



Cleveland Heights – University Heights High School Eco-Charrette Report

May 16, 2014

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EXECUTIVE SUMMARY

The Lay Facilities Committee (“LFC”) members on the Sustainability Working Group (“SWG”) and Career Technical Education (“CTE”) Committees believe strongly that the new high school should be designed, built and operated to reflect the community’s longstanding commitment to sustainability. Ohio Facilities Construction Commission (“OFCC”) funding for the project requires the school be designed and built with sustainable building principles and requires the application of Leadership in Energy and Environmental Design (LEED) rating system and certification at the Silver rating or higher. Clarifying the community’s sustainability goals is a first step in providing direction to the architecture, engineering and construction team engaged to deliver the new high school. To this end, an eco-charrette took place on April 29, 2014 to facilitate clear articulation of sustainability goals and recommended strategies.

An eco-charrette is an intensive, multi-disciplinary design meeting, organized for the purpose of brainstorming ideas to achieve sustainable design goals. Over 30 individuals from the community, school district, Architect, Engineer and Contractor teams participated to clarify sustainable goals, strategies to meet those goals and potential tactics that support the strategies. HLMS Sustainability Solutions, a sub-contractor to PMC/Regency, the owner’s rep, designed and facilitated the eco-charrette and drafted this report.

The high-level goals for this project are:

- Build a net-zero ready building
- Build for 100% onsite storm water management
- Achieve zero waste in construction and operations
- Design and operate building for human health
- Design and operate building to be a teaching tool

This report includes the following sections:

- Overview LFC Process
- Sustainable Culture in Cleveland Heights
- Commitment to Education
- Sustainable strategies, goals, tactics and metrics
- Preliminary LEED Strategy
- Next Steps and Recommendations

OVERVIEW LAY FACILITIES COMMITTEE PROCESS

DEFINITIONS

SUSTAINABILITY: Decision making process that takes into account future generation’s ability to provide for themselves

LEED: A green building rating system defined by the volunteer members of the non-profit United States Green Building Council

NET ZERO BUILDING: A building that uses energy equal to or less than its annual production of renewable energy.

NET ZERO READY BUILDING: A building designed to accommodate future-designed and installed renewable energy system(s) that will perform as a Net Zero Building.

More than four years ago, community members began meeting and urging the district to adopt a more rigorous approach to sustainable operations. With the evolution of the LFC process, the SWG formed in August 2012 and Sam Bell was named its chair. Between August 2012 and April 2013, the SWG met monthly to develop recommendations that were included in the LFC Report. To date, the SWG continues to meet although its initial charge was completed in 2013, because it is identified within the LFC Report adopted by the Board of Education to serve as the “sustainability administrator” in the absence of a paid individual.

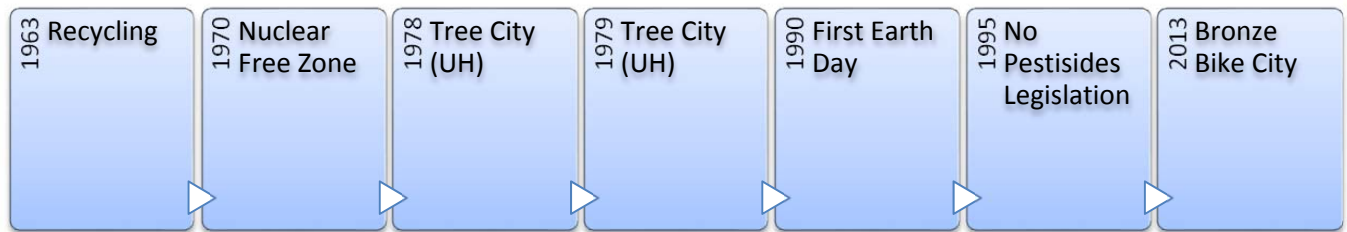
Over the same period of time, the CTE committee met to address concepts pertaining to space needs and programming within the new high school. In January 2014, the CTE committee began addressing potential future programming, several topics of which create pollination between the SWG and CTE – topics such as Seed to Table and Building as a Teaching Tool.



