Facilities Advisory Committee

Welcome to Tesla STEM High School!

Thursday, April 18, 2024

5:00-7:00

Optional Facility Tour: 7:00-7:30

Check-in: Preparing for Spring...

Agenda - April

Focus: Considering sustainable construction practices to guide short-term and long-term construction planning

- 5:00-5:10: ***Welcome & Check-In***
- 5:10-6:00: ***Information Sharing, Feedback & Discussion***
  - *April School Board Meeting Update*
  - *Aging Facilities Video*
  - *Sustainability in LWSD*
  - *Discussion*
- 6:00-6:05: ***Break***
- 6:05-6:30: ***Information Sharing***
  - *New In-Lieu Studies (Alcott, Smith, Kamiakin and Evergreen)*
  - *Modular Construction*
- 6:30-7:00: ***Optional Facility Tour***
  - Tesla STEM High School

April School Board Update

Board approved repurpose of 2022 Construction Levy funds

LGO Bond sale planned

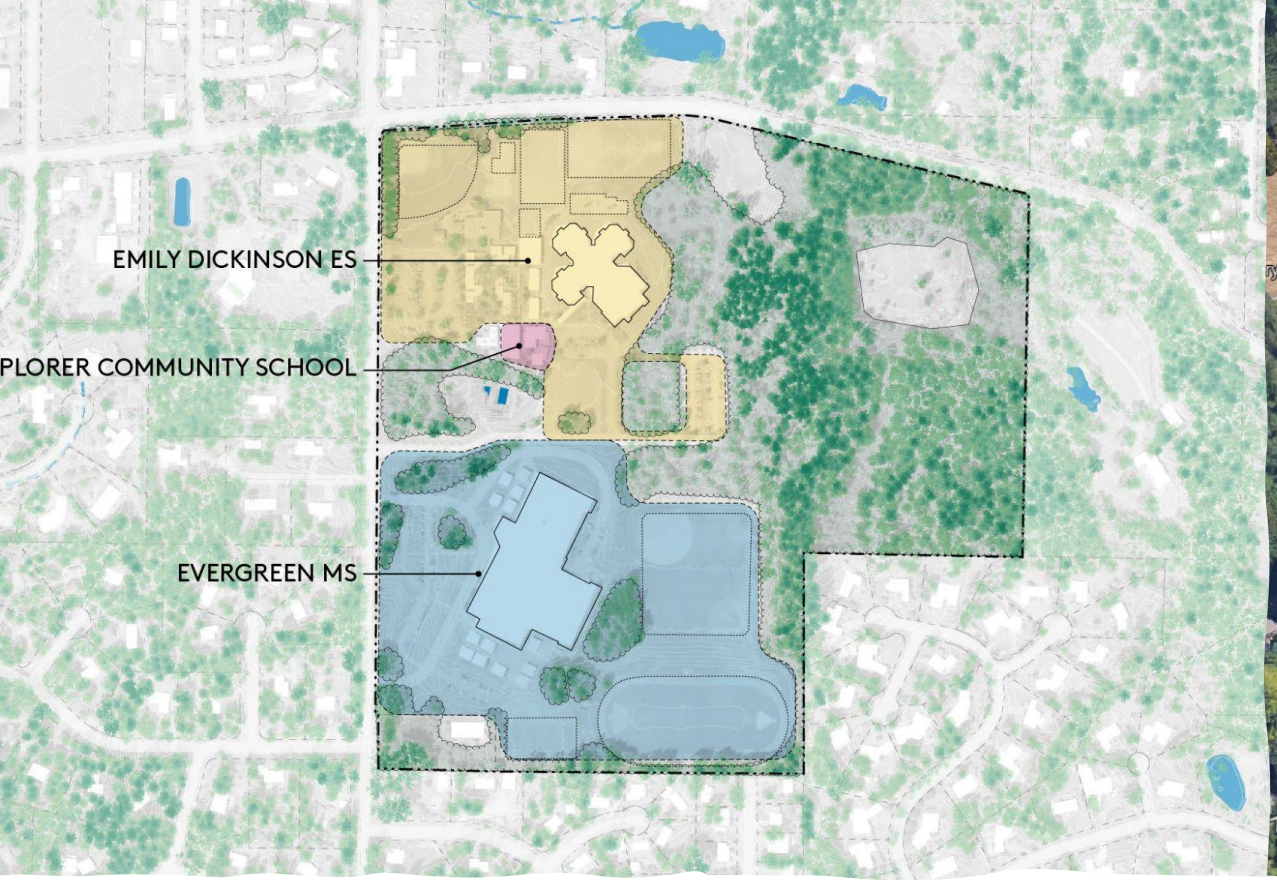
Next steps for communication

Goals Relating to School Space and Capacity

- All schools implement LWSD's standard of service as described in the Educational Specification
- All schools educate students using permanent capacity with portable capacity used in critical situations
- All schools have student enrollment that utilize 80-89% of the school's permanent capacity
- All schools use school space for innovative strategies that increase positive student outcomes
- LWSD uses innovative solutions to provide school space in/on non-traditional sites/locations
- LWSD uses partnerships to accomplish school space/capacity and athletic/activity goals

Recommendation

- Repurpose levy funds for eastside capacity to provide up to a 12-classroom addition and core space modifications at Eastlake and Redmond High Schools.
- Directs superintendent to prepare a study on the feasibility, engagement/community considerations, financing and implementation plan for the evaluation of a 5th Comprehensive High School by March 2025.
- Directs superintendent to prepare a study on the alternatives to addressing high school enrollment such as (1) do nothing, (2) additional choice school options and (3) district-wide reboundary using current facilities by March 2025.



