

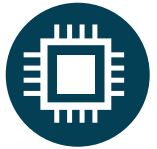


Facility Condition Assessments & Master Planning "Critical Systems"

Ryan Fujiwara & Rick Becker

Pursuing The Right Outcomes

McKinstry's Help



The right level of data collected, interpreted, & visualized to help the district take action.



Ongoing consulting of best practices and next steps.



Accurate, construction-grade cost estimates and identified incentives.

We Are



K-12 Experts



Experienced data integrators.



Engineers, builders and repairers.

McKinstry and North Santiam School District Partnership

Working together as North Santiam's partner leveraging State funding, developing actionable plan, prioritizing projects and balancing fiscal (bond/operations) responsibilities to ensure school facilities are aligned to support district's educational outcomes

- ❖ Facility Condition Assessment & Analysis
- ❖ Master Planning “Critical Systems”
- ❖ Grant Funding Secured
 - Technical Assistance Program (TAP) Grant Awarded \$45K
- ❖ Energy Projects Funding Available
 - Oregon Department of Energy (ODOE) Schools Program (SB1149 program): \$440,000
(know how to coordinate and implement with ODOE to maximize use)
- ❖ Grant and Incentive Funding Opportunities (application and coordination)
 - Oregon Bond Matching Program (OSCIM) \$4 Million confirmed
 - Energy Trust of Oregon’s incentive programs (ETO) Public Utility \$\$\$\$
(currently coordinating for North Santiam SD)
- ❖ Operational Utility Saving Efficiencies - Currently Assessing \$\$\$\$



Master Planning

Facilities Management – Best Practices

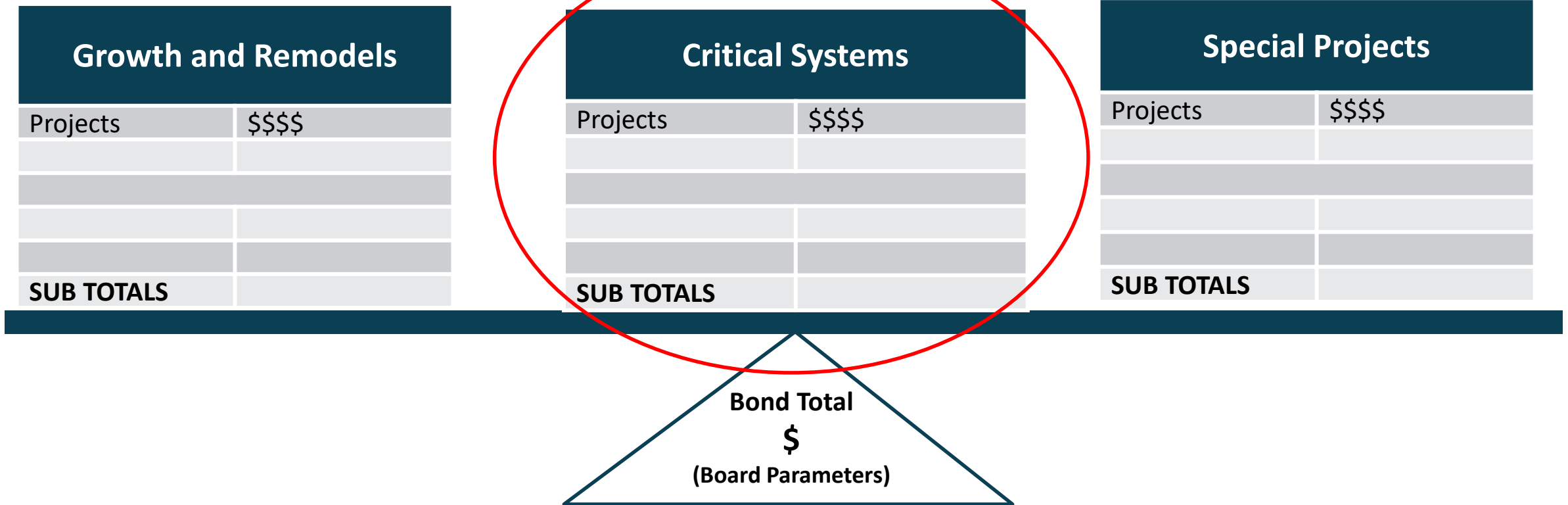
Why do we have to pay for this? Doesn't the state fund education?

- The State of Oregon is responsible for funding education. However, this does not include providing funding for the school facilities construction or equipment life cycle replacements. That responsibility falls to the communities served by the school districts.
 - Local (Bond) funding of school construction projects ensures that communities maintain a strong voice in how their educational facilities are managed and operated.

What do Bonds pay for?

