

# Agenda

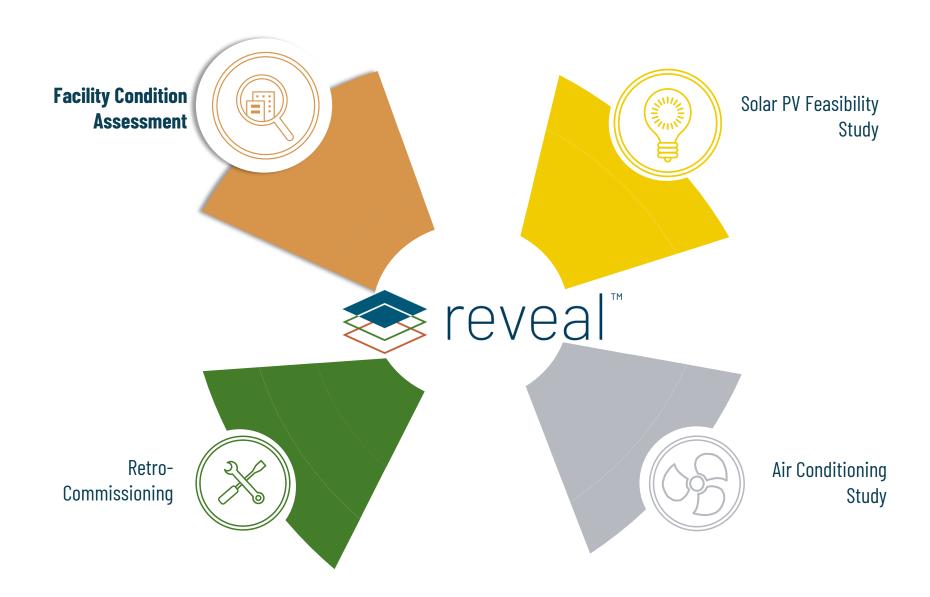
- Introductions
- McKinstry Studies Overview
- Project Approach
- Scope of Work
- Report Overview
- Reveal<sup>™</sup> Examples
- Q&A







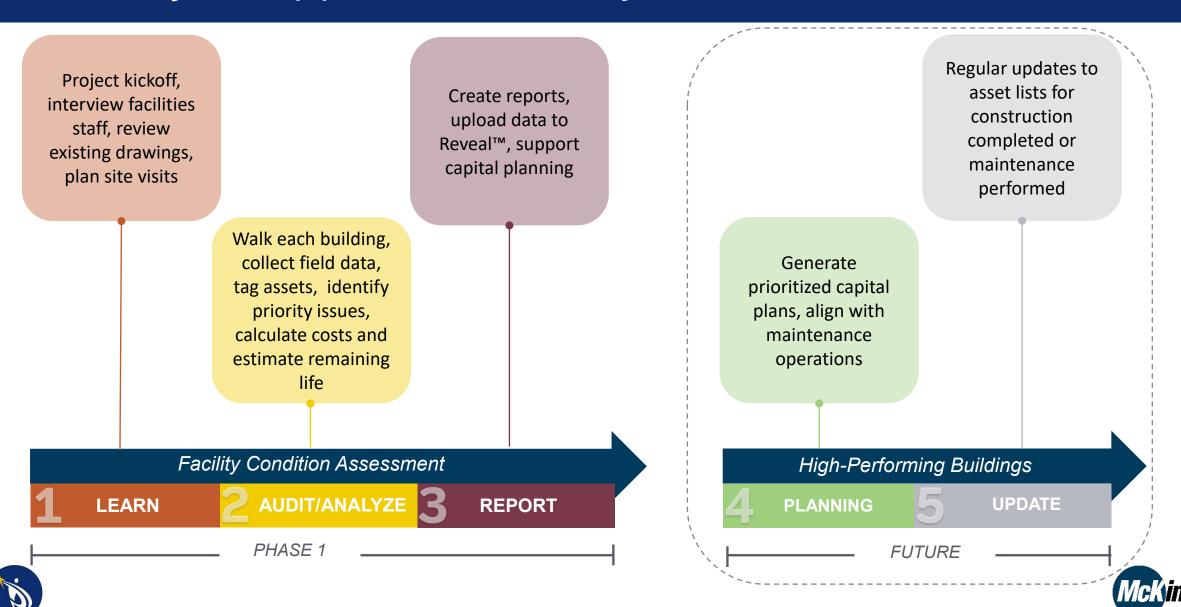
# Study Development: A Holistic Approach







