# REBUILD PITTSBURGH
# ACTION PLAN

DRAFT #3

## OVERALL GOALS AND ORGANIZATION

- Recognition for Pittsburgh as a national leader in green development
- PCSD and Sustainable Pittsburgh
- Other background on Pittsburgh and sustainable activities here

### Mission Statement

Rebuild Pittsburgh exists to facilitate the formation of public-private partnerships with the ability to take action on implementation of measures for energy efficiency, use of renewable energy sources, and other elements of green design for the built environment.

### Goals

The objectives and activities described in this plan are intended to achieve the following goals:

- To document cost savings realized by ongoing projects
- To create replicable models for retrofits of various building types
- To demonstrate use of renewable energy sources
- To outreach to form new partnerships among public and private agencies

### Opportunities

- Pittsburgh has an active community of organizations concerned with environmental and energy efficiency issues. This community seeks to operate through partnerships.
- Pittsburgh has a flourishing downtown, and a sustainable downtown plan.
- Clean up and reclamation of Pittsburgh's water front for public use has widespread support.

### Challenges

- Concern for green design and sustainability is not prevalent among public officials.
- The sustainability effort in Pittsburgh does not have a public figure to speak for it.
- For many, environmental awareness is limited to remediation issues.
- Our region suffers from urban sprawl and current policy supports sprawl.
- The Pittsburgh region's population has been diminishing and aging.
- The fragmented government of our region makes it difficult to affect policy.

### Organization and Primary Partners

Rebuild Pittsburgh will proceed in two overlapping phases. Phase I focuses on opportunities for coordination and documentation of current efforts in five areas. Phase II builds on the successes of Phase I for outreach and the forging of new partnerships to expand commitments to implement

measures of energy efficiency and green design. To implement this plan, a representative for each project will serve as the project contact for Rebuild Pittsburgh. In addition, one of the project contacts will be the primary contact for Rebuild America field office and national resources.

Each Phase I project will require some support for staff time. This will enable the project contact to:

- Identify and implement any coordination needed among the five Phase I projects, e.g., consistency of data.
- Attend regular meetings to chart progress and plan Phase II needs and activities.
- Initiate Phase II through outreach to new partners in both public and private sectors, establishing awareness and links to the primary partners and their Phase I activities.
- Develop and deliver information resources to assist Phase II partners in implementing energy efficiency and green design.

Rebuild Pittsburgh is proposed by three primary partners, who will continue/undertake primary responsibility for the Phase I activity areas as noted below.

***Conservation Consultants Inc.*** (insert intro & background on CCI)

***Green Building Alliance*** (insert intro & background on GBA)

***Housing Authority for City of Pittsburgh.*** (insert intro & background on HACP)

## PHASE I OBJECTIVES AND ACTIVITIES: CREATING MODELS

Phase I of the Rebuild Pittsburgh effort will be a collaboration among the Primary Partners. Phase I will undertake five areas of activity in order to establish the credibility, local expertise and initial successes that will allow Phase II to leverage these activities as models for green retrofits. The five areas are: Energy Retrofits for Public Supported Housing, Greening Bedford Dwellings, Green Education Movement, Green Neighborhood Initiative and the David L. Lawrence Convention Center Expansion. Each of these activity areas outlined below builds on an existing project of one of the primary partners, allowing Rebuild Pittsburgh to be integrated with current ongoing efforts.

**Energy Retrofits for Public Supported Housing** (Primary responsibility: HACP)

Plans to reduce energy costs in public supported housing are underway. Because low income often forces residents to settle for inefficient energy performance, the public supported housing activities will have a high impact for its beneficiaries. Rebuild Pittsburgh objectives and activities in this area are:

**Objectives**

- Improve the efficiency of energy consumption through improved operational procedures and installation of more energy efficient equipment in 10,000 units of public supported housing.

- Obtain the lowest cost and most reliable power supplies through aggregation of accounts to take advantage of economies of scale and through management of a portfolio of suppliers (via The Pennsylvania Electric Choice Program) to optimize pricing performance.

