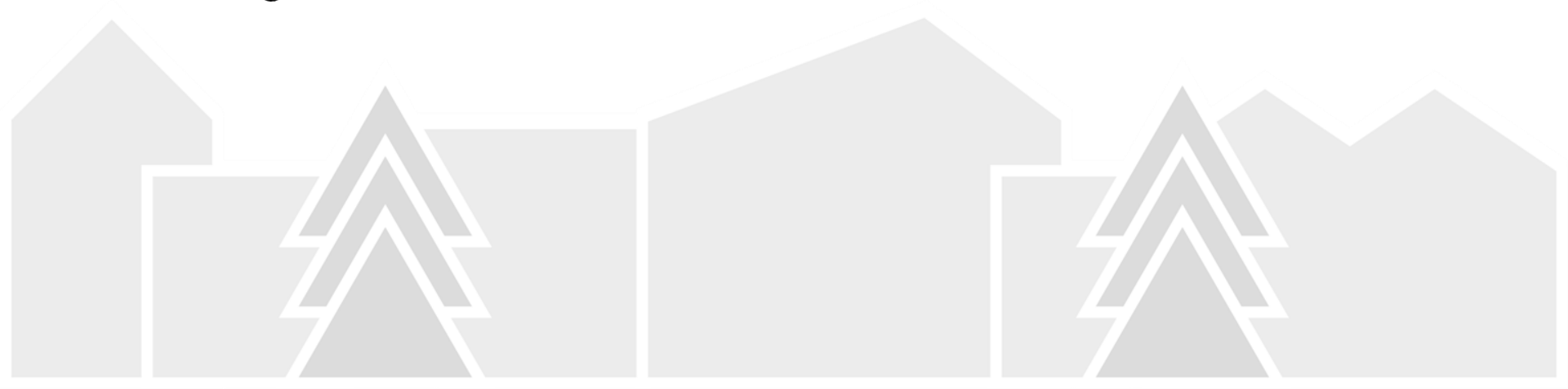


OREGON HOUSING & COMMUNITY SERVICES **Multifamily Energy Program**

PLANNING FOR ENERGY EFFICIENCY UPGRADES

Date: September 27, 2018

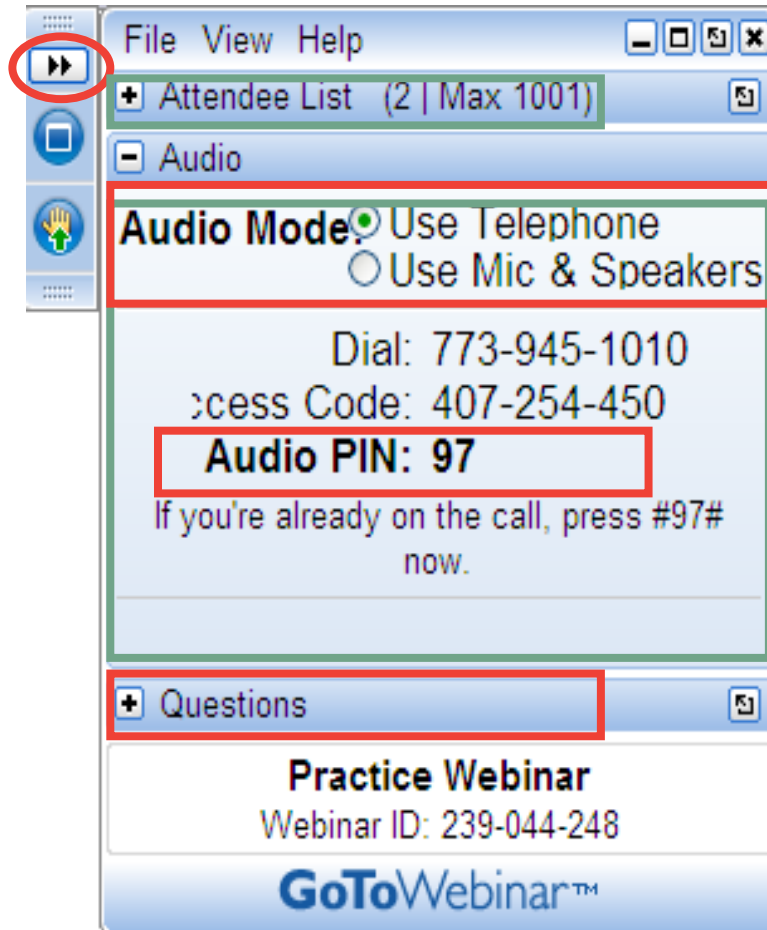
Presenter: Mekha Abraham



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taken
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REGISTER FOR UPCOMING TRAININGS

- ◆ Thursday, October 11, 2018, 12pm:
Optimizing Multifamily Building Operations | [REGISTER NOW](#)
- ◆ Thursday, October 25, 2018, 12pm:
Health & Safety in Multifamily Buildings | [REGISTER NOW](#)