Aging Facilities: Evergreen Middle School

Sustainability in LWSD

- *Legislative Requirements*
  - *2024 Energy Code*
  - *Clean Buildings Act*
  - *WA Sustainable Schools Protocol*
- *LWSD Sustainable Practices*

2024 Energy Code Requirements

- The Washington State Energy Code update is based on the 2021 International Energy Conservation Code (IECC)
- It was adopted by the Washington State Building Code Council (SBCC) and will take effect on **March 15, 2024**
- Goals:
  - Reduce Carbon Emission
  - Integrate renewable energy
  - Improve Energy Efficiency Measures
- Increases School Design + Construction cost

2024 Energy Code Requirements

2024 Energy Code Requirement	Design + Construction Impacts	Current LWSD Standards	Anticipated Impacts (increased cost)
High Efficiency Lighting	LEDs, motion sensors and daylight harvesting	Yes	N/A
HVAC Systems	Use of heat pump (electric) technology and high efficiency heat recovery systems	Yes - allow natural gas with a preference for geothermal systems	High - Reduces the reliance on natural gas; increases square footage for mechanical and electrical spaces
Building Envelope, Window and Glazing	High performance windows to reduce heat loss and proper glazing to control solar heat gain. Improve insulation and air sealing	Yes	Low - the update increases ceiling insulation
Renewable Energy Integration	Solar panels required on building 10,000 SF or greater	No	Medium – current standard includes infrastructure for solar
Appliance and Equipment Standards	Efficient heat pump water heaters, use of energy star-rated appliances	Yes	Low – current standard is either electric or gas water heaters, but not heat pump water heaters
Building Automation and Controls	Smart thermostats, CO2 monitoring, occupancy sensors, controlled outlets and programmable systems. Real-time monitoring and adjustments for energy savings	Yes	N/A
Site Planning	EV charging infrastructure *(staff parking)*	No	Medium – 10% EV stations; 20% EV ready

WA State Clean Buildings Performance Standard

WA State Clean Building Performance Standard

What is it?

Clean Buildings Performance Standard (HB 1257) became law in 2019.

All existing commercial buildings over 50,000 Sq. ft. will need to meet set energy performance targets (EUI), or meet financial investment criteria

Owners must also develop and implement per-building Energy Mgmt. Plans and O&M Programs

** These "Tier 2" facilities must benchmark & submit documents only – EUI targets TBD*

Individual Buildings & EUI Targets

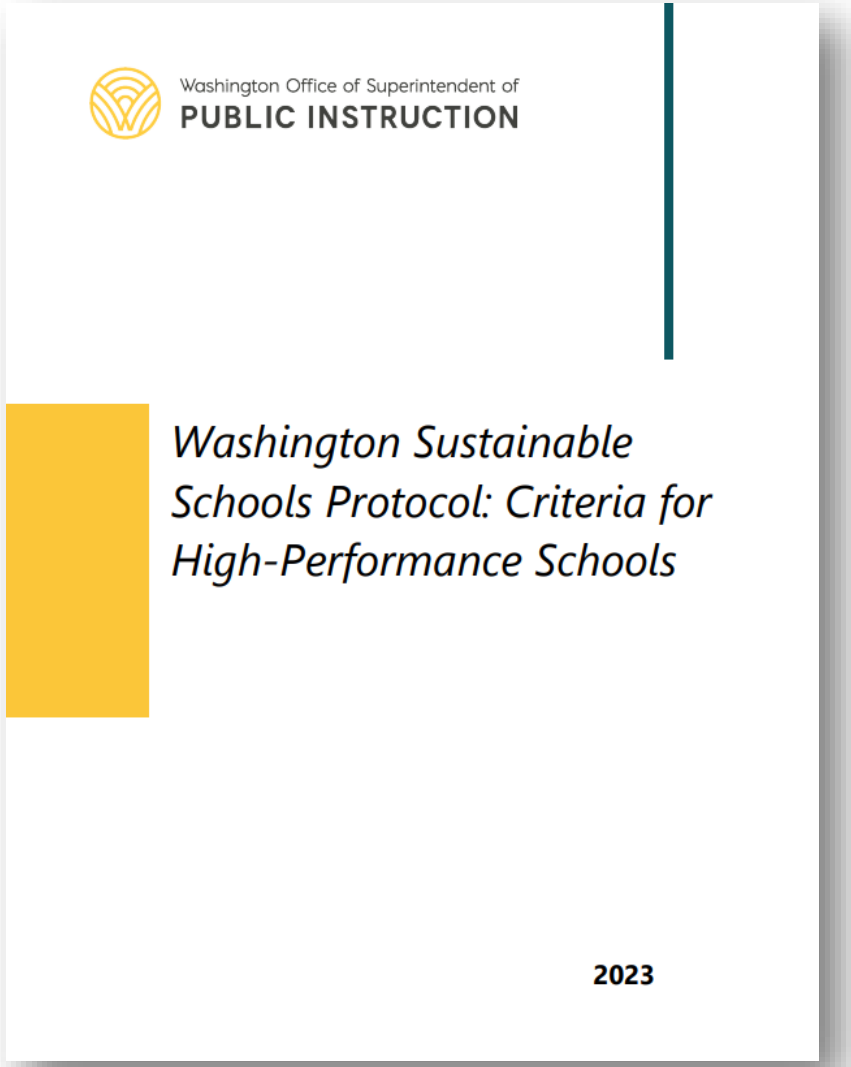
CBPS "Tier"	Gross Floor Area (sq ft)	Due Date*
Tier 1.A	>220,000	June 1, 2026*
Tier 1.B	90,000-220,000	June 1, 2027*
Tier 1.C	50,000-90,000	June 1, 2028*
Tier 2	20,000-50,000*	June 1, 2027*

** Energy tracking & operational programs must start **at least** one year prior to each deadline*

- Majority of sites are at or approaching EUI Targets
- Currently focusing on ~5 schools to meet Tier 1 Targets by due dates

Washington Sustainable Schools Protocol (WSSP)