**Activity Outline**

1. Issue RFP for an Energy Service Company (ESCO) to formulate plan for these objectives and implement plan. Conduct oral interviews with the most qualified ESCOs responding to RFP. (Completed)

2. Select ESCO to perform services.

3. Manage the selected ESCO's energy audit of sample units.

4. Select energy conservation measures for the formulation of selected ESCO's plan.

5. Review plan submitted by the selected ESCO to achieve both energy efficiency and management of portfolio of energy suppliers.

6. Manage and oversee the selected ESCO's implementation of plan, tracking energy savings as the project progresses. Selected ESCO is required to do pre and post usage evaluation.

7. Conduct tenant education.

**Schedule**

Summer 1999: Selection of ESCO
Summer 1999: Audit of selected units
Following audit and receipt of HUD approval: Implementation

**Partners & resources**

- Funding.
  Money for consultants to initiate the project is provided from HACP operating funds. The ESCO is being hired under a performance-based cost-savings contract. Under this arrangement, the ESCO arranges the funding. The ESCO is paid when the guaranteed energy savings are realized, rather than HACP paying up front for any services.

- Supporting partners.
  The following organization is a partner that may assist in fulfilling the objectives either through a direct financial contribution, in-kind donations, or technical assistance.

  ***Conservation Consultants Inc (CCI)***: consultant to assist with selection and management of the ESCO.

**Needs assessment**

- Promotion of the program through education for public supported housing residents.
- Supplement energy saving measures proposed by ESCO
- Evaluate and implement opportunities for use of renewable energy resources.

- Support for staff time to fill the role of Rebuild Pittsburgh project contact (see Organization above)

**Evaluation**

- Percentage of energy saved.
- Payback period for retrofit expenses
- Compare energy usage before and after energy efficiency measures implemented.

**Greening Bedford Dwellings** (Primary responsibility: GBA, HACP)

(Insert project description

- Hope VI funding
- part of neighborhood revitalization in the Hill
- comprehensive in the elements of sustainability that are addressed: economic, environmental, community
- Key players: GBA, HACP, Hill CDC, others )

**Objectives**

- Reduce utility bills for houses, businesses, churches and schools, thereby keeping money in the community rather than paying out-of-state utility companies.
- Evaluate feasibility and implement use of a range of renewable energy sources from distributed PVs to purchase from suppliers using renewables.
- Apply principles of green design to ensure maximum energy efficiency of all new construction and renovation undertaken in the revitalization efforts.
- Provide opportunities for the underemployed in the community to increase their marketable job skills.

(Gary—project schedule, and are how many retrofits/refurbishing vs new construction?)

(Elbert, Additional comments on Interim report, add objectives& activities to this)

**Activity Outline**

1. Initiate activities of the Green Neighborhood Initiative (see separate section below) in the Hill, the neighborhood containing Bedford Dwellings.

2. Provide design review to identify energy efficiency and other green design opportunities for Hope Center design by Hanson & Associates.

3. Make suggestions to project team for A&E firms with qualifications that display successful innovations in the field of energy efficiency to be included on list to receive RFP.

4. Work with landscape architects to feature sustainable integration of forms into community activities.

5. Work with design team of new construction to provide technical assistance and design review to address
   - Green design

- Opportunities for on site renewable energy sources
- Energy efficient insulation, reflective coatings and air sealing
- Efficient HVAC equipment
- Efficient systems for distributed renewable energy
- Energy efficient "tuned" windows

6. Document energy savings realized by Green Neighborhood Initiative in their Hill projects. Also, by comparing with a baseline building, estimate energy savings of new construction.

7. Work with resident council's employment services to support any training in construction/deconstruction skills they deem useful to offer and to supplement that training to include energy efficiency and green design.

8. Assist with acquisition, installation and operations training for any on site renewable energy sources.

**Schedule**

Early 2000: Start new construction and renovated units

**Partners & resources**

- Funding
  HUD through Hope VI

- Supporting partners
  Green Neighborhood Initiative
  PRC
  (Insert others from Interim report as appropriate)

**Needs assessment**

- Assistance with Renewable Energy Sources.
  As revitalization efforts afford opportunities to incorporate renewable sources, we will need assistance in evaluating feasibility of use, acquiring and installing feasible renewable sources and training those that will operate the equipment.

- Job Skills Training
  As work with the Resident Council's employment services targets skill areas for provision of training, construction related training should incorporate instruction and materials that address energy efficiency and green design.

