Documenting Care and Commitment to Place in CDAD's "Urban Homesteads" and "Naturescapes"

Margaret Dewar and Eric Dueweke

Summary

This project collected data on evidence of care for a total of nearly 9000 properties in two very vacant areas of Detroit. The data include 95 fields; subsets of the fields apply to block faces and to different types of properties. The aim of the project was to increase understanding of what might be involved in moving toward CDAD's Naturescapes and Urban Homesteads, how very vacant areas differ and therefore may require different approaches in planning and policy, and what alternative policy directions might lead to better outcomes for residents over time. Initial analysis of the data shows the kinds of differences and similarities that exist between the two areas studied. The experience of the data collection and analysis suggests lessons for future property assessment projects, further directions for analysis, and possible policy directions.

Overview

Detroit has lost so much population and housing that some residential areas are now at least 50 percent vacant lots. This fact has stimulated discussion of how to address those predominantly vacant areas. Community Development Advocates of Detroit (CDAD) developed a citywide neighborhood typology that includes two broad categories, "Urban Homesteads" and "Naturescapes," that can aid in imagining the future of such areas. The 2012 Detroit Strategic Framework Plan, *Detroit Future City* (DFC), envisioned such areas as "Innovation Productive" (for production and innovation in uses of vacant land) or "Innovation Ecological" (for ecological uses of vacant land) within 50 years.[1]

To understand whether these are appropriate or realistic futures for such areas and what such a transition would require, more analysis of current conditions is needed. This project aimed to collect data on conditions of properties, especially with respect to evidence of care, and to analyze the data to address three questions: 1) Do the broad CDAD categories capture the varied possibilities in future land use? The DFC categories did not exist when we began this project, but the same question could be asked of those. 2) Do very vacant areas of the city differ in the evidence of residents' care for structures and for vacant lots so that different futures may be appropriate in equally vacant areas? 3) Given the character of very vacant areas of the city, what are more analytically sensible and socially just policy directions than Mayor Bing's declaration in 2010 that everyone should move out of such areas?

We collaborated with Professor Joan Nassauer from the Landscape Architecture Program in the School of Natural Resources and the Environment. We discovered in the proposal stage of

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[1] Community Development Advocates of Detroit, Community Development Futures Task Force, "Neighborhood Revitalization Strategic Framework," February 2010 (retrieved from http://detroitcommunitydevelopment.org/CDAD_Revitalization_Framework_2010.pdf, December 12, 2010); Detroit Works Project, *Detroit Future City: 2012 Detroit Strategic Framework Plan* (Detroit: Author, 2012).

this project that we were interested in collecting similar types of data, so we worked together on the data collection, dataset construction, and quality assurance procedures.

Methods, analysis and findings

Research Design. We selected two areas we hypothesized would have different levels of care and disorder although the percent of residential properties that were vacant lots and vacant houses was similar in 2009. One area was a central section of Brightmoor, an area of northwest Detroit with extensive disinvestment that had never been the focus of government redevelopment efforts. Brightmoor had a strong network of nonprofit organizations and churches to aid residents and to improve living conditions. The Skillman Foundation was investing considerable resources to improve the lives of children and youth in Brightmoor. We thought that the lack of commitment to redevelopment by city government and the many efforts of residents and community-focused organizations would lead to more evidence of care.

The other area was part of the "Far Eastside" or "Fox Creek" area bounded by Warren, Alter, Jefferson, and Conner. We could identify no community-based organizations and churches that focused their work in the residential areas although two community development organizations included the Eastside area in their territories. In the early 2000s the city government designated this part of the Eastside for extensive redevelopment with demolition, investment in new infrastructure, and construction of thousands of homes. The city government acquired numerous parcels of property in the area, primarily through purchase of tax-reverted property prior to the county auctions of tax-foreclosed property. Although the city government made considerable investment in infrastructure, the developers built only a few houses. By 2012, city officials were taking steps to repossess the property they had transferred to developers who had failed to carry out development. We thought the lack of community-based organizations, the proposed but stalled development, and the greater attention from city government would lead to less evidence of care in the Eastside as residents might be uncertain about the future of the area and because government attention might interfere with residents' use of vacant lots that they did not own.

Within Brightmoor and the Eastside, we mapped blocks where more than half of residential properties were vacant lots or vacant structures as of 2009, according to the Detroit Residential Parcel Survey. We then selected contiguous areas of very high vacancy for study. These areas included some blocks with less vacancy because very vacant blocks surrounded them and we were interested in whether the evidence of care that might exist on those less vacant blocks had an effect on the level of care in the more vacant ones.

Methods. We developed a block and lot assessment instrument to measure evidence of care or lack of care. To do so, we drew on the Systematic Social Observation (SSO) research in Chicago, assessments of block face conditions by researchers in the School of Public Health, the assessment tool used in the Detroit Residential Parcel Survey, and assessment instruments we had used in the past in working with students and Detroit and Flint residents to assess physical

conditions of houses, residential block faces, vacant lots, and commercial structures.[2] We read available work on the validity and reliability of these assessment tools.[3] We relied on Joan Nassauer's work for the design of the assessment of landscape conditions.

