

EXECUTIVE SUMMARY



Your Trusted Sustainability Partner.



AGENDA

TOPIC	TIMING
PROJECT BACKGROUND	5 MINS
FINDINGS & OUTCOMES	20 MINS
ASSET SUSTAINABILITY TARGET	15 MINS
CAPITAL CREATION STRATEGIES	10 MINS
DISCUSSION OF NEXT STEPS	10 MINS



- LLC wholly-owned by Ameresco (NYSE:AMRC)
- **AssetPlanner™**: in house, 21,500 users, CMMS and Capital Planning
- Expertise in [Strategic Capital Planning](#), [Life Cycle Assessments](#), [Facility Condition Assessments](#), [Facility Renewal Management](#), [Capital Creation Strategies](#), [Communications](#) and [Business Cases](#)
- Proprietary technology to streamline data gathering, analysis, usage and reporting
- Database of **3.2 billion feet²** of assessment findings in **74,000+** buildings
- Sample recent clients: City of Saint Paul, City of Vancouver, City of Bend (OR), City of Mankato, City of Wichita, Minneapolis Public Housing Authority, etc.



KEY DELIVERABLES

Quantify Renewal Needs

- Create Life Cycle Profiles for major building components and systems;

Multi-Year Capital Plan

- Forecast how capital needs will grow in both the short and long term (5-year & 30-year plan) as the buildings continue to age;

Evaluate Building Performance

- Calculate building performance using industry standard metrics to evaluate overall building risk and continued asset sustainability;

Risk Mitigation

- Develop Cost by Discipline, Unfunded Liability, & Facility Condition Index (FCI) profiles for the portfolio;

Asset Sustainability

- Introduce Asset Sustainability targets to demonstrate funding required to enhance the Quality of Community & Living

Capital Creation Strategies

- Benchmark Capital Creation Strategies and illustrate their impact on the portfolio in terms of building performance and risk.

Common Challenges

Aging Infrastructure

Capital Budgets constrained / growing
Maintenance Backlog

Escalating Operating Costs

Institutional Knowledge Transfer

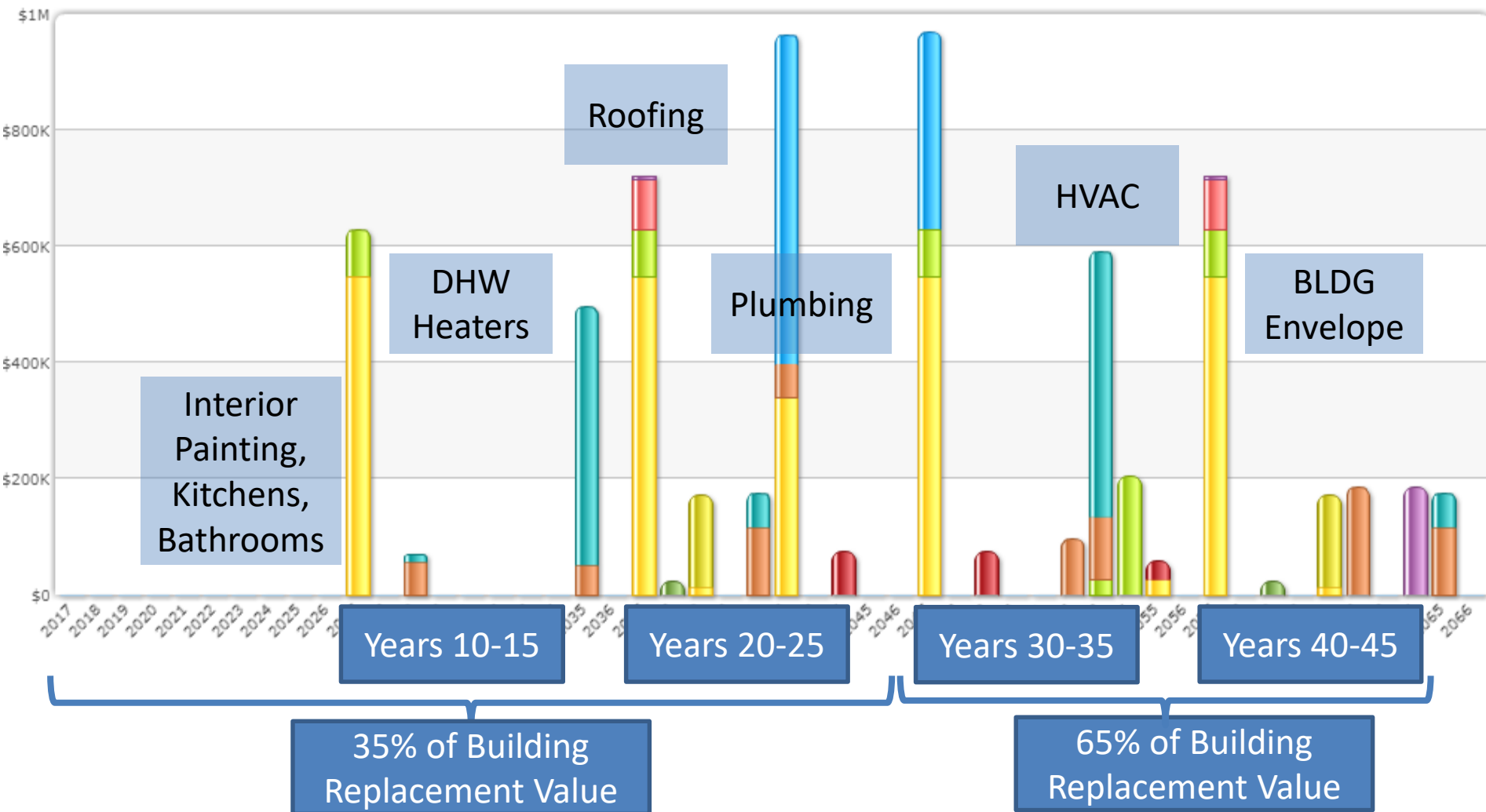
Changing functional demands

Inadequate service levels

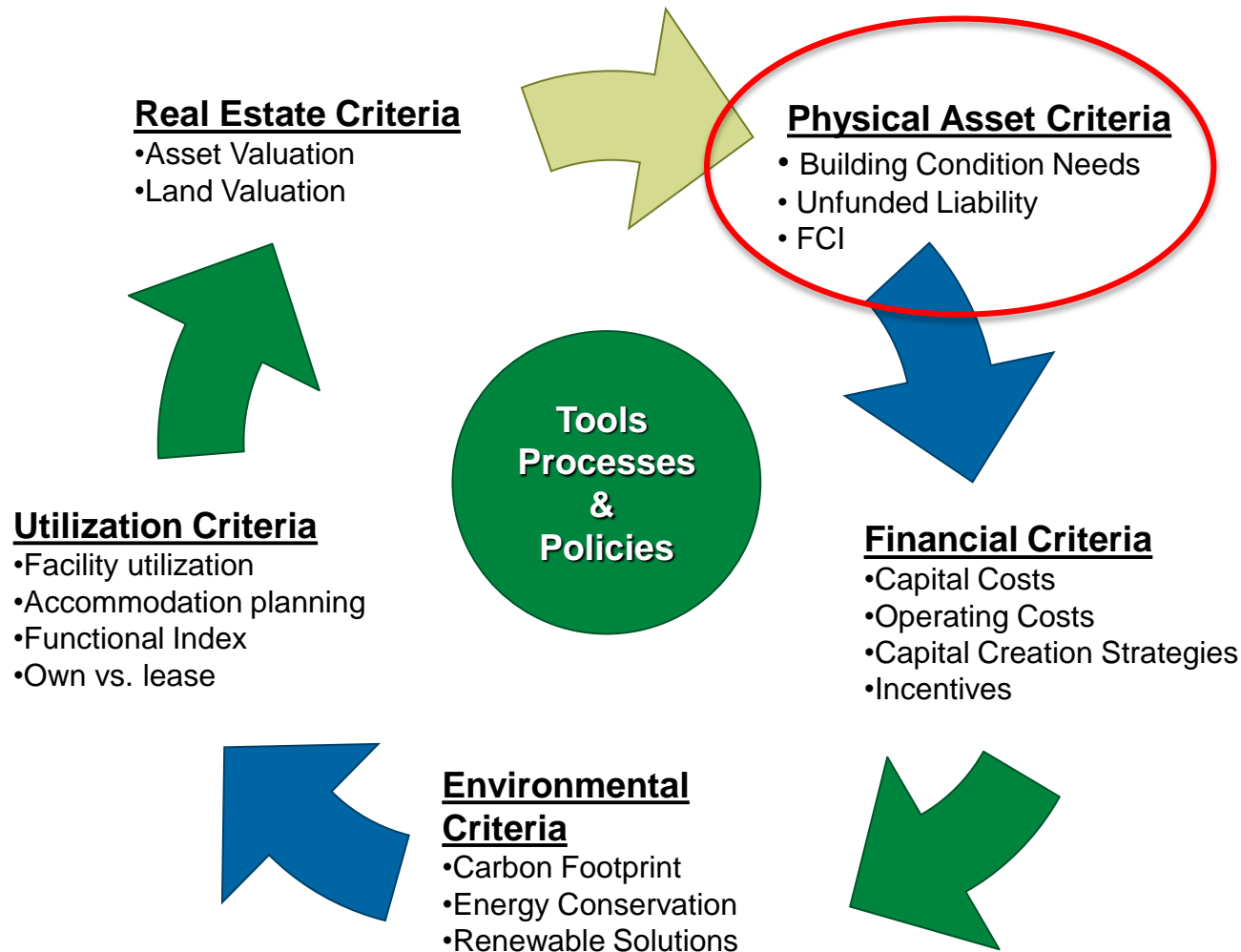
Holistic Prioritization Process



Facilities' Life Cycles



DECISION DEVELOPMENT FRAMEWORK



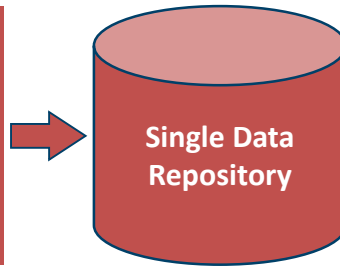
FINDINGS



ASG AssetPlanner™ Approach

Disparate data:

- Excel Spreadsheets
- PDF's
- Institutional Knowledge
- Drawings / Schedules

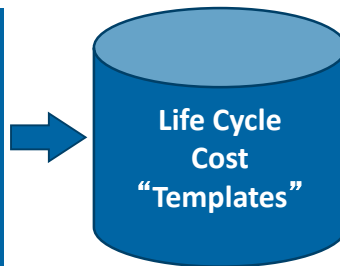


Benefits:

- Rapid data development process
- Institutional Knowledge transfer
- Single data repository
- Dynamic dashboards for entire portfolio

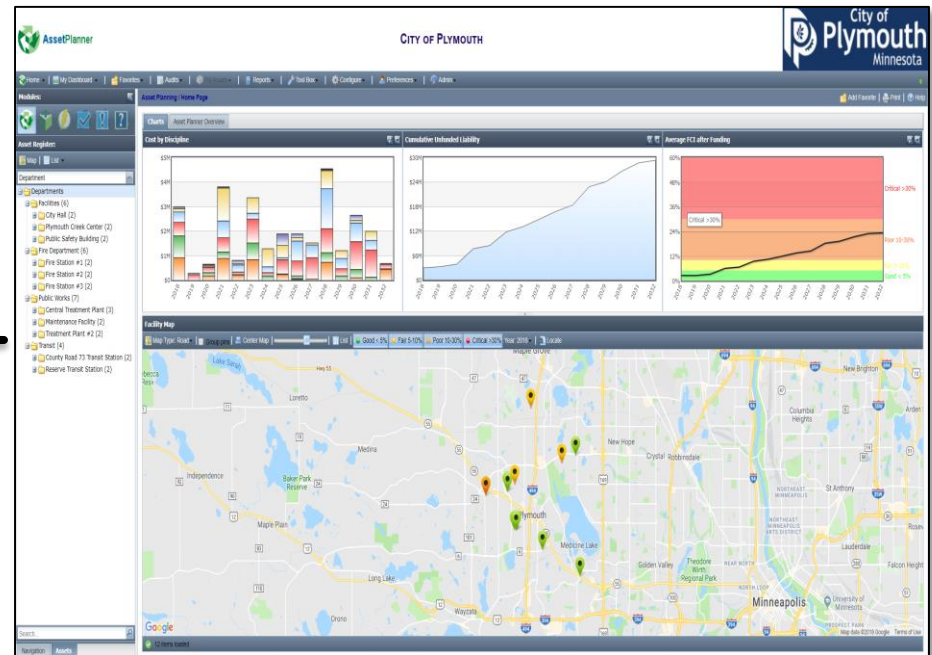
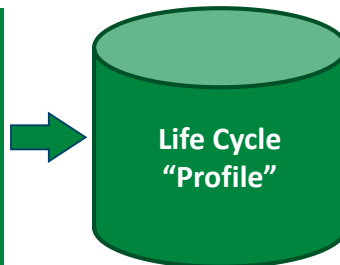
Basic Asset Details:

- Age
- Size
- No. of floors
- Functional use
- Site Address



Template Validation:

