

From the B-Suite to the C-Suite

Leveraging Operational Data to Drive Strategic Infrastructure Investment

Idaho Society for Healthcare Engineering – Annual Conference

Friday, November 4, 2022

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- **Mark Mochel, MBA, CHFM, PMP, ACABE** is currently a Strategic Account Executive at Brightly Software. Before joining Brightly, he was a Co-Founder and Senior Vice President at Facility Health Inc., where he was instrumental in introducing new infrastructure investment solutions and benchmarking capabilities to the healthcare industry. Mark has a bachelor's degree in Mechanical Engineering from Purdue University, an MBA from The University of Michigan, and has held executive leadership roles in multiple industries, providing a unique perspective on the challenges facing healthcare facility management today. As an active speaker at both state and national conferences, Mark is passionate about sharing his experience with all who serve and are served through the environment of care.
- **CEU Teaching Experience:** ASHE Annual Conferences 2019, (Virtual) 2020, 2021, 2022; MiSHE Annual Conferences 2016, 2018, 2022; KHEA Annual Conference 2018; ISHE/MWHCEC Annual Conferences 2018, 2019; HESNI Annual Conferences 2018, 2019, 2022; ASHE Region 8 Annual Conference 2019; NSHE Annual Conference 2020; ACE Summit and Reverse Expo (Virtual) 2021; THEA Annual Conference 2021; WHEA Annual Conference 2021; AAHE Annual Conference 2022; AHA Rural Healthcare Conference 2022; ACHE Congress, 2022; IFMA Facility Fusion 2022.

Credit: Jonathan Flannery, MHSA, CHFM, FASHE, FACHE



Sr. Associate Director of Advocacy
American Society for Health Care Engineering
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- **Jonathan Flannery, MHSA, FACHE, FASHE** is currently the Senior Associate Director, Advocacy for the American Society of Healthcare Engineering, American Hospital Association. With over 30 years of health care engineering and administrative experience, Jonathan provides testimony, engages in deliberation, and develops public comments on proposed regulations to the benefit of ASHE and AHA members. Jonathan represents ASHE on professional advisory committees, oversight boards, technical committees, and issue-specific task forces to influence regulations, standards, and guidance at the earliest and least burdensome level such as the International Code Council's Health Care Committee, ASHRAE/ASHE SSPC 170 Ventilation of Health Care Facilities, and NFPA AIC-AAA Committee for NFPA Standards 90A & B. Jonathan has a bachelor's degree in Architectural Studies from Ottawa University and an MHSA from the University of Arkansas for Medical Sciences.
- **CEU Teaching Experience:** 53rd Annual Michigan Health Care Conference 2021; ASHE Annual Conferences 2019, (Virtual) 2020, 2021, 2022; International Summit & Exhibition on Health Facility Planning, Design & Construction 2018, 2020, 2021; AHE Health Care Leadership and Preparedness Symposium 2017, 2019, ACHE Congress 2019, 2018, 2022; ASHE Faculty member

Credit: Matthew Stiene, PE, CHFM, CHC



Senior Vice President Construction and Facility Services

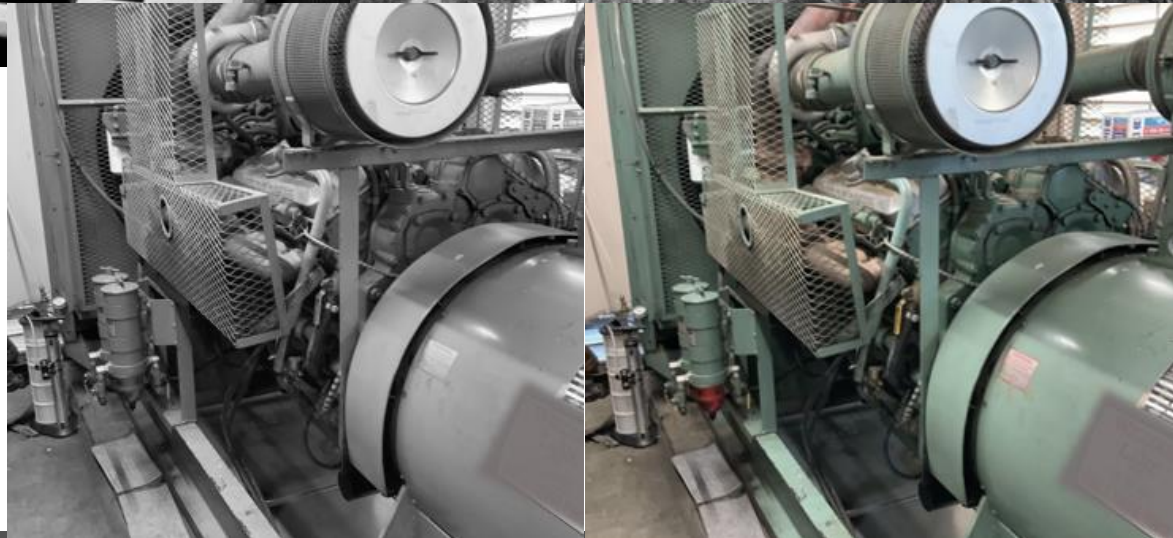
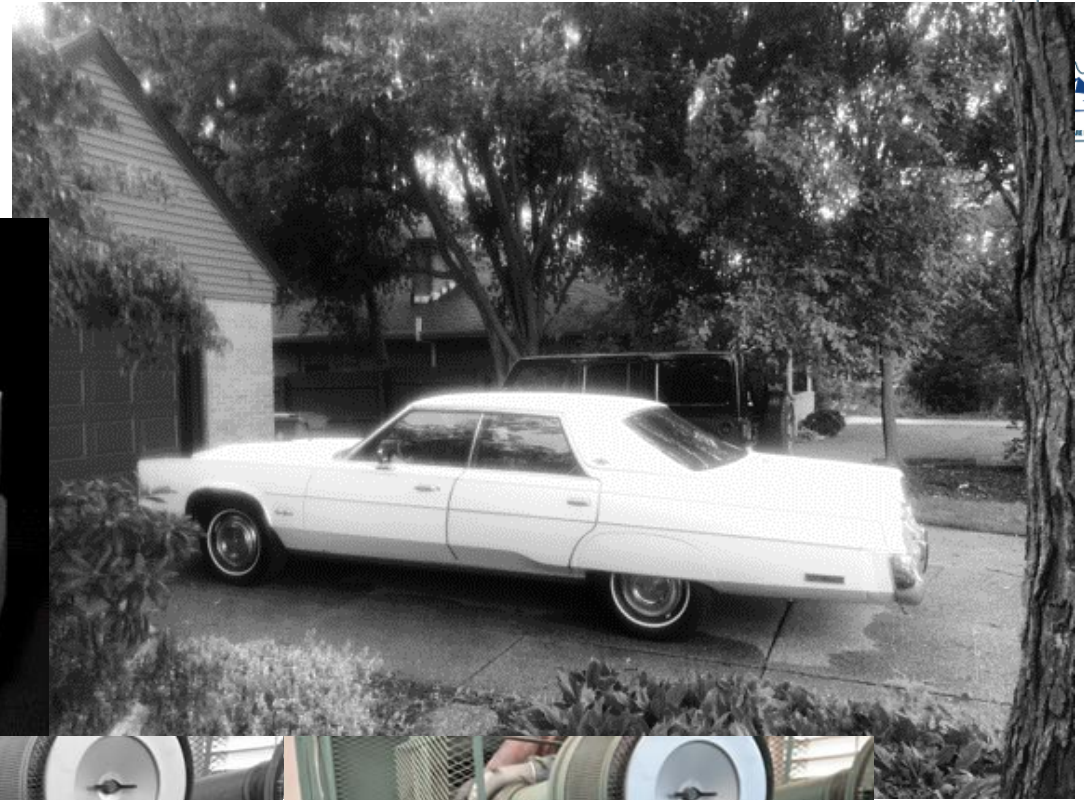
Novant Health