With student employees who would do the property assessments, we reviewed how to assess properties using the approach to training from the Detroit Residential Parcel Survey with photos of different conditions of properties. We tested the rating instrument on a block and made revisions.

We started rating conditions using Google Streetview, which at that time had street level photos from August 2009, to see how this would work. The test went well; the photos were of high enough quality that we felt confident about the ratings. Others' research had concluded that using Google Streetview was useful as well except for the most finely detailed observations of neighborhood conditions, which were not necessarily our concern.[4] We decided to use Google Streetview to assess properties and then to check these in the field. This would save travel time and costs and reduce the time we spent on the streets.

After we had assessed quite a few of the blocks in one of the study areas, we checked the ratings against conditions in the field. Checking every property in the field proved to take as long as the initial assessment using Streetview; we did not have time or funds to do this, and we thought that the improvement in assessment would not merit this time and expense. In the field, we found that the significant changes in conditions between the Streetview photos of 2009 and the field observations of 2011 related to structures so we decided to focus the field survey on looking for changes in the condition of structures and recoding these. If the condition of a structure had changed, we checked whether the condition of the grounds associated with the structure had changed and recoded those conditions as well. We took many photographs of evidence of care or neglect.

We rated conditions using Streetview from May through August 2011 and did field surveys in August 2011. We did some additional collection of data in fall 2011 for areas that had been missed or where coding was confusing.

We worked on assuring quality of the data, putting it into more usable form for analysis, writing a codebook, and reconciling the data with the 2011 Detroit parcel shapefiles (we had used the 2009 shapefiles in identifying parcels for the property assessments in 2011). We started this process in September 2011 and continued through April 2013, at a slow pace during the academic year. The final datasets include 4876 properties in Brightmoor and 4027 properties in

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[2] For the SSO assessment instrument, contact Professor Jeffrey Morenoff, Department of Sociology, University of Michigan; for the Public Health instrument, contact Professor Amy Schulz, School of Public Health, University of Michigan. Other assessment instruments are available from the authors.

[3] For example, Shannon N. Zenk, Amy J. Schulz, Graciela Mentz, James S. House, Clarence C. Gravlee, Patricia Y. Miranda, Patricia Miller, and Srimathi Kannan, "Inter-rater and Test-retest Reliability: Methods and Results for the Neighborhood Observational Checklist," *Health and Place* 13, 2007, pp. 452-65; Stephen W. Raudenbush and Robert J. Sampson, "Ecometrics: Toward a Science of Assessing Ecological Settings, with Application to the Systematic Social Observation of Neighborhoods," *Sociological Methodology* 29(1), 1999, pp. 1-41.

[4] Philippa Clarke, Jennifer Ailshire, Robert Melendez, Michael Bader, Jeffrey Morenoff, "Using Google Earth to Conduct a Neighborhood Audit: Reliability of a Virtual Audit Instrument," *Health and Place* 16, 2010, pp. 1224-9.

the Eastside. We rated 95 characteristics of the properties, with subsets of these ratings applied to blocks or parcels and to different types of properties—vacant lot, residential structure, or nonresidential structure.*Analysis and findings.* Analysis of the data is continuing and incomplete. This section reports some initial findings with respect to each of the three questions. As our analysis continues, we will share additional findings with you.

1) Do the broad CDAD categories capture the varied possibilities in future land use?

The areas that CDAD characterized as potential future Urban Homesteads and Naturescapes are quite varied now. Although they have extensive vacant land, they also have residential structures in good condition, vacant lots that residents have taken over for their own use, lots taken over for communal use, and lots showing evidence of use for paths and driving shortcuts, for example. The state, county, and city governments own substantial amounts of land, but so do nonprofit organizations and a very large number of private individuals and businesses. The difference between current conditions and the future possible uses suggests the challenges ahead. For instance, many of the people living in potential Urban Homestead areas do not have the capacity to use or maintain large amounts of land. They have very low incomes, and many are renters. How to transition land use from old uses to new ones over the next years in a socially just way is a major challenge facing city residents and elected officials.

2) Do very vacant areas of the city differ in the evidence of residents' care for structures and for vacant lots so that different futures may be appropriate in equally vacant areas?

In both areas, only a few thousand people remained, and a large share of remaining housing units was vacant. Incomes were very low. The Eastside area was slightly better off with a higher proportion of owner occupants and somewhat higher incomes. Nearly 4000 people lived in the part of Brightmoor we studied as of 2010. Two-thirds of housing units, 1468 units, were occupied. Forty-one percent of these units were owner occupied. Thirty-four percent of households had incomes less than $10,000, and another 34 percent had incomes between $10,000 and $25,000. The section of the Eastside we surveyed had a population of 2965 in 2010 living in two-thirds of the housing units (1048 units). Forty-six percent of housing units were owner occupied. Thirty percent of households had incomes less than $10,000; another 23 percent had incomes between $10,000 and $25,000 per year.[5]

The areas of Brightmoor and the Eastside differed in the distribution of land uses (see Table 1). The Eastside had a higher percent of properties as vacant lots—approaching three-quarters of properties—while Brightmoor had somewhat over half vacant lots. Brightmoor had more properties with housing and nonresidential uses.

