

Facilities Planning, Design & Construction

THURSDAY, FEBRUARY 13, 2022 9:00AM - 12:00PM

PRESENTERS



Nandita Mishra, Intl. Assoc. AIA, LEED AP, ALEP
TMP Architecture, Inc.



Bill Weinrauch, Assoc. AIA
TMP Architecture, Inc.



Steve Mrak, PE
Peter Basso Associates, Inc.

Scott Peck, PE
Peter Basso Associates, Inc.

Class Materials

*Can be
found at*

<https://www.msbo.org/msbo-certification-program/msbo-certification-class-materials/>



Presentation Agenda

PLANNING 

DESIGN & IMPLEMENTATION 

CONSTRUCTION 

CASE STUDY 

*Planning is the bridge between
problems and solutions*

Select the Team

Define the Problem

Develop the Plan

Planning

Select the Team

Section 1

Qualification- Based Process

Section 2

Team Members



Qualification-Based Process

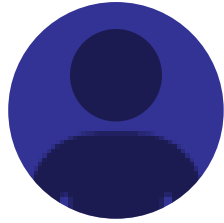


RFQ
- or -
RFP

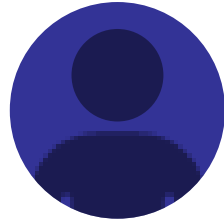
Your Internal Selection Team

- Superintendent
- Assistant Superintendents
- Board of Education
- Director of Operations
- Director of Curriculum
- Director of Technology
- Business Manager
- Legal Counsel
- Architect
- Construction Manager
- Owner's Representative

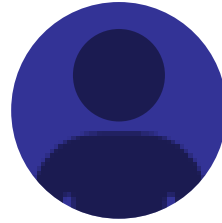
Your Project Team



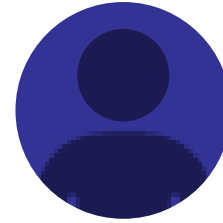
**Architect
/Engineer**



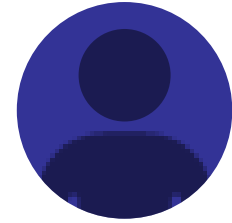
**Construction
Manager**



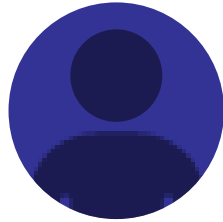
**General
Contractor**



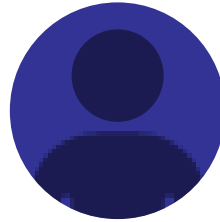
**Owner's
Representative**



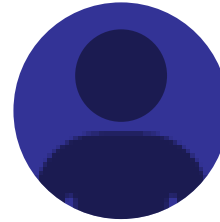
**Bond
Counsel**



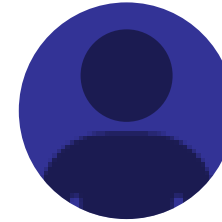
**Financial
Planning Firm**



**Market
Survey
Firm**



**Bond
Underwriter**

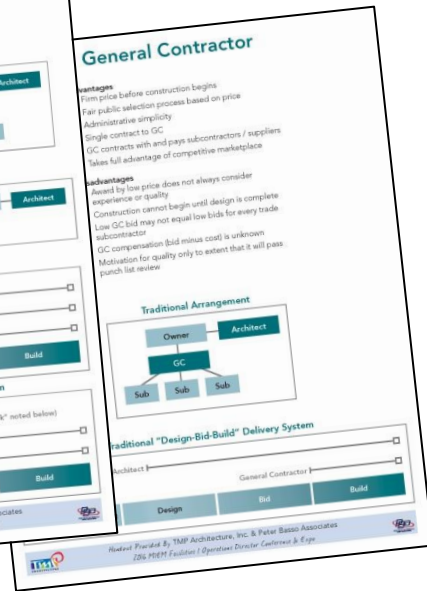
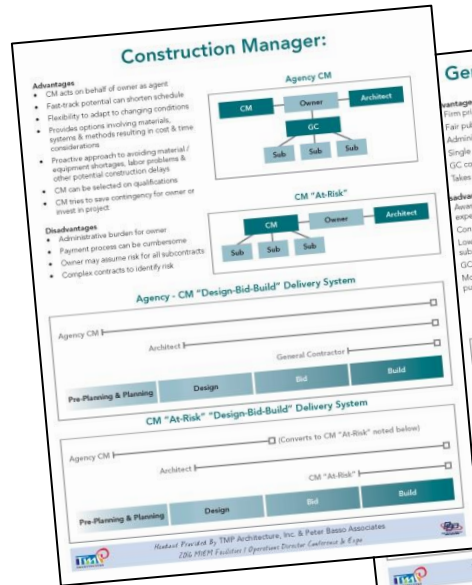
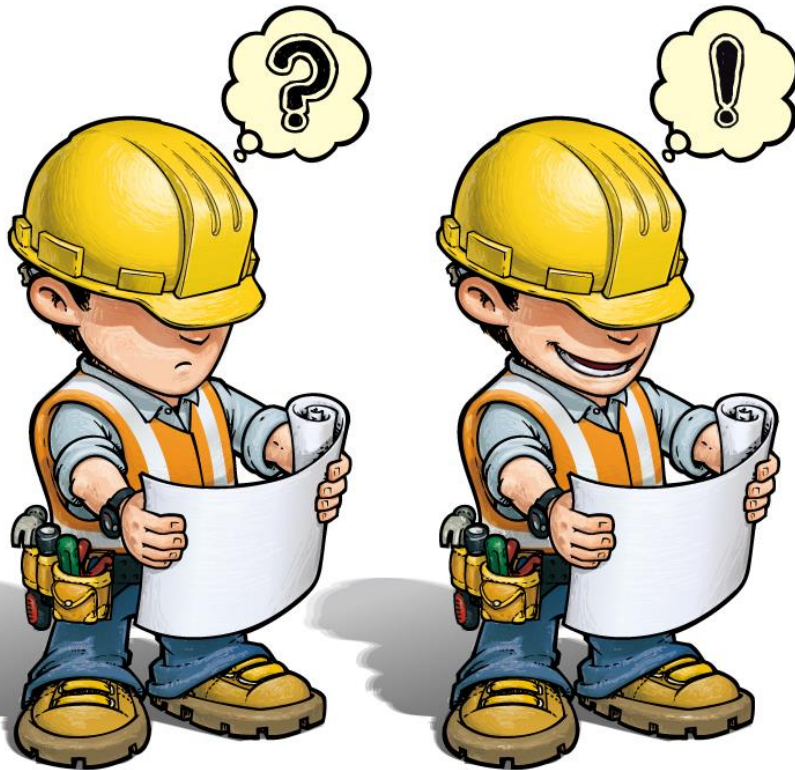


**Specialty
Consultants**

Architecture/Engineering



Construction Manager vs. General Contractor



Construction Manager: Advantages



Construction Manager: Disadvantages



CM: Further Consideration



General Contractor: Advantages



General Contractor: Disadvantages



GC Further Considerations

- Limited Participation with the Owner
- Need Adequate Schedule to Complete Documents
- Quality as Good as Specifications