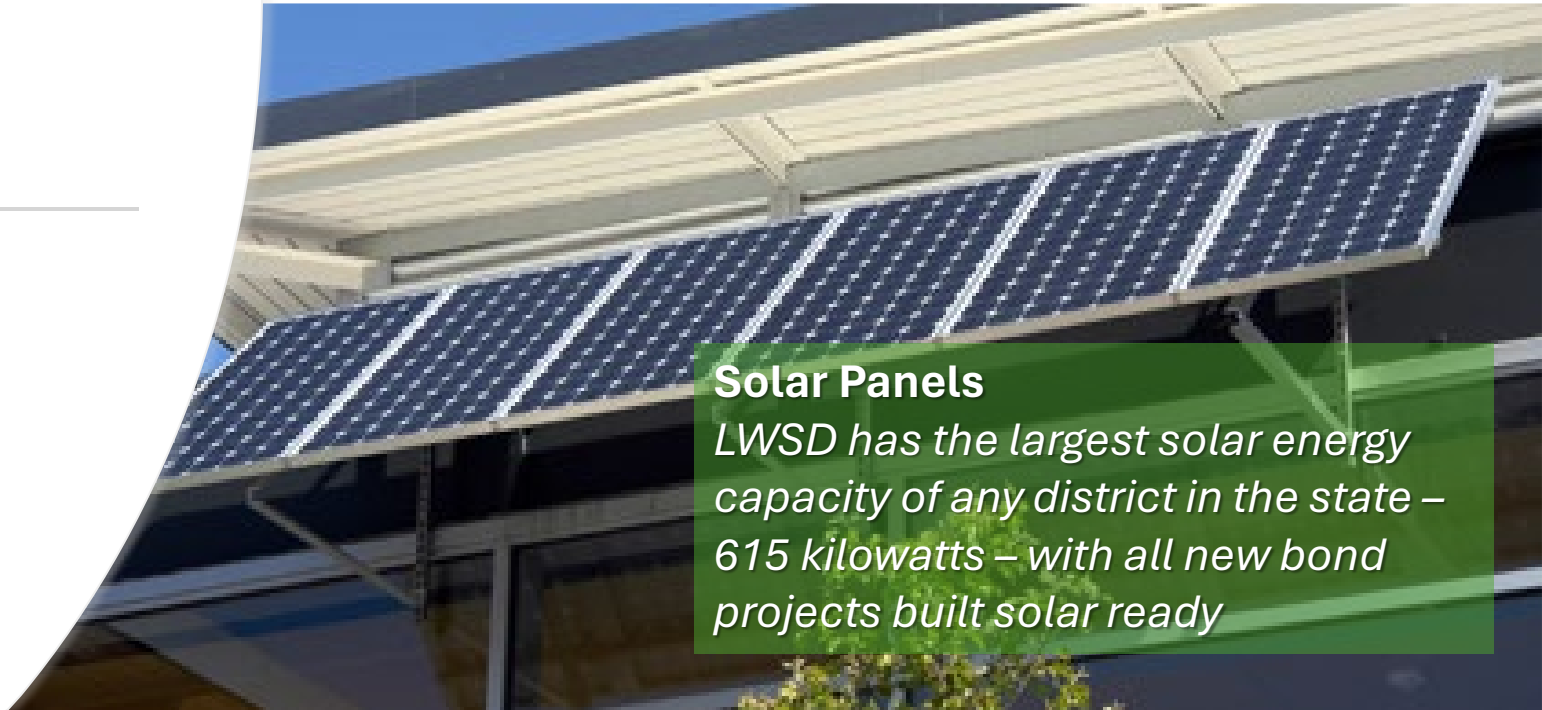
- State-funded construction projects are required to incorporate high-performance features into their school design and construction
- School districts can use either WSSP or LEED for Building Design and Construction (Schools)
- WSSP is modeled after the Collaborative for High-Performance Schools (CHPS) green building protocol and adapted to reflect characteristics that optimize high performance in Washington schools
- WSSP is the green building guide for new and modernization school construction in Washington
- Credits, in six major environmental categories, include those that are required and earn no points, as well as optional point-earning credits
- Projects receiving state capital funds through the School Construction Assistance Program (SCAP) will apply the version of WSSP in effect at the time the D4 approval is issued



LWSD Sustainable Practices

Green Roof

LWSD built the first WA K-12 public school with a green roof at Rachel Carson Elementary School in 2008



