



# SHARING THE BENEFITS OF BUILDING GREEN

*A STUDY OF THE HIGH POINT COMMUNITY*



COMMISSIONED BY:



PROJECT TEAM:



CEDAR RIVER GROUP

*Partners in change. Solutions that last.*

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## EXECUTIVE SUMMARY

A “green building” revolution has been gaining strength in America. City planners, architects, and builders are responding to the threats posed by climate change by exploring new methods to conserve natural resources and create more sustainable communities. While most of the tangible achievements of the green building movement to date are found in individual buildings, there have been a few instances in which entire communities have been designed and built as models of sustainable development. The Seattle Housing Authority’s High Point development in Seattle, Washington is one of those models.

During the past decade, the Seattle Housing Authority (SHA) has transformed three of its four largest public housing projects through the federal HOPE VI program, creating new mixed-income urban neighborhoods to replace aging conventional low-income housing projects. This transformation provided the opportunity for the Housing Authority to improve the performance of its housing units in terms of conservation.

The first two HOPE VI projects, New Holly and Rainier Vista, were designed to comply with the City’s relatively conservation-conscious building codes. With its third project, at High Point, the Housing Authority sought to set a new standard in green building by going well beyond Seattle’s code requirements. The project was designed to incorporate the principles of “new urbanism,” and features a natural drainage system, a host of energy and water conservation features, and 35 “Breathe Easy” homes, which were especially designed to minimize the environmental factors that trigger asthma and other respiratory diseases. These features have attracted national and international attention, and won many awards for sustainable development.

The different levels of investment in conservation at SHA’s housing projects created a laboratory in which to examine the costs and benefits of those investments. In late 2007 Enterprise Community Partners commissioned this study to take advantage of that opportunity. It compares conservation measures and their impact in three SHA communities:

- Yesler Terrace is a sixty-nine-year-old housing project that has been upgraded over time as resources have become available. It reflects a “base case” that is broadly representative of much of America’s existing public housing;
- New Holly is SHA’s first HOPE VI project, and reflects the “state of the code” in Seattle at the end of the twentieth century;

- High Point represents the “state of the art” for green building at the beginning of the new millennium.

The study addresses four major questions:

- Did the additional investments in sustainability at High Point provide sufficient financial return to warrant the initial capital investment?
- Are the residents of High Point aware of the sustainability features in their community, and how heavily are they engaged in conservation in their daily lives?
- If there have been substantial utility cost savings at High Point, how are current public policies shaping the distribution of those savings among local utilities, the Housing Authority and the residents?
- Is the current distribution of the benefits optimal to achieve the community’s social, economic and environmental goals, and if not, how might public policies be changed to produce better results?

## **FINDINGS**

- 1. The High Point project demonstrates that three essential ingredients are necessary to achieve environmental sustainability within a new community: careful planning and capital investments in conservation technology by the developer; day-to-day actions by the residents; and wise public policies that reward the parties for their respective contributions.**

Perhaps the most significant lesson from High Point is that the greatest benefits to the environment can be achieved when landlords, tenants and policy makers act in concert. To date, the green building movement – and utility incentive programs – have focused primarily on capital investments in conservation technology, with less attention to the potential for community mobilization and education to generate an additional increment of savings. The study also reveals that current public policies toward public housing need to be revised to provide more effective incentives for housing authorities and residents to conserve.

**2. The design process SHA employed at High Point, which featured a high level of involvement by residents, public officials and other stakeholders, opened the door to innovation and produced a better project.**

The inclusive planning process generated exciting ideas that were not part of the initial concept. For example, the idea for the Breathe Easy Homes evolved from a resident's suggestion and was expanded by researchers at the University of Washington to include a major public health study. In a similar vein, officials at Seattle Public Utilities conceived a natural drainage system and contributed funding for its development. However, when City departments (such as the fire and transportation departments) were *not* included in the initial stages of the planning, their lack of support led to costly delays in the project.

**3. High Point residents are saving substantial amounts of water, electricity and natural gas beyond the levels of conservation achieved at New Holly and Yesler Terrace, resulting in substantial cost savings.**

- Residents at New Holly use about 6% more water than those at High Point, 11% more electricity for lighting, 37% more natural gas for water and space heating, and 15% more electricity in all-electric units.
- The comparison of High Point to Yesler is even more telling. Yesler Terrace residents use 54% more water than those at High Point, and 40% more electricity in all-electric units.
- The high level of conservation at High Point translates into significant cost savings. In 2007, residents at High Point saved \$11.52 per capita for water compared to New Holly, and \$89.40 per capita per capita when compared to Yesler Terrace.
- At 2007 rates for gas and electricity, residents of an average 1,175 square foot unit at High Point saved approximately \$235 per year compared to a resident of the same size unit at New Holly.
- Residents of all-electric units at High Point saved approximately \$47 in 2007 compared to New Holly and \$140 when compared to Yesler Terrace.

In the aggregate, the actual costs for utilities at New Holly in 2007 were 36% lower than the average for Section 8 public housing in the Seattle area, representing a savings of \$380,000 per year. At High Point, actual costs were 56% below the Seattle average, for a total savings of \$500,000.

**4. The cost savings from the most expensive element of conservation technology at High Point (the hydronic heating system) – provides a reasonable rate of return on investment.**

The cost of the hydronic heating system was used as a proxy with which to determine whether the additional investments in conservation at High Point were cost-effective. It was estimated that the cost of that system was \$2.92 per square foot higher than for a conventional system. The savings from that investment (\$0.127 per square foot) constitute a return on investment of 4.35% - well within the range SHA could have achieved by investing the same amount in Washington’s Local Government Investment Pool.

**5. Most residents of public housing report that they are actively engaged in conservation and would be willing to do even more if they knew what methods would be effective, suggesting that an additional increment of conservation could be achieved through community education and mobilization.**

The study team conducted interviews with 234 households in the three communities in English, Vietnamese and Somali. The survey results show that more than two-thirds of residents at High Point and New Holly report “taking extra steps” to save on electricity and water. 87% of High Point residents, 81% of Yesler Terrace residents and 70% of High Point residents say they “would be willing to take other steps to save” on their energy and water bills.

Not surprisingly, price incentives appear to have a dramatic impact in the three communities. At New Holly and High Point, where housing units are individually metered for water use, about 70% of the residents report “taking extra steps to save on water” while at Yesler Terrace, where the units are not individually metered, only 16% reported taking extra steps to conserve.

The survey also demonstrates that many residents are having difficulty paying their utility bills. 41% of Yesler Terrace residents reported that they had fallen behind on their utility bills in the past six months, while 33% of High Point residents and 23% of New Holly residents said they had fallen behind.

In focus groups with High Point residents, it also became clear that residents value the “green” elements of their community and have ideas for how future HOPE VI projects could be even better in terms of conservation. Specific suggestions included placing timers on tankless hot water heaters; creating a conservation supply store on site; and reducing the need for car trips by bringing a grocery store on site.

**6. Policy changes are needed to create the proper incentives to encourage conservation and share the benefits fairly among utilities, the Housing Authority and the residents.**

Under current federal policy, residents of public housing pay 30% of their income for the combination of rent and utilities. Since High Point was a new community with no track record of actual consumption, a utility allowance was established based upon the Seattle average of utility costs in Section 8 units, and that amount was credited against the tenant's rent. That meant that until October 2008, the cost savings from the conservation investments were being realized by local utilities (in the form of reduced load requirements) and by the residents, whose utility bills have been, on average, far lower than the utility allowance provided by SHA as a credit. SHA, which bore most of the costs associated with the planning and development of the conservation measures at High Point, was not sharing in the savings at all. When the data secured for this study revealed the magnitude of the savings, SHA sought approval to recalibrate the utility allowance to reflect the actual levels of consumption within the HOPE VI communities, rather than the local average. The net result will be an infusion of hundreds of thousands of much needed dollars each year for the Housing Authority, and a significant rent adjustment for the residents who have in effect been paying less than 30% of their incomes for rent and utilities. Without some new mechanism to share the benefits of conservation, residents may perceive little incentive to take additional steps to conserve, fearing that doing so would simply lead to another increase in the amount they pay for rent.

Another policy dilemma that emerged in the course of the study involves the City's current rate relief programs. These programs, which do not apply to residents of public housing, effectively provide power and water to other low-income consumers at half-price, regardless of the resource efficiency of the housing in which they live. The community's goals may more effectively be achieved by retrofitting housing and/or paying low-income families to conserve rather than subsidizing their use of power and water.

## **RECOMMENDATIONS**

### **An Action Agenda for Housing Authorities**

**1. Continue to invest in conservation technology.**

The evidence from the comparison of High Point to New Holly demonstrates that the extra investments in conservation technology at High Point were sound. As utility rates increase, and utilities and government agencies add new financial incentives for conservation, the return on investment can be expected to grow even larger.

The data gathered for this study also provides the evidence needed to proactively adjust the utility allowances in future projects so that SHA realizes a more rapid return on its investments and tenants do not experience a sudden increase in rents when the utility allowance is recalibrated, as it was at High Point.

**2. Invest in community organizing and education to increase resident participation in conservation.**

The results of the community survey and focus groups suggest that there is an opportunity to achieve an additional increment of conservation through community mobilization. Although SHA's initial efforts to engage residents were somewhat successful, more could be achieved, especially if there are clear financial incentives.

The U.S. General Service Administration (GSA) has reportedly pioneered "benefit sharing agreements," in which cost savings from conservation are split equally between the GSA and its tenant agencies. We recommend that SHA consider creating a similar plan to provide tenants with a stronger incentive to conserve and to strengthen the partnership with its residents.

**3. Continue to document the success of conservation measures to build the case for future investments by local utilities in public housing.**

This study would have been more complete and compelling if it had been conceived at the beginning of High Point's development so that data on the costs of the conservation measures could have been more carefully accounted for. By having an evaluation plan at the beginning of future projects, the Housing Authority can make an even greater contribution to the base of knowledge within the field. These studies should also be designed to quantify the savings well enough so that SHA and its residents can bargain with local utilities to reap a share of the savings that are realized through conservation technology and community action.

**An Action Agenda for Local Utilities and City Officials**

**1. The Mayor's office should lead City departments in a comprehensive effort to support SHA's future initiatives to create sustainable communities.**

The magnitude of SHA's HOPE VI redevelopment projects, and their value as examples, calls for well-orchestrated support on the part of City departments and utilities. The Mayor's office is in the best position to see that all City departments play a proactive and imaginative role, as Seattle Public Utilities did at High Point.

**2. The City’s policy regarding rate relief should be reviewed, and strategies should be developed to make low-income people’s housing more sustainable.**

The study suggests that several changes in current practices would be beneficial:

First, local utilities should develop payment plans that enable residents to even out their payments during the year. Residents of public housing live on very modest budgets, and generally do not have the flexibility to deal with seasonal spikes in utility costs. A plan to spread the costs more evenly through the year would help many families and individuals to avoid falling behind in their payments.

Second, the City’s utilities should undertake a major initiative to retrofit the homes of those who are enrolled in low-income utility rate programs. This initiative would improve the living conditions of the residents, reduce greenhouse gas emissions and reduce the future costs of rate relief and energy assistance programs. We suggest that the initiative be paid for with bonds that would be retired with the future savings that would result from conservation in those households.

A program to retrofit affordable housing units, could also incorporate universal design measures to make the homes safer and more appropriate for children and the elderly. The creation of such a program could also give low-income individuals an opportunity to participate in the “green economy” if local training and employment programs can be adapted to meet the need.

**3. Utilities should create mechanisms to value and purchase blocks of power conserved by community action, as well as through capital investment.**

Seattle’s utilities have developed strategies to purchase conservation from major customers by paying a share of the costs for major investments in conservation technology. The utilities should consider adding a program to purchase power from community groups who conserve through education programs, community organizing and the application of small-scale conservation technology throughout a neighborhood.

## **An Action Agenda for Community-Based Organizations**

### **1. Community organizations should provide residents with the tools to reap the benefits of conservation.**

The results of the community survey and focus groups strongly suggest that more conservation can be achieved through community education and mobilization. Although SHA's early efforts in this vein were partially successful, a more sustained effort will be needed to realize the full potential of these strategies.

Neighborhood House has the cultural and linguistic skills to take on this role if sufficient resources can be made available. Neighborhood House (or another community-based organization) should explore the idea of creating a "Neighborhood Environmental Services Cooperative" (NESCO) in each HOPE VI community to serve as the vehicle to mobilize the community to achieve higher levels of conservation. The NESCO would educate residents about conservation strategies, carry-out specific projects (such as installing timers on hot water heaters, or distributing compost bins) and act as the community's representative in negotiating with the utilities and the Housing Authority regarding the distribution of the financial benefits of conservation.

## INTRODUCTION:

### THE GENESIS OF A SUSTAINABLE COMMUNITY

During the past decade, the Seattle Housing Authority (SHA) has dramatically transformed three of its four large family housing projects through the federal HOPE VI program. The key premise of HOPE VI is that by redeveloping traditional public housing to create more diverse mixed-income communities, public housing authorities can:

- Create new and better housing options for families and individuals across a spectrum of incomes;
- Reduce the social and economic isolation of low-income families;
- Improve housing conditions, public safety, employment levels, and other indicators of neighborhood health; and
- Eliminate the stigma that has often been associated with large urban public housing projects.

As the Housing Authority began planning its first HOPE VI project at New Holly, it became evident that the project would provide the opportunity to achieve much higher levels of conservation. In response to these opportunities, the Authority adopted construction techniques and billing strategies at New Holly that are consistent with the current conservation-oriented building codes and industry practices in the northwest. These same features were subsequently incorporated in SHA's second major HOPE VI project, Rainier Vista.