SUSTAINABLE CULTURE IN CLEVELAND HEIGHTS

To understand sustainability as a design and construction imperative for the CH-UH High School, it is important to recognize the community in which this school will be built. The CH-UH school district has one high school serving two distinct communities. Both communities are racially and ethnically diverse. Cleveland Heights is home to a vibrant arts community, with a strong base of high tech entrepreneurial companies. The community has historically prided itself in its commitment to taking care of its residents and is a leader in the fair housing community. The CH-UH student population is 80% African American with 70% of families on the free-reduced lunch program. The school population reflects a larger percentage of African American students than the communities themselves (CH 50/50; UH 70/30). The SWG and CTE committees are committed to improving the schools such that all families in the district see the high school as a resource to them either for their own children or as a member of the community wishing to take advantage of the resources the school has to offer.

Cleveland Heights has long held sustainability as one of its core community values as reflected in its legislation. A timeline of sustainable action in the community demonstrates this long-standing value:



This is the cultural foundation for having a sustainably built high school in this community.

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE BUILD NET ZERO READY BUILDING

Strategy	Tactics	Metrics
Achieve 15-18 KBTU anticipated energy consumption	Tight envelope, efficient HVAC, daylight strategies / daylight harvesting	Actual energy consumption
Reduce exposure of outside walls	Create atrium between building sections	Anticipated energy savings
Solar Ready Design	Solar ready roof design	Existence of solar-ready infrastructure and anticipate array sizing
	Solar canopies in parking (bike and car)	Existence of solar-ready infrastructure and anticipate array sizing
Consistently reduce carbon footprint	Create baseline and tracking goals	Annual performance against goal
Become an energy producer	Evaluate for opportunities to distribute energy within Cedar-Lee District	# of kWh distributed annually
Leverage offsite renewable systems	Evaluate opportunities to generate energy offsite in Cedar-Lee District	# of kWh used annually
Manage and measure energy consumption	Implement robust measurement and verification system and plan	Annual energy consumption vs. anticipated

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE BUILD FOR 100% ONSITE STORM WATER MANAGEMENT

Strategy	Tactics	Metrics
Set baseline for anticipated storm water runoff	Analyze anticipated storm water runoff from site	# of gallons of anticipated storm water annually
Prevent storm water runoff	Minimize impervious surfaces (parking and hardscape)	# of gallons anticipated to be absorbed
	Plant trees	# of gallons anticipated to be absorbed
	Implement bioswales	# of gallons retained
	Use cisterns	# of gallons retained
Reuse storm water	Greywater systems	# of gallons potable water saved

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE ACHIEVE ZERO WASTE IN CONSTRUCTION AND OPERATION

Strategy	Tactics	Metrics
Recycle construction waste	Incorporate into construction waste management plan	Weight and volume of recycled materials
Reuse demolition materials onsite	Incorporate into construction waste management plan and specifications for	Dollar value saved
Divert demolition materials for reuse offsite	Create inventory of building materials (doors, windows) for reuse and plan to sell/donate	Weight and volume of materials donated/sold and dollar value donated or earned
Eliminate food waste	Implement recycling and compost plan in cafeteria	Weight and volume of recycled and composted material % of recycled and composted material to total waste

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE DESIGN AND OPERATE BUILDING FOR HUMAN HEALTH

Strategy	Tactics	Metrics
Encourage biking	Provide adequate bike racks	# racks/uses per year
Maintain healthy and clean building	Implement sustainable green cleaning program	# of sustainable cleaning equipment % of sustainable criteria cleaning supplies
Ensure healthy indoor air quality	Design ventilation system to address PPM and humidity and to achieve ASHRAE 62.2 – healthy building standards	Air testing at PPM
	Maintain humidity at healthy building standards	% humidity

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE DESIGN AND OPERATE BUILDING AS A TEACHING TOOL

Strategy	Tactics	Metrics
Leverage building technology for learning	Develop learning modules that incorporate: <ul style="list-style-type: none"> • Energy/building system functionality • Energy consumption • Water consumption • Food production • Plant growth rate • Building controls functionality • “Open” wall systems 	# of modules developed # of students participating
Incorporate construction practices into educational plans	Work with construction team to develop internships and teaching modules <ul style="list-style-type: none"> • Waste management/recycling tracking • Material source tracking • Volatile Organic Compounds • Storm water calculations • Potable water calculations • Energy calculations • Commissioning process • Construction management 	# of internships # of modules developed # of students participating
	Develop measurement and monitoring modules: <ul style="list-style-type: none"> • Energy consumption • Thermal transference measurement • Water quality measurement 	# of students enrolled in classes/modules
	Develop landscape module around storm water strategies <ul style="list-style-type: none"> • Bioswale/vegetation planning and implementation 	# of students enrolled in classes/modules
Enhance building culture to support sustainability	Develop signage plan throughout building that describes building systems and annual performance metrics	# of signs

