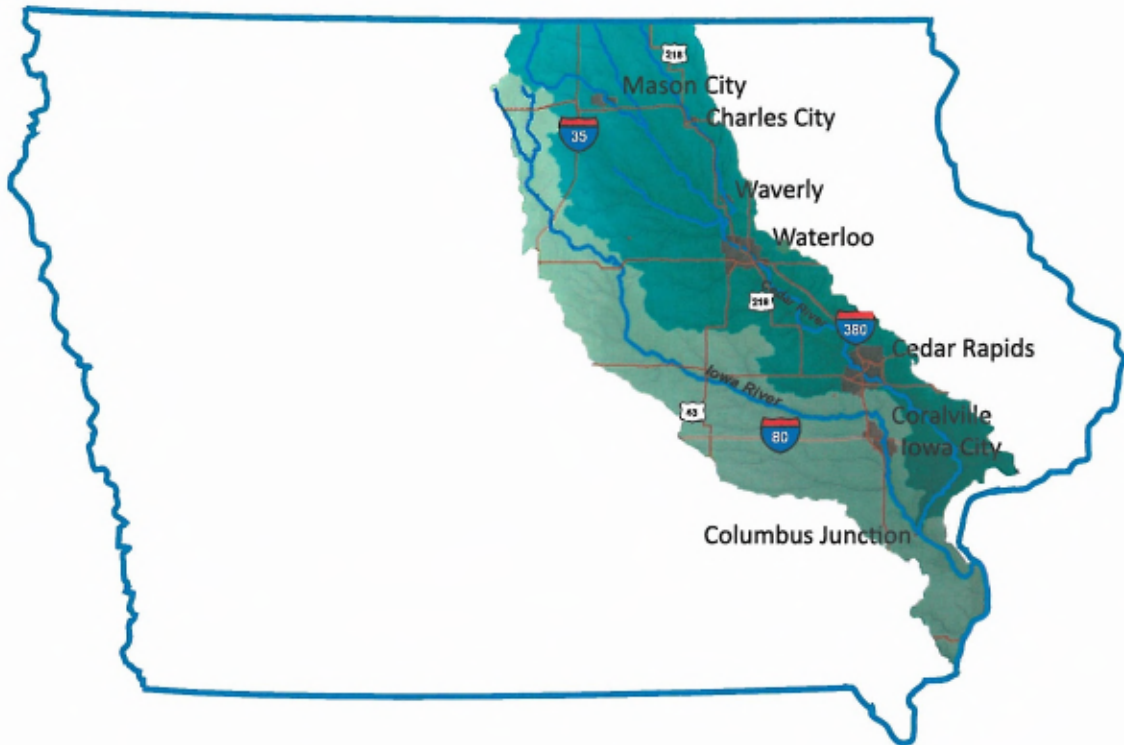




Housing Needs Assessment After a Local Disaster

A Final Report on Housing Recovery Research Conducted in Waverly Two Years Following the Iowa Floods of 2008



Prepared for the Iowa Department of Economic Development

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Housing Needs Assessment After a Local Disaster

Waverly

Executive Summary

This report is an abbreviated, Waverly-specific version of a larger study titled *Housing Needs Assessment After a Local Disaster: A Final Report on Housing Recovery Research Conducted in Eight Iowa Cities Two Years Following the Iowa Floods of 2008*. The full report was commissioned by the Iowa Department of Economic Development (IDED), the Rebuild Iowa Office (RIO) and the Iowa Finance Authority (IFA) and was published in October 2011 by Iowa State University Extension and Outreach. The full report contains aggregated data assessing the regional economic and housing impacts for eight communities located in the Cedar and Iowa River watersheds which, from north to south, include Mason City, Charles City, Waverly, Waterloo, Cedar Rapids, Coralville, Iowa City and Columbus Junction.

Several questions led to the commissioning of this study:

- What were the short- and long-term negative economic impacts on these communities and which were attributable to the floods versus the overall stagnate national economy?
- Would the flood-impacted communities lose population and jobs?
- What types of housing were lost and what are best practices for determining the number and type of replacement housing needed now, while also determining a long-term housing strategy to accommodate future population growth and special needs populations?
- Did long-range community plans help in the recovery process and how can they be modified to reduce risk to life and property?
- What would we do differently next time?