Owner's Representative



Define the Problem

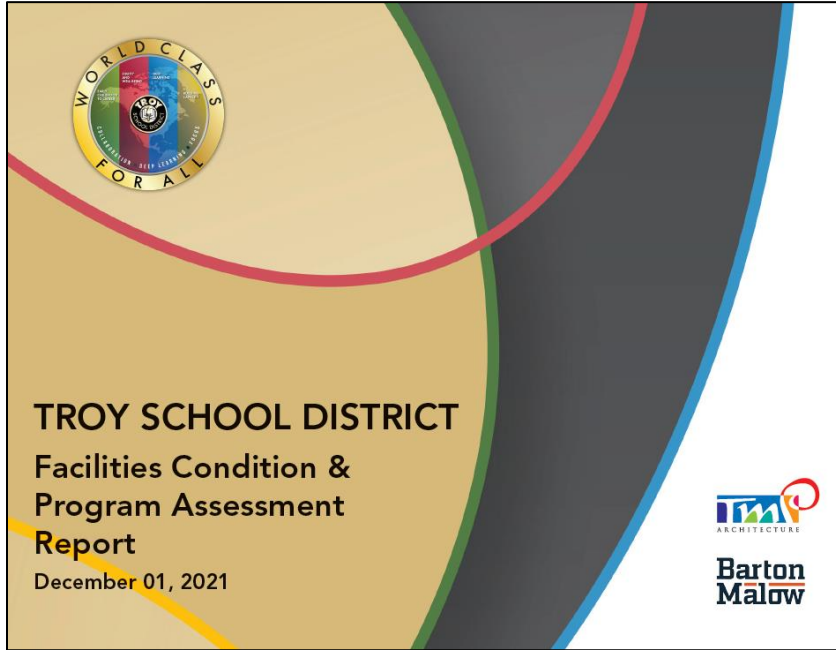
Section 1

Document What Exists

Section 2

Define the Vision for the Future

Facilities Assessment



Existing Utilization

Amerman Elementary School

Address: 847 North Center Street Northville, MI 48167 Building Area: 69,564 Square Feet No. of Floors: 1 1965, 1967, 1969, 1990, Year Built: 2003 Assessment Date: 12/20/2014		BUILDING DEFICIENCIES AND PRIORITIES BY CATEGORY					NOTES								
Consequences of the Problem: 1. Hazards (to health, safety & welfare) 2. Interruption (to classes, operations) 3. Deterioration (end of useful life) 4. Utility (loss/lack of function) 5. OK (or not applicable)		Urgency: 1. Immediate 2. 1 - 2 years 3. 3 - 5 years 4. Over 5 years 5. No Impact		Vision/Curriculum: 1. High 2. Important 3. Significant 4. Minimal Impact 5. No Impact		• District Priority refers to a score of 1, 2, 3 or NA. • Lower score equals higher priority. • Priority 3 would be a long term Capital Improvements project. • NA is no current action required.									
		BUILDING TOTAL:					\$2,538,267								
MARK	ASSESSED NEED	LOCATION	CONSEQUENCE	URGENCY	VISION / CURRICULUM	SCOPE	DISTRICT PRIORITY	ACTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL	2015 PROJECT COST		
BUILDING EXTERIOR (BE)															
BE-1	Doors and Frames		4	3	5	12	NA				\$	-	-		
BE-2	Walls		2	1	1	4	1	Tuckpoint masonry	1	L.S.	\$ 10,800	\$ 10,800	\$ 15,000		
BE-3	Structure		5	4	5	14	NA				\$	-	-		
BE-4	Windows		4	4	5	13	NA				\$	-	-		
BE-5	Supported Slabs		5	4	5	14	NA				\$	-	-		
BE-6	Trim		5	4	5	14	NA				\$	-	-		
BE-7	Softs		5	4	5	14	NA				\$	-	-		
BE-8	Paint/Coatings		4	4	5	13	NA				\$	-	-		
BE-9	Roof		5	4	5	14	NA				\$	-	-		
BE-10						0					\$	-	-		
Subtotal - BE raw EPI score:											99	Subtotal - Building Exterior:			\$ 15,000
BUILDING INTERIOR (BI)															
BI-1	Corridors - Ceramic Tile		3	3	5	11	NA				\$	-	-		
BI-2	Corridors - Carpet		3	1	5	9	NA				\$	-	-		
BI-3	Corridors - VCT		3	2	2	7	2		8,450	SF	\$ 4.50	\$ 38,025	\$ 52,813		
BI-4	Walls		4	4	5	13	3	Replace coat racks with metal lockers	420	EA	\$ 300	\$ 126,000	\$ 175,000		
BI-5	Ceramic Tile		4	4	5	13	NA				\$	-	-		
BI-6	Ceiling		4	4	5	13	NA				\$	-	-		
BI-7	Hard ceilings		4	4	5	13	NA				\$	-	-		
BI-8	Display cases		5	4	5	14	NA				\$	-	-		
BI-9	Doors and Frames	Group Toilet Rooms, Cross-Corridor and Gymnasium	2	1	1	4	1	Replace doors and frames	1	L.S.	\$ 30,000	\$ 30,000	\$ 41,667		
BI-10						0					\$	-	-		
Subtotal - BI raw EPI score:											77	Subtotal - Building Interior:			\$ 269,479

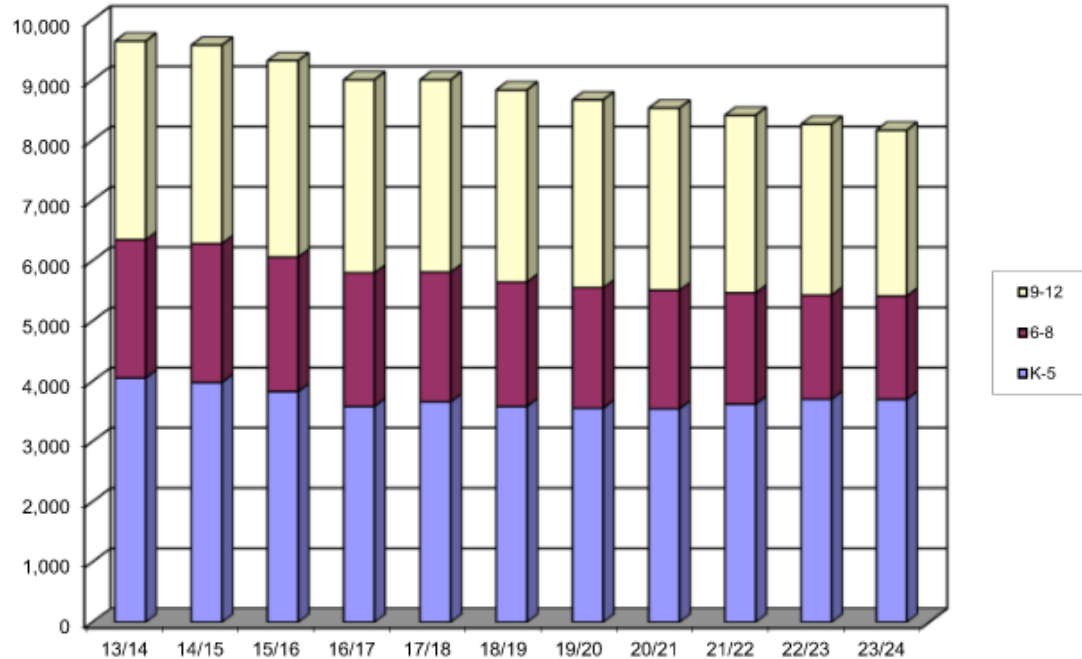


Document What Exists

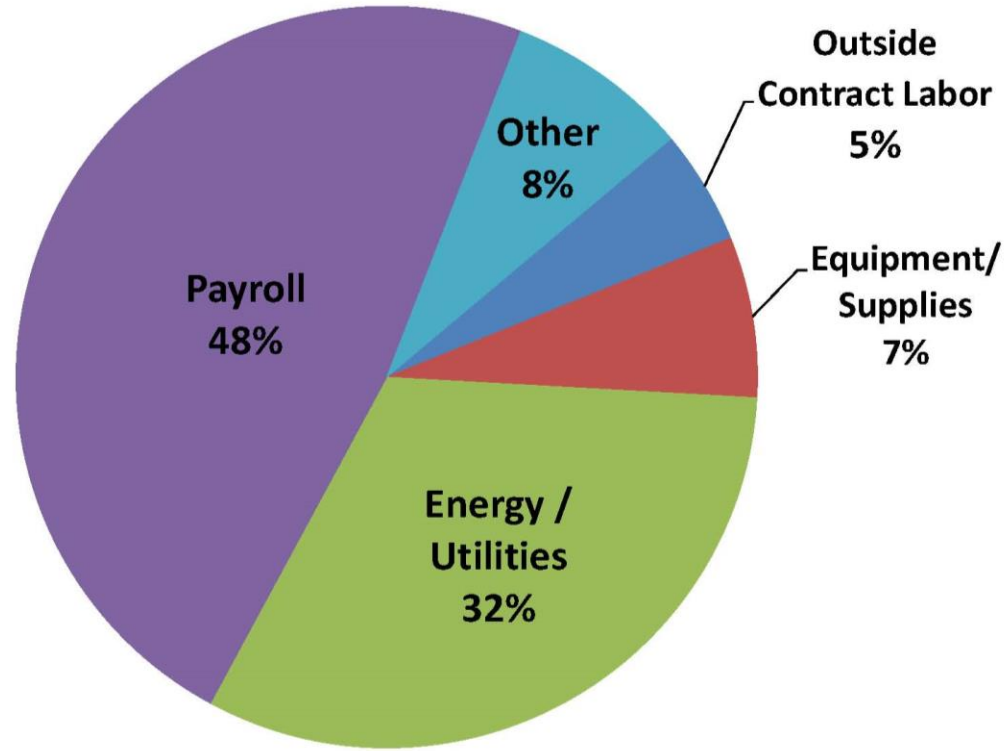
Enrollment Projections

Comparison Between Past, Present and Five Year Projected Enrollment - 13/14 to 23/24