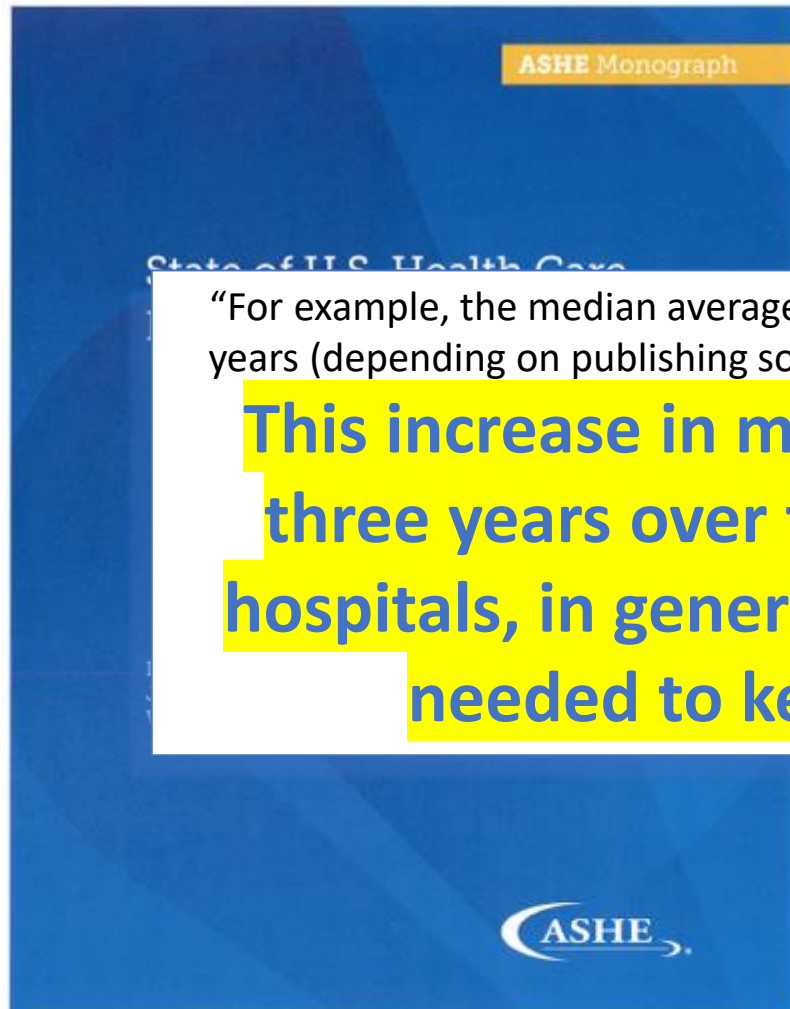
Phone: 704-774-7862

Email: mhstiene@novanthealth.org

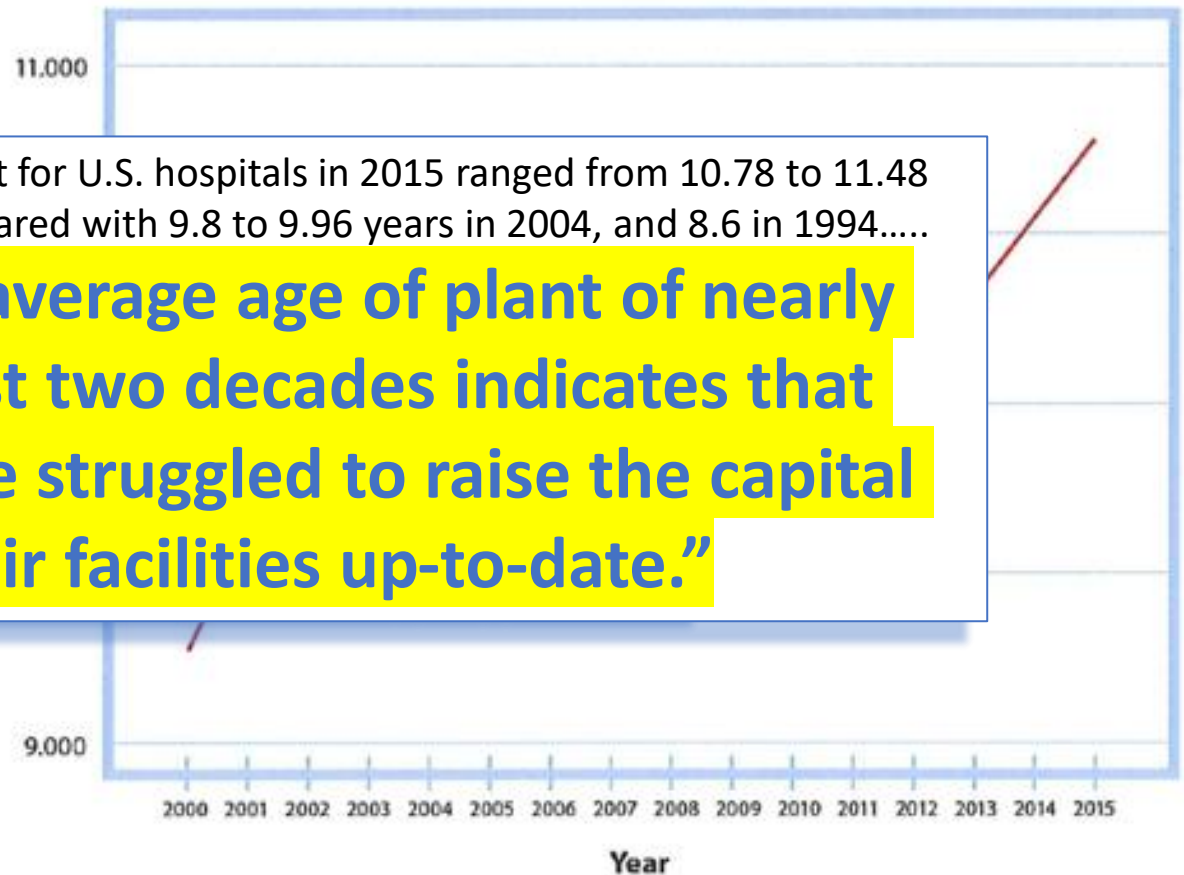
- **Matthew Stiene, PE, CFM, CHFM** is currently the Senior Vice President of Construction and Facility Services for Novant Health in Charlotte NC, where he oversees design and construction, plant operations, property management regulatory compliance, energy management, environmental affairs, infrastructure capital replacement, engineering design and construction, medical equipment planning, and manages several real estate initiatives. With Novant Health, Matt has been involved in over \$750 million of acute care construction and renovation and oversees an operating budget of \$60 million with over 250 FTEs. Matt possesses a Master of Engineering degree in Fire Protection Engineering from the University of Maryland, and a Bachelor of Science degree in Mechanical Engineering from Clarkson University. Matt has worked in the facilities management and construction industry for over 20 years as a consulting engineer, project manager, and facility manager. He is a licensed professional engineer in New York, North Carolina, South Carolina, and Virginia and is a Certified Healthcare Facility Manager and Certified Facility Manager.
- **CEU Teaching Experience:** BOMA Medical Office Building Conference 2016; ASHE Annual Conferences 2018, 2019, (Virtual) 2020, 2021; ACE Summit and Reverse Expo (Virtual) 2021; AAHE Annual Conference 2022; AHA Rural Health Care Leadership Conference 2022; ACHE Annual Congress 2022; VSHF Spring Conference 2022; PSHFE Annual Conference 2022; Healthcare Facilities Symposium 2022; Interface Healthcare Real Estate Carolinas 2022

The year is 1977....





AGE OF PLANT STATISTIC 2000-2015



“For example, the median average age of plant for U.S. hospitals in 2015 ranged from 10.78 to 11.48 years (depending on publishing source), compared with 9.8 to 9.96 years in 2004, and 8.6 in 1994.....

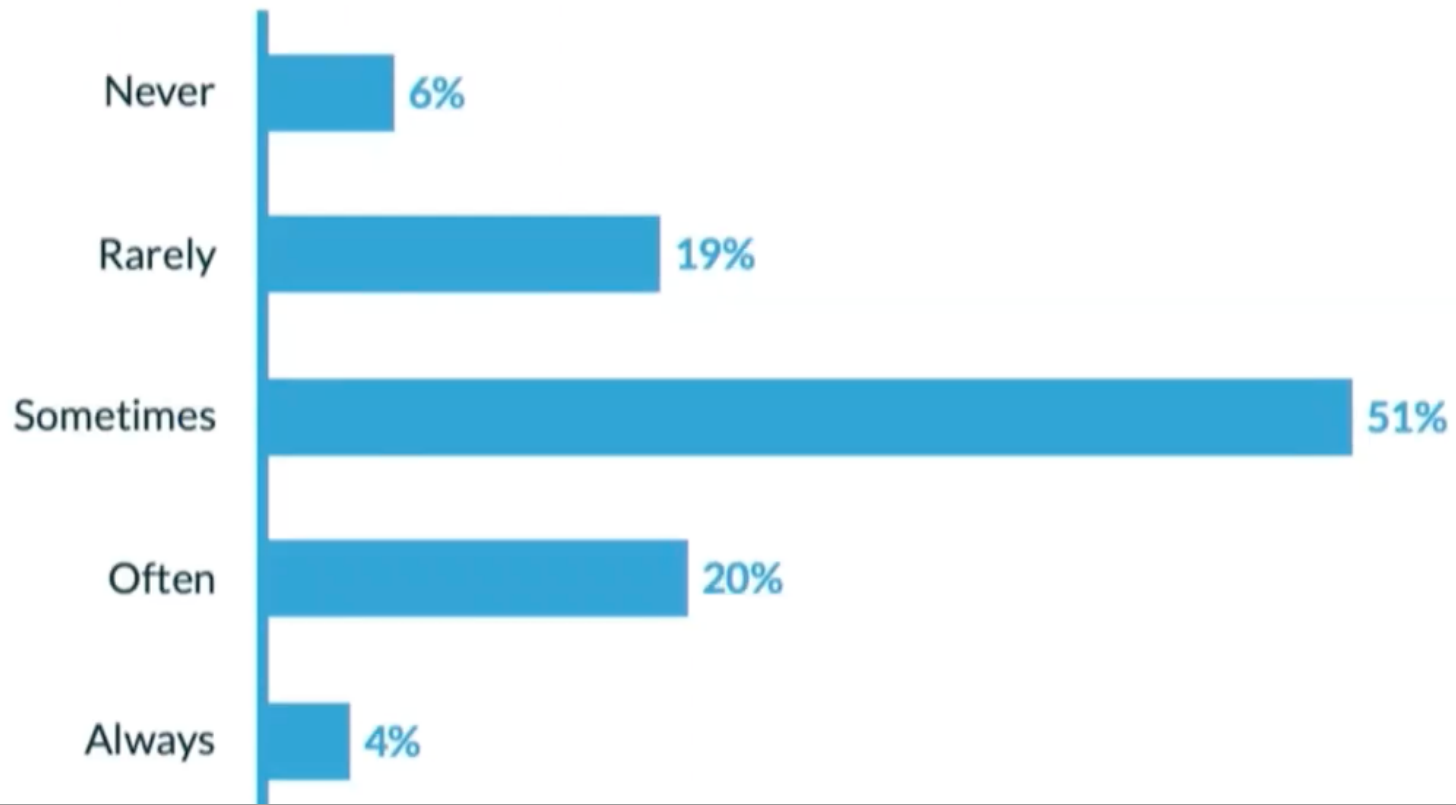
This increase in median average age of plant of nearly three years over the past two decades indicates that hospitals, in general, have struggled to raise the capital needed to keep their facilities up-to-date.”

ASHE Annual Conference Audience Poll - Q1



Do you get the **PLANNED REPLACEMENT CAPITAL** you need to properly support your facility?

Prior to Covid

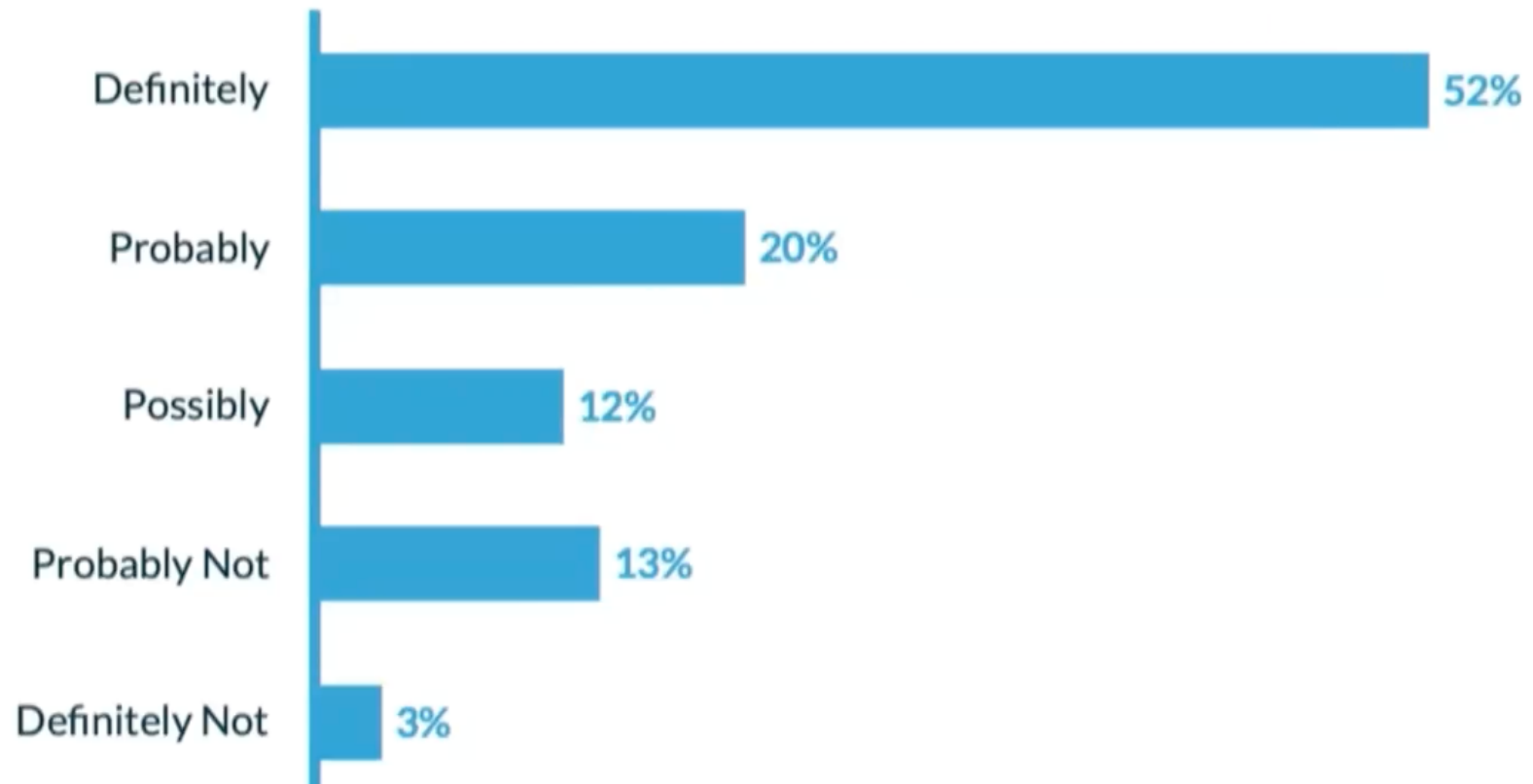


Source: ASHE 2021 Annual Conference Presentation Live Presentation Audience Poll Results

ASHE Annual Conference Audience Poll - Q2



Has Covid negatively impacted the availability of PLANNED REPLACEMENT CAPITAL in your organization?