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for the monthly newsletter
to stay updated on future
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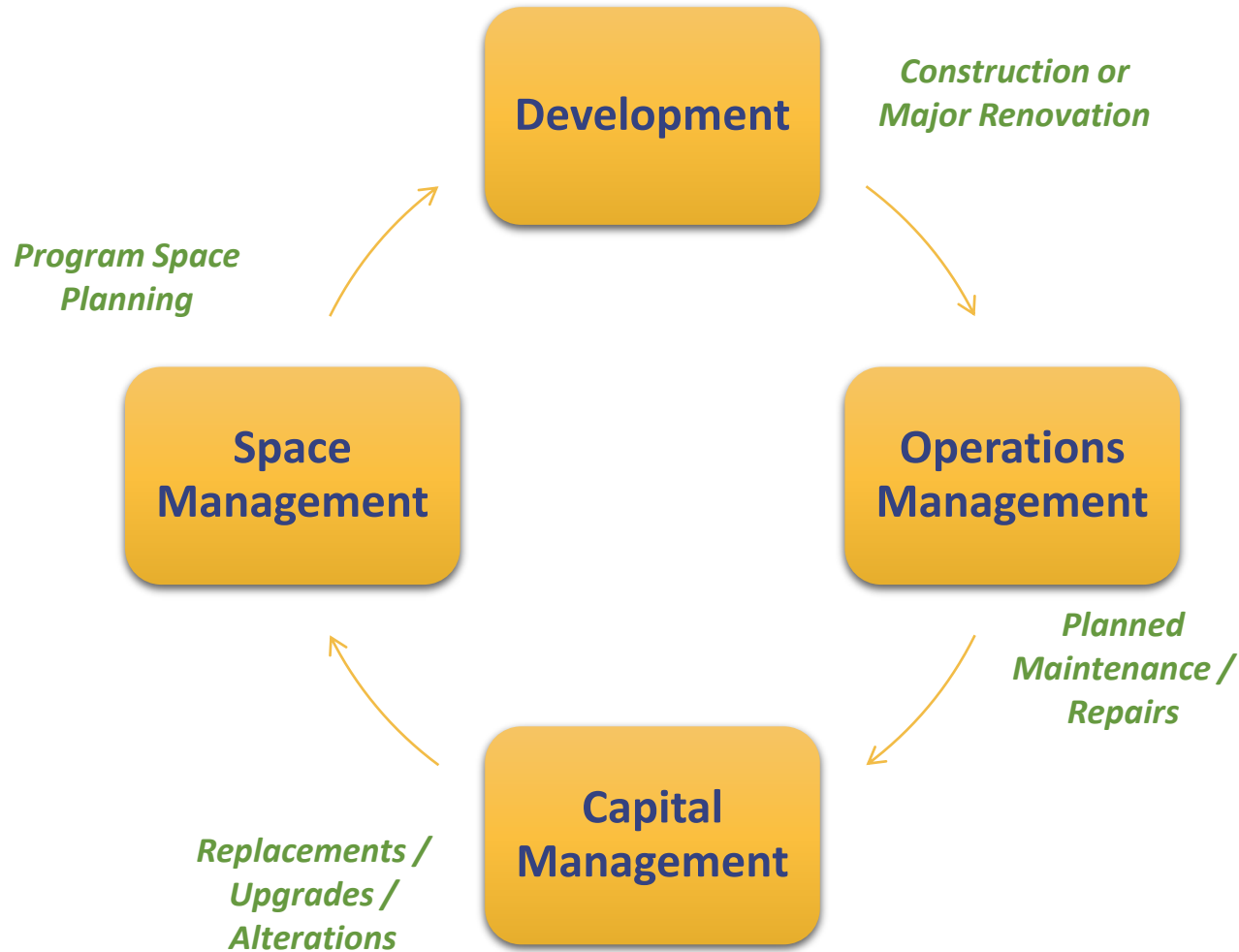