In 2001, the Housing Authority received an allocation of federal funds for its third major HOPE VI project, High Point. Although the grant came as welcome news, the leaders of the Authority soon realized that the financial challenges inherent at High Point would be greater than those it had faced at New Holly and Rainier Vista. The level of federal subsidy per unit at High Point would be substantially less, and there would be no additional subsidy from the City of Seattle, as there had been in the first two HOPE VI projects.

Initially, SHA's leaders considered dramatic cost reductions as a strategy to address these financial challenges. The Authority changed course, however, when it became apparent that many of the cost-cutting measures under

consideration would undermine the durability of the housing and increase ongoing operating costs. Instead, the Authority chose the opposite path, and set out to make the High Point project a model of sustainable development.

In charting this course, the Housing Authority hoped that it would be possible to attract philanthropic and public partners to help overcome the financial challenges it was facing. In return for their contributions, funding partners would have the opportunity to test new methods of sustainable community development. By 2005-06, when the first residents began moving into the new community, there were signs that the strategy was succeeding. Through the efforts of the project's architects and builders, the homes at High Point were designed and constructed with the latest green building techniques; a partnership with Seattle Public Utilities had produced a unique "natural drainage system" for the community; two federal grants had helped to fund "Breathe Easy" homes for families with children suffering from asthma and other chronic respiratory illnesses; and the High Point project was receiving national and international acclaim as a model for sustainable communities world-wide.

In January 2008, Enterprise Community Partners commissioned the Cedar River Group to complete an analysis of the costs and benefits of the sustainability investments at High Point. Our study reveals that three ingredients are needed to achieve the best results in conservation:

1. *Capital investments in conservation technology during construction;*
2. *Behavioral changes in the way residents use natural resources; and*
3. *Wise public policies that create the proper incentives to conserve.*

This report describes each of these factors and their interaction at High Point.

Part One, *Designing a Green Community*, provides a brief overview of the design process, and identifies some of the challenges that arose for the project team as it attempted to incorporate sustainable elements in the design of the new community.

Part Two, *Financial Returns*, provides an analysis of the performance of the High Point community in comparison to New Holly and Yesler Terrace in terms of conservation of water, electricity and natural gas. It also provides a comparison of the financial savings to the rate of return SHA could have achieved had it made other investments with the funds used for extra conservation technology.

Part Three, *The Resident's Perspective*, examines the opinions of High Point residents about living in a “green community” and their willingness to participate in additional conservation measures in the future. The information was gained from 234 telephone interviews and five focus groups conducted in four languages with the assistance of multilingual interviewers from Neighborhood House, our nonprofit partner.

Part Four, *Sharing the Benefits*, offers an analysis of the current distribution of the benefits of conservation at High Point, and the impact of existing federal regulations on how those benefits are (or are not) shared among the Housing Authority, the residents, and local utilities.

Finally, Part Five, *A Strategy for Change*, provides our recommendations, and explores an alternative approach to engage residents and achieve a better alignment of incentives to achieve the highest possible level of conservation in “sustainable communities.”



## PART ONE: DESIGNING A GREEN COMMUNITY



### **Building the Team**

The Seattle Housing Authority approached the rebuilding of High Point with values rooted in “new urbanism” and green building goals, but with a very tight budget. The Project Manager, Tom Phillips, was a veteran of major development projects who completely supported the idea of making the new community a model of sustainability. He chose a design team comprised of firms that shared that objective and were among the region’s leaders in sustainable development.<sup>1</sup>

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<sup>1</sup> The members of the design team are listed in Appendix A.

The team used a collaborative approach to develop strategies for sustainability that were tempered with guidance from residents, neighbors, community representatives, government agencies, builders and financial partners.

### **Engaging the Community**

The team began by recruiting an advisory committee comprised of community leaders to help shape the project. Every effort was made to include as many stakeholders as possible in the design process. Frequent community meetings were held, during which the design team asked residents for their opinions about what characteristics make a good house, a great street, and a healthy neighborhood. SHA provided translators at these meetings for the many immigrants who are residents of High Point.

A major concern for the residents was where they would be housed during the redevelopment, and whether they would be able to return following construction. The Housing Authority responded to these concerns with a promise to provide housing for all residents who were displaced during construction, and to replace the public housing units at High Point on a one-to-one basis (although 200 of the original 800 units would be located off-site.) These early commitments helped to foster a constructive environment during the planning.

The goal of creating a sustainable community was introduced in conceptual terms during the initial community meetings and was quickly embraced by the community. The broad concepts that emerged from the community meetings were gradually translated into specifics by using existing green building rating systems to identify features that would make the vision real. The design team also subjected each potential element of the emerging strategy to a rigorous evaluation of potential costs and benefits, and took full advantage of the financial incentives provided by Seattle City Light, Seattle Public Utilities, and Puget Sound Energy.

### **Creating a Plan for Natural Drainage**

The design team enlisted the active participation of staff within several City departments in the initial stages of planning the green elements of High Point. Imaginative officials at Seattle Public Utilities (SPU) and engineers on the design team conceived the idea of creating a natural drainage system for the new community that would help restore the water quality of Longfellow Creek, one of Seattle's few remaining salmon-bearing streams. Believing that the new system would prove valuable as a demonstration project, the leaders of SPU pledged to pay the incremental cost of the new system when compared to conventional methods. SPU's willingness to pursue this strategy also helped to leverage complementary actions by other City agencies. For example, after months of debate, City Departments allowed SHA to

narrow street widths below current standards to reduce impervious surfaces so the natural system design could work with the on-site soils.

The most visible “natural” features of the drainage system are the large park that surrounds the storm water retention pond, and the rain gardens and grassy swales that comprise the basic elements of the system. These landscape features are maintained by community residents hired by the High Point Homeowners Association.

### **Breathe Easy Homes**

While the natural drainage system was the product of close collaboration with City officials, other major elements of the community design emerged from the dialogue with the residents. At a meeting of the advisory committee, a resident leader asked if the environmental measures the design team was proposing could help to alleviate the chronic asthma that afflicts many children and adults at High Point. Picking up on her idea, the design team worked with public health experts to create a plan to build 35 “Breathe Easy Homes” with special features designed to reduce asthma triggers.

The Breathe Easy Homes were destined to be a part of a major public health research study to test whether specific design and construction choices can improve the health of asthma afflicted individuals in public housing. The preliminary results of this research are discussed in Part Two of this report.

### **Costs and Communication Tools**

SHA, the design team, Absher Construction and their subcontractors relied on summary goal sheets to focus early design decisions and later moved to more specific checklists and spreadsheets to track the costs and benefits of various green building strategies. These tools helped the team determine which options brought the most value in relation to estimated costs. They included the **BuiltGreen** program checklists for communities and multifamily housing and the **SeaGreen** checklist developed by the Seattle Office of Housing for affordable housing. National guidelines were also used, including the U.S. Green Building Council’s **LEED standards**, SBCI’s **Green Building Guidelines** and Enterprise Community Partners’ **Green Communities Checklist**. These checklists provide a good resource for exploring a wide range of green building strategies. They also provide a framework for combining strategies to produce results greater than the sum of the parts.

Some of the major green investments in the energy and water features provided at High Point are listed in Figure 1. Most of these differences were shown in the drawings or specifications for construction and verified through the **Energy Star**, **BuiltSmart**, and **BuiltGreen** certifications.

Figure 1: Major Conservation Features at High Point (notes on cost implications in italics)
• Envelope air sealing using the airtight drywall approach (ADA) <i>cost neutral</i> .
• Energy Star front loading washers <i>add \$250 (SPU incentives helped)</i> .
• High-efficiency tankless boiler closed loop hydronic heating system <i>add \$1,250 – 1,500 with added savings from federal administrative expenses on allowance and billing</i> .
• Integrated domestic tankless domestic hot water <i>add \$500</i> .
• Additional zone controls for hydronic radiators (allows more occupant control of room by room heat).
• Modified advance framing/panelized walls <i>cost neutral</i> .
• Beyond code U-value for windows ( $U \leq .33$ to meet <b>BuiltSmart</b> incentives requirements).

**Lessons Learned**

The design process at High Point succeeded in large part because it was driven by a compelling vision that was also a *shared* vision. SHA, the members of the design team, High Point residents, and other stakeholders, including several creative staff members within City departments, were united in their desire to make High Point a model of sustainability. By working together, these actors generated many new ideas that added additional dimensions to the original vision.

Nevertheless, the process of developing High Point was not always a smooth one, and there were many hurdles the design team had to overcome. The most significant may have been overcoming the negative attitudes of some of the local officials who had roles in granting permits for the new development. One example was the difficulty of securing permission to narrow the streets within the new community to reduce the impervious surface. Although the design team pointed to public safety and environmental benefits, both the Transportation and Fire Departments strenuously opposed the idea at first, and the ensuing debate cost the project tens of thousands of dollars in staff and consultant time and project delays. Ultimately the stalemate was broken through a direct appeal to the Mayor’s staff, who mediated the dispute and helped to resolve the issue. Significant lessons emerged from that experience:

1. *Innovations in community planning will almost inevitably come into conflict with those charged with enforcing existing standards and practices;*
2. *Those conflicts can often be overcome through active collaboration with local officials from the beginning of the planning process;*
3. *A wide spectrum of agencies have regulatory power over a project and it is important to meet with all of them to win support for innovations; and*
4. *Partners within regulatory agencies can add real value to the project (as SPU's leaders did with their contributions to the natural drainage system at High Point).*
5. *It is critical to secure the understanding and support of the ultimate decision-makers (such as the Mayor's office) so that conflicts between existing standards and new innovations can be resolved quickly and in the public interest.*



## PART TWO: THE FINANCIAL RETURNS OF GREEN BUILDING



Seattle's HOPE VI projects, together with Yesler Terrace, represent a spectrum of levels of investment in sustainability, ranging from modest retrofitting of the 67 year old units at Yesler Terrace, to the "state of the code" homes at New Holly and Rainier Vista, to the "state of the art" measures pioneered at High Point. These projects provide a ready-made laboratory to assess the costs and benefits of the Authority's investments in sustainability. The level of green investment in the respective projects is summarized in the following chart.

Figure 2: Green investments		Yesler Terrace	New Holly	High Point
<b>Community:</b>		<b>Yesler Terrace</b>	<b>New Holly</b>	<b>High Point</b>
	Pedestrian-friendly	√	√	√
	Healthy living education programs			√
	Green Living Expo			√
	Community gardens	√	√	√
<b>Site:</b>		<b>Yesler Terrace</b>	<b>New Holly</b>	<b>High Point</b>
	Natural drainage features		√	√
	Complete Natural Drainage System			√
	Pervious concrete sidewalks			√
	Wide-ranging tree protection		√	√
	Green landscaping			√
	25-foot local streets		√	√
	Native/drought-resistant plants			√
<b>Construction:</b>		<b>Yesler Terrace</b>	<b>New Holly</b>	<b>High Point</b>
	Recycle maximum amount of materials		√	√
	Deconstruction of some units			√
	Use of bio-diesel			√

	Minimize grading			√
	Stockpile and re-use top soil			√
	Re-use demolished pavings		√	√
<b>Buildings:</b>		<b>Yesler Terrace</b>	<b>New Holly</b>	<b>High Point</b>
	Breathe-Easy Homes			√
	Low VOC paint, adhesives, cabinets		√	√
<b>Figure 2: Green investments</b>		<b>Yesler Terrace</b>	<b>New Holly</b>	<b>High Point</b>
	Air-tight drywall			√
	Modified advance framing/panelized walls			√
	Compact fluorescent lights		√	√
	Energy Star washers/dryers		√	
	Energy Star front-load washers			√
	Whole-house fans		√	√
	Closed-loop hydronic heating system			√
	Tankless hot water heating system			√
	Marmoleum floor coverings			√
	Higher "R" value windows			√
	Dual flush toilets	√	√	√
	Low-flow shower heads	√	√	√

<b>Breathe-Easy Homes:</b>		<b>Yesler Terrace</b>	<b>New Holly</b>	<b>High Point</b>
	Positive-pressure ventilation system			√
	Linoleum flooring in living areas			√
	Recycled content vinyl flooring			√
	Low-pile carpeting on stairs			√
	Low/No off-gas trim and millwork			√
	Low/No off-gas kitchen cabinets			√
	HEPA filter vacuum cleaners			√
	"Walk-off" doormats			√
	Extra dry-out time during construction			√

### **Comparison of Utility Use**

Now that tenants have been living at High Point for at least one full year, it is possible to investigate whether the ‘extra’ investments at High Point actually generated a savings in consumption of water, gas and electricity compared to the code-required investments at New Holly and the remedial upgrades at Yesler Terrace.

With great effort, the Seattle Housing Authority was able to obtain data on consumption for calendar year 2007 from the electric, gas and sewer/water utilities for all the units in each of the three projects of interest. These data provide the factual basis for a direct comparison among the various types of units in the three communities.

New Holly and High Point have quite comparable types of structures and types of units and both have a preponderance of 2- and 3-bedroom units. In both projects, the heating systems for space and water are fueled by natural gas and residents are billed for their own gas, electric and water/sewer consumption. The Yesler Terrace units are all-electric, older and, on average, much smaller – typically 1 to 2 bedrooms. The Yesler Terrace units are also built in a stacked fashion and,

because of the hilly topography of the site, many of the units are partially tucked into hillsides. This feature tends to reduce energy consumption regardless of building type. At Yesler Terrace, residents pay for their electricity consumption for lighting and water/space heating, but are not separately metered for water/sewer use.