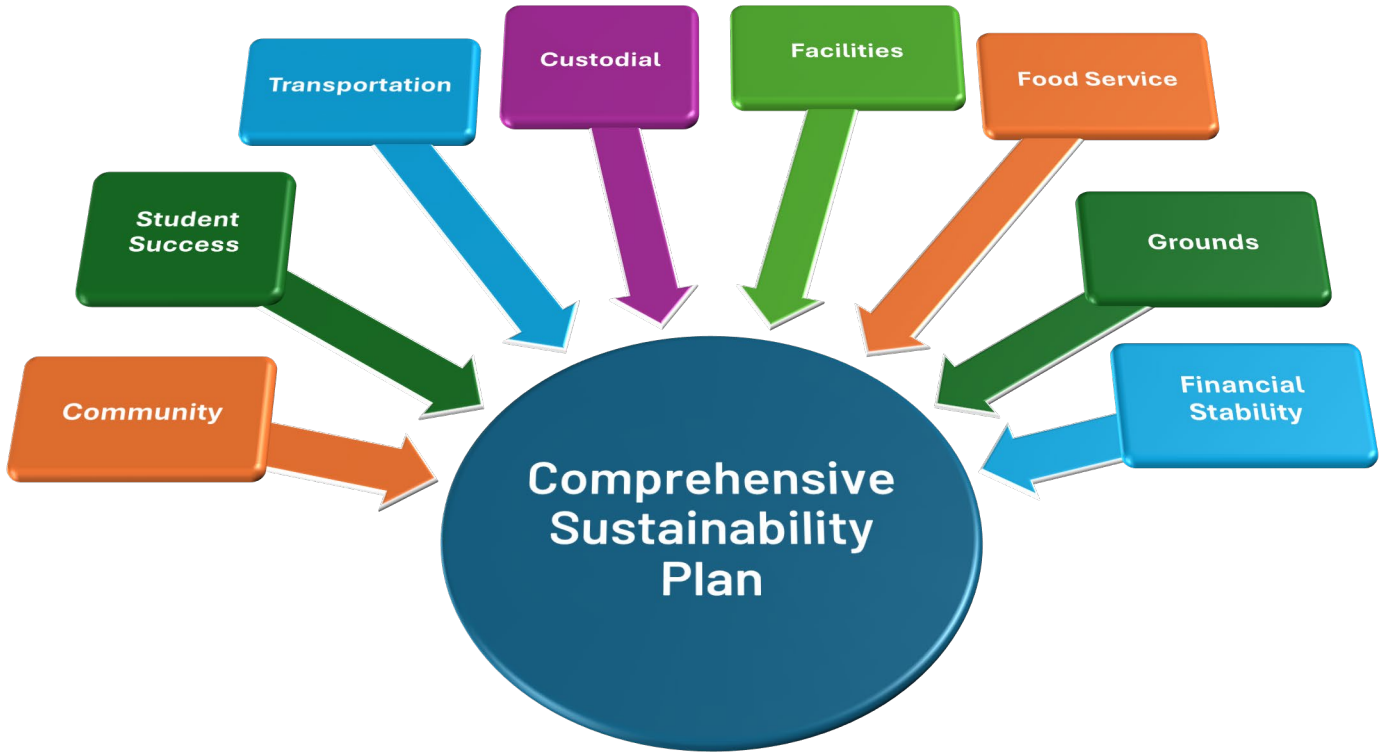
Solar Panels

LWSD has the largest solar energy capacity of any district in the state – 615 kilowatts – with all new bond projects built solar ready

What is Sustainability?

The most often quoted definition comes from the UN World Commission on Environment and Development:

“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”



Sustainability vs Carbon: What do we need to plan for?

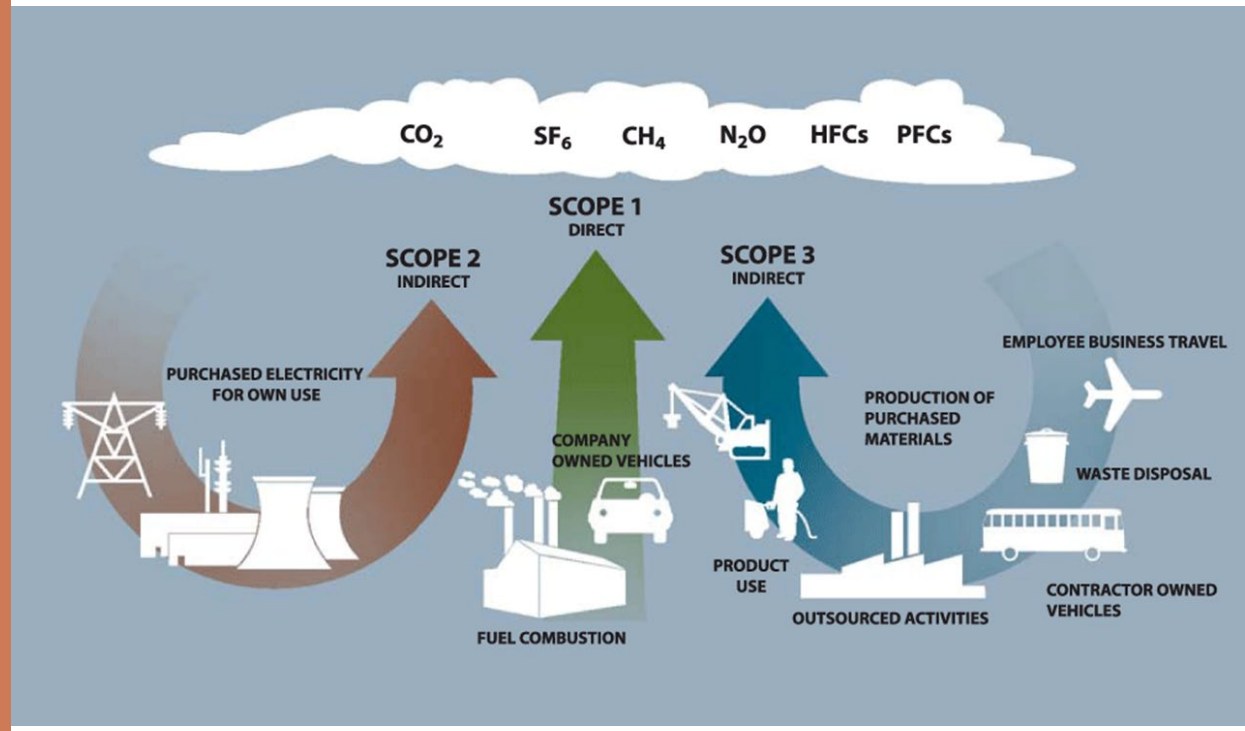
Impact on the climate is often measured by carbon emissions. These topics are an integral *part* of a **holistic sustainability plan**.

Emissions from

- ✓ facilities' energy use
- ✓ transportation
- ✓ waste
- ✓ purchased materials

are captured in an overall "carbon footprint."

A carbon reduction plan focuses on areas of emissions sources and **sets goals and defines actions to reduce them.**



Celebrate LWSD!

Nationally Recognized Sustainability Leadership

LWSD is a recognized for sustainability practices and education in the region and has received numerous awards
from the U.S. Department of Education, King County Green Schools, Puget Sound Energy and more.