AGENDA

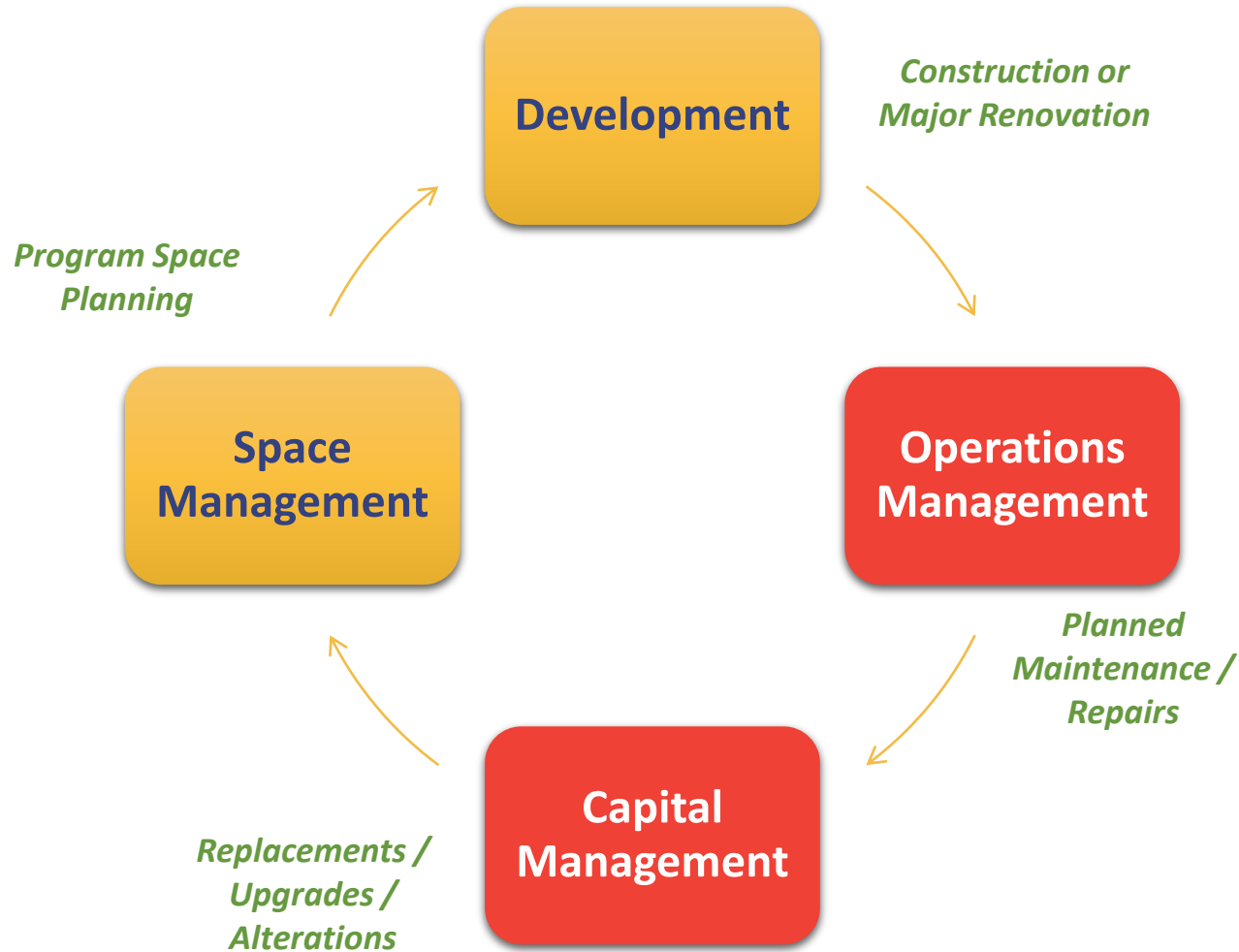
- ◆ The Property Life Cycle
- ◆ Planning for Energy Upgrades
 - Step by Step

THE PROPERTY LIFE CYCLE & ENERGY EFFICIENCY

THE PROPERTY LIFE CYCLE



THE PROPERTY LIFE CYCLE



WHY INVEST IN ENERGY UPGRADES?

Owner Benefits

- ✓ Enhance property competitiveness
- ✓ Improve net operating cash flow. Use energy and maintenance cost savings to fund or finance a wide range of projects
- ✓ Take advantage of incentives offered by utilities and local governments

Tenant Benefits

- ✓ Lower energy bills.
- ✓ Less impact from risk of utility rate increases.
- ✓ Live in more comfortable and healthier building.
- ✓ Less maintenance issues.

PLANNING FOR UPGRADES...

ENERGY & BEYOND

Step 1 Understand Your Property

Step 2 Build a Strong Team

Step 3 Analysis / Assessment

Step 4 Determine Best Strategy

Step 5 Implement Upgrades

Step 6 Operations & Maintenance

Step 7 Post-Completion Evaluation

STEP 1: UNDERSTAND YOUR PROPERTY

UNDERSTANDING YOUR PROPERTY

PROPERTY OVERSIGHT

- ☐ Maintain familiarity with property
- ☐ Catch issues early
- ☐ Provide feedback to onsite staff
- ☐ Better understanding of capital needs vs. available capital
- ☐ Ability to plan capital expenditures

MAINTENANCE

- ☐ Planned maintenance protects property and reduces costs
- ☐ Routine inspections of buildings systems = better building performance, extends life
- ☐ Maintenance cheaper than *unplanned* replacement

