Evaluating HOME Rochester

The Rochester Housing Development Fund Corporation and its partners have developed two reports to help quantify and evaluate the impact of HOME Rochester. The HOME Rochester program acquires and rehabilitates vacant single-family homes in the City of Rochester for sale to low- and moderate-income first time buyers. The program is administered by the Greater Rochester Housing Partnership, and implemented in partnership with the City of Rochester, Enterprise Community Partners, local non-profits and lenders.

Since 2002, HOME Rochester has sold over 575 homes and completed the rehabilitation of at least a dozen more homes. The attached reports measure the impact of HOME Rochester on neighborhoods and on the City of Rochester. These reports do not measure the impact of home ownership on the economics or stability of individual families.

Impact Highlights

HOME Rochester has a large positive impact on the value of neighboring properties. A home within 100 feet of a vacant property in Rochester sells for $9,945 less than it would otherwise. A home within 100 feet of a HOME Rochester home sells for $5,707 more than it would otherwise. Cumulatively, turning a vacant home into a HOME Rochester home boosts the value of properties within 100 feet of that HOME Rochester property by $15,672.

The average sale price for HOME Rochester in 2002 was $56,654. In 2010, the average sale price was $64,917, a 14% increase in value.

HOME Rochester properties sold in 2010 increased in assessed value by an average of 20% or $11,207 between 2008 and 2011.

Over $72,750,000 in construction financing has been committed to HOME Rochester. 84% of that funding has been private or bank financing leveraged by approximately $12,000,000 of City funds. All of the construction financing has been repaid or is scheduled for repayment according to loan terms.

Bank mortgages of at least $33,600,000 have been invested in HOME Rochester houses in neighborhoods throughout Rochester. These private dollars have leveraged subsidy from the City of Rochester, New York State and buyer equity.

Construction companies were paid over $3,780,000 for work completed on the houses that sold in 2010. Total HOME Rochester construction payments exceed $33,500,000. HOME Rochester contractors are all located in Monroe County and many have their businesses in Rochester.

HOME Rochester has an annual operational cost of approximately $821,063. Approximately a third of that amount is paid by the City of Rochester. In 2010, the operational costs averaged approximately $15,205 per property sold. These numbers represent both fixed operating costs and variable costs based on the number of properties sold per year.
HOME Rochester impact

The recently completed Operational costs and property value impacts of the HOME Rochester program documents two important components of the HOME Rochester program: administrative costs across program partners and the impact on property values of both vacant buildings and HOME Rochester renovated properties. This monograph will address other components of an evaluation of HOME Rochester including: leverage of public and private funds, property taxes and other measures of the financial impact of HOME Rochester. It is meant to be read in conjunction with above-mentioned report. The impacts discussed in the two reports do not address all of the costs and benefits of HOME Rochester, specifically they do not measure the impact of purchasing a HOME Rochester home on individual family life and family economics.

Project financing
HOME Rochester accounts for expenses and sources of funding on a house specific basis. The only expenses associated with the program not accounted for in this fashion are the general administrative costs incurred by Greater Rochester Housing Partnership, homebuyer education costs and City of Rochester administration costs. Those three expenses are discussed in the Operational costs and property value impacts of the HOME Rochester program. All other expenses and sources of funds are recorded in a database on a house-by-house basis.

A. Construction sources of financing
The construction financing for HOME Rochester is assembled through a series of participation loans under the leadership of a bank lead lender. Each of the five participation loans consists of a subordinated City of Rochester funded tranche, a fixed rate non-profit lender funded tranche and a variable rate bank funded tranche. This design allows for predictable and affordable cost of funds over the 36-month term of each participating loan.

Three of the five participation loans have each been in the amount of $16,000,000, the first loan was $9,000,000 and the current loan is $15,000,000 with a side agreement for a $750,000 working capital line of credit. The total construction financing raised for HOME Rochester is $72,750,000. Approximately $12,000,000 of the total construction financing has been City of Rochester administered public funds. The rest of the financing, $60,575,000 has come from private sources including 8 regional and national banks.

The first four loans have been repaid in full with the exception of $125,000 in the fourth loan which represents the expenses associated with one house that is now under contract for sale to an eligible buyer. The fifth participation loan is underway. The subordinated financing provided by the City is critical for leveraging the financing of the other lenders. It is the City leverage that makes the construction financing possible without recorded mortgages on individual properties.
The construction financing needed for the 54 HOME Rochester houses sold in 2010 totaled $5,460,944. The City, using public sources of funding provided approximately $683,000 of the construction financing, leveraging $4,778,000 in short term private investment in Rochester's single-family housing stock associated with just one year of HOME Rochester sales.

B. Permanent sources of financing
At the conclusion of the rehabilitation of an individual property, it is placed on the market at fair market value. The difference between the cost to rehabilitate the property and the sale price is financed through one or more sources of public subsidy. The sources of subsidy are most often a federal source administered by the City of Rochester or New York State, or a New York State source. In addition, most buyers are eligible for closing cost and down payment assistance from either a public source or a private source. The closing cost and down payment assistance used in the sale of HOME Rochester properties, while not considered a part of the cost of rehabilitation or total development cost is accounted for on a property specific basis.

The average sale price for the 54 houses sold through HOME Rochester in 2010 was $64,917. The 54 properties sold in 2010 resulted in the investment of $3,365,972 of bank mortgage financing across a range of City neighborhoods. This private investment, plus modest buyer equity, leveraged over $1,955,000 in federal and state subsidy. Of this subsidy, $1,430,385 came through the City of Rochester. The City sources were HOME funds and NSP 1 funds. Other subsidy was received by GRHP from New York State.
Since 2001, approximately 580 houses have been sold or are under contract with qualified buyers. The average purchase price for all of those homes is $61,000. At a 95% LTV, 580 HOME Rochester homes represent bank mortgage lending of over $33,600,000.