The analysis of water consumption was carried out on a per person basis since the number of residents in a unit most strongly influences the number of showers, toilet flushes, and washer loads. The comparison of electricity and gas used for lighting and heating was conducted on a per square foot basis because it is the size of the unit rather than the number of people in it that most strongly determines the amount of energy consumed.

**Water**

As shown in Figure 3, residents at High Point use the least water, with residents at New Holly using about 6% more. Yesler Terrace residents, however, consume 54% more than High Point residents – a function of older systems and the lack of any financial incentive to conserve.

**Figure 3: Water Consumption Per Capita, High Point, New Holly and Yesler**

Site	# Units	# Residents	Avg # Residents per Unit	Water Sample Unit Count	Avg GCD	% ▲ in Usage Per Person Per Day	Cost per Capita per Month	\$▲ in Cost Per Capita Per Month
High Point	344	1,192	3.5	293	39.9		\$18.49	
New Holly	620	2,149	3.5	498	42.2	6%	\$19.45	\$0.96
Yesler Terrace	561	1,202	2.2	561	61.6	54%	\$25.93	\$7.45

At 2007 Seattle water/sewer rates, New Holly residents spend \$0.96 per person per month more than High Point residents on water/sewer service (just over \$40 per year for a unit with average occupancy). Yesler Terrace residents cost the Housing Authority a full \$25.93 per person per month for water/sewer service, \$7.45 per month more than per capita consumption at High Point, or \$89.40 more per person per year.

## Electricity and Gas

Because Yesler Terrace has an all-electric heating system, we began our analysis of energy consumption by comparing the 'state of the code' vs. 'state of the art' gas and electric systems at High Point and New Holly. The results for all units, shown in the following table, are repeated in every unit type with only minor variations. (The complete results for all unit types are included in Appendix B).

Figure 4: Gas & Electricity Consumption Per Square Foot, High Point & New Holly										
Site	Electric					Gas				
	Sample Count	Sum Of SqFt	Avg kWh Usage Per SqFt	% ▲ in Usage Per Square Foot	Costs Per SqFt	Sample Count	Sum Of SqFt	Therm Usage Per SqFt	% ▲ in Usage Per Square Foot	Cost Per SqFt
High Point	289	317,943	5.456		\$0.296	246	276,810	0.367		\$0.571
New Holly	496	583,378	6.063	0.11	\$0.340	415	491,679	0.504	0.37	\$0.698
							% ▲			
Gas & Electric Cost/Square Foot High Point					\$0.867					
Gas & Electric Cost/Square Foot New Holly					\$1.038			20%		

The 'state of the code' systems at New Holly use 11% more electricity for lighting and 37% more gas for water and space heating than the 'state of the art' systems at High Point. At 2007 gas and electricity rates in Seattle, that costs New Holly residents on average \$0.20 more per square foot per year than their High Point counterparts, or about \$235 per year more for an average 1,175 square foot unit.

## All-Electric Units

To compare the cost of energy for lighting and space/water heating at High Point, New Holly, and Yesler Terrace, we chose to compare one bedroom Yesler units with one-bedroom all-electric apartment units at High Point and New Holly. These are the most comparable units in the inventory of each community.

**Figure 5: Electricity Consumption Per Capita, High Point, New Holly, and Yesler Terrace**

Site	Heat Source	Bldg Type	Bdrms	Avg Sq Ft	Avg # Residents	Usage per SqFt	% ▲	Annual Cost	Cost per SqFt	% ▲
High Point	Electric	Apartment Building	1	655	1	9.1		\$324.60	\$0.50	
New Holly	Electric	Apartment Building	1	627	1	10.5	16%	\$368.40	\$0.59	18%
Yesler Terrace	Electric	Multifamily	1	516	1.1	13.3	40%	\$399.00	\$0.77	47%

In these small units, High Point again has an advantage. New Holly one bedroom all-electric units use 16% more electricity per square foot than High Point and Yesler Terrace units use 40% more. This results in additional costs of \$0.09 per square foot per year for New Holly residents and \$0.27 per square foot per year for Yesler Terrace residents, or nearly \$140 per year for the average unit.

## Distribution of Cost Savings

The savings identified in the study are important for their environmental implications, but they also have a significant potential impact on the incomes of the Housing Authority and/or its residents. In the first several years of occupancy, these savings were captured by residents because of federal regulations governing the maximum combined utility and rent charges that can be charged to residents of public housing. Under those rules, the Housing Authority grants utility allowances as credits against rent, and the combination of the allowance and the rent cannot exceed 30% of the tenant's income. For the first two years of occupancy, the utility allowances credited against the rents have been based upon the Seattle average for utility costs, which is far higher than the actual costs in the HOPE VI communities. Therefore, the

Housing Authority did not reap a share of the savings. However, SHA has recently secured federal and State approval to readjust the utility allowances to reflect actual costs. As a result, the Housing Authority will gain new revenues in excess of \$380,000 per year at New Holly and \$500,000 at High Point.

### **Comparison of Capital Costs**

It is clear from the data that significant savings have resulted from meeting the current Seattle code at New Holly and that even greater savings were gained by investing in 'state of the art' conservation at High Point. A question naturally arises about whether these savings provide a competitive return compared to other possible investments.

It was beyond the scope of this analysis to examine the full range of social and environmental benefits at High Point, which would include the value of cleaner rainwater entering nearby creeks and other 'goods' that are not easily monetized. Instead, this analysis focused solely on the more limited question of direct monetary return.

Unfortunately, it was impossible to compare the entire cost of the New Holly and High Point redevelopments. The projects were designed by different architects and built in different decades by different contractors. Specific energy-saving investments were not necessarily called out as separate items in the bids and were not therefore tracked separately as the work was completed. Therefore, the team sought accurate cost estimates for a major component of the project to serve as a proxy with which to compare the costs of the two projects. With the assistance of the architect for High Point and the cost estimator for New Holly, we were able to compare the cost of the conventional heating and plumbing systems installed at New Holly with the hydronic systems incorporated at High Point. Since the hydronic system represents the single largest part of the additional costs associated with the extra sustainability measures at High Point, we believe it provides a reasonable basis of comparison for the two projects.

New Holly uses conventional gas heating and gas-powered hot water tanks. High Point uses a gas-powered hydronic heating system and tankless water heaters. By using a construction cost inflation factor of 9% per year, it was possible to estimate what the New Holly system would have cost in 2005 when the first phase of High Point was built.

As shown in Figure 6, the hydronic system installed at High Point cost \$2.92 per square foot more than the conventional heating system at New Holly.

<b>Figure 6: Cost of Heating and Plumbing Systems High Point and New Holly in 2005 dollars</b>		
	<b>New Holly</b>	<b>High Point</b>
Total Cost	\$2,112,213	\$2,867,200
# of Sq. Ft.	394,794	346,690
\$/Sq. Ft.	\$5.35	\$8.27
Cost ▲		\$2.92

To measure the opportunity cost of that capital investment, we examined what would have happened if the Housing Authority had invested the cost difference in a conventional financial instrument. At rates prevailing in 2007, gas consumption per square foot per year at New Holly and High Point cost \$0.698 and \$0.571 respectively, a difference of \$0.127. If the savings in gas costs per square foot is thought of as the return on an 'extra' investment of \$2.92 per square foot in the hydronic heating system, the annual rate of return is 4.35%.

Based on our analysis, it appears that the investment in green technologies is competitive in today's environment. In Washington state, agencies like the Seattle Housing Authority are part of a Local Government Investment Pool (LGIP) operated by the State Treasurer. In 2005, when Phase I of High Point was built, the average rate of return of the LGIP was 3.1688%. In 2007, the year for which the energy savings were calculated, the average rate of return of the LGIP was 5.0897%. The LGIP rate of return in July 2008, as this research was being conducted, was 2.28%.

The rate of return of 4.35% achieved by the Seattle Housing Authority falls comfortably within the range of financial investment alternatives during the time period in question. Obviously, there is considerable variability in the LGIP rate of return and also variability in utility rates. The State Utility Commission is currently considering a requested rate increase of

11% in the price of natural gas, and water rates in Seattle are expected to jump 18% in January. Rate increases of that magnitude will have the effect of substantially increasing the rate of return on green investments.

The difficulty in this instance is that the Housing Authority will have foregone the fruits of its investment for two years before reaping the benefit. Since downward adjustments in the utility allowance appear as a rent increase to tenants, a housing authority making such investments may experience some difficulty in actualizing the return. That issue is explored in subsequent sections of this report.

### **Potential Additional Savings from the Breathe Easy Homes**

As mentioned above, many of the social and environmental benefits of the sustainability investments at High Point – cleaner water, cleaner air, less and slower traffic – are difficult to quantify in monetary terms. However, one major element of the project, the “Breathe Easy Homes,” is worthy of special mention in that regard. The 35 Breathe Easy units were designed to significantly reduce the impact of respiratory disease among children with histories of severe asthma by incorporating low-emission building materials, special heating and ventilation systems, and other special features. These extra environmental measures are estimated to have cost about \$5,500 per unit in capital costs.

The results of that investment have been monitored by a research team of public health professionals<sup>2</sup> and found to be quite dramatic. As shown in the chart below, children living in the Breathe Easy Homes for one year experienced *a 61% increase in the number of symptom-free days, and a 67% reduction in the use of urgent clinical care.*

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2 Clinical response in asthma from improved housing design and construction. T.K. Takaro, MD, MPH1, J.W. Krieger, MD, MPH2, D.T. Sharify3, L. Song, PhD2 and T. Phillips4. 1Faculty of Health Sciences, Simon Fraser Univ., Burnaby, BC, Canada; 2Seattle King County Public Health, Seattle, WA, United States; 3Neighborhood House-High Point, Seattle, WA, United States and 4Seattle Housing Authority, Seattle, WA, United States.

Figure 7: Impact of Breathe Easy Homes on Children with Severe Asthma				
Endpoint	Old Home	New Home	home ▲	
	Exit1 n = 35	Exit2 n = 34	▲	p
Symptom-free days / 2 week	7.6	12.4	+4.8	.004
Caretakers quality of life	5.0	5.8	+0.8	.002
Urgent clinical care (%)*	61.8	20.6	-41.2	.002
Asthma trigger exposure <sup>t</sup>	1.4	0.03	-1.1	.000
* Total urgent asthma care visits past 3 months. t Presence of rodent, roach, pet, mold or moisture, group average.				

Results of this magnitude strongly suggest that the sustainability features in the Breathe Easy Homes at High Point have the potential to dramatically reduce health care costs and improve the quality of life for children who would otherwise suffer from chronic severe asthma. These benefits are significant and have a measurable value that is beyond the direct financial benefits from resource conservation we have documented.



## PART THREE: THE RESIDENTS' PERSPECTIVE



The High Point community is clearly consuming less water, electricity and natural gas than New Holly and Yesler Terrace. It is also clear that a large share of those savings can fairly be attributed to the additional capital investments SHA and its partners were willing to make in conservation technology when High Point was redeveloped. The science of predicting the effectiveness of such capital investments is now well-established, and a number of those tools were used to predict the level of savings actually achieved at High Point.

However, investments in technology comprise only one of the three ingredients required to achieve the best results in conservation. The second variable in the conservation equation – the contribution that residents are making through their every day actions - is more difficult to gauge. This is especially challenging in communities like those in our study, which are comprised of large numbers of recent immigrants who may not be familiar with the conservation technology incorporated in their new homes, and may have cultural practices which affect their use of natural resources.

To explore this dimension of conservation at High Point, our team conducted a community survey of residents of public housing at Yesler Terrace, New Holly and High Point and held a series of focus groups with residents from various ethnic groups at High Point.<sup>3</sup>

### **The Community Survey**

The survey instrument was designed by Cedar River Group and Neighborhood House to determine resident attitudes about conservation, the extent to which they perceive themselves to be involved, and their willingness to do more to conserve. Neighborhood House organized a multilingual team to conduct interviews by telephone with members of 234 households during April and May, 2008. The distribution of interviews among the three communities was as follows:

Yesler Terrace	70
New Holly	88
High Point	76

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<sup>3</sup> The survey instrument can be found in Appendix C and a summary of the survey results in Appendix D. A copy of the focus group protocol is in Appendix E.

The interviews were conducted in three languages:

English	125
Vietnamese	57
Somali	53

There were several key findings:

- **Residents of the three communities like their homes and their communities.** 95% of High Point residents reported that their family liked the housing unit they lived in compared to 86% at New Holly and 83% at Yesler Terrace.
- **Financial incentives work.** 68% of the residents at High Point and 72% at New Holly report taking “extra steps” to save money on water. At Yesler Terrace, where residents do not pay their water bills directly, only 16% report that level of effort.
- **Substantial majorities of the respondents in all three communities reported taking “extra steps” to save money on electricity,** with High Point residents leading the way with 70%, New Holly at 67%, and Yesler Terrace at 59%.
- **By far narrower majorities, public housing residents at High Point (58%) and New Holly (51%) believe their efforts are saving them money.** Just 37% of Yesler Terrace residents believe their efforts are paying off.
- **High Point residents are aware that they are paying less for electricity.** Among residents who paid electricity bills in their last residence, 54% of High Point residents stated they now pay less for electricity compared to 24% at New Holly and just 10% at Yesler Terrace.

- **A high percentage of public housing residents have difficulty paying their utility bills.** 33% of High Point residents, 23% of New Holly residents and 41% of Yesler Terrace residents reported that they have fallen behind on their utility bills during the past six months.
- **SHA's efforts to inform residents about the conservation measures at High Point have been a partial success.** The original plan for High Point called for SHA to work with residents to explain the various conservation measures in the community and how to use and maintain them. 55% of High Point respondents reported that they had received such training but 40% said they had not. 43% said they had been told about specific actions they could take to save money.
- **Among those who received such training more than 70% found it valuable.**
- **A majority of residents in all three communities do not understand the federal utility allowance.** Only 43% of High Point residents understand that they receive a utility allowance, with the numbers at the other locations even lower - 26% at New Holly; 19% at Yesler Terrace.
- **By huge majorities, public housing residents state that they would be willing to take additional steps to conserve if it saved them money.** (High Point 87% - New Holly 70% - Yesler Terrace 81%).