Methodology

This study was structured as a mixed-methods research project. Some of the data used for the study came from available secondary sources such as public documents,

program reports, plans, maps, budgets, websites and other previously published materials. A variety of economic statistics was available, including data from the US Census, the Bureau of Labor Statistics, retail trade reports and tax receipts. Other statistical data were created by developing an input-output model to analyze data and estimate impacts based on formulae that aid in predicting how an economic change will affect a specific geographic area over a particular period of time. Data on the number of housing units lost were generated using GIS mapping. The study also used primary source data gathered from focus groups, interviews with key stakeholders who had specific knowledge of housing issues in their communities, and an online survey.¹ Both the data from secondary sources and the new data generated were subjected to a variety of analyses by a team of researchers using techniques that would be commonly available or replicable by city planners, council of government staff, nonprofit agencies, economic development agencies or other professionals called upon to assess post-disaster impacts and reassess community housing needs. A larger description of the methodology and analysis techniques can be found on pages 3–5 of the full report.

The information about Waverly provided in this report includes:

- The economic impact analysis of the flood versus the national recession on Waverly's economy.
- A review of Waverly's demographics and population trends.
- Waverly's housing characteristics.
- An assessment of Waverly's pre-2008 flood risk exposure.
- An assessment of Waverly's post-flood economic performance related to population change, school enrollment change, area commuting patterns, retail trade and unemployment/employment change.

¹The online survey was distributed to a regional cohort and therefore is not included in the city-specific reports. A summary of the survey results is included in the full report.

- An analysis of pre-flood comprehensive plans, housing needs assessments, hazard mitigation plans, municipal codes, flood risk management plans and post-flood revitalization plans.
- A geospatial analysis of lost housing and changes in overall community housing values.
- Waverly focus group and key informant interview participants' responses to qualitative questions regarding (1) the flood's impact on housing, special populations and neighborhoods; (2) the effectiveness of federal, state and local flood recovery programs; (3) the effectiveness of pre-flood planning; (4) the effectiveness of local leadership; (5) public involvement in post-flood planning; and (6) identification of post-flood recovery best practices.

Waverly Study Highlights

The analysis of all available Waverly data using the methods identified above provided the following answers to the primary questions posed by the study.

Question 1: What were the short- and long-term negative economic impacts on Waverly that were attributable to the floods versus the overall stagnate national economy?

Answer: There are no indications that the 2008 floods had a lasting negative economic impact on the community economic base as a whole. Part of the explanation for this observed effect is that Waverly is a retail trade center that draws economic activity from a regional population that is almost 20% larger than its own municipal population size. Part of the explanation for this observed effect is that Waverly has a pull factor of 1.19; that is, it draws economic activity from a regional population that is almost 20% larger than its own municipal population size. Much of the geographic region served by Waverly was not directly impacted by the floods. One result of the floods of 2008 was a temporary "flood bump" to the Waverly economy. Retail sales in the quarter in which the flood occurred were 14% higher than the same quarter in 2007. By the third quarter of 2009, retail sales had fallen by 10%. Two years after the flood, Waverly's retail sales had stabilized to pre-flood levels. This leads to the conclusion that overall, Waverly's economy was impacted more by the effects of the nationwide recession than by the floods of 2008. Similarly, the unemployment rate in Waverly did not change post-flood. When compared to a group of peer cities not impacted by the floods of 2008, Waverly's unemployment rate was slightly lower. In terms of total employment, Waverly's employment base experienced year-over-year gains between 2004 and 2008. There was

no change in employment levels during the floods. The overall rate of employment began to decrease in 2009 at the same time and rate as the other cities in the peer group, again likely due to the effects of the nationwide recession.

Question 2: Did Waverly lose population and jobs?

Answer: While there were households that were displaced temporarily, there are no indications of a permanent flood-related decline in population. Waverly's population grew by 10% between 2000 and 2010 compared to a statewide average of 8.4%. The rate of population increase started to slow in 2007. In examining school enrollment data, it was found that enrollments have been stable with slight growth between 2008 and 2010. The growth in school enrollments in Waverly has exceeded statewide averages since 2006. Surrounding districts saw no real change in their enrollment patterns post-flood. As noted above, unemployment in Waverly has not changed and the unemployment rate in Waverly compared to a grouping of similarly sized peer cities is slightly lower.