Permanent Financing for HOME Rochester
2010 Sales - $5,461,000

- Mortgage 61%
- Subsidy from City 26%
- State Subsidy 10%
- Buyer Equity 3%

Tax collection
HOME Rochester properties are assessed at the completion of renovation reflecting the level of rehabilitation indicated on building permits. The 2011 assessed value of the 54 HOME Rochester houses sold in 2010 is $3,581,400; and the average assessed value is $66,322. These numbers will be adjusted at the completion of the 2011 citywide reassessment. However, based on current assessed values, the 54 properties produce combined City/School/County/water annual tax revenue of $113,970, or an average of $2,111 per property.

The 2008 assessed value for the 54 properties sold in 2010 was $2,976,200 with an average assessed value of $55,115. Post rehab and sale assessments increased between 2008 and 2011 on average $11,207; an increase of 20% in assessed value. At current tax rates, annual tax revenue on the increase in assessed value for the 54 properties is $19,258.

If we assume the average assessed value of the 54 properties sold in 2010 is predictive for the entire population of 580 HOME Rochester properties, the annual tax revenue produced by HOME Rochester properties is $1,224,125. And the annual increase in tax revenue as the result on the HOME Rochester investment is $206,851

Construction impact
HOME Rochester contractors are small business located within Monroe County. Before a contractor can participate in the program, they must complete an extensive application process and then be the successful bidder on an individual property. On average for the homes that closed in 2010, construction hard costs accounted for 70% of the total development cost of each home or $70,042 per home. For the 54 homes sold in 2010, $3,782,308 was paid to construction companies located in Monroe County. Since 2001, the construction costs for the program have exceeded $33,500,000.
M/WBE involvement
HOME Rochester has made a concerted effort to meet and exceed the Minority/Women Business Enterprise requirements of state and local funders. The program tracks both state certified M/WBE and small businesses that are minority or women owned but not certified by the state. Of the $3,782,308 in construction costs spent on HOME Rochester houses sold in 2010, $2,432,437, or 64%, was spent under contract with M/WBE firms.

HOME Rochester impact on Randolph Street
Randolph Street is approximately 1,000 yards long; it runs between N.Goodman and Portland. A residential street, the housing stock consists of two-story single-family homes and houses built as side-by-side doubles. The street is tree lined and has primarily residential traffic. In 1998 and 1999, HOME Rochester renovated and sold 3 houses on Randolph Street. The sale price for these three homes ranged from $45,000 to $48,000. Since 2003, there have been 12 sales of HOME Rochester properties owned by the Rochester Housing Development Fund Corporation on Randolph Street. Five of these sales took place in 2007, with sale prices ranged from $50,000 to $58,900. One of the 2007 sales was of 61 Randolph Street; it had a sale price of $55,000. The buyer of 61 Randolph subsequently lost the house and HOME Rochester again took title in 2010. Four years from the initial sale, the property at 61 Randolph was sold for $62,500.

Other sale prices in 2009 and 2011 of HOME Rochester properties on Randolph were $59,000, $62,600, $64,900 and $71,000. These homes were comparable in size and number of bedrooms with the properties sold 20 years earlier.
Operational costs and property value impacts of the HOME Rochester program

November 21, 2011

Eric Hangen, AICP, I Squared Community Development Consulting, Inc.
Executive Summary

Overview of the HOME Rochester program and of our study
The HOME Rochester program acquires and rehabilitates vacant and foreclosed homes in Rochester, NY for resale to low-and-moderate income, first-time homebuyers. The program is administered by the Greater Rochester Housing Partnership, in partnership with the City of Rochester, local nonprofit developers, local nonprofit homebuyer education groups, NYS Homes and Community Renewal, HUD, and the Federal Home Loan Bank. Since 2002, it has completed the rehabilitation of 588 homes.

The Greater Rochester Housing Partnership contracted with I Squared Community Development Consulting, Inc. to produce a study of the operating costs and property value impacts of the HOME Rochester program. The study that follows presents an analysis of both the direct and indirect costs to administer and operate HOME Rochester, and an analysis of the impacts HOME Rochester projects have on the property values of nearby homes.

Note that these are not the only costs and benefits of the program. Besides operating costs, the HOME Rochester program also requires capital subsidies to renovate homes. On the benefits side, HOME Rochester may create significant benefits beyond boosting neighboring property values, including helping families to build wealth through homeownership, providing a stable living environment, and creating local jobs and economic spending through construction activity. Further study therefore may be warranted to build a more complete cost-benefit picture of the program.

Operational costs of the HOME Rochester program
In 2010, HOME Rochester sold 54 rehabilitated homes. Assuming this production level, we estimate that the total annual operating costs of the HOME Rochester program, including both direct costs and allocated indirect costs, are $821,063, or approximately $15,205 per unit. These costs break down as follows:

<table>
<thead>
<tr>
<th>Program Component</th>
<th>Direct Costs</th>
<th>Indirect Costs</th>
<th>Total costs</th>
<th>Costs covered by City of Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater Rochester Housing Partnership – administration</td>
<td>$274,660</td>
<td>$173,432</td>
<td>$448,092</td>
<td>$186,000</td>
</tr>
<tr>
<td>Homebuyer Education costs</td>
<td>$29,916</td>
<td>$4,995</td>
<td>$34,911</td>
<td>$18,900</td>
</tr>
<tr>
<td>Nonprofit developer fees</td>
<td>$270,000</td>
<td></td>
<td>$270,000</td>
<td>$0*</td>
</tr>
<tr>
<td>City of Rochester - administration</td>
<td>$52,556</td>
<td>$15,504</td>
<td>$68,060</td>
<td>$68,060</td>
</tr>
<tr>
<td>Total</td>
<td>$627,132</td>
<td>$193,931</td>
<td>$821,063</td>
<td>$272,960</td>
</tr>
</tbody>
</table>
*Note that City funds do subsidize part of the development costs of HOME Rochester projects, which in turn allows nonprofit developers to charge a developers fee.