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE SUSTAINABILITY AT THE DISTRICT LEVEL (NOT AFFECTING DESIGN)		
Ensure ongoing sustainability leadership at district level	Conduct strategic planning for Sustainability Working Group to address the implementation of goals, strategies, tactics defined herein	Completed report
	Engage student environmental group for ongoing operational support of sustainable initiatives	# of students involved
	Develop Sustainable Values Commitments for students and teachers	Performance on other sustainability metrics
	Create connections with community sustainability groups	# of collaborations
	Develop robust recruitment plan for businesses and individuals to support sustainability	# of organizations involved # of individuals involved
	Identify fundraising opportunities for specific design elements	\$ raised
Ensure community resources for operational waste management and recycling	Work with City of Cleveland Heights to improve recycling program on site	City provide required services
Recycle operational, food and learning waste	Create operational waste management and recycling plan incorporating electronics, durable goods, lighting, ongoing construction waste, paper, glass, plastic, and metal	Weight and volume of recycled material % of recycled material to total waste
Encourage Biking	Establish biking club	# of students and teachers involved
	Hold Ride to school Day	# of students and teachers riding
Implement healthy food policy in cafeteria	Leverage local and/or organically grown foods	% of total food spend
Prepare students for sustainable economy	Provide seed-to-table opportunities within building and on site (fruit trees, gardens, atrium gardens, wall gardens, etc.)	# of students enrolled # of plants Total volume annual production \$ value of food saved for cafeteria
	Incorporate sustainable economics into lesson plans	# of students enrolled in classes/modules
	Engage information technology / computers to create "app" to measure and monitor and educate about sustainability	# of students involved Creation of app
Enhance building culture to support sustainability	Develop sustainable operations plan with tactics and metrics	To be determined by the plan
Support administrators and teachers in understanding sustainability	Recommend readings – Third Industrial Revolution; Plastic Oceans	# of administrators and teachers participating in workshops

	Develop annual building operations workshop to identify ways to improve performance against all sustainability metrics and goals	# of administrators and teachers participating in workshops Annual performance improvement %
	Conduct annual waste audit throughout building	Audit performance of % recycled /diverted vs. total waste
Design with community in mind	Explore non-profit partnerships (i.e. Science Center, NASA, Heights Arts, others)	# of programs established with non-profit partners
	Identify business relationships for local foods, compost (Great Lakes Brewing, Fresh Market, Botanical Gardens)	\$ raised or offset through partnerships
	Identify business relationships around biking / alternative transportation	# of services established

Decision Making Criteria

DECISION MAKING CRITERIA

As we identified potential strategies, tactics and metrics, the group also focused on various criteria that would influence decision-making. When presenting decision decisions, the project team should reference these criteria, thus establishing a consistent basis by which decisions are made:

- First cost – LCA
- Maintenance cost – LCA
- Operational cost – LCA
- Support learning goals
- Support sustainability goals
- Safety
- Aesthetics
- Durability
- Labor impact
- Community identity/Community value
- Working group/Community group input
- Engineering strategy proven vs. experimental
- Supports community use of building
- Optimal learning environment
- Health improvement
- Code/Zoning Etc. – Public Approvals
- OFCC funding criteria
- Supports learning program (CTE)
- Supports LEED Strategy

First Cost
Main
Oper
Supp
Supp
Safety
Aesth
Durabil
Labor
Communit
Workin
Engin
Supp
Optimal

Supports learning program (CTE)
Supports LEED Strategy

Code/zoning etc. public approvals

PRELIMINARY LEED STRATEGY

The Leadership in Energy and Environmental Design (LEED) Rating System is a tool that project teams use to guide design and construction to follow sustainable principles. The rating system is defined by volunteer members of the United States Green Building Council and is updated by the membership body. The Green Building Certification Institute, an affiliated and separate non-profit organization, reviews project documentation and awards certification based on points earned.

Following the High School eco-charrette, and with the project's goals, strategies and recommended tactics in mind, the Design & Construction team met for the purpose of crafting a LEED strategy. As stated during the bond campaign, the project goal is to achieve LEED Silver Certification, with a stretch goal of Gold. This preliminary LEED strategy is predicated on the notion that the project will meet 100% of the LEED requirements (prerequisites) and there is a defensible plan or design element to meet all of the optional credits selected and marked in the Yes "Y" column. The strategy includes optional credits marked in MaybeYes ("?Y") and MaybeNo ("?N") columns, which will be subject of ongoing conversation and clarification among the project team as the project moves through design and construction. Only a few optional credits were put into the No ("N") category based upon project characteristics or LEED rules. Based upon the preliminary LEED Scorecard, which the team will update as the project progresses, the anticipated design is set to exceed the funding requirements of LEED Silver (50 points required) and is targeting LEED Gold with 67 Y points (60 points required). With further investigation and analysis in the ?Y and ?N optional credits, the team will clarify the potential of reaching LEED Platinum certification, which requires 80 points out of a possible 110.