A shift-share analysis was conducted to see if the unemployment rate was consistent with Waverly's exact industrial mix compared to national trends within the primary industries most prevalent in the community. The shift-share analysis showed that Waverly has a competitive local economy when compared to other communities with a similar industrial mix. If Waverly had been following the national trend for the specific mix of industries present in the community, there should have been a loss of 323 jobs. In reality, there was a loss of 245 jobs, meaning that Waverly's competitive economy was able to save 59 jobs it could have been expected to lose based on national industry trends. Two other factors may have helped lessen the impact of the flood on local employment. Data show that 73% of workers in do not live there but commute from other communities.

There is one cause for concern in the event of future natural disasters and the likelihood of negative economic impacts: the study found that 10% of Waverly's jobs are located in flood-prone areas.

Question 3: What types of housing were lost and what are best practices for determining the number and type of replacement housing needed now, while also determining a long-term housing strategy to accommodate future population growth and special needs populations?

Answer: A review of existing documents identified 151 homes that were flood-impacted. Sixty-nine of the damaged properties have been bought out. A GIS analysis of Waverly's housing compared housing units lost with

Table 1. An estimate of housing impacts from the 2008 flood on Waverly*

Units lost (2008 flood)	Permits for new units	Net difference	Economic housing demand (2008–2010)	Net difference (total housing demand)
44	47	-3	0	-3

*Waverly data were generated through geospatial analysis of 2008 and 2010 county assessor's data.

the number of new building permits taken out since the floods. A permanent loss of 44 units of housing was identified and 47 building permits have been issued. Of note is the large difference between the assessed values of the properties that were lost compared to the assessed value of the replacement housing. The average value of lost housing units was \$64,533 compared to an average value of \$182,436 for new housing permits. This difference in value of \$117,903 is a cause for concern that the market has fewer affordable home ownership options available. Of all the cities in the study, Waverly had the highest gap in value between lost housing and replacement housing.

In assessing Waverly's future housing needs, the ISU research team used a physical count of the housing units lost in the 2008 floods and subtracted that number from the number of new housing permits requested to identify the initial numerical housing gap. An economic model was constructed to account for Waverly's projected future housing growth based on population growth and the projected increase in jobs and employment that can be expected based on Waverly's industrial mix and economic performance trends. The model also used current vacancy rates to adjust for housing units that for whatever reason are not in service as occupied housing. Total housing demand, then, becomes the total units available subtracted from the total number necessary to accommodate population and employment. A positive number indicates a need to construct additional units to meet market demand. A negative number indicates the housing market has enough capacity to meet projected demand.

What this indicates is that, purely numerically, there are enough units in Waverly to satisfy market demand. What this does *not* indicate is the quality or affordability of the available housing, or whether or not it is a direct match for the needs of individual households. .

Waverly was the city in this study with the lowest vacancy rate. Census data indicated a vacancy rate of 5% compared to a statewide average of 8.6%. Another matter for concern is the cost burdening of both homeowners and renters who are paying in excess of 35% of their adjusted gross income for housing costs. Eight to 17% of homeowners are cost burdened and 35 to 62% of renters are cost burdened. Table 1 shows the total housing demand for Waverly using the formulae outlined above.

Question 4: Did long-range community plans help in the recovery process and how can they be modified to reduce risk to life and property?

Answer: For the most part, Waverly has made tremendous progress in regard to flood mitigation plans. Of particular importance is the ongoing planning effort that is part of a smart-growth project. Additionally, the community is investing in an inflatable dam system to protect the remaining 1,169 properties that are still located within the floodplain. Of the structures remaining in the floodplain, 786 are residential units. One plan that is missing is a communitywide housing needs assessment. A plan, particularly for rental housing given the needs of college students, is especially encouraged because rental housing that is appropriate to this special population takes time and does not often respond to market-based incentives due to the limited incomes of the tenants and the shorter than average tenancy tenure. Focus group participants expressed needs for disaster response training and plans to create a permanent emergency response team.

Question 5: What would we do differently next time?

Answer: Participants in the focus groups and key informant interviews spoke about a variety of concerns and issues, including the shortage of rental housing, how the tight housing market made it difficult to find temporary rental units post-flood, the loss of starter homes, the availability and affordability of housing, the special needs of finding housing appropriate to a student population, and the lack of affordable lots available for development. Participants pointed out that the cost of flood insurance is prohibitive for many homeowners and also noted that many people made inadequate repairs to their homes because they needed to move back into their housing quickly. As a smaller city, Waverly faced a shortage of contractors and home inspectors. The lack of a housing inspection program operated at the municipal level also slowed the process of getting people back into their homes. Key information interviewees expressed frustration at the overall slowness of the buyout and recovery process. They were also concerned that the inflatable dam will not provide enough protection for all parts of the city prone to flooding. Participants expressed their admiration for how local leaders responded to the

disaster and noted the many opportunities that were available to them to participate in planning for the future.