Method 1



Total Operating Expenses



Annual Operating Expense Increase

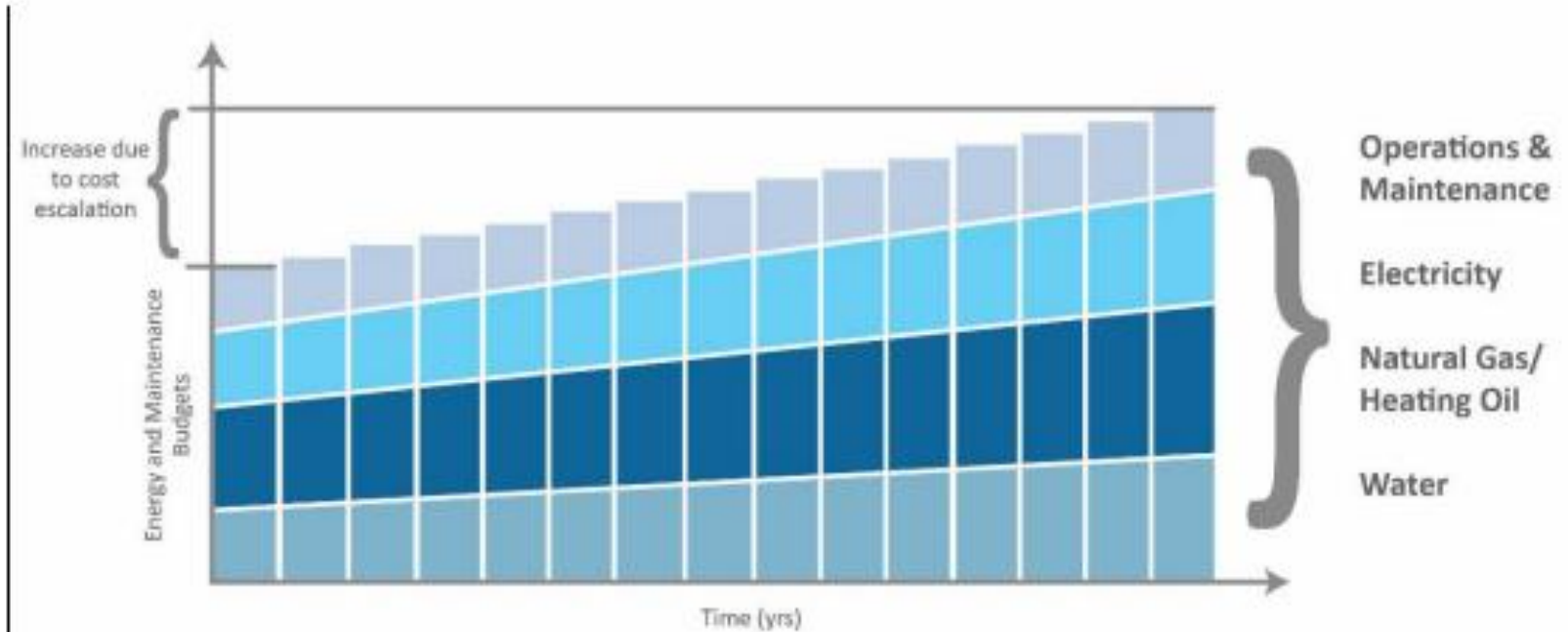
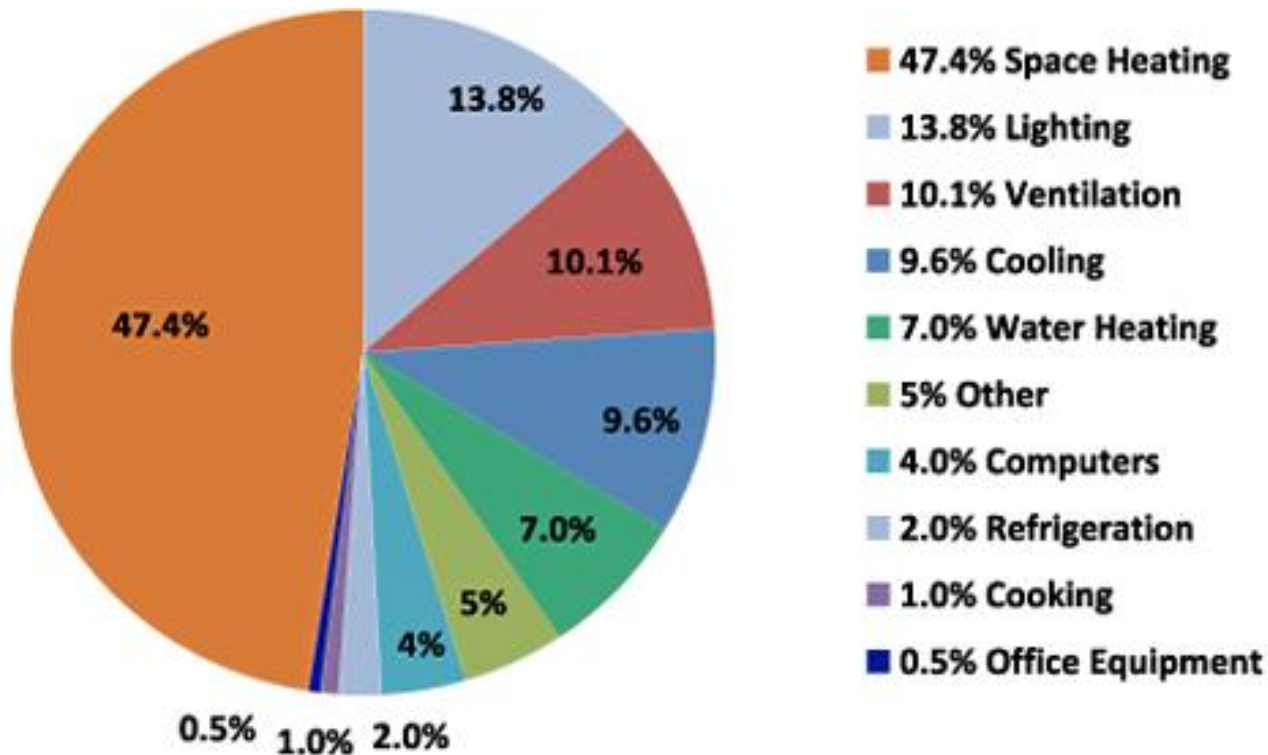


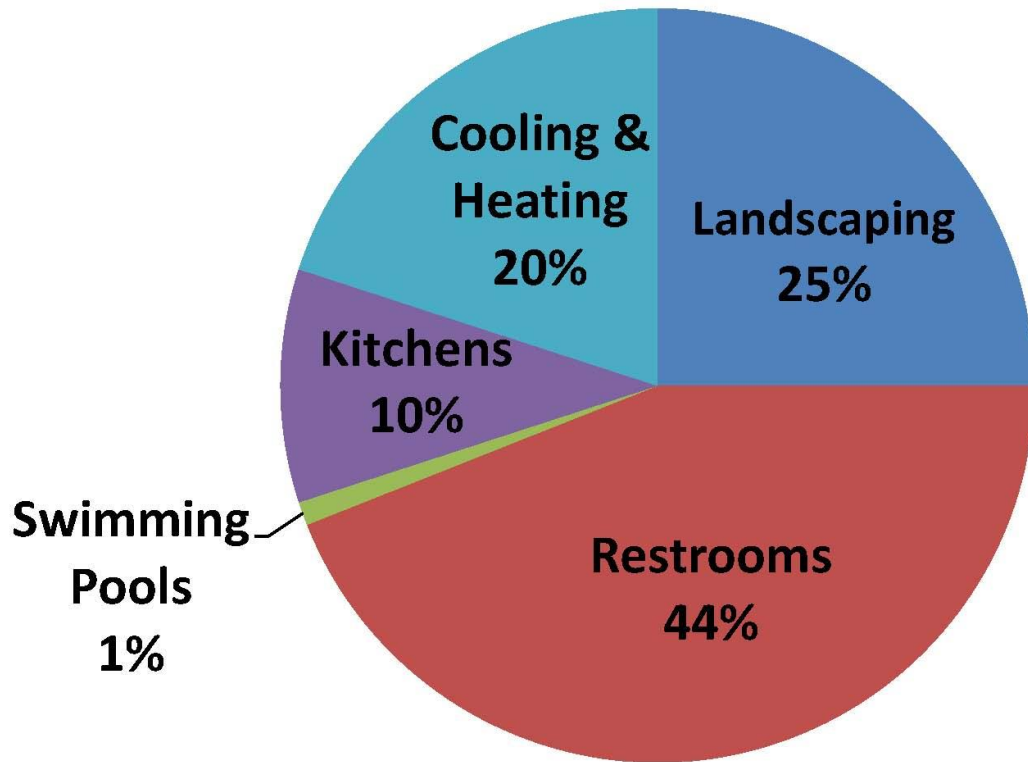
Figure 1: Rising Cost of Utilities and O&M^b

Operating & Maintenance Expenses



Document What Exists

Consumptive Fresh Water Use in K-12 Buildings



Document What Exists

Visioning Sessions



FACILITIES FORWARD

*Help shape
our Students' Futures!*

Farmington Public Schools invites **YOU**—
parents, community members, staff to attend

Vision Planning Sessions

focusing on our District's long-range facilities needs

Your attendance at these meetings gives you the opportunity
to share your ideas and help create a vision for the future.

Sessions are scheduled for:
**Thursday, September 13
& Tuesday, October 2**
6:30 - 8:30 p.m.

Ten Mile Building • 32789 W. 10 Mile Road, Farmington

Everyone will have an opportunity to contribute at these meetings. They will be
collaborative and interactive sessions, where ideas will be shared and discussed.
Session 2 builds upon Session 1, so please plan to attend both sessions.

Come and help shape the future of Farmington Public Schools!



Define the Vision
for the Future

Shift in Architecture, Systems, Furniture & Technology



Shift in Architecture, Systems, Furniture & Technology



Shift in Education

Flexibility

Collaborative

Student Centered

Blended Learning

Critical thinking

Adaptability



Team-based

C.T.E

Multi-discipline

Creativity

Communication

Deep Learning

S.T.E.A.M.

Agility

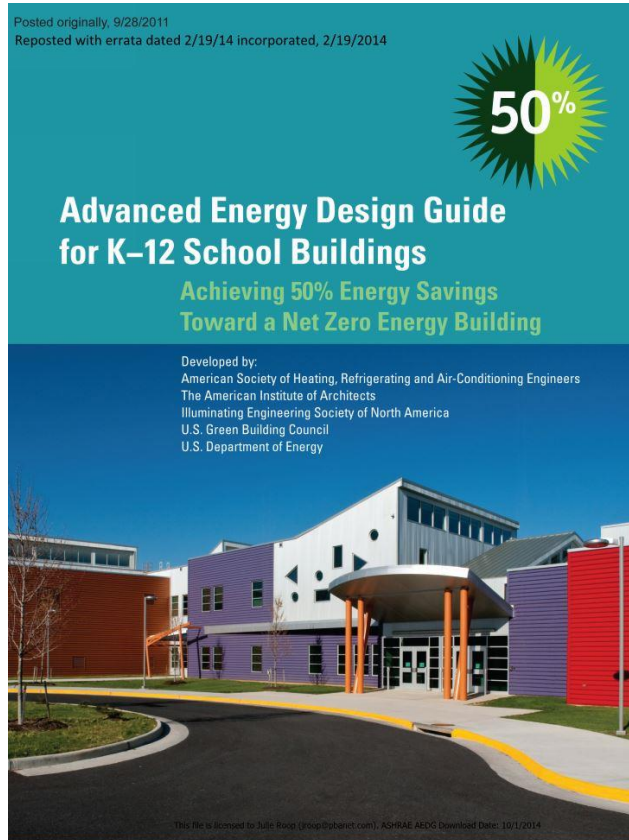
Project-Based Learning

Student Centered



Define the Vision
for the Future

High Performance Buildings



Define the Vision
for the Future

Develop the Plan

Section 1

Develop Guiding Principles

Section 4

Concepts

Section 2

Existing vs. Vision

Section 5

Funding Options

Section 3

Priorities

Section 6

State Requirements

Develop Guiding Principles



Provide collaboration spaces for individual and group learning that can be shared by adjacent classrooms, featuring mobile furniture and stimulating surroundings.