At this point in the project schedule, which is in schematic design, sufficient information does not exist to conduct necessary cost analysis on design elements such as heating, ventilation and air conditioning (HVAC), renewable generation, significant design elements such as an atrium, or stormwater retention systems. As the project moves through design development, cost analysis on design elements will be conducted and the team will be in a position to apply the decision making criteria in order to affirm or negate the Maybe points. Additionally, the team may select to divide the project into sub-projects (i.e. classroom building, VOTEC building and natatorium) and potentially apply the LEED campus strategy in its submission to the Green Building Certification Institute. Each phase of development will include specific discussion and update of the LEED strategy. Those updates are anticipated as follows:

- Conclusion of Schematic Design, October 2014
- Conclusion of Design Development, January 2015
- Conclusion of Construction Documents, May 2015

Also included in this report is a LEED Cost Matrix, which serves two purposes. The LEED Cost Matrix sets forth a recommended prioritization of ?Y and ?N optional credits for consideration in reaching Platinum level certification. Further, the LEED Cost Matrix provides high-level information about where the project might anticipate added costs for certain sustainable design features. As noted previously, rigorous cost analysis – including lifecycle costs – will be conducted as design develops.

LEED for Schools 2009 Scorecard
CHUH High School

05.12.2014

Certified 40-49 Silver 50-59 Gold 60-79 Platinum 80+



Total Project Score

Yes	?Y	?N	No	23	24 Points Possible
68	10	9	23		

Y	?Y	?N	N	8	2	2	1	Materials & Resources	13 Points Possible
19	1	0	4	Sustainable Sites	24 Points Possible			Prereq 1	n/a
	Y			Construction Activity Pollution Prevention	n/a			d	Storage & Collection of Recyclables
	Y			Environmental Site Assessment	n/a			d	Building Reuse. Maintain Existing Walls, Floors & Roof
	1			Site Selection	1		1	d	Building Reuse. Maintain Interior Non-Structural Elements
	4			Development Density & Community Connectivity	4		1	c	Construction Waste Management. Divert 50%
	1			Brownfield Redevelopment	1		1	c	Construction Waste Management. Divert 75%
	4			Alternative Transportation. Public Transportation Access	4		1	d	Materials Reuse. Specify 5%
	1			Alternative Transportation. Bicycle Storage & Changing Rooms	1		1	d	Materials Reuse. Specify 10%
	2			Alternative Transportation. Low Emitting & Fuel Efficient Vehicles	2		1	c	Recycled Content. 10%
	2			Alternative Transportation. Parking Capacity	2		1	c	Recycled Content. 20%
	1			Site Development. Protect or Restore Habitat (or 20% of site area)	1		1	c	Regional Materials, 10%
	1			Site Development. Maximize Open Space	1		1	c	Regional Materials, 20%
	1			Stormwater Design. Quantity Control	1		1	c	Rapidly Renewable Materials 2.5%
	1			Stormwater Design. Quality Control	1		1	c	Certified Wood
	1			Heat Island Effect. Non-Roof	1				
	1			Heat Island Effect. Roof	1				
	1			Light Pollution Reduction	1				
	1			Site Master Plan	1				
	1			Joint Use of Facilities	1				

Y	?Y	?N	N	12	2	1	4	Indoor Environmental Quality	19 Points Possible
9	0	2	0	Water Efficiency	11 Points Possible			Prereq 1	n/a
	Y			Water Use Reduction. 20% Reduction	n/a			d	Minimum IAQ Performance
	2			Water Efficient Landscaping. Reduce by 50%	2		1	c	Environmental Tobacco Smoke (ETS) Control
	2			Water Efficient Landscaping. No Potable Use or No Irrigation	2		1	c	Minimum Acoustical Performance
	4			Innovative Wastewater Technologies	2		1	c	Outdoor Air Delivery Monitoring
	1			Water Use Reduction. 30%, 35%, 40% reduction	2-4			d	Increased Ventilation
	1			Process Water Use Reduction	1			c	Construction IAQ Management Plan. During Construction