FORECASTING IMPROVEMENTS

Years in Operation

Level & Quality of
Initial
Rehab/Construction

Construction
Defects

Projected Operating
Expenses vs Actual
Operating Expense

Deferred
Maintenance

GOAL



*Planned,
Preventative,
Upgrades*

VS



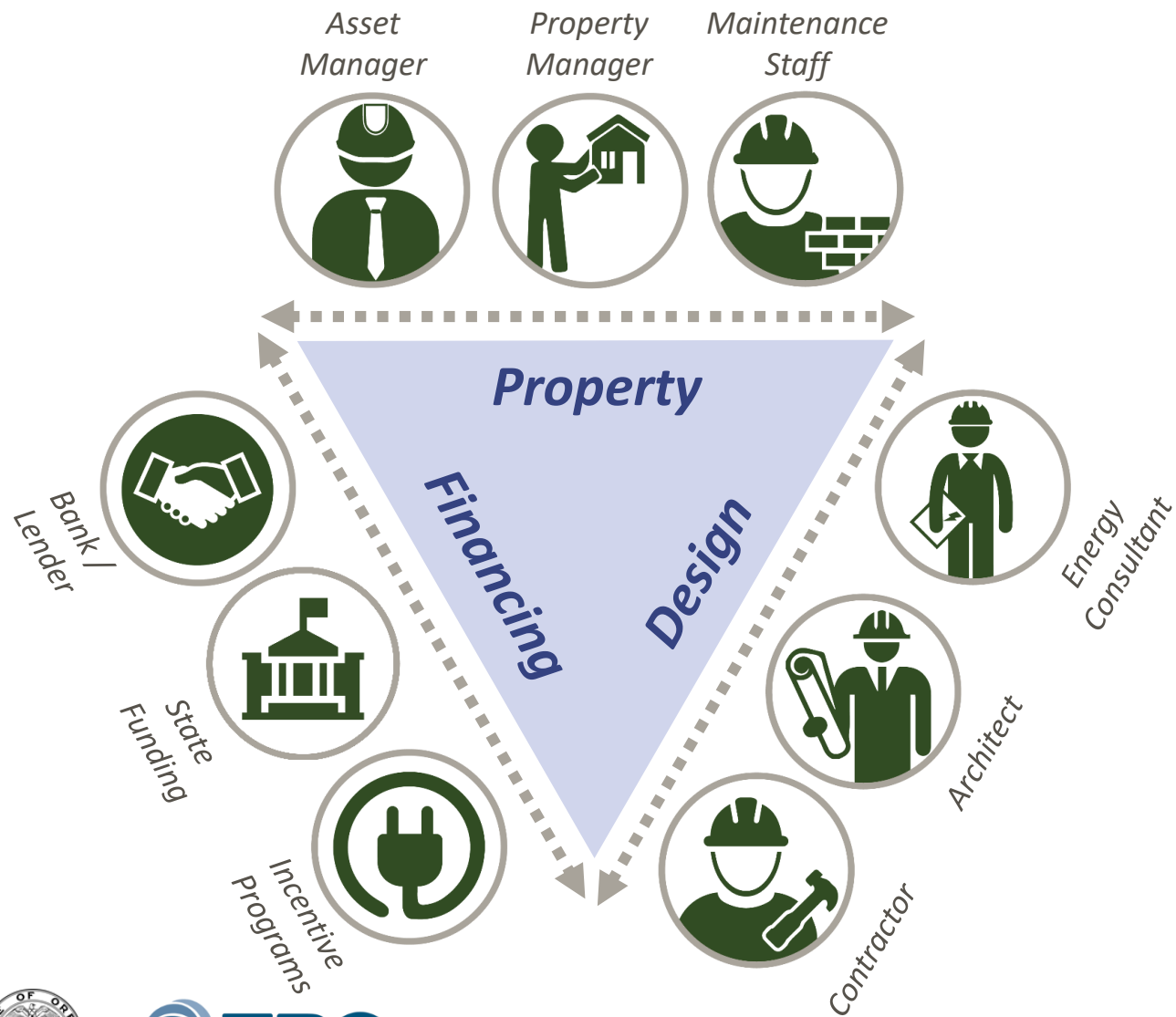
*Reactive,
Emergency
Upgrades*

TYPES OF UPGRADES

	Maintenance	Capital Improvements
Definition	<ul style="list-style-type: none">• Retain expected useful life• Items “used up” within the year.	<ul style="list-style-type: none">• Extend useful life• Increase property value• Add new level of performance or amenity
Examples	<ul style="list-style-type: none">• Emergency, or turnover repairs• Routine or preventative maintenance• Tenant requested repairs	<ul style="list-style-type: none">• Replacement of major building systems (i.e.: roof, windows, HVAC)
Source of Funds	<ul style="list-style-type: none">• Operating reserves	<ul style="list-style-type: none">• Operating reserves, replacement reserves, refinancing, loans, grants, etc.

STEP 2: BUILD A STRONG TEAM

KEY PLAYERS



STEP 3: ANALYSIS

- ◆ Capital Needs Assessment / Energy Audit / Benchmarking
- ◆ Define Goals
- ◆ Host Design Charrette
- ◆ Financial Analysis

ASSESSMENTS

- A report on a property which estimates repair and replacement needs over an extended period of time.
- May analyze the way resources need to be accumulated to pay for needs.

Capital Needs Assessment

Energy Audit

- Survey of existing building conditions as they relate to energy use.
- Determine current energy uses & energy saving opportunities.
- Identify and improve safety and comfort for residents.