# Project Approach: Facility Condition Assessment



## Project Approach: Facility Condition Assessment

#### <u>Assessment / Priority Ratings</u>

- Asset Condition
- Observed Remaining Life
- Replacement Cost
- Student/Teacher Impact
- Operating Impact
- Energy Impact

#### **Assessment / Priority Scoring**

- 1 = Excellent Condition / Minimal Impact
- 2 = Good Condition / Low Impact
- 3 = Expected Condition / Moderate Impact
- 4 = Poor Condition / High Impact
- 5 = Very Poor Condition / Severe Impact

LOW	MEDIUM-LOW	MEDIUM	MEDIUM-HIGH	HIGH
6	12	18	24	30





## Scope of Work

#### Types of Assets Included

- Architectural
  - General Foundation/Structure
  - Windows, Doors, Roof
  - Walls, Flooring
  - And more
- Mechanical, Electrical & Plumbing (MEP)
  - Boilers, Pumps, Elevators
  - Switchboards, Lighting
  - Fire Protection
  - Walk-in-Freezers
  - And more

#### Types of Assets Not Included in McKinstry Study

- Pavement / Hard Surface
- Playgrounds / Fields / Irrigation
- Furniture, Fixtures & Equipment (FFE)

#### **Information Collected**

- Name
- Category / System / Type
- Make / Model / Serial
- Asset Tag Number (Major MEP Assets)
- Date of Installation
- Location

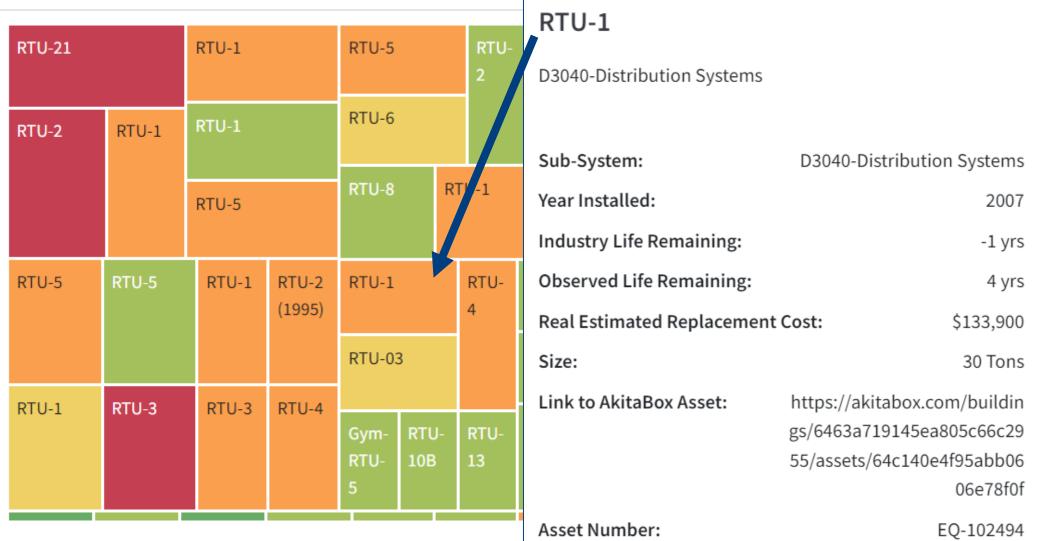
#### Type of Assets Tagged

- 59 Unique Types
- 4,458 individual assets tagged (out of 11K total assets)
- Boilers, Chillers, AC Units
- Switchboards, Distribution Panelboards
- Not Tagged: Small Fans, Small Pumps





## Information Collected



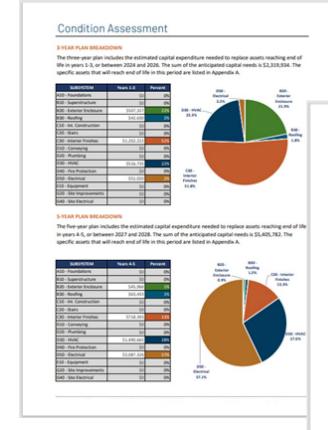




## Report Review

#### Report Format for Each School

- Executive Summary
  - 3-, 5-, 10-Year Planning Horizon
- System Descriptions
  - Condition, Observed Remaining Life
- Recommended Projects
  - Fire/Life Safety
  - Engineering Judgement
  - Ratings and Scoring