As can be seen in the table above, City funding is important to the program, but covers only about 33% of total program costs. Other sources that the City funding leverages include federal dollars, contributions, and earned income from developer fees, homebuyer education fees, and the like.

Note that if program activity increases, both total and per-unit costs will change. Because there is a substantial fixed-cost component to the program, including most of the indirect costs, per-unit costs are likely to decline if program activity increases. Developing a cost estimate for a specific increased level of activity, however, was not in the scope of the project.

**Property value impacts of the HOME Rochester program**

I Squared Community Development Consulting, Inc. worked with subconsultant New England Market, Research, Inc. to develop an analysis of the impacts of HOME Rochester homes on neighboring property values. This study was conducted using a hedonic regression analysis to predict the 2010 sales price of homes in ZIP codes where HOME Rochester is active, based on:

- their proximity to HOME Rochester homes,
- their proximity to vacant homes,
- a vector of control variables describing the physical characteristics of the home, and
- a vector of control variables describing socioeconomic characteristics of the census tract where the home is located.

The resulting statistical model is quite robust, and is able to explain 76 percent of the variation in observed home prices.

The results of the model show that the HOME Rochester program has a large and statistically significant impact boosting the value of neighboring properties. This benefit derives from two sources – eliminating the blighting effect of a vacant property, and introducing the positive effect of an attractively renovated, owner-occupied home:

- Holding all other factors constant, a home that is located within 100 feet of a vacant property in Rochester sells for $9,945 less than it would otherwise
- Holding all other factors constant, a home that is located within 100 feet of a HOME Rochester home sells for $5,707 more than it would otherwise

Cumulatively, then, developing a HOME Rochester home would be expected to boost the value of properties by $15,672 for a radius of 100 feet around the property (assuming there were no other vacants within that radius). Given that the average 2010 sales price of all the single-family homes in our dataset was $67,446, this impact is quite substantial – about 23 percent of the average home’s value.
Cost Analysis

Operating costs for the HOME Rochester program are spread across multiple organizations:

- The Greater Rochester Housing Partnership (GRHP) functions as the programs’ central administrator
- Non-profit developers are paid fees for their work in managing the rehabilitation of the homes
- Non-profit homebuyer education programs incur costs to provide counseling and education services that prepare renter households to buy their first home, generating a pool of eligible buyers for HOME Rochester
- City of Rochester staff also play important roles in inspecting properties, qualifying homebuyers and administering the flow of program funds

HOME Rochester program costs across these organizations are as follows:

<table>
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Below, we present the cost analysis for each component of the program.

**GRHP operating costs for HOME Rochester**

Utilizing GRHP data on staffing costs, staff time allocation, non-staff costs and office space allocation, we estimate that:

- For fiscal years 2010 and 2011, the HOME Rochester program operations hub has been incurring total annual operating expenses of approximately $448,092. Of this amount, $274,660 was direct costs and $173,432 the program’s allocated share of overall GRHP administrative and overhead costs.
- Given that the program sold 54 housing units in 2010, the per-unit hub operations expense per unit was therefore $8,298, of which $5,086 is a direct cost.
Information utilized

GRHP provided the following information that was used to develop the cost analysis:

- A staff roster providing salaries and related payroll expenses for all staff at GRHP as of FY 2011
- A set of time sheets from July through August 2011 for each staff member, providing details about time spent on HOME Rochester and other program areas of GRHP. As the result of a change in funding contracts, accurate time sheets are not available before July 2011, but GRHP senior staff confirmed that there was no unusual activity during this period and that they observe little seasonality to the organization's work.
- A list of non-staff expenses per the audited FY 2010 financials, and a breakdown assigning those same expenses to general/admin costs or to specific programs as appropriate.
- A floor plan of GRHP's office indicating the dimensions and uses of each space within the office

Estimation of direct staff costs

Direct staff costs of HOME Rochester were estimated through the following steps:

1. Calculating the percentage of non-vacation, non-sick-leave time each GRHP employee spent on HOME Rochester, on general/admin activities, and on other program lines, using the time sheets from July and August 2011.
2. On average, employees spent 65.7% of their time on HOME Rochester, with that percentage ranging from a low of 21.1% for one employee to a high of 91.6% for another employee. As a percentage of programmatic staff time only (excluding time spend on general / administrative activities), HOME Rochester accounts for 81.2% of staff effort. The total staff effort estimated to be expended on hub operations for HOME Rochester equates to 3.29 FTEs.
3. Multiplying the percentage of time each employee spent on HOME Rochester by their total salary, fringe and payroll-related cost for the year.
4. This method results in estimated direct staff costs for HOME Rochester of $257,652.

