CHA GREEN ASSESSMENT
ARRA Competitive Grant Funding & the Chicago Housing Authority Green Property Assessment Project

July 14, 2011

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CHICAGO HOUSING AUTHORITY INTRODUCTION

- Goals & Objectives
- CHA’s Green Accomplishments
- Chicago Climate Action Plan
- ARRA Competitive Grant Funding
GOALS AND OBJECTIVES

• To operate and maintain **existing** CHA Developments in an environmentally-friendly manner

• To increase the **health & well-being** of residents

• To make CHA developments more **competitive** in the local housing market

• To **set an example** for other agencies and private property operators desiring to reduce their carbon footprint & improve operations

• To help meet City objectives defined in the **Chicago Climate Action Plan**
CHA’s GREEN ACCOMPLISHMENTS

• CHA first public housing agency (PHA) to implement a purchased natural gas program known as HUD’s Wellhead Incentive (1989), to-date savings exceed **$100 million**

• CHA was the first PHA to negotiate a special electric rate for all use (1998), resulting in savings of **$8 million** over term of agreement (3 years)

• CHA has implemented more performance contracting work (**$70 million**) affecting more units (11,000) than any other PHA in the country
CHA’s GREEN ACCOMPLISHMENTS

• Replaced 60,000 incandescent lighting fixtures with energy-efficient type

• Replaced 11,000 refrigerators with high efficiency models

• Replaced 11,000 toilets with low-flow type

• Replaced heating and domestic hot water boilers with high-efficiency type at developments totaling 6,250 units

• 21,488 metric tons avoided annually
  – CHA annual avoided emissions equivalent to removing 3,935 passenger vehicles from the road

• Water use reduced by 44,800,000 gallons/yr
CHICAGO CLIMATE ACTION PLAN (CCAP)

60% reduction below 1990 levels by 2030
- CHA currently at 55% reduction level seeking to achieve 2030 goals by the end of FY 2011

80% reduction below its 1990 GHG emissions level by 2050

Five Strategies:
1. Energy Efficient Buildings
2. Clean and Renewable Energy Sources
3. Improved Transportation Options
4. Reduced Waste and Industrial Pollution
5. Adaptation towards climate change

Five Benefits:
1. Better air quality
2. Improved health for everyone.
3. Saving money through energy efficiency
4. Lowering housing costs for families
5. Creating jobs, especially for local businesses
CHA’s APPROACH TO CCAP

CHA can leverage its many spheres of influence to drive implementation of the Chicago Climate Action Plan

- **Employees**: Drive employee implementation of CCAP through involvement, education, and awareness activities

- **Buildings**: Reduce existing CHA buildings’ energy use, water use, alternative refrigerant leaks, and waste creation
  - New building construction
  - Piecemeal retrofit actions or swap-outs
  - Full retrofits
  - Ongoing management

- **Residents**: Heighten residents’ involvement in CCAP

- **Vehicles**: Reduce CHA vehicle emissions through utilization of hybrid and other technologies

- **Other Housing Organizations**: CHA eager to share lessons learned of going green with other housing agencies interested in the same goals and objectives as well as privately owned Chicago building management companies
ARRA FUNDING

• EGCC was referenced specifically by HUD as a source for guidance in preparing competitive grant applications under the American Recovery and Reinvestment Act (ARRA).

• HUD is well aware of CHA’s accomplishments in the area of energy/water use and cost reduction. CHA invoked that history in its ARRA Competitive Grant application and was ultimately awarded $66 million, more than 11% of the total funding available to PHAs nation-wide under ARRA Competitive Grant.

• Savings generated through the performance contracting work have been more than sufficient to pay off the energy loan used to pay for their implementation, allowing CHA to redirect capital funds that would have otherwise been needed to complete these improvements to other needed capital projects.