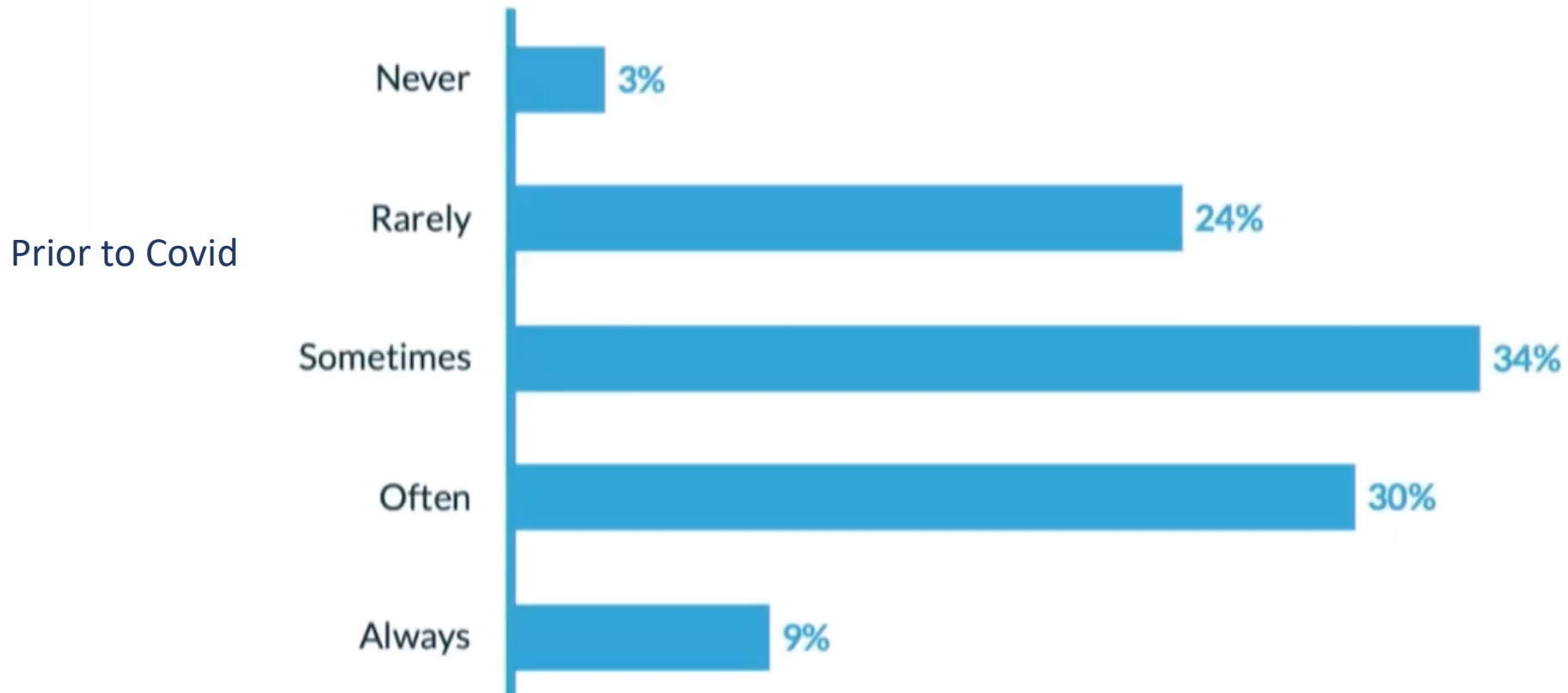


Source: ASHE 2021 Annual Conference Presentation Live Presentation Audience Poll Results

ASHE Annual Conference Audience Poll - Q3



Do you get the OPERATIONAL budget you need to properly operate your facility? (FTE/Staffing, Service Contracts, etc.)

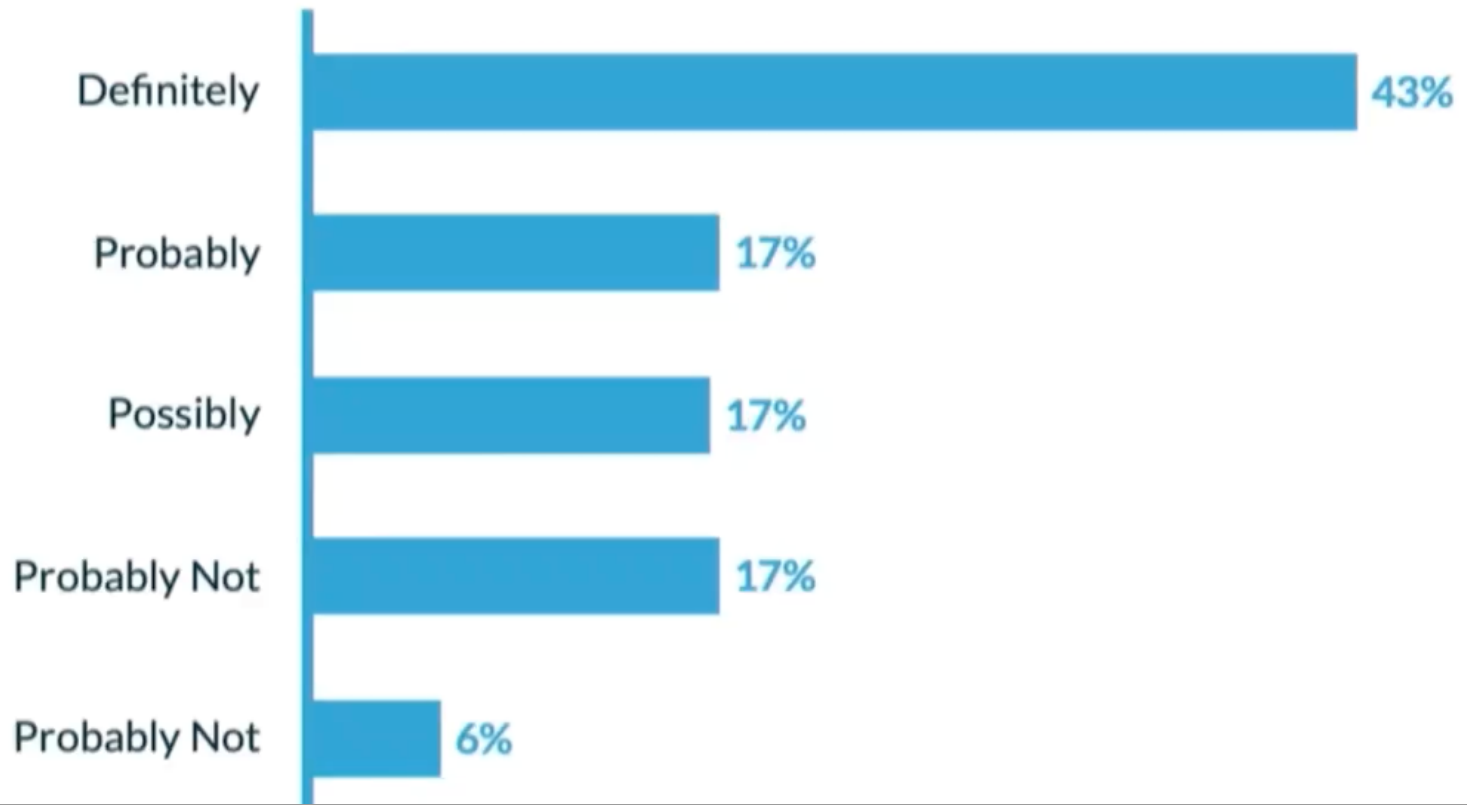


Source: ASHE 2021 Annual Conference Presentation Live Presentation Audience Poll Results

ASHE Annual Conference Audience Poll - Q4



Has Covid negatively impacted the OPERATIONAL budget in your organization? (FTE/Staffing, Service Contracts, etc.)

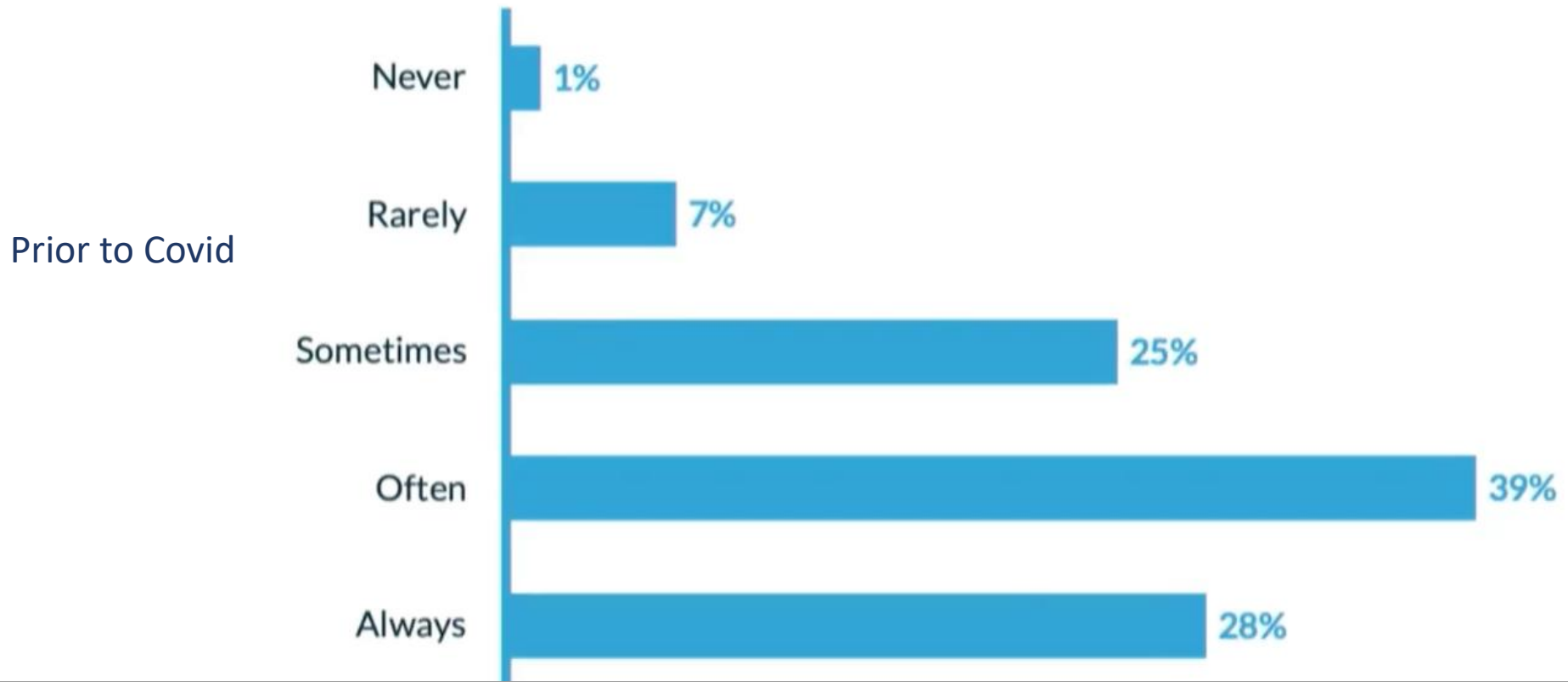


Source: ASHE 2021 Annual Conference Presentation Live Presentation Audience Poll Results

ASHE Annual Conference Audience Poll - Q5



Do you get the EMERGENCY CAPITAL you need to properly support your facility?



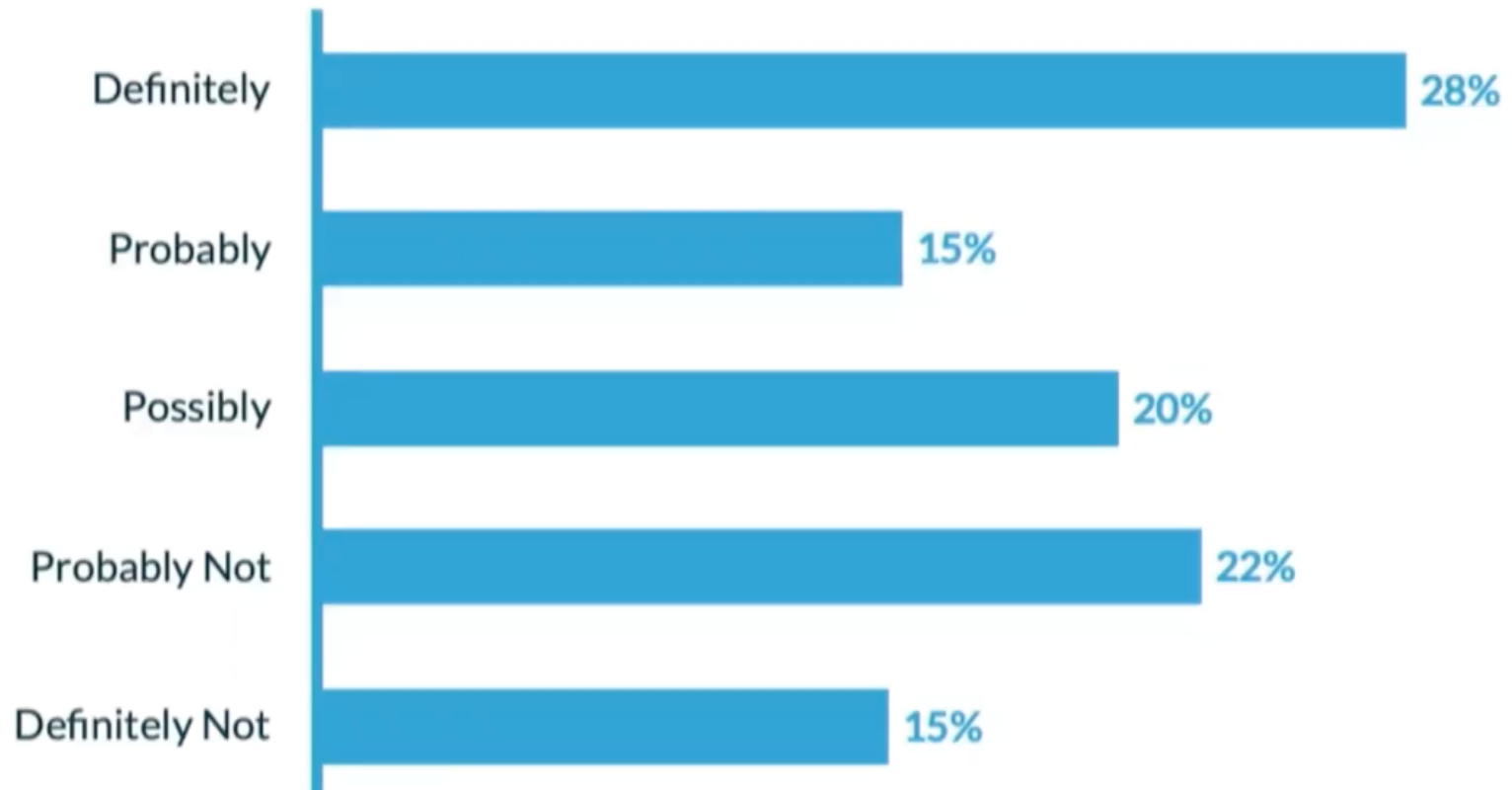
Prior to Covid

Source: ASHE 2021 Annual Conference Presentation Live Presentation Audience Poll Results

ASHE Annual Conference Audience Poll - Q6



Has Covid negatively impacted the availability of EMERGENCY CAPITAL in your organization?