Allocation of indirect staff costs

1. Staff costs for general/admin activities were calculated by multiplying the percentage of each staff person's time spent on such activities by their total salary, fringe, and payroll-related expense. On average, 19.1% of staff time was spent on general and administrative activities, representing $126,184 in costs.
2. These costs were then allocated to program lines by multiplying the $126,184 figure by the overall percentage of all programmatic staff time spent on the given program.
3. Since HOME Rochester accounts for 81.2% of all programmatic staff time, we assign $126,184 x 81.2% = $102,473 of general/admin staff costs as indirect staff costs of HOME Rochester.
Estimation of direct non-staff costs

1. Direct non-staff costs of HOME Rochester were provided from a staff breakdown of audited FY 2010 non-staff costs. Total FY 2010 audited non-staff costs were $178,314. Of these, staff indicated that $17,008 were direct costs of the HOME Rochester program, including $14,700 for professional fees and $2,308 for insurance.

Allocation of indirect non-staff costs

1. All non-staff costs from the FY 2010 audit that could not be directly assigned to a specific program were considered to be admin/general non-staff costs. These costs totaled $85,276, which break down as follows:
   - $24,441 for office occupancy costs
   - $13,154 for equipment rental
   - $10,752 for supplies and postage
   - $7,921 for travel
   - $7,680 for telephone
   - $7,059 for depreciation
   - $14,269 of other costs

2. All non-staff general/admin costs, other than office occupancy costs, were then allocated to program lines by multiplying the cost by the percentage of programmatic staff time spent on that program line. As stated above, HOME Rochester accounts for 81.2% of all programmatic staff time. Its allocated share of the following non-staff general/admin costs is thus:
   - $10,682 for equipment rental
   - $8,732 for supplies and postage
   - $6,433 for travel
   - $6,237 for telephone
   - $5,733 for depreciation
   - $11,588 for other costs

3. Office occupancy costs were allocated by multiplying the $24,441 cost figure by the percentage of program-specific office space utilized by each specific program line.

4. HOME Rochester utilizes approximately 933 square feet of GRHP’s total office space. This figure was calculated by first multiplying the square footage of each staff member’s office space by the percentage of time they spend on HOME Rochester, then adding other spaces (notably a 396 square foot storage space) that are used specifically for HOME Rochester. The 933 square feet utilized by HOME Rochester accounts for 57% of all of GRHP’s office space, and for 88% of all office space whose use can be traced back to a specific program (as opposed to general / admin use).

5. Multiplying the $24,441 office occupancy cost figure by 88% (the percentage of all program-specific office space used for HOME Rochester), we obtain an office occupancy cost for HOME Rochester of $21,556.

6. Adding the office occupancy costs and other allocated non-staff costs together, HOME Rochester has total allocated indirect non-staff costs of $70,959.
Total cost calculation

Taking the results of each analytic process discussed above, the total costs for HOME Rochester are as follows:

- Direct staff salaries $206,688
- Direct staff fringe and payroll tax $50,963
- Direct nonstaff costs $17,008
- Subtotal, direct costs $272,422

- Indirect staff costs $102,473
- Indirect nonstaff costs $70,959
- Subtotal, indirect costs $173,432

Total cost of business line $448,092

If we exclude depreciation (a noncash expense), the total cost of the business line is $442,359.

Dividing the total program costs by the 54 units sold by HOME Rochester in 2010 yields a per-home cost of $8,298.

Homebuyer education costs
In order to estimate the costs of educating the households who buy HOME Rochester homes, we conducted an analysis using cost data provided by NeighborWorks® Rochester, an NCHEC-certified provider of homebuyer education and counseling services citywide. Utilizing data on staffing costs, staff time allocation, non-staff costs and office space allocation, we estimate that:

- For fiscal year 2011, the NeighborWorks® Rochester Homebuyer Education Program operations is incurring total annual operating expenses of approximately $162,335. Of this amount, $139,137 is direct costs and $23,218 is the program’s allocated share of overall NeighborWorks® Rochester administrative and overhead costs.
• Given that the program graduated 251 households from its Homebuyer Education class in 2010, and assuming similar production levels in 2011, the cost per homebuyer education graduate is approximately $647, of which $554 is a direct cost and $93 is an indirect cost. Given that in 2010, 61 program graduates went on to buy homes, and assuming similar production levels in 2011, the cost per homebuyer created is approximately $2,662.

• Given that the availability of decent, affordable housing stock is likely one of the major constraints to homebuyer education graduates actually becoming homebuyers, we select the cost to create a homebuyer education graduate as the most appropriate of the two cost measures we have developed to use for estimating HOME Rochester costs. Given HOME Rochester 2010 sales of 54 homes, we can assign homebuyer education costs to HOME Rochester of 54 x $647 = $34,911, of which $29,916 is direct costs and $4,995 is indirect costs.

Information utilized

NeighborWorks® Rochester provided the following information that was used to develop the cost analysis:

• Detailed program budgets breaking down organizational staff and nonstaff operating costs into program areas as well as cost centers for fundraising and general / administrative costs. These program budgets based on internal analysis conducted by NeighborWorks® Rochester to allocate staff time and nonstaff expenses across program areas.

• Breakdowns of organizational head count, office square footage, staff salaries, and revenues by program area. These breakdowns were used to create allocation rules for assigning indirect expenses to the Homebuyer Education Program, as follows. The Homebuyer Education Program comprises:
  o 14.8% of all program FTEs [full time equivalent staff]
  o 14.4% of all program salaries
  o 29.0% of all office space dedicated to program operations
  o 15.4% of program revenues

Estimation of direct staff and nonstaff costs

Direct staff and nonstaff costs of NeighborWorks® Rochester Homebuyer Education Programs were taken directly from the organization’s program budgets. NeighborWorks® Rochester’s 2011 program budget identifies $110,267 in staff costs (including salaries, benefits, and payroll expense) for 2.15 direct FTEs working in the program, and $28,870 in nonstaff costs for the Homebuyer Education program. Note that the direct nonstaff costs provided by the organization include some allocation of office occupancy, office expense, and depreciation as well as direct program expenses.