Economic Impact Analysis

The city of Waverly, Iowa, had 9,874 residents in 2010. The city's population grew by 10.1% from 2000 to 2010, more than twice the statewide average growth rate of 4.1%. The number of housing units in Waverly increased by 10.0% from 2000 to 2010, reaching 3,732 total units in 2010. Housing unit growth for the state of Iowa averaged 8.4% for the decade.

Waverly is located in Bremer County, which is located within the three-county Waterloo-Cedar Falls metropolitan statistical area (MSA) that also includes the counties of Black Hawk and Grundy. Bremer County had 24,276 residents in 2010, while the entire Waterloo-Cedar Falls MSA had 167,819 residents. Bremer County experienced population growth of 4.1% and housing unit growth of 6.2% from 2000 to 2010.

Economic Characteristics

Professional and other high-value services such as finance, insurance, real estate, health and education constitute nearly a third of gross product in the county. Public administration and other services each contribute another 12%. The manufacturing sector contributes 19% of the county's gross regional product.

Commuting flow data for Waverly attest to the city's importance as a regional employment center. Nearly 73% of jobs in the city are filled by residents from other communities. The city of Waterloo supplies 7.6% of workers in Waverly, followed by Cedar Falls (5.2%) and Tripoli (2.2%). Figure 2 shows the total inflow and outflow job counts for Waverly in 2009.

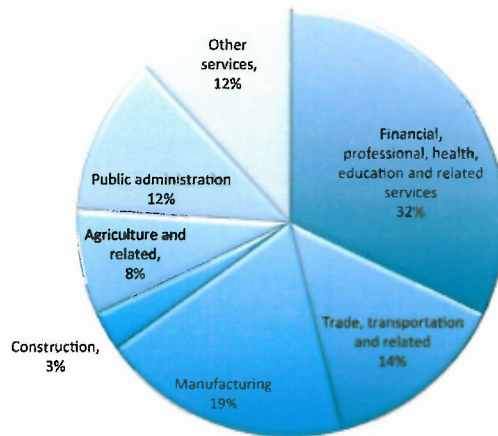
Waverly also serves as a regional center for retail and service activity. Taxable retail sales data from the Iowa Department of Revenue show that Waverly averaged \$13,130 in taxable, per capita sales in fiscal year 2009, compared to an average of \$11,200 for the state of Iowa. After adjusting for local income differentials, the ratio of city and state per capita sales yields a pull-factor ratio of 1.19, suggesting that Waverly serves a retail customer base that is 19% larger than its own population size.

Housing Characteristics

Table 2 summarizes key housing characteristics for Waverly. Except where noted, the data were obtained from 2005–2009 American Community Survey (ACS) estimates produced by the US Census Bureau.² The ACS values

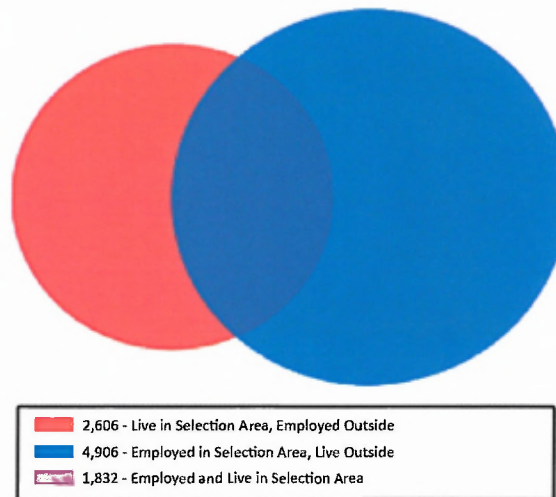
²ACS estimates are presented with 90% confidence intervals, meaning there is a 90% likelihood that the true value for the population falls within the range of values shown.

Figure 1. Gross regional product for Bremer County



Source: IMPLAN model of the Bremer County economy, Iowa State University

Figure 2. Inflow/outflow job counts for 2009



Source: Local Employment Dynamics, US Census Bureau

reflect average characteristics during the entire 2005–2009 period; thus, they include both pre-flood and post-flood housing conditions.