Of remaining housing structures, Brightmoor had a higher percent in good condition, an indication of greater care for housing, but the areas had very close to the same share of good and fair housing combined. The Eastside had a larger share of housing structures in poor condition,

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[5]U. S. Bureau of the Census, *2010 Census of Population and Housing*, www.census.gov; U. S. Bureau of the Census, *American Community Survey*, www.census.gov.

and Brightmoor had a larger share needing demolition, so their shares of poor housing structures plus housing needing demolition were close to the same—slightly over 26 percent of all housing structures.

Table 1. Land uses

% Properties	Brightmoor	Eastside
Housing structures	41.5	23.3
% housing in:		
good condition	56.4	47.5
fair	17.0	26.4
poor	10.0	15.9
should be demolished	16.6	10.2
Vacant lots	52.7	72.5
Nonresidential uses	5.8	4.2
Total number of		
properties studied	4876	4027

In both areas people living next door had taken over adjacent lots to form "blots," a combined property larger than a lot but smaller than a block.[6] The neighbors had claimed these properties with fences or hedges at the boundaries and with clear indications of use whether with the construction of a driveway and garage or the presence of barbecue equipment, play structures or plantings. In Brightmoor, 15 percent of vacant lots had been taken over in this way. In the Eastside, 9 percent of vacant lots were part of blots. With fewer remaining houses and a larger share of vacant lots, Eastside residents were nevertheless more likely to take over adjacent properties. On the Eastside 22 percent of properties with houses had taken over adjacent lots, while 14 percent of those in Brightmoor had done so. Residents were remaking the disinvested environment to improve their quality of life. One homeowner in Brightmoor who had acquired about four lots told a National Public Radio reporter, "If I want to go to the park, I just go out here to the back yard."[7] Others showed with high fences and threatening signs that they were taking over lots to protect their homes from crime, dumping, and other undesirable activities.

Such uses of vacant lots were vulnerable, however, for several reasons. Sixty-two percent of owners who had taken over adjacent vacant lots in Brightmoor occupied the house. Seventy percent of Eastside "blotters" were owner occupants. The landlords who owned the other properties that had taken over vacant lots may have acquired the houses after previous owner occupants had fenced the adjacent property, and they could be expected to have less interest in maintaining the house or the adjacent lot.[8]

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[6] T. Armborst, D. D'Oca, and G. Theodore, "Improve your lot!" in S. Rugare and T. Schwarz, (eds.), Cities Growing Smaller (Cleveland, OH: Kent State University, 2008); M. Dewar and R. Linn, "Remaking Brightmoor," in J. M. Thomas and H. Bekkering (eds.), *Mapping Detroit* (Detroit: Wayne State University Press, forthcoming).

[7] K. Davidson, "Blotting—not squatting—in Detroit neighborhoods" (Audio), National Public Radio, December 5, 2011.

[8] If the address of the taxpayer of record matched the address of the house, we judged the house likely owner occupied. If the taxpayer of record for a lot associated with a house matched the taxpayer of record for the house, we judged that the owner of the house also owned the lot. Detroit Assessor, 2011 tax records [datafile].

Further, many of those using vacant lots did not own them. Adjacent owner occupants had legal possession of only about 52 percent of the lots they were using in Brightmoor, 53 percent in the Eastside. Investors owned only about 30 percent of the vacant lots they occupied in Brightmoor, 39 percent in the Eastside. In Brightmoor the city, county, or state government owned about 53 percent of the properties that adjacent owners occupied but did not own; in the Eastside, governments owned 57 percent of these properties. Homeowners reported trying to purchase lots from the city government without success. In the Eastside city policy was to hold property and not to sell lots to neighbors because of the plans for new development. In Brightmoor a local nonprofit developer owned another 6 percent of lots that others were occupying and was likely to support owner occupants who wanted to purchase a lot. A large number of private entities owned the remaining 41 percent of the properties in Brightmoor and 43 percent in the Eastside. These private owners presumably could reclaim their property and disrupt residents' investment in using the land. In areas of high disinvestment, however, ownership was often murky; the absentee owners might have abandoned their properties years before, but city assessor records did not yet record that fact.

Communal use of vacant property could also help to improve the quality of life for remaining residents. Resident-created gardens, parks, or playlots absorbed very little land, however—less than 2 percent of the vacant lots in Brightmoor and less than 1 percent in the Eastside. The amount of vacant land was so extensive that the small numbers of remaining residents could not control it. Illegal dumping, houses awaiting demolition, and lots overgrown with trees and shrubs characterized the landscape in both areas.

Numerous residents of Brightmoor were quick to say that they would be happy to leave if they could. One wrote in a letter to the editor, "I live in the … Brightmoor neighborhood…. We would like to move…. I cannot sell my home for what I owe on it, so what do families like mine do?"[9] A resident of the Eastside told us that she maintained her house and the property around it because of pride, but she would be happy to leave if she could.