#### Condition Assessment

k.		BUILDING TYPE: YEAR BUILT: GROSS AREA (SF): DATE ASSESSED: PRIORITY SCORE:	Middle School 2000 93,666 0 87.6
SUBSYSTEM	DESCRIPTION		PRODUTY
BOII - Bat. Bradionarm	completed in \$972, 5076, 5986, 53	nd in 1960, Subsequent pliditions to the school w RS, and 2007. All additions are primarily of brish I type with some updated antises, of pluminum t	contraction. 13.7
NO - Realing		s of building sections. Must of the scoling reasons I'l and USES sections of solind explicit reading we of to be in very poor condition.	
CIE - Int. Construction		onts of the building, including brick and concrete in	
CM - Interior Finishes		the magnity of interior finishes were updated in 3	
000-Pumbing		or fined water heater and two circulation gamps: I g salves, one busines feeder, and a single same po-	

System priority scored from 4 (fewes) priority) to 30 (highes) priority) based on condition, spending impact, student, heacher impact, analyzi impact, astimuted replacement (sed, and observed remaining life, lot 2 o green, 13.24 - paties; 134 - real

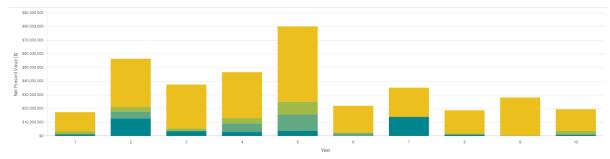




## How Can PSD Utilize This Data?

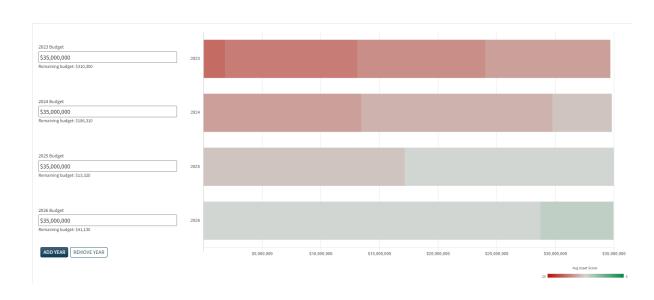
## **Identify End of Life Assets**

- Industry Remaining Life: -2.6 Years
- Observed Remaining Life: 5.2 Years
- Deferred Maintenance Due to Budgetary Constraints



# Complement Existing Planning Systems

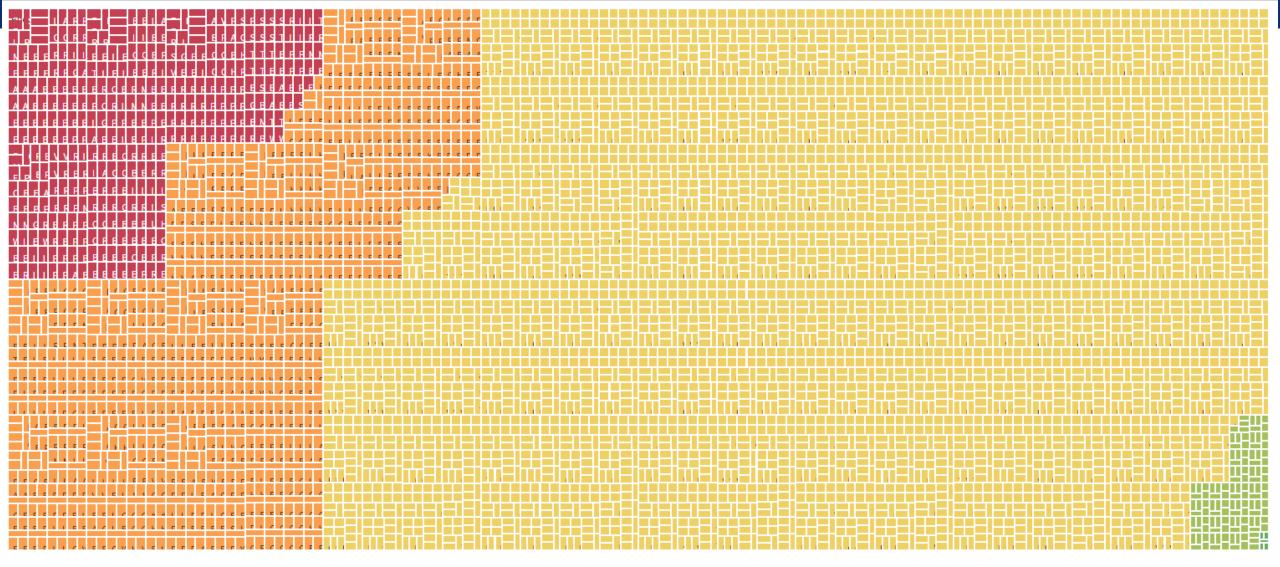
- Avoid Influencing Priorities
- Fact-based Methodology
- Forward-Looking Strategies
- Evaluate Alternatives