ACS data suggest that the median value of homes in Waverly ranges from about \$124,500 to \$138,000. Between 8 and 17% of owner-households with a mortgage have monthly housing costs exceeding 35% of their household income. Anywhere from 35 to 62% of renter-households have monthly housing costs that exceed 35% of their incomes. The city's housing unit vacancy rate of 5.0% was lower than the statewide average of 8.6%, according to 2010 Census data.

Table 1. Key housing characteristics for Waverly compared to the state of Iowa

Measure	Waverly	State of Iowa
Total population (2010 Census)	9,874	3,046,355
Race other than white alone (%)	4.7	8.7
Hispanic origin of any race (%)	1.3	5.0
Total housing units (2010 Census)	3,732	1,336,417
Vacant units (%)	5.0	8.6
Owner-occupied units (%)	69.1	65.9
Renter-occupied units (%)	25.9	25.5
Housing units by type of structure (%)		
1 unit, detached	74.1–81.3	73.6–74.0
1 unit, attached	0.8–3.8	3.1–3.3
2 units	2.1–7.1	2.6–2.8
3 or 4 units	2.0–6.4	3.6–3.8
5 to 9 units	0.6–3.8	3.6–3.8
10 to 19 units	0.0–1.3	3.7–3.9
20 or more units	4.8–8.0	4.7–4.9
Mobile home	0.6–3.4	4.1–4.3
Boat, RV, van, etc.	0.0–0.6	0.0–0.1
Housing units built before 1940 (%)	21.0–28.8	28.7–29.1
Value of owner-occupied units (%)		
Less than \$50,000	1.9–6.5	12.1–12.5
\$50,000 to \$99,999	15.3–22.5	28.8–29.4
\$100,000 to \$149,999	34.5–45.1	24.4–24.8
\$150,000 to \$199,999	12.3–19.7	15.2–15.6
\$200,000 to \$299,999	10.4–18.4	11.6–12.0
\$300,000 to \$499,999	3.3–8.3	5.0–5.2
\$500,000 to \$999,999	0.0–1.8	1.3–1.5
\$1,000,000 or more	0.0–0.8	0.2–0.4
Median value of owner-occupied units (\$)	124,466–138,334	115,292–116,308
Median gross rent (\$)	505–751	603–611
Monthly housing costs exceeding 35% of income		
Owners with a mortgage (%)	7.8–16.6	16.6–17.2
Owners with no mortgage (%)	4.1–14.7	9.0–9.4
Renters (%)	35.3–61.9	35.1–36.3

Sources: 2010 Census and 2005–2009 American Community Survey, US Census Bureau

Flood Risk Exposure (Prior to 2008)

Figure 3 shows the relative exposure to flood risk in Bremer County by population group and housing type prior to the 2008 floods. The chart compares the percentage of county population, housing and jobs that were located in high-risk census blocks. For this analysis, census blocks having more than 75% of their total land area located within a 500-year floodplain were designated as high-risk blocks. Block-level population and housing data were obtained from the 2000 Census. Job counts for 2007 were obtained from Local Employment Dynamics data from the US Census Bureau.

Overall, about 10% of Bremer County residents lived in census blocks with high exposure to flood risk. Residents in nonfamily households with more than one resident had a higher exposure to flood risk compared to other households. A higher fraction of the county's vacant housing units and renter-occupied units were located within at-risk blocks compared to other types of housing. About 10% of Bremer County jobs were located within the flood risk areas in 2007, similar to the percentage for county residents.

Indicators of Post-flood Economic Performance

The following sections compare indicators of local economic performance before and after the 2008 floods. Trends in population, enrollment and commuting patterns are examined for evidence of changes in residential location preferences in the region. Retail sales trends are investigated to detect changes in area household spending and the ability of local firms to capture that spending. Unemployment and employment trends are analyzed to gauge the region's general economic performance.

Population Change

Changes in the local population size have important implications for a community's housing needs. Local population size is very difficult to measure accurately, and local officials generally rely on the most recent decennial census for the most accurate information about their population size.

Figure 4 shows recent population trends for the city of Waverly. One data series shows actual decennial census counts for 2000 and 2010 with an imputed trend line for the intervening years. The second series plots annual population estimates produced by the US Census Bureau. Although subject to error, the Census Bureau's annual estimates can be used to discern changes in the pace of growth throughout the decade.

