CLIMATE-READY BUILDINGS AND COMMUNITY RESILIENCE IN AFFORDABLE HOUSING

ARE WE READY?

Presented by:
Jane Carbone
Director of Development
Friday, May 10, 2019
HRI

- Cambridge-based non-profit affordable housing developer
- Organization founded in 1972 - Initial focus on homeownership stabilization
- Shift in 1980s to provide safe, affordable, decent, and sustainable rental housing
- Developed over 1,500 units of housing
- Currently own 1335 apartments and 55,000 SF of commercial space in Cambridge & Worcester
- Outsource property management
- Began sustainability initiative in late 1990s
HRI RESILIENCY FRAMEWORK

Mission
To increase awareness of, planning for, and response to current, ongoing, and future climate change impacts – including but not limited to water infiltration, heat events, and snow – that impact the physical and social infrastructure of HRI portfolio and surrounding community.

Objective
To develop a 5-year framework to incorporate resiliency planning as part of the ongoing HRI Green Sustainability Initiative for new construction and preservation/rehabilitation of affordable housing, building operations and maintenance, and resident services.
HRI RESILIENCY FRAMEWORK
STRATEGIES DERIVED FROM ENTERPRISE MULTIFAMILY RESILIENCE MANUAL

1. Hardening - Strategies that reduce a facility’s vulnerability
2. Adaptation - Strategies that improve a facility’s ability to adapt with changing climate conditions
3. Redundancy - Strategies that provide critical needs to a facility in the event of a loss of power
4. Behavioral Changes
CONCORD HIGHLANDS
CONCORD HIGHLANDS

98 units of Rental Housing

Not directly in the 100 year flood zone

All residential units and other critical buildings located above the 2030 and 2070 design flood elevations

• As recommended by City’s Climate Change Vulnerability Assessment and Climate Preparedness Plan

Design Features

• Defensible Ground floor – 1 story of podium style parking, car (67 spaces) and bicycle (103 plus visitor)
• All usable finished space within the building except garage lobby /vestibule above the design flood elevation
• Materials for the ground floor garage lobby vestibule (below design flood elevation) will be resilient
• Back up power (generator) for elevator, common area lighting, community room
• community room designated as “Shelter in Place” space that has emergency lighting, cooling, and a charging center
• Solar PV for common area loads (solar battery storage not feasible)

6 floors of residential space

6th floor Community room- shelter in place/rooftop open space/laundry room
CONCORD HIGHLANDS ON THE MAP
INCREASING HEAT: WARMER AVERAGES, GREATER EXTREMES, MORE HEAT WAVES

Urban Heat Island Effect Magnifies Ambient Temperature
- Darker impervious surfaces – pavement & roofs -- absorb heat
- Areas with large amounts of impervious surface and lacking tree canopy tend to be heat islands

By 2030, number of days above 90°F could triple.
- Stress on human health
- Stress on Infrastructure

*Summer is considered to be 91 days of June through August.
Creating and Preserving Affordable Housing Opportunities
LANDSCAPE PLAN

- Blue shaded area – Porous pavement
- Orange grid – Sewage Holding tanks
- Green grid – Underground Detention System
SEWAGE RETENTION TANK
PODIUM DESIGN

- Vehicular Parking
- Bike Parking
- Passive Ventilation
- No Living Space at Grade
ENLARGED 6TH FLOOR

- Shelter in place
- Community Room
HRI Resiliency Framework

To incorporate Resiliency Planning into our Sustainability Goals

Recent initiatives to reinforce Resiliency Planning

- Enterprise Ready to Respond: Disaster Staffing Toolkit
- Enterprise Multifamily Resilience Strategies
- LISC - Boston Green Retrofit Initiative
- HRI Green Asset Management Plan
GREEN ASSET MANAGEMENT PLAN

- Increase to 85% the number of residential rental units that use less than 7 BTU per square foot per heating degree day
- Maximize insulation in 90% of buildings
- Increase to 70% the number of units that use less than 65 gallons of water per bedroom per day (in green buildings 50 GPB)
- Increase by 70% the capacity of renewables on our properties
- 100% of units utilize green cleaning products
- 100% of units use Integrated Pest Management
- 100% of units use Low VOC standards
- Increase to 100% the number of units that are smoke-free
- Incorporate Resiliency Planning into portfolio development and operations
- Incorporate Active Design Guidelines into portfolio development
Which events are considered emergencies per policy, and require a timely and consistent response

EAP primary Objectives:
- Minimize the impact of the situation on the lives of our team members, residents, guests, contractors and commercial tenants (if applicable)
- Preserve the physical structures of our communities
- Maintain the operations of the business

Excerpt from WinnResponse Emergency Action Plan, Spring 2018
RESILIENCY RETURN ON INVESTMENT

POTENTIAL FUTURE SAVINGS TO BE QUANTIFIED:

• Operational savings (retrofit)
• Operational & maintenance savings (staffing)
• Insurance savings (mitigation)
## INPUT FOR NEXT STEPS

### 5-year Development Plan

1. Multi-prong approach: pipeline driven by preservation; and future, new construction
2. Focus on Operational and Behavioral Changes
3. Roll out Winn Emergency Action Plan into HRI portfolio

### Local Initiatives

4. City’s Climate Change Vulnerability Assessment
THANK YOU

Jane Carbone

Director of Development

617.868.4858 ext. 212
jcarbone@homeownersrehab.org