• Kenmore Project was a mixed finance project that received HUD ARRA Competitive Grant funding toward funding total project cost.
LEED CERTIFIED BUILDINGS: THE KENMORE

- Attracts partner investors through a renovation that lowers long-term operating expenses.
- Employs property management best practices in the design.
- Sets expectations that LEED certification matters only if it comes naturally.
- Achieves LEED Platinum level certification from strategic selection of additional credits.
CHA GREEN PROPERTY ASSESSMENT

- Project Scale
- Project Scope
- Team
- Process Overview
- Next Steps
PROJECT SCALE

62 Properties
- 12 Multi-family
- 50 Senior

580 Buildings ranging from 27-75 years old

15,186 out of 17,800 Units (85%)

399.2 Acres
PROJECT SCOPE

1. Evaluate all CHA Senior and Family Developments against HUD, EGCC and LEED standards

2. Determine current LEED score for each property

3. Determine upgrades for each property to reach a minimum LEED Certification Rating

4. Create or improve operations and maintenance practices based on current EGCC and LEED standards

5. Train Section 3 Green Ambassadors to implement selected sustainable strategies in the field
TEAM INTRODUCTION

Client

CHICAGO HOUSING AUTHORITY

Architect

Engineer

Section 3 Training

Historical Energy Data

hok.com
PROCESS OVERVIEW

1. VISION SESSION

2. TOOL DEVELOPMENT

3. BETA TESTING

4. DATA COLLECTION

5. DATA AND REPORTS

6. POLICY CREATION
1. VISION SESSION

- Determine how to measure success
- Identify roles & responsibilities
- Review Schedule and Milestones
- Form CHA Green Committee
- Integrate Section 3 Residents
- Organize multi-disciplinary site visits/teams
- Categorize properties to streamline assessments
- Review draft Tools – Checklist, PM Survey, Resident Survey
- Review LEED EBOM and EGCC requirements
- Operations Manual
- Discuss potential CHA data tracking software (YARDI) integration
2. TOOL DEVELOPMENT

a. On Site Checklist
   - LEED EBOM
   - EGCC
2. TOOL DEVELOPMENT

b. Property Managers Survey
2. TOOL DEVELOPMENT

c. Resident Survey

1. What is your primary method of transportation?
   - walk
   - bike
   - car
   - bus
   - train

2. Are you comfortable with the outside lighting?
   - yes
   - no, too bright
   - no, not bright enough

3. Are you able to control the thermostat in your home?
   - yes
   - no

4. As far as the temperature in your home,
   check all that apply:
   - too hot in summer
   - too hot in winter
   - too cold in summer
   - too cold in winter
   - comfortable

5. Does anyone smoke in your home?
   - yes
   - no

6. How often do you open your windows or doors to let fresh air in?
   - often
   - sometimes
   - rarely
   - never

7. What types of light bulbs do you use?
   - CFLs
   - incandescents
   - combination of both

8. Do you feel the sidewalks are walkable year-round?
   - yes
   - no

9. Do you know when the building or your residence
   is going to be exterminated?
   - yes
   - no

10. In the last 2 years, have you had any bed bugs?
    - yes
    - no
3. BETA TESTING

Parameters considered in the selection:

- Use type
  - Senior Housing
  - Multifamily
- Size
  - Small (less than 150 units)
  - Large (more than 150 units)
- Number of Buildings per Property
  - One building
  - Multiple buildings
- Property Management Company

Lake Parc Place
(Multi-family high rises)

Irene McCoy Gaines
(Senior high rise)

Lowden Homes
(Multi-family low rise)
4. DATA COLLECTION
Building Operations and Procedures

Historic Building Information

- Utilized CHA building archive to review building data prior to site visits
- Reviewed previous property studies
- Created Property Information Database to organize information by:
  - Property Name
  - AMP & HUD Number
  - Address
  - Property Management Company
  - Current Use (Senior or Multi-family)
  - Adjacent Uses
  - Site Area
  - Number of Buildings on site
  - Number of stories per building
  - Unit Count (Occupied and vacant)
  - Unit Types (# bedrooms, ADA)
  - Building area
  - Parking Spaces
  - Development age
  - Significant Renovation Dates