In sum, the land use conditions in the two areas are partly consistent with what we had expected but partly not. Despite the promise or threat of imminent development over the last decade, a higher percent of owners of houses had taken over adjacent lots in the Eastside than in Brightmoor, the opposite of what we expected. A smaller percent of houses in the Eastside were in good condition than in Brightmoor, as we expected, given the uncertainty about continuing to live there due to new development. We have more to do in analyzing the data on conditions of properties and characteristics of properties taken over to understand the differences and similarities. When our analysis is more complete, we will seek to hold focus groups in each area to try to learn more about the reasons for the patterns we see.

3) Given the character of very vacant areas of the city, what are more analytically sensible and socially just policy directions than Mayor Bing's declaration in 2010 that everyone should move out of such areas?

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[9] K. S. Dowell, letter to the editor, *Detroit Free Press*, Jan. 9, 2011.

As the analysis of land use shows, many remaining residents in very vacant areas have made substantial investments in maintaining their homes and in incorporating adjacent vacant lots into their property. In a context where much vacant land is uncared for and subject to illegal dumping, their care of property is an asset. Policy needs to take different directions for property cared for in this way and for vacant, untended property.

Government officials should reinforce the investment that residents have made in care of housing and adjacent lots. Government officials could help secure residents' stewardship by leasing property to owners for the length of their tenure. Alternatively, they could sell the land to these owners at low prices. Many low-income homeowners, however, do not want ownership because they cannot afford to pay property taxes on the lots. Officials could assure such owners that they could stay and that they will continue to have city services, although not necessarily delivered in the same way as now.

The untended vacant land needs to be transitioned to Naturescape more rapidly. The Detroit Land Bank could take a more active role in "banking" the vacant land that no one cares for. The Wayne County Treasurer now neglects to foreclose on most vacant lots but needs to foreclose on the lots in these areas so that the property can come under the city's control for more rapid transition to Naturescape uses that can enhance the quality of life for remaining residents as well.

Recommendations for data use

The data show conditions in two very vacant areas of the city. They show the complexity of adjustment in property use when many structures no longer exist. Discussion of such areas of cities whether by scholars or policy makers has involved generalizations that overlook much of the use of property. As discussion of policy and planning in such areas continues through initiatives such as Detroit Future City and efforts to address blight, the data can be used to understand what such areas are like, although the conditions of particular properties will have changed since 2011.

Lessons for property assessment. Our experience with assessing property conditions yielded several lessons for future property surveys:

- Google Streetview is very useful and seems to allow assessments that are as reliable as those in the field. The savings in time and expense of rating properties using Streetview instead of doing field surveys are considerable. On the other hand, Google re-photographs for Streetview intermittently. In 2011, the photos were two years old. Photos taken in August and September 2011 appeared in winter 2013. Assessments with Streetview are thus always out of date. This is not a problem for research, and data for most policy can never be absolutely up to date either, so for many policy purposes the use of Streetview may well be very useful as well. Because Google does not give advance notice that Streetview will be updated and because Google archives are not accessible, updates in photos can disrupt assessment in the middle of a project. A new difficulty in the 2011 photos is that Google has blurred most house numbers thus adding to difficulty for researchers in keeping track of which property they are assessing.

- Intra-rater reliability and inter-rater reliability—whether a rater produces the same ratings for the same properties on repeated ratings and whether different raters produce the same ratings for the same properties—tend to be low and thus a problem in this kind of property assessment.[10] We initially planned to compare the findings of the 2009 Detroit Residential Property Survey with our assessment using Streetview's 2009 photographs and with the 2011 field survey revision of Streetview-based assessment to see how conditions had changed in two years. The comparisons showed so many incongruous changes that we realized that rater reliability problems must explain many of these although we could not tell whether these were in the Residential Property Survey or our assessments. Property assessment efforts should incorporate numerous efforts to increase reliability. These should include:
  - Invest in considerable training of raters. Our raters were very competent graduate students whom we knew as careful with data and knowledgeable about the property they were analyzing. The raters were confident about their property assessment skills. Nevertheless, we think they would have benefited from more training than we gave them, and we recommend more training for raters even when raters do not think they need it.
  - Test, revise, and retest instruments. After the training, we recommend spending time testing instruments on the same block, assessing reliability of ratings, and finding ways to increase reliability.
  - Use checklists for deriving assessments of structures. Raters should derive characterizations of good, fair, and poor conditions of structures from checklists of characteristics of the structure. The character of a structure has too many dimensions to rely on raters' assessing properties consistently from their impression of whether the property is good, fair, or poor.
  - Limit number of categories for ratings of structures. Conditions of structures should be defined in not more than three categories—good, fair, poor—in addition to "should be demolished." Raters have difficulty distinguishing among more categories.
- Validity of condition ratings—the extent to which a rating represents an actual condition—change with economic conditions and needs to be reconsidered. Checklists to derive ratings of structure conditions, for example, need to be updated. Mortgage foreclosures left many structures empty from 2006 on. The condition of many of these structures might have been rated as good based on structural characteristics visible from the outside. However, stripping and scrapping of houses have increased enormously, and a house that might have been rated correctly as in good condition now should be rated as poor if a door or window is open because it likely has no pipes, water heater, or radiators.