### **Focus Group Results**

The project team conducted five focus groups with High Point residents to probe the survey findings in greater depth. Two focus groups were conducted with English-speaking residents, and one each in Vietnamese, Cambodian and Somali. The focus group sessions were conducted according to a formal protocol, which can be found in Appendix E. Participant responses were self-recorded on a questionnaire, and more in-depth group discussions were conducted by Cedar River Group staff through interpreters provided by Neighborhood House. The highlights of the focus groups were as follows:

- **Most participants like living in High Point and prize the “green” aspects of the community.** They value the natural plants, big trees, parks and playgrounds, safety and security, new energy-saving appliances, and fresh air.
- **They are aware of the community’s role as a national model,** saying such things as:
  - “We saw it on television and we were proud.”
  - “It’s one of the top ones in the country.”
  - “It looks better and saves money.”
- **Most participants are aware of at least some of the resource conservation measures on-site, but did not know the purpose of many of them.** When asked if SHA staff had explained the conservation features of their units, fewer than half said, “Yes.”
- **Most participants indicated they work very hard to conserve energy and water.** They reported taking the following actions:
  - Putting on more clothes, turning down the heat.
  - Turning off lights and appliances.
  - Taking shorter showers.
  - Washing full loads.
  - Stressing conservation with their children.
- **Nearly all stated they would be willing to do more to conserve if it saved them money.**
- **A majority said they were willing to do more just to save the environment, even if it did not save them money.**

- **Most participants perceive they are saving money on their electric bills.** They are less convinced they are saving on gas and water. Some believe the bills are not accurate, and do not go down when they conserve.
- **Few participants understand the utility allowance.** About half of the participants stated that they had been told about the utility allowance, but very few said they understood how the utility allowance works in tandem with their rent.
- **The participants in the focus groups provided many valuable suggestions:**
  - **“We need more frequent meetings with SHA to discuss things.** When we were planning High Point there were lots of meetings, and we felt involved. Now they only meet when there’s a big problem.”
  - **“The light bulbs are a big problem.** They are supposed to save money, but we have to pay SHA a high fee to replace them.” “If we try to replace them ourselves, no one nearby sells them. You have to go to Lowe’s and they are far away and very expensive.”
  - **The tankless hot water heaters should have timers.** “Because the water never gets cold, my children stay in the shower forever.”
  - **Residents want to be able to walk to buy groceries and obtain services.** “If this is supposed to be a sustainable community, why do we have to drive to the nearest grocery store?”
  - **Parks should come first.** “If they build another community like High Point, they should put the parks in first, so the kids have a place to play from the beginning, rather than playing in the streets.”

Almost without exception, focus group participants value their community, and support the environmental goals it was designed to achieve. However, the results of the survey and focus groups strongly suggest that the efforts to engage the residents as active partners in conservation have been only partially successful, and that there is the potential to achieve even higher levels of conservation through resident action.

## PART FOUR: SHARING THE BENEFITS



The third ingredient in a successful conservation strategy is a framework of wise policies that aligns financial incentives to fairly reward both the capital investment and behavioral changes that are required to achieve the highest level of conservation. Examples of that type of alignment can often be found in the private sector, where financial incentives seem generally well-aligned for homeowners, who have the incentive to invest in effective conservation technology and to modify their daily practices to achieve the tangible benefit of lower utility bills. Similarly, most public and many private utilities in Washington state are incented to provide various forms of loans and rebates to encourage building owners to install conservation technology so the utility can avoid the incremental costs of adding new generating capacity and to meet the requirements of regulatory agencies.

In the rental housing market, aligning incentives is more complicated. Tenants who pay their own utilities certainly have an incentive to conserve, but they have limited ability to make capital investments in conservation since that power rests with the landlord, and landlords do not necessarily share the financial burden if the tenant fails to conserve. In those instances in which a landlord pays the utilities, they may or may not have an incentive to invest in conservation, depending upon the terms of the lease that determine how the costs of energy and water are passed through to the tenant.

### **The Lack of Alignment of Incentives in Public Housing**

In the case of public housing in HOPE VI projects, the incentives to conserve are even less clearly aligned with the interests of the parties because federal regulations seem to have the unintended consequence of contradicting that goal. Ironically, these consequences have evolved from legislation that was originally intended to protect the poor from utility costs they could not afford to pay. The legislation at the center of this issue is the Brooke Amendment, adopted by Congress in the 1960s, which mandates that local housing authorities operating federally subsidized public housing may charge tenants no more than 30% of their income for the combination of rent and utilities.

That provision certainly made sense at a time when most public housing units were not individually metered and housing authorities passed the costs of utilities along to residents in rents. The federal government, which was then paying the lion's share of the operating costs for public housing, certainly had a legitimate interest in ensuring that housing authorities were not passing on utility costs which their tenants could not afford to pay. However, that arrangement did little to encourage conservation by either the housing authorities or their tenants. Housing authorities had no compelling reason to conserve, since they were passing the lion's share of the bills on to the federal government, and tenants had no direct financial incentive to save either, since their payment to the Housing Authority would be the same, regardless of their level of consumption.

In recent years, the Seattle Housing Authority and many other public housing providers have shifted to individual metering and direct billing of the tenant by utilities. To adhere to the Brooke amendment requirement, the Housing Authority provides tenants with a "utility allowance" as a credit against their rent. The amount of the allowance is based upon the regional average for utility costs for comparable housing units in the same geographical area.

In this new system, the tenants are at risk in two ways: first, they must keep up with paying their utility bills or be cut off, and second, they must pay the additional costs if their actual use exceeds the local average, even if that amount plus their rent exceeds the 30% limit. The resident survey provides some indications that these new price signals are having an impact. At Yesler Terrace, where water is not individually metered, just 16% of residents reported that they "take extra

steps to save water” compared to 68% at High Point and 72% at New Holly where individual meters are in place. Not surprisingly, actual water consumption at Yesler Terrace is *dramatically higher* than in the other communities.

It should come as no surprise that residents of public housing, who by definition have very low incomes, would be especially sensitive to price signals, and would want to save as much as possible by conserving. It was also quite clear from the survey responses and focus group interviews that residents of public housing perceive themselves to be actively engaged in conservation, and would be willing to do even more if they knew more about effective methods.

### **The Housing Authority’s Dilemma**

The data on consumption in the HOPE VI communities clearly demonstrates that the residents’ current level of effort, when combined with the conservation measures required by code at New Holly, and the added investments at High Point, are having a significant impact. In 2007, the combined utility bills at New Holly were 36% below the local average used to establish the utility allowance; and at High Point, consumption was 56% below that level.

For two years, the residents have been the primary beneficiaries of the savings because, on average, they were paying less in utility bills than the utility allowance credited against their rent. The utilities themselves have also been beneficiaries of the conservation efforts at High Point, since the reduced demand helps them to forestall the necessity of adding new, more expensive generating capacity. Ironically, the Seattle Housing Authority, which bore most of the costs for planning and building the sustainable community at High Point, will be the last to receive any of the financial benefits of those investments.

As the magnitude of the actual savings became evident during the course of this project, the Housing Authority, which is facing continuing reductions in federal funding for its operations, felt compelled to take action to capture its share of the savings from conservation. To that end, SHA filed an application to adjust the utility allowances downward to reflect the actual costs of the resources consumed at New Holly and High Point as documented by the data gathered for this report. That adjustment was recently approved, and the change could generate more than \$500,000 per year in additional revenue for the Housing Authority at High Point alone!

Although the combination of the new rent levels and the actual utility bills will still be equal to or less than 30% of residents’ income, as required by federal law, the net effect of this adjustment will be perceived as a significant rent increase for tenants. In recognition of this problem, is adjusting the allowance in two phases, with half the increase scheduled to occur in October 2008, and half in March 2009.

On the surface, the change in utility allowance will simply shift the financial benefits of conservation at High Point from the residents to the Housing Authority. On a deeper level, the change also has the potential to undermine the residents' incentive to conserve. Indeed some residents have already voiced the fear that if they manage to lower their current levels of consumption through additional conservation, the Housing Authority will again adjust the utility allowance downward, increasing rents again.

In summary, it has become clear through this project that the distribution of the conservation benefits at High Point has not been optimal. Due to the complications created by federal regulations, the Housing Authority did not receive a financial return on its capital investments in sustainability for the first two years in which High Point was occupied, and was only able to do so when data gathered for this project provided a solid rationale for an adjustment in the utility allowance. For their part, low-income residents initially realized substantial financial savings from their role in conservation, but are now experiencing rent increases. Those increases will put additional pressure on the household budgets of these families. Even before the rent adjustments, one-third of those surveyed reported falling behind on their utility payments at least once during the last six months. To make matters worse, two of the three major utilities serving High Point are in the process of implementing substantial rate increases.

While it could well be argued that this additional financial pressure creates an even stronger incentive for residents to conserve, that incentive is blunted by the impression that if conservation succeeds, another downward adjustment in the utility allowance will occur, driving rents higher once again.

### **Local Rate Relief Policies**

A second problem with existing public policy can be found at the local level. As municipal utilities, Seattle City Light and Seattle Public Utilities provide lower utility rates for families whose incomes fall below a certain level. However, it is the longstanding policy of the City not to extend these rate subsidies to residents of public housing. This provision was originally established before units were individually metered, and most of the operating costs for public housing were passed on to the federal government. In that context, local officials may have correctly observed that the net beneficiary of the lower rates would not have been the residents, or even the local housing authority, but the federal government, and they probably saw no reason for the subsidy to flow in that direction.

Today, however, the federal government's operating support for public housing has been dramatically reduced, and the effect of the City's policies are felt closer to home. The primary beneficiary of a change in policy now would be either the tenant, or the local housing authority, if it adjusted the utility allowance to reflect the lower rates.

Another important question is whether the community's social and environmental goals are best served by granting rate subsidies to low-income residents or through direct investments in retrofitting the homes in which they live. While rate subsidies are vital supports for families and individuals who are struggling, and clearly advance the goal of social equity, they also may have the unintended consequence of blunting the incentive to conserve.

In Philadelphia, an organization called Solutions for Progress is highlighting this contradiction with a proposal to retrofit thousands of energy-inefficient row houses with bonds from the local gas utility, with the expectation that the bonds will be repaid through reductions in the amount of the subsidies the utility is currently providing through reduced rates for low-income households. If the project succeeds, the result will be beneficial for the environment as well as the utility and the residents. That is the kind of alignment of incentives that is needed, but has not yet been achieved, throughout the nation.



## PART FIVE: A STRATEGY FOR CHANGE



Ideally, our public policies would be aligned to achieve three goals:

- Increase conservation to the highest possible level;
- Distribute the benefits of conservation in a manner that fairly rewards both the capital investments of the housing authority and the conservation actions of the residents; and
- Meet the first two objectives in a manner that advances the central mission of public housing, which is to improve the quality of life and the future prospects of the residents.

This study reveals that current policies and practices are not optimal for achieving those goals. There are a variety of steps that could be taken to improve the situation at High Point and in future HOPE VI projects. In this section, we list actions that could be taken by housing authorities, by local utilities and City governments, and by residents and the community-based organizations that represent their interests.

### **An Action Agenda for Housing Authorities**

#### **1. Continue to invest in sustainability – it pays!**

The Seattle Housing Authority’s investments in green building at High point produced significant savings in the costs of energy and water. These costs are 56% below the local average which is used to calculate the utility allowance for public housing, and 20% below the standard achieved at New Holly, which was built to Seattle’s relatively “green” building code. Given the speed at which the science of green building is evolving, there is every reason to believe that similar efforts in future HOPE VI projects (such as Yesler Terrace) could achieve even more impressive results.

#### **2. Invest in the capacity of the residents to participate in sustainability initiatives.**

The levels of conservation achieved to date at High Point have been impressive. However, the community survey and focus group results suggest there is even more potential for savings if more residents were fully engaged, and knew more about actions they could take to conserve. This potential is evident in the very large majority of survey respondents who report that they would be willing to do more to conserve if they knew about additional measures that would be effective. The data also indicate that SHA’s efforts to educate residents about the sustainability measures at High Point were only partly successful, and did not reach many of the residents who were surveyed. These findings strongly suggest that there is another increment of conservation to be achieved through community organization and education.

#### **3. Set the utility allowance for residents of future HOPE VI projects at the anticipated level of consumption, rather than the regional average.**

The science of estimating the performance of conservation technology is rapidly improving, and SHA now has sufficient experience at New Holly, Rainier Vista and High Point to develop estimates that will be much more accurate than the local average that is currently used to set the utility allowance. By recalibrating the utility allowance to reflect the anticipated level of actual consumption before the tenants move in, the Housing Authority

will realize a more rapid return on its conservation investments, and residents will be spared an unexpected rent increase when the utility allowance is adjusted later on.

**4. Create a plan to share the benefits of conservation with residents.**

To reach optimal levels of conservation, all of the actors must have an incentive to participate. The current federal regulations make it difficult, but not impossible, to create these incentives. The U.S. General Services administration (GSA) faced a similar challenge when it built LEED certified buildings for federal agencies, only to find the employees of those agencies were not doing their part to conserve. In response, the GSA developed “benefit-sharing agreements” in which they agreed to share the savings from conservation with their tenant agencies on a 50/50 basis. This incentive has reportedly increased conservation activity and produced significant cost savings for both GSA and its tenant agencies. We suggest that the concept of benefit-sharing be considered at High Point and in future HOPE VI projects. Specific suggestions for the content of such agreements will be made in the final section of this chapter.