Guiding Principles

Guiding Principles	# Revised 1-6 spot
Transform Classrooms into 21st Century Learning Studios	24
Meet Today's Technology Needs	21
Focus on Early Childhood Needs	20
Provide MS & HS STEM/STEAM labs	20
Secure Entries at all Schools	17
Create Shared Collaboration Spaces	17
Add Staff Collaboration Spaces	11
Add Spaces for Socialization and Interaction	7
Transform Media Centers into Learning Commons	6
Encourage & Support After-hours Usage	4
Corridors become Learning Streets	3
Create Eco-friendly Schools	0

Existing vs. Vision

A1



District Master Plan

Building Configuration Options

Advantages

- Community Perception
- Maintain Heritage / Patterns

Disadvantages

- Major disruption
- Longer construction duration
- Educational vision is compromised
- Inefficiencies of existing schools = 15% added s.f. to rectify. (*)
- Operational expenses (4 sites)
- Phasing Difficulties

Capital Costs

• \$64,620,172

Operational Costs

• General/Maintenance
\$250,351
• Utilities
\$827,682

jeux consultants, inc.
Sweet Consulting LLC



Port Huron Schools - Existing vs. Ideal Worksheet - Elementary Schools										
August 18, 2015										
Item	Cleveland	Curt	Edison	Garfield	Indian Wells	Kearney	Kearney	Kearney	Kearney	Wilson
Welcome Center										
Secure Entry to Main Office	•	•	•	•	•	•	•	•	•	•
Reception/Screening Space	•	•	•	•	•	•	•	•	•	•
Conference Area	•	•	•	•	•	•	•	•	•	•
Workroom	•	•	•	•	•	•	•	•	•	•
Power/Internet/Workroom	•	•	•	•	•	•	•	•	•	•
Rest rooms	•	•	•	•	•	•	•	•	•	•
Clinic	•	•	•	•	•	•	•	•	•	•
Principal Office	•	•	•	•	•	•	•	•	•	•
Learning Studios										
Kindergarten - 1200sf	0 of 2	0 of 3	1 of 3	0 of 4	0 of 2	0 of 3	0 of 3	0 of 3	0 of 4	0 of 3
Rest rooms	2 of 2	1 of 3	3 of 3	1 of 4	note (2)	3 of 3	note (3)	note (4)	3 of 4	3 of 3
Gr 1-3 - 1000sf	0 of 6	0 of 9	0 of 9	1 of 13	0 of 9	0 of 12	0 of 9	0 of 13	0 of 13	0 of 13
Gr 4-5 - 900sf	0 of 4	0 of 6	0 of 5	0 of 6	0 of 6	0 of 6	0 of 6	1 of 6	0 of 6	0 of 6
Access to water	•	•	•	•	•	•	•	•	•	•
Interactive wall tools	•	•	•	•	•	•	•	•	•	•
Individual Cubbies	•	•	•	•	•	•	•	•	•	•
Flexible furniture/cabinets	•	•	•	•	•	•	•	•	•	•
View to outdoors	•	•	•	•	•	•	•	•	•	•
Pre-School / Child Care	•	•	•	•	•	•	•	•	•	•
Specialized Learning Studios										
Art	•	•	•	•	•	•	•	•	•	•
Music	•	•	•	•	•	•	•	•	•	•
Media Center	•	•	•	•	•	•	•	•	•	•
Tech Lab	•	•	•	•	•	•	•	•	•	•
Support Services										
Student Staff Offices	•	•	•	•	•	•	•	•	•	•
Faculty Planning Center	•	•	•	•	•	•	•	•	•	•
Group Activity										
Gymnasium	•	•	•	•	•	•	•	•	•	•
Used for dining?	•	•	•	•	•	•	•	•	•	•
adjacent storage	•	•	•	•	•	•	•	•	•	•
Dining / Multi-purpose Space	•	•	•	•	•	•	•	•	•	•
used for performances?	•	•	•	•	•	•	•	•	•	•
Gym	•	•	•	•	•	•	•	•	•	•
adjacent storage	•	•	•	•	•	•	•	•	•	•
Warming Kitchen	•	•	•	•	•	•	•	•	•	•
Full Service Kitchen	•	•	•	•	•	•	•	•	•	•
Servary	•	•	•	•	•	•	•	•	•	•
Staff Dining / Lounge	•	•	•	•	•	•	•	•	•	•
Learning Streets	•	•	•	•	•	•	•	•	•	•
Outdoor Play	•	•	•	•	•	•	•	•	•	•
Maintenance / Operations										
Custodial Work Center	•	•	•	•	•	•	•	•	•	•
General Storage / Recycling	•	•	•	•	•	•	•	•	•	•
Outdoor Equipment Storage	•	•	•	•	•	•	•	•	•	•
General										
Lobby	•	•	•	•	•	•	•	•	•	•
Accessibility (ADA compliant)	•	•	•	•	•	•	•	•	•	•
Zone for after hours use	•	•	•	•	•	•	•	•	•	•
Adequate parking spaces	•	•	•	•	•	•	•	•	•	•
Segregated bus and auto traffic	•	•	•	•	•	•	•	•	•	•
Exterior lighting	•	•	•	•	•	•	•	•	•	•
Historical Significance	•	•	•	•	•	•	•	•	•	•
Notes										
(1) Classrooms on 2 levels										
(2) 8 rooms have attached bathrooms but might not be used as kindergarten at this time										
(3) 1 existing kindergarten has a attached bathroom, 3 other rooms have attached bathrooms										
(4) All 3 existing kindergarten has a attached bathroom, 14 other rooms have attached bathrooms										
(5) Secure Vestibule construction planned for summer 2015										
(6) Secure Vestibule construction planned for summer 2015										

Existing vs.
Vision

2

Develop the Plan

		Infrastructure Needs										Program Needs											
		Site	Interior Envelope	Hallways/ Classrooms/ General	Gym / Locker Rms / Cafeteria	Bathroom Finishes	Mech/HVAC	Air Conditioning	Plumbing	Electrical	Technology	Secure Welcome Center	Kindergarten Remodeling	Flexible Instructional Space Additions	Conference Space Remodeling	Media Center Remodeling	S.T.E.A.M. Remodeling -	Science/S.T.E.M. Lab Remodeling	S.T.E.M. Addition	Student Commons Addition	Magnum Program	New Bldg	
Elementary Schools	Cleveland Elem	2	1+2	1		1	1	2		1	1		1	1	1	1							
	Crull Elem	2	1+2	1+2	2	1+2	1+2	2		1	1	1	1	1	1	1							
	Edison Elem	2	1+2	1		1	1+2	2	2	1	1		1	1	1	1							
	Garfield Elem	2	1+2	1+2	2	1	1	2		1	1	1	1	1	1	1							
	Indian Woods Elem	2	1+2	1	1	1	1+2	2		1	1	1	1	1	1	1							
	Keewahdin Elem	2	1+2	1+2	2	1	1+2	2		1	1		1	1	1	1							
	Kimball Elem																				2	1	
	Lakeport Elem																				2		
	Michigamme Elem	2	1+2	1		1	1+2	2		1	1	1	1	1	1	1	1						
	Roosevelt Elem	2	1+2	1+2	2	1	1+2	2		1	1			1	1	1	1						
Woodrow Wilson Elem	2	1+2	1+2	2	1	1	2		1	1			1	1	1	1							
Middle Schools	Central MS	2	1+2	1+2	2	1	1+2	2	1+2	1	1	1				1	1	1	1				
	Fort Gratiot MS	2	1+2	1	1	1	1+2	2		1	1	1				1	1	1	1				
	Holland Woods MS	2	1+2	1	2	1	1+2	2		1	1	1				1	1	1	1				
High Schools	Port Huron HS	2	1	1	1+2	1	2	2		1	1	1			1	1			1	1	1		
	Port Huron Northern HS	2	1+2	1+2	2	1	1	2	1+2	1	1	1			1	1			1	1	1		
	Harrison Building	2	1+2	2		2	2	2		2	1												
Other	Early Childhood Center																					1	
	McKinley Building	2	1+2	2			1+2	1			1		1										
	Operations Building	2	2																				
	Stadium	2		2																			
	Lapeer Property																						