<table>
<thead>
<tr>
<th>Property Categories</th>
<th>Number of Bldgs (MF)</th>
<th>Number of Units Property (Size)</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multifamily</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hyde Park - Kenwood</td>
<td>12</td>
<td>43</td>
<td></td>
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<tr>
<td>Wentworth Annex</td>
<td>98</td>
<td>41</td>
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<tr>
<td>Bridgeport Homes</td>
<td>13</td>
<td>107</td>
<td>67</td>
</tr>
<tr>
<td>Lawndale Gardens</td>
<td>9</td>
<td>128</td>
<td>67</td>
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<tr>
<td>Lowden Homes</td>
<td>18</td>
<td>128</td>
<td>56</td>
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<tr>
<td>Washington Park Homes-4414</td>
<td>41</td>
<td>252</td>
<td>48</td>
</tr>
<tr>
<td>Lake Park Place and extension</td>
<td>2</td>
<td>300</td>
<td>54</td>
</tr>
<tr>
<td>Washington Park Homes-4440</td>
<td>41</td>
<td>316</td>
<td>48</td>
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<tr>
<td>ABLA (Brooks Homes)</td>
<td>44</td>
<td>330</td>
<td>67</td>
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<tr>
<td>Wentworth Gardens</td>
<td>45</td>
<td>422</td>
<td>63</td>
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<tr>
<td>Trumbull Park Homes</td>
<td>60</td>
<td>434</td>
<td>72</td>
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<tr>
<td>Philip Murray Homes</td>
<td>63</td>
<td>500</td>
<td>56</td>
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<tr>
<td>Cabrini Row Homes</td>
<td>55</td>
<td>584</td>
<td>67</td>
</tr>
<tr>
<td>Dearborn Homes</td>
<td>14</td>
<td>800</td>
<td>60</td>
</tr>
<tr>
<td>Altgeld Gardens</td>
<td>162</td>
<td>2,000</td>
<td>65</td>
</tr>
</tbody>
</table>
4. DATA COLLECTION

Site Visits

On-site Procedure Observation
• Identifying and narrowing the gap between the ideal green policy and current procedures

Site Walk Through
• Grounds
• Common Areas
• Property Management Offices
• Sampling of Unit types
• MEP spaces
• Storage/Maintenance areas
• Roof

Site Assessment
• Erosion & Landscaping
• Hardscape shading & materials
• MEP systems & efficiency
• Waste management & recycling process
• Policies & practices
• Controllability of systems
• Daylight & views
4. DATA COLLECTION
Building Operations and Procedures

Property Managers Survey & Follow-up Interviews

- Building Exterior
- Landscape Management
- Pest Management
- Waste Management
- Alternative Transportation
- Procurement
- Cleaning
- Energy Use
- Indoor Air Quality

Building Engineer Interview & Walk-throughs

- **Mechanical:**
  - Boilers and Associated Heating Components
  - Domestic Hot Water Systems
  - Cooling Systems (mostly through AC units)
  - How is the building bringing in outside air?
  - Exhaust Fans
- **Electrical:**
  - Lighting
  - Lighting Controls
- **Metering:**
  - Water meters
  - Electricity meters
  - Natural gas meters
4. DATA COLLECTION

Resident Engagement

Resident Survey

1,355 Residents Surveyed (on average 9% of the total units)
20 questions
7 main topics covered:
- Recycling
- Transportation
- Water
- Energy
- Lighting
- Occupant Comfort
- Indoor Environmental Quality

Section 3 Green Ambassadors

19 residents participated in 10 weekly LEED overview classes with Heartland Communities & TAG

Program Highlights:
- Lunch & learn at HOK Chicago office
- Visit GreenBuild 2010 Exhibit Hall
- Visit Chicago Center for Green Technology
- Gathered survey data from residents at selected sites
- May help to implement green strategies at CHA properties in the future
4. DATA COLLECTION

Site Narrative

Data was aggregated from Site Walkthrough, PM Survey, Site Checklist & Interviews into separate categories:

- General Information
- Building Exterior & Hardscape Management
- Landscape Management
- Pest Management
- Commuting & Transportation
- Waste Management
- Indoor Environmental Quality
- Water
- Energy
- Janitorial
- Purchasing
- Food