**5. Build evaluation into the project plan from the beginning.**

Although valuable, the findings of this analysis are less complete, and less compelling, than they would have been if there had been a plan at the beginning of the project to conduct this type of analysis. As it was, extraordinary efforts had to be made by our partners to reconstruct data that could have been recorded as the project went along. As SHA looks ahead to future projects such as Yesler Terrace, it should incorporate a systematic evaluation of the costs and benefits of the sustainability strategies it employs in each project. By making that commitment, SHA will be able to continually increase the effectiveness of its investments, and build the base of knowledge within the field of affordable housing development.

**An Action Agenda for Local Utilities and City Officials**

**1. The Mayor’s office should lead City departments in a more coordinated effort to support sustainability in future HOPE VI projects.**

The performance of government agencies and local utilities in responding to the opportunities created by the HOPE VI project at High Point reflects a wide spectrum, from full partnership to outright opposition. At one end of the spectrum, Seattle Public Utilities provided the imagination and leadership needed to create a natural drainage system for the entire site and paid the incremental cost of building that system. Public Health officials also acted

quickly and creatively on a resident's suggestion by helping to design "Breathe Easy" homes with special features for children with asthma, and evaluating the impact of those homes on health outcomes.

Seattle City Light and Puget Sound Energy were also very helpful. However, their contributions were made incrementally through existing subsidy programs for specific technology (such as energy-efficient light fixtures or appliances) rather than the more innovative and comprehensive approach taken by Seattle Public Utilities. At the start, the Seattle Fire Department and Department of Transportation initially stood in opposition to some of the sustainability features at High Point.

This variability among City departments and local utilities was not surprising, given the different missions with which they are charged. For example, it is certainly understandable that the Fire Department would oppose the proposal to narrow the streets at High Point until their representatives could be convinced the streets would still accommodate their trucks in case of a fire. Nevertheless, time, energy and money were lost – and some opportunities may have been missed – because these differences in perspective were allowed to slow the project. To their credit, the Mayor's staff did intervene when necessary to resolve the differences among City departments, and that intervention generally advanced the cause of sustainability.

The experience at High Point suggests that there is a chance to accomplish even more in future HOPE VI projects if the City's leaders are alert to the magnitude of the opportunity these projects afford and pull all City departments together to make the most of those opportunities. The City of Seattle has, on several occasions, acted proactively to collaborate with large commercial enterprises to achieve conservation goals. One example is City Light's agreement to pay part of the cost for conservation technology at a steel plant in West Seattle. We believe that same level of interest and investment is appropriate for HOPE VI housing developments, because the development of 1,600 homes built to state-of-the-art standards could save a significant block of power and water.

**2. Local utilities should develop payment plans that enable residents to level out their payments during the year.**

Most public housing residents live on fixed incomes and have little if any savings. This makes it difficult to adjust to seasonal peaks in utility costs. Many families would benefit from a plan that allowed them to average their payments during the year, making it easier to manage on a tight budget.

**3. City officials should carefully review the implications of the current policy regarding low-income rate relief.**

Under the current policy, city utilities provide power and water to low-income residents of nonpublic housing at half price, while charging the full price to residents of public housing who have the same incomes. The rationale for this discrepancy has been that the residents of public housing already benefit from a public subsidy through their reduced rents, and should not be able to “double-dip” by receiving lower utility rates.

There are certainly arguments to be made regarding the equity of such a policy, especially if it is true that the same prohibition does not apply to residents of subsidized housing that is managed by agencies other than the Housing Authority. However, we submit that the more important question is whether the current policy actually aligns with the community’s social, environmental and economic goals.

In its simplest terms, low-income rate assistance is intended to keep the poor from suffering because they cannot afford sufficient energy to heat their homes, or sufficient water for health and hygiene. The rate relief program attempts to achieve that objective by simply cutting the cost of power and water for those whose incomes fall below a specific level, without regard for how much of the resources they use. From the perspective of those who advocate for the poor, the existing policy is appropriate because the poor often live in old and/or substandard housing, which is generally more costly to heat and more likely to have leaky pipes and faucets, toilets and shower heads that consume more water than in newer homes. From the point of view of the conservationist, however, an unintended consequence of the current policy is that it subsidizes the waste of resources that goes hand in hand with the inefficient housing in which many low-income families find themselves, and it does so at a high cost to rate payers and the environment.

At High Point, residents are using 56% less in utilities than the regional average, and yet they are paying for the smaller amount they use at twice the rate that is paid by someone with the same income who is using more than twice the amount of energy and water they are using. Perhaps it is time to review a policy that produces that result.

**4. Utilities should reshape their rate relief and conservation programs to focus on making the community’s supply of affordable housing more sustainable.**

The City of Seattle is about to launch a new generation of conservation investments, creating a huge opportunity to address the issues identified above. We suggest the City place its highest priority on retrofitting the homes of those who have applied for low-income rates and families and individuals who are seeking financial help through

federal energy assistance programs administered by local nonprofit organizations. This initiative would not only save energy and water, but lower the cost of rate relief and emergency assistance programs in the future.

In Philadelphia, Pennsylvania, an organization called Solutions for Progress has proposed an initiative on the scale we imagine. They have proposed an effort to hire and train unemployed City residents to retrofit thousands of old and inefficient row houses in the City's poorer neighborhoods. The project would be financed by bonds issued by the public gas utility and paid from the savings the utility would realize in its rate relief programs! We believe Seattle has a similar opportunity.

**5. In designing a program to retrofit affordable housing units, the City should incorporate universal design measures to make the homes safer and more appropriate for children and the elderly.**

In addition to retrofitting homes to conserve water and electricity, the City should incorporate the types of minor alterations that make housing safer for children and help elderly and disabled residents to remain in their homes. A list of these "universal design" features can be found in Appendix F. By incorporating these measures in a home retrofit program, the City could create multiple public benefits in an efficient and cost-effective way.

**6. Local training and employment programs should be adapted to give low-income individuals an opportunity to participate in the "green economy."**

A significant number of "green jobs" were created by the construction of High Point, and a modest number of permanent jobs have been established to care for the natural drainage system and other landscape features in the new community. Future HOPE VI projects will create more job opportunities and the housing conservation initiative we have proposed would require hundreds of workers with the skills needed to retrofit homes. The question is who will be ready to fill those jobs.

Van Jones, the Executive Director of the Ella Baker Center for Human Rights in Oakland, California, has attracted national attention with his call to bridge the gap between disadvantaged populations and the environmental movement through job training for low-income youth in cutting-edge green technologies, and the creation of an "energy corps," modeled upon the Civilian Conservation Corps of the Roosevelt era, to carry-out home retrofits and other conservation projects. We believe Seattle has all the basic ingredients to put that concept into practice: strong community colleges, creative nonprofits, progressive labor unions and enlightened civic leaders.

**7. Create mechanisms to value and purchase blocks of power conserved by neighborhood organizations.**

The High Point project clearly demonstrates the value of capital investments in conservation technology, but the community survey and focus group results suggest that additional savings could be obtained if residents were more aware of strategies to conserve, and more fully engaged in those strategies. Seattle has done an exemplary job of creating financial incentives for capital investments ranging from rebates for water-conserving irrigation systems to distributing free compact fluorescent bulbs. In each case, the utilities have been able to clearly establish the economic value of the specific conservation tool, and make a financial decision that it is in the utility's interest to subsidize the purchase of those tools.

The case for similar investments in projects that seek to increase conservation through community organizing, education and engagement is more difficult to establish. To the best of our knowledge, our local utilities have not yet been approached by a community group with a proposal to, in effect, sell the utility a block of power that is to be conserved through community action. Perhaps the HOPE VI communities are the perfect place to test that concept.

**An Action Agenda for Community-Based Organizations**

**1. Community organizations should provide the means for residents to be more fully engaged in sustainability initiatives.**

The community survey and focus groups demonstrated that many residents of public housing are engaged in conservation activities, and want to be more engaged. And, they have great ideas. Consider some of the ideas that emerged directly from focus groups at High Point:

- A Vietnamese participant suggested placing timers on the tankless hot water heaters to discourage their teenage children from taking “endless showers;”
- A Cambodian leader suggested providing replacement light bulbs and other conservation tools on site at High Point so that residents won't have to travel five miles to the Rainier Valley to purchase them.
- Participants in all the focus groups suggested ways to provide more information for residents about the actions they can take to help conserve.

Residents report that during the planning for High Point, the Housing Authority went to great lengths to seek their opinions and keep them engaged, but those efforts have fallen off as the planning stage ended. In light of the budget pressures facing the Housing Authority, it is unlikely that it will have the resources to engage the community in an expanded conservation initiative. If the ideas of the residents are to be tapped, and potential additional increments of conservation are to be achieved, there is clearly a role for a community-based organization such as Neighborhood House.

**2. Neighborhood House (or another community-based organization) should explore the idea of creating a “Neighborhood Environmental Services Cooperative” in each HOPE VI community.**

Energy Services Companies, or “ESCOs” have been created in many areas of the country to help corporations and commercial developers save money through conservation. Typically an ESCO will provide expertise regarding conservation technology, and take the financial risk of the investment in that technology in return for a share of the savings. The concept of a “neighborhood environmental services co-operative” (NESCO) is similar to the ESCO model in some respects, but its focus would be on the community’s role in conservation rather than solely on capital investments in conservation technology.

A NESCO could be organized as a program of an existing organization (such as Neighborhood House) or independently. In either case, the NESCO would need the cross-cultural and linguistic skills to overcome the language and cultural barriers that often make it difficult to engage residents of public housing in mainstream conservation initiatives. The NESCO would educate residents about how to take advantage of the conservation technology that exists in their housing, and inform them about additional measures they could take to conserve.

The NESCO would also carry-out specific projects to increase conservation performance. For example, the NESCO could install timers on the tankless hot water heaters and possibly operate a “conservation tools store” in or near High Point. As the City utilities introduce new conservation measures (such as home composting) they could contract with the NESCO to handle distribution, installation and education activities within their community.

Start-up funding for the NESCO could be raised in two ways:

- SHA could adopt the benefit sharing model created by the GSA and agree to share the financial benefits of conservation by rebating a portion of the increased revenue they derive from adjusting the utility allowance to the NESCO.
- The community organization could seek initial funding for the NESCO through a demonstration grant from a government agency, a utility, or a foundation.

In either case, the initial goal of the NESCO would be to design and implement a program of community actions to increase conservation and to document the results in terms of the actual savings achieved. Once the program is tested and savings are well-documented, the NESCO could be in a position to sustain itself through performance-based contracts with local utilities and with SHA. In each case, the contract should be designed so that the NESCO shares in the cost savings that are realized.

If the NESCO proves successful, it will generate savings far greater than its operating expenses. It could then be in a position to return a conservation dividend to its members - the residents. The system for sharing the dividends would resemble the one in place at Recreational Equipment Incorporated (REI), in which the co-op returns a share of the savings in proportion to the households' participation level, with one important difference: At REI, the more you spend the more you earn; with the NESCO, the more you save, the higher the dividend.

A key hypothesis in this strategy is that additional conservation savings are achievable if the incentives are properly aligned, and residents receive services from the NESCO that enable them to be more effective conservationists. An ideal result would be that conservation levels rise sufficiently that SHA realizes as much revenue as it would have if it had not engaged in the benefit-sharing agreement, while tenants benefit both by paying lower utility bills and by receiving conservation dividends from the NESCO.



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**HIGH POINT      Redevelopment Team Directory**

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		<b>Mark Beach</b>	<i>Maintenance</i>	206-932-2736, x405			
		<b>Seema Scholl</b>	<i>Procurement</i>	206-615-3395		<a href="mailto:sscholl@seattlehousing.org">sscholl@seattlehousing.org</a>	
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<b>DESIGN TEAM</b>							
Architect/Planner	<b>Mithun</b>			206-623-3344	206-623-7005		<a href="http://www.mithun.com">www.mithun.com</a>
	Pier 56	<b>Bill Kreager</b>	<i>Principal in Charge</i>	206-971-5534		<a href="mailto:billk@mithun.com">billk@mithun.com</a>	
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	<b>Burton K. Yuen</b>	<i>Landscape Architect</i>	206-971-5535		<a href="mailto:burtony@mithun.com">burtony@mithun.com</a>		
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	Seattle, WA 98101						
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**HIGH POINT      Redevelopment Team Directory**

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Traffic Engineer	Garry Struthers Associates 3150 Richards Rd Bellevue, WA 98005	Gary Norris		425-519-0300	425-519-0309	<a href="mailto:garryn@gseascc-inc.com">garryn@gseascc-inc.com</a>	
Arborist	Urban Forestry 15119 McLean Rd Mt. Vernon, WA 98273	Jim Barborinas		360-428-5810 c 360-770-9921	360-428-1822	<a href="mailto:jimb-ufsinc@wavecable.com">jimb-ufsinc@wavecable.com</a>	
Historian	Partners in History 3406 97th Ave S.E. Mercer Island, WA 98040	Sherry Boswell		206-236-2543 c 206-683-7348	206-275-1195	<a href="mailto:ellbav@msn.com">ellbav@msn.com</a>	
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**HIGH POINT      Redevelopment Team Directory**

