

Green & Healthy Homes Initiative Case Study

Owner	Smith Family
Property Location	Baltimore, MD
Type of Property	Owner Occupied Detached single family home constructed in 1920
Total Cost	\$12,256

Family Background

Homeowner family purchased this home ten years ago. There are three children ages 10-16 residing in the home. The youngest of Ms. Smith's three children, who is 10, has severe asthma. His asthma episodes had caused him to be hospitalized on average three times per year since birth prior to the intervention. Due to the severity of his asthma episodes, he typically was hospitalized for prolonged, week long periods of care.

ASSESSMENTS/AUDITS CONDUCTED

Energy Audit and Environmental Assessment

An Energy Audit was conducted of the property and determined that there was substantial air leakage around the windows in the home and air loss due to a lack of weatherization. An Environmental Assessment was conducted in the property and revealed: a mouse infestation; allergen samples with very high dust mite and mouse allergen levels in the asthmatic child's bedroom; dryer was not vented; and high VOC cleaning product usage. A Lead Risk Assessment confirmed the presence of lead paint and lead hazards. The porch and the windows in the property had substantial chipping, peeling and flaking paint and there were very high lead dust levels in the home that posed an immediate lead poisoning hazard.

INTERVENTIONS CONDUCTED

Energy Efficiency/Weatherization Intervention

Weatherization and Energy Efficiency Intervention included: installation of hot water heater blanket, dryer venting, pipe insulation, foam insulation, air filter replaced, air sealing, weatherstripping, gutters and downspouts replaced or repaired, and installation of compact fluorescent light bulbs (CFLs). Installation of leverage funded lead free Energy Star windows.

Healthy Homes and Lead Hazard Reduction Intervention

The property received a Healthy Homes intensive intervention through GHHI's Healthy Homes Program to reduce asthma triggers, and address lead and safety hazards including:

- Integrated pest management (IPM) services for mice infestation

- Lead free window replacement (Energy Star) and paint stabilization to reduce lead hazards
- Steam cleaning of carpets to reduce indoor allergens
- Removal of carpet and hardwood floor installation in child’s bedroom
- Repair of leaking faucets and other plumbing repair
- Bathroom venting to reduce moisture
- Roof, soffit and siding repair to prevent water infiltration
- Installation of mattress and pillow covers to reduce dust mites
- Installation of an Austin Air filtering unit and air conditioner to improve IAQ
- Installation of dehumidifier to reduce moisture in the basement area
- Installation of smoke alarm with 10-year lithium battery and carbon monoxide alarm
- Client family provided with a HEPA vacuum and an indoor allergen reduction cleaning kit to sustain the intervention
- Follow-up services include: post remediation maintenance visits, asthma management counseling, and continued education on reductions in energy consumption

Funding

Direct funding for the GHHI work in this project was provided by HUD Healthy Homes Demonstration Grant Program, the Baltimore City Community Development Block Grant and Community Services Block Grant Programs, the Maryland Energy Administration, Open Society Foundation and the Annie E. Casey Foundation.

Initial Intervention Outcomes

- Parent reports that asthma conditions for her child have improved greatly. In the 24 months following the GHHI intervention in 2010, her son was not hospitalized due to asthma triggers in the home and did not miss school days due to asthma episodes.
- The intervention resulted in an annual estimated avoided medical cost savings of \$48,300 per year due to a reduction in asthma episodes and hospitalizations.
- The household saved \$721 on utility bills in the first twelve months as a result of a 14% decline in consumption of natural gas.

	Actual GHHI Cost	Projected Cost with Non-GHHI Approach	Projected Cost Savings from GHHI Approach
Lead Hazard Reduction Intervention	\$6,597	\$7,295	\$698
Healthy Homes Intervention	\$3,654	\$4,620	\$966
Energy Efficiency Intervention	\$358	\$450	\$92
Weatherization Intervention	\$1,647	\$2,050	\$403
TOTAL	\$12,256	\$14,415	\$2,159