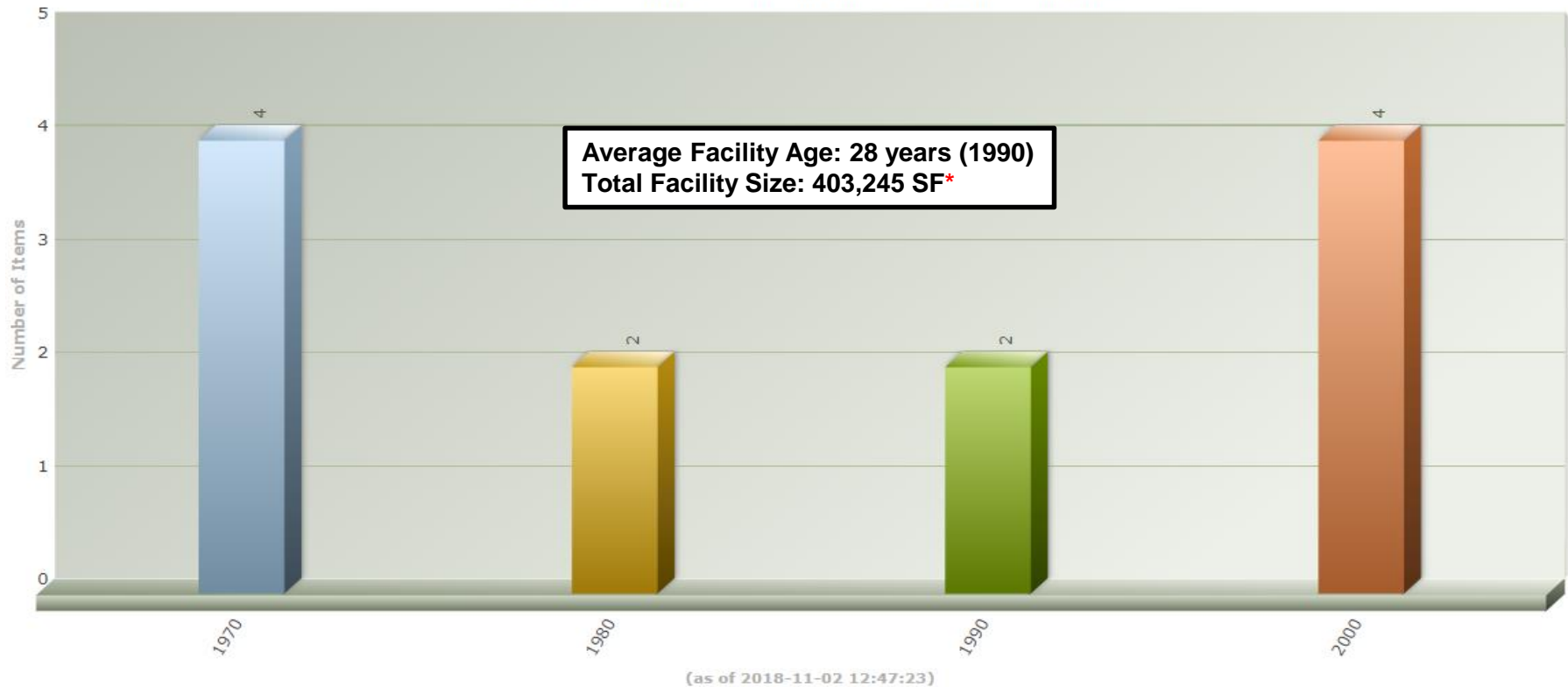
- Incorporation of detailed datasets
- Knowledge Transfer
- On-Site Condition Assessments



AGE PROFILE BY DECADE

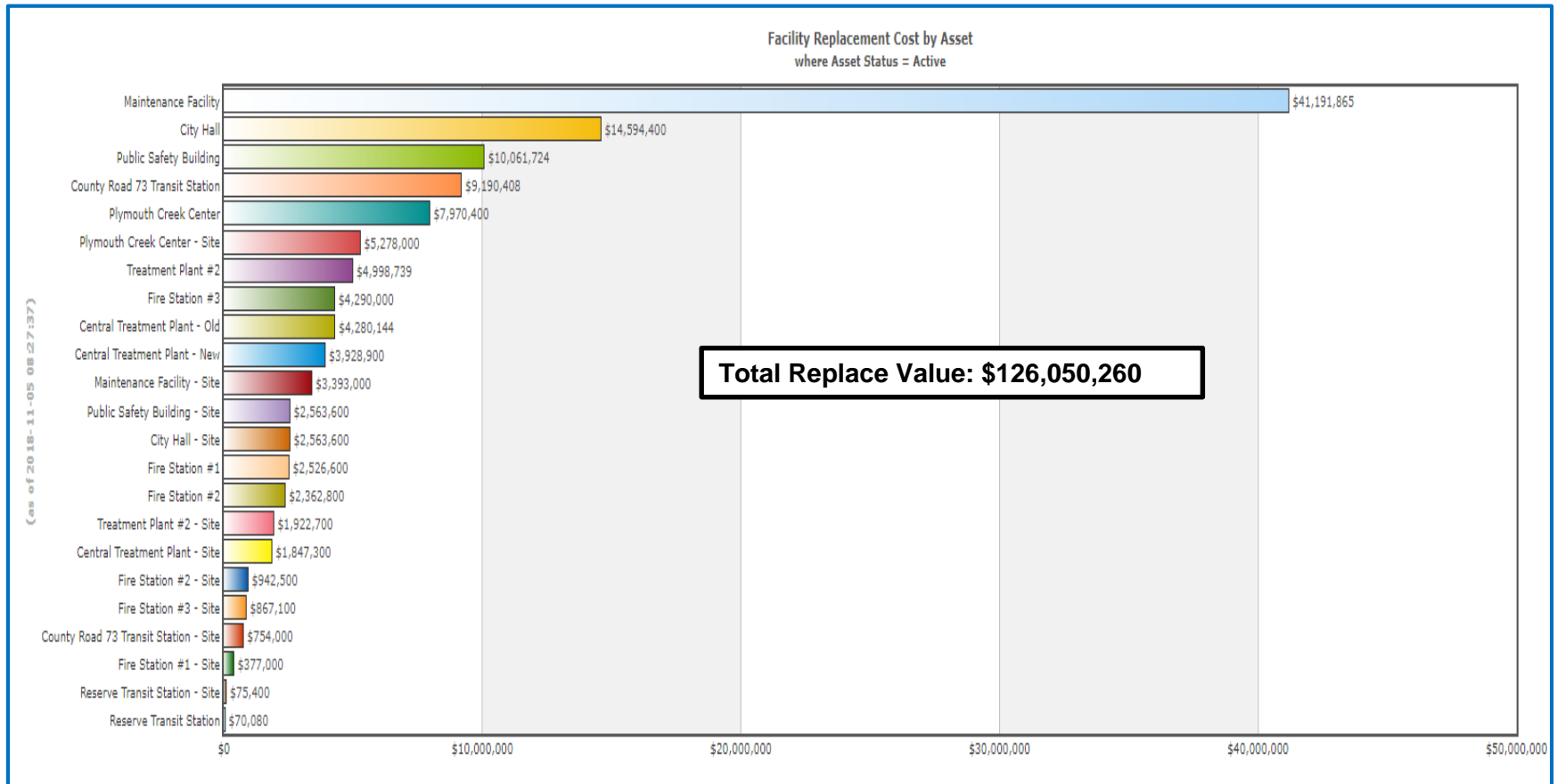
Buildings are more expensive to maintain as they age, and the risk of failure increases as building systems near their “end of life.”

Facility Number by Construction Year (Decade)
where Asset Status = Active and where Asset Class = Building



Not included in condition assessment: Hilde Performance Center, Ice Arena, Plymouth Towne Square, Township Hall, Vicksburg Commons

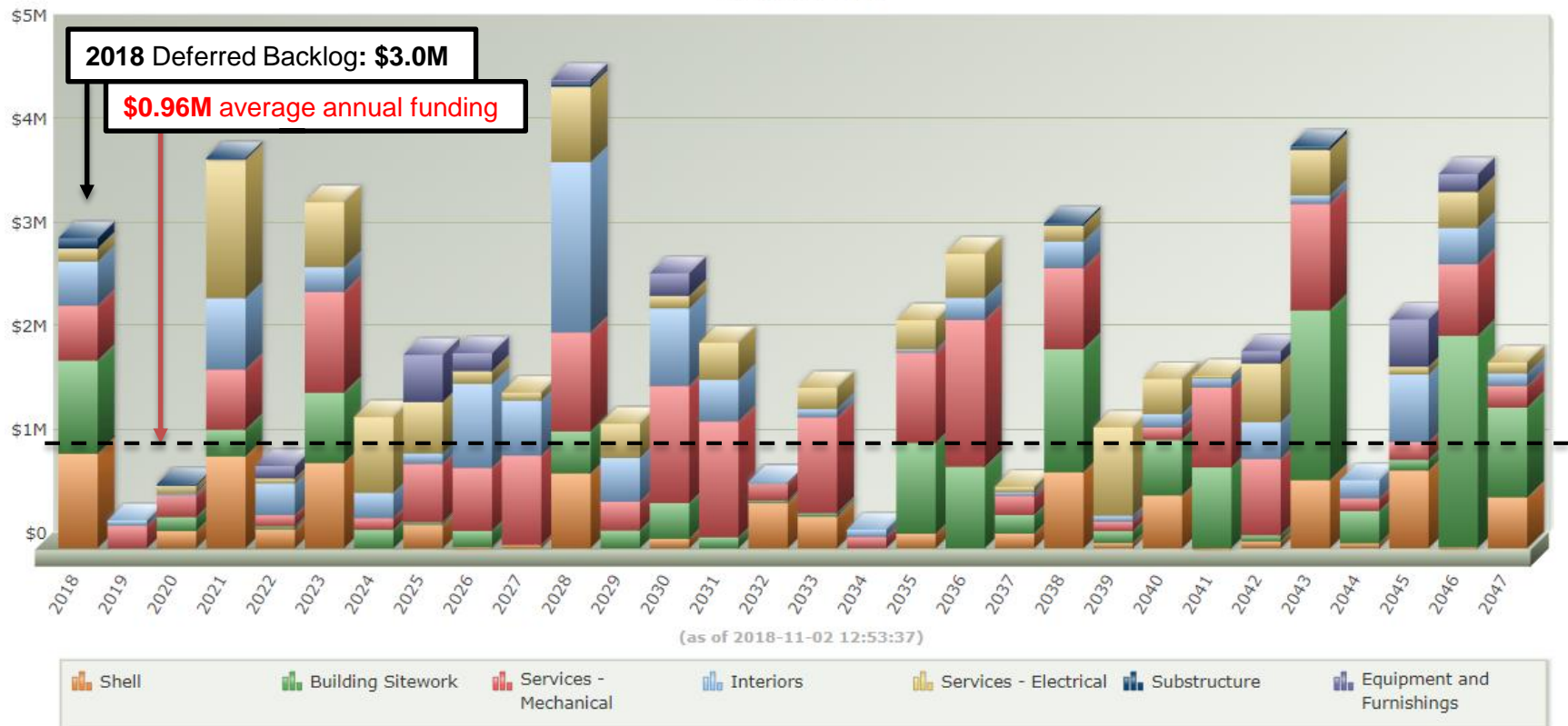
AGE PROFILE BY CURRENT REPLACEMENT VALUE