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		Jeff Laird	<i>TESC Inspector</i>			<a href="mailto:JBL@shanwil.com">JBL@shanwil.com</a>	
		Richard Martin				<a href="mailto:rjm@shanwil.com">rjm@shanwil.com</a>	
		Tyler Stevens	<i>Testing</i>	206-695-6919			
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Haz Mat	EcoCompliance 1823 Bremerton Ave. NE Renton, WA 98059-3954	Bill Kane		425-271-5629 p 206-978-0589	425-271-5629	<a href="mailto:ecocompwfk@aol.com">ecocompwfk@aol.com</a>	
Funding Strategies	Cedar River Group 93 Pike Street, Suite 315 Seattle, WA 98101	Tom Byers Karen Lane Trung Tu	<i>Partner</i> <i>Principal</i> <i>Associate</i>	206-223-7660, x101 (D) 206-216-3829 206-412-3187		<a href="mailto:tcm@cedarrivergroup.com">tcm@cedarrivergroup.com</a> <a href="mailto:karen@lane-hammel.com">karen@lane-hammel.com</a> <a href="mailto:trangtu@cablespeed.com">trangtu@cablespeed.com</a>	
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Artist	Myers Sculpture	Bruce Myers		360-376-1043		<a href="mailto:Myerssculpture@yahoo.com">Myerssculpture@yahoo.com</a>	
	Reprographics Northwest, Inc.			w 206-624-2040			

**HIGH POINT      Redevelopment Team Directory**

Organizational/Address	Name	Title	P	F	E-mail	Web
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*Note: Orders are billed to Mithun Architects, PO #01240*

**GOVERNMENT AGENCIES**

**DPD**

<i>courier address</i> 700-5th Avenue, Suite 2000 Seattle, WA 98104	Niel Thibert	<i>Drainage Review</i>			<a href="mailto:niel.thibert@seattle.gov">niel.thibert@seattle.gov</a>	
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	Cris Horbelt	<i>Drainage Review</i>	206-615-1485			
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	Max Castillo	<i>Sr. Electrical Consultant</i>	206-386-4203	206-386-4222		
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	Peter Dobrovoly	<i>Sustainable Building Coordinator</i>	206-615-1094	206-287-5049	<a href="mailto:peter.dobrovoly@ci.seattle.wa.us">peter.dobrovoly@ci.seattle.wa.us</a>	
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**HIGH POINT      Redevelopment Team Directory**

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	Rich Gello	<i>Office of Environmental Sustainability</i>	206-684-0631			

**HIGH POINT      Redevelopment Team Directory**

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		5405 Delridge Way SW Seattle, WA 98106					
		Paul Fischberg		206-923-0917			
<b>CONSTRUCTION TEAM</b>							
<b>General Contractor</b>	Absher Construction P.O. Box 280 Puyallup, WA 98371	Doug Orth Bill Clinton Roy Hoke Blaine Wolfe	<i>Senior Project Manager</i> <i>Senior Estimator</i> <i>Project Superintendent</i> <i>Estimator</i>	253-845-9544 253-845-9544 o 253-405-3583 253-845-9544	253-841-0925 253-841-0925 253-841-0925	<a href="mailto:dco@AbsherNW.com">dco@AbsherNW.com</a> <a href="mailto:billc@abshernw.com">billc@abshernw.com</a> <a href="mailto:rhoke@AbsherNW.com">rhoke@AbsherNW.com</a> <a href="mailto:bwolfe@AbsherNW.com">bwolfe@AbsherNW.com</a>	
	Job Site PO Box 47148, Seattle, 98146 Job Site 373 - High Point 3050 SW Graham St Seattle, WA 98126	Stephanie Caldwell Manuel Pereira	<i>Community Outreach Coordinator</i> <i>Senior Project Manager</i>	253-779-5768 253-845-9544	253-779-5775 253-841-0925	<a href="mailto:scaldwell@abshernw.com">scaldwell@abshernw.com</a> <a href="mailto:man@abshernw.com">man@abshernw.com</a>	
early site subcontractor	RCI Construction Group 1216 - 140 <sup>th</sup> Avenue CT E P.O. Box 1730 Sumner, WA 98390  <a href="http://www.rci-group.com">www.rci-group.com</a>	Tom Nielsen Mike Tripp	<i>Vice President - Operations</i> <i>QC manager</i>	o 253-863-5200 w 253-405-3056 206-933-1587 253-405-3007	253-859-5702	<a href="mailto:tnielsen@rci-group.com">tnielsen@rci-group.com</a>	

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Sitework Subcontractor for 2005 infrastructure. Took over when RCI left the job.						
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Coates Surveying Service 5519 – 36 <sup>th</sup> Ave. N. Tacoma, WA 98443	Henry Coates		253-922-9548 Henry c 253-381-2168	253-926-6747	NA	
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APPENDIX B  
Data on Utilities

By Site						Water / Sewer			Electric			Gas			All Utilities			
Site	# Units	# Residents			Average # Residents per Unit	Water Sample Count	Unit	Avg GCD	Cost per Capita per Month	Electric Sample Count	Unit	Average kWh per capita per Month	Cost per Capita per Month	Gas Sample Unit Count	Avg Therms per Capita per Month	Cost per Capita per Month	Cost per Capita per Month	
Highpoint	344	1,192			3.5	293		39.9	\$18.49	289		172.9	\$9.36	246		12.1296	\$53.49	\$81.34
NewHolly	620	2,149			3.5	498		42.2	\$19.45	496		209.0	\$11.62	415		17.6037	\$66.82	\$97.89
Rainier	184	652			3.5	95		40.2	\$18.63	165		223.7	\$13.07	95		13.0993	\$66.05	\$97.75
Yesler Terrace	561	1,202			2.2	561		61.6	\$25.93	388		427.2	\$25.85					\$51.78

By Site / Heat Type						Water / Sewer			Electric			Gas			All Utilities			
Site	# Units	# Residents	Heat Type		Avg Residents per Unit	Water Sample Count	Unit	Avg GCD	Cost per Capita per Month	Electric Sample Count	Unit	Avg kWh per capita per Month	Cost per Capita per Month	Gas Sample Unit Count	Avg Therms per Capita per Month	Cost per Capita per Month	Cost per Capita per Month	
Highpoint	36	72	Electric		2.0	28		37.7	\$18.29	28		392.1	\$23.32					\$41.61
Highpoint	308	1,120	Gas		3.6	265		40.2	\$18.51	261		149.4	\$7.87	246		12.1296	\$53.49	\$79.87
NewHolly	84	249	Electric		3.0	68		46.6	\$21.30	67		357.8	\$22.61					\$43.91
NewHolly	536	1,900	Gas		3.5	430		41.6	\$19.16	429		185.7	\$9.91	415		17.6037	\$66.82	\$95.89
Rainier	75	171	Electric		2.3					72		331.7	\$20.04					\$20.04
Rainier	109	481	Gas		4.4	95		40.2	\$18.63	93		139.2	\$7.62	95		13.0993	\$66.05	\$92.30

By Site / Bldg Type						Water / Sewer			Electric			Gas			All Utilities			
Site	# Units	# Residents	Heat Type	Bldg Type	Avg Residents per Unit	Water Sample Count	Unit	Avg GCD	Cost per Capita per Month	Electric Sample Count	Unit	Avg kWh per capita per Month	Cost per Capita per Month	Gas Sample Unit Count	Avg Therms per Capita per Month	Cost per Capita per Month	Cost per Capita per Month	
Highpoint	36	72	Electric	Apartment Building	2.0	28		37.7	\$18.29	28		392.1	\$23.32					\$41.61
Highpoint	150	506	Gas	Multifamily	3.4	128		40.4	\$18.68	126		141.5	\$7.28	119		11.0862	\$47.77	\$73.73
Highpoint	138	535	Gas	Semi-Detached Duplex	3.9	120		40.4	\$18.48	118		155.2	\$8.34	111		12.8338	\$59.24	\$86.06
Highpoint	20	79	Gas	Single-Family Detached	4.0	17		37.1	\$17.38	17		168.1	\$9.96	16		15.0040	\$56.12	\$82.47
NewHolly	24	54	Electric	Apartment Building	2.3	21		56.7	\$26.41	21		368.6	\$21.89					\$48.30
NewHolly	60	195	Electric	Multifamily	3.3	47		42.1	\$19.01	46		352.9	\$22.94					\$41.95
NewHolly	271	865	Gas	Multifamily	3.2	225		41.0	\$19.05	221		183.2	\$9.53	213		19.0131	\$65.70	\$94.29
NewHolly	206	898	Gas	Semi-Detached Duplex	4.4	160		41.6	\$18.73	158		168.5	\$9.42	154		14.4473	\$72.11	\$100.26
NewHolly	59	137	Gas	Single-Family Detached	2.3	45		44.2	\$21.22	50		251.4	\$13.10	48		21.4762	\$54.81	\$89.14
Rainier	75	171	Electric	Apartment Building	2.3					72		331.7	\$20.04					\$20.04
Rainier	100	453	Gas	Multifamily	4.5	87		39.9	\$18.45	85		136.0	\$7.48	87		12.6373	\$66.27	\$92.21
Rainier	2	10	Gas	Semi-Detached Duplex	5.0	2		28.1	\$12.99	2		101.9	\$5.31	2		9.2441	\$57.79	\$76.09
Rainier	7	18	Gas	Single-Family Detached	2.6	6		49.3	\$23.10	6		196.3	\$10.27	6		21.0829	\$65.60	\$98.97

APPENDIX B  
Data on Utilities

By Site / Bldg Type / Bdrms				Water / Sewer				Electric				Gas				All Utilities		
Site	# Units	# Residents	Heat Type	Bldg Type	Bdrms	Avg Residents per Unit	# Water Sample Count	Unit	Avg GCD	Cost Capita per Month	Electric Sample Count	Unit	Avg kWh per capita per Month	Cost Capita per Month	Gas Sample Unit Count	Avg Therms per Capita per Month	Cost per Capita per Month	Cost per Capita per Month
Highpoint	7	7	Electric	Apartment Building	1	1.0	4	31.3	\$16.94	4	494.1	\$27.05					\$43.99	\$43.99
Highpoint	29	65	Electric	Apartment Building	2	2.2	24	38.8	\$18.52	24	375.1	\$22.70					\$41.22	\$92.38
Highpoint	2	2	Gas	Multifamily	1	1.0	2	78.2	\$37.17	2	267.9	\$13.16		2	18.5007	\$30.15	\$80.47	\$80.47
Highpoint	65	149	Gas	Multifamily	2	2.3	56	46.0	\$21.54	54	163.5	\$8.21	50	12.8830	\$19.13	\$48.88	\$112.05	
Highpoint	80	339	Gas	Multifamily	3	4.2	67	34.8	\$15.87	67	120.8	\$6.36	64	9.3775	\$13.05	\$35.27	\$149.48	
Highpoint	3	16	Gas	Multifamily	4	5.3	3	35.2	\$15.85	3	122.6	\$7.05	3	12.6509	\$16.27	\$39.16	\$208.88	
Highpoint	25	57	Gas	Semi-Detached Duplex	2	2.3	23	57.6	\$26.59	23	237.0	\$12.57	20	18.7444	\$26.15	\$65.31	\$148.91	
Highpoint	90	344	Gas	Semi-Detached Duplex	3	3.8	76	37.6	\$17.24	74	141.7	\$7.54	71	12.1516	\$16.58	\$41.36	\$158.11	
Highpoint	23	134	Gas	Semi-Detached Duplex	4	5.8	21	31.3	\$14.09	21	112.8	\$6.52	20	9.3448	\$12.31	\$32.93	\$191.84	
Highpoint	2	3	Gas	Single-Family Detached	1	1.5	2	56.2	\$26.85	2	227.9	\$11.21	2	22.2312	\$32.26	\$70.32	\$105.47	
Highpoint	6	13	Gas	Single-Family Detached	2	2.2	6	40.8	\$19.42	6	195.4	\$10.05	5	19.2057	\$26.86	\$56.34	\$122.07	
Highpoint	9	35	Gas	Single-Family Detached	3	3.9	8	32.3	\$14.81	8	143.1	\$8.07	8	12.0957	\$16.24	\$39.12	\$152.14	
Highpoint	3	28	Gas	Single-Family Detached	5	9.3	1	14.9	\$6.80	1	84.0	\$5.11	1	2.8067	\$4.22	\$16.13	\$150.51	
NewHolly	3	3	Electric	Apartment Building	1	1.0	3	93.1	\$43.63	3	548.0	\$30.70					\$74.33	\$74.33
NewHolly	21	51	Electric	Apartment Building	2	2.4	18	50.6	\$23.54	18	338.7	\$20.42					\$43.96	\$106.77
NewHolly	60	195	Electric	Multifamily	3	3.3	47	42.1	\$19.01	46	352.9	\$22.94					\$41.95	\$136.33
NewHolly	24	25	Gas	Multifamily	1	1.0	23	60.9	\$29.69	23	329.3	\$16.09	23	34.2327	\$48.13	\$93.90	\$97.81	
NewHolly	114	259	Gas	Multifamily	2	2.3	93	45.4	\$21.15	91	210.1	\$10.87	89	20.3061	\$27.87	\$59.89	\$136.07	
NewHolly	124	523	Gas	Multifamily	3	4.2	102	32.8	\$14.96	100	127.2	\$6.80	94	14.7161	\$19.21	\$40.97	\$172.80	
NewHolly	9	58	Gas	Multifamily	4	6.4	7	36.0	\$15.98	7	153.7	\$9.63	7	10.2679	\$13.40	\$39.01	\$251.42	
NewHolly	18	43	Gas	Semi-Detached Duplex	2	2.4	15	58.1	\$26.65	15	246.0	\$12.79	14	23.5309	\$31.93	\$71.37	\$170.50	
NewHolly	133	507	Gas	Semi-Detached Duplex	3	3.8	101	44.0	\$19.78	99	178.0	\$10.13	98	15.3397	\$20.19	\$50.10		
NewHolly	44	266	Gas	Semi-Detached Duplex	4	6.0	35	30.6	\$13.66	35	126.1	\$6.82	33	9.3650	\$12.33	\$32.81		
NewHolly	11	82	Gas	Semi-Detached Duplex	5	7.5	9	30.3	\$13.43	9	99.9	\$6.07	9	9.2345	\$11.78	\$31.28		
NewHolly	19	22	Gas	Single-Family Detached	1	1.2	15	45.7	\$23.01	15	308.1	\$15.58	15	28.2744	\$40.85	\$79.45		
NewHolly	25	49	Gas	Single-Family Detached	2	2.0	24	46.9	\$22.00	23	279.9	\$14.83	23	20.0106	\$28.01	\$64.84		
NewHolly	9	36	Gas	Single-Family Detached	3	4.0	2	32.8	\$15.09	8	122.3	\$6.24	8	16.3008	\$21.00	\$42.33		
NewHolly	4	23	Gas	Single-Family Detached	4	5.8	3	22.7	\$10.44	3	133.9	\$7.51	2	8.0462	\$10.76	\$28.71		
NewHolly	2	7	Gas	Single-Family Detached	5	3.5	1	45.9	\$20.26	1	129.8	\$7.87	0			\$28.13		
Rainier	7	8	Electric	Apartment Building	1	1.1				7	404.4	\$22.87					\$22.87	
Rainier	68	163	Electric	Apartment Building	2	2.4				65	323.9	\$19.74					\$19.74	
Rainier	9	11	Gas	Multifamily	1	1.2	7	74.3	\$35.99	7	253.8	\$13.04	7	23.5291	\$35.33	\$84.35		
Rainier	7	17	Gas	Multifamily	2	2.4	7	36.2	\$17.42	6	167.7	\$8.55	7	16.5073	\$22.83	\$48.79		
Rainier	51	215	Gas	Multifamily	3	4.2	45	37.1	\$17.06	45	126.0	\$6.88	45	11.9527	\$16.01	\$39.95		
Rainier	29	179	Gas	Multifamily	4	6.2	24	37.0	\$16.72	23	111.2	\$6.46	24	10.3332	\$13.46	\$36.64		
Rainier	4	31	Gas	Multifamily	5	7.8	4	34.9	\$15.63	4	131.1	\$8.60	4	8.3299	\$10.78	\$35.01		
Rainier	2	10	Gas	Semi-Detached Duplex	3	5.0	2	28.1	\$12.99	2	101.9	\$5.31	2	9.2441	\$12.51	\$30.81		
Rainier	6	14	Gas	Single-Family Detached	2	2.3	5	53.8	\$25.17	5	209.3	\$10.92	5	22.5658	\$30.16	\$66.25		
Rainier	1	4	Gas	Single-Family Detached	3	4.0	1	27.1	\$12.75	1	131.1	\$7.00	1	13.6687	\$17.98	\$37.72		
Yesler Terrace	35	30	ELC BSBD	Multifamily	0	0.9				24	510.9	\$29.18					\$29.18	
Yesler Terrace	192	202	ELC BSBD	Multifamily	1	1.1				153	530.9	\$30.87					\$30.87	
Yesler Terrace	229	511	ELC BSBD	Multifamily	2	2.3				151	368.9	\$23.15					\$23.15	
Yesler Terrace	86	319	ELC BSBD	Multifamily	3	3.8				50	294.8	\$19.73					\$19.73	
Yesler Terrace	19	140	ELC BSBD	Multifamily	4	7.4				10	180.4	\$12.44					\$12.44	