- Must be used for capital expenditures:
 - Land purchases
 - New building construction
 - Remodeling of existing facilities
 - Additions to buildings
 - Initial equipment purchase
 - Critical Systems upgrades
 - Implementing technology systems

Finding the Right Balance



Master Planning

Facilities Management – Best Practices

Protecting the Public's Investment

Total Cost of Ownership

A systematic approach to ensure performance accountability; promote student health and safety by maintaining and operating building systems to their design capacity; maintain an encouraging learning environment; and extend building life, thus minimizing future capital needs

- Linking of capital (Bond) facility and maintenance/operations (General Fund) investments over expected facility/equipment lifecycles (10, 20 & 30+ years)

Initial/Replacement Cost + Maintenance + Operations = Total Cost of Ownership



Master Planning

Facilities Management – Best Practices

Finding the "Right Balance" between Maintenance/Operations WITH
New Construction AND Critical Systems Replacement AND Special Projects

1. Maintenance/Operations: Scheduled, Preventative and Unscheduled Projects

- Appropriate Funding (Annually) to support Maintenance & Operations (building request or projects)

- Potential impacts or risk of poor facility maintenance management
 - Educational mission (warm, safe and dry learning environments)
 - Indoor Air Quality (health, comfort, and lighted learning environmental)
 - Equitable facilities (educational access to learning environments and community access to public spaces)
 - Negative perceptions (students, staff, parents and community)

Facilities Management – Best Practices

2. Critical Systems Replacement (Facility or Equipment replacement)

- Funded on a regular Bond/Levy Cycle to replace/upgrade building and equipment life-cycles
 - Last district bond passed in 2012 for \$25M

- Potential impacts and risk of poor critical systems replacement cycles
 - **Additional cost/impacts general "operating" fund budget (staffing, equipment replacements, materials or contractors)**
 - Educational mission (warm, safe and dry learning environments)
 - Indoor Air Quality (health, comfort, and lighted learning environmental)
 - Inequitable facilities (educational access to learning opportunities/environments and community access to public spaces)
 - Negative perceptions (stakeholders)

Facilities Management – Best Practices

3. New Construction or New in Lieu Projects

q Funded thru Bond Cycles for New or New in Lieu of construction projects (Schools, Additions or Tenant Improvements)

- Last district bond passed in 2012 for \$25M
- **Three-quarters of all public infrastructure projects in the United States are built by states and localities, and tax-exempt bonds are the primary financing tool utilized to satisfy these infrastructure needs**

4. Special Projects (Capital Bond or General Fund)

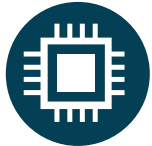
- Examples: Security, Field replacements, Swimming Pools,

Facilities Condition Assessment (FCA)



Uncovers immediate needs

- From equipment with imminent failure to small maintenance issues



Provides direction for operational activities

- Establish baseline and catalogue institutional knowledge



Informs Master Planning (Capital Bonds and Operations)

- Avoid failure and identify investment priorities



Wholistic view

- Helps meld emotions around schools with data (non-emotional) to make the best decisions

Facility Conditions Assessment (FCA)

How is Data Collected?

1. Building and Equipment “Boots on the ground” Assessments (every school, every door, etc.)
2. Extensive observation and recording of building systems
 - * Heating, Ventilation, Air Condition (HVAC)
 - * Mechanical, Electrical & Plumbing (MEP)
 - * Lighting
 - * Fire & Life Safety Equipment
 - * Interiors (Flooring, Finishes, Furniture)
 - * Technology (server, MDF, IDF rooms)
 - * Building Controls (BAS)
 - * Equipment
 - * Windows
 - * Site Development
 - * Roofs
 - * Outdoor Educational Space (Fields and Playgrounds)
3. High level of detail
 - * 2018 value of assets: \$66.2M (30 years)
 - * Total Square Feet: 400,000
 - * Photographs captured: 6,000
 - * 14 buildings including outdoor spaces
 - * Assets recorded: 765
 - * Distinct data points recorded: 13,457