LEGEND: 1 - Included in Proposal 1

2 - Included in Proposal 2

1+2 - Included in Proposal 1 & 2

Priorities

3

Program, Plans & Cost

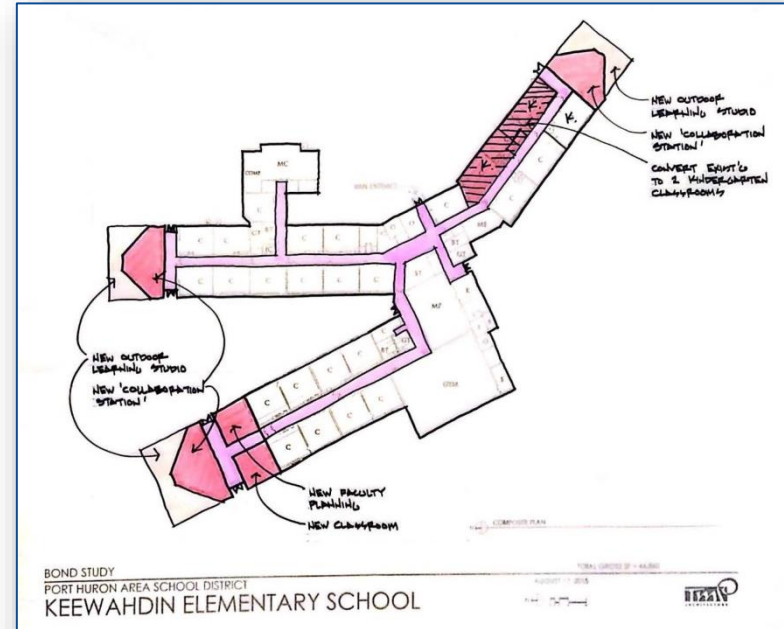
YMCA / Blue Water Area

Program and Cost Summary

Program Element	Quantity	Unit Area	Net Area	Cost / SF	Net Cost
Natatorium	1	15,000	15,000	\$250	\$3,750,000
Pool Storage	1	400	400	\$110	\$44,000
Pool Office	1	300	300	\$135	\$40,500
Gymnasium (Two Courts)	1	13,500	13,500	\$135	\$1,822,500
Gym Storage	1	600	600	\$110	\$66,000
Running Track	1	4,300	4,300	\$110	\$473,000
Racquetball Court	2	800	1,600	\$150	\$240,000
Aerobics Rm.	2	1,250	2,500	\$135	\$337,500
Weight Fitness	1	8,000	8,000	\$135	\$1,080,000
Rock Climbing Rm.	1	1,000	1,000	\$100	\$100,000
Locker Rm.	1	4,200	4,200	\$150	\$630,000
Concessions Area	1	1,000	1,000	\$150	\$150,000
Warm World 1	1	2,850	2,850	\$135	\$394,750
Infant / Toddler	1	400	400	\$135	\$54,000
Warm World 2	1	2,450	2,450	\$135	\$330,750
Storage	1	400	400	\$110	\$44,000
Y-Fives / Teen Center	1	1,500	1,500	\$135	\$202,500
Storage	1	200	200	\$135	\$27,000
Baby Sitting	1	600	600	\$135	\$81,000
Child Care Office	1	300	300	\$135	\$40,500
Multi-Purpose Rm.	1	3,500	3,500	\$135	\$472,500
Multi-Purpose Rm.	1	1,225	1,225	\$135	\$165,375
Admin. Offices	1	1,500	1,500	\$135	\$202,500
Reception Center	1	1,500	1,500	\$135	\$202,500
Work / Conference Rm.	1	150	150	\$135	\$20,250
Receiving Area	1	300	300	\$110	\$33,000
Net Area			69,275	\$159	\$10,994,125
Efficiency Factor	75%		23,092	\$120	\$2,771,000
Gross Area			92,367	\$149	\$13,765,125
Site Development		Acres	Cost / Acre		\$800,000
		8	\$100,000		
Subtotal					\$14,565,125
Design Contingency	5%				\$728,256
Construction Contingency	5%				\$728,256
Total Construction				\$173	\$16,021,638

TMP Architecture

March 13, 2001



Concepts 4



Funding Options



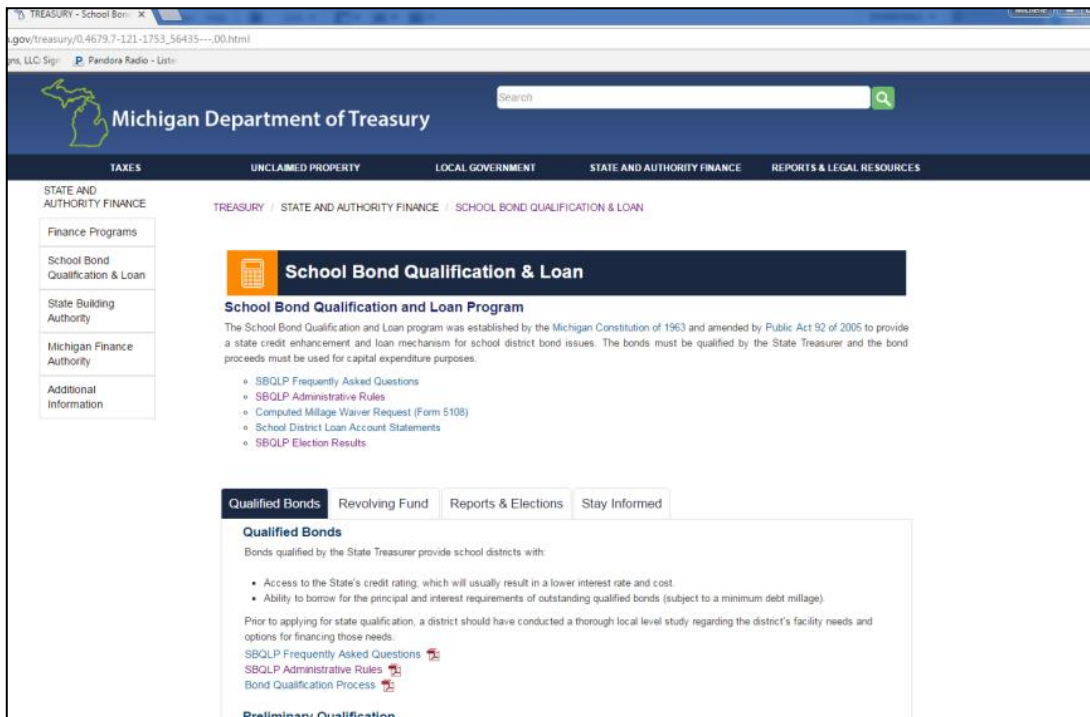
District's General Fund



Bond vs. Sinking Fund



Department of Treasury Bond Qualification Process



The screenshot shows the Michigan Department of Treasury website. The header includes the state of Michigan logo and the text "Michigan Department of Treasury". Below the header is a navigation bar with links: TAXES, UNCLAIMED PROPERTY, LOCAL GOVERNMENT, STATE AND AUTHORITY FINANCE, and REPORTS & LEGAL RESOURCES. The main content area is titled "School Bond Qualification & Loan" and includes a sub-header "School Bond Qualification and Loan Program". The text describes the program's establishment by the Michigan Constitution of 1963 and Public Act 92 of 2005. A list of links is provided: SBQLP Frequently Asked Questions, SBQLP Administrative Rules, Completed Millage Waiver Request (Form 5108), School District Loan Account Statements, and SBQLP Election Results. Below this is a section titled "Qualified Bonds" with a sub-header "Qualified Bonds" and a list of criteria: Access to the State's credit rating, which will usually result in a lower interest rate and cost; and Ability to borrow for the principal and interest requirements of outstanding qualified bonds (subject to a minimum debt millage). The page also includes a "Preliminary Qualification" section.

TREASURY - School Bond Qualification & Loan

Michigan Department of Treasury

TAXES UNCLAIMED PROPERTY LOCAL GOVERNMENT STATE AND AUTHORITY FINANCE REPORTS & LEGAL RESOURCES

STATE AND AUTHORITY FINANCE

Finance Programs

School Bond Qualification & Loan

State Building Authority

Michigan Finance Authority

Additional Information

TREASURY / STATE AND AUTHORITY FINANCE / SCHOOL BOND QUALIFICATION & LOAN

School Bond Qualification & Loan

School Bond Qualification and Loan Program

The School Bond Qualification and Loan program was established by the Michigan Constitution of 1963 and amended by Public Act 92 of 2005 to provide a state credit enhancement and loan mechanism for school district bond issues. The bonds must be qualified by the State Treasurer and the bond proceeds must be used for capital expenditure purposes.

- [SBQLP Frequently Asked Questions](#)
- [SBQLP Administrative Rules](#)
- [Completed Millage Waiver Request \(Form 5108\)](#)
- [School District Loan Account Statements](#)
- [SBQLP Election Results](#)

Qualified Bonds | Revolving Fund | Reports & Elections | Stay Informed

Qualified Bonds

Bonds qualified by the State Treasurer provide school districts with:

- Access to the State's credit rating, which will usually result in a lower interest rate and cost.
- Ability to borrow for the principal and interest requirements of outstanding qualified bonds (subject to a minimum debt millage).

Prior to applying for state qualification, a district should have conducted a thorough local level study regarding the district's facility needs and options for financing those needs.