LEVELS OF ASSESSMENT

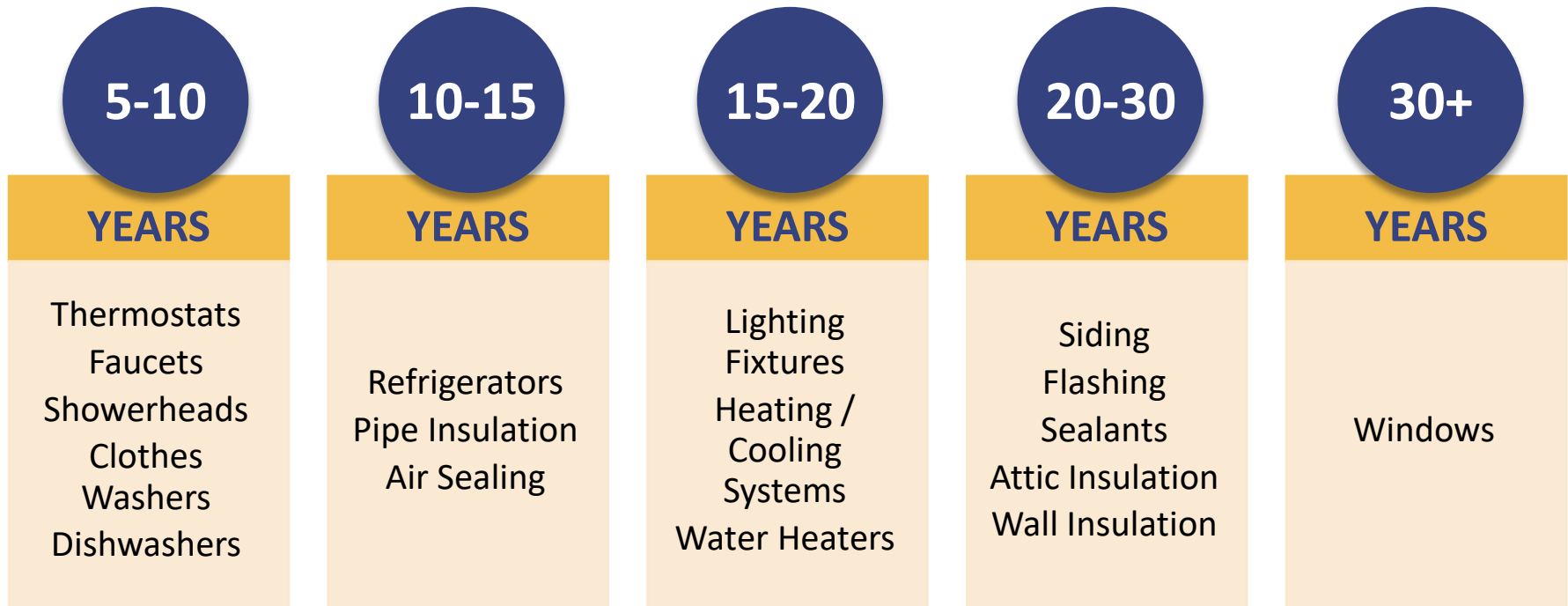
	Level 1	Level 2	Level 3
Best Suited for:	Portfolio-level assessment	Capital planning	Planning for major milestone, or if know defect present
Type of Investigation	Desktop	Site visit, visual inspection	Site visit, visual inspection, testing
Level of Analysis	High-level report General costs	Maintenance / development planning	Detailed report of rehab scope of work
ASHRAE Energy Audit Specifics	No-cost/low-cost savings opportunities identified.	More intensive recommendations. Building energy use analysis.	Comprehensive recommendations. Financial analysis of major capital investment projects. Monitoring, data collection, engineering analysis.
Cost	\$	\$\$	\$\$\$

Low Cost Upgrades

Capital Upgrades

LIFECYCLES OF BUILDING SYSTEMS

Building Systems with Energy Impact



ENERGY BENCHMARKING

- ◆ Owner Resources

- ENERGY STAR Portfolio Manager



ENERGY BENCHMARKING

◆ Tenant Resources

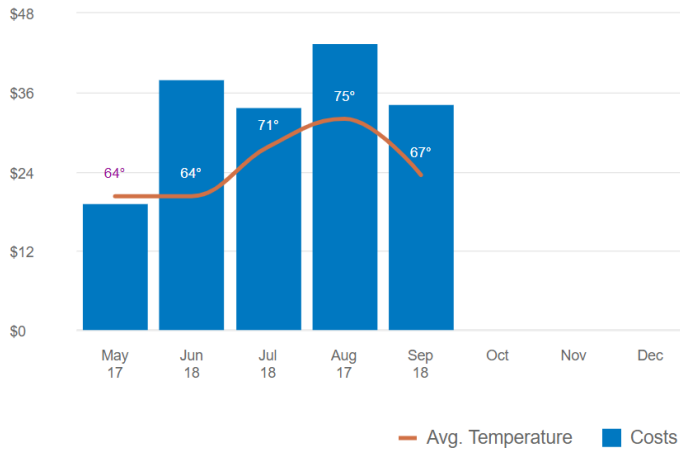
- Portland General Electric – Energy Tracker
- Pacific Power – Your Usage

My Usage

By Cost | [By Usage](#) | [By Similar Homes](#)

View By Month ▼

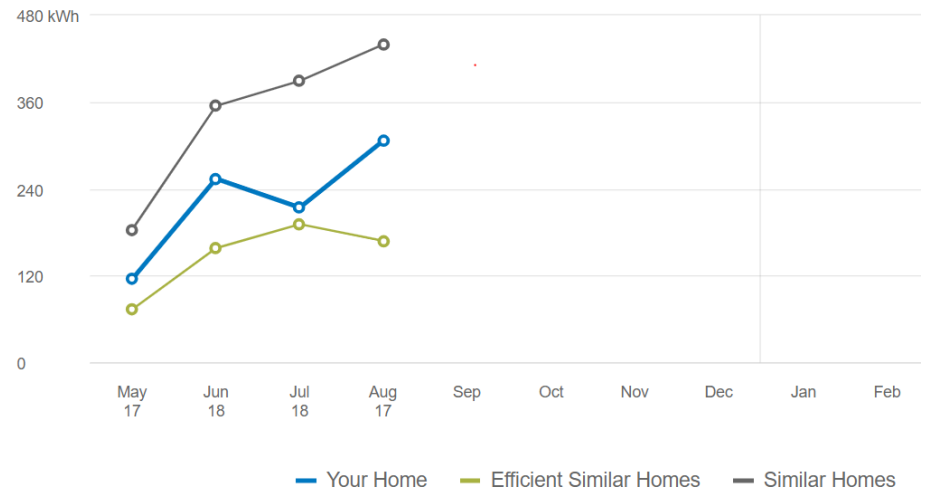
May 2018 - May 2019



My Usage

By Cost | [By Usage](#) | [By Similar Homes](#)