Allocation of indirect staff costs
4. Staff costs for general/administrative and fundraising activities were taken directly from the organization’s program budgets. These amounts are $52,807 for salaries and $15,763 for benefits and payroll expenses, including $8,370 for medical insurance.

5. These costs were then allocated to the Homebuyer Education Program by multiplying them by the overall percentage of all programmatic salaries spent on homebuyer education. Medical insurance was allocated by multiplying by the percentage of program FTEs spent on homebuyer education, although the difference between the two allocation roles is so small as to be immaterial (as stated earlier, the Homebuyer Education Program accounts for 14.8% of all program FTEs and 14.4% of all program salaries).

6. The calculations result in $7,023 in salaries and $2,070 in benefits and payroll expenses being assigned as indirect costs of the Homebuyer Education Program.

**Allocation of indirect non-staff costs**

7. Nonstaff costs for general/administrative and fundraising activities were taken directly from the organization’s program budgets. These costs totaled $88,475, which break down as follows:
   - $7,065 for occupancy
   - $17,472 for office expenses (e.g. telephone, technology, service fees)
   - $10,300 for insurance
   - $34,850 for program expense (such as resource development consulting, general marketing, meetings and staff development, dues and licenses)
   - $5,788 for depreciation
   - $13,000 for audit/legal

8. All non-staff general/admin costs, other than office occupancy costs, were then allocated to program lines by multiplying the cost by one of the indirect cost allocation percentages. Generally, percentage of FTE staff time was used as the cost allocation percentage, but the following items were allocated using other methods:
   a. Allocated using percentage of program office space: office occupancy costs, building and grounds maintenance, special events expense, and depreciation for building and leasehold improvements
   b. Allocated using percentage of program revenue: service fees and audit/legal expense

9. The calculations result in $14,125 in nonstaff expenses being assigned as indirect costs of the Homebuyer Education Program.

**Total cost calculation**

Taking the results of each analytic process discussed above, the total costs for the NeighborWorks® Rochester Homebuyer Education Program are as follows:
### DIRECT COSTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$85,954</td>
</tr>
<tr>
<td>Benefits &amp; payroll exp.</td>
<td>$24,314</td>
</tr>
<tr>
<td><strong>Subtotal, direct staff costs</strong></td>
<td><strong>$110,267</strong></td>
</tr>
<tr>
<td>Occupancy</td>
<td>$7,154</td>
</tr>
<tr>
<td>Office expense</td>
<td>$11,087</td>
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<tr>
<td>Insurance</td>
<td>$0</td>
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<tr>
<td>Program expense</td>
<td>$4,365</td>
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<tr>
<td>Depreciation</td>
<td>$6,264</td>
</tr>
<tr>
<td>Audit/legal</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Subtotal, direct nonstaff costs</strong></td>
<td><strong>$28,870</strong></td>
</tr>
<tr>
<td><strong>Total direct costs</strong></td>
<td><strong>$139,137</strong></td>
</tr>
</tbody>
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### ALLOCATED INDIRECT COSTS

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>$7,023</td>
</tr>
<tr>
<td>Benefits &amp; payroll exp.</td>
<td>$2,070</td>
</tr>
<tr>
<td><strong>Subtotal, indirect staff costs</strong></td>
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</tr>
<tr>
<td>Occupancy</td>
<td>$1,846</td>
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<tr>
<td>Office expense</td>
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<tr>
<td>Insurance</td>
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<tr>
<td>Program expense</td>
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<tr>
<td>Depreciation</td>
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<tr>
<td>Audit/legal</td>
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<tr>
<td><strong>Subtotal, indirect nonstaff costs</strong></td>
<td><strong>$14,125</strong></td>
</tr>
<tr>
<td><strong>Total indirect costs</strong></td>
<td><strong>$23,218</strong></td>
</tr>
<tr>
<td><strong>Total program costs</strong></td>
<td><strong>$162,355</strong></td>
</tr>
</tbody>
</table>
If we exclude depreciation (a noncash expense), the total cost of the business line is $154,661.

Dividing the total program costs by the 251 homebuyer education graduates served by NeighborWorks® Rochester in 2010 yields a per-graduate cost of $647. Dividing the total program costs by the 61 graduates who actually purchased a home in 2010 yields a per-homebuyer cost of $2,662. Given that the availability of decent, affordable housing stock is likely one of the major constraints to homebuyer education graduates actually becoming homebuyers, we select the cost to create a homebuyer education graduate as the most appropriate of the two cost measures we have developed to use for estimating HOME Rochester costs. Given HOME Rochester 2010 sales of 54 homes, we can assign homebuyer education costs to HOME Rochester of 54 x $647 = $34,911, of which $29,916 is direct costs and $4,995 is indirect costs.

Costs paid by the City of Rochester
NeighborWorks® Rochester reports that it receives a fee of $350 per homebuyer from the City of Rochester. Assuming that the City pays such a fee to a homebuyer counseling agency for every HOME Rochester buyer, the total city funding contribution to this activity would be $350 x 54 = $18,900.

Nonprofit Developer fees
GRHP pays nonprofit developers a fee for their role in managing HOME Rochester rehabilitation projects. The fee consists of a base fee of $4,000 plus up to $1,000 in performance bonuses if the project hits key milestones on time. We assume that these fees are commensurate with the operational costs incurred by the developer to manage the project. Total HOME Rochester costs for this component of the program are therefore estimated at 54 units (the 2010 production level) times $5,000 = $270,000. For simplicity and because we did not perform a detailed cost analysis of the developer organizations, we assign all of this cost as a direct cost.

