Slide 1

Improving City Resiliency While Minimizing Risk through Long-Term Capital Planning

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COLORADO MUNICIPAL LEAGUE

Slide 2 — Learning Outcomes

✓Deliver comprehensive data and information
  • Condition, lifecycle, replacement schedule
  • Cost of select facilities and properties
✓Track deferred maintenance
✓Translate facility data into multi-user visuals
  • Enable high quality decision-making & prioritization
✓Support capital forecasting and budgeting

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Slide 3 — Facility Challenges

Growing deferred maintenance backlog

Piecemeal projects & tenant improvements

Lack of integration with building systems & automation

Limited financial resources & time

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Slide 4 — Building Complexity

HVAC Maintenance Services
Fire Detection & Alarm
Security & Access Control
Lighting Control & Retrofit
Smoke Control
Digital Video
Indoor Air Quality Services
Energy Supply & Load Management
Intrusion Detection
Water Management
Environmental Control
Mechanical Maintenance & Retrofit
Energy Information Management
Asset Locator
On-Site Technical Service
Enterprise Systems Integration

Slide 5 — Why Long-Term Strategies?

The High Cost of Deferred Maintenance:

88% of Facility Managers say that deferred maintenance is an issue.

HVAC is the System Most Affected by Deferred Maintenance
50% HVAC

• *Short-term solutions and price-driven shortcuts may be perceived as problem solving…*
• *In reality they end up costing institutions and organization much more!*

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Slide 6 — Different Needs

Facility Manager Role

Trades Supervisor

Facility Manager

Executive

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Weaknesses into Strengths

"

*Facility assessments are **consultative services** that document, analyze, and benchmark the **current condition** of an organization's facility assets, and **make data actionable** by combining condition data with financial analysis to identify **capital planning priorities**.*

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Why do Facility Condition Assessments?

- ✓ Prioritize capital improvement, efficiency, and deferred maintenance needs in your buildings
- ✓ Identify and quantify facility conditions, deficiencies
- ✓ Calculate potential for energy savings with retrofits
- ✓ Forecast, strategize and plan for future facility costs

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Too Much Data, Not Enough Answers

- Data is the new natural resource
- Time is the new currency
- Technology-driven, human-centered growth

FCA Process Overview

Learn **Audit** **Analyze** **Report**

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Step 1: Learn

Customer Pain Points
- Ongoing unresolved problems
- Projects failing to address issue
- Staffing concerns
- Code violations
- Technology burdens
- End client requirements
- Leadership requires supporting data

Assessment/Data Types
- Asset Condition
- Operational Data
- Organizational Need

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Facility Stakeholder Interviews

Condition Assessments
- Areas of expertise
- Personal experiences
- Legacy knowledge
- Standard terminology
- Address fears

Operational Assessments
- General roles
- Challenges
- Successes
- Measures of success
- Priorities

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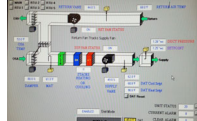
Step 2: Audit

Collect Assessment Data
- On-site at each location
- Review building elements in the scope of work
  - Architecture/structure
  - Mechanical/electrical/plumbing
  - Site/civil
- Potential to revise the scope
  - Energy conservation
  - Life/safety or code compliance
  - Data transfer to CMMS
- Follow-up stakeholder discussions

Audit: Site Survey

Quantitative Assessment
- Count/Quantity
- Make/model/serial number
- Installation date
- Design life
- Remaining life

Audit Site Survey

Qualitative Assessment
- Condition
- Deficiency
- Recommended action
- Energy conservation
- Occupant impact
- Risk
- Serviceability

Audit

Whoever is evaluating your facility needs to be familiar with the variety of building systems. And, also understanding what depth of information is most important to you. There is a wide variety of ways to conduct condition assessments... make sure your end goals are well understood before embarking on the site audit.

Step 3: Analyze

Analyze the Collected Data
- Analyze audit data
  - Quantitative
  - Qualitative
- Generate repair or replacement costs
  - Consistency with existing cost data
  - Identify opportunities for efficiency
- Consider stakeholder interviews

Integrative Analysis

Cost Breakdown

Architectural Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Concrete (e.g., footings, slabs, precast, grouting)		
Masonry (e.g., concrete block, brick, stone)		
Metals (e.g., structural steel framing, joists, decorative metals, etc.)		
Wood, Plastics, and Composites (e.g., wood framing, finish carpentry, plastic decking)		
Thermal and Moisture Protection (e.g., insulation, water barriers, sealant)		
Openings (e.g., doors, windows, and louvers)		
Finishes		
Specialties		
Conveying Equipment		
Architectural Total		

Equipment and Furniture Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Equipment		
Furnishings		
Equipment and Furniture Total		

Fire Protection Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Alarms		
Sprinklers		
Pumps		
Fire Protection Total		

Plumbing Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Storm		
Sanitary Sewer		
Domestic Cold Water		
Domestic Hot Water		
Plumbing Fixtures		
Non-Potable Water		
RO/DI		
Compressed Air		
Natural Gas		
Other Plumbing		
Plumbing Total		