Source: ASHE 2021 Annual Conference Presentation Live Presentation Audience Poll Results

Conclusions

- Infrastructure investment has been lagging actual needs for over 2 decades. Critical infrastructure continues to age.
- Financial projections indicate that securing and/or allocating needed funds will be more difficult going forward, not easier.
- **Therefore, we must transform our thinking and work to promote the strategic importance of properly funding our facilities.**

A New Perspective



“Enterprise asset management (EAM) involves the management of the maintenance of physical assets of an organization throughout each asset's lifecycle.”

“Price is what you pay, value is what you get.”

Warren Buffet

**Facility
Leader**

CFO



What is a Cost Center?

- *“A cost center is a function within an organization **that does not directly add to profit but still costs money to operate**, such as the accounting, HR, or IT departments.”*

Source: <https://www.investopedia.com/terms/c/cost-center.asp>

What is a Cost Center?

- *“The main use of a cost center is **to track actual expenses for comparison to budget.**”*

Source: <https://www.investopedia.com/terms/c/cost-center.asp>

What is a Cost Center?

- ***“The manager for a cost center is only responsible for keeping costs in line with budget and does not bear any responsibility regarding revenue or investment decisions.”***

Source: <https://www.investopedia.com/terms/c/cost-center.asp>

What is a Cost Center?

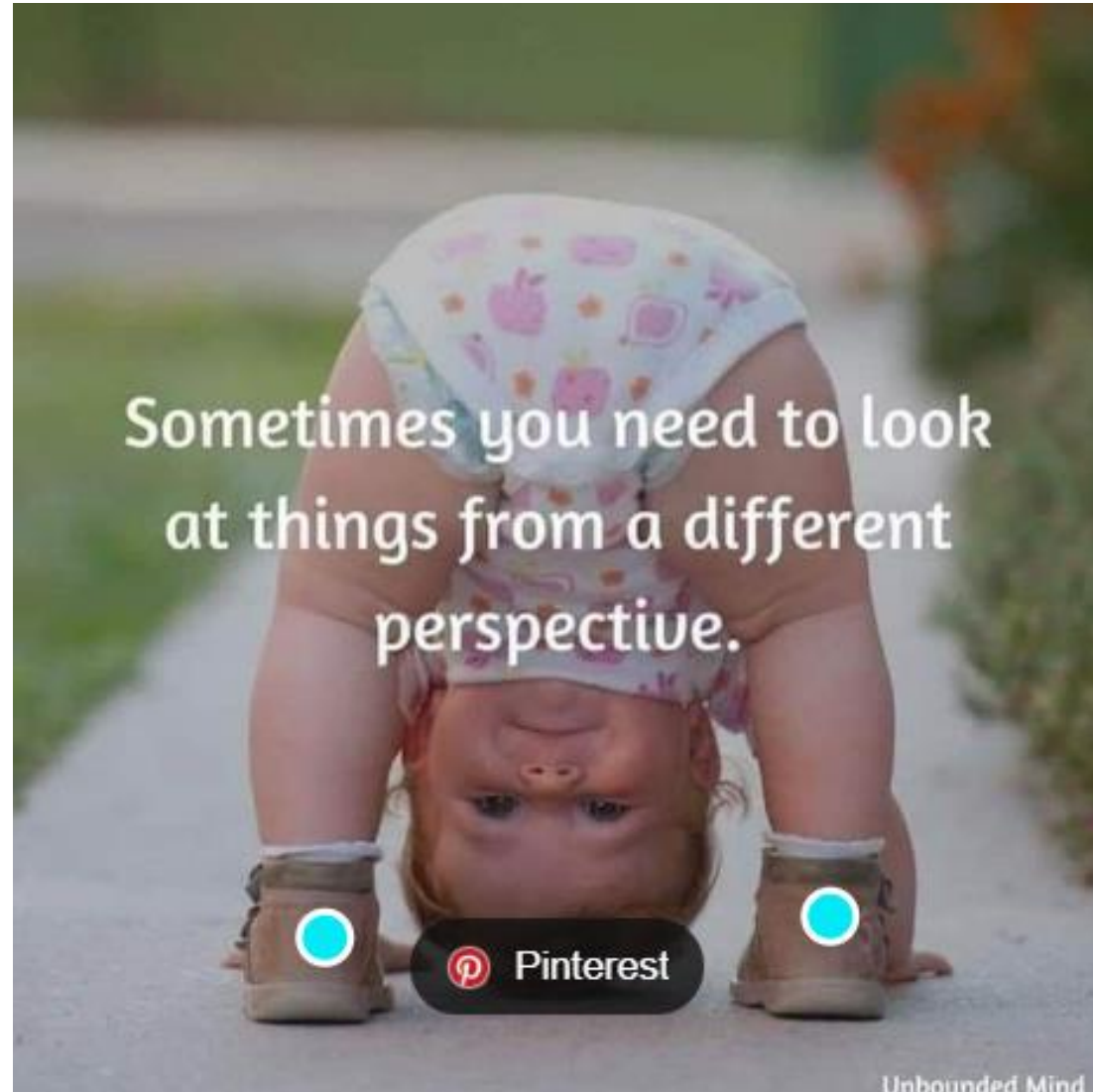
- *“A cost center indirectly contributes to a company’s profit via operational excellence, customer service, and enhanced product value.”*

Source: <https://www.investopedia.com/terms/c/cost-center.asp>

“Price is what you pay, value is what you get.”

Warren Buffet



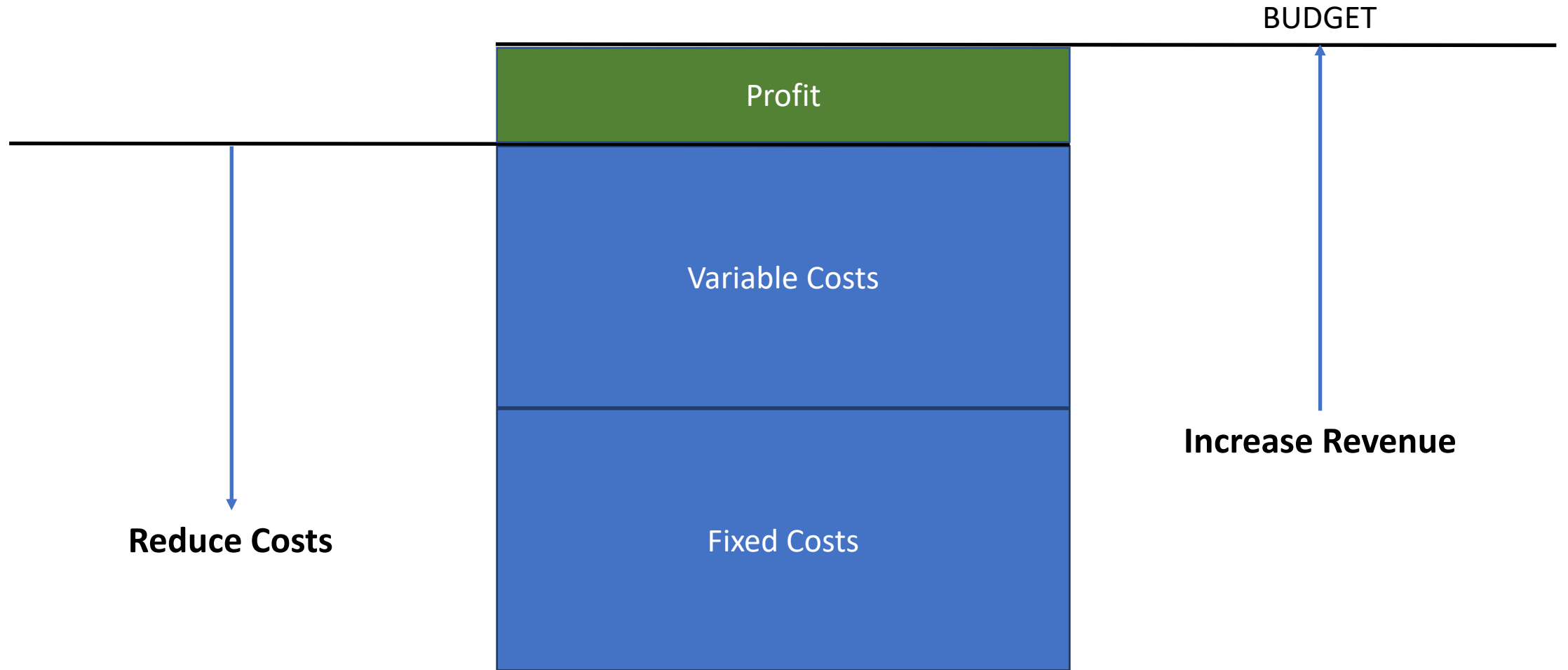


What If?

KEY TAKEAWAYS:

- A profit center is a branch or division of a company that directly adds to the corporation's bottom line profitability.
- A profit center is treated as a separate business, with revenues accounted for on a stand alone basis.
- The opposite of a profit center is a cost center, a corporate division, or department that does not generate revenue.