## District Overview Asset Condition Only - Next 10 Years







# District Overview - Condition and Student Impact

Fan Coll Unit  Rooftop Unit  R	Ext	naust Fan	Duct Heating Coil	Distribution Panel	Interior Flooring	Air Handler		Unit Heater	'	Exterior Doors	Security System	Varia	larm Sy.	
Exterior Windows    Exterior Windows   Pump   Pump				Fan Coil Unit		Condensing Unit								
$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$						Exterior Windows						Pun	Pump	
Roofing  Heat Pump Interior Ceiling  Baseboard Radiator  Domestic Hot Water Heater  Heating Air Separator  Heat Pump Interior Ceiling Interior Ceiling Interior Ceiling Interior Exhaust Interior Exhaust Furnace  Heating Air Separator  Automatic Transfer Switch Heat Pump Interior Ceiling Interior Exhaust Furnace  Wate  Tank - Exterior Compress Wall  O  To Mair Separator  Tank - Exterior Ceiling Interior Exhaust Furnace  Wate  Tank - Exterior Compress Wall  O  To Mair Separator  Tank - Exterior Ceiling To Mair Separator  To	Ter	rminal Unit	Lighting	Cabinet Unit Heater	Hot Water Pump		Unit Ventilator				Suppr Mession Syste Chilled Wat	leter ter	col Fee B der F	ypass eeder Lighti
Baseboard Radiator  Domestic Hot Water Heater	-761				Roofing						Heating // Coil (	Air Com press	Interior Wall	or En Mi
Windows Hood Makeu Comp C Wa G  Exterior Walls Domes Sump					Domestic Hot Water Heater	Heat Pump	Interior Ceiling			Transfer Switch Furnace	Roof Hatc Su	rge Comp	Wate C Wa	20.0





## District Overview - Condition, Student Impact, Energy Impact

Exhaust Fan	Rooftop Unit	Duct Heating Coil	Interior Flooring	Air Handler		Boiler	Interior Ceiling	Variable Frequenc y Drive		ow Preventer
				Condensing Unit	Hot Water Pump	Exterior C	Carpet		Securi	ty System
		Lighting	Fan Coil Unit			Exterior C Doors	earpet-	Fire Alarm System	Pump	
							Switchboard		Emerge Genera	
	Distribution Panel	Cabinet Unit Heater	Roofing	Walkin Cooler/Freezer	Unit Ventilator	Expansion Tank			Gas Gl Meter co Fe	ol <u>Feeder</u>
	and the second					Transformer	Skylight	Fire	d€	ler Sub Stairs Interi or
Terminal Unit			Exterior Windows				Air Separator	g Coil Co	ressor r v	nterio Make Wall up Air
		Baseboard Radiator		Unit Heater Heat Pump		Interior Doors		ng Sw Roof	witchg	e at Mixin
			Domestic Hot Water Heater			Interior Fun Windows e	rnac Automatic Transfer Switch Exterior Walls	Compr E	110	w c





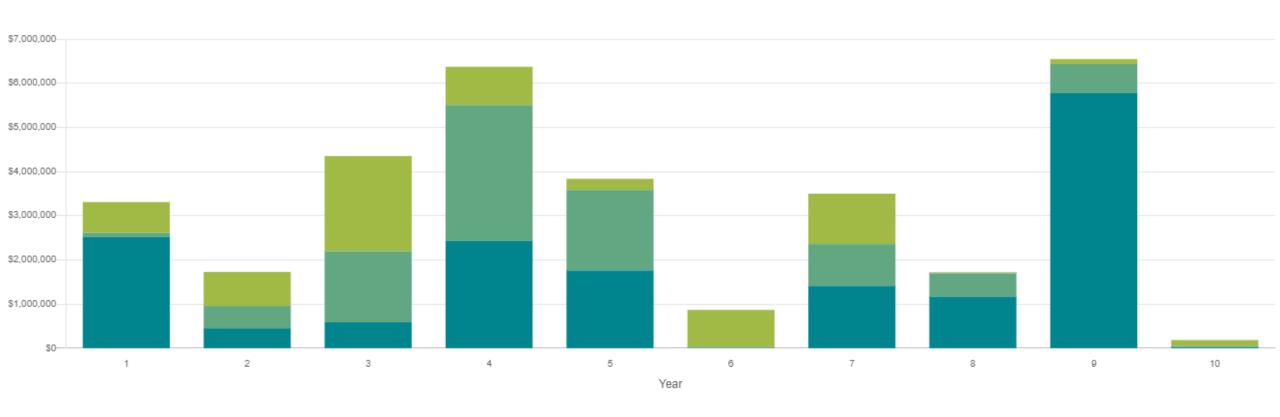
# District Overview - Priority Based on All Factors