FCA Equipment List - Example

FCAID	Location	Building	Location Description	Equipment Tag	Equipment Type	Equipment SubSystem	Equipment System	Manuf	Serial Number	Model Number	Equipment Size	Approx Install Date	Estimated Remaining Life	Notes	Estimated Replacement Date	Asset Condition (1-5)	Classroom Impact (1-5)	Estimated Replacement Cost	Life Expectancy	Priority
FCAID-0375	Stayton MS/IS	Stayton IS	Boiler Room	AH-1	Air Handling Unit	Air Distribution	Mechanical	Temtrol	63524		7.5 HP S, 3 HP R 11,000 CFM, 175 MBH	1995	10		2028	3	4	\$72,915	25	High
FCAID-0376	Stayton MS/IS	Stayton IS	Boiler Room	AH-2	Air Handling Unit	Air Distribution	Mechanical	Temtrol	63525	WF-DH37S	10 HP S, 5 HP R 18,000 CFM	1995	10	This fan serves HC 2-16	2028	3	4	\$225,000	25	High
FCAID-0382	Stayton MS/IS	Stayton IS	Attic	HC-2	Heating Coil	HVAC	Mechanical				174 MBH	1995	10		2028	3	2	\$40,600	20	High
FCAID-0383	Stayton MS/IS	Stayton IS	Attic	HC-3	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0384	Stayton MS/IS	Stayton IS	Attic	HC-4	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0385	Stayton MS/IS	Stayton IS	Attic	HC-5	Heating Coil	HVAC	Mechanical				148 MBH	1995	10		2028	3	2	\$34,533	20	High
FCAID-0386	Stayton MS/IS	Stayton IS	Attic	HC-6	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0387	Stayton MS/IS	Stayton IS	Attic	HC-7	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0388	Stayton MS/IS	Stayton IS	Attic	HC-8	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0389	Stayton MS/IS	Stayton IS	Attic	HC-9	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0390	Stayton MS/IS	Stayton IS	Attic	HC-10	Heating Coil	HVAC	Mechanical				137 MBH	1995	10		2028	3	2	\$31,967	20	High
FCAID-0391	Stayton MS/IS	Stayton IS	Attic	HC-11	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0392	Stayton MS/IS	Stayton IS	Attic	HC-12	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0393	Stayton MS/IS	Stayton IS	Attic	HC-13	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0394	Stayton MS/IS	Stayton IS	Attic	HC-14	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0395	Stayton MS/IS	Stayton IS	Attic	HC-15	Heating Coil	HVAC	Mechanical				61 MBH	1995	10		2028	3	2	\$14,233	20	High
FCAID-0396	Stayton MS/IS	Stayton IS	Attic	HC-16	Heating Coil	HVAC	Mechanical				15 MBH	1995	10		2028	3	2	\$3,500	20	High
FCAID-0452	Stayton MS/IS	Stayton MS	Above Cust Closet by 220	MZ-2	Air Handling Unit	Air Distribution	Mechanical	Pace	6912155-1	B18 MZ9	7.5 HP, 400 MBH, 11,500 CFM	2014	10	Serves F-1	2028	3	4	\$166,500	25	High
FCAID-0453	Stayton MS/IS	Stayton MS	Above Cust Closet by 220	MZ-1	Air Handling Unit	Air Distribution	Mechanical	Pace		B18 MZ9	7.5 HP, 400 MBH, 11,500 CFM	2014	10	Serves F-1	2028	3	4	\$166,500	25	High
FCAID-0454	Stayton MS/IS	Stayton MS	Band Mezzanine	MZ-5	Air Handling Unit	Air Distribution	Mechanical	Pace		B-11	3 HP, 170 MBH, 4770 CFM	2014	10	1973 original; refurbished 2014	2028	3	4	\$70,830	25	High
FCAID-0455	Stayton MS/IS	Stayton MS	Equip Storage 201	GM-2	Air Handling Unit	Air Distribution	Mechanical	Pace			1 HP, 2470 CFM, 54 MBH	2014	10	1970 original; refurbished 2014	2028	3	4	\$22,500	25	High

Standardized "Industry" Ratings - FCA

EXCELLENT

Preventative maintenance only. New or easily restorable to "like new" condition **(Scoring: 1)**

GOOD

Routine maintenance only. Component aging but exhibits no damage **(Scoring: 2)**