Y	?Y	?N	N	14	2	3	14	Energy & Atmosphere	33 Points Possible
	Y			Fundamental Commissioning of the Building Energy Systems	n/a			d	Controllability of Systems. Lighting
	Y			Minimum Energy Performance - (10% Requirement)	n/a		1	d	Controllability of Systems. Thermal Comfort
	Y			Fundamental Refrigerant Management	n/a			d	Thermal Comfort. Design
	10			Optimize Energy Performance. 12% to 48%	1-19		1	d	Thermal Comfort. Verification
	2			On-Site Renewable Energy. 1% to 13%	1-7		1	d	Daylight & Views. Daylight - 75%/60% & 75%
	2			Enhanced Commissioning	2		1	d	Daylight & Views. Views - 90%
	1			Enhanced Refrigerant Management	1		1	d	Enhanced Acoustical Performance
	1			Measurement & Verification	2		1	d	Mold Prevention
	1			Green Power/ Renewable Energy Credits	2		1	d	

Y	?Y	?N	N	3	0	1	0	Regional Credits	4 Points Possible
	3			Innovation & Design Process	6 Points Possible			Project Zip Code	
	1			Innovation in Design: Exemplary Performance MRc2 95%	1		0	d	Regional Credit: SSC6.1
	1			Innovation in Design: Exemplary Performance MRc4 30%	1		1	d	Regional Credit: SSC6.2
	1			Innovation in Design: Exemplary Performance MRc5 30%	1		1	d	Regional Credit: WEC2
	1			Innovation in Design: Green Cleaning	1		1	d	Regional Credit: EAc2(3%)
	1			LEED™ Accredited Professional	1		1	d	Regional Credit: EAc1 (30%)
	1			The School as a Teaching Tool	1		1	d	Regional Credit: MRc6

* note: School projects may choose from IEQ Credits 4.1 to 4.6 for a maximum of 4 points

LEED COST MATRIX

Based on the well articulated and significant sustainability goals identified for this project, the preliminary LEED Strategy suggests that design intent will lead to a LEED Certification at the Gold Level, with 63 points showing in the YES category. To reach Platinum, the project team will evaluate additional costs and conduct lifecycle cost analysis to determine feasibility to comply with additional optional credits. Eighty (80) points are required to reach Platinum level certification.