Mechanical/HVAC Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Chilled Water		
Process Chilled Water		
Heating Hot Water		
Steam and Condensate		
Energy Recovery System		
Supply Air Equipment		
General Exhaust Equipment		
Sheetmetal		
Mechanical/HVAC Total		

Controls Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Building Automation and Controls		
Controls Total		

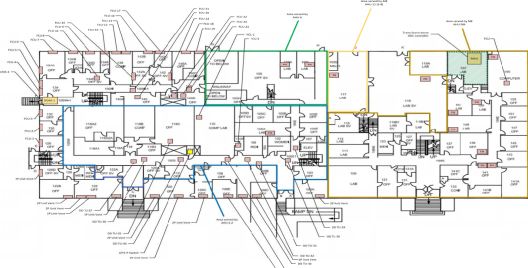| Electrical Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Normal Power & Distribution		
Emergency Power & Distribution		
Motor and Motor Control Systems		
Receptacle Power System		
Lighting System		
Other Electrical		
Electrical Total		

Hazardous Materials Abatement Opinion of Probable Cost	Sub-Total Costs	$/SqFt
Asbestos		
Items 1, 2, 3...		
Asbestos Subtotal		
Lead Based Paints		
Items 1, 2, 3...		
Lead Based Paints Subtotal		
Mold		
Items 1, 2, 3...		
Mold Subtotal		
Hazardous Materials Abatement Total		
Total Trades Construction Cost		

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Step 4: Reporting

- Summarize **quantitative and qualitative** information about the facility
- Calculate a **priority** for each asset based on data
- Deliver **detailed asset data** in a usable format
  - Upload template into CMMS
- Produce a multi-year **capital replacement budget**
- Provide a **visualization** of asset conditions

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Score The Assets

Rule of Thumb: High Score = High Priority

Asset Condition
1-5
Observed condition of the asset where

Very Poor Condition	5 Pts
Poor Condition	4 Pts
Expected Condition	3 Pts
Good Condition	2 Pts
Great Condition	1 Pt

Energy Impact
1-5
Level of energy consumption from the asset

Very high impact	5 Pts
High impact	4 Pts
Moderate Impact	3 Pts
Mild Impact	2 Pts
Little/No Impact	1 Pt

Occupant Impact
1-5
Expected impact on using workspaces for business needs should the asset fail

Space is Unusable	5 Pts
High Impact	4 Pts
Moderate Impact	3 Pts
Mild Impact	2 Pts
Little or no Impact	1 Pt

Estimated Replacement Cost
Dollars
Estimated replacement cost in real dollars
Values are converted to a 5-point scale where

$3,500 or less	1 Pt
$3,501-$7,500	2 Pts
$7,501-$15,000	3 Pts
$15,001-$35,000	4 Pts
$35,001 or more	5 Pts

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Reporting and Prioritization

Facility condition assessment visualization tools empowers you to make data-driven investments in your facility

Visual tools to drive energy and/or operationally focused decision making!

The Past

LET'S SOLVE THIS PROBLEM BY USING THE BIG DATA NONE OF US HAVE THE SLIGHTEST IDEA WHAT TO DO WITH

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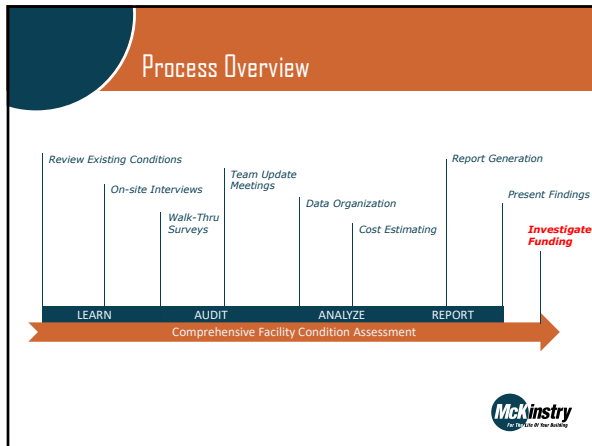---

Turn Data into Answers

A best in class approach is:

A single source of facility data.

Filtered by criteria most important to you.

Accessible via a powerful and flexible tool.

Built to help you make decisions.

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Process Overview

Review Existing Conditions

On-site Interviews

Walk-Thru Surveys

Team Update Meetings

Data Organization

Cost Estimating

Report Generation

Present Findings

Investigate Funding

LEARN	AUDIT	ANALYZE	REPORT

Comprehensive Facility Condition Assessment

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Why Perform a FCA?

- ✓ Central database for facilities information
- ✓ Data granularity (e.g., central plant, sub-meters)
- ✓ Keep institutional knowledge (information lives within database vs a few gatekeepers)
- ✓ Financial resources determined annually – ahead of time
- ✓ Optimize and prioritize projects/costs
- ✓ Address aging facilities with outdated equipment and systems

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Questions?

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