2 Ways to Grow a Business





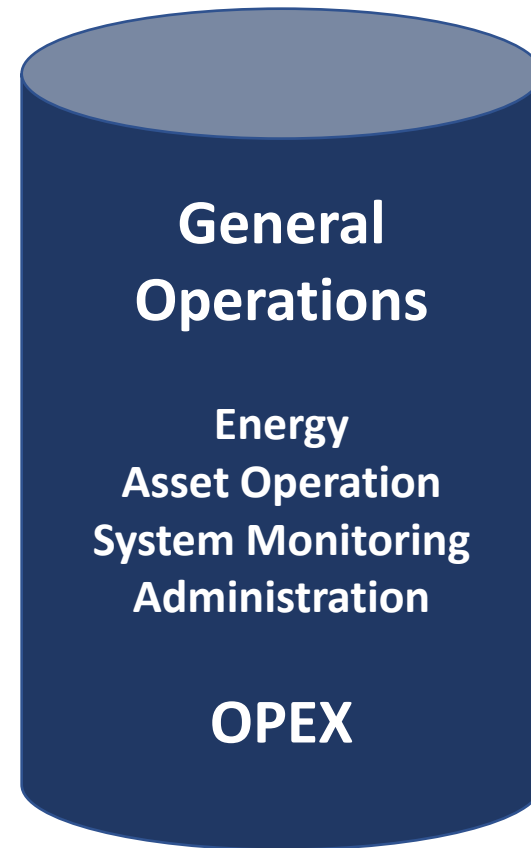
Challenge Questions

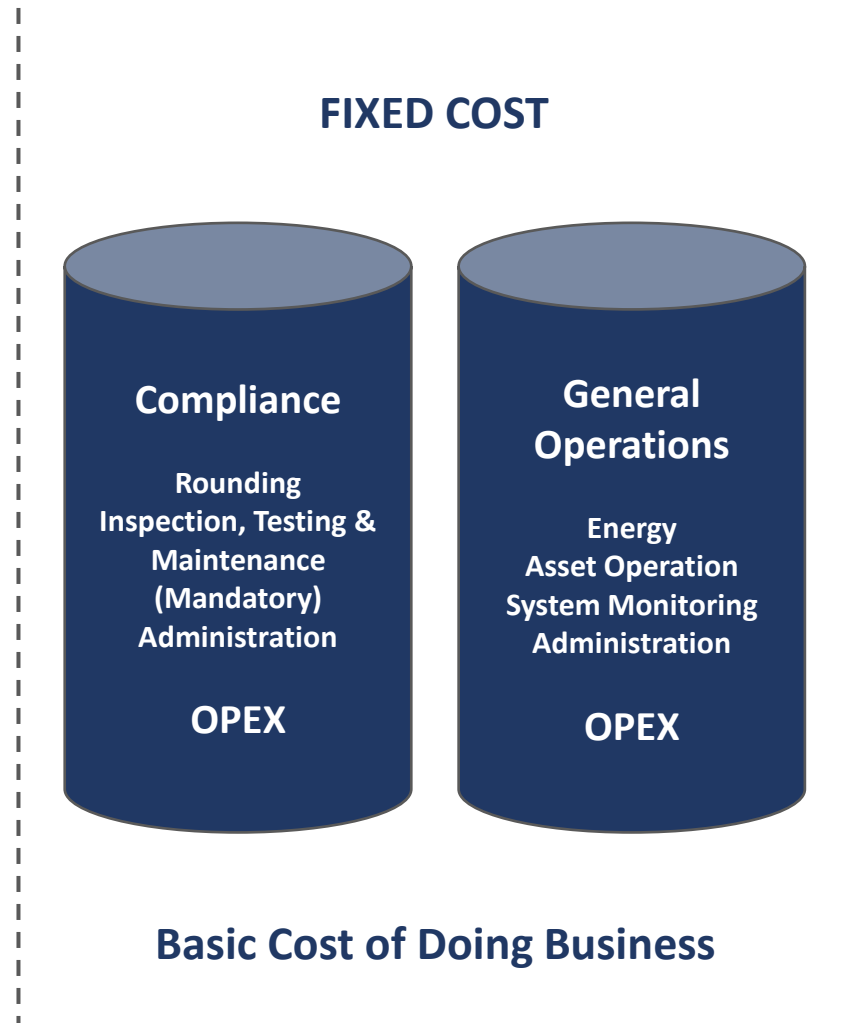
Does your non-facility leadership understand the work that you do?

Does your non-facility leadership understand the value of the work that you do?

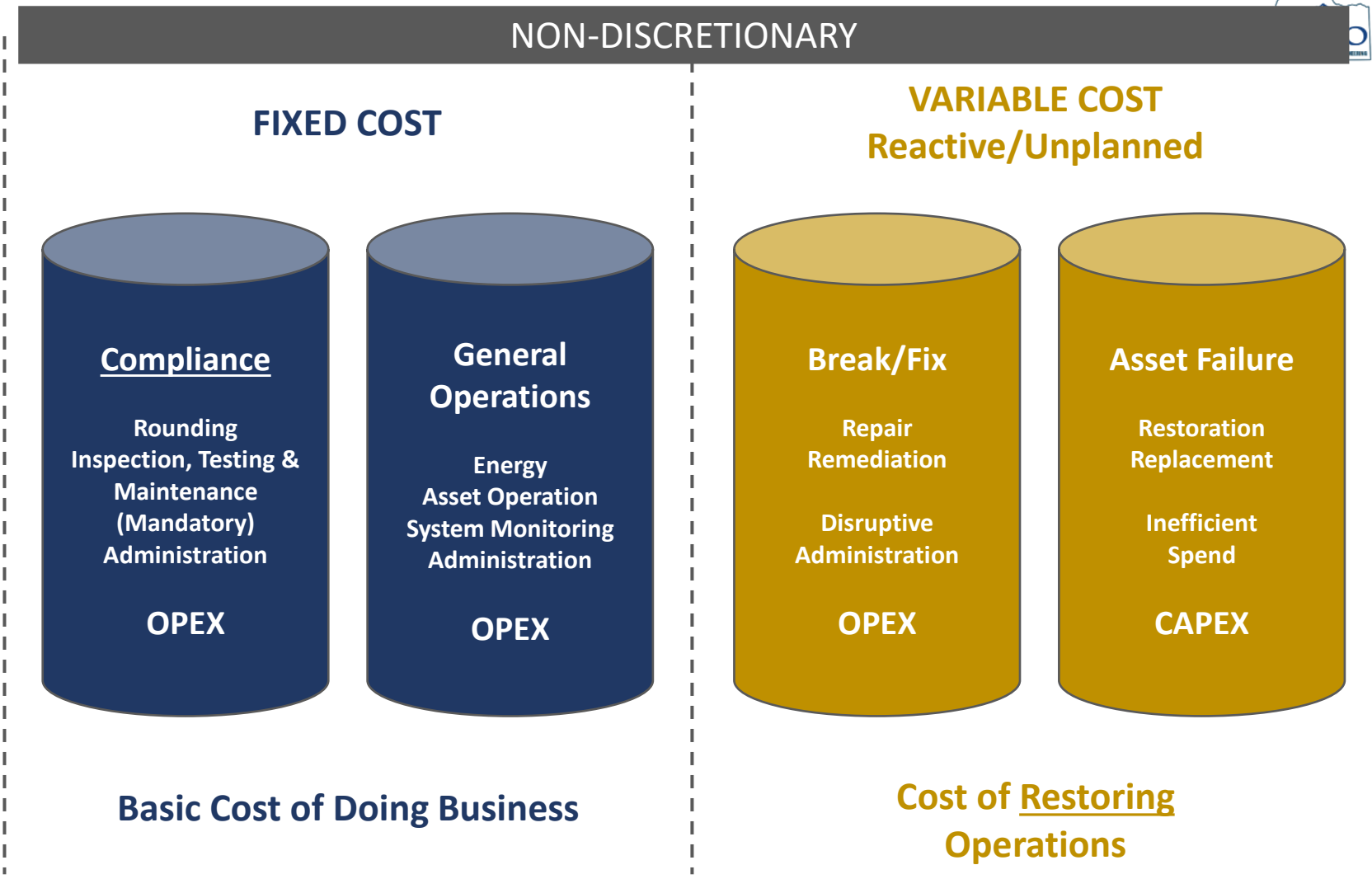
Buckets











Creating a Value Chain

XYZ Major Health System - Diesel Fuel Value Chain

Health System Macro Data	22,300,000 SQFT - 29 Accredited Hospitals + Non-Acute		
Number of Fuel Tanks	114 of All Sizes, Shapes and Capacities		
Total Amount of Fuel	426632	gallons	Value Multiplier (ROI?)
Fuel Treatment @ \$0.13 Per Gallong All In	\$ 55,462	\$0.002 per SQFT	NA
Replacement Cost of Fuel at \$4/gallon	\$ 1,706,528	\$0.077 per SQFT	39
Total Replacment Cost of Assets Utilizing Fuel	\$ 67,043,186	\$3.06 per SQFT	1530
Total Liability/Revenue Impact	?????	\$\$\$\$ per SQFT	Infinite





DISCRETIONARY

NON-DISCRETIONARY

VARIABLE COST
Proactive/Planned

FIXED COST

VARIABLE COST
Reactive/Unplanned

Planned Replacement

New Assets
Asset Upgrades

Efficient Spend
(Supply Chain)

CAPEX

Preventive Maintenance (RCM)

Inspections,
Calibrations, Service
Planned
Administration

OPEX

Compliance

Rounding
Inspection, Testing &
Maintenance
(Mandatory)
Administration

OPEX

General Operations

Energy
Asset Operation
System Monitoring
Administration

OPEX

Break/Fix

Repair
Remediation

Disruptive
Administration

OPEX

Asset Failure

Restoration
Replacement

Inefficient
Spend

CAPEX

Investment to Protect and/or
Enhance Operations

Basic Cost of Doing Business

**Cost of Restoring
Operations**



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NON-DISCRETIONARY

VARIABLE COST
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New Assets
Asset Upgrades
Efficient Spend (Supply Chain)
CAPEX


Preventive Maintenance (RCM)
Inspections, Calibrations, Service
Planned Administration
OPEX

Compliance
Rounding
Inspection, Testing & Maintenance (Mandatory)
Administration
OPEX

General Operations
Energy
Asset Operation
System Monitoring
Administration
OPEX

Break/Fix
Repair
Remediation
Disruptive
Administration
OPEX

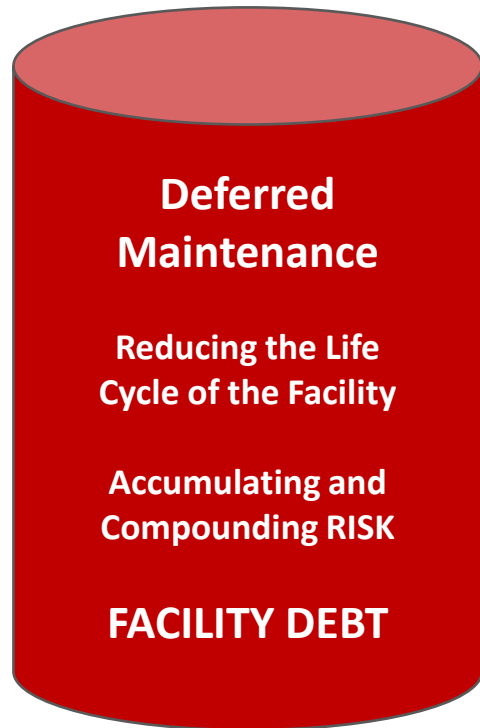
Asset Failure
Restoration
Replacement
Inefficient Spend
CAPEX

Investment to Protect and/or Enhance Operations

Basic Cost of Doing Business

Cost of Restoring Operations

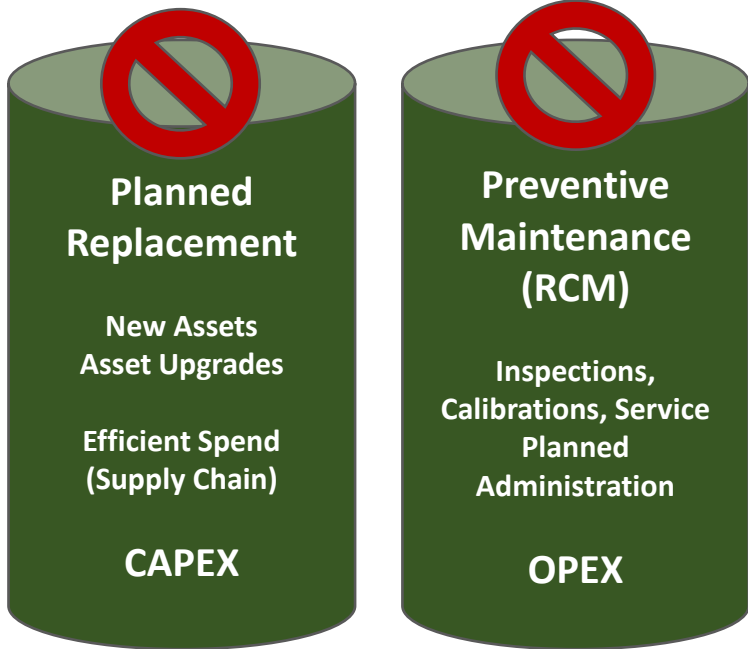
Deferred Maintenance Defined



- Infrastructure assets that have exceeded industry expected useful life based on age and/or condition.
- These assets are not in imminent failure mode, but indicate an accumulation of risk, and should be evaluated carefully for renovation and/or replacement.
- Communicating the objective reality of deferred maintenance is not to be feared. It is a continuous reality in any facility.