**SEATTLE HOUSING AUTHORITY  
GREEN HOMES PROJECT**

**Telephone Questionnaire**

**COVER PAGE**

**INTERVIEWER** \_\_\_\_\_

**Language of interview:** English \_\_\_\_\_ Vietnamese \_\_\_\_\_ Somali \_\_\_\_\_

**Name of resident** \_\_\_\_\_

**Phone number** \_\_\_\_\_

**Best time to call back** \_\_\_\_\_

**Track calls and record on phone list. Please try at different days of the week, different times of the day (at least one in the morning, afternoon and night):**

**Date of the interview:** \_\_\_\_\_

**Date reached and declined:** \_\_\_\_\_

Attach this to the completed survey.

**TRACKING PROTOCOL:**

1. Track calls and record on phone list. Please try at different days of the week, different times of the day (at least one in the morning, afternoon and night):
2. Four possible results:
  - A. Phone disconnected – note on log
  - B. Made 4 Attempts to reach resident, no answer – note each attempt on log
  - C. Made contact and resident declined survey – note on cover sheet
  - D. Completed survey – fill out cover sheet and attach to survey
3. **READ PHONE SCRIPT TO RESIDENT**

Hello, my name is \_\_\_\_\_ and I am calling from Neighborhood House.

May I speak to NAME LISTED AS HEAD OF HOUSEHOLD.

If the resident is *not there*, ask when is a good time to call back. *Record on cover page.*

If the resident is there, *read this:*

The purpose of this call is to do a short telephone survey to find out about the use of gas, water and electricity in your home. This information will help Seattle Housing Authority and other agencies learn how to help the community to save on your gas, water or electric bills. This will take less than 10 minutes. The information you give me is confidential and your name will not be shared with SHA or anyone. Will you help by participating in this survey?

If the answer is **NO**, say Thank You. Record on Cover Sheet

If the answer is **YES**, read this: Thank you. There are 16 questions and you can pass on questions you don't want to answer. There are **NO** right or **WRONG** answers. Please pick the best match for your answer.

**1. How long have you lived in High Point/New Holly/Yesler Terrace?**

Fill in: \_\_\_\_\_years \_\_\_\_\_ months

**2. Where did you live before you moved here?**

A) Another SHA site: Yesler Terrace \_\_\_\_\_ Rainier Vista \_\_\_\_\_ New Holly \_\_\_\_\_  
High Point \_\_\_\_\_ B) Section 8 \_\_\_\_\_ C) Rental \_\_\_\_\_

**3. How many people lived in your household before you moved into this home? \_\_\_\_\_**

**4. How many people live in your household now? \_\_\_\_\_**

**5. Does your family like living in the home you are in now?**

Yes \_\_\_\_\_ No \_\_\_\_\_ Not sure \_\_\_\_\_

**6. Does your family like living in this community?**

Yes \_\_\_\_\_ No \_\_\_\_\_ Not sure \_\_\_\_\_

**7. Does your house stay at a comfortable temperature**

A) In the winter time? Yes \_\_\_\_\_ No \_\_\_\_\_

B) In the summer time? Yes \_\_\_\_\_ No \_\_\_\_\_

8. *For High Point residents only.*

**When you moved in, did SHA staff explain the special features in your home that will help to save energy and water?**

Yes \_\_\_\_\_ No \_\_\_\_\_

9. *For High Point residents only.*

**A) Did they explain what you could do to help save money on your utility bills?**

Yes \_\_\_\_\_ If yes, go to B No \_\_\_\_\_

B) If yes, ask: Was it helpful? Yes \_\_\_\_\_ No \_\_\_\_\_

**10. Do you receive a “utility allowance” from Seattle Housing Authority?**

Yes \_\_\_\_\_ No \_\_\_\_\_ Don't Know \_\_\_\_\_

**11. Did you pay your own electricity bills where you lived before?**

A) Yes \_\_\_\_\_ If yes, go to B No \_\_\_\_\_

B) If yes, do you pay more or less now? More \_\_\_\_\_ Less \_\_\_\_\_ About the same \_\_\_\_\_

**12. A) Did you pay your gas bills where you lived before?**

Yes \_\_\_\_\_ If yes, go to B No \_\_\_\_\_

B) If yes, do you pay more or less now? More \_\_\_\_\_ Less \_\_\_\_\_ About the same \_\_\_\_\_

**13. A) Did you pay your water bills where you lived before?**

Yes \_\_\_\_\_ No \_\_\_\_\_

B) If yes, do you pay more or less now? More \_\_\_\_\_ Less \_\_\_\_\_ About the same \_\_\_\_\_

**14. A) Do you take extra steps to save money on electricity?**

Yes \_\_\_\_\_ If yes, Go to B and C) No \_\_\_\_\_

B) If yes, what are some things you do? \_\_\_\_\_

\_\_\_\_\_

C) Do you believe you have saved money by taking those steps?

Yes \_\_\_\_\_ No \_\_\_\_\_

**15. A) Do you take extra steps to save money on your gas?**

Yes \_\_\_\_\_ If yes, Go to B and C) No \_\_\_\_\_

B) If yes, what are some things you do? \_\_\_\_\_

\_\_\_\_\_

C) Do you believe you have saved money by taking those steps?

Yes \_\_\_\_\_ No \_\_\_\_\_

**16. A) Do you take extra steps to save money on your water?**

Yes \_\_\_\_\_ If yes, Go to B and C) No \_\_\_\_\_

B) If yes, what are some things you do? \_\_\_\_\_

\_\_\_\_\_

C) Do you believe you have saved money by taking those steps?

Yes \_\_\_\_\_ No \_\_\_\_\_

**17. Would you be willing to take other steps to save on your energy and water bills?**

Yes \_\_\_\_\_ No \_\_\_\_\_

**18. Have you gotten behind on your utility bills in the last six months?**

Yes \_\_\_\_\_ If yes, ask “would you like us to refer you to SHA for assistance?”

No \_\_\_\_\_

*We have finished the survey, thank you for your time.*

SEATTLE HIGH POINT - SURVEY QUESTIONS - BY COMMUNITIES								
No.	Survey Questions	Yesler Terrace	%	New Holly	%	High Point	%	TOTAL
1	Interviews:	70		87		76		234
2	Language:							
	English	45	64%	27	31%	53	70%	125
	Vietnamese	16	23%	25	29%	15	20%	56
	Somali	10	14%	35	40%	8	10%	53
9	Where did you live previously? <i>(represents percentage of those responding to question)</i>							
	Other SHA development	89	38%		43%		35%	
	Section 8							
	Private Rental	149	64%		52%		61%	
	Homeless							
10	How many people lived in your household before you moved into this home?							
	3 + people							
	2 people							
	1 person							
11	How many people live in your household now?							
	3 + people							
	2 people							
	1 person							
12	Does your family like living in your home?							
	Yes	208	89%		86%		95%	
	No	10	4%		3%		3%	
	Not Sure	15	6%					
	N/A	0	0%					
	Pass	1	0%					
13	Does your family like living in this community?							
	Yes	213	91%		89%		93%	
	No	5	2%		2%		1%	
	Not Sure	14	6%		0%		0%	

No.	Survey Questions	Yesler Terrace	%	New Holly	%	High Point	%	TOTAL
	N/A	0	0%					
	Pass	2	1%					
14	Does your house stay at a comfortable temperature?							
	<b>Winter</b>							
	Yes	178	77%		64%		80%	
	No	54	23%		37%		18%	
	Sometimes	1	0%					
	N/A							
	<b>Summer</b>							
	Yes	183	82%		78%		86%	
	No	39	17%		21%		12%	
	Sometimes	0	0%					
	N/A	2	1%					
15	When you moved in did SHA explain the special energy saving features? (for High Point residents only) (represents percentage of those responding to question)							
	Yes						55%	
	No						40%	
	Don't know						5%	
16	Did SHA help explain what you could do to save money on your utility bills? (for High Point residents only) (represents percentage of those responding to question)							
	Yes (if yes, go to question #17)						43%	
	No						46%	
	Don't know						8%	
17	If 'Yes' - was it helpful? (for High Point residents only) (represents percentage of those responding to question)							
	Yes						32%	(recalculate)
	No						13%	(recalculate)
	Don't know						9%	(recalculate)

No.	Survey Questions	Yesler Terrace	%	New Holly	%	High Point	%	TOTAL
18	Do you receive a "utility allowance" from SHA?							
	Yes		19%		26%		43%	
	No		64%		59%		33%	
	Don't know		17%		15%		22%	
	N/A							
	Pass							
19	Did you pay your own electricity bills where you lived before?							
	Yes (if yes, go to question #20)		80%		86%		92%	
	No		17%		14%		5%	
	Don't know		0%		0%		0%	
	N/A							
	Pass							
20	If 'Yes' - do you pay more or less now? (represents percentage of those responding to question)							
	More		57%		44%		20%	
	Less		10%		24%		54%	
	About the same		1%		11%		18%	
	Don't know		0%		0%		0%	
21	Did you pay your gas bill where you lived before?							
	Yes (if yes, go to question #22)		10%		18%		22%	
	No		86%		82%		74%	
	Don't know		0%		0%		0%	
	N/A							
	Pass							
22	If 'Yes' - do you pay more or less now? (represents percentage of those responding to question)							
	More		6%		9%		7%	
	Less		0%		7%		12%	
	About the same		0%		2%		4%	
	Don't know		0%		0%		0%	

No.	Survey Questions	Yesler Terrace	%	New Holly	%	High Point	%	TOTAL
23	Did you pay your water bills where you lived before?							
	Yes (if yes, go to question #24)		10%		28%		37%	
	No		86%		70%		59%	
	Don't know		0%		0%		0%	
	N/A		0%		0%		0%	
	Pass		0%		0%		0%	
24	If 'Yes' - do you pay more or less now? <i>(represents percentage of those responding to question)</i>							
	More		1%		10%		12%	
	Less		3%		10%		12%	
	About the same		0%		5%		13%	
	Don't know		0%		0%		0%	
25	Do you take extra steps to save money on electricity?							
	Yes (if yes, go to question #26 & #27)		59%		67%		70%	
	No		39%		33%		28%	
	Don't know		0%		0%		0%	
	N/A		0%		0%		0%	
	Pass		0%		0%		0%	
27	Do you believe you have saved money by taking those steps?							
	Yes		37%		51%		58%	
	No		11%		30%		12%	
	Don't know		3%		6%		7%	
	N/A		30%		14%		18%	
	Pass		19%		0%		5%	
28	Do you take extra steps to save money on gas?							
	Yes (if yes, go to question #29 & #30)		3%		51%		65%	
	No		77%		49%		33%	
	Don't know		0%		0%		1%	
	N/A		14%		0%		0%	
	Pass		6%		0%		1%	