U.S. DEPARTMENT OF EDUCATION
GreenRibbonSchools

GREEN CLEANING AWARD
for Schools & Universities

Excellence in Integrated Pest Management
ipm
IPM STAR CERTIFIED
www.ipminstitute.org

2016
Best Workplace for Waste Prevention and Recycling
King County

PSE PUGET SOUND ENERGY

Driving Efficiency: RCM Program

In 2005, the district adopted a Resource Conservation Management (RCM) program partnership with McKinstry focused on optimizing facility performance for utilities conservation and cost savings.

RCM program is incentivized by Puget Sound Energy.

Usage Reduction Highlights (Pre-COVID)

30%
reduction in energy usage per square foot since 2006

37%
reduction in natural gas usage since 2006

30%
reduction in water usage since 2008

RCM Results Snapshot

Continuous Operational Optimization

Target low and not cost efficiency strategies
Support reliable, comfortable buildings

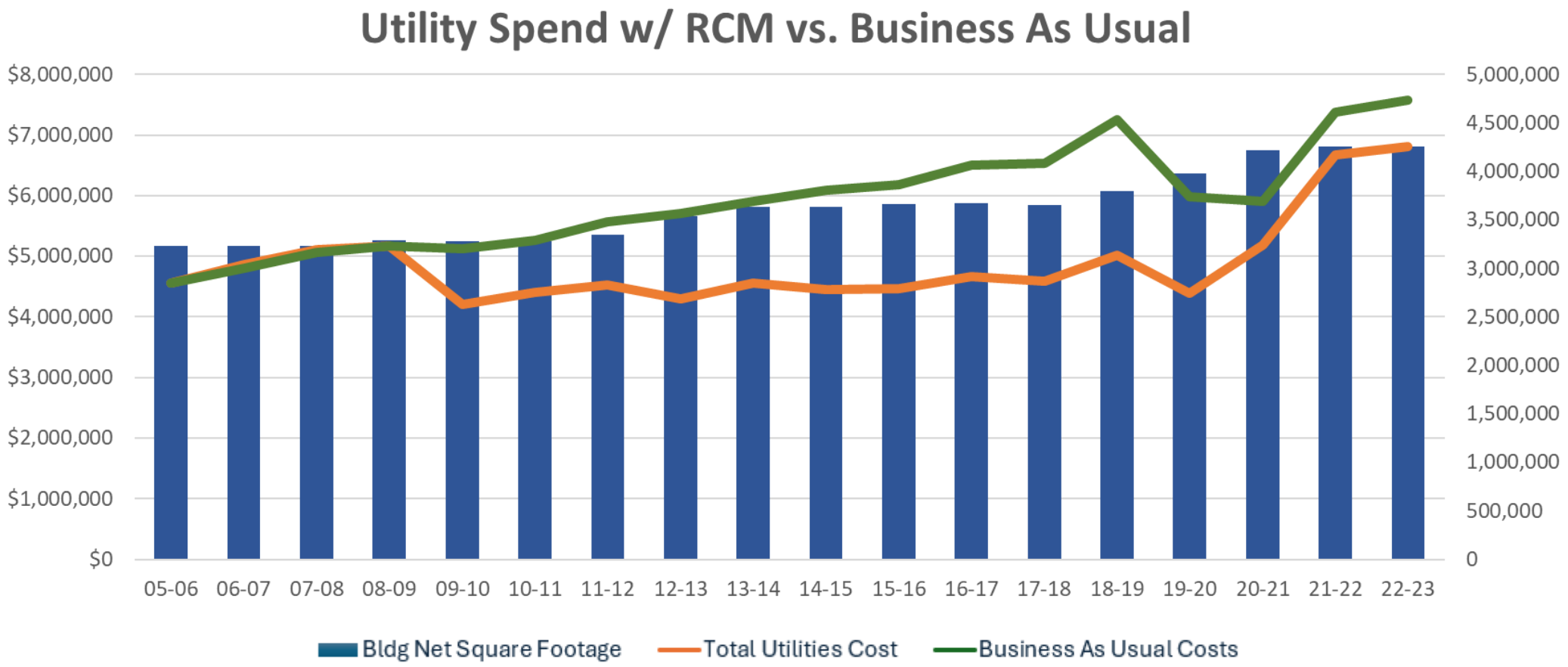
$20.2 MILLION

Total cost savings the district has realized since 2006

$25–30,000

Annual RCM grants from Puget Sound Energy

RCM Overall Utility Cost Savings



Despite rising utility costs and the impacts of COVID-19, thanks to the RCM program, the total annual utility cost has remained below what the district would have spent without the program (business-as-usual).

Water Reduction

95%
Of older toilets replaced with modern 1.6 gallons-per-flush units

75%
Water consumption reduced by retrofitting restroom sinks with high-efficiency 0.5 gallons-per-minute aerators

$500,000
Annual savings in irrigation costs by switching to native landscaping – an 80% reduction in irrigation water usage!

$175,000
Annual savings in sewer costs through 2019

DISHWASHERS
Currently replacing large kitchen dishwashers with high-efficiency units, saving on both energy and water. Three major dishwashers were replaced in 2022 alone. All new schools are equipped with dishwashers that reuse steam to pre-heat incoming water.

RAIN BARRELS
Several schools have rain barrels for garden irrigation. One unique set-up, Finn Hill Middle School, has a large cistern that is used to irrigate its greenhouse.

Energy Efficiency Retrofits

LWSD continuously prioritizes efficiency in the capital improvement planning process to balance student and infrastructure needs with the lowest impact energy usage.

LWSD currently has the **largest solar capacity of any school district** in the state!

Retrofit Focuses

- Building controls
- Renewable Energy
- CO2 sensors
- LED lighting
- Boiler replacements

Smart & Sustainable New Schools

LWSD has a robust capital planning strategy for new schools. They are designed to be highly efficient, prioritize alternative energy, and proactively take lessons learned from past construction projects.