DISCRETIONARY

VARIABLE COST
Proactive/Planned



Investment to Protect or Enhance Operations

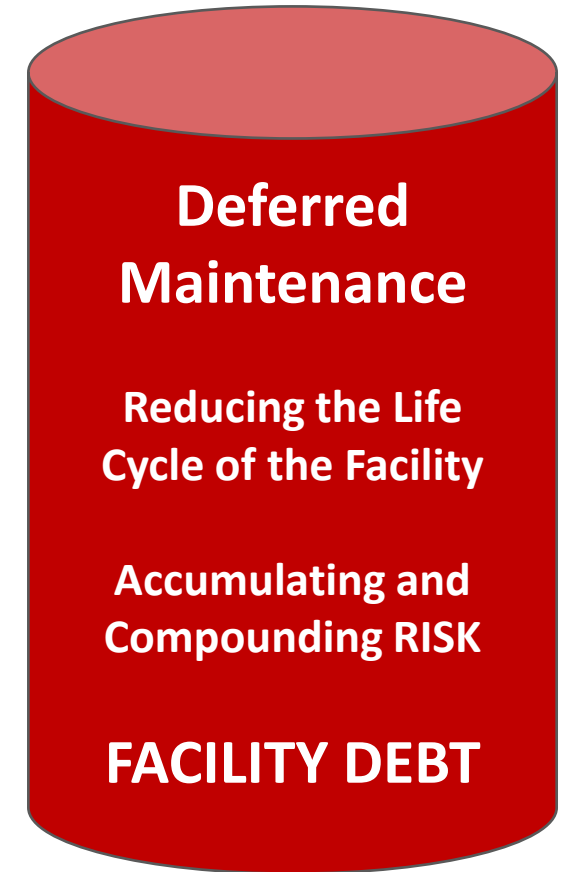
\$0 in Green Buckets

Q: Is this good or bad thing?
A: Maybe.

This can be viewed as “saving money”. It can also be viewed as an opportunity to make other, better, investments. There is not a right or wrong answer.

Simply put, in either case, it is OUR fiduciary responsibility to inform the CFO as to the true cost of the decision.

That cost is measured as Deferred Maintenance.



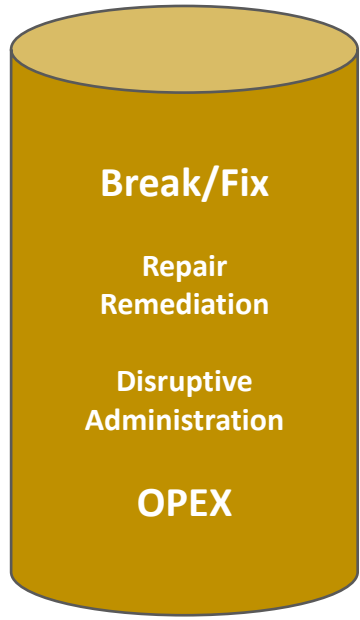
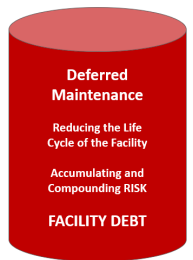
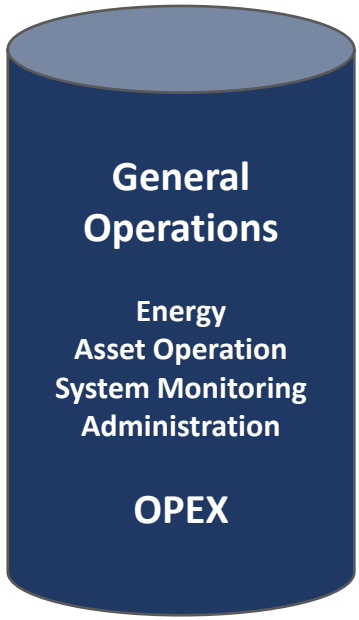
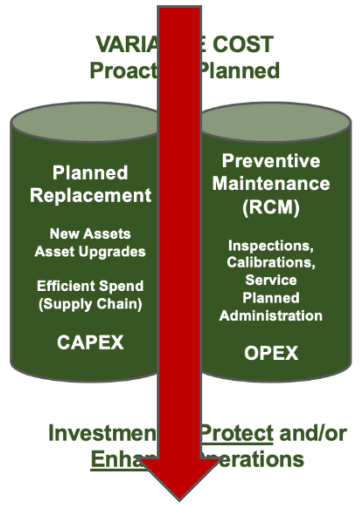


DISCRETIONARY

NON-DISCRETIONARY

FIXED COST

VARIABLE COST
Reactive/Unplanned



Cost of Doing Business

Cost of RESTORING Operations

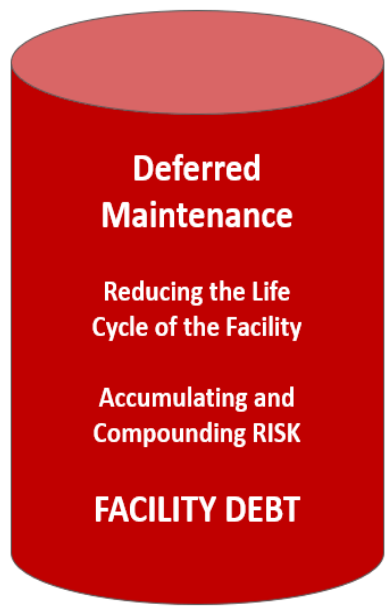
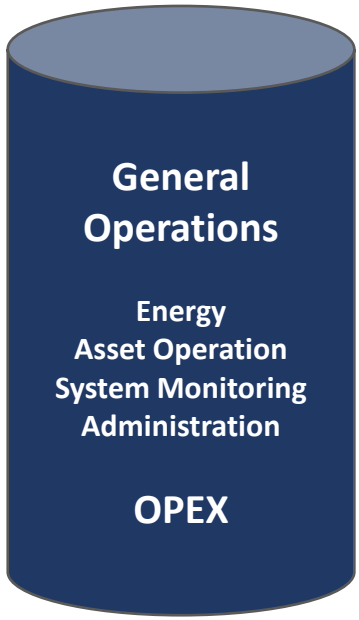
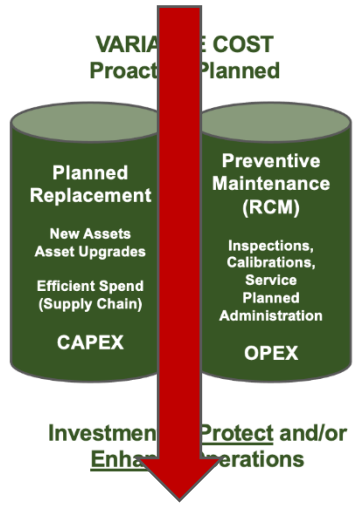


DISCRETIONARY

NON-DISCRETIONARY

FIXED COST

VARIABLE COST
Reactive/Unplanned



Cost of Doing Business

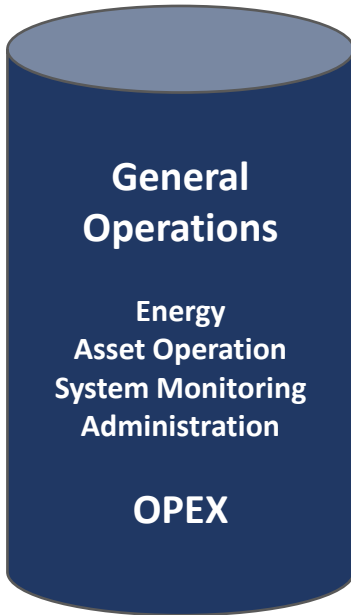
Cost of RESTORING Operations



NON-DISCRETIONARY

FIXED COST

VARIABLE COST - Reactive/Unplanned



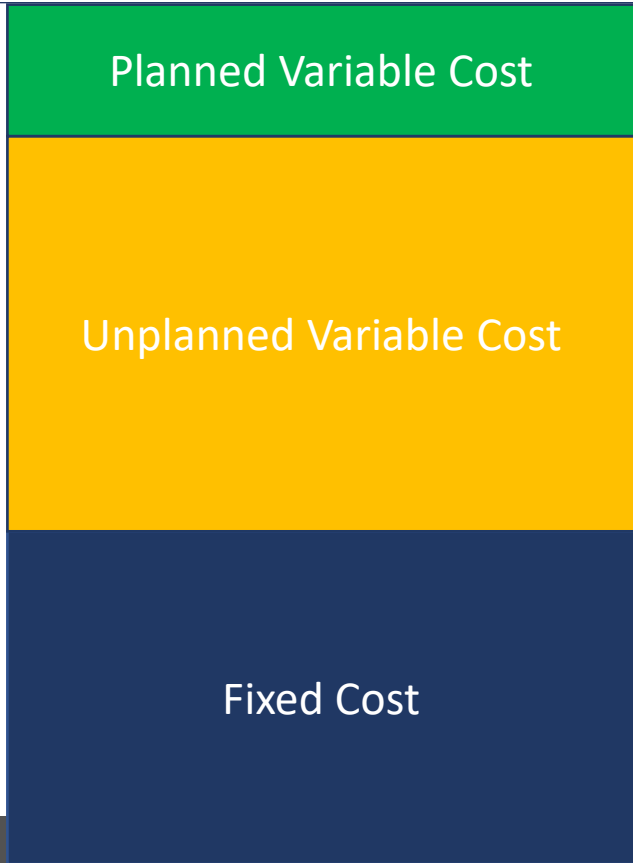
Cost of Doing Business



Cost to Stay Alive

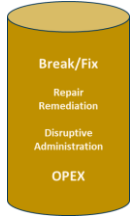
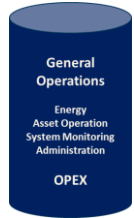


BUDGET



Building Your Buckets

TheWorxHub



- Asset Inventory
- Work Order Processing
- Preventive Maintenance Setup and Management
- Rounding
- AEM Program Deployment
- Inspection, Testing and Maintenance

Reporting on **PAST** Performance.

**OPERATIONAL INTELLIGENCE
FACILITY PERFORMANCE**

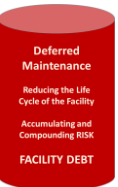
&

Origin

- Asset Inventory
- Asset Condition and Risk Ranking
- PAST Work Order and PM Performance modified condition.
- AEM Program Impact
- OPEX and CAPEX Financial Forecasting
- Project Feasibility and Estimation

Forecasting **FUTURE** needs.

**STRATEGIC INTELLIGENCE
AUTOMATED FORECASTING**



By The Numbers



Benchmark Summary (Per 1 Million SQFT)