CAPITAL NEEDS BY DISCIPLINE

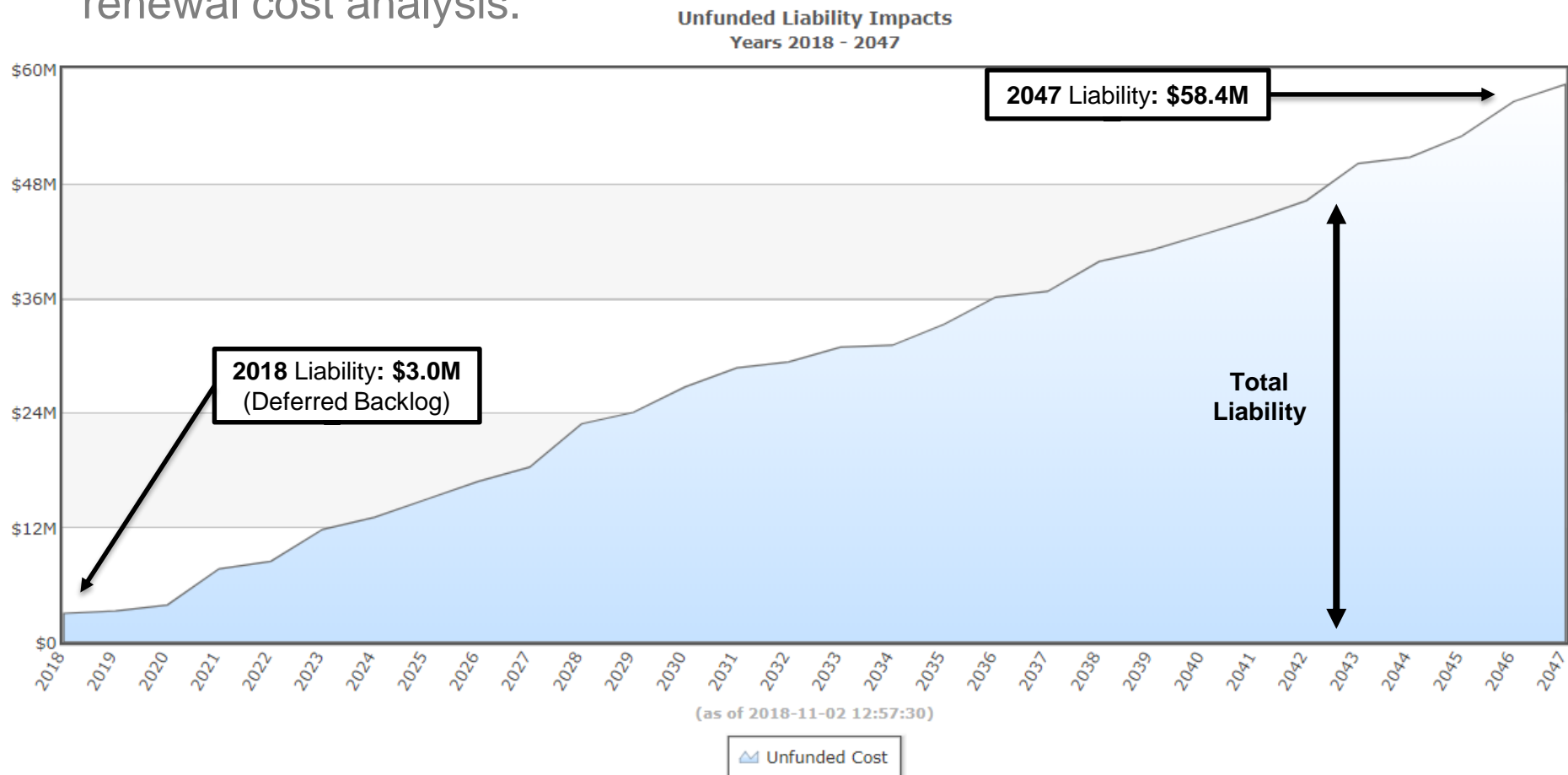
Life cycle renewal costs for the major building elements have been established for each building to determine the Capital Renewal budget requirements over the next 30 years.

Cost by Discipline
Years 2018 - 2047



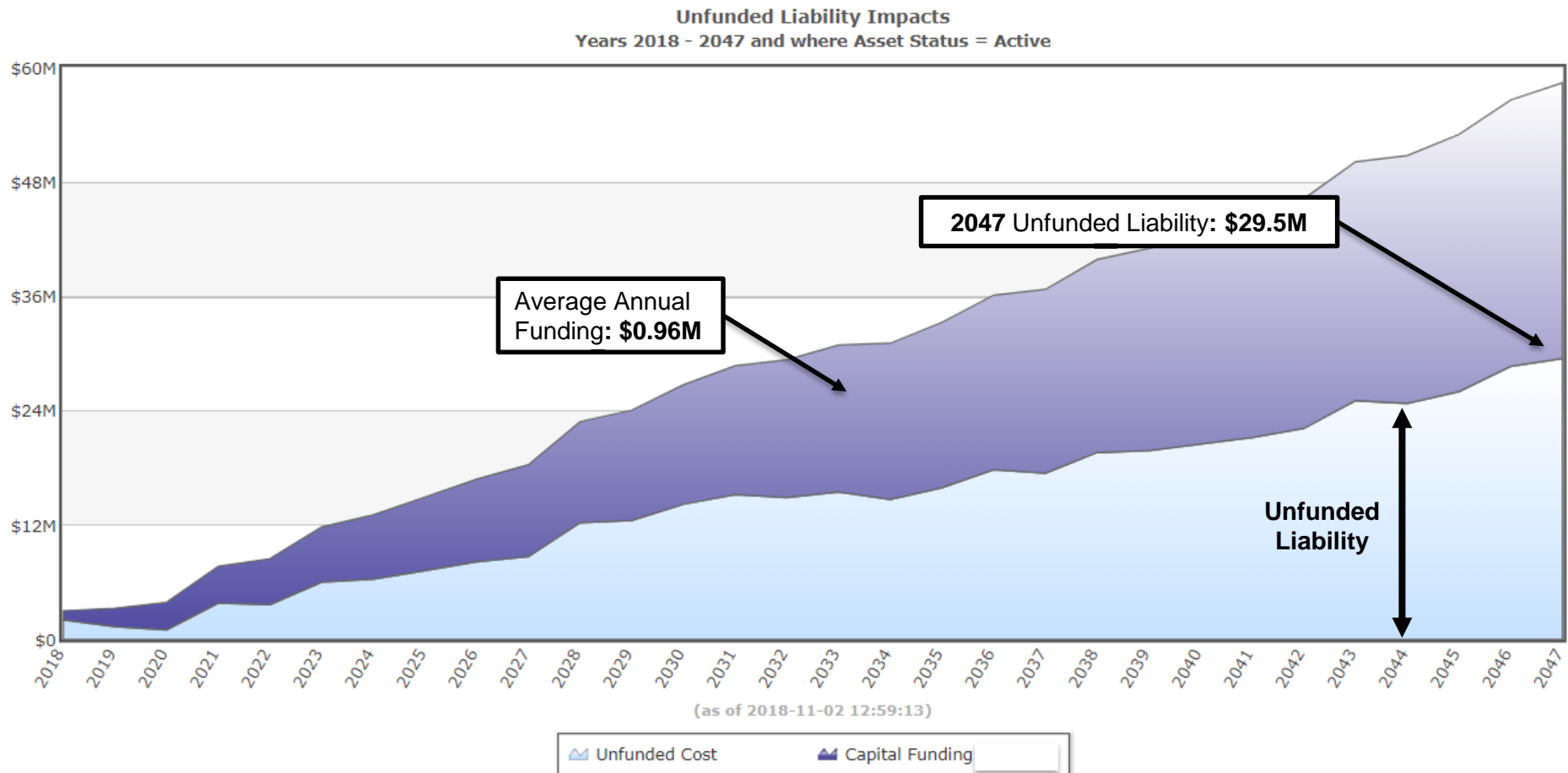
PROJECTED TOTAL LIABILITY

The total liability represents the cumulative renewal needs of the portfolio based on the findings and results obtained from the life cycle renewal cost analysis.



PROJECTED UNFUNDED LIABILITY

Cumulative lifecycle renewal costs (top line) and the *average annual capital funding allocation* (purple area) of **\$0.96M per year**.



FACILITY CONDITION INDEX (FCI)

Industry standard index used to track condition performance of facilities and portfolios

$$\text{FCI} = \frac{\text{Renewal and Repair Costs}}{\text{Replacement Cost}}$$

GOOD Range: FCI (0% - 5%)

FAIR Range: FCI (5% - 10%)

Sustainability Target

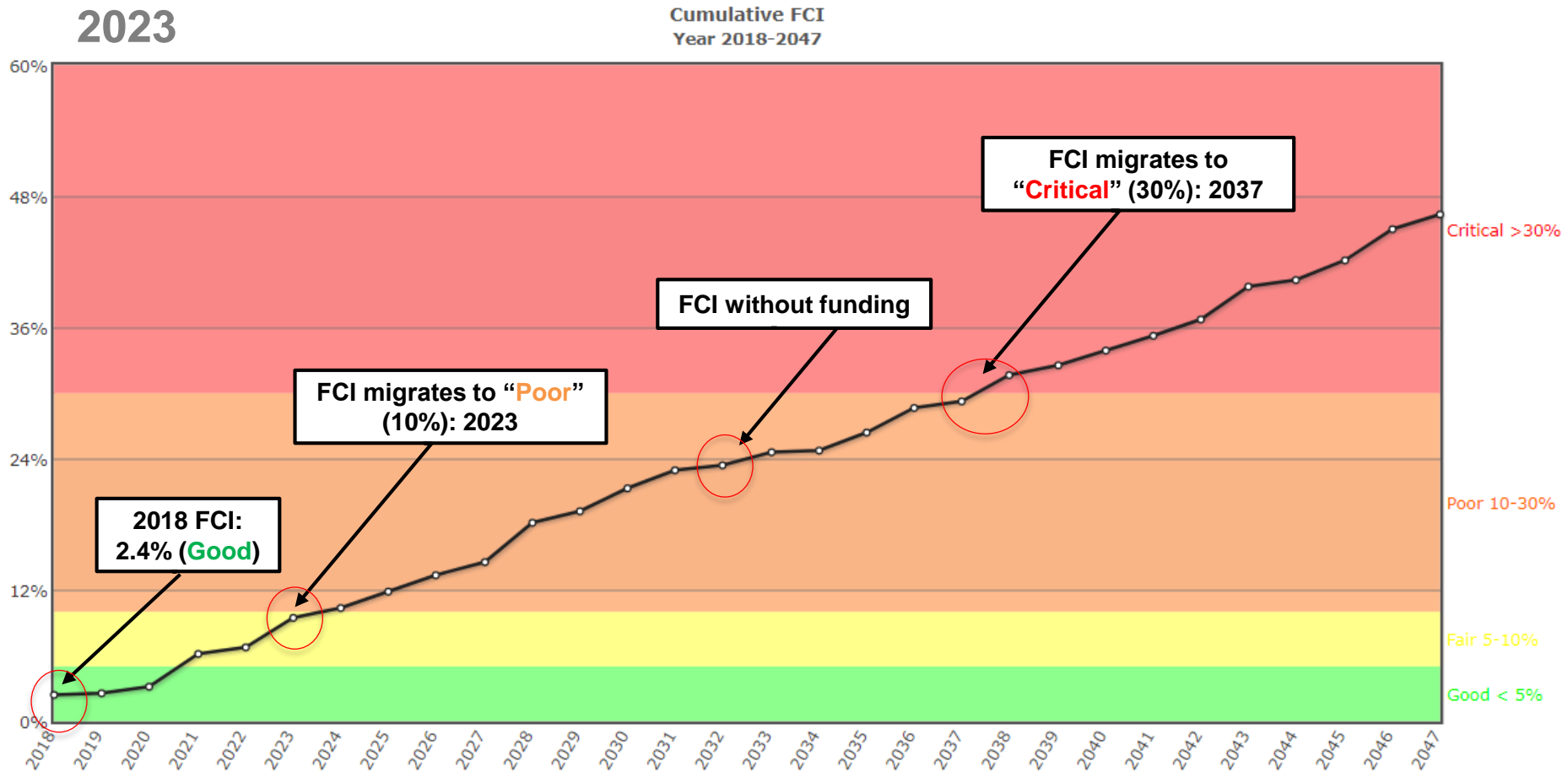
Sustainability Target

POOR Range: FCI (10%-30%)

CRITICAL Range: FCI (> 30%)

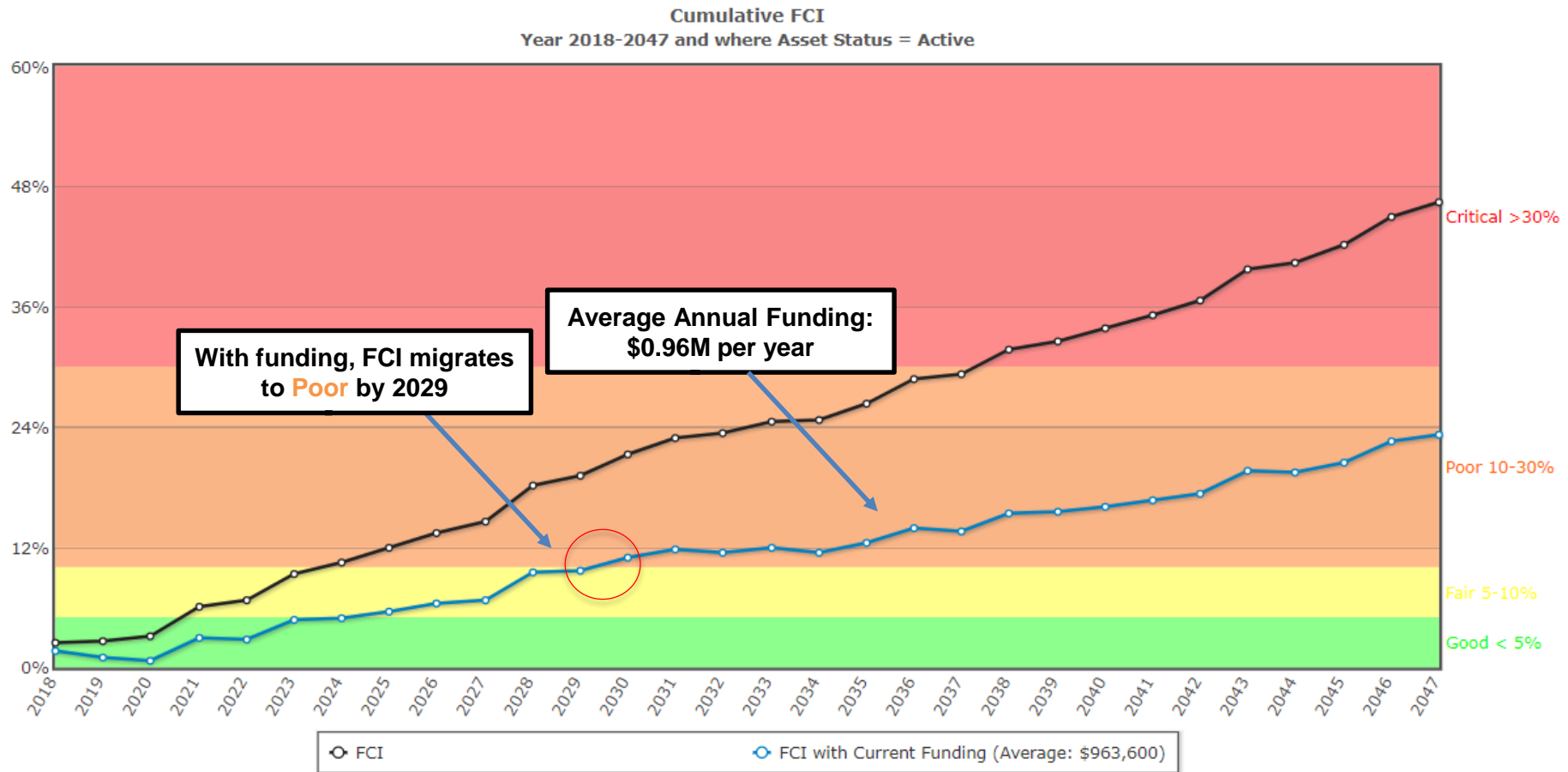
FACILITY CONDITION INDEX - UNFUNDED

The portfolio has a 2018 FCI of **2.4%**, placing the facilities in the **“Good”** range. Without funding, the FCI would migrate to **“Poor”** by **2023**