Data was then filtered to appropriate credits and report sections.
5. DATA & REPORTS

52 LEED Assessment Reports

- 10 sites consolidated due to similar configuration, construction & operation
  - i.e. Annex & Apartments that share grounds
- Low-rise and high-rise differences reflected in separate report templates
- Set determining factors & criteria for the achievability of each credit
- Property characteristics and collected data was then analyzed against determining factors for a consistent assessment of each property
  - Consistent assessment methodology allows for easy comparison across CHA’s portfolio

**At A Glance**

Property Name: Patrick Sullivan Apartments
AMP Number: IL002067
Property Type: Senior Housing / High-rise
PM Company: East Lake Management Group
Eligibility for LEED EBOM Certification: YES
Prerequisites: 9
Achievable (A): 7
Short-term (S): 2

Property Characteristics:
- 22 stories
- 482 units
- 3.5 acres

Unit Breakdown:
- 346 occupied
- 131 vacant
- 5 non-dwelling
- 7 down (mold)

Unit Types:
- 200 one-bedroom (non-ADA)
- 40 one-bedroom (ADA)
- 160 studio (non-ADA)
- 80 efficiency (non-ADA)
- 2 two-bedroom, two bath (non-ADA)

Data Sources:
- 8 units visited
- 25 residents surveyed
  (Sample size: 7%)
- PM survey & follow-up interview

Quick Snapshot of Results:
- Currently Compliant (C): 14 pts
- Achievable (A): + 29 pts

LEED Certified Level Anticipated
- Short-term credits (S): + 28 pts
- Long-term credits (L): + 20 pts
- Current Energy Reduction: 32%
- Current Water Reduction: 17%
5. DATA AND REPORTS

Portfolio Wide Assessment

- Compares all properties based on:
  - Total LEED Points
  - LEED Eligibility
  - LEED EBOM Category Breakdown
  - High-Point Variable Credit Breakdown

- CHA properties performed similarly portfolio-wide with no dramatic variation from property to property

- 5 of 52 property sites are projected to attain LEED certification with little additional investment:

<table>
<thead>
<tr>
<th>Property Name</th>
<th>LEED Score (Compliant + Achievable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patrick Sullivan</td>
<td>43</td>
</tr>
<tr>
<td>Vivian Carter</td>
<td>42</td>
</tr>
<tr>
<td>Lidia Pucinska</td>
<td>42</td>
</tr>
<tr>
<td>Castleman</td>
<td>41</td>
</tr>
<tr>
<td>Lincoln Perry</td>
<td>40</td>
</tr>
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</table>
## 6. POLICY CREATION


<table>
<thead>
<tr>
<th>New or Existing Policy</th>
<th>Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modify Existing</td>
<td>Integrated Pest Management</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Building Exterior &amp; Hardscape Management</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Erosion Control &amp; Landscaping</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Stormwater Management</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Water Management</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Routine Maintenance</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Electrical Management</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Occupancy Turnover</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Sustainable Purchasing</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Waste Management &amp; Recycling</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Green Cleaning</td>
</tr>
<tr>
<td>Modify Existing</td>
<td>Environmental Tobacco Smoke Control</td>
</tr>
<tr>
<td>New</td>
<td>Indoor Air Quality Management</td>
</tr>
<tr>
<td>New</td>
<td>Facility Alterations &amp; Additions</td>
</tr>
<tr>
<td>New</td>
<td>Refrigerant Management</td>
</tr>
</tbody>
</table>
NEXT STEPS
LEED EBOM Certification

- Green Operations & Maintenance Policies
  - CHA & property management training
- YARDI integration
- LEED EBOM Pilot Projects
  - Implementing a staged approach to allow for lessons learned to be integrated
  - Beginning with the top performing properties identified in the Portfolio-Wide Analysis
  - Addressing “low-hanging fruit” first:
    - Policy Implementation
    - ASHRAE Level 1 walk through (in-house)
    - No/low cost Energy Conservation Measures
THANK YOU

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