

Greenbridge

Greenbridge is a mixed-income community designed and built using environmentally-friendly methods and materials. It is part of a larger revitalization effort in the White Center community south of downtown Seattle.

Resources

- King County's Green Tools, *Greenbridge Deconstruction Pilot Project*: www.metrokc.gov/dnpr/swd/greenbuilding/documents/decon_greenbridge.pdf
- King County Housing Authority, *Greenbridge Hope IV Community Revitalization project*: www.kcha.org/HOPEVI/index.html
- Deborah Godden, John Eliason from King County Housing Authority, *Tough Seattle neighborhood reinvents itself* (Seattle Daily Journal of Commerce; 10/7/2004)
- Energy Star: www.energystar.gov
- Ecocharrette: Innovations Lab, *Integrated Service Collaborative Design Session: Hope IV* (June 25-26, 2003; www.innovationlabs.com/whitecenter/03_tradeshow/Trade%20Show_Hope%20VI.htm)
- Built Green: www.builtgreen.net

About the project

Project Background

The King County Housing Authority (KCHA) is an independent municipal corporation that delivers affordable housing to local residents earning less than the county median income. In 2003 KCHA received more than \$35 million in Hope VI funds to revitalize a public housing project formerly known as Park Lake Homes. Now known as Greenbridge—for environmentally friendly “green” construction practices and the “bridging” of different cultures, generations, and income levels—it replaces 569 public housing units with a 900-1,110 unit mixed-income community, 80,000 square feet of mixed-use retail space and the renovation of White Center Heights Elementary School.

The goals are to:

- Replace severely distressed public housing with a new quality housing community that includes a mixture of income levels and housing options.
- Organize the housing around pedestrian-friendly access, open space, preserved sensitive areas, parks and public facilities in order to help build a strong community environment.
- Develop programs and opportunities that promote education, community development, and economic self-sufficiency for residents living in the community.
- Achieve at least 2-star level while stretching for the goal of a 3-star level on the Built Green Communities rating system.

Pre-Design Steps Taken

Members of the Greenbridge community, housing authority staff, and other major stakeholders were invited to participate in a two day long collaborative workshop known as an ecocharrette. Participants expressed their needs and desires for the community and brainstormed ideas for accomplishing goals. Four main areas emerged as important to the community: a cultural center, a multi-services center, mixed-income housing, and integrated services. Also identified were objectives for sustainable construction practices such as improving the site's ecosystem; reducing ongoing energy consumption; protecting human health and safety; raising awareness about green building and green redevelopment; and recycling and reusing materials whenever possible.

The project held more than 180 public meetings with a variety of different community groups. The goal of these meetings was to allow everyone, no matter where they were from or what language they spoke, to have

“Greenbridge provides a superb example of an innovative affordable housing project in the region. King County Housing Authority uses low-impact development strategies and green building techniques, along with landscape art and contemporary aesthetics to make this community sustainable and livable. More importantly, this balance is achieved while also providing social equity.”

– Patti Southard, King County GreenTools

a voice and input into the direction of the project. As a result, the collaborative workshops for the Greenbridge project provided a successful interaction between the community and stakeholders of the project. The members of the community were able to be involved in the development of the community, and the developers were able to understand the needs of the people in the area. The most interesting component of the workshop was that the participants focused more on how a specific topic would actually function. The questions that were asked at the workshop came from the point of view of the residents, such as “if I was a single mother how would I use that element” or “if I were to go to that place what do I want to happen.” In the end these collaborative workshops helped the community to develop with a focus on sustainability where five main goals emerged including human health and safety, improving the site's ecosystem, reducing ongoing energy consumption, recycling and reusing materials, and raising awareness about green building and redevelopment.

Neighborhood Diversity

The project is made up of a mixture of different housing options to allow choices but also cater to a wide range of cultures, generations and income levels which may help the stability of the community in the future. This includes 300 mixed-income public housing rentals, 200-400 workforce housing rentals, and 200-400 homeownership units. A variety of housing styles are also offered including townhomes, cottages, single-family homes and small-scale apartments. Four live/work housing units provide opportunities for home based businesses and mixed-use buildings contain services or retail.