- Support for staff time to fill the role of Rebuild Pittsburgh project contact (see Organization above)

**Evaluation**

**Green Education Movement** (Primary responsibility: CCI)

CCI's Green Education Movement (GEM) is the combined educational activities of the High Performance Schools Partnership (HPSP), the Green Neighborhood Initiative (GNI), Green Building Services, the CCI Center, and CLEAR Corps. GEM's activities include the design and renovation of green school facilities, greening curriculum and providing environmental education activities for students, providing professional development in environmental awareness for school stakeholders, educating the design community and the public at large to energy and environmental issues, and influencing policy change to encourage the development of green schools.

**Objectives**

- Reduce energy usage in schools by 25%
- Reduce resource use in schools
- Educate students at all educational levels, school stakeholders, design professionals, families and community groups about environmental issues.
- Establish policies for green education

**Activity Outline**

1. Sustainable Design and the Greening of School Facilities
    a. Designing energy and resource efficient renovation of existing schools
    b. Implementing energy and resource efficient renovation
    c. Introducing of green cleaning into schools
    d. Integrating High Performance Building concepts into school design
    e. Educating school system decision makers and the design community
2. Greening School Curriculum
    a. Collecting existing and develop new environmental curriculum
    b. Creating environmental education programs for students with new and existing curriculum
    c. Making existing and new environmental curriculum available to teachers
    d. Bringing a variety of environmental organizations into schools
    e. Introducing the Built Environment into environmental education curriculum
3. Professional Development and Education
    a. Educating school system administrators and business officials
    b. Educating school medical personnel
    c. Educating specific teachers and support staff relative to individual programs
4. Coordinate and Facilitate Positive Change in School Related Policy
    a. Pursuing emissions credits for energy conservation for schools
    b. Documenting energy conservation in schools
    c. Advocating for Green School Policy in Harrisburg

**Schedule**

**Partners & resources**

Funding
The design of the energy and resource efficient renovation of Carrick High School has been funded through the DEP.

Some provision of environmental curriculum to teachers and creation of environmental programs for students is funded through the Green Neighborhood Initiative.

The development of the Clean Energy education program is partially funded by CCI's Logical Energies Program.

**Supporting partners**

The following organizations are potential partners that may assist in fulfilling the objectives either through a direct financial contribution, in-kind donations, or technical assistance.

City of Pittsburgh
Civic Garden Center
Pennsylvania Resources Council
Pittsburgh History and Landmarks Foundation
Wastebusters
Western Pennsylvania Conservancy

**Needs assessment**

Several projects of the High Performance Schools Program have been written into a grant proposal to the DEP's Special Projects.

The HPSP and PRC has applied to the Hillman Foundation for assistance to develop a comprehensive environmental education program for the built environment.

GEM would like to apply to Rebuild America for assistance with expanding the implementation of energy efficient renovation of schools, and for curricular support and funding for the development of energy efficiency, clean energy and other environmental education programs.

**Evaluation**

In order to evaluate the objectives noted above, the following criteria will be applied

- Testing of students before and after to evaluate the increase in knowledge of energy efficiency and other environmental quality issues resulting from curriculum.

- Documentation of school energy use before and after renovation to determine the efficiency impacts.

**Green Neighborhood Initiative** (Primary responsibility: CCI)

The Green Neighborhood Initiative (GNI) is a combined effort of several organizations, programs, and funding sources working to align environmental stewardship with economic and community

revitalization. Over the past four years, energy conservation has been used to lower residential and commercial utility expenses within four Pittsburgh neighborhoods, freeing up financial resources at a community-scale. Although the Rebuild Pittsburgh aspects of GNI will focus on residential and commercial energy conservation, GNI is comprised of seven components:

- ***Residential*** [With an emphasis on low-income and elderly residents]
- ***Commercial***
- ***Religious Organizations***
- ***Education and Schools*** [This component is described within the GEM section]
- ***Lead risk reduction***
- ***Neighborhood Beautification***
- ***Historic Preservation***

GNI will begin work in Fall, 1999 within the Perry South section of the North Side of Pittsburgh.