FACILITY CONDITION INDEX - FUNDED

Overlaying the City's **average** annual capital funding of **\$0.96M** delays the migration of the portfolio to the **"Poor"** range to **2029**

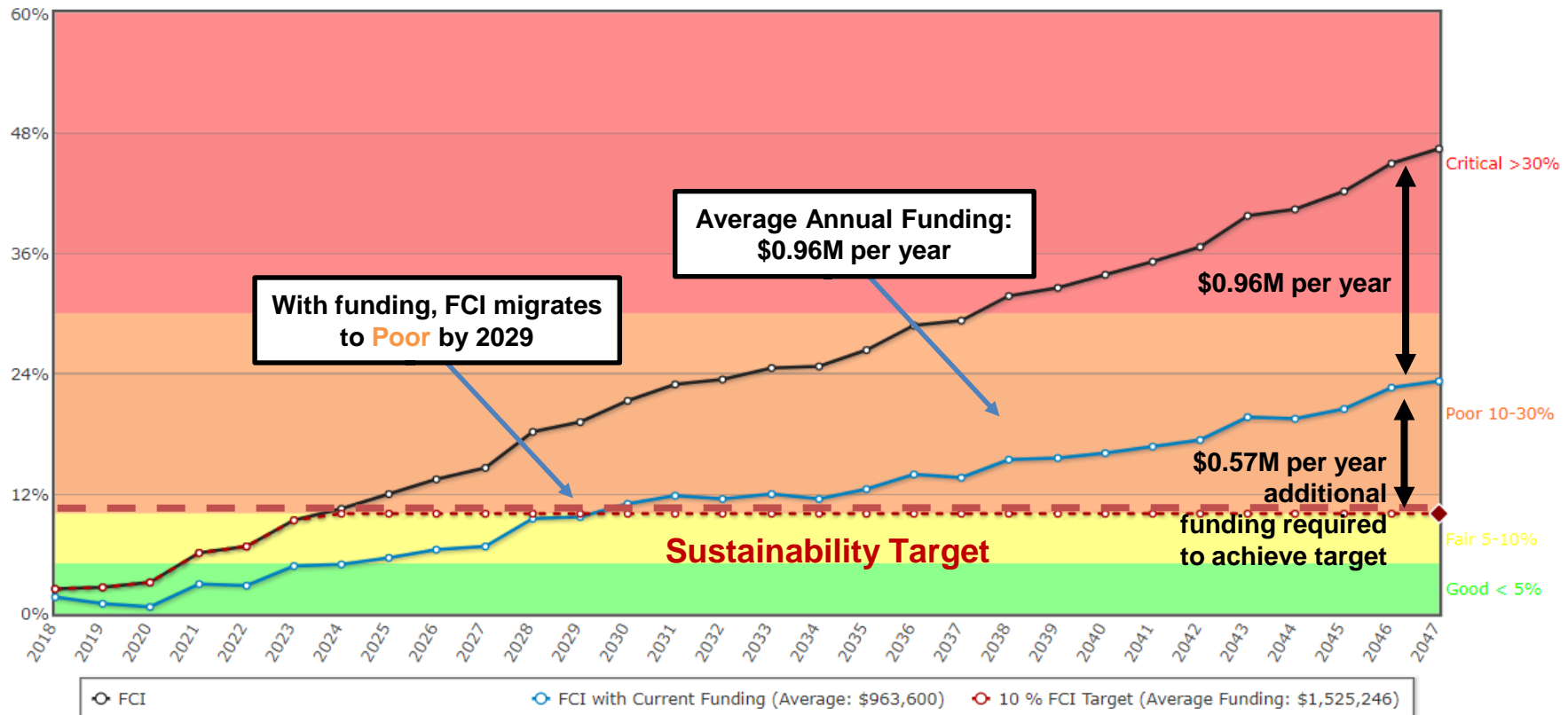


ASSET SUSTAINABILITY TARGET

Establishing an *Asset Sustainability Target* of 10% (**Fair**) will “sustain” the assets at an acceptable level of risk. This will require **\$1.53M** annual funding over the next 30 years, an extra **\$0.57M** per year

Cumulative FCI - Needs Analysis

Target FCI of 10% in 30 Years Year 2018-2047 and where Asset Status = Active



RISK MIGRATION: FCI FORECASTING

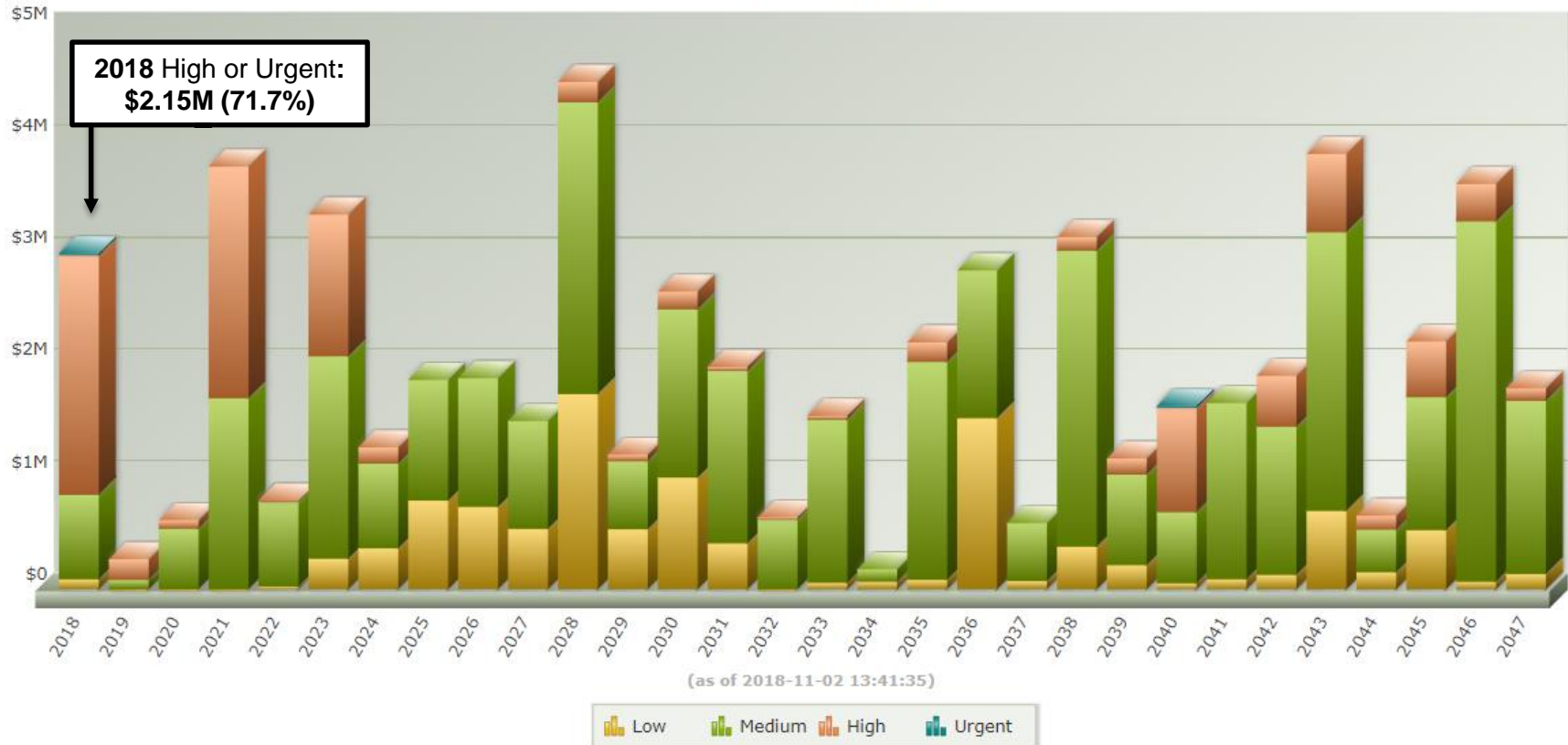
Facility Name	Year 1 FCI	Year 5 FCI	Year 10 FCI	Year 15 FCI	Year 20 FCI	Year 25 FCI	Year 30 FCI
Central Treatment Plant - New	1.90%	2.56%	15.54%	24.92%	30.54%	37.44%	44.90%
Central Treatment Plant - Old	1.53%	8.00%	14.30%	15.49%	16.42%	17.32%	21.96%
City Hall	2.92%	13.36%	19.13%	33.54%	35.38%	38.61%	53.43%
County Road 73 Transit Station	0.08%	0.92%	3.72%	17.28%	22.61%	25.40%	42.03%
Fire Station #1	0.28%	1.13%	31.25%	43.34%	48.89%	58.14%	70.47%
Fire Station #2	5.91%	22.98%	32.49%	40.62%	46.90%	55.80%	66.64%
Fire Station #3	10.56%	16.63%	27.86%	40.22%	55.87%	72.55%	75.50%
Maintenance Facility	0.51%	3.15%	8.76%	12.56%	17.52%	25.09%	26.83%
Plymouth Creek Center	5.97%	15.70%	30.45%	45.27%	51.10%	60.89%	73.71%
Public Safety Building	1.76%	3.37%	16.63%	38.27%	44.17%	45.59%	48.50%
Reserve Transit Station	5.94%	26.43%	36.85%	52.26%	101.62%	109.57%	140.14%
Treatment Plant #2	1.06%	8.40%	21.14%	25.32%	31.43%	43.01%	47.37%

CAPITAL NEEDS BY PRIORITY

Life cycle renewal costs for the major building elements have been filtered by priority for each building to help influence strategic Capital Investment over the next 30 years.