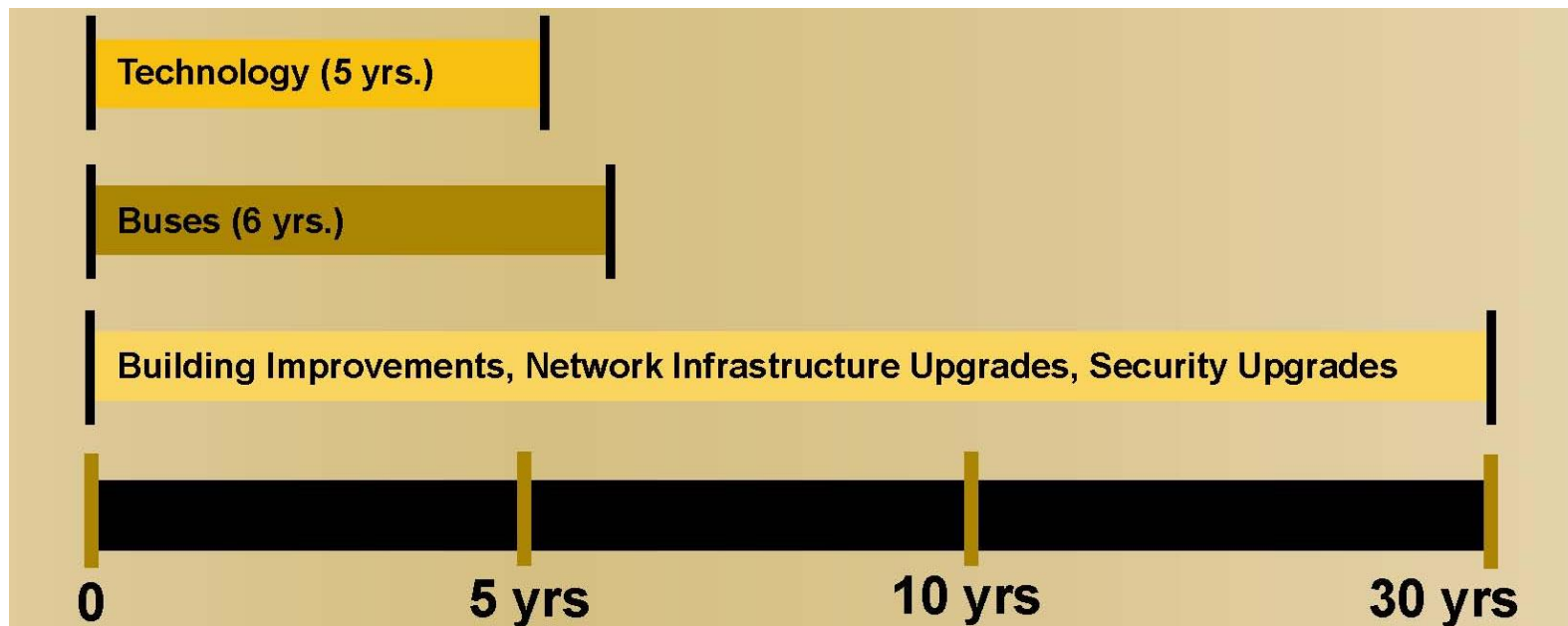
[SBQLP Frequently Asked Questions](#)

[SBQLP Administrative Rules](#)

[Bond Qualification Process](#)

Preliminary Qualification

Department of Treasury Bond Qualification Process



Qualified & Non-Qualified Bonds

STANDARD
& POOR'S



FitchRatings

AA+



Allowable vs. Not Allowable Bonds & Sinking Funds

Allowable vs. Not Allowable Bonds & Sinking Funds

Is it Allowable?		Bonds	Sinking Funds
1	Construction of new school buildings	YES	YES
2	Construction of additions to existing school buildings	YES	YES
3	Remodeling existing school buildings	YES	YES
4	Energy conservation improvements	YES	YES
5	Asbestos abatement	YES	YES
6	School buses	YES	NO
7	Purchasing land	YES	YES
8	Developing and improving sites	YES	YES
9	Developing and improving athletic and physical education facilities	YES	YES
10	Developing and improving playgrounds	YES	YES*
11	Costs of the required audit	YES	YES
12	Refunding debt	YES	NO
13	Direct bond program costs, such as professional fees, election costs, issuance costs, qualification fees, insurance fees, paid after the bond issue has been approved by voters	YES	N/A
14	Loose furnishings and equipment including furniture and equipment not permanently affixed to the building and computers for non-instructional use	YES	NO
15	Technology for Instructional Use	YES	YES
16	Technology for Non-Instructional Use	NO	YES
17	Repairs	NO	YES**
18	Maintenance	NO	NO***
19	Supplies	NO	NO
20	Salaries	NO	NO
21	Lease payments	NO	NO
22	Automobiles, trucks or vans	NO	NO
23	Portable classrooms	NO	YES
24	Uniforms	NO	NO
25	Textbooks	NO	NO
26	Upgrades to an existing computer operating system or application software	NO	NO
27	Computer training, consulting or maintenance contracts	NO	NO
28	Security Equipment	YES	YES

* Excludes Playground Equipment

** Must be completed by contracted sources.

*** Maintenance generally means keeping assets in good conditions and repairs are directed at putting them back into good condition. Maintenance is preventative while repairs are curative.



Handout Provided By T&P Architecture, Inc. & Peter Basso Associates
20th Annual Facilities/Operations Director Conference & Expo



Building & Site Sinking Funds



Funding Options w/o Public Vote



Rebates & Grants

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www.consumersenergy.com/news.aspx?id=69698&year=2014

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Controlling Your Energy Cost
Energy Theft
Safety In Your Home
Energy Answers
Green Generation
Generate My Own Power
Products and Services
Natural Gas Resource Center
Energy Choice
Smart Energy
Rates and Rules
News and Information

News Release

Consumers Energy Presents Energy Efficiency Incentive Check to Bullock Creek School District

Midland, Mich. Tuesday, January 21, 2014

Consumers Energy last night presented a \$126,360 Business Solutions incentive rebate check to Bullock Creek School District for participating in the utility's energy efficiency program for commercial and industrial customers.

Bullock Creek School District received the rebates for energy efficiency upgrades at its middle school, elementary schools, and high school to reduce electric and natural gas consumption. As a result, the school district will save about \$97,000 in energy annually.

The incentives are offered under the Clean, Renewable, and Efficient Energy Act of 2009.

"Consumers Energy's goal is to provide a reliable, cost-effective supply of energy to power Michigan's future," said Thomas Shrilla, business account manager for Consumers Energy. "We're pleased to work with Bullock Creek School District to provide these incentives which help our customers reduce demand on energy and realize significant cost savings."

Bullock Creek Elementary, Floyd Elementary, Pine River Elementary, Bullock Creek Middle School, and Bullock Creek High School all received energy saving upgrades.

"Receiving these incentives to upgrade our facilities and provide energy cost reductions year after year lets us apply more resources to our main mission, providing high-quality education to our community," said Charlie Schwedler, Bullock Creek superintendent of schools. "The incentive program has resulted in a true win-win for our district."

Customers may learn more about energy efficiency programs and how to apply for project incentives by visiting www.consumersenergy.com.

Consumers Energy, Michigan's largest utility, is the principal subsidiary of CMS Energy (NYSE: CMS), providing natural gas and electricity to 6.6 million of the state's 10 million residents in all 60 Lower Peninsula counties.

###

For more information regarding Consumers Energy, go to www.ConsumersEnergy.com or join us on Facebook at www.facebook.com/ConsumersEnergyMichigan

Media Contacts: Terry DeCoes, 517-374-2159 or Debra Dolid, 586-918-0597

[Back to News Releases](#)

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gobbl... Your Business | Consumers | Home | Consumers Energy | DTE Energy - How To Participate | X
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Become a Contractor
Case Studies-Fact Sheets
Financing
Self-Directed Options
Interactive Business

How To Participate

Prescriptive and Custom Incentives:

1. Verify your eligibility. See the Energy Efficiency Program for Business [Policies and Procedures Manual](#)™
2. Submit a Reservation Application to reserve funding. (This is required for all custom and De-lamping measures and highly recommended for the rest of the Prescriptive measures.)
 - [Reserve the sublimits](#) (table show) for completing the Energy Efficiency Program for Business application
 - Download the [2014 Catalog](#)
 - Download the [2014 Application](#)
3. Install your equipment or systems within 90 days of reservation confirmation.
4. Submit the required documentation of project completion, costs and energy savings within 60 days of project completion.
5. Submit your Final Application. Final Applications must be received within 60 days after project completion or by November 30 of each program year, whichever comes first.
6. DTE Energy's Energy Efficiency Program for Business Staff will review your final project documentation. Incentive payments will typically be sent within 4 to 6 weeks from the time that all the documentation is received and the field inspection is complete.

New Construction and Major Renovation Program:

1. To determine if your project qualifies, please contact DTE Energy's Energy Efficiency Program for Business Staff before you start your design at 866.796.0512.
2. Download the [New Construction Application](#)™ for details on the program and application forms.
3. Full details of the program can be found in the [New Construction Policies and Procedures Manual](#)™.

Questions? Please contact us:
Contact the Energy Efficiency Program for Business at 866.796.0512.
PO Box 11289
Detroit, MI 48211

This Web page provides a general program overview only. For full program specifications and requirements, please see the Energy Efficiency Program for Business [Policies and Procedures Manual](#)™ and our [FAQs](#). The Policies and Procedures document outlines the rules and processes that govern the program. Applicants must follow the program rules as detailed in this document and the accompanying application. By signing the application agreement form, the customer agrees to all rules and requirements in place on the date of signature.

* To view and print this information, you need Adobe® Acrobat® Reader

USE LESS. SAVE MORE.

2014 Rebate Program Status
Paid 16%
Active 62%
Electric Installations
Available funds paid as of April 26, 2014

2014 Rebate Program Status
Paid 9%
Active 70%
Gas Installations
Available funds paid as of April 26, 2014

Governing Bodies

What is a school?