City of Rochester operating costs
In order to estimate the operating costs of City of Rochester support functions provided to HOME Rochester homes, we conducted an analysis using staff time and cost data provided by City staff. We estimate that the total annual costs for the City of Rochester to support the development of 54 homes through HOME Rochester are $68,060 - of which $52,556 is direct costs and $15,504 is indirect costs.

Information utilized
The City of Rochester provided the following information for the analysis:

- Estimated hours required for individual staff members to perform their duties related to the development of an individual HOME Rochester project, and hours required for overall program administration
- Annual salary and benefits of staff who have HOME Rochester responsibilities (among their other duties)
- An indirect rate used by the City of Rochester to calculate nonstaff overhead (e.g. office space) and administrative staff costs

**Calculation of direct costs**

Direct costs for the City of Rochester consist of staff costs only. These costs were calculated by multiplying estimated staff hours spent on HOME Rochester by the hourly cost of salary plus benefits of the staff member, per the table below.

<table>
<thead>
<tr>
<th>Staff</th>
<th>Hours per home</th>
<th>Program management hours / year</th>
<th>Hourly salary plus benefits</th>
<th>Homes in year</th>
<th>Total program staff cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position 1</td>
<td>8</td>
<td>0</td>
<td>$40.65</td>
<td>54</td>
<td>$17,560.17</td>
</tr>
<tr>
<td>Position 2</td>
<td>6</td>
<td>0</td>
<td>$47.74</td>
<td>54</td>
<td>$15,467.62</td>
</tr>
<tr>
<td>Position 3</td>
<td>3</td>
<td>0</td>
<td>$53.10</td>
<td>54</td>
<td>$8,602.23</td>
</tr>
<tr>
<td>Position 4</td>
<td>3.5</td>
<td>0</td>
<td>$44.79</td>
<td>54</td>
<td>$8,465.03</td>
</tr>
<tr>
<td>Position 5</td>
<td>0</td>
<td>41</td>
<td>$60.02</td>
<td></td>
<td>$2,460.69</td>
</tr>
<tr>
<td>Total:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$52,555.74</td>
</tr>
</tbody>
</table>

**Calculation of indirect costs**

The City of Rochester indicated that it has an indirect cost rate of 29.5%. Multiplying the $52,556 in estimated direct costs by this rate yields an estimated indirect cost of $15,504.
Property Value Impact Analysis

I Squared Community Development Consulting, Inc. worked with subconsultant New England Market, Research, Inc. to develop an analysis of the impacts of HOME Rochester homes on neighboring property values. This study was conducted using a hedonic regression analysis to predict the 2010 sales price of homes in ZIP codes where HOME Rochester is active, based on:

- their proximity to HOME Rochester homes,
- their proximity to vacant homes,
- a vector of control variables describing the physical characteristics of the home, and
- a vector of control variables describing socioeconomic characteristics of the census tract where the home is located.

The resulting statistical model is quite robust, and is able to explain 76 percent of the variation in observed home prices.

The results of the model show that the HOME Rochester program has a large and statistically significant impact boosting the value of neighboring properties. This benefit derives from two sources – eliminating the blighting effect of a vacant property, and introducing the positive effect of an attractively renovated, owner-occupied home:

- Holding all other factors constant, a home that is located within 100 feet of a vacant property in Rochester sells for $9,945 less than it would otherwise
- Holding all other factors constant, a home that is located within 100 feet of a HOME Rochester home sells for $5,707 more than it would otherwise

Cumulatively, then, developing a HOME Rochester home would be expected to boost the value of properties by $15,672 for a radius of 100 feet around the property (assuming there were no other vacant within that radius). Given that the average 2010 sales price of all the single-family homes in our dataset was $67,446, this impact is quite substantial – about 23 percent of the average home’s value.

Overview of hedonic analysis

Hedonic analysis is the study of the relationship between the price of a product and the characteristics of that product. In housing markets, hedonic analysis is often used as an aid to appraising a property, to determine a sale or asking price and/or to determine demand for a housing unit. In one form, hedonic analysis uses existing housing data and other information to determine the value of a housing unit. This process can be decomposed when the value of a house has already been determined by the market, i.e., we have a sales record. Working backwards, in a manner of process, if we already know the sale price, hedonic analysis allows us to estimate the contribution of the individual variables to the sale price.

In its most basic form, hedonic analysis is a type of regression model:

\[ P = \alpha_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \ldots + \beta_kX_k \]
Where \( P \) is the price of a housing unit, \( \alpha_0 \) is a constant, \( X_1 \) through \( X_k \) are the attributes for \( k \) selected characteristics. \( \beta_1 \) through \( \beta_k \) are the weights assigned to the particular attribute.

Suppose that \( X_1 \), the first characteristic is the square feet of living area in the home. The equation above implies that if \( X_1 \) goes up by one square foot, the price of the housing unit or property rises by \( \beta_1 \) dollars. Or, in more mathematical terms:

\[
dP/dX_1 = \beta_1
\]

The above states that the change in \( P \) due to a change in \( X_1 \) is constant and equal to \( \beta_1 \) and it is on this basis that we say that the price of a square foot of living areas is \( \beta_1 \) dollars.

Given an accurate and representative data set, we can examine and then determine which of the infinite number of possible \( X \) variables contribute to or subtract from the price of a housing unit.