LEED Credit/Prerequisite				Required for				Comments and notes						
				C	S	G	P							
				C= Certified / S= Silver / G= Gold / P= Platinum										
				Sources of costs										
				Yes	?Y	?N	No							
Prerequisites: Required for All LEED Projects														
SSp1	Y							Construction Activity Pollution Prevention	x				No cost associated. Required by code.	
SSp2	Y							Environmental Site Assessment	x				Contract for site assessment; considered a project cost.	
WEp1	Y							Water Use, 20% Reduction	x				No cost associated. Required by OSDM.	
EAp1	Y							Fundamental Commissioning	x				Contract fee for commissioning. Considered a project cost.	
EAp2	Y							Minimum Energy Performance	x				Contract fee for energy model. Included in fees.	
EAp3	Y							Fundamental Refrigerant Management	x				No added cost. Standard to new HVAC systems.	
MRp1	Y							Storage & Collection of Recyclables	x				No cost associated. Design to meet requirements.	
EQp1	Y							Minimum IAQ Performance	x				Analysis is typically not an added cost, part of mechanical design scope.	
EQp2	Y							ETS Control	x				No smoking required by law.	
Cost of all prerequisites								Sources of costs						
SSc1	1							Site Selection	x	x	x		No cost associated.	
SSc2	4							Development Density & Community Connectivity	x	x	x		No cost associated.	
SSc3	1							Brownfield Redevelopment	x	x	x		No additional cost; asbestos remediation qualifies for credit compliance.	
SSc4.1	4							Public Transportation Access	x	x	x		No cost associated.	
SSc4.2	1							Bicycle Storage & Changing Rooms	x	x	x		No cost; included in budget.	
SSc4.3	2							Low Emitting & Fuel Efficient Vehicles	x	x	x		Minor cost associated with signage or striping.	
SSc4.4	2							Parking Capacity	x	x	x		No added costs.	
SSc6.1	1							Quantity Control	x	x	x		Cost associated with storm water mitigation / retention capacity.	
RPC2	1							Regional Credit: SSc6.1	x	x	x		Dependent upon achieving SSc6.1.	
SSc6.2	1							Quality Control	x	x	x		Cost associated with storm water mitigation / retention capacity.	
RPC1	1							Regional Credit: SSc6.2	x	x	x		Dependent upon achieving SSc6.2.	
SSc7.1	1							Heat Islands, Non-Roof	x	x	x		Potential added cost for impervious pavement or concrete vs. asphalt.	
WEc1	4							Landscaping, Reduce by 100%	x	x	x		No cost since there are no plans for irrigation.	
WEc3	4							Water Use, 30%, 35%, 40% Reduction	x	x	x		No additional cost to achieve 35%; cost neutral low-flow fixture packages; potential cost for exceeding 35% with use of waterless urinals or greywater system.	
Wc4	1							Process Water Use Reduction	x	x	x		No additional cost; exclude garbage disposal from kitchen	
EAc1	10							Optimize Energy Performance, 12% to 48%	x	x	x		Incremental costs for MEP / Building Envelope design to improve efficiency.	
RPC5	1							Regional Credit: EAc1 (30%)	x	x	x		Dependent upon achieving 10 points in EAc1	
EAc3	2							Enhanced Commissioning	x	x	x		Cost for commissioning contract; considered an OFCC project cost.	
EAc4	1							Enhanced Refrigerant Management	x	x	x		No added cost. Standard to new HVAC systems.	
EAc5	1							Measurement & Verification	x	x	x		1 point for ESPM - no cost; 1 point for M&V controls; Building Automation System desired should meet credit requirements for no additional cost.	
MRC1.1	2							Building Reuse, Structural	x	x	x		No additional cost.	
MRC2.1	1							Construction Waste, 50%	x	x	x		No additional cost. Set goals in CWM plan.	
MRC2.2	1							Construction Waste, 75%	x	x	x		No additional cost. Set goals in CWM plan.	
MRC4.1	1							Recycled Content 10%	x	x	x		No additional cost. Standard for projects to meet.	
MRC4.2	1							Recycled Content 20%	x	x	x		No additional cost. Standard for projects to meet.	
MRC5.1	1							Regional Materials, 10%	x	x	x		No additional cost. Standard for projects to meet.	
MRC5.2	1							Regional Materials, 20%	x	x	x		No additional cost. Standard for projects to meet.	
EQc1	1							Outdoor Air Delivery Monitoring	x	x	x		Potential cost for CO2 monitors.	
RPC5	1							EAc1 (30%)	x	x	x		No additional cost; achieve EAc1 at 30%	
EQc3.1	1							Construction IAQ During	x	x	x		No additional cost. Implement IAQ Plan.	
EQc3.2	1							Construction IAQ Pre-Occ	x	x	x		Potential cost for flush-out or air testing.	
EQc4.2	1							Low-Emitting Paints	x	x	x		No additional cost.	
EQc4.3	1							Low-Emitting Flooring Systems	x	x	x		No additional cost.	
EQc4.4	1							Low-Emitting Composite Wood	x	x	x		No additional cost.	
EQc4.5	1							Low-Emitting Furniture & Furnishings	x	x	x		Potential additional cost for certified furniture systems.	
EQc6.1	1							Controllability of Systems, Lighting	x	x	x		Incremental cost increases for ECMS.	
EQc6.2	1							Controllability of Systems, Thermal Comfort	x	x	x		No cost for comfort survey; self administering.	
EQc7.1	1							Thermal Comfort Design	x	x	x		Incremental cost increases for ECMS.	
EQc7.2	1							Thermal Comfort Verification	x	x	x		No cost for comfort survey; self administering.	
EQc8.1	1							Daylight	x	x	x		Potential cost for additional glazing.	
IDc1.4	1							Innovation in Design: Green Cleaning	x	x	x		No additional cost. Identify viable strategy such as green cleaning program.	
IDc1.5	1							LEED™ Accredited Professional	x	x	x		Site does not support credit requirements.	
IDc2	1							The School as a Teaching Tool	x	x	x		Site does not support credit requirements.	
SUBTOTAL	68							50 Points = Silver; 60 Points = Gold						
SSc7.2	1							Heat Island Effect, Roof				x	No cost. Register project with EnergyStar Portfolio Manager for 1 point	
EAc2	2							On-Site Renewable Energy, 1% to 13%				x	Cost associated with PPA or renewable energy generation	
WEc2	2							Innovative Wastewater				x	No cost. Register project with EnergyStar Portfolio Manager for 1 point	
RPC3	1							Regional Credit: WEc2				x	No additional cost. Dependent upon achieving WEc2	
RPC4	(1)							Regional Credit: EAc2(3%)				x	Requires removal of garbage disposal and qualifications on other process water usage. Costs attributed to delta between original choices and choices to meet this	
EAc5	1							Measurement & Verification				x	Cost associated with metering devices and verification contract	
EAc6	2							Green Power				x	No added costs. Integral to product selection.	
MRC3.1	1							Materials Reuse 5%				x	No added costs. Integral to product selection.	
MRC3.2	1							Materials Reuse 10%				x	No added costs. Integral to product selection.	
MRC6	1							Rapidly Renewable Materials				x	No additional cost. Conduct survey after occupancy. Credit dependent on EQc7.1	
RPC6	(1)							Regional Credit: MRC6				x	No additional cost. Dependent upon achieving MRC6.	
MRC7	1							Certified Wood				x	No additional costs associated. Dependent upon EQ7.1 and 7.2	
EQc2	1							Increased Ventilation				x	No additional cost associated.	
EQc5	1							Indoor Source Control				x	No additional cost. Selection of HVAC system may conflict with filter requirements.	
EQc9	1							Mold Prevention				x	Requires achievement of related credits currently in ? Columns	
IDc1.1	1							Innovation in Design: Exemplary Performance MRC2 95%				x	No additional cost. Set goals in CWM plan.	
IDc1.2	1							Innovation in Design: Exemplary Performance MRC4 30%				x	No additional cost. Replace with other strategy if necessary.	
IDc1.3	1							Innovation in Design: Exemplary Performance MRC5 30%				x	No additional cost. Replace with other strategy if necessary.	
SUBTOTAL	68	10	9					80 Points = Platinum						
EXCLUDED FROM LEED STRATEGY														
SSc5.1	1							Protect or Restore Habitat						Site boundary does not allow compliance.
SSc5.2	1							Maximize Open Space						Site boundary does not allow compliance.
SSc8	1							Light Pollution Reduction						Site boundary does not allow compliance.
SSc9	1							Site Master Plan						Site boundary does not allow compliance.
EAc1	9							Optimize Energy Performance, 12% to 48%						Incremental costs for MEP / Building Envelope design to improve efficiency.
EAc2	5							On-Site Renewable Energy, 1% to 13%						Cost associated with PPA or renewable energy generation
MRC1.2	1							Building Reuse, Interior Non-Structural						Demolition on existing building will preclude project from meeting requirements.
EQc4.1	1							Low-Emitting Adhesives & Sealants						Projects only eligible for 4 points in IEQ4.1-4.6
EQc4.6	1							Low-Emitting Ceiling and Wall Systems.						Projects only eligible for 4 points in IEQ4.1-4.6
EQc8.2	3							Views						Existing building will preclude project from meeting requirements.
EQc9	1							Enhanced Acoustical Performance						Existing building will preclude project from meeting requirements.
TOTAL EXCLUDED: 23														