Design Criteria for New Construction

- Energy performance 20% better than energy code
- Utilize geothermal heat where possible
- Solar panel ready
- On site stormwater mitigation

Waste Reduction

$227,000
Reduction in waste costs per year from 2005 – a 70% reduction in costs per student!

8x Award Winner
King County Best Workplace for Waste Prevention and Recycling

Over 1.5 million
Water bottles filled since the 2016 installation of filling stations at secondary schools

33 Schools
Certified by King County Green Schools for their commitment to reducing waste and recycling

100%
of schools have recycling programs

80%
of schools have composting programs

Custodial & Green Cleaning

2012

Green cleaning begins in the district, incorporating custodian feedback

Number of chemical cleaners was reduced

Increased use of paper products made of at least 40% post-consumer content

2017

Green Cleaning Award from American School and University Magazine

Repurposed two school buses for carpet cleaning

2021

Well prepared for COVID protocols and cleaning practices balance to minimize student risk

Transportation

100%

- Bus fleet built after 2007. LWSD prioritizes newer, more efficient options

Grants

- Award in 2018 by WA Department of Ecology to purchase 16 new low-emission buses. Resulting in 99% reduction of overall fleet emissions
- Award in 2024 by Environmental Protection Agency (EPA) to purchase 2 electric school buses
- Award in 2024 for electrical charging infrastructure by WA Department of Commerce

Retrofits

- All buses retrofitted with particulate exhaust filtration to reduce emissions

Training

- Driver receive training to avoid idling, which is further enforced through technology on buses