Potential policy options for decision makers using the data

The data allow decision makers to examine closely how decisions might affect a very vacant area of the city. By looking at the detail of properties in Brightmoor or the Eastside, they will be able to see issues that may exist elsewhere as well. See also earlier discussion about policy towards very vacant areas of the city.

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[10] Zenk *et al.*

Documenting and Demonstrating Neighborhood Care Dynamics in CDAD's "Urban Homesteads" and "Naturescapes"

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Summary

This project developed a detailed tool to assess physical evidence of care or disorder in high vacant urban neighborhoods. It employed this tool to collect data on nearly 9000 properties in two very vacant residential areas in the Brightmoor and Eastside areas of Detroit. The data include 95 fields; subsets of the fields apply to block faces and to different land uses. The aim of this project was to identify patterns of variation in care and disorder within highly vacant neighborhoods and to explore the implications of current neighborhood care for future urban designs that would prompt efficiencies in maintenance of public landscape infrastructure and enhance the attractiveness of neighborhoods for their residents. Further, we worked with the Lower Eastside Action Plan to identify detailed study sites on the Eastside where we explored the urban design potential of vacant properties, especially related to green infrastructure, with attention to the appearance of care under alternative future development scenarios. Our analysis of the data so far indicates similar relationships among care variables but different patterns of care in Brightmoor and the Eastside. Our experience with data collection and analysis also leads us to make methodological recommendations for future property assessment projects. Development and application of this survey tool and preliminary analysis for quality assurance was undertaken in collaboration with Prof. M. E. Dewar, as she conducted a complementary investigation[1].

Overview

Detroit has lost so much population and housing that some residential areas, including many blocks in our study areas, are now at least 50 percent vacant lots. In response, Community Development Advocates of Detroit (CDAD) developed a citywide neighborhood typology that includes two broad categories, "Urban Homesteads" and "Naturescapes," that can aid in imagining the future of such areas. The 2012 Detroit Strategic Framework Plan, *Detroit Future City* (DFC), envisioned such areas as "Innovation Productive" (for production and innovation in

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[1] Because several aspects of this project were highly collaborative, some text in this report is identical to that in the report by Dewar and Dueweke on *Documenting Care and Commitment to Place in CDAD's "Urban Homesteads" and "Naturescapes"*.

uses of vacant land) or "Innovation Ecological" (for ecological uses of vacant land) within 50 years.[2]

To have a stronger basis for envisioning a transition process toward appropriate futures for such areas, more analysis of current conditions is needed. This project aimed to collect data on conditions of properties, especially with respect to evidence of care, and to analyze the data to identify patterns in the distribution physical evidence of care (cues to care) or disorder (cues to disregard) in the landscapes and structures of residential blocks. We addressed these research questions 1) Do certain cues tend to co-occur on the same properties? If so, this might suggest certain sets of care behaviors that could be effective in signaling social investment by residents in their neighborhood. 2) Are there differences between the two study areas in the proportion or spatial distribution of certain cues? If so, this might imply that different futures or procedural pathways may be appropriate in equally vacant areas. 3) Can the cues to care be used (and cues to disregard be avoided) in urban design proposals for neighborhood landscapes in the immediate future toward long term neighborhood desirability? We addressed this last question by developing urban ecological designs for neighborhood landscapes in four study sites in the Lower Eastside.

We collaborated with Professor Margaret Dewar of the College of Architecture and Urban Planning. We discovered in the proposal stage of this project that we were interested in collecting similar types of data, so we worked together on the data collection, dataset construction, and quality assurance procedures.

Methods, analysis and findings

Research Design. We selected two areas we hypothesized would have different levels of care and disorder although the percent of residential properties that were vacant lots and vacant houses was similar in 2009: Brightmoor and Eastside. One area was a central section of Brightmoor, an area of northwest Detroit with extensive disinvestment that had never been the focus of government redevelopment efforts. Brightmoor had a strong network of nonprofit organizations and churches to aid residents and to improve living conditions. The Skillman Foundation was investing considerable resources to improve the lives of children and youth in Brightmoor. We thought that the lack of commitment to redevelopment by city government and the many efforts of residents and community-focused organizations might lead to more evidence of care. The other area was part of the "Far Eastside" or "Fox Creek" area bounded by Warren, Alter, Jefferson, and Conner. We could identify no community-based organizations and churches that focused their work in the residential areas although two community development organizations included the Eastside area in their territories. In the early 2000s the city government designated this part of the Eastside for extensive redevelopment with demolition, investment in new infrastructure, and construction of thousands of homes. The city government acquired numerous parcels of property in the area, primarily through purchase of tax-reverted

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property prior to the county auctions of tax-foreclosed property. Although the city government made considerable investment in infrastructure, the developers built only a few houses. By 2012, city officials were taking steps to repossess the property they had transferred to developers who had failed to carry out development. We thought the lack of community-based organizations, the proposed but stalled development, and the greater attention from city government would lead to less evidence of care in the Eastside as residents might be uncertain about the future of the area and because government attention might interfere with residents' use of vacant lots that they did not own.