Sustainable Site

Greenbridge was one of King County's original green building LID (low impact development) demonstration projects that allowed waivers on existing codes, based on the County's Green Building Ordinance. The site design



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preserves existing environmental features and uses a low-impact approach for stormwater runoff. Features include reduction of street widths, parking lots and the use of shared parking to help decrease the amount of impervious surfaces and cooling the environment. A bioswale diverts stormwater to help relieve potential downstream flooding. The entire site plan includes parks, trails, sidewalks and open spaces to help preserve sensitive areas and provide a sense of community. Preservation of several mature existing trees offers benefits such as stormwater management, cleaner air by helping remove pollutants from the environment, and aesthetics.

Green Building

While the site itself has been developed as a green community, all the homes and commercial building in the neighborhood are currently built to a 2-Star Built Green level, with hopes of achieving a 3-star level. The YWCA building currently under construction expects to achieve a 3-star Built Green level while the Greenbridge Learning Center, not yet under construction, is slated to become a LEED® silver project.

Materials

The homes and commercial buildings include many green features that involve reducing maintenance and energy costs for residents and users, as well as providing a healthy environment for people to live and work. To reduce waste and construction material costs, the building modules are closely matched to standard lumber dimensions. To help residents save money on utility bills, all appliances are Energy Star-compliant. The project also participated in Seattle City Light's Built Smart Program and includes energy efficient light fixtures, improved u-value windows, increased insulation values, and energy-efficient whole house fans and thermostats. Low-VOC paints, carpeting, sealers, grouts, caulks and adhesives that do not off-gas into the homes will provide improved indoor air quality. Formaldehyde-free fiberglass insulation, cabinets, interior plywood and composites are also used to help reduce the quantity of indoor air contaminants. Outdoors, native and drought tolerant landscaping will help save on water bills and maintenance. Durable materials were used as much as possible such as the fiber cement siding with a rainscreen system and the 50-year roof. With the many green features the buildings are healthier and more energy-efficient, and the durable materials will be easier for residents to maintain and last longer than the previous buildings.

Deconstruction

Deconstruction is the process of taking apart a building or structure, piece-by-piece, so that the materials can be reused or recycled instead of being thrown into a landfill. This project was used to study the value of a hybrid deconstruction method which employs both hand and mechanical/heavy machinery approaches that strives to reach a balance between labor-intensive traditional deconstruction and full demolition where no materials are saved. King County was permitted to practice this innovative deconstruction technique on four housing units slated for demolition, plus another twelve housing units were deconstructed. The County salvaged nearly nine tons of materials for reuse from these buildings, including rafters, beams, doors, windows, decking,

cabinets, siding, framing lumber, plumbing fixtures and vinyl siding. Through this deconstruction process nearly five tons of materials were also recycled, including scrap metal, appliances, and damaged lumber. In addition the project crushed all of the existing concrete from the pavement, curbs, foundations and sidewalks on site and re-used it in the project.

Community Health and Gathering Spaces

In addition to considering the Greenbridge developmental impacts on the environment, this project considers the well-being of the residents by incorporating areas that encourage an active lifestyle. Specific health and community strategies include a newly renovated community center that provides nearby residents access to recreation, education and employment services, and the community plaza acts as a gathering place for community events. Pocket parks serve as play areas for kids and meeting places for adjacent neighbors. A trail system runs east-west through the site and connects to the community center and parks allowing for a pedestrian friendly environment. The bio-swales and native landscaping double as green open space that beautify the neighborhood. Works of art are incorporated in many areas on the site including an artful roof downspout system that conveys water along the pedestrian walkway. The mixed-use component and other community facilities—such as the Boys and Girls Club, YWCA, and Highline Community College—puts residents closer to their daily needs.

Challenges

One of the main challenges included a limited budget to provide the dual goals of affordable housing and extensive environmental features. The limited budget also challenged the ability to provide a variety of housing styles and materials. The project team found creative ways to align zoning and code requirements with the green standards, and in the end was able to work with the County to receive waivers and incentives to meet all the requirements.

Lessons Learned

- Tree valuation and preservation measures were effective tools for saving well established urban trees but proved expensive as both increased construction costs.
- New deconstruction techniques can save time and money while recovering valuable materials. However, unanticipated problems during the deconstruction process can increase labor costs and reduced value of reuse and salvaged materials.
- Large scale site pre-preparation was a useful tool for reducing construction costs during the project.
- Establishing a requirement for a third-party standard such a Built Green or LEED is crucial to the success of a project with green goals as it provides a common benchmark for builders and developers during the design and construction process.
- Education of members of the community about the green goals is an important component to achieving long term green goals.
- Creating an affordable housing community that is also environmentally-friendly is possible through dedication of the team and careful allocation of resources.