~ 1300 Assets

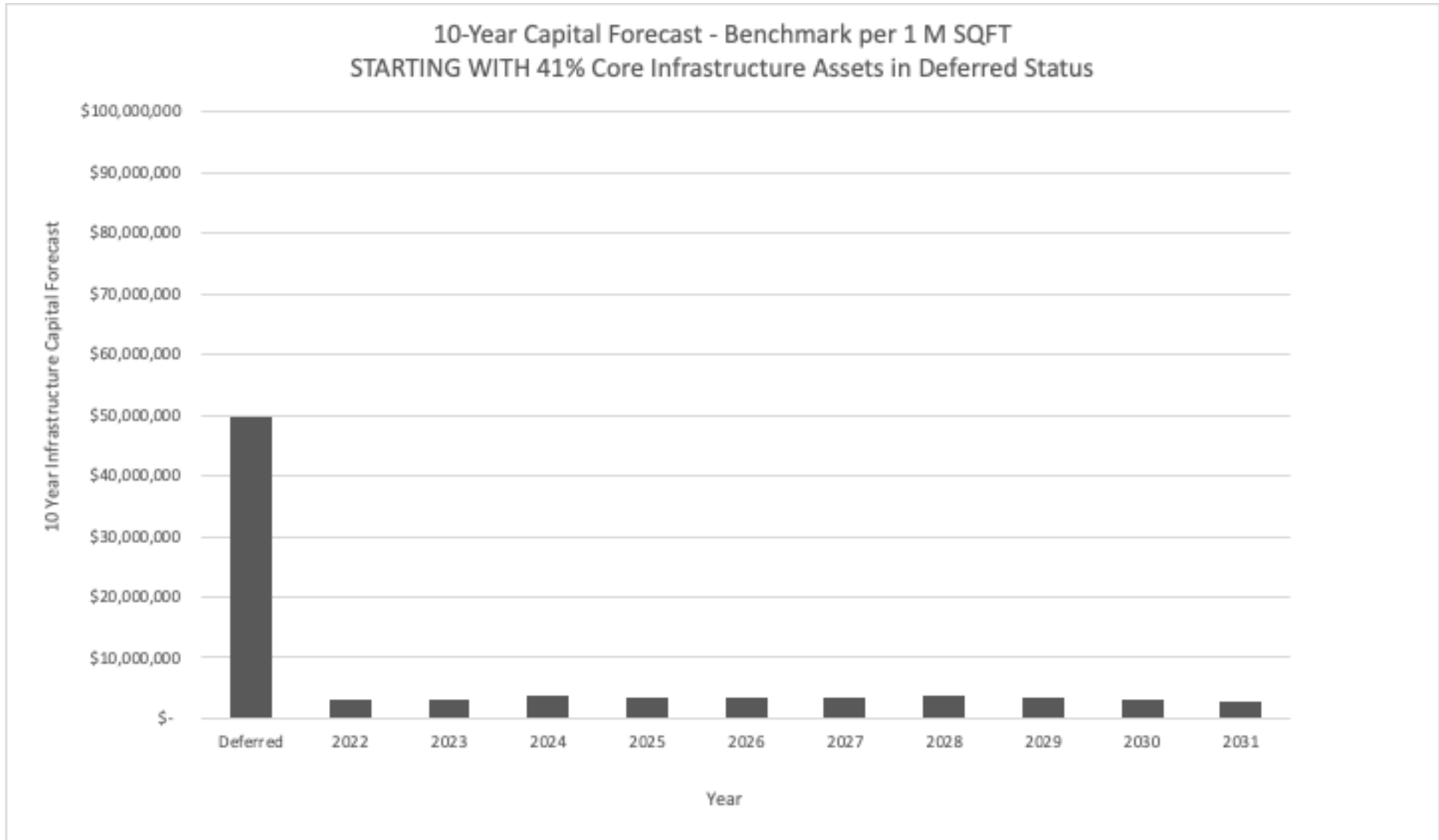
~ \$139 M

~ \$56 M Deferred

~ \$97 M Deferred + 10 Years

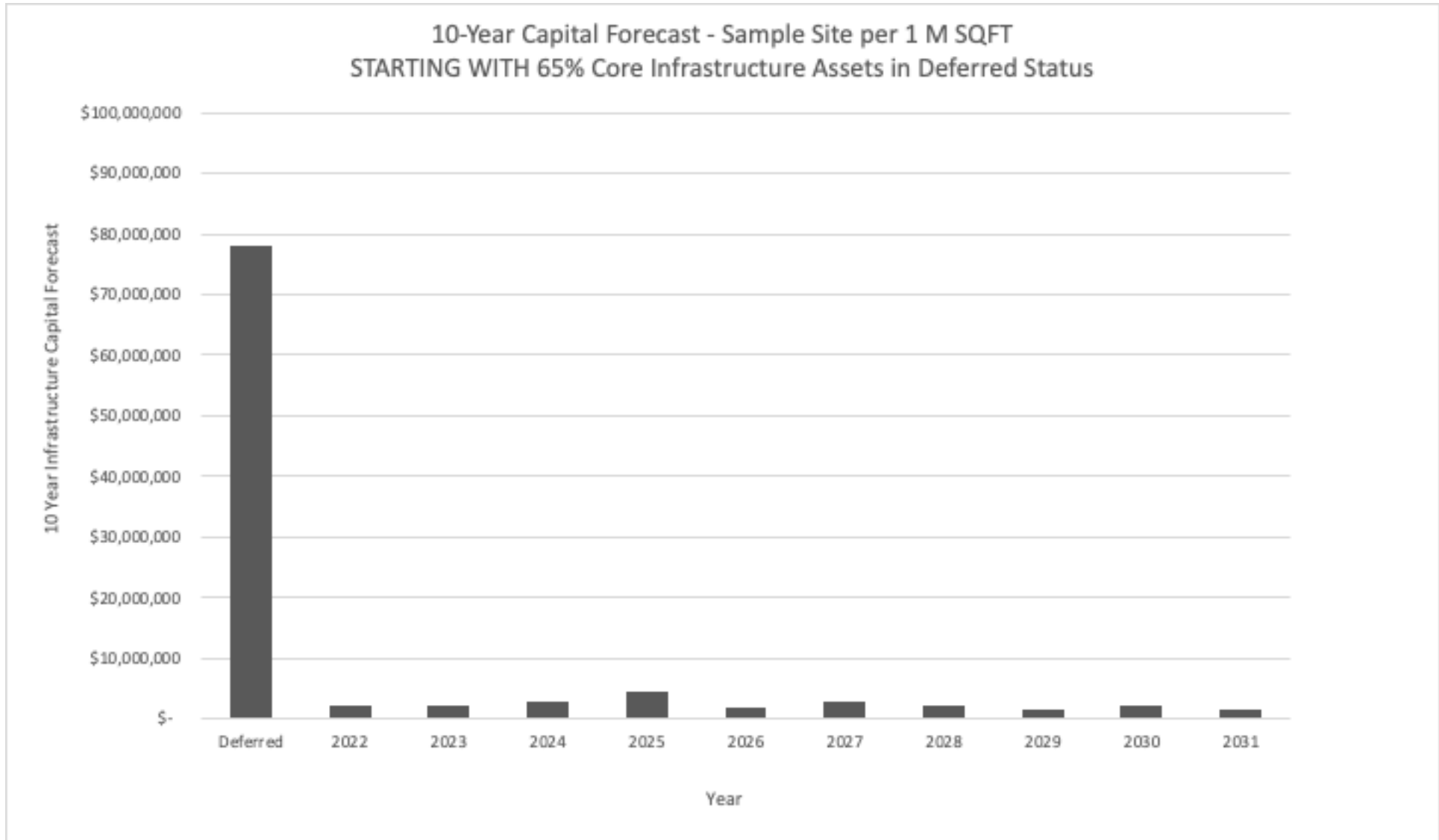
Capital Investment Needs
\$3-6 M Annually

46% Deferred Start



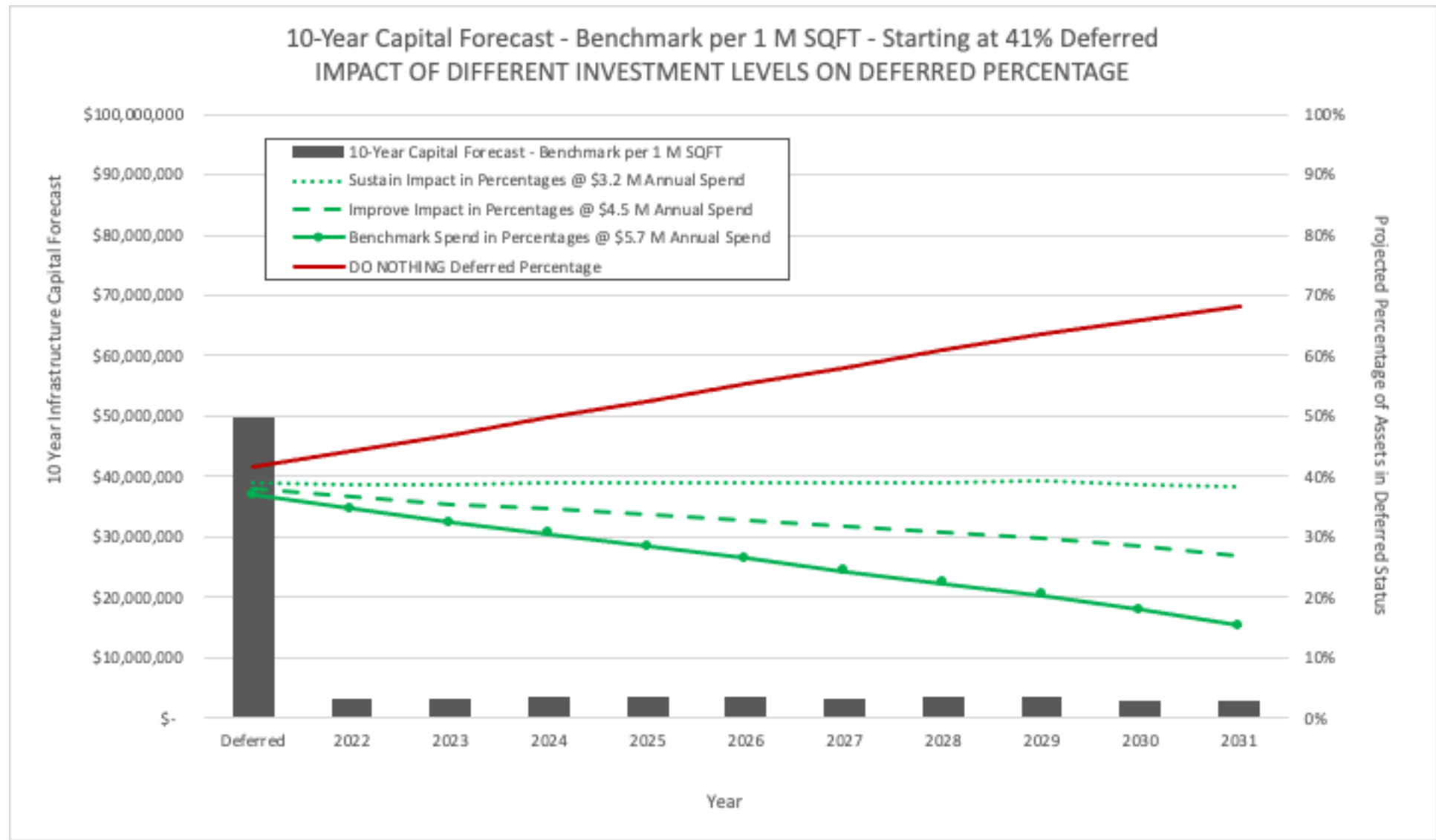
Source: FHI, 2021

65% Deferred Start



Source: FHI, 2021

46% Deferred Start



\$0/SQFT

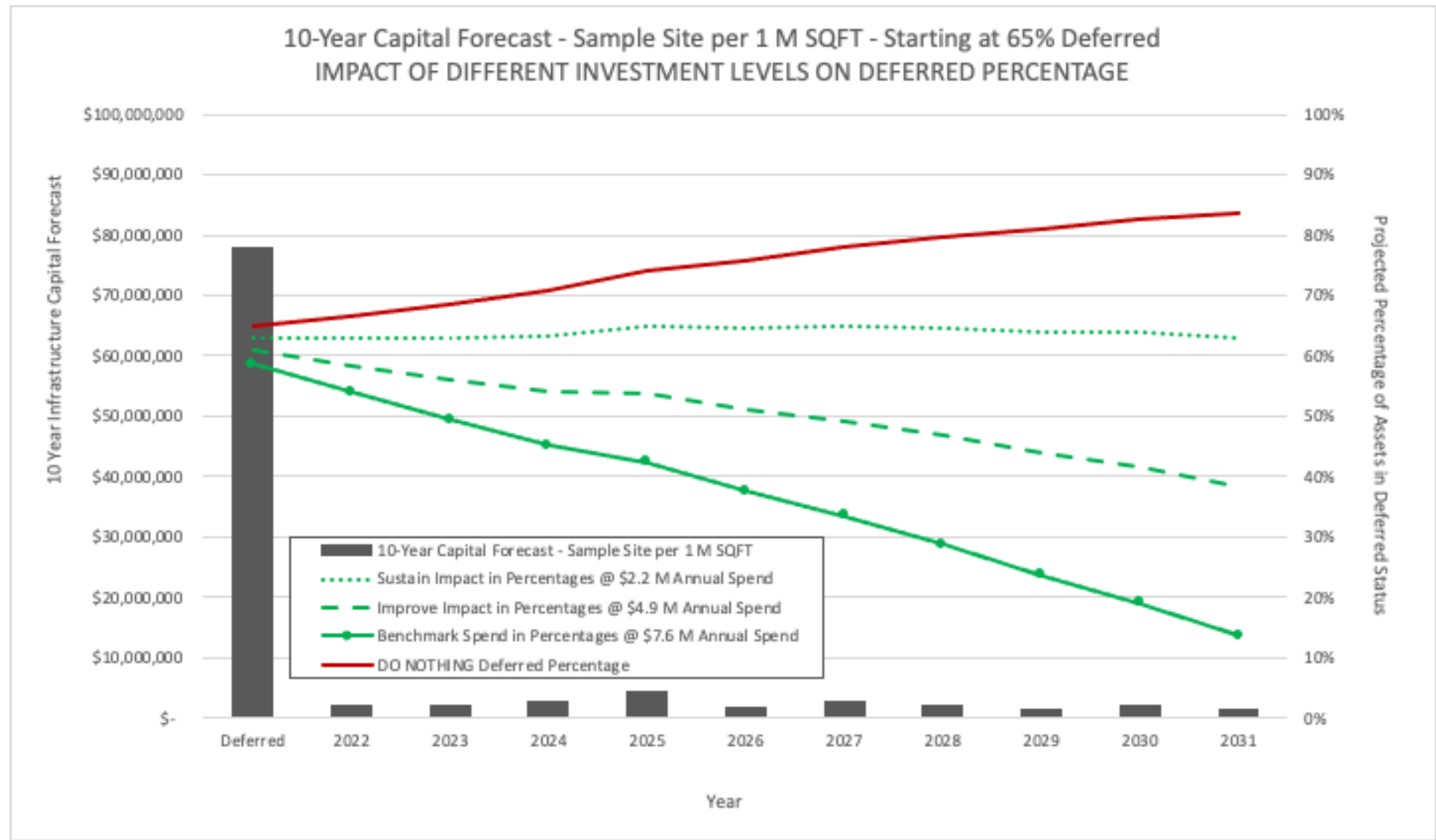
~\$3.20/SQFT

~\$4.50/SQFT

~\$5.70/SQFT

Source: FHI, 2021

65% Deferred Start



\$0/SQFT

~\$2.20/SQFT

~\$4.90/SQFT

~\$7.60/SQFT

Source: FHI, 2021

Impact of PM (or not!)