The annual population estimates for Waverly suggest that population growth in the city occurred mostly between 2003 and 2007. The estimates show a slight decline and leveling off of population growth after 2007. Indications of a flood-related population decline are weak. As revealed by the 2010 Census results, the annual estimates series underpredicted the city's actual gain of 906 residents from 2000 to 2010.

School Enrollment

Housing losses and uncertainty over housing assistance during the 2008 floods raised fears that displaced residents would permanently relocate to surrounding suburbs or other nearby cities. If young families relocated en masse to surrounding communities, these shifts should be evident in enrollment data for area school districts.

Figure 5 shows the trend in public school enrollment for the Waverly public school district. The enrollment trends for neighboring school districts (within five miles) and for the state of Iowa are also illustrated. For each region, enrollment values in a given year are expressed in percentage terms compared to enrollment levels in the 2000–2001 academic year. The enrollment data were obtained from the Iowa Department of Education Basic Educational Data Survey.

Figure 3. Bremer County: percentage of county populations, households and housing units with high risk for flooding

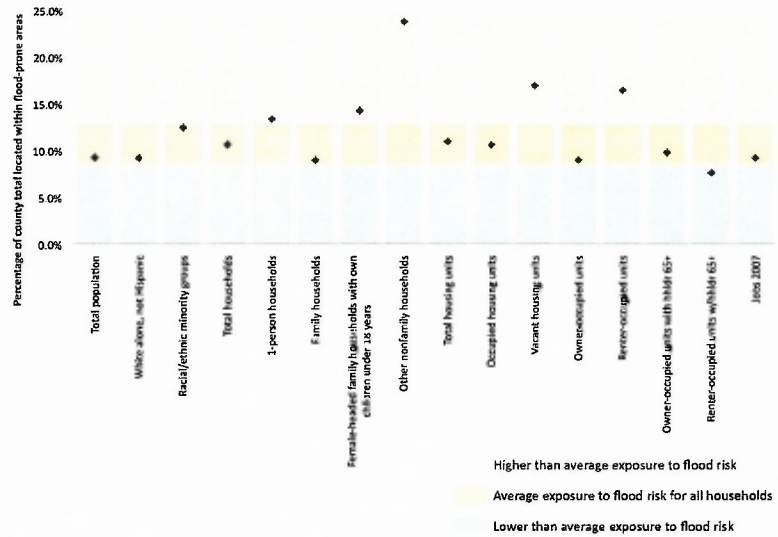


Figure 4. Waverly estimated and actual population

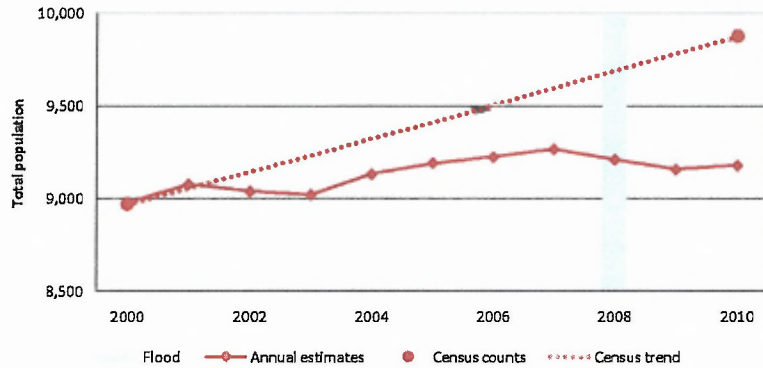
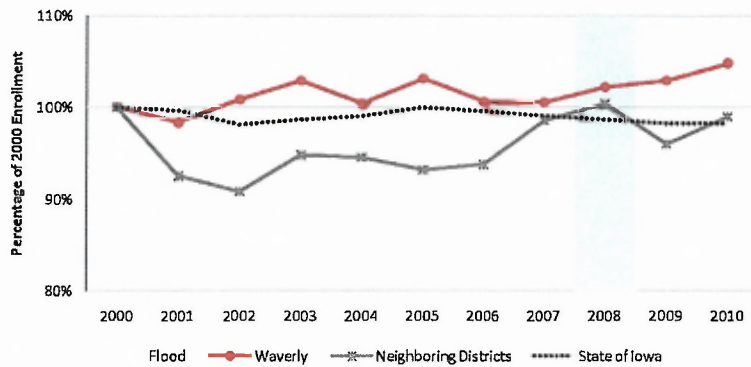