The strategies and tactics are repeated here without the metrics, and showing connection to the LEED strategy where applicable. The tables include the following additional columns with associated definitions:

FUNDRAISING OR COMMUNITY LEAD: Items that can be segregated for future implementation with fundraising dollars, and/or that will require community leadership to implement.

DISTRICT LEAD: Design decisions that will require engagement and leadership from the district

TIMELINE: The phase in which design decisions should be finalized

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE BUILD NET ZERO READY BUILDING					
Strategy	Tactics	LEED Strategy	Fundraising or Community Lead	District Lead	Timeline
Achieve 15-18 KBTU anticipated energy consumption	Tight envelope, efficient HVAC, daylight strategies/daylight harvesting	EAc1	X		75%SD
Reduce exposure of outside walls	Create atrium between building sections	EAc1			SD
Solar Ready Design	Solar ready roof design	EAc2			SD
	Solar canopies in parking (bike and car)	EAc2	X		SD
Consistently reduce carbon footprint	Create baseline and tracking goals	EAc5			DD
Become an energy producer	Evaluate for opportunities to distribute energy within Cedar-Lee District	EAc1/EAc2	X		
Leverage offsite renewable systems	Evaluate opportunities to generate energy offsite in Cedar-Lee District	EAc1/EAc2	X		
Manage and measure energy consumption	Implement robust measurement and verification system and plan	EAc5		X	DD

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE BUILD FOR 100% ONSITE STORM WATER MANAGEMENT