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With student employees who would do the property assessments, we reviewed how to assess properties using the approach to training from the Detroit Residential Parcel Survey with photos of different conditions of properties. We tested the rating instrument on a block and made revisions.

To see how this would work, we started rating conditions using Google Streetview, which, too our knowledge, displayed street level photos from August 2009 at that time. The test went well; the photos were of high enough quality that we felt confident about the ratings. Others' research had concluded that using Google Streetview was useful as well except for the most finely

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[5] For example, Nassauer, J. I. 2011. Care and stewardship: From home to planet. *Landscape & Urban Plan.* 100: 321-323; Nassauer, J. I. 1993. Ecological Function and the Perception of Suburban Residential Landscapes. In Gobster, P.H., ed., *Managing Urban and High Use Recreation Settings*, General Technical Report, USDA Forest Service North Central Forest Exp. Sta., St. Paul, MN.

detailed observations of neighborhood conditions that were not our focus.[6] We decided to use Google Streetview to assess properties and then to check these in the field. This would save travel time and costs and reduce the time we spent on the streets.

After we had assessed about 20 blocks in one of the study areas, we checked the ratings against conditions in the field. Checking every property in the field proved to take as long as the initial assessment using Streetview; we did not have time or funds to do this, and we thought that the improvement in assessment would not merit this time and expense. In the field, we found that the significant changes in conditions between the Streetview photos of 2009 and the field observations of 2011 related to structures so we decided to focus the field survey on looking for changes in the condition of structures and recoding these. If the condition of a structure had changed, we checked whether the condition of the grounds associated with the structure had changed and recoded those conditions as well. We took many photographs of evidence of care or neglect.

During May through August 2011, we collected data using Streetview. In August 2011, we augmented these data with field surveys. After beginning our quality assurance procedure, we collected some additional collection data in fall 2011 for areas that had been missed or where coding was confusing. We worked on assuring quality of the data, putting it into more usable form for analysis, writing a codebook, and reconciling the data with the 2011 Detroit parcel shapefiles (we had used the 2009 shapefiles in identifying parcels for the property assessments in 2011). We started this process in September 2011 and continued through April 2013, at a slow pace during the academic year.

The final datasets include 4876 properties in Brightmoor and 4027 properties in the Eastside. We rated 95 characteristics of the properties, with subsets of these ratings applied to blocks or parcels and to different types of properties—vacant lot, residential structure, or nonresidential structure.

Analysis and findings. Analysis of the data is continuing and incomplete.

1) *Do certain cues tend to co-occur on the same properties? If so, this might suggest certain sets of care behaviors that could be effective in signaling social investment by residents in their neighborhood.*

Landscape cues to care variables. We found that the following cues to care were all significantly correlated in both study areas: presence of hedges or fences lower than six feet, flower gardens or flowers in pots, lawn ornaments, or decorative lights. Consequently, we grouped these as positive cues to care for subsequent analysis.

Mowing and other landscape cues to care. Having a well-mown yard was also significantly correlated with each of the variables included in the landscape cues to care global variable. Having a well-mown front easement was significantly correlated with having a well-mown yard as well as with the other landscape cues to care variables. Because mowing is the most pervasive

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[6] Philippa Clarke, Jennifer Ailshire, Robert Melendez, Michael Bader, Jeffrey Morenoff, "Using Google Earth to Conduct a Neighborhood Audit: Reliability of a Virtual Audit Instrument," *Health and Place* 16, 2010, pp. 1224-9.

of the cues to care variables, we mapped and analyzed it separately despite its high correlation with the other variables.

Mowing and residential structure condition. In both Brightmoor and the Eastside, the presence or absence of mowing is significantly correlated with the residential structure condition.

Home dweller watching variables Landscape cues to care may be associated with perceptions of safety. We found the following cues to be significantly correlated in both study areas, and subsequently combined them for analysis: the presence of seating on the stoop or porch, furniture for social use (e.g., grill or gazebo) or play equipment in the yard.

Home dweller safety concerns. While having security signs and burglar bars has not been identified as cues to care in past studies, they may be cues to neighborhood perceptions of safety, and they were significantly correlated in both study areas. Having neighborhood crime watch signs nearby was also mapped and tested, but it was not significantly correlated with the other two variables.

Landscape cues to public disregard. In both areas, the presence of litter on the block face was significantly correlated with garbage, furniture, or appliances (not packaged for pickup or trash removal) on the street somewhere along the block face.