FAIR

Minor repairs. Minor component damage or repairs needed **(Scoring: 3)**

POOR

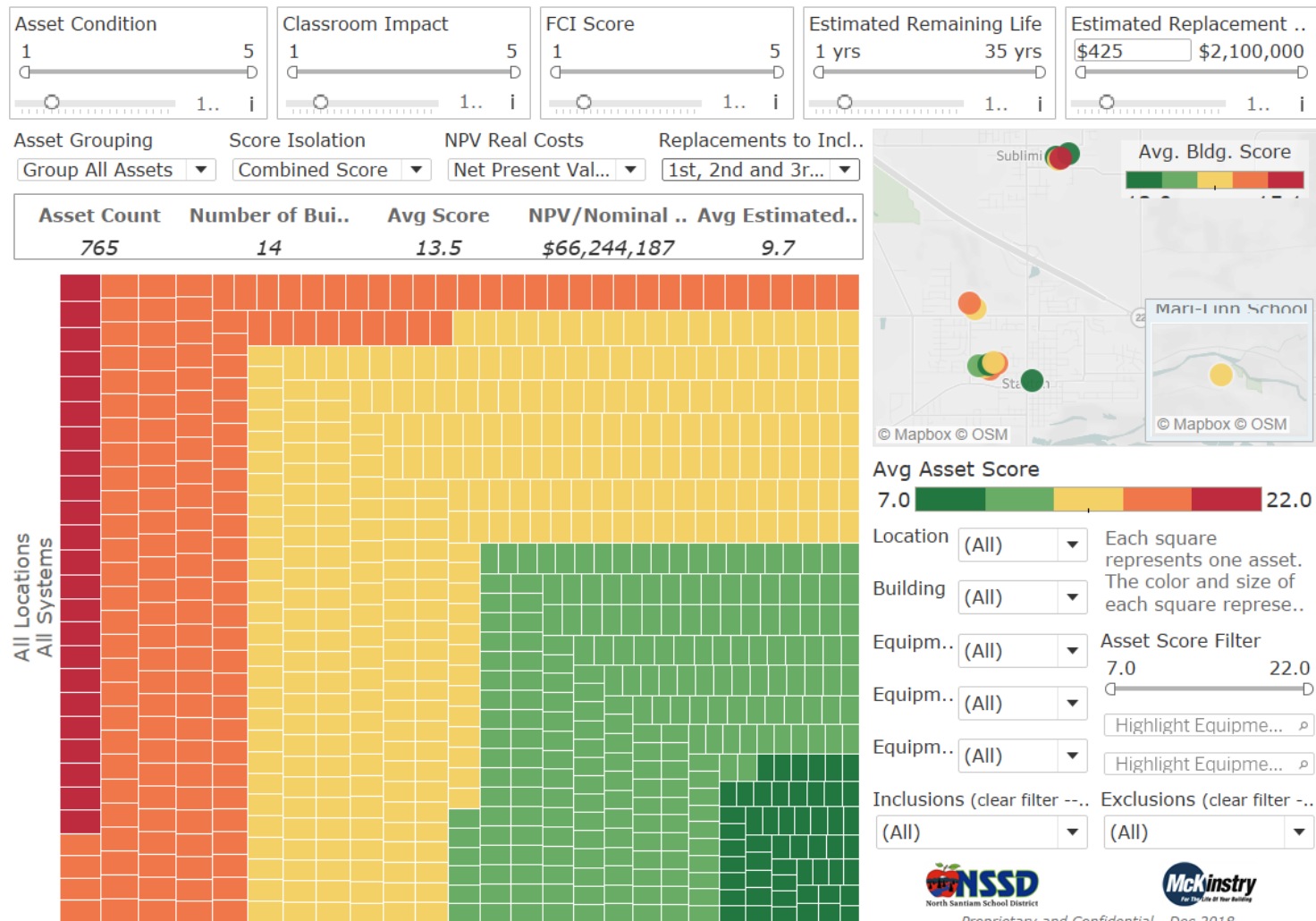
Requires major repairs. Component is in need of major repairs, is not operating, or is close to the end of its expected useful life **(Scoring: 4)**

UNSATISFACTORY

Requires system replacement. Major damage, complete failure, or in need of replacement **(Scoring: 5)**

Facility Conditions Assessment (FCA)

North Santiam School District - Visualization (VIZ) Tool Example (30 years)



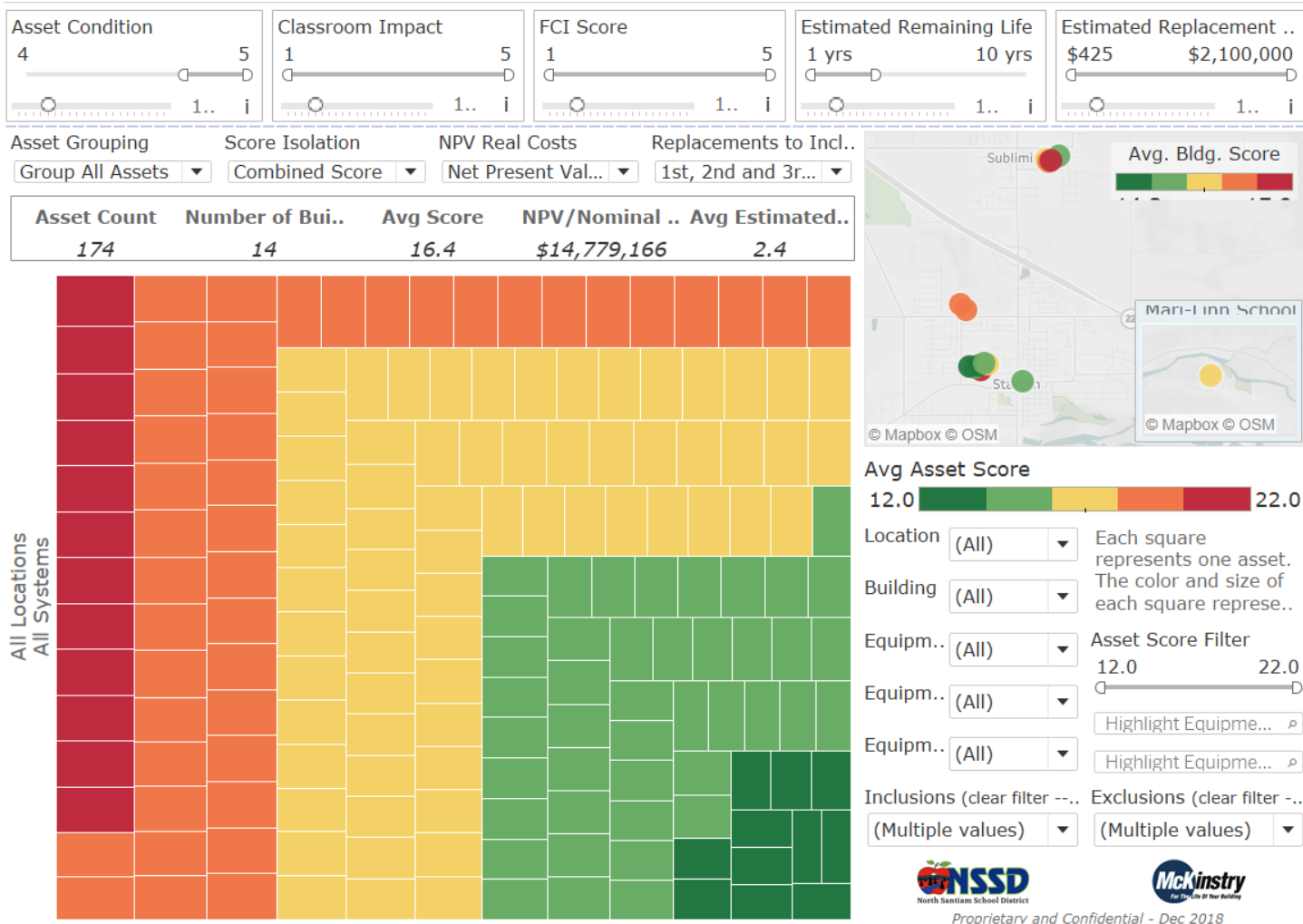
N. Santiam SD Facility portfolio value (owned) **\$66.2 Million** worth of assets