**Objectives**

- Provide installation of various energy saving devices in 200 Perry South residences within the first year. These installations consist of six items that can include compact fluorescent light bulbs, door jambs, door sweeps, window plastic, outlet gaskets, caulking, low-flow showerheads, aerators, etc.
- Refer qualifying low-income or elderly residents to various social services available. The most important of these is utility-funded weatherization programs. GNI can leverage up to $500,000/yr in a neighborhood by promoting participation in free weatherization programs. PUC studies have shown that Western Pennsylvania has the highest savings in the nation (35-40% average energy savings per home) for utility run weatherization programs. This leveraging of utility dollars for energy conservation is a primary goal for the GNI residential component. Other qualified referral services can include home repair, tree plantings, home safety services, lead risk reduction, etc.
- Provide energy surveys to businesses, religious organizations, and other community buildings. Each participating business and organization will receive a professional report outlining recommendations for cost-effective energy retrofits. Businesses that pursue the retrofits are also given assistance in securing grants that cover 50-100% of retrofit costs. These grants result in financially-attractive payback periods for participating businesses.
- Pursue GNI's School and Education component as outlined within the Green Education Movement section of this action plan.

**Activity Outline**

1. Provide residential installations of energy saving devices while screening for residents that qualify for referral services.
2. Actively refer and promote participation within utility weatherization programs.
3. Provide energy surveys to businesses, religious organizations, and other community buildings.
4. Assist businesses interested in implementing energy retrofits to secure matching grant funds.
5. Evaluate energy and financial savings for both residential and commercial participants.

**Schedule**

**Partners & resources**

- Funding Sources.
  GNI receives private funding through The Heinz Endowments and The Grable Foundation. Other funding sources are currently being explored, including public funding, to expand GNI services.

- Supporting Partners.
  The following organizations are expected to have a large role in GNI's Perry South efforts:
  ***The Western Pennsylvania Conservancy*** - community gardening and tree plantings;
  ***Pittsburgh History and Landmarks Foundation*** - historic preservation efforts;
  ***The Pittsburgh Project*** - home repairs, and community gardening;
  ***PHASE*** - major home repair to qualify homes for utility weatherization.
  ***CLEARCorps*** - Lead risk reduction.
  ***Allegheny County Health Department*** - Lead risk reduction.

**Needs assessment**

- Technical assistance may be needed for more difficult commercial energy surveys or multiunit residential surveys.
- Public education and awareness of the benefits of energy conservation investments are a need that Rebuild America could help with through publicity.
- Support for staff time to fill the role of Rebuild Pittsburgh project contact (see Organization above)

**Evaluation**

It should be noted that, to date, GNI has been difficult for creating quantitative evaluation of energy and dollar savings. This is due to the broad and 'scattered-site' approach that GNI uses, in addition to the variety of utilities that serve GNI neighborhoods. Several new strategies will be employed to gather pre and post data for residential and commercial participants, and for conducting weather-normalized analysis of this data to evaluate energy and dollar.

**David L. Lawrence Convention Center Expansion** (Primary responsibility: GBA)

The David L. Lawrence Convention Center, currently a 347,000 sf facility, is planned for expansion to approximately 1,062,000 sf with a projected construction budget of $213 million. This high profile project is a key component in a plan to foster economic growth and promote Pittsburgh as an international and regional destination. As winners of a highly publicized design competition for this project, Rafael Viñoly Architects of New York and HNTB of Boston were awarded the contract as lead architects. The winning competition entry was a highly integrated, energy efficient design, featuring natural ventilation, daylighting, and the use of an aquifer for cooling. This design for the expanded Center has the potential to be a LEED™ gold-rated building.

As part of Rebuild Pittsburgh, the project provides an exciting venue for increasing public attention about energy efficiency and the many benefits of a green building approach. Our Center expansion objectives for Rebuild Pittsburgh are:

**Objectives**

- Assess proposed green systems and techniques for efficiency, environmental impact, constructability, maintenance, and operation.
- Analyze green systems and techniques for cost effectiveness.
- Project the energy and cost savings obtained through use of green systems.
- Incorporate renewable energy sources in whatever function is viable and cost effective
- Provide public education concerning energy efficiency and environmental impacts of buildings, using the new Center as an example.
- Partner with project stakeholders and corporations to showcase green products and techniques with the Center.