Equipment	EUL (Years)	EUL Degradation	PM Cost	RM Cost	Energy Efficiency Degradation	Replacement Cost
Air compressor	20	20%	\$472	\$236	35%	\$4,700/HP
Air handler	20	20%	\$501	\$193	50%	\$1/cfm
Boilers	30	20%	\$691	\$2,121	7%	\$20/MBH
Centrifugal chillers	23	36%	\$5,500	0	23%	\$1,000/ton
Reciprocating chillers	20	36%	\$4,400	0	23%	\$1,000/ton
Cooling towers	20	20%	\$300	0	35%(chiller efficiency)	\$90/ton
Condensers (air cooled)	20	20%	\$204	\$188	30%	\$290/ton
DX units	15	50%	\$200	\$1,600	20%	\$1,200/ton
Early-warning fire detection (EWFD) systems	15	20%	\$534	0	N/A	\$150/detector
Centrifugal pumps	20	20%	\$102	\$891	N/A	\$2,110/hp
Fire pumps	20	20%	\$1,650	\$891	N/A	\$40,000
Switchgear	30	10%	\$27	\$21	N/A	\$11,000
Parking lots	100	90%	\$0.07/sf	0	N/A	\$2.46/sf
Roofs	20	25%	\$0.12/sf	0	N/A	\$10/sf
Weatherproofing	75	50%	\$0.33/sf	0	N/A	\$18/sf



Source: Determining the Economic Value of Preventive Maintenance; Jones Lang Lasalle; Wei Lin Koo, Tracy Van Hoy, P.E. 2016

EUL degradation is the percentage of EUL lost if preventive maintenance is not performed.”

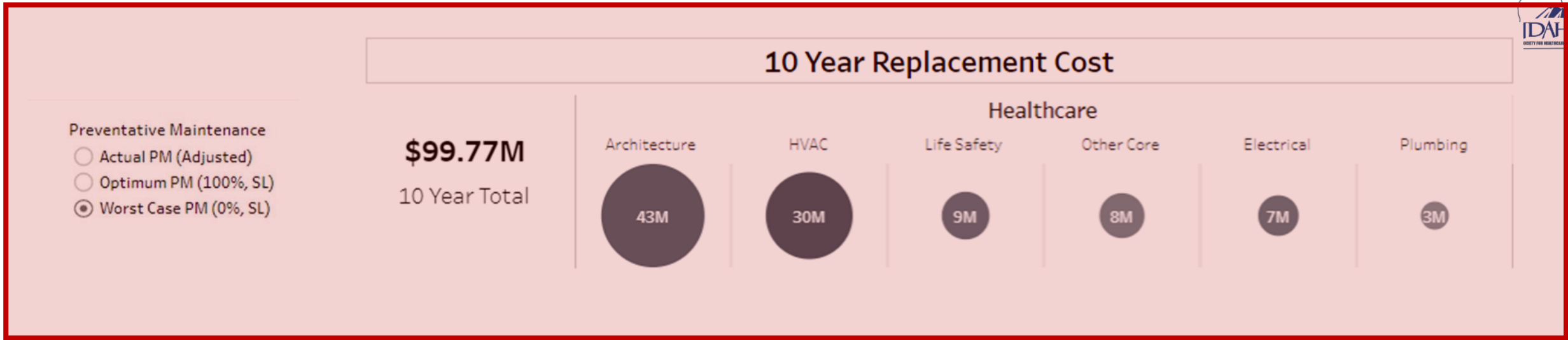
**Deferred
Maintenance**

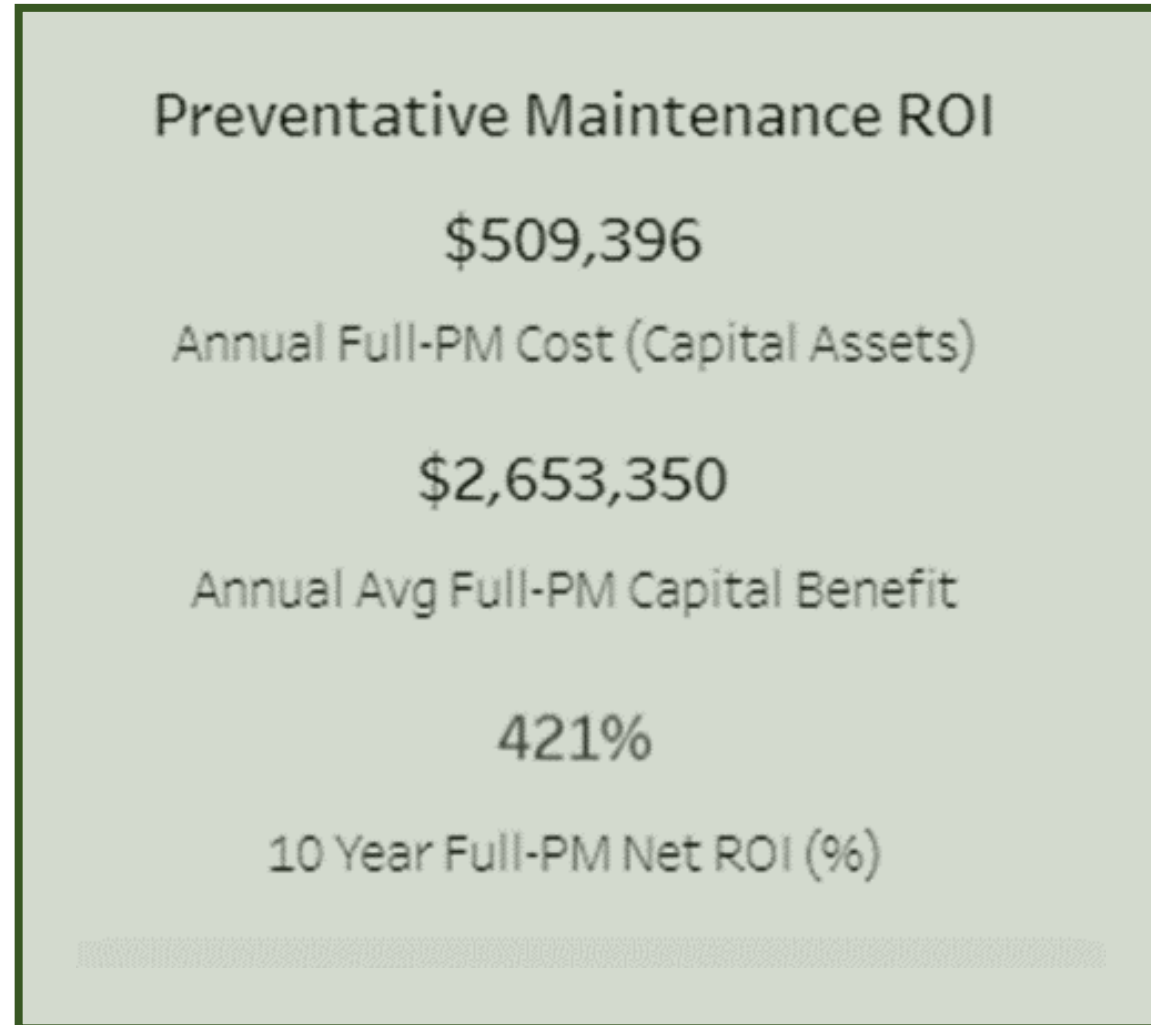
Reducing the Life
Cycle of the Facility

Accumulating and
Compounding RISK

FACILITY DEBT

\$110,233,940	971
Total Portfolio Replacement Cost	Assets
\$50,716,220	1,051,486
46% Deferred Replacement Cost	Square Feet





Transformation



3 Questions

1. How much should be invested to properly maintain a facility?
2. Where should that investment be made in order to maximize the performance of the facility?
3. **How do we demonstrate good stewardship of precious resources in order to secure ongoing investment?**

Establish Your Foundation

- **Transparency (AND EDUCATION) Leads to Credibility**
 - Deferred maintenance is a strategy. Need to clearly communicate that strategy and educate your non-facility leadership.
 - Leverage the work already being done. Don't start from scratch. Focus on equipment inventory as a starting point.
 - **Understand YOUR buckets.** As best you can. Understanding where the money is going today is the foundation of influencing where it goes tomorrow. **You can't increase revenue without knowing your costs.**
- **“You can't Manage what you can't Measure.”**

~ Peter Drucker

Understand Tolerance for RISK

- **Credibility Leads to Value**

- Meet your leadership where they are, not where you want them to be.
- Deferred maintenance is an indication of RISK. As you communicate that risk, understand how your organization views that risk.
- Managing the facility is not the same as maintaining the facility. Be objective, be transparent, be proactive.
- Align your messaging with mission, vision, values in order to be heard.

- **“Seek First to Understand, then to be Understood”**

~ Steven Covey

Partner With Your Leadership

- **Value Leads to Inclusion**

- Earn your place at the big table by **sharing your business plan**. Not only as a participant but as a critical team member.
- Enable the process of continuous improvement. Use your data objectively to add value to critical leadership decisions.
- Document and communicate your decisions and recommendations - use objective data. Age, Condition, Risk, etc.
- Communicate all options objectively.

- **“Give them Options, Not Problems or Ultimatums.”**

~ Matt Stiene

Questions?





Thank You!



Backup Slides



What is Infrastructure?

- “The basic equipment and structures (such as roads and bridges) that are needed for a country, region, or organization to function properly.” (www.merriam-webster.com)
 - **Core Infrastructure**
 - **Life Safety:** Fire Alarm, Fire Suppression, Generators, Automatic Transfer Switches, Fire Pump, etc.
 - **HVAC, Plumbing & Major Mechanical:** Air Handlers and Conditioners, Exhaust Fans, Supply Fans, Chillers, Boilers, Compressors, Cooling Towers, Pumps, Domestic Hot Water, Steam Supply, Chilled Water Supply, etc.
 - **Electrical:** Primary and Emergency Distribution System, Uninterrupted Power Supply, etc.
 - **Building Integrity, Access and Mobility:** Façades, Windows, Roofing Systems, Security Systems, Elevators, Helipad, etc.
 - **Critical Support Systems:** Medical Gas Inventory/Distribution, Building Automation (Climate Control), Pneumatic Tube, Nurse Call, etc.
 - **Other Major Asset Categories**
 - Production Assets (Plant Equipment), Clinical Engineering Assets (Direct Patient Care), Civil Engineering Assets (Grounds, Structural Steel, Concrete, Parking Garages, etc.), Branding Assets (Interior Architecture, Signage), FFE (Furniture, Fixtures, Equipment)

Strategic Investment Considerations

How do health care leaders decide how to allocate capital?

- Condition
 - Mission
 - Potential ROI
 - Market Needs
 - Brand Image
- Where should investments be targeted?
 - Renovation
 - Hospital Modernization
 - Bed Modernization
 - Resilience
 - Life Safety Systems
 - New Construction
 - Population Health Initiatives
 - Ambulatory Care
 - Mental Health
 - Safety-Net Clinics

Strategic Investment Considerations

How do health care leaders decide how to allocate capital?

- Condition (Age, Performance, Capacity, Expected Useful Life)
- Mission
- Potential ROI (Energy, OPEX, FTE, Risk, Risk Mitigation)
- Market Needs
- Brand Image

• Where should investments be targeted?

- Renovation (Repair and Replacement)
 - Modernization
 - Resilience
 - Life Safety Systems
- New Construction
 - Population Health Initiatives
 - Ambulatory Care
 - Mental Health
 - Safety-Net Clinics