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# Community-Engaged Decision Support for Foreclosed Housing Acquisition and Redevelopment in Boston

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# Community-Engaged Decision Support for Foreclosed Housing Acquisition and Redevelopment in Boston

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## Summary/Abstract

This project develops decision tools and analytical methods to help non-profit community development corporations (CDCs) acquire and redevelop foreclosed housing for neighborhood stabilization and revitalization.

Interviews and direct observations at partner CDCs have helped us identify current practices, data and requirements for our decision models. Problem-structuring methods through CDC focus groups have generated core operational and organizational objectives. Spreadsheet- and optimization-based decision models generate policy and operational alternatives that address multiple resident and community outcomes.

Our research will support efficient responses to the recent foreclosure crisis, especially in distressed neighborhoods, and suggest policy implications at local and national levels.

## Goals and Objectives

Community development corporations (CDCs) that acquire and redevelop foreclosed housing for neighborhood stabilization face a range of decision problems. Working with four local CDCs on the front line of the foreclosure crisis, we help them to leverage their considerable knowledge and expertise in housing and community redevelopment to generate more efficient, effective, and equitable outcomes.

We use interactive, participatory methods to build new theory about the process, decisions and impacts of foreclosed housing acquisition and redevelopment. Our goal is to develop innovative decision models that address the *tactical question* of the choice of specific foreclosed units to acquire, and the *strategic question* of development of portfolios of foreclosed housing acquisition opportunities as a basis for longer-term planning.

We adapt methods from multiple analytic disciplines to assess the impact of the use of these decision models on practices of community-based organizations and their communities. Our work will enable practitioners to explicitly identify and quantify decision problems and solve these problems to generate evidence-based recommendations for provision of key services. Policy-makers and funders will have increased resources to modify strategies, priorities and funding criteria based on the effectiveness of decision models for community-based service provision.

## Approaches and Methods

Motivated by previous research on multi-objective decision models for foreclosed housing acquisition and redevelopment, we used funding from a Healey Grant to interview staff of Chelsea Neighborhood Developers (CND) in Chelsea and Coalition for a Better Acre (CBA) in Lowell to understand their goals, processes and data used for foreclosed development.

We learned that a useful measure of the social impacts of foreclosed development was the estimate of property value losses avoided through acquisition of particular properties (PVI), and that a criterion of the policy importance of property acquisition was a measure of the strategic value of particular properties (SVA), a function of the proximity of candidate properties to local amenities and disamenities. We proposed that decision models to rank candidate acquisitions according to property value impacts and strategic value could help TND make better development decisions. We developed a policy- and planning-oriented case study of CND and CBA's foreclosed development efforts.

Our National Science Foundation grant has enabled us to develop a multi-stage decision modeling methodology for foreclosed housing acquisition and development that uses qualitative and quantitative methods in an iterative, community-focused process (Johnson, 2011).

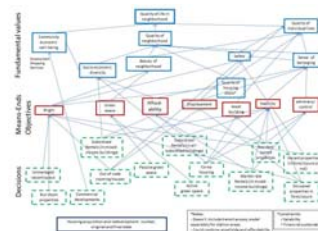
The first step in this process was selection of candidate CDCs: we chose Codman Square Neighborhood Development Corporation (CSNDC) in Dorchester and Twin Cities Community Development Corporation (TCCDC), serving Fitchburg and Leominster. Next, we assessed processes and methods of CDC foreclosed development using document review, interviews and focus groups. We then performed a rigorous assessment of CDC goals and objectives, using Keeney's (1992) value-focused thinking (VFT) method. Most recently, we have computed criteria by which acquisition candidates could be ranked, using data for Chelsea. We compute SVA values by adapting principles of objective function design for facility location models (Johnson et al., 2012a). We compute PVI values by applying Markov models to previous research on property value impacts of foreclosures (Johnson et al., 2012b).

Our decision modeling work is proceeding on two tracks. We are developing multi-criteria decision models for foreclosed strategy design based on VFT. We are developing multi-period mathematical programming models under uncertainty to identify policies for neighborhood-level acquisition and redevelopment, and decision rules for property-level bidding. We plan to document the implementation of decision models within our partner CDCs with a multi-site case study.

## Results/Impact

Our case study of CND and CBA (Turcotte et al., 2012) indicated that foreclosed housing development is impeded by bureaucratic processes and policy constraints, and limited data and analytic methods for setting priorities and evaluating impacts.

Our value-focused analysis of CSNDC has revealed that specific acquisition and redevelopment decisions are linked to 'means goals', such as maximizing green space and affordability, and 'fundamental goals' such as quality of individual lives and of neighborhoods.

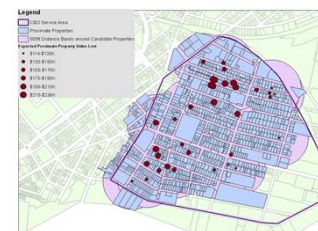


Values structures for CSNDC

Our PVI and SVA estimates vary significantly over space, and imply different rankings of candidate properties than those generated through acquisitions by TND.



PVI estimates for CND



SVA estimates for CND

We have provided our partner CDCs with geographic information systems software and training to strengthen their technical capacity and increase university-community ties.

## Conclusion/Next Steps

We have learned that decision modeling in the field is very different from academic research. CDCs may have significant technical expertise but lack the ability to link specific goals and objectives with models to assist in specific acquisition and redevelopment decisions. The process of determining 'what we know' and 'what we want to do' is often just as important as designing analytic models and generating specific recommendations.

We are developing a spreadsheet-based decision model for CSNDC and TCCDC that allows decision-makers to assess the impact upon fundamental organizational values of alternative strategies. We are creating decision models for property bidding and neighborhood-level acquisition and redevelopment under uncertainty using data from CSNDC.

We hope that the different strands of research on this project can be integrated into a single product, like a website, or a book, that CDCs can use to apply community-based decision modeling to diverse issues in housing and community development.

## References and Resources

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## Additional Partnerships, Information and/or Contacts

**Funding:** "Collaborative Proposal: Decision Models for Foreclosed Housing Acquisition and Redevelopment" (NSF); "Decision Modeling for Foreclosed Housing Acquisition in a Large Urban Area" (Healey Grant)

**Community partners:** Coalition for a Better Acre, Chelsea Neighborhood Developers, Codman Square Neighborhood Development Corporation, Twin Cities Community Development Corporation

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