May 2018 - Aug 2018



DEFINE GOALS

Performance



*How much energy
does building
consume?*

Operations



*Costs and
maintenance
required for
energy measures*

*Green /
Sustainability*



*Environmental,
material, comfort
impacts.*

Resiliency



*Protecting
against extreme
weather / natural
disasters*

DESIGN CHARRETTE CHECKLIST

Project Overview

- Project history, demographics, funding sources
- Schedule moving forward
- Finance and budgeting

Project Goals

- Performance / Operational
- “Green” / Sustainability
- Resiliency
- Requirements to Meet (Certifications, Code, Funding)

Site Design / Layout

- Community connections, neighborhood development
- Storm water Management

DESIGN CHARRETTE CHECKLIST

Review Existing Conditions

- *Envelope*: slab/foundation, wall, roof, windows
- *HVAC*: Heating/cooling systems, ventilation, controls
- *Lighting*: In-unit, common area, exterior
- *Appliances*: Refrigerators, dishwashers, clothes washers
- *Domestic Hot Water*: Water heaters, low flow fixtures
- *Renewables*: Solar, energy storage, backup power

Identify & Prioritize Upgrades

- Property goals
- Maintenance goals
- Tenant population type

DESIGN CHARRETTE CHECKLIST

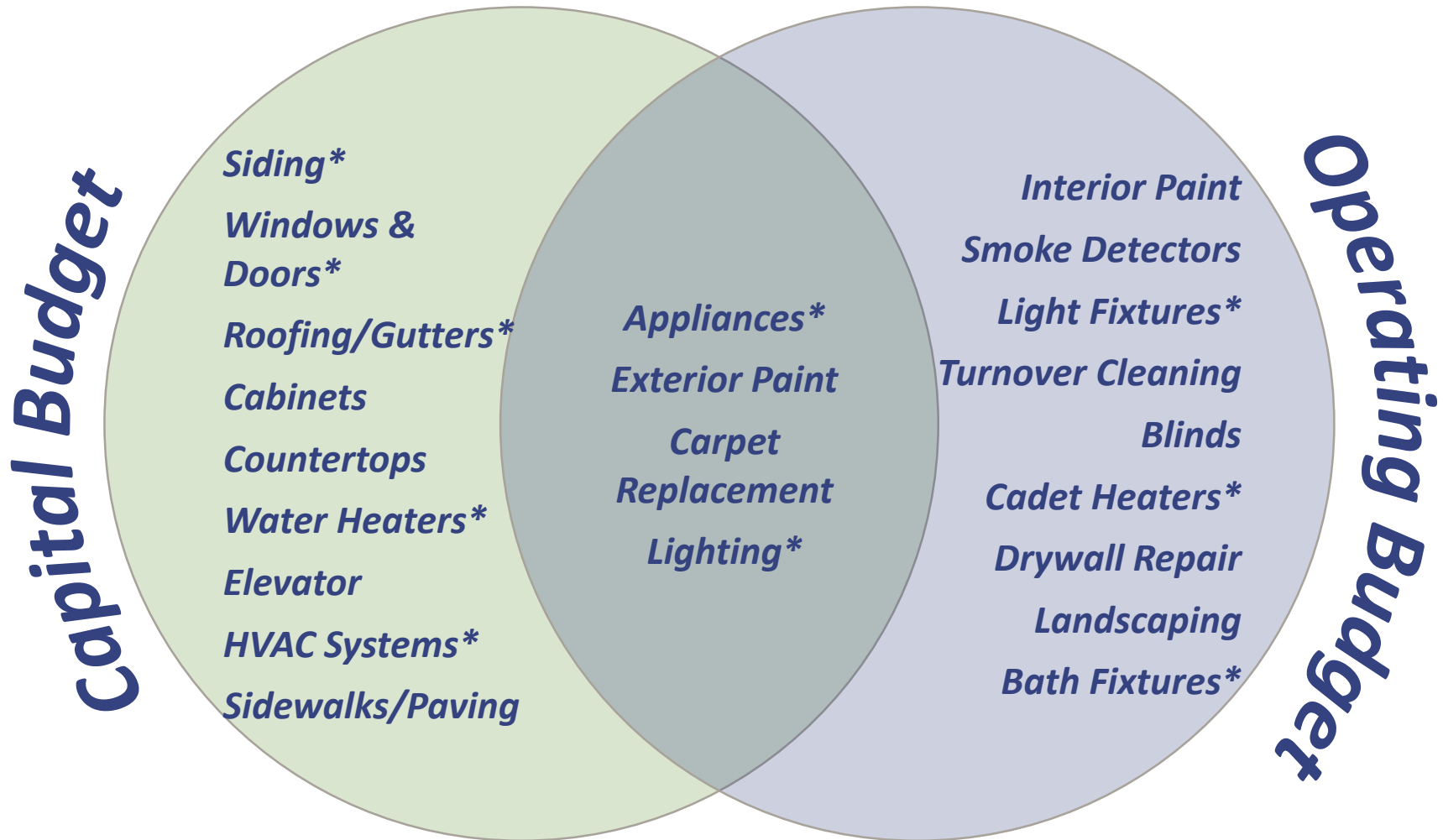
Materials / Product Specifications

- Low VOC's, formaldehyde free
- Watersense label
- ENERGY STAR label
- Construction waste management