Strategy	Tactics	LEED Strategy	Fundraising or Community Lead	District Lead	Timeline
Set baseline for anticipated storm water runoff	Analyze anticipated storm water runoff from site	SSc6			SD
Prevent storm water runoff	Minimize impervious surfaces (parking and hardscape)	SSc6			SD
	Plant trees	SSc5, 6			DD/CD
	Implement bioswales	SSc6			SD
	Use cisterns	SSc6, WEp1, WEp3			SD
Reuse storm water	Greywater systems	WEp1, WEp3			SD

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE ACHIEVE ZERO WASTE IN CONSTRUCTION AND OPERATION

Strategy	Tactics	LEED Strategy	Fundraising or Community Lead	District Lead	Timeline
Recycle construction waste	Incorporate into construction waste management plan	MRc2			CD
Reuse demolition materials onsite	Incorporate into construction waste management plan and specifications for	MRc2/MRc3			DD
Divert demolition materials for reuse offsite	Create inventory of building materials (doors, windows) for reuse and plan to sell/donate	MRc2	X		DD
Eliminate food waste	Implement recycling and compost plan in cafeteria	WEc4		X	DD

NOTE: Additional project cost will be incurred to facilitate deconstruction to afford for material reuse for an outside contractor.

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE DESIGN AND OPERATE BUILDING FOR HUMAN HEALTH

Strategy	Tactics	LEED Strategy	Fundraising or Community Lead	District Lead	Timeline
Encourage biking	Provide adequate bike racks	SSc4.2			DD
Maintain healthy and clean building	Implement sustainable green cleaning program	IDc1.4 (possible)		X	
Ensure healthy indoor air quality	Design ventilation system to address PPM and humidity and to achieve ASHRAE 62.2 – healthy building standards	IEQp1/IEQc2			DD
	Maintain humidity at healthy building standards				DD

SUSTAINABLE WORKING GROUP GOAL: THE DISTRICT WILL STRIVE TO ACHIEVE DESIGN AND OPERATE BUILDING AS A TEACHING TOOL

Strategy	Tactics	LEED Strategy	Fundraising or Community Lead	District Lead	Timeline
Leverage building technology for learning	Develop learning modules that incorporate: <ul style="list-style-type: none"> • Energy/building system functionality • Energy consumption • Water consumption • Food production • Plant growth rate • Building controls functionality • “Open” wall systems 	IDc3	X	X	DD
Incorporate construction practices into educational plans	Work with construction team to develop internships and teaching modules <ul style="list-style-type: none"> • Waste management/recycling tracking • Material source tracking • Volatile Organic Compounds • Storm water calculations • Potable water calculations • Energy calculations • Commissioning process • Construction management 	IDc3	X	X	DD
	Develop measurement and monitoring modules: <ul style="list-style-type: none"> • Energy consumption • Thermal transference measurement • Water quality measurement 	IDc3	X	X	DD
	Develop landscape module around storm water strategies Bioswale/vegetation planning and implementation	IDc3	X	X	DD
	Develop signage plan throughout building that describes building systems and annual performance metrics	IDc3			DD

NOTE: Design team recommends identifying specific classrooms, building areas and site areas to facilitate design to support learning modules.

NEXT STEPS AND RECOMMENDATIONS

The project is currently moving towards Schematic Design, which will be presented for approval in August of this year. Construction is expected to begin in June 2015 and conclude in the summer of 2017.

It is highly recommended that the SWG and CTE continue to meet and work collaboratively with the district to ensure that there is district-led infrastructure to fully leverage the sustainable features of the new building, and to ensure sustainable operations and curriculum. There are several strategies and tactics recommended herein that require additional resources, planning and leadership. It is of time sensitive importance that the SWG work with the A/E/C team to identify specific design elements that support the sustainability goals, yet could be “project extras” such as monitoring or display devices that facilitate the building as a teaching tool. These “project extras” would become the basis for a community fundraising drive to bring corporate and individual support for sustainability into the building. Further, the SWG and CTE can be working with district leadership, community groups, non-profits, and student groups to create operational sustainability plans and lesson plans to support the sustainability goals.

With respect to the LEED Certification and LEED strategy, the A/E/C team should continue to review LEED criteria for all Y, ?Y and ?N prerequisites and credits to ensure design meets the credit criteria. To the extent there are ?Y and ?N credits, the team should use the decision making criteria when evaluating and presenting design options to the district. At a minimum, the LEED Strategy should be reviewed monthly during design and construction and reported at the Facilities Accountability Committee meetings.