**The Data Set**

We were provided assessor’s data for the city of Rochester, which included over 67,254 individual land records. This information included, among other data, square feet, road frontage, age, stories, number of bathrooms and bedrooms, zoning district, assessor’s evaluation using a grading system, sales price, date of sale and other information which is used by assessors and appraisers to determine value. 19,041 parcels had a record of sale, dating from July 1991 to August 2011. We focused the analysis exclusively on predicting home prices in 2010, since we had data for the location of vacant homes only for that year.

In addition HOME Rochester provided us information on 545 homes that had undergone rehabilitation, dating from January 2002 to October 2011. The accompanying chart shows a histogram of units using the date when construction was completed as the benchmark. HOME Rochester projects have been concentrated in 8 ZIP codes in the city (14609, 14621, 14619, 14613, 14606, 14615, 14611, and 14620). We therefore limited our analysis to those ZIP codes.

Finally, census tract level demographic information from the 2005-2009 American Community Survey was used. A variety of variables were examined, including poverty and homeownership rates, the percentage of households headed by single females with children, the minority population percentage, median household income, and educational attainment. Change in households from the 2000 to 2010 Census was also examined. Only variables with significant coefficients were included in the final model.
Utilizing ESRI’s ArcMap10 GIS software, we were able to calculate the following distance variables\textsuperscript{ii}, which we added to our data set (for all homes sold):

- distance to the nearest HOME Rochester home
- number of HOME Rochester homes within 500 feet
- number of Home Rochester homes within ¼ mile
- distance to the nearest vacant property
- number of vacant properties within 500 feet
- number of vacant properties within ¼ mile.

**Hypothesis**

Our hypothesis is: the rehabilitation of HOME Rochester homes has a positive impact on home sale prices. A related hypothesis is that the presence of vacant homes has a negative impact on home sale prices.

**Methodology**

Utilizing the data set described above, we created a subset of data that included only the 798 homes sold in 2010 in areas zoned residential in 8 zip codes.\textsuperscript{iii} These zip codes were selected to allow for a concentration or critical mass of HOME Rochester homes, in order to test our hypothesis.

The reason for selecting 2010 is as follows: there is little doubt that vacant properties may depress house values,\textsuperscript{iv} so an accurate calculation of the location of these properties was critical to the study. No historic data exist on vacancy distances and locations. However vacant and abandoned properties that are listed in the file that was sent to us was assumed to be current. We determined that these vacant and abandoned property listings would be accurate for only those homes sold in 2010.

Additionally, since we had the dates of construction completed for all HOME Rochester homes by month and year, we could create our spatial variables in a manner that ensured that only those HOME Rochester properties where the construction was completed at least a month before sale were used.

We employed an ordinary least squares regression framework (OLS)\textsuperscript{v} for our analysis. Several models were created and discarded due to their unwieldy nature and the subsequent problems in explaining these models to planners and the public. Additionally, we tested our final model using 60 dummy tract variables, zip code dummy variables and monthly dummy variables. Several tracts were significant, but neither zip codes nor month of sale were significant.

Our goal was to develop a final model that had the following characteristics:

- parsimony
- powerful in that it explained a significant portion of price differences
- the model included housing and land physical characteristics, HOME Rochester and vacant property spatial variables and demographic indicators
- understandable for policy makers

Analysis was conducted using Stata, V10.

Results

741 sales records were used in the final model. At the start of the analysis we tested whether there was a significant difference between the median and mean sale prices of homes that had a vacant property within 100 feet of the property centroid and whether there was a significant difference between the median and mean sale prices of homes that had a HOME Rochester property within 100 feet of the property centroid. Mean results were significant and median results were mixed.\(^\text{vi}\)

<table>
<thead>
<tr>
<th></th>
<th>median sales price</th>
<th>mean sales price</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\leq) 100 feet of vacant property</td>
<td>32,750</td>
<td>37,705</td>
</tr>
<tr>
<td>&gt; 100 feet of vacant property</td>
<td>65,000</td>
<td>75,848</td>
</tr>
<tr>
<td>(\leq) 100 feet of HOME Rochester property</td>
<td>60,500</td>
<td>62,051</td>
</tr>
<tr>
<td>&gt; 100 feet of HOME Rochester property</td>
<td>62,500</td>
<td>70,972</td>
</tr>
</tbody>
</table>

The final model is presented below and the actual output is included as an attachment. Results for each variable were significant at \(p \leq 0.10\). In that vacancy had a very powerful effect on the sales price, often overwhelming any expected impact of the effect of a HOME Rochester property, we converted the spatial variables described earlier into two indicator or dummy variables.\(^\text{vii}\) One of these variables had a value of 1 if a vacant property was located within 100 feet of a sold home and 0 otherwise. The other indicator variable had a value of 1 if a HOME Rochester home was within 100 feet of a sold home and 0 otherwise.

\[
P = 118359 + 7.38(\text{sq. ft. living area}) + 10556(\text{number of stories}) + 17.18(\text{sq. ft. lot}) + 174.40(\text{frontage}) + 12955.11(\text{assessor's grade}) - 378.94(\text{age of building}) - 208.91(\text{homeownership percentage } \times 100) - 1434.13(\text{percent female single head of household with children}) - 607.69(\text{percent other than white } \times 100) - 9945.08(\text{vacant property within 100 feet}) + 5706.77(\text{HOME Rochester home within 100 feet})
\]

Discussion

There are several things in the above model that warrant discussion. We start first with a basic explanation. 76% of the variability in the data set is accounted for by the model. The formula states that the price of a home equals a starting price base of 118,359. To this, the price (using the mean as the starting point):
- increases 7.38 for every additional square foot of living area
- increases 10,556 for each additional story
- increases 17.18 for every additional square foot of lot space
- increases 174.40 for each additional foot of road frontage
- increases 12,955.11 for an increase in assessment grade (average to economy to good)
- decreases 378.94 for each additional year of age past the mean of the age of all buildings considered
- decreases 208.91 for each percentage point increase of homeownership in the zip code
- decreases 1434.13 for each percentage point increase in single female head of household with children
- decreases 607.69 for each percentage point increase in population other than white
- decreases 9,945.08 if a vacant property is within 100 feet of the property
- increases 5,706.77 if a HOME Rochester home is located within 100 feet of the property.