No.	Survey Questions	Yesler Terrace	%	New Holly	%	High Point	%	TOTAL
30	Do you believe you have saved money by taking those steps?							
	Yes		3%		36%		47%	
	No		13%		40%		18%	
	Don't know		0%		2%		7%	
	N/A		79%		21%		26%	
	Pass		6%		1%		1%	
31	Do you take extra steps to save money on your water?							
	Yes (if yes, go to question # 32 & #33)		16%		72%		68%	
	No		77%		28%		29%	
	Don't know		0%		0%		0%	
	N/A		1%		0%		0%	
	Pass		6%		0%		3%	
33	Do you believe you have saved money by taking those steps?							
	Yes		10%		59%		54%	
	No		14%		31%		16%	
	Don't know		1%		0%		4%	
	N/A		66%		10%		23%	
	Pass		9%		0%		3%	
34	Would you be willing to take other steps to save on your energy and water bills?							
	Yes		81%		70%		87%	
	No		13%		30%		12%	
	Don't know		0%		0%		0%	
	N/A		0%		0%		0%	
	Pass		6%		0%		1%	
35	Have you gotten behind on your utility bills in the last six months?							
	Yes (if yes, go to question #36)		41%		23%		33%	
	No		59%		77%		67%	
	Don't know		0%		0%		0%	

No.	Survey Questions	Yesler Terrace	%	New Holly	%	High Point	%	TOTAL
	N/A		0%		0%		0%	
	Pass		0%		0%		0%	

SEATTLE HIGH POINT - SURVEY QUESTIONS - BY ETHNIC GROUPS								
No.	Survey Questions	English	%	Somali	%	Vietnamese	%	TOTAL
1	Interviews:							
2	Language:	125	53%	53	23%	57	24%	235
3	Contact Information:							
4	Which area are you currently living in:							
	High Point	53	42%	8	15%	15	26%	76
	New Holly	27	22%	35	66%	26	46%	88
	Yesler Terrace	45	36%	10	19%	16	28%	71
13	Does your family like living in this community?							
	Yes	112	90%	52	98%	50	88%	
	No	2	2%	0	0%	3	5%	
	Not sure	10	8%	0	0%	4	7%	
	N/A	0	0%	0	0%	0	0%	
	Pass	1	8%	1	2%	0	0%	
14	Does your house stay at a comfortable temperature?							
	<i>Winter</i>							
	Yes	90	72%	40	77%	49	88%	
	No	35	28%	12	23%	7	13%	
	Sometimes	0	0%	0	0%	0	0%	
	N/A	0	0%	0	0%	0	0%	
	<i>Summer</i>							
	Yes	88	71%	47	96%	49	94%	
	No	34	27%	2	4%	3	6%	
	Sometimes	0	0%	0	0%	0	0%	
	N/A	2	2%	0	0%	0	0%	
18	Do you receive a "utility allowance" from SHA?							
	Yes	36	29%	7	13%	26	46%	
	No	53	42%	46	87%	22	39%	
	Don't know	35	28%	0	0%	9	16%	
	N/A	0	0%	0	0%	0	0%	
	Pass	1	1%	0	0%	0	0%	

No.	Survey Questions	English	%	Somali	%	Vietnamese	%	TOTAL
19	Did you pay your own electricity bills where you lived before?							
	Yes (if yes, go to question #20)	115	92%	44	83%	44	77%	
	No	6	5%	9	17%	13	23%	
	Don't know	0	0%	0	0%	0	0%	
	N/A	1	1%	0	0%	0	0%	
	Pass	3	2%	0	0%	0	0%	
21	Did you pay your gas bill where you lived before?							
	Yes (if yes, go to question #22)	16	13%	6	11%	18	32%	
	No	103	82%	47	89%	39	68%	
	Don't know	1	1%	0	0%	0	0%	
	N/A	1	1%	0	0%	0	0%	
	Pass	4	3%	0	0%	0	0%	
23	Did you pay your water bills where you lived before?							
	Yes (if yes, go to question #24)	30	24%	12	23%	17	30%	
	No	89	71%	41	77%	38	67%	
	Don't know	2	2%	0	0%	1	2%	
	N/A	1	1%	0	0%	0	0%	
	Pass	3	2%	0	0%	1	2%	
25	Do you take extra steps to save money on electricity?							
	Yes (if yes, go to question #26 & 27)	85	68%	18	34%	50	88%	
	No	37	30%	34	64%	7	12%	
	Don't know	0	0%	0	0%	0	0%	
	N/A	0	0%	0	0%	0	0%	
	Pass	3	2%	1	2%	0	0%	
27	Do you believe you have saved money by taking those steps?							
	Yes	50	40%	15	28%	50	88%	
	No	12	10%	30	57%	1	2%	
	Don't know	12	10%	0	0%	0	0%	
	N/A	36	29%	7	13%	5	9%	
	Pass	15	12%	1	2%	1	2%	

No.	Survey Questions	English	%	Somali	%	Vietnamese	%	TOTAL
28	Do you take extra steps to save money on gas?							
	Yes (if yes, go to question #29 & 30)	50	40%	7	13%	39	68%	
	No	70	56%	46	87%	7	12%	
	Don't know	1	1%	0	0%	0	0%	
	N/A	0	0%	0	0%	10	18%	
	Pass	4	3%	0	0%	1	2%	
30	Do you believe you have saved money by taking those steps?							
	Yes	30	24%	4	8%	36	63%	
	No	17	14%	39	74%	2	4%	
	Don't know	5	4%	0	0%	2	4%	
	N/A	69	55%	9	17%	16	28%	
	Pass	4	3%	1	2%	1	2%	
31	Do you take extra steps to save money on your water?							
	Yes (if yes, go to question #32 & 33)	62	50%	19	36%	46	81%	
	No	58	46%	34	64%	9	16%	
	Don't know	0	0%	0	0%	0	0%	
	N/A	0	0%	0	0%	1	2%	
	Pass	5	4%	0	0%	1	2%	
33	Do you believe you have saved money by taking those steps?							
	Yes	42	34%	12	23%	46	81%	
	No	14	11%	35	66%	0	0%	
	Don't know	4	3%	0	0%	0	0%	
	N/A	58	46%	6	11%	10	18%	
	Pass	7	6%	0	0%	1	2%	
34	Would you be willing to take other steps to save on your energy and water bills?							
	Yes	117	94%	15	28%	54	95%	
	No	4	3%	37	70%	3	5%	
	Don't know	0	0%	0	0%	0	0%	
	N/A	0	0%	0	0%	0	0%	
	Pass	4	3%	1	2%	0	0%	

No.	Survey Questions	English	%	Somali	%	Vietnamese	%	TOTAL
35	Have you gotten behind on your utility bills in the last six months?							
	Yes (if yes, go to question #36)	64	51%	3	6%	7	13%	
	No	61	49%	50	94%	49	88%	
	Don't know	0	0%	0	0%	0	0%	
	N/A	0	0%	0	0%	0	0%	
	Pass	0	0%	0	0%	0	0%	

## SHA Green Housing Initiative

### Focus Group Protocol

Hello and welcome. Thank you for taking the time to visit with us this evening. My name is: \_\_\_\_\_.  
We are working for Enterprise, a national organization that funds housing for working people.

When Seattle Housing Authority built High Point, they wanted a community that was good for you, the residents. But they also wanted to make it good for the earth.

What we'd like to talk with you about today are some very special features of High Point. With these features, High Point is saving energy and water. We'd like to find out what you know about these features. We'd also like to know if you're doing anything yourself to save energy and water. Your answers will help people in Washington State and elsewhere to do a better job when they build affordable housing.

*<Invite others to introduce themselves by name  
(and/or use table tents with names on them)>.*

Your name will not be given to SHA and **there are no right or wrong answers.**

So first, we'd like to find out what makes it a **good place for you.** Do you like living at High Point more than where you lived before? What do you like about it?

*<Record comments.>*

Thanks. Now let's talk about **special features on the grounds** around High Point.

I'm going to show you pictures of some places around High Point and ask you if you know about them. We just want to know what you know about. Please mark your answer on this paper.

*<Distribute pieces of paper with 6 numbered questions and **Yes/No** boxes in correct language next to each number. Use large print.>*

We're going to show you some pictures of features that make High Point friendly to the earth. Please circle "**Yes**" if you know about each feature or "**No**" if you haven't heard about it. It's ok if you haven't heard about them. Please remember there are NO right or wrong answers.

In most communities, rain washes off dirt and chemicals from roof tops, streets, and sidewalks. This dirty water then flows into creeks and lakes, and hurts fish and other wild animals. But High Point has built some new features that clean the water before it enters Longfellow Creek.

Here are some grassy places that capture rainwater and help to clean it before it enters the creek:

1. Do you recognize this feature?

Please circle "**Yes**" or "**No**" by No. 1 on your paper.

2. Do you know that it makes the water going into our lakes and streams clean?

Please circle "**Yes**" or "**No**" by No. 2 on your paper.

Here are special sidewalks. They absorb the rain and help to clean the rainwater before it goes into the creeks and streams:

3. Do you recognize this feature?

Please circle **“Yes”** or **“No”** by No. 3 on your paper.

4. Do you know that it makes the water going into our streams and lakes clean?

Please circle **“Yes”** or **“No”** by No. 4 on your paper.

Here’s the landscaping. It does not need a lot of watering. It also has native plants:

5. Do you recognize this feature?

Please circle **“Yes”** or **“No”** by No. 5.

6. Do you know that it saves water?

Please circle **“Yes”** or **“No”** by No. 6.

Now, knowing about these features, how do you feel about living in this place?

*<Record comments.>*

*<Collect the papers.>*

Thank you. That information is very helpful.

Now, let's talk about **special features in the buildings**.

First, did anybody tell to you about the special features in your home that save energy and water?

*<Solicit comments if people seem to want to talk about this.>*

Now I'm going to show you pictures of special features in your home. Again, here's a numbered paper for your **"Yes"** or **"No"** answer about each thing I'll show you.

*<Distribute papers with numbered questions and **Yes/No** boxes.>*

Here is a circular light bulb:

7. Do you know these circular light bulbs save energy?

Please circle **"Yes"** or **"No"** by No. 7.

Here is the washing machine and dryer:

8. Do you know these washers and dryers save energy?

Please circle **"Yes"** or **"No"** by No. 8.

Here are the fans that come regularly and take air out of your whole house:

9. Do you know that these fans save energy?

Please circle **“Yes”** or **“No”** by No. 9.

Here is a picture of the heating system with a radiator in the wall of your home:

10. Do you know that this heating system saves energy?

Please circle **“Yes”** or **“No”** by No. 10.

Here is a picture of the hot water heater that doesn't use a tank:

11. Do you know that this heating system saves energy?

Please circle **“Yes”** or **“No”** by No. 11.

Here is a picture of the low-flow shower head in your unit:

12. Do you know that this shower head saves water?

Please circle **“Yes”** or **“No”** by No. 12.

Here is a picture of the double-paned window in your unit:

13. Do you know that this double-paned window helps keep cold air out of your unit and saves energy?

Please circle **“Yes”** or **“No”** by No. 13.

14. Do you think any of these features in your house are saving you money on your electric bill?

Please circle “**Yes**”, “**No**”, or “**Don’t Know**” by No. 14 on your paper.

15. Do you think any of these features in your house are saving you money on your gas bill?

Please circle “**Yes**”, “**No**”, or “**Don’t Know**” by No. 15 on your paper.

16. Do you think any of these features in your house are saving you money on your water bill?

Please circle “**Yes**”, “**No**”, or “**Don’t Know**” by No. 16 on your paper.

*<Collect the papers?>*

Now we’d like to know about **things you might be doing**. Again, please remember that there are NO right or wrong answers.

- Are you taking any special actions to save energy?
- What are some things you do?

*<Record the comments.>*

- Are you taking any special actions to save water?
- What are some things you do?

*<Record the comments.>*

If Seattle Housing Authority showed you ways you could **save money** by using less energy and water, would you take these actions? *<Examples, if needed, taking shorter showers, only using the dishwasher when it is full, only using the washer and dryer for full loads, shutting off lights when not needed.>*

*<Record the comments.>*

What if taking the actions we're talking about **didn't save you any money but is better for the earth**? *<Example if needed: Separating glass, paper and plastic from other garbage.>* Would you still do them?

What would motivate you to do that?

*<Record the comments.>*

Thank you very much. That was a good discussion.

Now, the last thing we'd like to find out more about is **how utilities are paid** at High Point.

- When you moved here, did someone from the Seattle Housing Authority tell you about the utility allowance?

If yes, can you explain to me what it is?

Do you feel like your utility bills are high, low, or about average for the Seattle area?

*<Record the comments.>*

Finally, here's your chance to give us some advice. What would you like the Seattle Housing Authority and other people who build affordable housing to know about your needs when it comes to saving energy and water?

*<Record the comments.>*

That's all we have. Thank you again for joining us for this discussion. We will write down what you said and give it to SHA and other developers so they can better serve residents of affordable housing.



CEDAR RIVER GROUP

*Partners in change. Solutions that last.*

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