Student Engagement

Green Ribbon District

National winner from Dept of Education

U.S. DEPARTMENT OF EDUCATION
GreenRibbonSchools

33 Green Schools

Participating in King County Green Schools in the 2023-24 school year

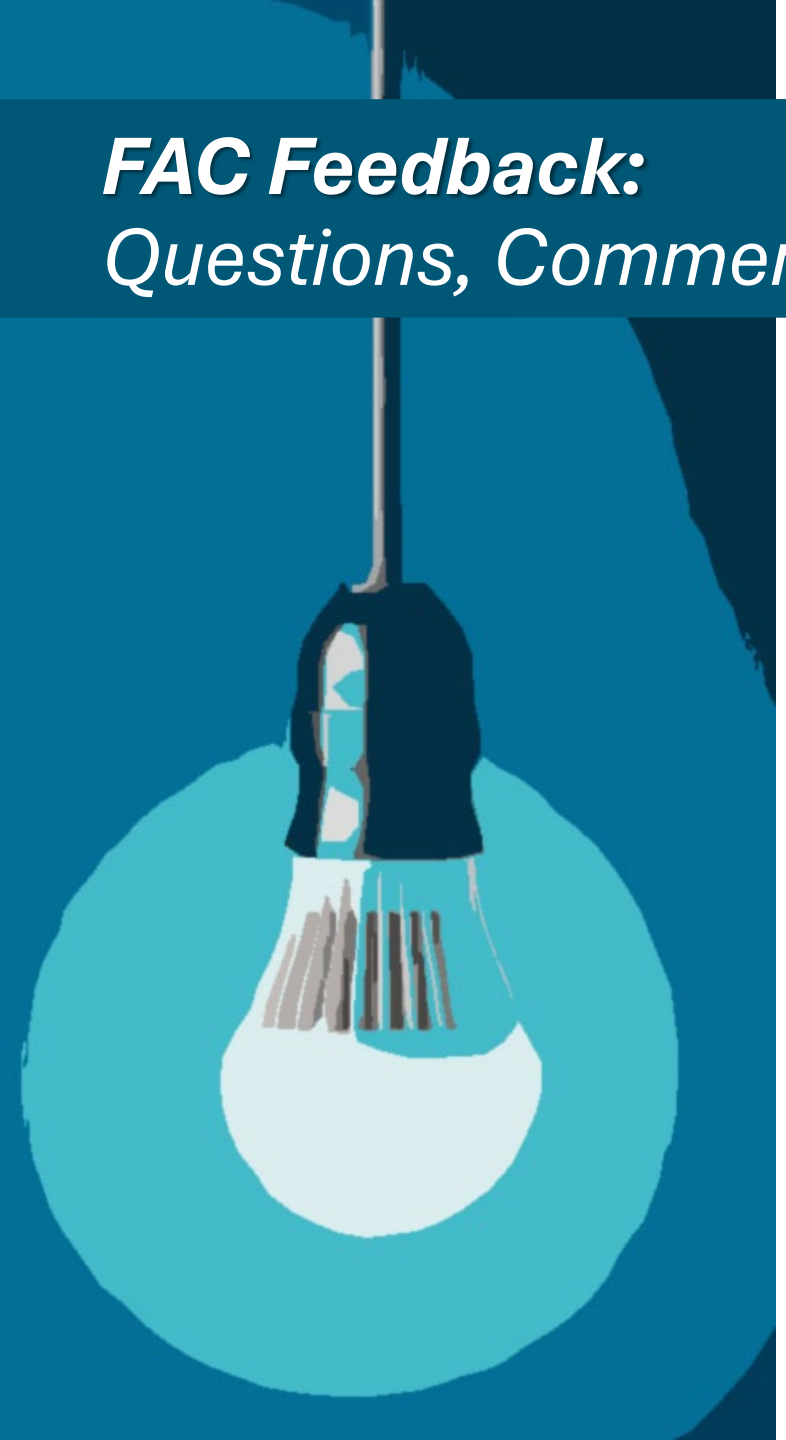
Green Teams & Initiatives

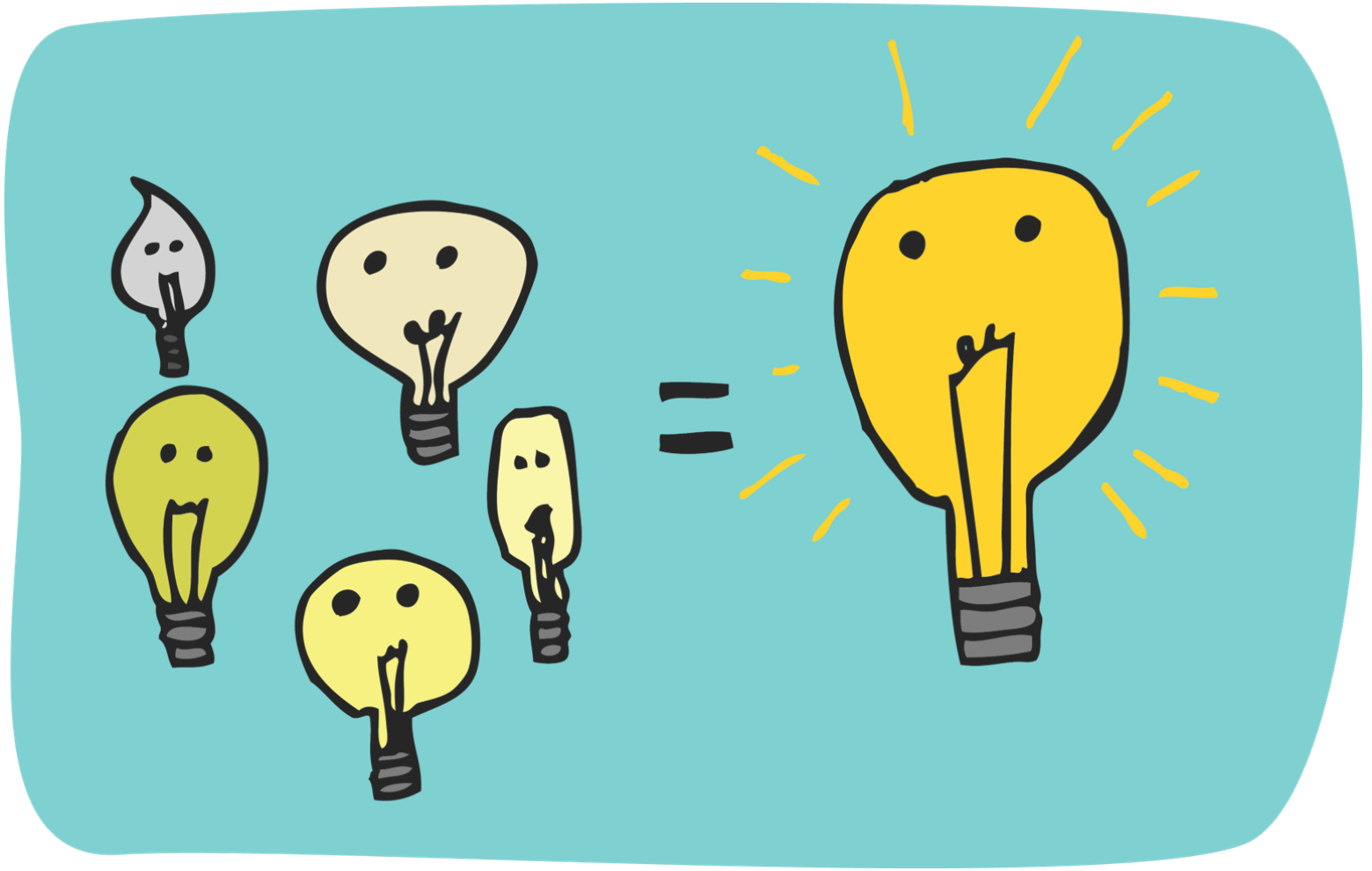
-Food share tables

-Walk/Bike to school

-Sustainability connections to district data

FAC Feedback:
Questions, Comments, Ideas?





Break Time!

Coming Up:

- 6:05-6:30:
  - New In-Lieu Studies
  - Modular Construction
- 6:30-7:00
  - *Optional Tesla Stem High School Tour*