Conservative escalation for 2019 at conservative 6%: **\$70 Million**



Facility Conditions Assessment (FCA)

North Santiam School District - Visualization (VIZ) Tool Example (10 years)



District wide life cycle replacement needs (FCA Ratings: 4 and 5):

\$15.0 Million (All Assets)

- equipment which will reach end of life or considered unsatisfactory in next 10 years

Project Examples:

- HVAC Systems Upgrades*
- Roof Replacements*
- Lighting Upgrades*
- Plumbing

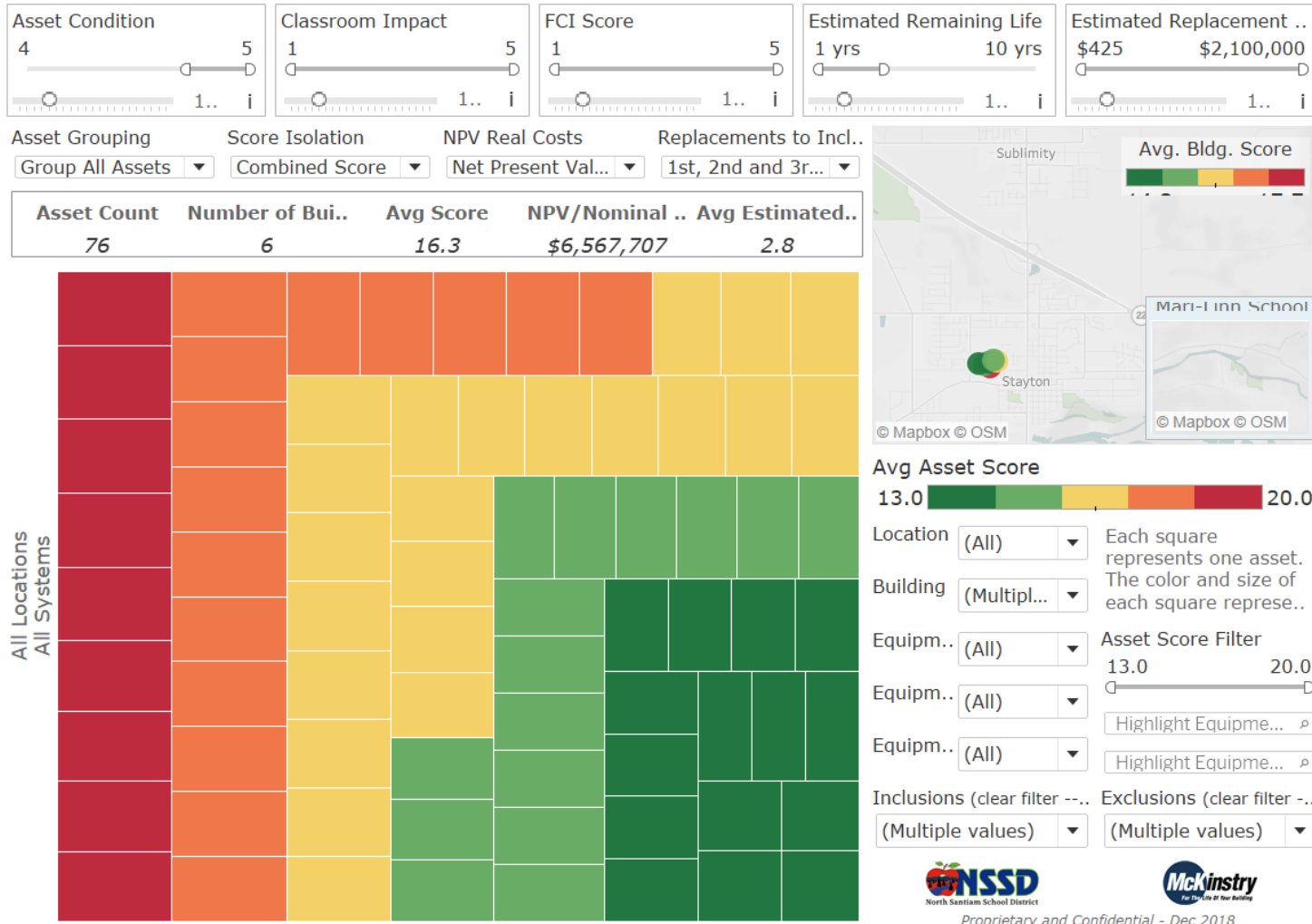