Cost by Priority

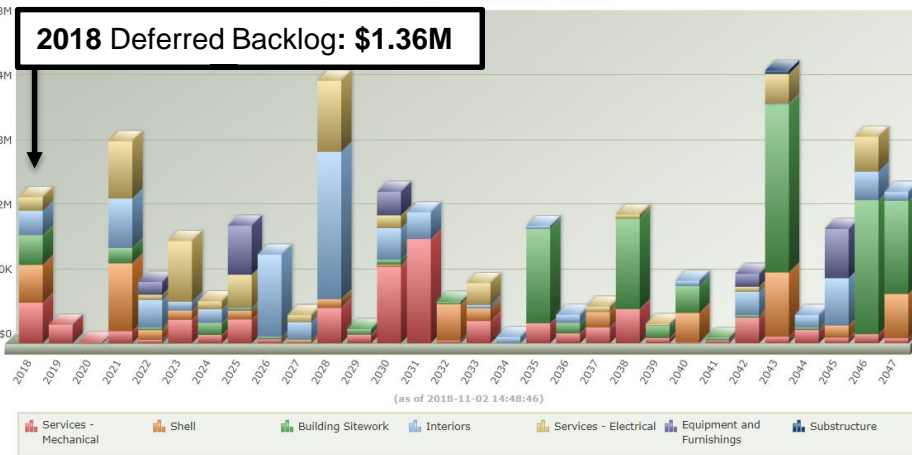
Years 2018 - 2047 and where Asset Status = Active



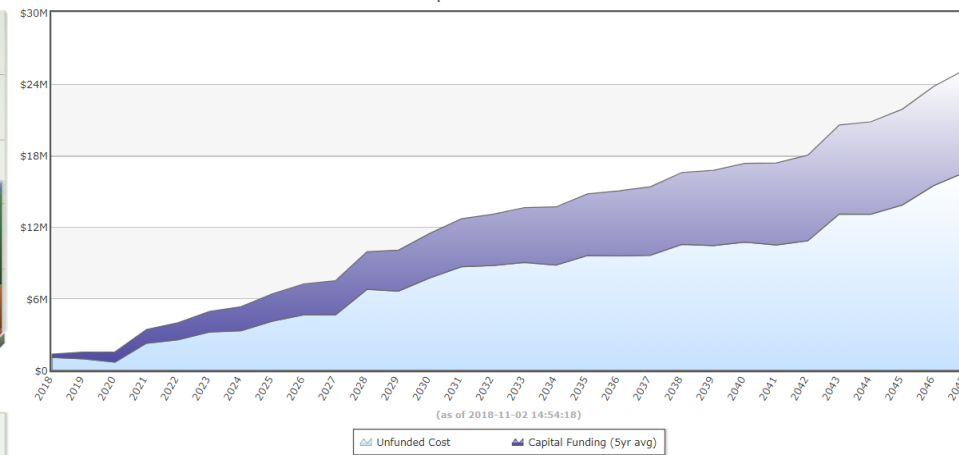
FACILITIES DEPARTMENT

Cost by Discipline
Years 2018 - 2047 where Department = Facilities

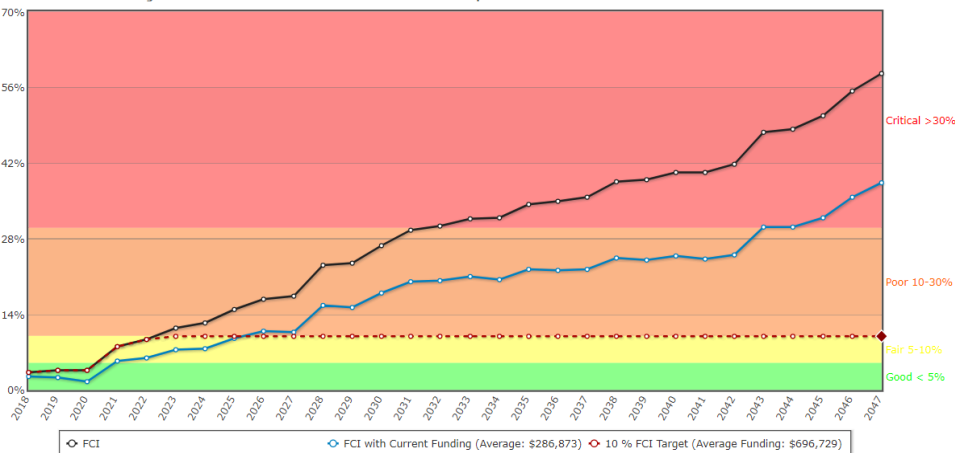
2018 Deferred Backlog: \$1.36M



Unfunded Liability Impacts
Years 2018 - 2047 where Department = Facilities and where Asset Status = Active



Cumulative FCI - Needs Analysis
Target FCI of 10% in 30 Years Year 2018-2047 and where Department = Facilities and where Asset Status = Active

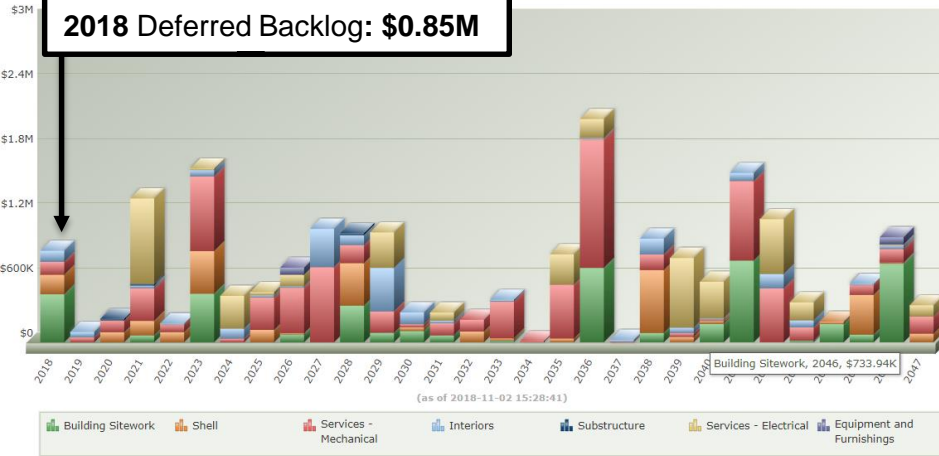


Facility Name	Year 1 FCI	Year 5 FCI	Year 10 FCI	Year 15 FCI	Year 20 FCI	Year 25 FCI	Year 30 FCI
City Hall	2.92%	13.36%	19.13%	33.54%	35.38%	38.61%	53.43%
Plymouth Creek Center	5.97%	15.70%	30.45%	45.27%	51.10%	60.89%	73.71%
Public Safety Building	1.76%	3.37%	16.63%	38.27%	44.17%	45.59%	48.50%

PUBLIC WORKS DEPARTMENT

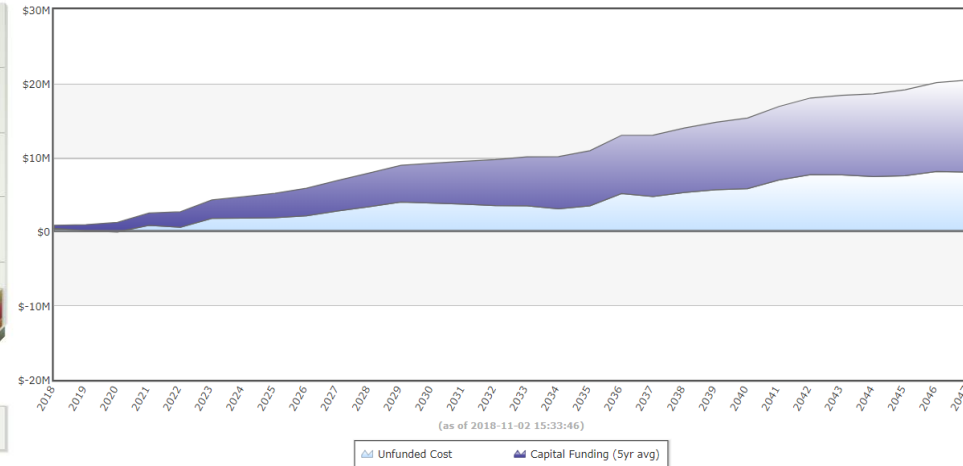
Cost by Discipline
Years 2018 - 2047 where Department = Public Works

2018 Deferred Backlog: \$0.85M



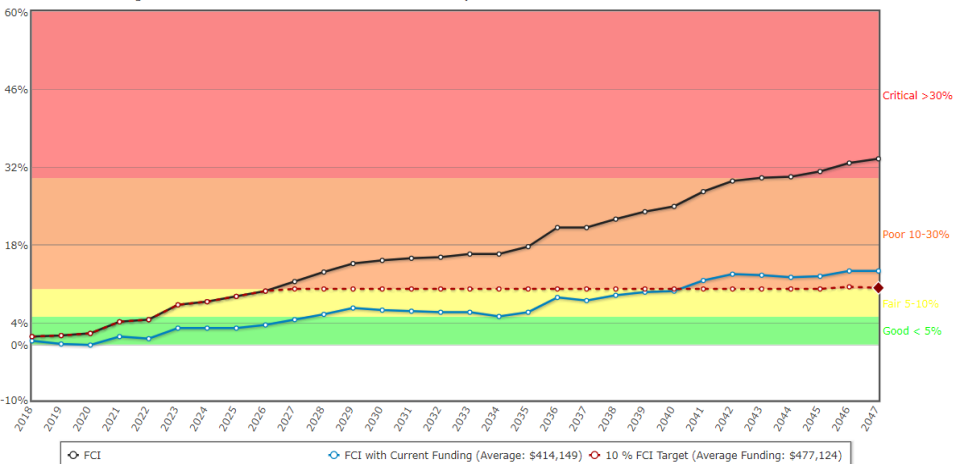
Unfunded Liability Impacts

Years 2018 - 2047 where Department = Public Works and where Asset Status = Active



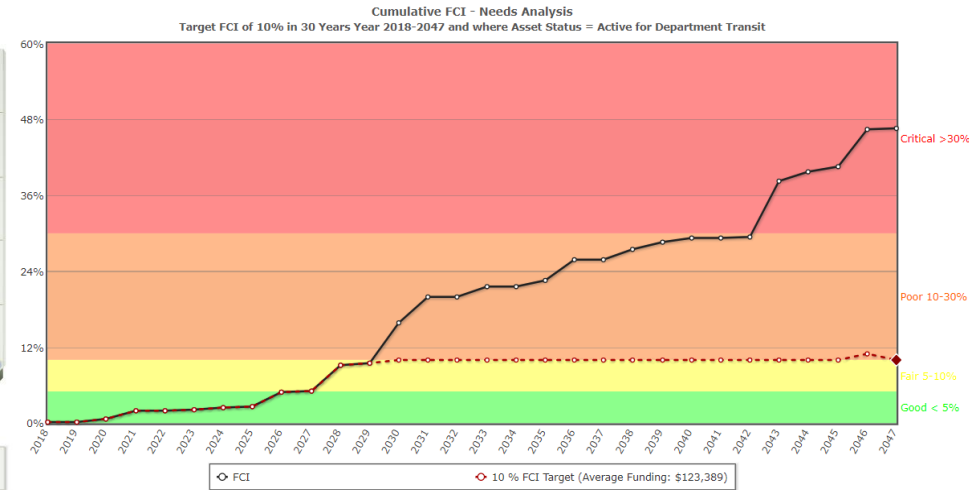
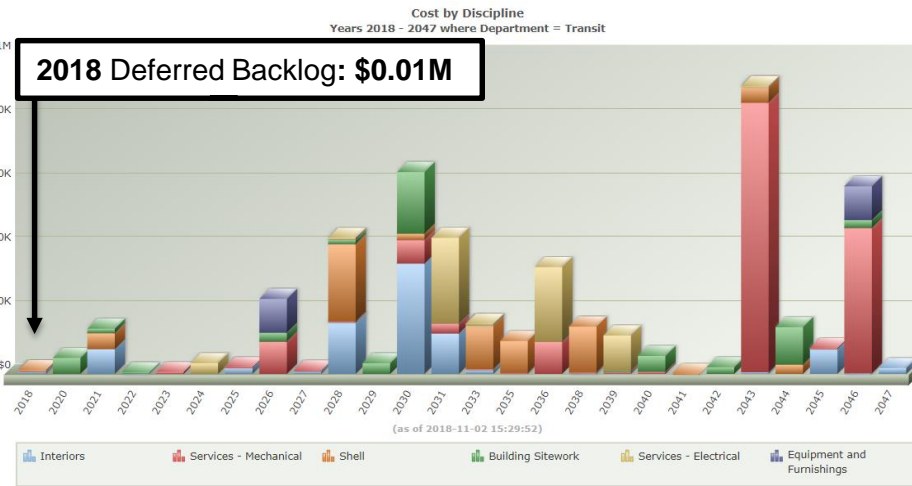
Cumulative FCI - Needs Analysis

Target FCI of 10% in 30 Years Year 2018-2047 and where Department = Public Works and where Asset Status = Active



Facility Name	Year 1 FCI	Year 5 FCI	Year 10 FCI	Year 15 FCI	Year 20 FCI	Year 25 FCI	Year 30 FCI
Central Treatment Plant - New	1.90%	2.56%	15.54%	24.92%	30.54%	37.44%	44.90%
Central Treatment Plant - Old	1.53%	8.00%	14.30%	15.49%	16.42%	17.32%	21.96%
Maintenance Facility	0.51%	3.15%	8.76%	12.56%	17.52%	25.09%	26.83%
Treatment Plant #2	1.06%	8.40%	21.14%	25.32%	31.43%	43.01%	47.37%

TRANSIT DEPARTMENT

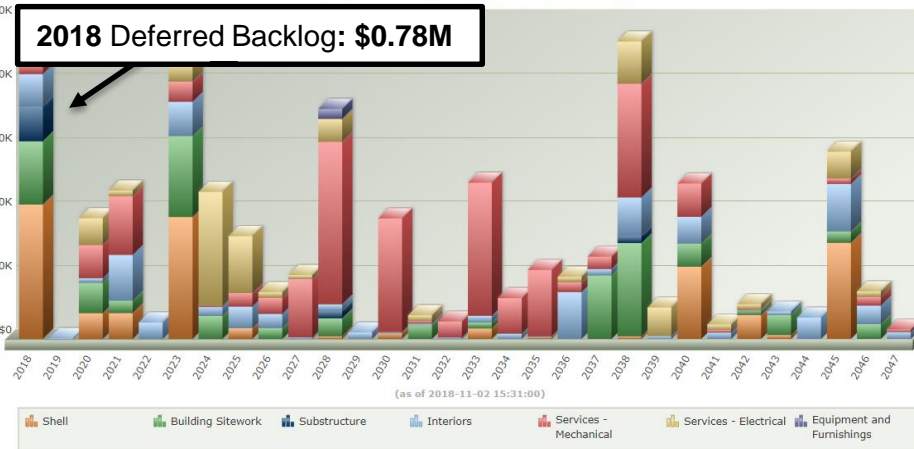


Facility Name	Year 1 FCI	Year 5 FCI	Year 10 FCI	Year 15 FCI	Year 20 FCI	Year 25 FCI	Year 30 FCI
County Road 73 Transit Station	0.08%	0.92%	3.72%	17.28%	22.61%	25.40%	42.03%
Reserve Transit Station	5.94%	26.43%	36.85%	52.26%	101.62%	109.57%	140.14%