- A building occupied by 6 or more students for 4 or more hours per day or more than 12 hours per week, the building is required to comply with the School Building Law, P.A. 306 of 1937 as amended, and the 1999 school fire safety rules promulgated under the authority of P.A. 207 of 1941 as amended.

Governing Bodies

- Who has jurisdiction over school projects?

The State of Michigan

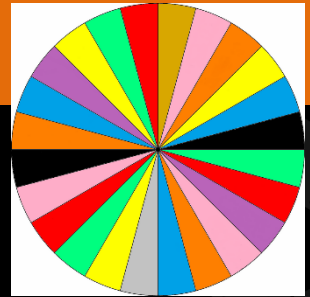
- Bureau of Construction Codes
- Bureau of Fire Services



Break!

prize!

When we return, we'll spin the
wheel for a gift card prize!





*Design is a Journey
of Discovery*

Design & Implementation

Design & Implementation

Section 1

Be
Inclusive

Section 4

Communication
Tools

Section 2

Establish Decision
Making Structure

Section 5

Cost
Estimates

Section 3

Develop
Schedule

Section 6

State
Requirements

Be Inclusive



Establish Decision-Making Structure

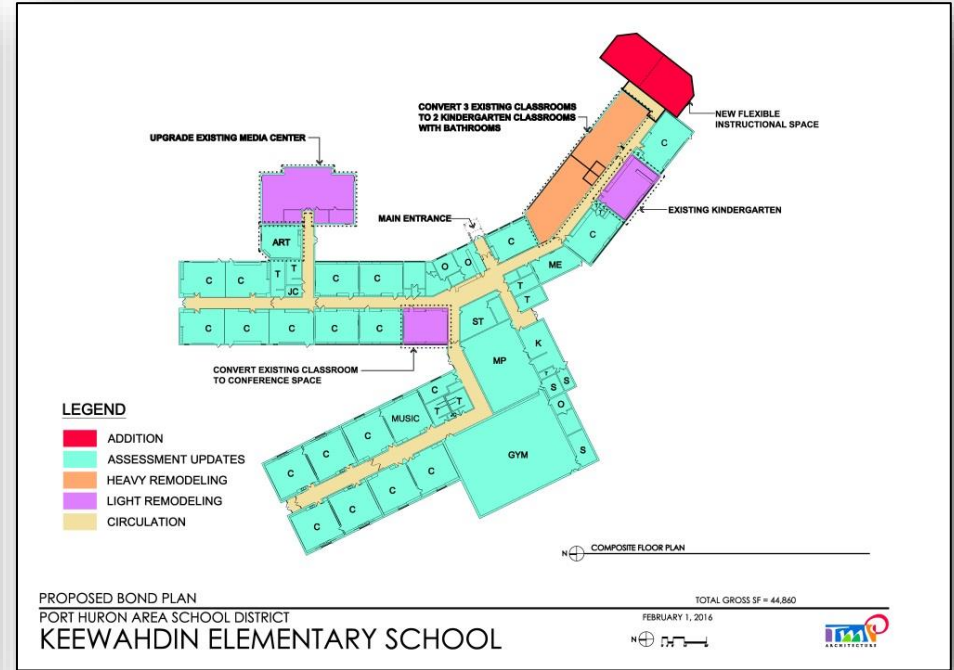
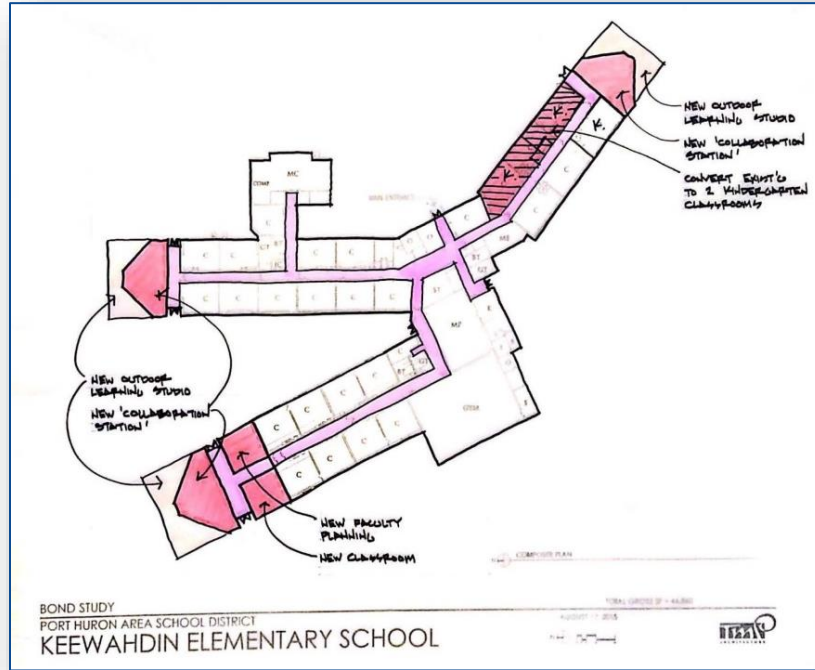


Develop Schedule



- Programming
- Schematic Design
- Design Development
- Construction Documentation

Design Phases



Develop Schedule

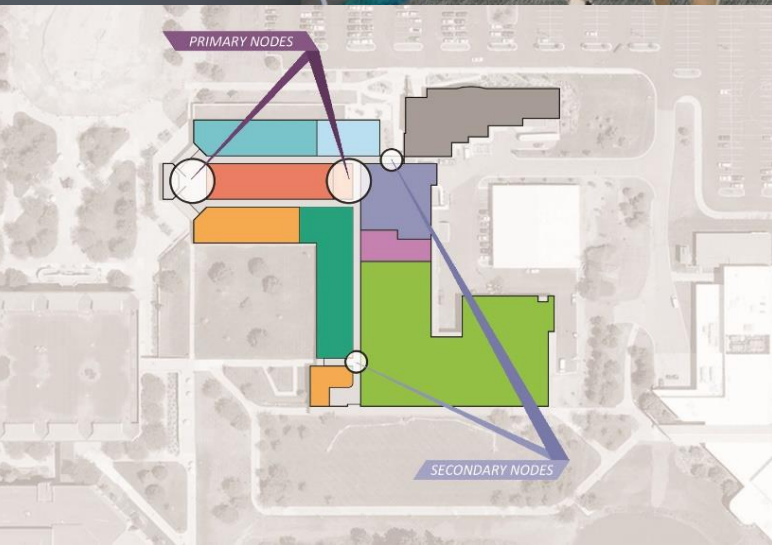
Design Timeline

New Construction

- Elementary School 6 to 8 months
- Middle School 8 to 10 months
- High School 10 to 12 months

Remodeling / Additions

- Varies Depending on Scope
- 3 to 12 months



- 1. CUSTODIAL CLOSET
- 2. CONFERENCE ROOM
- 3. CLINIC
- 4. ELECTRICAL
- 5. ELEVATOR
- 6. EXAM ROOM
- 7. EXIT STAIR
- 8. ISOLATION ROOM
- 9. LOBBY
- 10. MECHANICAL
- 11. MATH STUDIO
- 12. OFFICE
- 13. OFFICE
- 14. OPEN OFFICE
- 15. PRESENTATION ROOM
- 16. PLANETARIUM
- 17. PREP ROOM
- 18. RECEPTION
- 19. STORAGE
- 20. STUDENT ACTIVITY
- 21. SICK BAY
- 22. SCIENCE STUDIO
- 23. STAFF PLANNING
- 24. STAFF LOUNGE
- 25. TOILET
- 26. UTILITY ROOM
- 27. VESTIBULE
- 28. WORKROOM