D40-Fire Protection	D3020-Heat Generating Systems	Generating Systems	G40-Site Electrical Utilities E10- Equipment	D3050-Terminal & Package Units	D50-Elec	strical	B20-Exterior Enclosure		
D3040-Distribution Systems							D3090-Other HVAC Systems & E	- - - - - -	
				D3060- Control s & Instru mentat ion	C30-Interior Finishes	B30-Roofing			
					C20- Stairs		D20-Plumbing	C10-Interior Construction  G30- D30 Meter Site 10- Mech Ene	





# Putnam, Lesher, Rocky Mountain Example







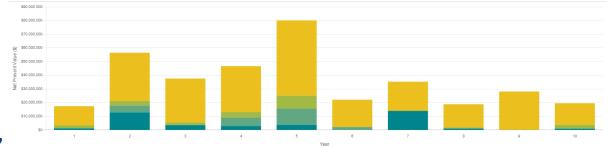
## Reveal™: Bond Planning

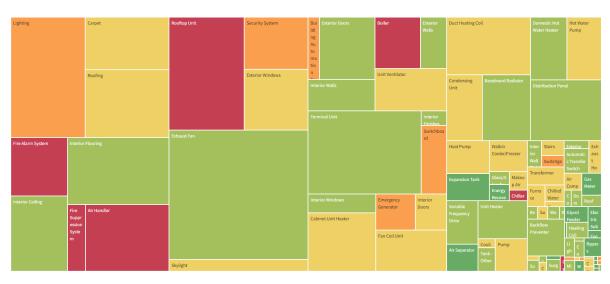
## **Baseline Capital Need**

- \$362M over 10 years
- \$36M Average Annual Need
- Like for Like Replacement
- Excludes Costs such as Inflation, Abatement, Design, and Other Project Costs. These costs can add 70% to base costs.

## Sample Existing Systems Overview

- Lighting: \$64M in need over 10 years
- Fire Protection: \$42M in need over 10 years
- RTUs/AHUs: \$34M in need over 10 years



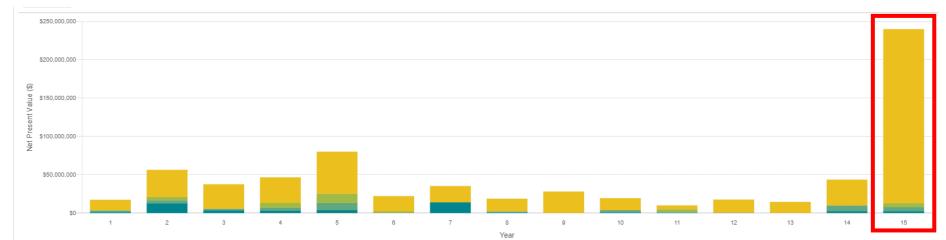






## How can PSD use this data?

- Currently the high A/C cost per school and adding solar to the technically and financially feasible sites is entered in Reveal™ as being installed in 2025.
  - The "replacement" cost for the A/C does not show up until year 15 (2040).
  - The "replacement" cost for the solar does not show up until year 25 (2050).
  - The District can pull the A/C cost and solar cost up to any year they would like during planning.
  - McKinstry can advise on which existing HVAC assets would not need to be replaced if the District chooses to add A/C to a particular school.
  - If a school currently has A/C the cost to replace the assets associated with A/C are currently included.







# Final Notes/Questions

PSD's next steps using this data will be to create a 5- and 10-year maintenance FCA is one piece of the McKinstry... studies, an RCX progress report will be shared at the December 19th heard at the December 19th heard Shared at the December 12th board plan. meeting.