2) *Are there differences between the two study areas in the proportion or spatial distribution of certain cues? If so, this might imply that different futures or procedural pathways may be appropriate in equally vacant areas.*

The small differences between the Brightmoor and Eastside study areas in the proportionate quantity of cues to care or disregard within vacant or residential land uses are more meaningful in light of the notable differences between the two study areas in their proportion of vacant and residential land uses (Table 1). Almost 75% of the Eastside is vacant, and it has proportionately less good housing than Brightmoor. Yet, the Eastside, tended to have a higher proportion of both residential parcels and vacant parcels that displayed cues to care. The proportion of vacant parcels displaying cues to disregard was about the same in both study areas. Furthermore, our mapping suggests interesting differences between the two study areas in the spatial distribution of cues – with the Eastside displaying cues to care in larger more contiguous clumps compared with Brightmoor.

Table 1. Land uses

% Properties	Brightmoor	Eastside
% in residential structures	41.5	23.3
% residential structures in:		
good condition	56.4	47.5
fair	17.0	26.4
poor	10.0	15.9
abandoned	16.6	10.2
% vacant lots	52.7	72.5
% nonresidential uses	5.8	4.2
Total number of properties	4876	4027

<u>Landscape cues to care variables.</u> In Brightmoor, about 40% (n=951) of all residential properties displayed at least one cue to care. In the Eastside about 46% (n= 558) of all residential properties displayed at least one cue to care. Preliminary analysis of mapped cues to care for both study areas suggests that parcels with cues, and particularly those with more cues, may be more clumped in the Eastside and more widely dispersed in smaller clumps in Brightmoor.

<u>Mowing and other landscape cues to care.</u> For residential properties in both Brightmoor and Eastside, all landscape cues to care selected for the analysis above are correlated with having a well-mown yard.

<u>Mowing and residential structure condition.</u> About 41% of residential parcels in Brightmoor are unmown and about 38% in the Eastside are unmown. In both Brightmoor and the Eastside, parcels with good house condition were most likely to be well-mown. In both Brightmoor and the Eastside, approximately 76-79% of all parcels with structures in good condition were mown, whereas less than 8% of vacant parcels were. Approximately 30% of parcels with structures in *poor* condition were mown and 50% of parcels with structures in *moderate* condition were mown. Our preliminary analysis of mapping of house condition and mowing suggests that the yards of abandoned houses that are nearby houses in good or moderate condition are likely to be mown, while yards of abandoned or poor condition houses surrounded by vacant property are likely to be unmown in both study areas.

<u>Mowing of vacant properties.</u> While 58% of the vacant parcels in Brightmoor were unmown, only 45% of those in the Eastside were unmown. Preliminary analysis of mapped data suggests that mown vacant properties in Brightmoor are less clumped and more dispersed than in the Eastside, where mown vacant properties appear to be highly clumped.

<u>Home dweller watching variables.</u> About 30% of residential parcels in Brightmoor displayed cues to watching, while 41% of residential parcels in the Eastside displayed cues to watching.

Homedweller safety concerns. While 36% of Brightmoor residential parcels displayed at least one of these cues, 43% of Eastside residential parcels did.

Public disregard on vacant properties. In both Brightmoor and the Eastside, about 80% of all vacant properties display at least one cue to public disregard

 3) *Can the cues to care be used (and cues to disregard be avoided) in urban design proposals for neighborhood landscapes in the immediate future toward long term neighborhood desirability?*

Working in collaboration with the Lower Eastside Action Plan (LEAP), Nassauer worked with SNRE students in two masters projects[7] to employ the cues to care that were measured in this study in urban design proposals for Lower Eastside neighborhood landscapes. The 2012 project (Bergelin, et al. 2012) developed several examples of prototypical urban designs (fig. 1) as part of a proposal to enhance the relevance of the LEED-ND sustainability rating system of the US Green Building Council for highly vacant urban neighborhoods. The 2013 project (Austin et al, 2013) employed cues to care and articulated how it avoided cues to disregard in demonstrating how vacant properties throughout the Lower Eastside could be employed in land-based green infrastructure. Two specific demonstration sites were:

- The Mack Avenue Green Thoroughfare, located along a ¾ mile section of Mack Avenue between Conner St. and Chalmers St. The project will convert a blighted commercial corridor into a green byway that plans for the demolition of abandoned buildings and be restructured as a complete street designed to provide safe access for all forms of transportation within the street (figure 2).
- Hantz Woodlands demonstration site within a four-block section of the Hantz Woodlands area bounded by St. Paul St. to the north, Jefferson Ave. to the south, Crane St. to the east, and Burns St.to the west. The study area was selected because it is a highly vacant area with a high proportion of parcels already owned by Hantz Woodlands. The student team worked with LEAP as well as Hantz Woodlands director, Mike Score. Cues to care were designed into the initial establishment and long-term appearance of urban agroforestry (figure 3).