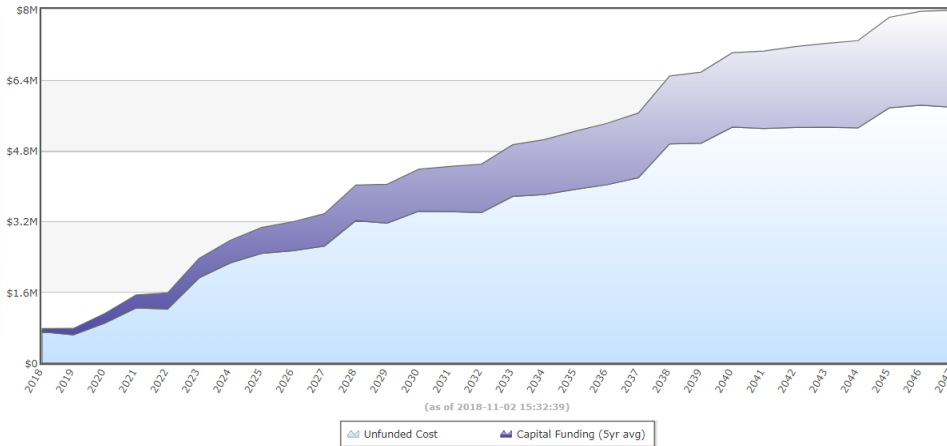
FIRE DEPARTMENT

Cost by Discipline
Years 2018 - 2047 where Department = Fire Department

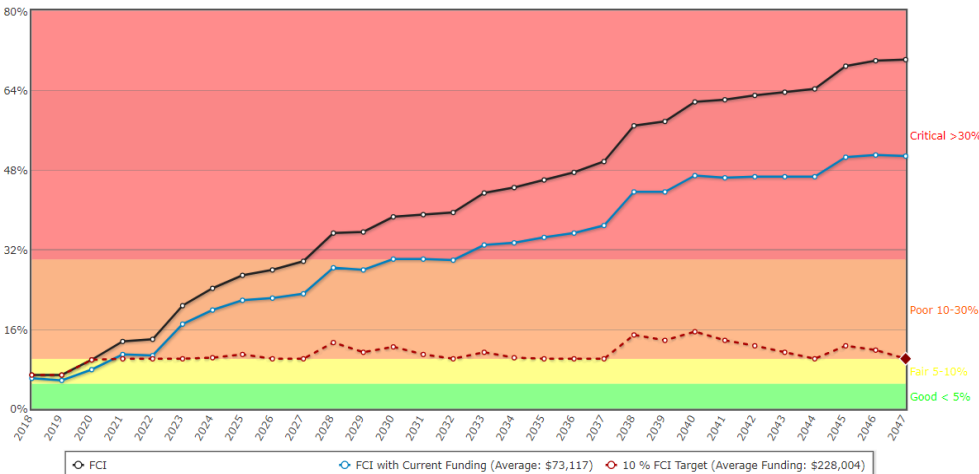
2018 Deferred Backlog: \$0.78M



Unfunded Liability Impacts
Years 2018 - 2047 where Department = Fire Department and where Asset Status = Active



Cumulative FCI - Needs Analysis
Target FCI of 10% in 30 Years Year 2018-2047 and where Department = Fire Department and where Asset Status = Active



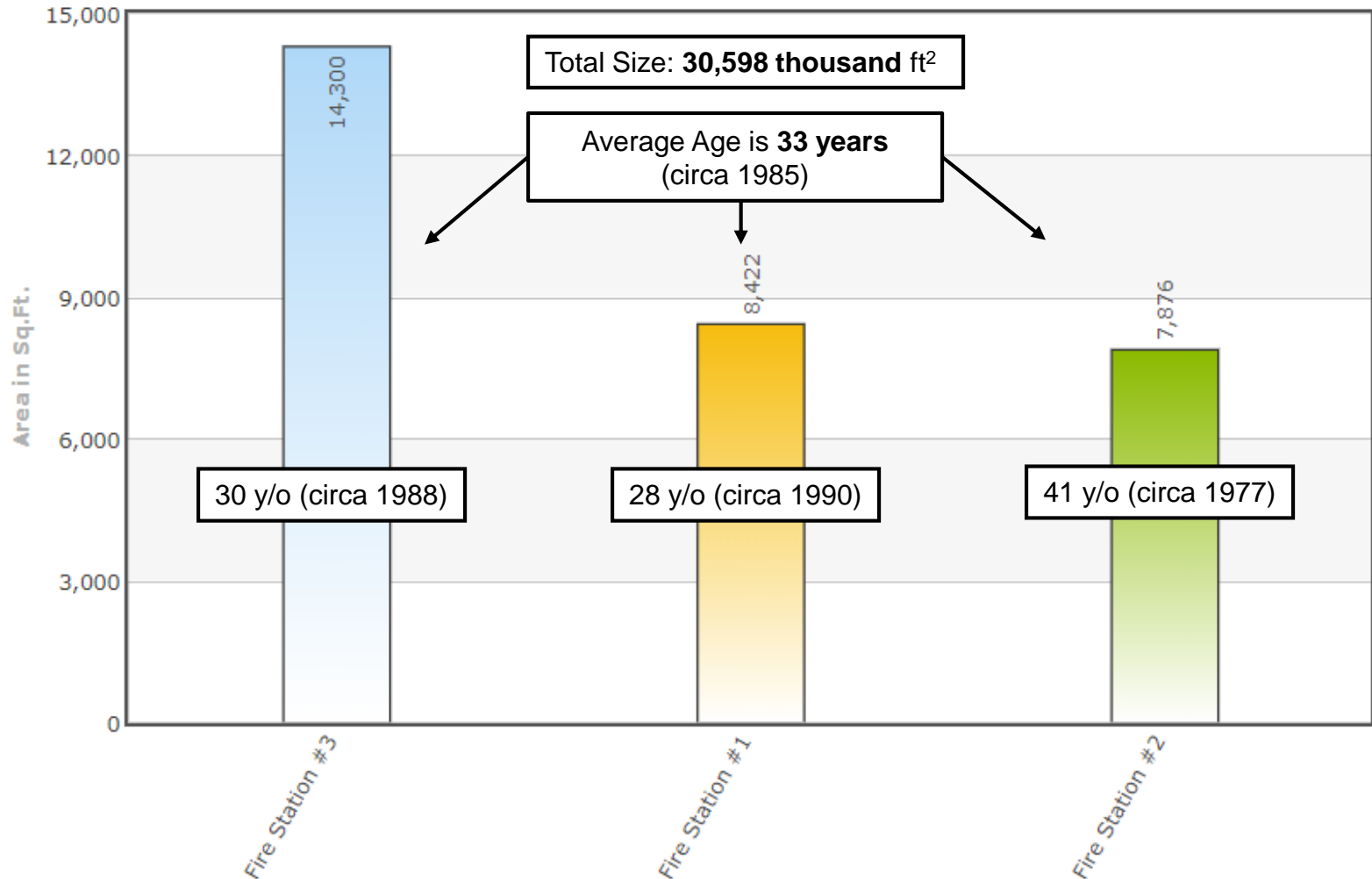
Facility Name	Year 1 FCI	Year 5 FCI	Year 10 FCI	Year 15 FCI	Year 20 FCI	Year 25 FCI	Year 30 FCI
Fire Station #1	0.28%	1.13%	31.25%	43.34%	48.89%	58.14%	70.47%
Fire Station #2	5.91%	22.98%	32.49%	40.62%	46.90%	55.80%	66.64%
Fire Station #3	10.56%	16.63%	27.86%	40.22%	55.87%	72.55%	75.50%

Fire Stations Assessed



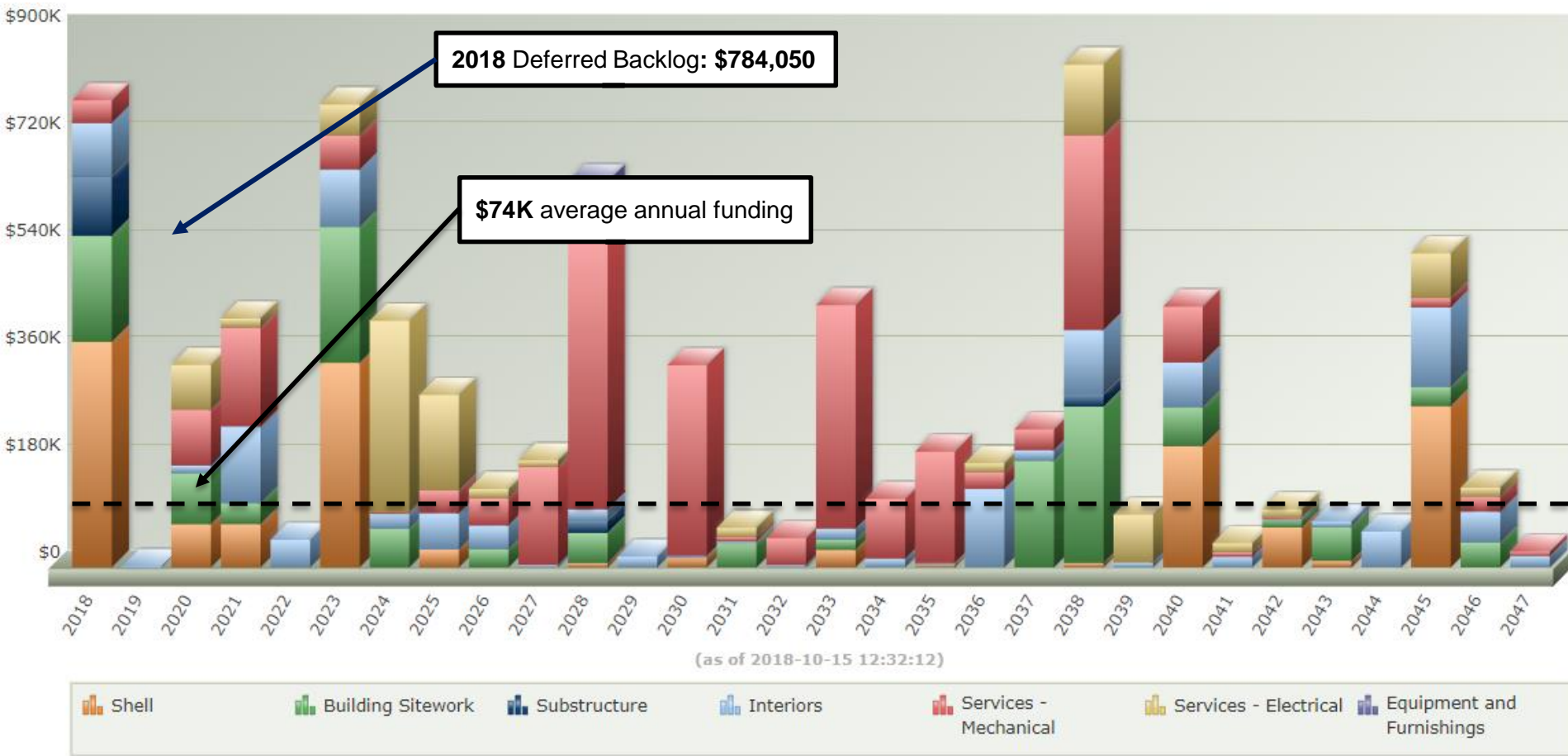
Age Profile (All Fire Stations)

Buildings are more expensive to maintain as they age, and the risk of failure increases as building systems near their “end of life.”