Communication Tools

Cost Estimates

PROJECT SUMMARY REPORT					
Troy School District International Academy East Renovations Troy, MI Design Development			Estimate Date: 12/05/2015		
			Building Area: 17,000 SQFT		
			Construction Start: 09/13/2016 Construction Finish: 08/02/2018		
Description	Quantity	Cost / SF	Total Cost	% of Total	
CONSTRUCTION COST					
DIRECT COST					
Division 01 - General Requirements	17,000 SQFT	\$0.00	\$0	0.00%	
Division 02 - Existing Conditions	17,000 SQFT	\$4.65	\$78,000	4.18%	
Division 03 - Concrete	17,000 SQFT	\$0.00	\$0	0.00%	
Division 04 - Masonry	17,000 SQFT	\$2.91	\$48,500	2.82%	
Division 05 - Metals	17,000 SQFT	\$0.00	\$0	0.00%	
Division 06 - Woods, Plastics And Composites	17,000 SQFT	\$1.23	\$22,800	1.20%	
Division 07 - Thermal And Moisture Protection	17,000 SQFT	\$0.00	\$0	0.00%	
Division 08 - Openings	17,000 SQFT	\$8.33	\$141,600	7.46%	
Division 09 - Finishes	17,000 SQFT	\$5.86	\$99,600	5.27%	
Division 10 - Specialties	17,000 SQFT	\$0.88	\$16,700	0.88%	
Division 11 - Equipment	17,000 SQFT	\$0.00	\$0	0.00%	
Division 12 - Furnishings	17,000 SQFT	\$0.75	\$12,800	0.68%	
Division 13 - Special Construction	17,000 SQFT	\$0.00	\$0	0.00%	
Division 14 - Conveying Equipment	17,000 SQFT	\$0.00	\$0	0.00%	
Division 21 - Fire Suppression	17,000 SQFT	\$0.00	\$0	0.00%	
Division 22 - Plumbing	17,000 SQFT	\$0.00	\$0	0.00%	
Division 23 - Heating Ventilating And Air Conditioning	17,000 SQFT	\$36.62	\$622,600	32.80%	
Division 25 - Integrated Automation	17,000 SQFT	\$10.00	\$170,000	8.86%	
Division 26 - Electrical	17,000 SQFT	\$11.71	\$199,000	10.53%	
Division 27 - Communications	17,000 SQFT	\$0.05	\$800	0.04%	
Division 28 - Electronic Safety And Security	17,000 SQFT	\$5.56	\$94,600	5.00%	
Division 31 - Earthwork	17,000 SQFT	\$0.00	\$0	0.00%	
Division 32 - Exterior Improvements	17,000 SQFT	\$0.00	\$0	0.00%	
Division 33 - Utilities	17,000 SQFT	\$0.00	\$0	0.00%	
Accepted Revision 01 Cost Control Log Items	1 LPSM	\$0	\$0	0.00%	
TOTAL DIRECT COST	17,000 SQFT	\$68.75	\$1,508,800	79.80%	
INDIRECT COST					
Design Contingency	0.00% OF	\$1,508,800	\$0	0.00%	
Construction Contingency	10.00% OF	\$1,508,800	\$150,900	7.88%	
Commodity Escalation Contingency	1.50% OF	\$1,659,700	\$24,900	1.32%	
CM Pre-Construction Services	- LPSM	\$1,000,000	\$0	0.00%	
CM General Conditions	1 LPSM	\$10,000	\$10,000	0.53%	
CM Fee	6.00% OF	\$1,508,800	\$90,500	4.79%	
TOTAL INDIRECT COST	17,000 SQFT	\$16.25	\$276,300	14.61%	
TOTAL CONSTRUCTION COST	17,000 SQFT	\$105.01	\$1,785,100	94.41%	
OWNER PROJECT COST					
A/E Professional Fees	1 LPSM	\$105,616.00	\$105,600	5.59%	
FF&E	1 LPSM	\$0.00	\$0	0.00%	
Project / Legal Expenses	1 LPSM	\$0.00	\$0	0.00%	
Land Acquisition	1 LPSM	\$0.00	\$0	0.00%	
IT / Technology Expenses	1 LPSM	\$0.00	\$0	0.00%	
Owner Contingency	1 LPSM	\$0.00	\$0	0.00%	
TOTAL OWNER PROJECT COST	17,000 SQFT	\$6.21	\$105,600	5.59%	
TOTAL COST	17,000 BGSF	\$111.22	\$1,890,700	100.00%	
ALTERNATES					
Alternate No. 1	17,000 LPSM	\$3	\$44,400		
Alternate No. 2	17,000 LPSM	\$5	\$86,000		
Alternate No. 3	17,000 LPSM	\$1	\$22,500		



State & Local Plan Review

Bureau of Construction Codes (BCC)(2002 1937 PA 306 as amended)

- BCC has sole and exclusive jurisdiction over school district construction and site plans
 - Application requires “environmental” approvals from “authoritative agency”
 - **Driveway** - Local governing entity, County Road Commission or Michigan Department of Transportation
 - **Wetlands** - Local governing entity or Department of Environmental Quality
 - **Pollution** - Control Local governing entity or Department of Environmental Quality
 - **Soil Erosion** - Local governing entity or Department of Environmental Quality
 - **Flood Zone** - Local governing entity, County Drain Commission, or Department of Environmental Quality
 - **Water Supply** - Local governing entity, local health department, or Department of Environmental Quality
 - **Sanitary/Septic System** - Local governing entity, local health department, or Department of Environmental Quality
 - **Storm Drainage** - Local governing entity or County Drain Commission
 - **Fire and emergency access** - Department of Licensing and Regulatory Affairs, Bureau of Fire Services

State & Local Plan Review

Bureau of Construction Codes (BCC)(2002 1937 PA 306 as amended)

- Plan review required for **all construction on school property**
 - Buildings
 - Parking lots
 - Athletic facilities
- Site plan approval required before construction approvals or permits will be issued
- A certificate of occupancy shall not be issued by the appropriate code enforcement agency until a certificate of approval has been issued under the Fire Prevention Code, (1941 PA 207).



Permits

Systems regulated under the Stille-DeRossett-Hale Single State Construction Code Act.

- Building
- Mechanical
- Plumbing
- Electrical

Permits

- The law requires an Architect or Engineer to be involved when the "fair market value" of the work exceeds \$15,000 in value.
- Electrical – Work in excess of \$100 to be performed by licensed individual and requires permit
- Mechanical - Gas piping greater than 10 feet (3048 mm) in length and more than 6 fittings to be performed by licensed individual and requires permit.
- Plumbing – Work involving modifications to plumbing systems requires licensed individual and requires permit
- Boiler - An individual in the employ of a licensee (contractor) is not required to be licensed.



*No great thing is created
suddenly*

Construction

Construction

Section 1

Phrases

Section 2

Develop
Schedule

Section 3

Bidding &
Construction
Requirements

Section 4

Record Keeping

Project Phasing



Phases **1**

Construction



- Bidding
- Construction

- Punch List
- Close-Out

Construction Timeline

- New Construction
 - Elementary School 12 to 14 months
 - Middle School 14 to 24 months
 - High School 18 to 30 months
- Remodeling / Additions
 - Varies Depending on Scope and Accessibility
 - 3 Months to 3 Years (Summer Accessibility)



Bidding Requirements



Records





*Experience is the teacher
of all things*

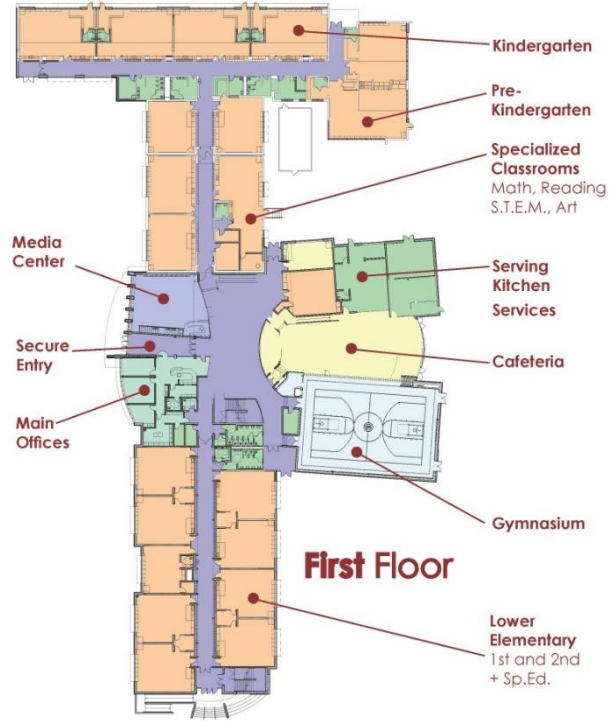
Case Study

Spring Lake Schools Bond Program



Bond Passed May 2014

Holmes Elementary School



Second Floor

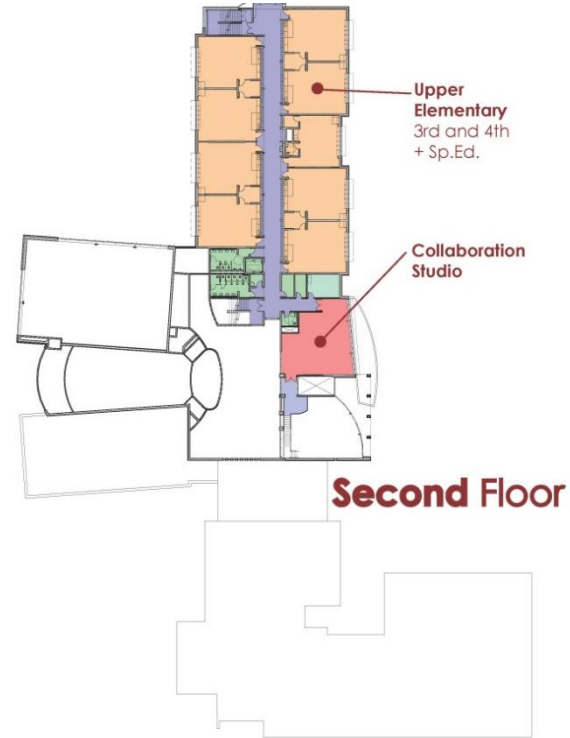


Spring Lake Schools
Bond Program

Holmes Elementary School



Jeffers Elementary School



Spring Lake Schools
Bond Program

Jeffers Elementary School



Athletics Upgrades



Spring Lake Schools
Bond Program

Intermediate / Middle School



Spring Lake Schools
Bond Program

Intermediate / Middle School

before



after



Spring Lake Schools
Bond Program

Intermediate / Middle School



Intermediate / Middle School



QUESTIONS

THURSDAY, FEBRUARY 13, 2022 9:00AM - 12:00PM



Nandita Mishra, Intl. Assoc. AIA, LEED AP, ALEP
TMP Architecture, Inc.

Bill Weinrauch, Assoc. AIA
TMP Architecture, Inc.

PRESENTERS



Steve Mrak, PE
Peter Basso Associates, Inc.

Scott Peck, PE
Peter Basso Associates, Inc.

Finalize Credit for Attendance



- **Return form to MSBO by February 7, 2022**
 - E-mail – cbyam@msbo.org
- Receive e-mail from MOECS-noreply@michigan.gov to fill out an evaluation for SCECHs
- Receive an email from survey monkey for the MSBO evaluation.