*SB1149 and ETO Projects





Facility Conditions Assessment (FCA)

Stayton High School - Visualization (VIZ) Tool Example (10 years)



Life cycle replacement needs (FCA Ratings: 4 and 5):

\$6.5 Million (All Assets)

- equipment which will reach end of life or considered unsatisfactory in next 10 years

Project Examples:

- HVAC System Upgrade*
- Partial Roof Replacement*
- Lighting Upgrade*
- Plumbing

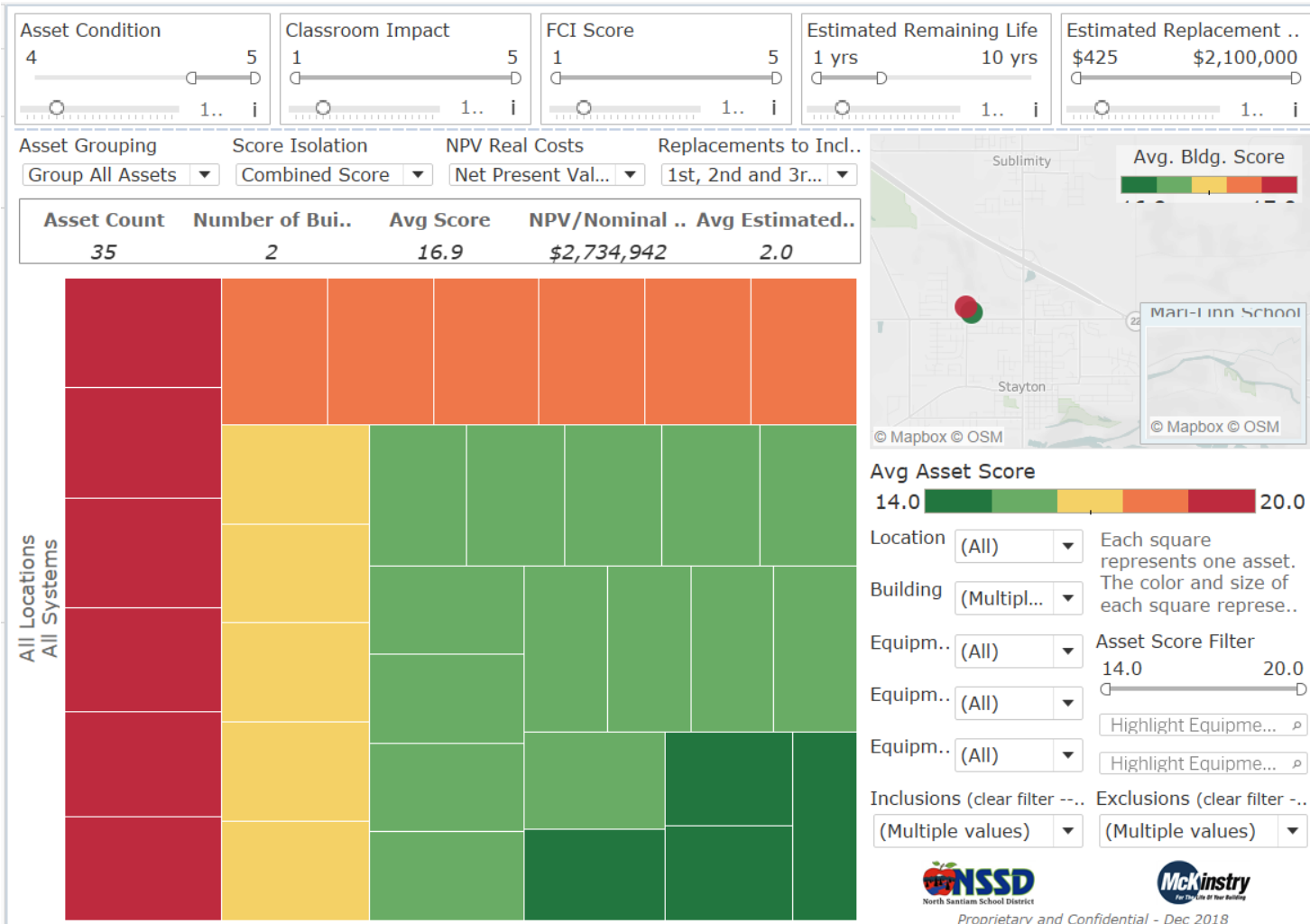
*SB1149 and ETO Projects





Facility Conditions Assessment (FCA)