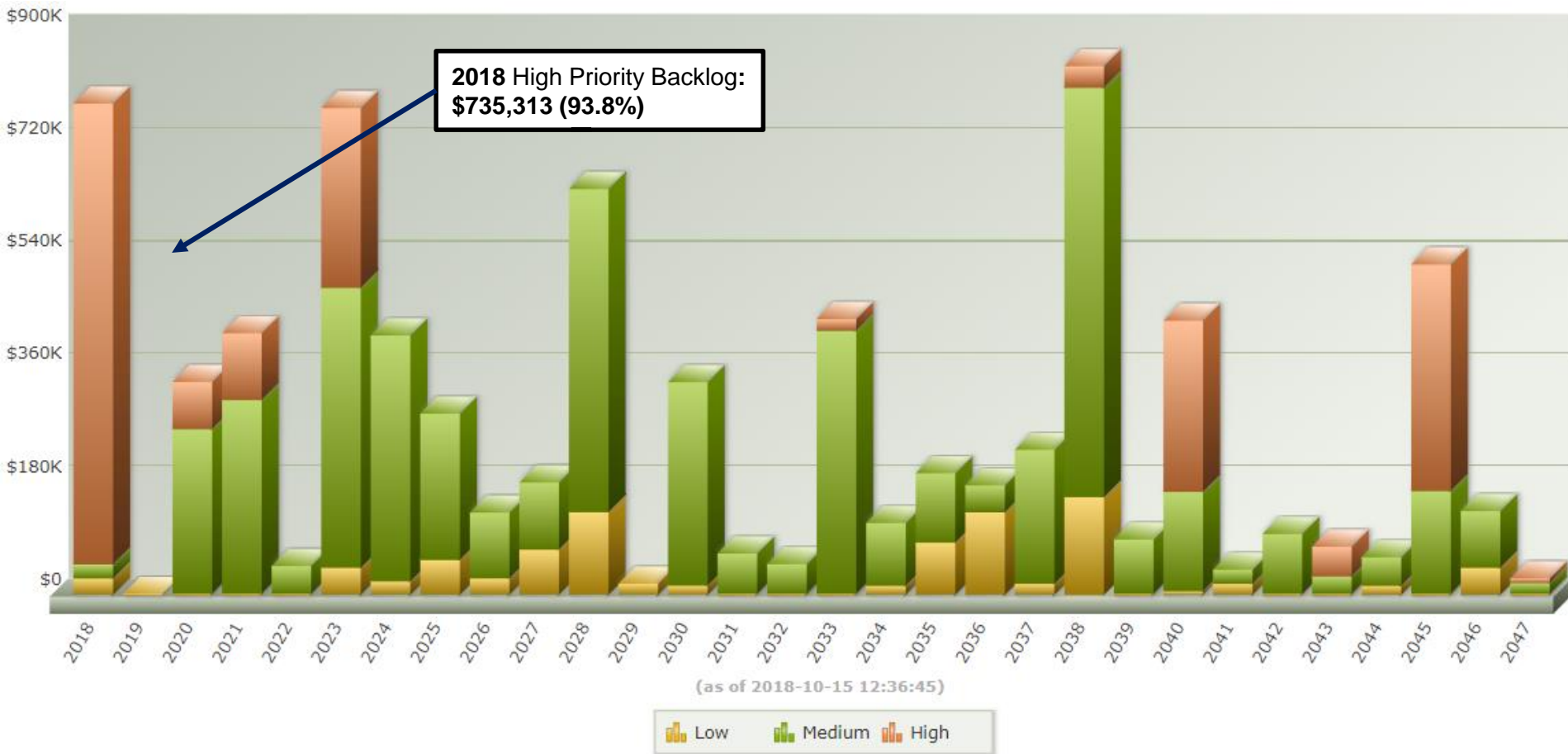
Capital Needs By Discipline - 30 Years (All Fire Stations)

Life cycle renewal costs for the major building elements have been established for each building to determine the Capital Renewal budget requirements over the next 30 years.



2018 Capital Needs By Discipline – Urgent & High Priority (All Fire Stations)

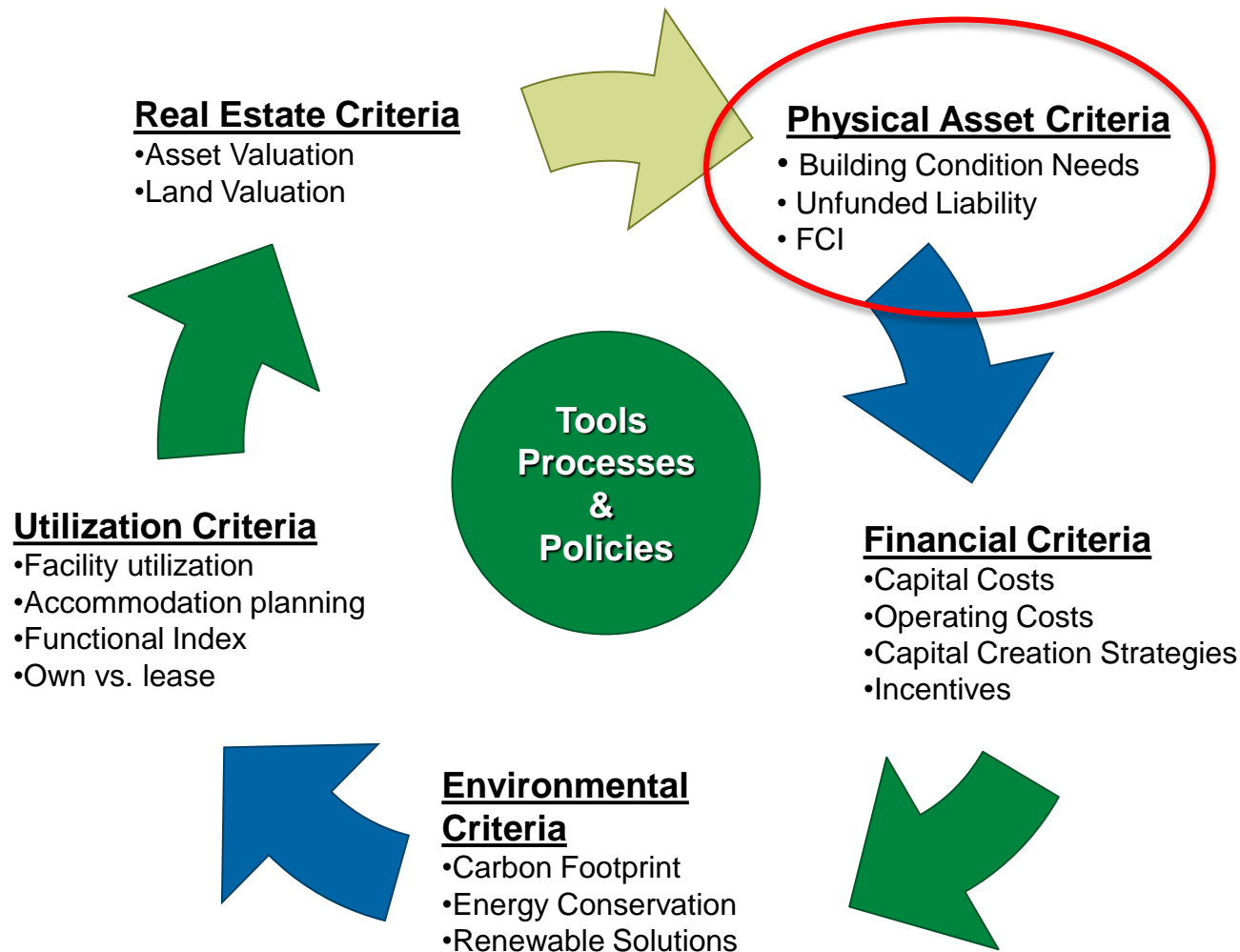
Total Deferred Backlog of \$784,050 includes over \$735,313 deemed High Priority.



FCI GRID (ALL FIRE STATIONS)

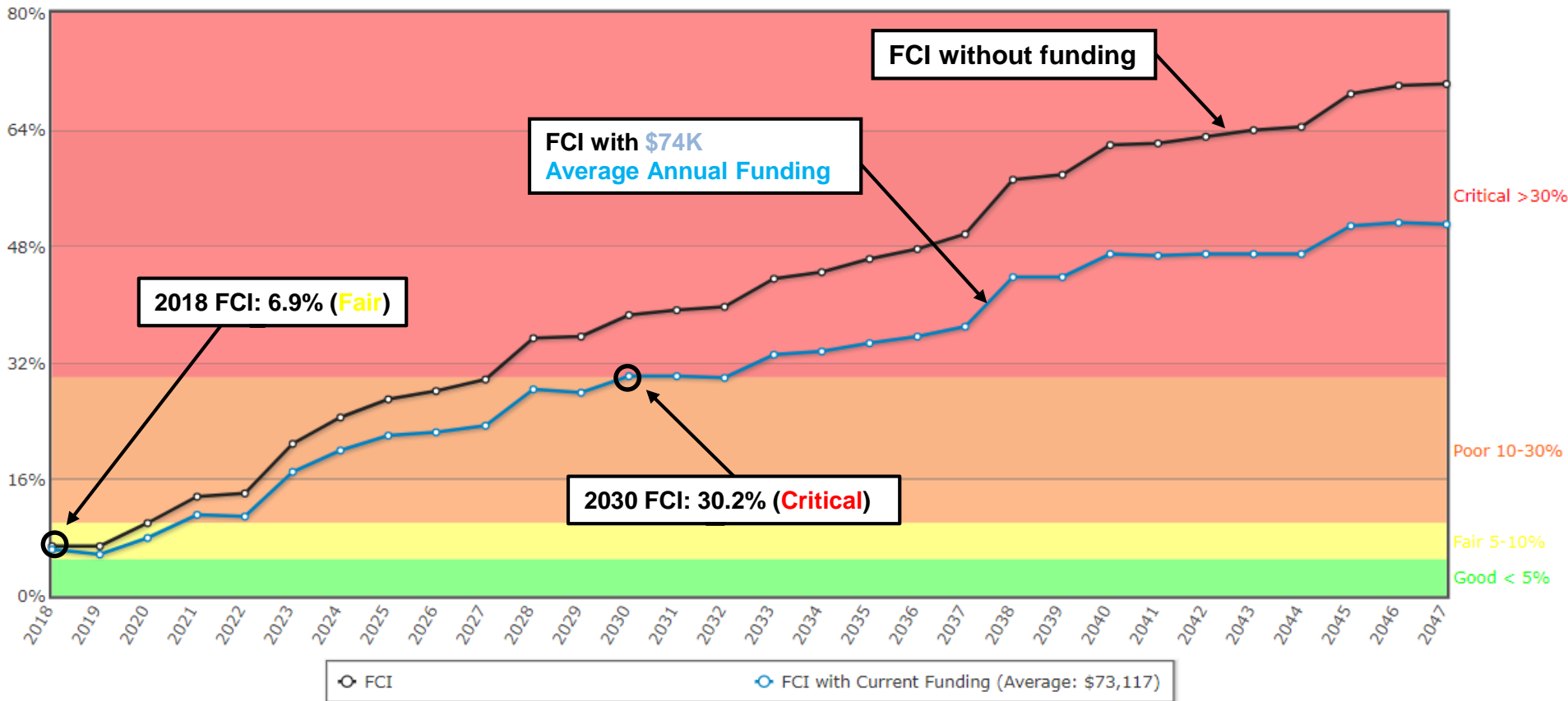
Facility Name	Year 1 FCI	Year 5 FCI	Year 10 FCI	Year 15 FCI	Year 20 FCI	Year 25 FCI	Year 30 FCI
Fire Station #1	0.3%	1.1%	31.3%	43.3%	48.9%	58.1%	70.5%
Fire Station #1 - Site	3.6%	26.3%	30.7%	32.3%	32.3%	83.3%	84.6%
Fire Station #2	6.2%	23.2%	32.8%	40.9%	47.2%	56.3%	67.2%
Fire Station #2 - Site	0.0%	3.7%	24.2%	24.2%	43.2%	50.2%	58.3%
Fire Station #3	10.6%	16.6%	27.9%	40.2%	55.9%	72.6%	75.5%
Fire Station #3 - Site	19.0%	19.0%	32.1%	42.0%	44.0%	53.7%	59.4%

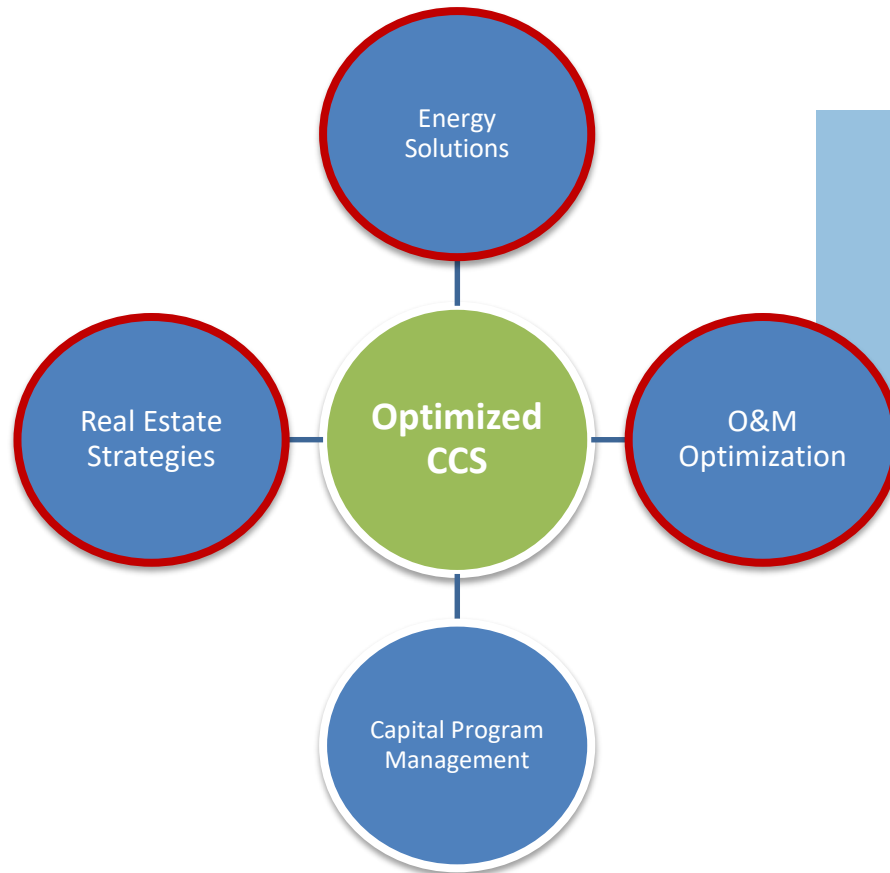
DECISION DEVELOPMENT FRAMEWORK



Facility Condition Index - 30 Years (with Funding) (All Fire Stations)