Operations & Maintenance

- Benchmarking commitments
- Testing & verification, system commissioning
- O&M resources
- Tenant education

FINANCIAL ANALYSIS



*Energy efficiency opportunity

STEP 4: DETERMINE BEST STRATEGY

DETERMINE STRATEGY

Phased Rehab

For properties where improvements are not significantly more than available reserves.

Full Rehab

For properties with significant capital needs.

Redevelopment

For properties with upgrades that are more than value of property remaining life.



Financing Options:

- Refinance
- Tax credits (LIHTC), grants
- Incentives (OHCS Multifamily Energy Program)

STEP 5: IMPLEMENT UPGRADES

MINIMIZE CONSTRUCTION DEFECTS

SPECIFICATIONS

- ☐ Don't vary from specified products
- ☐ Less expensive products usually mean lower quality
- ☐ Incorporate entire team when developing specifications
- ☐ Develop an Owner's standard specification

INSTALLATION

- ☐ Conduct pre-installation meetings for major systems (envelope, HVAC, etc.)
- ☐ Create mockups and testing procedures
- ☐ Inspect building components for potential construction defects

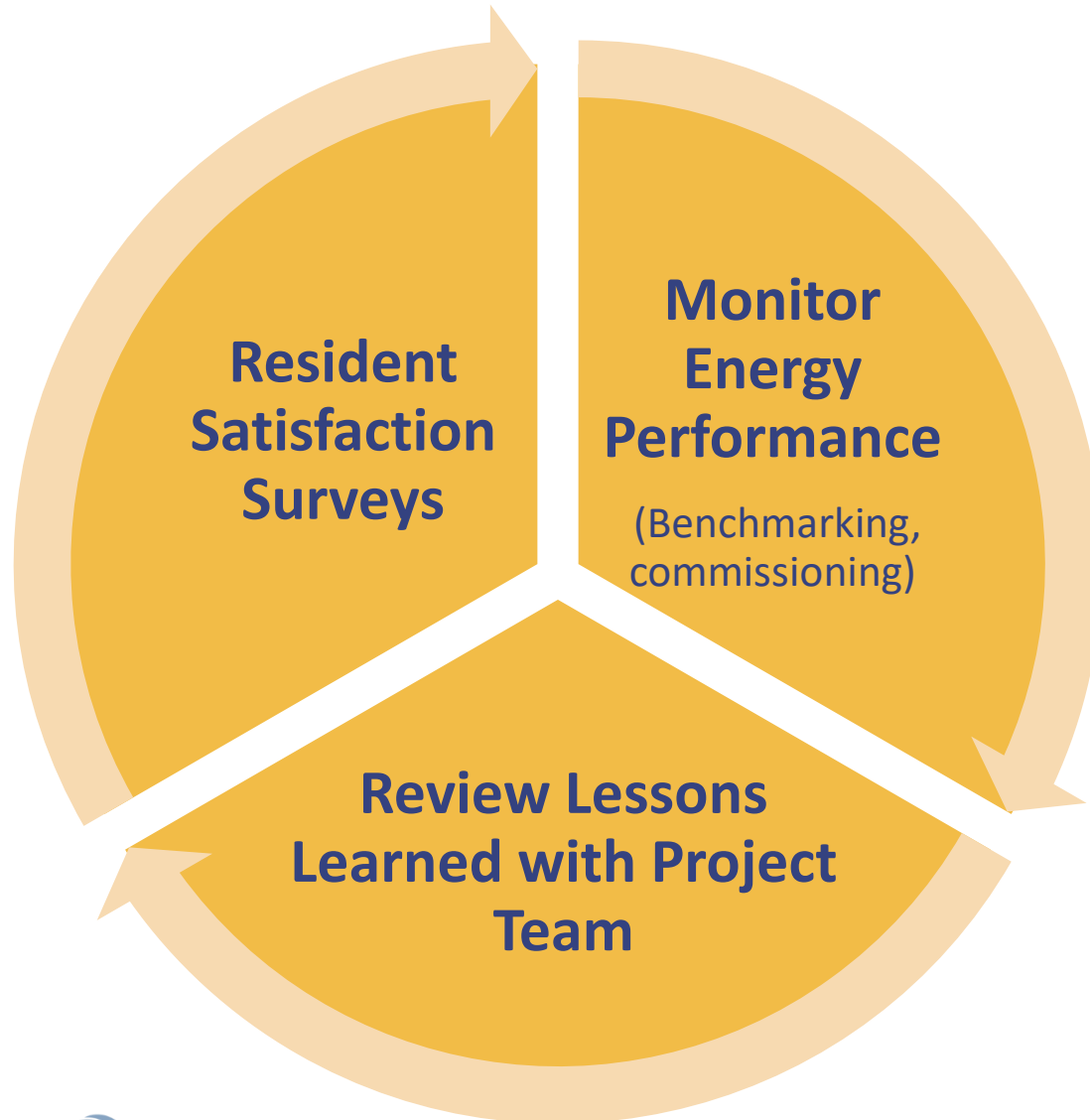
STEP 6: OPERATIONS & MAINTENANCE

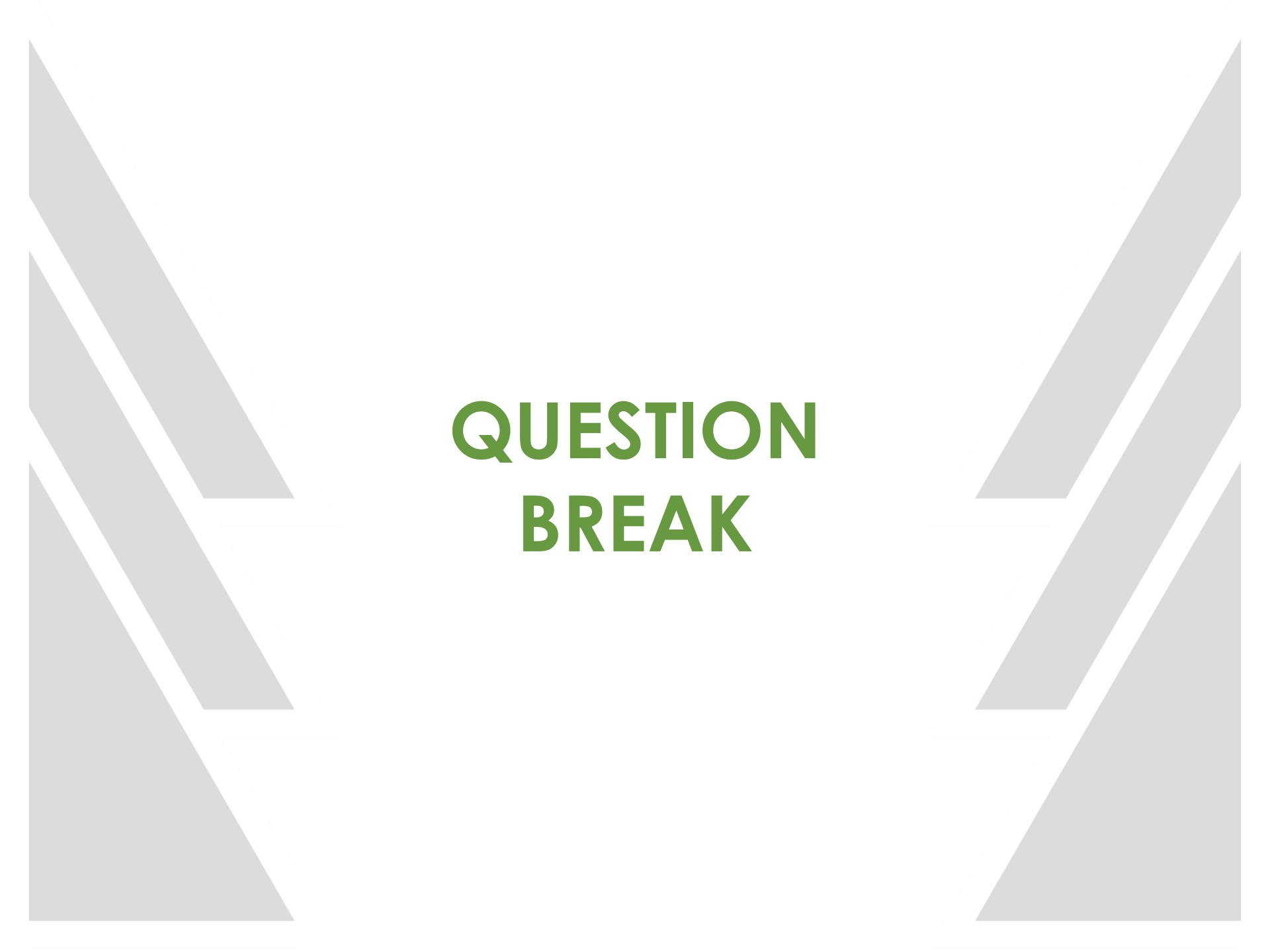
MAINTENANCE CHECKLIST

- ☐ **Create O&M Manual**
- ☐ ***Maintenance Training:*** Conduct maintenance training at completion walk-thru with maintenance staff
- ☐ ***Warranties:*** Place warranty periods on calendar and review condition of items
 - ☐ Maintain point of contacts for warranty requests.
 - ☐ Keep detailed records of warranty items and maintenance/repair request.
 - ☐ Perform periodic inspections aligned with warranty inspections.
- ☐ ***Maintenance Contracts:*** Establish with outside vendors
- ☐ ***Tenant Education:*** Prepare tenant information manual and review during leasing
- ☐ ***One-Year Inspection:*** Complete with project team

STEP 7: POST-COMPLETION EVALUATION

POST COMPLETION EVALUATION



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**QUESTION
BREAK**

THANK YOU FOR ATTENDING

**Oregon Housing and Community
Services Multifamily Energy Program**

www.oregonmultifamilyenergy.com

Presenter Name

mabraham@trcsolutions.com