Stayton MS/Intermediate School - Visualization (VIZ) Tool Example (10 years)



Life cycle replacement needs (FCA Ratings: 4 and 5):

\$3 Million (All Assets)

- equipment which will reach end of life or considered unsatisfactory in next 10 years

Project Examples:

- HVAC System Upgrade*
- Lighting Upgrade*
- Plumbing

*SB1149 and ETO Projects



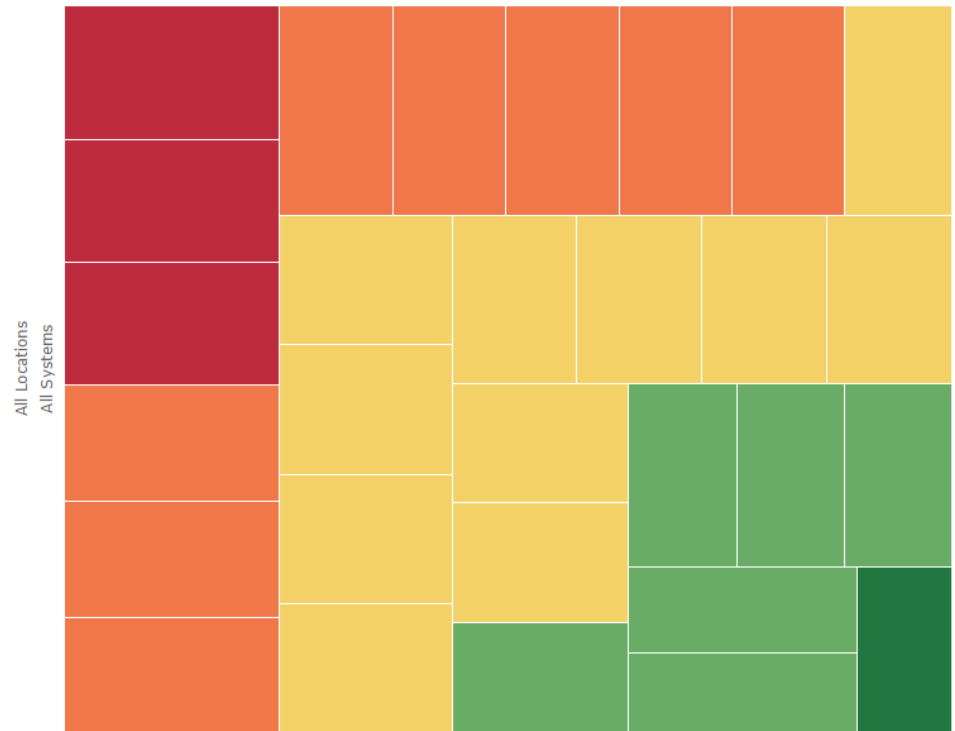
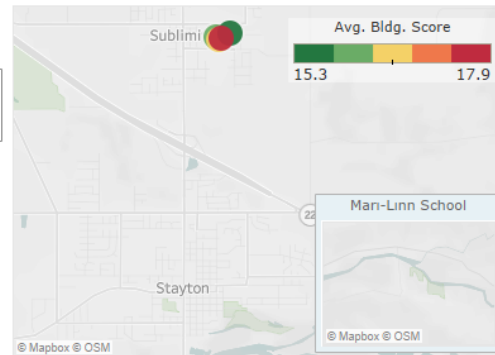
Facility Conditions Assessment (FCA)

Sublimity - Visualization (VIZ) Tool Example (10 years)

Asset Condition: 4 to 5 slider
 Classroom Impact: 1 to 5 slider
 FCI Score: 1 to 5 slider
 Estimated Remaining Life: 1 yrs to 10 yrs slider
 Estimated Replacement Cost: \$425 to \$2,100,000 slider

Asset Grouping: Group All Assets
 Score Isolation: Combined Score
 NPV Real Costs: Net Present Value
 Replacements to Include: 1st, 2nd and 3rd Replace...

Asset Count	Number of Buildings	Avg Score	NPV/Nominal Cost	Avg Estimated Remaining Life
29	4	16.9	\$3,756,827	1.7



Avg Asset Score: 12.0 to 22.0 slider

Location: Sublimity
 Building: (All)
 Equipment System: (All)
 Equipment Subsystem: (All)
 Equipment Type: (All)

Inclusions (clear filter -->): (Multiple values)
 Exclusions (clear filter -->): (Multiple values)

Life cycle replacement needs (FCA Ratings: 4 and 5):

\$3.8 Million (All Assets)

- equipment which will reach end of life or considered unsatisfactory in next 10 years