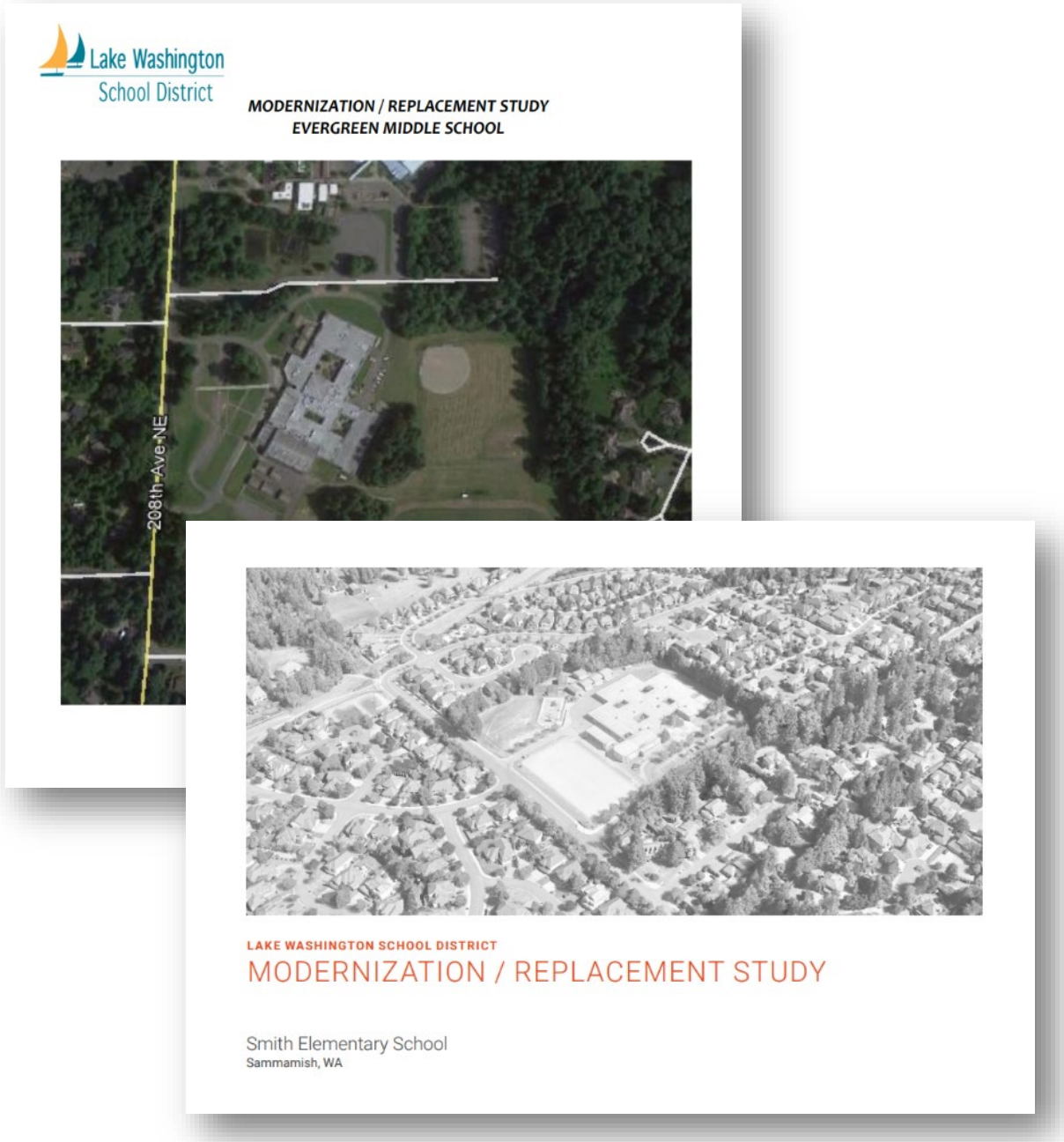
New In-lieu Studies

Purpose: Evaluate the cost-effectiveness and feasibility of building a new facility instead of renovating an older one.

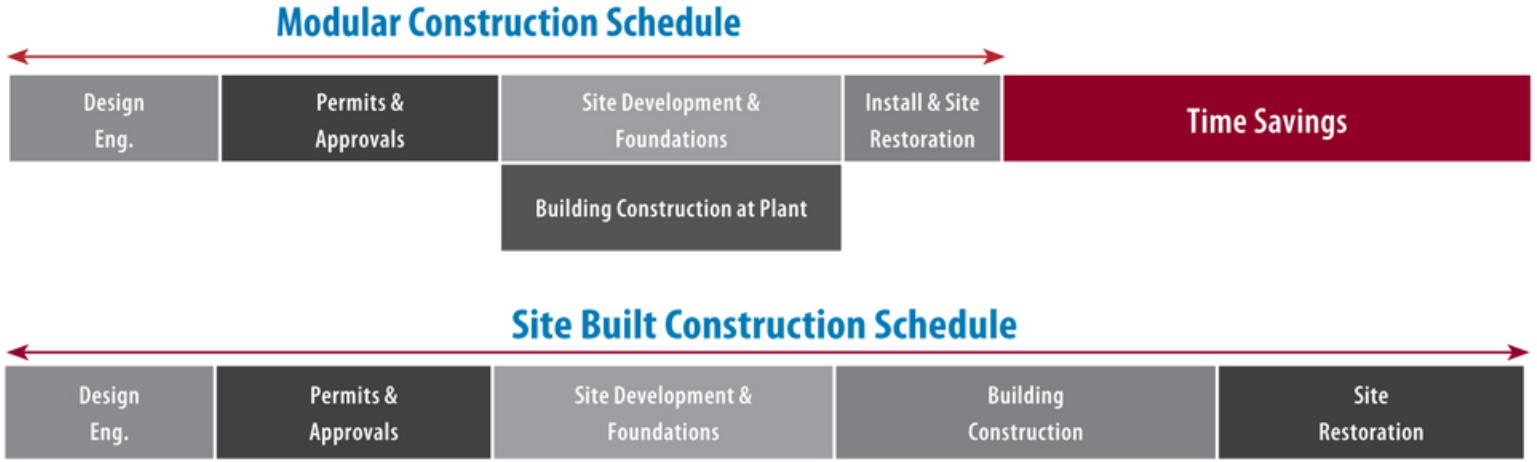
Requirement for School Construction Assistance Program (SCAP)

Key Components:

- **Cost-Benefit Analysis**
- **Safety and Code Compliance**
- **Educational Adequacy**
- **Community Impact**



Modular Construction



- Overview
- Benefits
- Limitations
- LWSD Application
  - Tesla STEM HS
  - Kirkland MS
  - Option for Future Additions

Future Work Plan Outline

BUILDING EXCELLENCE

Date	Location	Topics
February 22	Alcott Elementary	• Communication Plan Update; SCIT team updates; Aging school designs; Tour of portables – old and new
March 21	Kamiakin Middle School	• Building Excellence – Phase I and Phase II Updates; Enrollment Projections
April 18	Tesla STEM High	• Building Excellence – Phase II Updates; New in lieu studies • Sustainability Practices • Modular Design
May 16	**Old Redmond Schoolhouse**	• Funding measure update • Early Learning Facility needs • Capital Levy – Life cycle upgrades
June 20	Kirkland Middle School	• Impact Fees • Construction Tour – Modular Addition Process

❖ *Content of agendas may evolve*

Facility Tour:
Tesla STEM High School

Tesla STEM High School

- Key sustainability features include:
  - orientation and extensive use of skylights for daylight harvesting
  - pervious paving and bioswales for storm water management
  - photovoltaic system
  - advanced building controls
  - high-efficiency air-to-water heat pump
- Environment Engineering Sustainable Design (EESD) class organizing a Turn Off the Lights Day (TOLD) on April 26th