045	\$12,672	\$107,949
4	M04.468	Exterior	Add new surveillance cameras to exterior of facility	MEP	New	\$29,150	\$7,684	\$49,109
4	M04.469	Exterior	Replace existing surveillance cameras on exterior of facility as	MEP	Renovation	\$29,150	\$5,509	\$46,934
4	M04.470	Interior	Add card readers to office doors from hallways locations	MEP	Renovation	\$12,126	\$2,292	\$19,525
4	M04.473	Interior	Add access control to roll down gates	MEP	Renovation	\$18,190	\$3,438	\$29,287
4	M04.827	Long Term	Install solar PV power system	MEP	Renovation	\$874,500	\$165,285	\$1,408,027
4	M04.828	Long Term	Replace interior lighting with LED type in occupiable spaces	MEP	Renovation	\$648,005	\$122,476	\$1,043,348
4	M04.829	Long Term	Install intelligent lighting control system in occupiable spaces	MEP	Renovation	\$477,477	\$90,245	\$768,783
5	M04.002	Choir	Add and install 4 hanging choir microphones	MEP	Renovation	\$1,749	\$250	\$2,735
5	M04.003	Choir	Add portable sound mixer	FFE	FFE	\$1,996	\$0	\$2,450
5	M04.004	Choir	Add 1 digital keyboard with bench (although some campuses	FFE	FFE	\$1,540	\$0	\$1,890
5	M04.005	Choir	Add 1 locking presentation cabinets	FFE	FFE	\$1,000	\$40	\$1,227
5	M04.006	Choir	Add mp3 players/recorders	FFE	FFE	\$299	\$12	\$367
5	M04.007	Choir	Add speakers	FFE	FFE	\$399	\$16	\$490
5	M04.008	Fine Arts	Add restroom to Fine Arts area	ARCH	Renovation	\$291,792	\$54,735	\$469,397
5	M04.019		Reconfigure SAC to remove varving levels and extend the stage	ARCH	Renovation	\$524,700	\$98,425	\$844,070

**Opinion of Probable Cost - Potential Projects
Heritage M.S.**

	5	M04.020		Move curtains and railing to fit stage	ARCH	Renovation	\$9,328	\$1,750	\$15,006
	5	M04.416	Addition	Add restroom to fine arts building (assume a 15'x20' addition)	ARCH	Addition	\$87,450	\$31,441	\$155,716
	6	M04.018		Add overhead shade protection at outside scoreboard controls	ARCH	Renovation	\$2,332	\$437	\$3,751
	6	M04.401		Add Tennis Court lighting	MEP	New	\$116,600	\$30,737	\$196,436
	6	M04.405		Replace bleachers in both gyms	ARCH	Renovation	\$291,500	\$54,681	\$468,928
	6	M04.412	Tennis Court	Replace wind netting	FFE	FFE	\$0	\$0	\$0
	6	M04.415	Addition	Add storage building for athletic equipment (assume 15' x 20')	ARCH	Addition	\$52,470	\$18,865	\$93,429
	6	M04.423	Concession	Build additional storage for track and football equipment	ARCH	Renovation	\$52,470	\$9,843	\$84,407
	6	M04.431		Resurface tennis courts	ARCH	Renovation	\$104,940	\$19,685	\$168,814
	6	M04.432		Upgrade athletic dressing rooms and weight room	ARCH	Renovation	\$559,680	\$104,987	\$900,342
	6	M04.433		Add full scale weight room	ARCH	Addition	\$874,500	\$314,414	\$1,557,156
	6	M04.474		Wrestling room addition	ARCH	Addition	\$1,136,850	\$408,738	\$2,024,303
	6	M04.803	Landscape	Replace basketball goals	SITE	Addition	\$1,749	\$744	\$3,230
		Subtotal							\$35,322,316

2016 Bond OPC - Potential Projects
Facility Summary

M3 Grapevine Middle School		
Group 1 -	Aging	\$10,505,460
Group 2 -	Growth & Evolution	\$4,048,605
Group 3 -	Evol. - Core Academics	\$9,739,477
Group 4 -	Evol. - Core Support Services	\$5,394,162
Group 5 -	Evol. - Special Instruction	\$119,687
Group 6 -	Evol. - Athletics	\$5,981,696
Total		\$35,789,088
M4 Heritage Middle School		
Group 1 -	Aging	\$10,923,981
Group 2 -	Growth & Evolution	\$2,180,018
Group 3 -	Evol. - Core Academics	\$9,048,022
Group 4 -	Evol. - Core Support Services	\$6,176,151
Group 5 -	Evol. - Special Instruction	\$1,493,348
Group 6 -	Evol. - Athletics	\$5,500,796
Total		\$35,322,316



MORE

BUILDING A BOND BUDGET

- Construction Cost
- Escalation
 - Factor of estimated inflation between bond election estimates and project bid day(s)
- Furniture, Fixtures, & Equipment (FF&E)
 - Items direct purchase by district to save money
 - Most items that would not require permitting and installation by a General Contractor
 - Examples: Culinary Arts Equipment, Technology Equipment, Furniture (not fixed), Residential Appliances (ie – refrigerators, microwaves, etc.)
- Soft Costs
 - Project Contingency
 - Architectural and Engineering Fees (basic services include Architectural, Interior Design, Structural, and MEP)
 - Environmental Engineering (Hazardous Materials Consultant (asbestos), Indoor Air Quality Testing, and Geotechnical Engineers)
 - Site Surveying
 - Sub-surface Utility Surveying
 - Civil Engineering (site topography, utilities, and drainage)
 - Food Service Specialists
 - Acoustical Engineers (mainly for performing arts spaces)
 - Specialty Lighting Engineers (mainly for performing arts spaces)
 - Landscape Architects
 - Commissioning (recommended minimum is HVAC, electrical, and data)
 - Roofing and Moisture Protection Specialists
 - Construction Material Testing
 - Technology Design (data, telephone, and audio/visual)
 - Security Specialists (access control, camera surveillance)
 - Pre-construction General Construction Services (mainly when CMR delivery method is chosen)
 - Signage and Way-finding Design
 - Printing
 - Fire Line Flow Test
- Bond Finance Costs

BUILDING A BOND BUDGET





QUESTIONS?



MORE