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[7] Stephanie Austin, Lin Lin, Bin Shao, Sarah Geise, Yi Wang (2013). *Green Infrastructure Analysis, Design and Application in Detroit's Lower East Side Action Plan*; Caroline Bergelin, Ayehlet Cooper, Fan Huang, Danny Power, Desirae Hoffman, Marcus Jones, Julia Raskin (2012). *Creating Sustainable Neighborhood Design for Legacy Cities: A New Framework for Sustainability Assessment.*
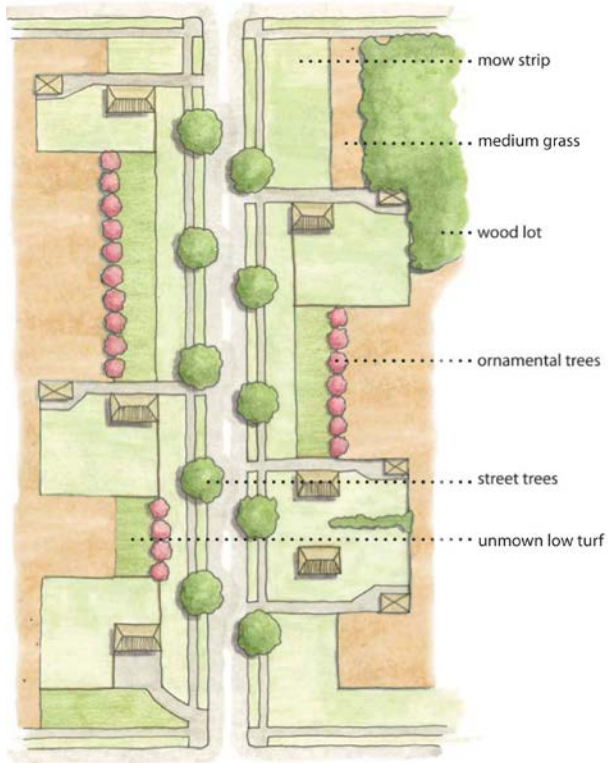
Figure 1. Example of low maintenance turf, meadow with heavy floral displays, and ornamental trees to convey care. (from Bergelin et al. 2012).

Figure 2. Mack Avenue Green Thoroughfare Design Concept Cues to Care: Trees and flower plantings are pulled to the back of the lot to create an open entry. (from Austin et al. 2013)

Figure V-17. Section showing small flowering trees planted at the back of lots within the Hantz woodlands to contribute to aesthetics while maintaining visibility as the other plantings mature.

Figure 3. Section showing small flowering trees planted at the back of lots within the Hantz woodlands to contribute to aesthetic of care while maintaining visibility for sense of safety as the other trees mature (from Austin et al. 2013).

Outcomes and recommendations

Our project was intended to suggest subtleties for designing and managing landscapes within the CDAD types that would:

- Support a "what works" approach to help struggling neighborhoods create and maintain a desirable landscape image.
- Prompt efficiencies in maintenance of public landscape infrastructure and private property by the city or residents.
- Draw implications and show fine scale examples of future community activities that keep a neighborhood attractive.

Realizing these goals, a central outcome is that the cues to care urban design concepts developed in this project and related SNRE masters projects have subsequently been adopted by the Detroit Land Bank Authority as guidance for ecological design of demolition sites throughout Detroit in 2014-15. In addition, both SNRE masters projects were undertaken in close collaboration with the Lower Eastside Action Plan.

Related to our method, another outcome was making both our instrument and the data we generated available for public use through Data Driven Detroit (DDD). We worked throughout the project with DDD, including sharing our early version of an app for data updates to a landscape condition tool. Subsequently, at the request of DDD, we shared our app concept with Code for America.

Related to methodological recommendations, our comparative analysis of Google Streetview (GS) and field data gathering led us to conclude that GS can be very useful and seems to allow assessments that are as reliable as those in the field – with the important caveat that date of image for GS is not publicly available, and must be roughly inferred. The savings in time and expense of rating properties using Streetview instead of doing field surveys are considerable. In addition, Google re-photographs for Streetview intermittently, and past images are not currently available for data reliability checking, etc. We inferred from contextual clues and confirmed with informal sources that data we used in 2011 were from summer 2009. Photos taken in August and September 2011 appeared in winter 2013. Assessments with Streetview are thus

always out of date and of uncertain timeframe. So, GS allowed us to be highly efficient, but did introduce uncertainties of data dating and long term availability.

Intra-rater reliability and inter-rater reliability—whether a rater produces the same ratings for the same properties on repeated ratings and whether different raters produce the same ratings for the same properties—tend to be low and thus a problem in this kind of property assessment.[8] We initially planned to compare the findings of the 2009 Detroit Residential Property Survey with our assessment using Streetview's 2009 photographs and with the 2011 field survey revision of Streetview-based assessment to see how conditions had changed in two years. The comparisons showed so many incongruous changes that we realized that rater reliability problems must explain many of these although we could not tell whether these were in the Residential Property Survey or our assessments. Property assessment efforts should incorporate numerous efforts to increase reliability. Dewar and Dueweke provide specific recommendations in their report.

Finally, related to method, we continue to analyze our data and have brought these data and their analysis into a broader collaboration with Nassauer and Dewar's MCubed partners in our ongoing project, *The physical environment of post-industrial cities & well-being of their inhabitants.*

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[8] Zenk *et al*.