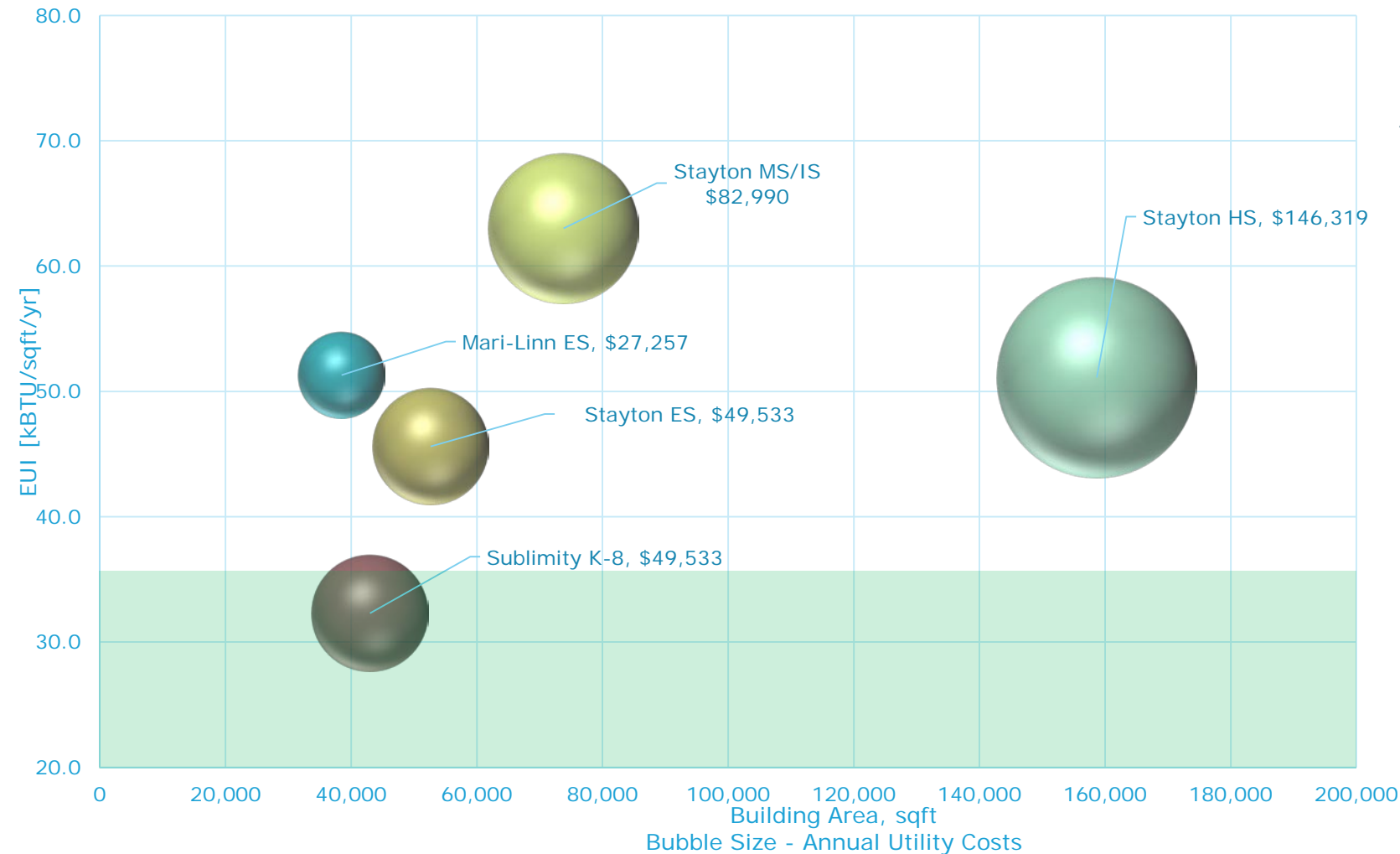
Project Examples:

- HVAC System Upgrade*
- Roofing*
- Lighting Upgrade*
- Plumbing

*SB1149 and ETO Projects

Facility Conditions Assessment (FCA)

North Santiam School District EUI vs. Square Footage



Annual energy spend in 2017:
Stayton MS/IS and HS \$230,000

If these two schools alone reduced energy usage by 15-25% that would equal an annual savings of
\$35,000-\$58,000

***Green Bar represents Oregon Department of Energy Goals for K-12

Master Planning Milestones

Collect and Gather

- FCA & Long Range Facility Plan
- Utility Data
- District WO Data
- State/Utility Grants

Balance Priorities

- Capital Master Planning Projects
- ROM Development
- Prioritization By Schools
- Operations Annual Projects

Benefits/Outcomes

- Educational – Alignment with Program Specifications
- Environmental – Comfort, Indoor Air Quality
- Operational Efficiencies – Utility Savings, WO reduction
- Targeted Building Needs

LEARN

ANALYZE & INTERPRET

PLANNING

IMPLEMENT

Comprehensive Master Plan

Identify and Prioritize

- Current Model vs. Best Practice
- Life Cycle Replacements
- Critical System Failures

Project Execution

- Construction
- Alternative Funding
- Building and System Transition