Of specific note are the effects of vacancy and HOME Rochester proximity. Clearly a vacant property near a house for sale will have a negative premium of close to $10,000. At the same time a HOME Rochester home will have a positive premium of $5,700. A vacant home subsequently rehabilitated that is within 100 feet of a home to be sold will add $15,651.85 to the value of this sold home ($9,945.08 + 5,706.77), all other variables being held constant. This is quite remarkable and would indicate a policy of selecting vacant homes for rehabilitation. The ancillary effects will be an increase of all adjacent property values and a more robust property base from which to assess values and tax collections.

How robust is the model?

1. As stated above, the model accounts for close to 76% of the variance. This is a relatively high percentage using OLS regression.
2. The chart below plots the predicted values of the model against the expected values. We see that in general, the fit is relatively close.
3. Heteroskedasticity, which was present, was controlled using robust standard error estimates. The residuals (predicted values less actual values) are plotted below using a histogram as well as a plot of the residuals against the expected values. In both cases the residuals do not appear heteroskedastic.

Areas of Further Study

1. It would be useful to determine the temporal effect of HOME Rochester homes on property value. In our study, the effect of a HOME Rochester home is the same whether the home was completed a month before sale or up to 9 years before sale. We hypothesize that there will be a decay effect, i.e., the effect of a newly rehabilitated home on an adjoining sale will be larger than that of a rehabilitated home > 1 month from sale.

2. Historical data, if available, could be used to determine vacancy for years earlier than 2010, so the HOME Rochester effects could be explored for the years 2002-2009.

3. With a larger data set, as described above, a more refined distance impact could be explored. In other words, as a HOME Rochester home or vacant property is located
closer or further away from a sold home, does the impact on sales price increase/decrease? We ran several models using actual feet from the sold home of HOME Rochester properties and vacant properties. The results were inconclusive.
## Attachment One: Hedonic Regression Output

**Linear regression**

|         | Coef.   | Std. Err. | t     | P>|t| | [95% Conf. Interval] |
|---------|---------|-----------|-------|-----|---------------------|
| nsaleprice | 7.382686 | 2.296173  | 3.22  | 0.001 | 2.874786  | 11.89059 |
| sfla     | 10555.56 | 1860.221  | 5.67  | 0.000 | 6903.53   | 14207.59 |
| nstories | 17.17822 | 1.014183  | 16.94 | 0.000 | 15.18715  | 19.16929 |
| nfrontage| 174.4038 | 92.47414  | 1.89  | 0.060 | -7.143658 | 355.9512 |
| ndvacant100| -9945.082| 2196.95   | -4.53 | 0.000 | -14258.19 | -5531.978|
| ngrade   | 12955.11 | 2081.43   | 6.22  | 0.000 | 8868.797  | 17041.42 |
| nagehome | -378.9415| 38.99906  | -9.72 | 0.000 | -455.5054 | -302.3777|
| ownhomeper-t| -208.9065| 106.7563  | -1.96 | 0.051 | -418.4929 | 5799515  |
| pcfemsffch-d| -1434.125| 235.3422  | -6.09 | 0.000 | -1896.155 | -972.0961|
| pcotherths-e| -607.6928| 79.32431  | -7.66 | 0.000 | -763.4241 | -451.9614|
| nadrhome | 5706.765 | 2547.333  | 2.24  | 0.025 | 705.7815  | 10707.75 |
| _cons    | 118358.5 | 11339.17  | 10.44 | 0.000 | 96097.12  | 140619.8 |
Attachment Two: Map of vacant properties in 2010 and HOME Rochester properties developed 2002-2010

Legend
- Vacant Properties
- Home Rochester Projects
- Roads
- City of Rochester
Much of this introductory section is derived from Coulson, Edward. *Hedonic Methods and Housing Markets*, monograph. Penn State University. 2008


The choice of OLS was decided for several reasons. We examined the effects of different models, specifically those described in Cropper, Maureen L., Deck, Leland B. and McConnell, Kenneth E. “On the Choice of Functional Form for Hedonic Price Functions,” *The Review of Economics and Statistics*, Vol. 70, No. 4. 1988, pp. 668-675 and Blackley, Paul, Follain, James R., Jr. and Ondrich, James R. “Box-Cox Estimation of Hedonic Models: How Serious is the Iterative OLS Variance Bias?” *The Review of Economics and Statistics*, Vol. 66, No. 2, 1984, pp. 348-353. While several models explained slightly more of the variance than a non-transformed OLS model, the additional power of these models came at a cost of not being able to clearly explain results to non-statisticians and researchers. Hence a non-transformed OLS model was selected among the several we used in our earlier analysis.

For means, we applied a two-sided $t$ test assuming unequal variances. For vacant homes ≤ 100 feet the difference in mean prices was significant at $p \leq 0.002$. For HOME Rochester homes ≤ 100 feet the difference was significant at $p \leq 0.002$.


For vacant homes ≤ 100 feet the difference in median prices was significant at $p \leq 0.002$. For HOME Rochester homes ≤ 100 feet the difference was not significant.

An indicator or dummy variable assumes a value of 1 if the observation has the attribute of interest and 0 if it does not.