**Activity Outline**

1. Work with energy consultants to estimate baseline for comparison using energy usage of current Center and/or energy usage of convention centers of similar size in similar climates.

2. Identify major areas of concern in implementing proposed green elements, based on case study research and expert team advice.

3. Identify viable uses of renewable energy sources in the functioning of the Center, and assess the cost effectiveness of their use.

4. Coordinate efforts to computer model proposed systems and techniques for cost effectiveness and functionality. Three modeling techniques are proposed that examine the following independently and in an integrated manner:

    - **Computational Fluid Dynamics (CFD):** determines the effectiveness of natural ventilation
    - **DOE2.1e:** building energy use
    - **RADIANCE:** distribution of natural light

5. Assist in the assessment of modeling input and results, and make recommendations to the Project Team.

6. Conduct life-cycle analysis for recommended green options based on modeling results and other quantitative and qualitative data.

7. Compare the results of modeling and LCA for the green elements adopted in the final design with the baseline estimates. Document these comparisons and publicize.

8. Hold a public event that will communicate these results in a form that has broad appeal. For maximum visibility, this could be an activity associated with the FEMP conference to be held in Pittsburgh in August 2000.

9. Prepare a publication that documents the greening of the project and lessons learned following project completion and post-occupancy evaluation.

10. Plan and fabricate signage to educate public about the energy efficiency and green design elements of the project, as well as the process that enabled them.

**Schedule**

**Partners & resources**

- Funding.
  Green Building Alliance has received a multi-year grant from the Heinz Endowments to support greening of the Center expansion, specifically for the purposes of (1) supporting the owner and public interest by ensuring that the green criteria are incorporated throughout the design and construction process and (2) leveraging the opportunity for green building education and promotion of the Pittsburgh region as a green building leader.

- Supporting partners.
  The following organizations are potential partners that may assist in fulfilling the objectives either through a direct financial contribution, in-kind donations, or technical assistance.

  ***PA Department of Environmental Protection***: assist with Stakeholder and Team education efforts.

  ***U.S. Department of Energy***: provide modeling and documentation assistance.

  ***U.S. Green Building Council***:: provide assistance in stakeholder education, and rating and promoting the project nationally.

**Needs assessment**

- Modeling assistance
  In a separate proposal to the Building Technologies division of DOE, Green Building Alliance has requested assistance to augment the modeling of three areas and to project the interrelationships among the three sets of modeling results and the attendant design consequences.

- Technical assistance with renewable energy sources
  GBA would like technical assistance with either on-site renewable energy sources for particular applications or demonstration purposes, or subscription to an energy provider that uses significant amount of renewable sources. This assistance could involve both feasibility evaluations and assistance with acquisition, installation and operation.

- Public education assistance
  GBA would like to apply to Rebuild America for financial support of a public forum and signage and preparation of a lessons learned publication in print or media form highlighting the green elements of the Convention Center and the process required to achieve these results.

- Support for staff time to fill the role of Rebuild Pittsburgh project contact (see Organization above)

**Evaluation**

In order to evaluate the objectives noted above, the following criteria will be applied

- The final design (i.e., approved by the CCDC) will meet the target for energy efficiency set by the Project Team. (Note: The Team is having a meeting on June 25 for the purpose of determining this target, which will be expressed as points for energy efficiency in the U.S. Green Building Council's LEED™ Building Rating System.)

- The incorporation of a commissioning plan into the construction specifications. This will indicate a commitment to realizing the performance intended by the design.

- The incorporation of renewable energy sources into the design plans, at least on a demonstration basis.

- At least 3 pieces in the popular press that recognize and report on these issues.

- High attendance at the public forum (>100) and positive evaluation by attendees.

## PHASE II OBJECTIVES AND ACTIVITIES:

## PROMOTION AND EXPANSION

Main goals for Phase II:

- Using the results of Phase I to establish credibility and lessons learned, create new partnerships to further extend the activities in the public sector.
- Create advisory materials for retrofits of various building types and documentation of the savings.
- Establish methods for documenting energy savings of GNI projects.
- Promote awareness of Phase I activities through public forums such as lectures and displays.

# APPENDICES

## APPENDIX A. PROGRAM STRUCTURE FOR GREEN EDUCATION MOVEMENT