Overlaying the **average** annual capital funding of **\$74 thousand** has minimal impact to FCI; it does not change the year that FCI migrates to the “**Critical**” range (i.e. **2030**)

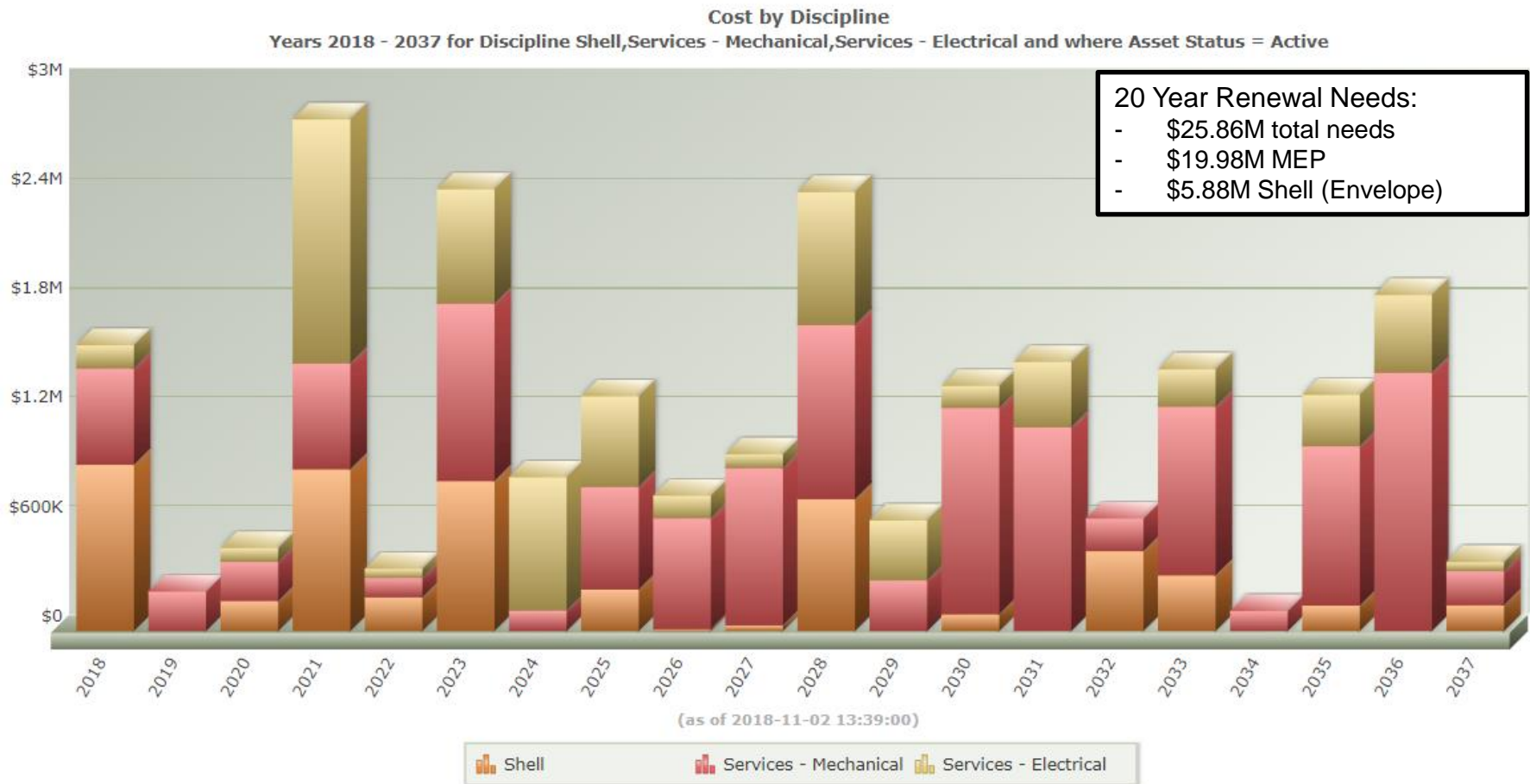




CAPITAL CREATION STRATEGIESTM (CCS)

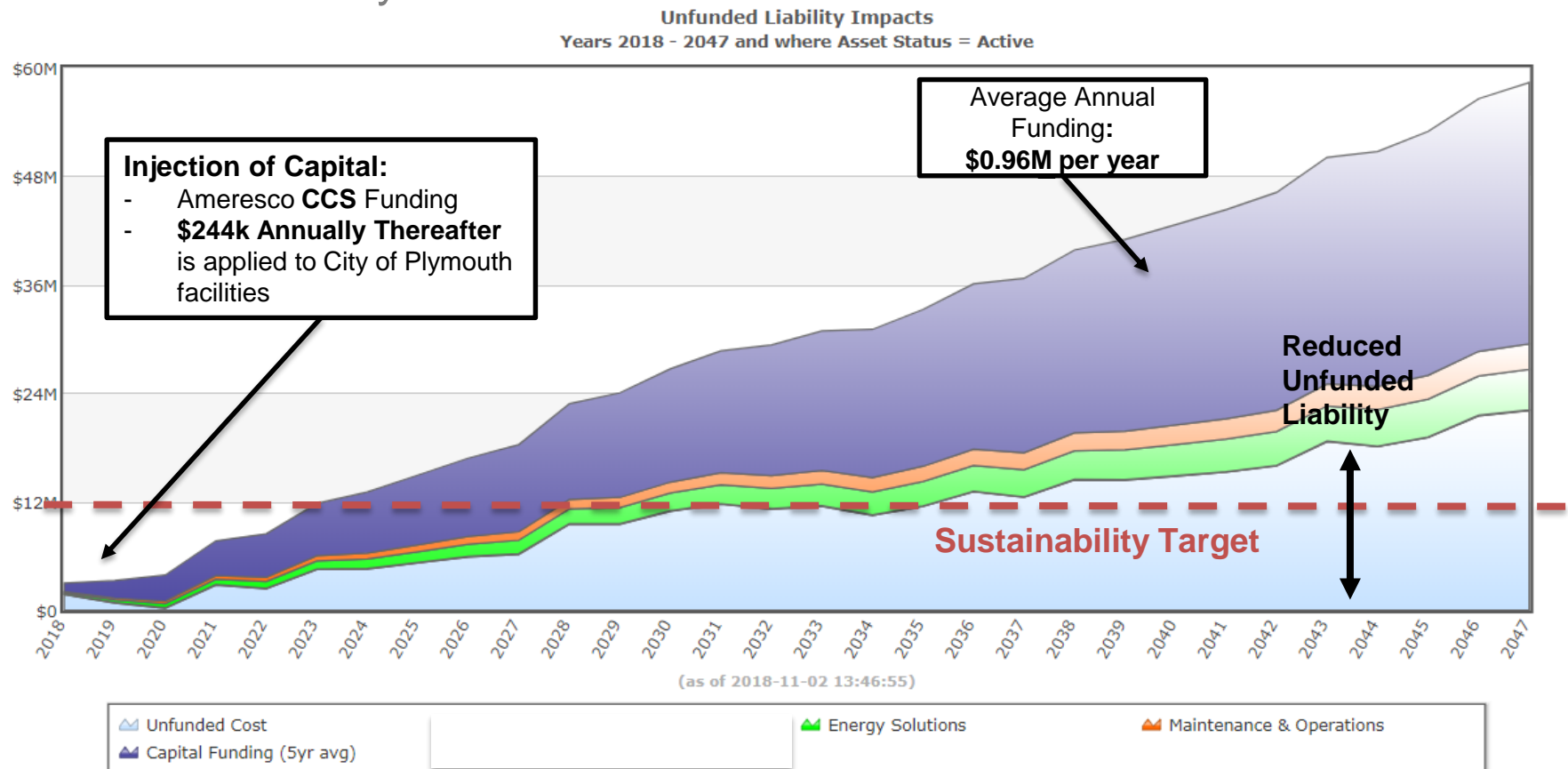
CAPITAL CREATION STRATEGIES

- Capital renewal and deferred maintenance needs that contain embedded energy savings (MEP, Shell).



IMPACT OF CCS'S ON LIABILITY

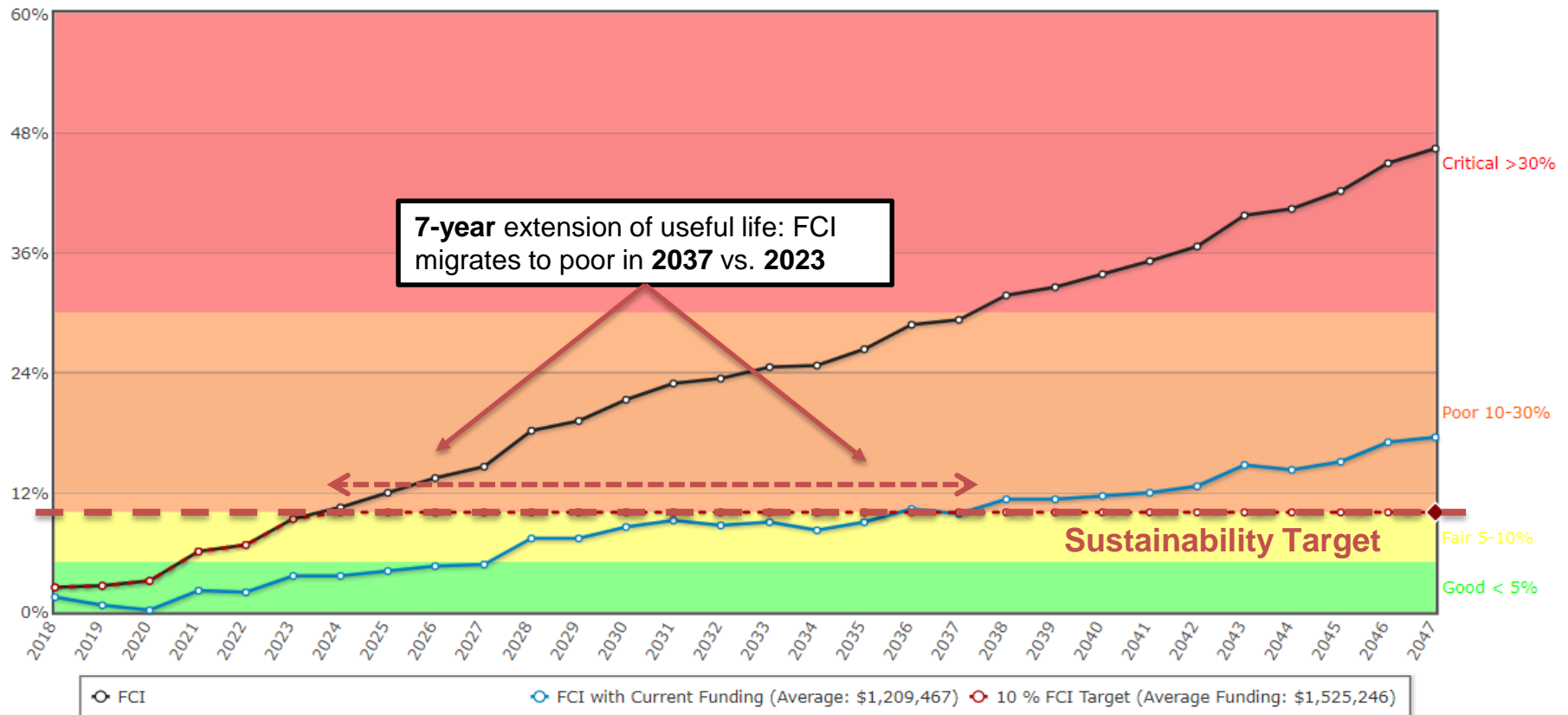
- Ameresco's Capital Creation Strategies™ can have a sizeable impact on the City's aging infrastructure Capital Needs, reducing the unfunded liability.



IMPACT OF CCS'S ON FCI

- Supplementing your existing annual capital funding, Ameresco's CCS's will help extend the useful life of your portfolio by **14 years**.

Cumulative FCI - Needs Analysis
Target FCI of 10% in 30 Years Year 2018-2047 and where Asset Status = Active



RECOMMENDATIONS AND NEXT STEPS

- Create 10-yr Capital Improvement Plan
- Explore Benefits of Integrated Work Order System: more maintenance equals longer life for capital systems
- Further Discuss Capital Creation Strategies™
 - Maintenance & Operations
 - \$94,000 Annual Savings
 - Energy Solutions
 - \$150,000 Annual Savings
- Study Remaining Facilities in City of Plymouth Portfolio



THANK YOU



Your Trusted Sustainability Partner
ameresco.com