Figure 5. Annual public school district enrollment



Enrollment in the Waverly school district has been relatively stable throughout most of the decade, with slight growth occurring from 2008 through 2010. The city's enrollment growth exceeded the statewide average, especially for the period since 2006. The districts near Waverly had enrollment declines early in the decade, but saw gains in 2003, 2007 and 2008. The outlying districts ended the decade with enrollment levels similar to where they began. Overall, enrollment changes since 2008 have not deviated sharply from recent historical trends, either in Waverly or the surrounding districts.

Area Commuting Patterns

Changes in the availability and affordability of local housing may have influenced local workers' commuting decisions. Data on the residential locations of Waverly workers can be used to detect any notable changes in the propensity for workers to live outside the city and commute in to work as opposed to residing and working within the city.

Figure 6 illustrates the recent trend in in-commuting rates to Waverly. The chart measures the percentage of all jobs in Waverly that are filled by workers who, for one reason or another, live outside of the city. The commuting data were obtained from the US Census Bureau Local Employment Dynamics program.

In Waverly, the percentage of jobs filled by in-commuters had been trending upward for several years before the 2008 floods. The in-commuting rate to the city peaked near 74% in 2008. Between 2007 and 2009, there appears to be no significant change in the likelihood that Waverly jobs were filled by nonresidents as opposed to residents.

Retail Trade

The local retail sector could have a mixed experience from a natural disaster. Any losses in local jobs and population could mean a reduction in area household incomes, leading to a decline in local retail sales. Alternatively, rebuilding and recovery efforts could temporarily stimulate the local retail sector. The magnitude of losses or gains would depend on the extent to which the local retail sector was already capturing or leaking sales of the region's residents before the disaster occurred.

Figure 7 illustrates changes in taxable retail sales activity in Waverly during the eight quarters prior and subsequent to the period of flooding. The trend in statewide retail

Figure 6. Annual rates of in-commuting by workers

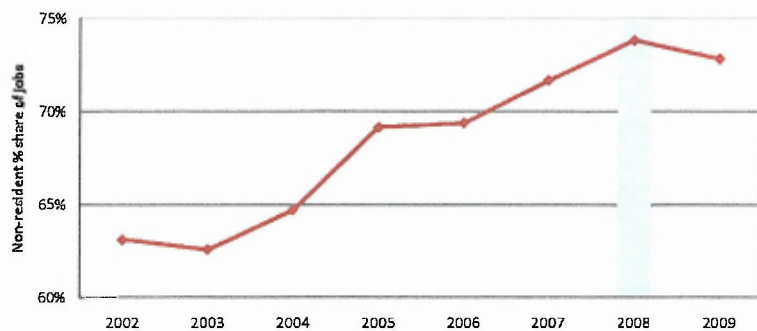
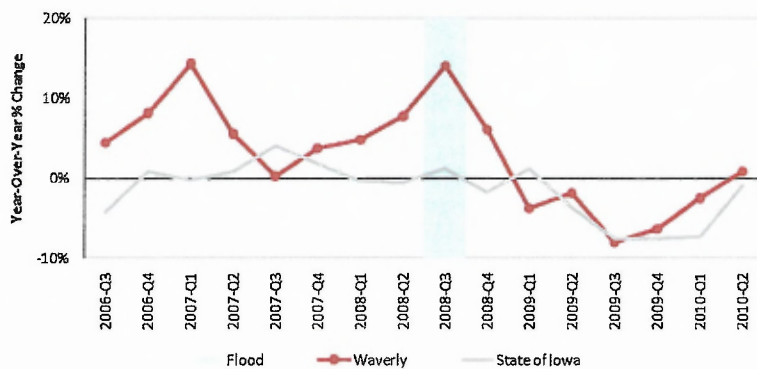


Figure 7. Quarterly taxable retail sales



sales is included for comparison. The chart shows real taxable retail sales in each quarter as a percentage of sales that occurred during the same quarter of the prior year. The taxable sales data were obtained from the Iowa Department of Revenue and Finance.

July–September retail sales in Waverly during the flood year were 14% higher than the year before. While that period marked the fourth consecutive quarter with year-over-year gains, it is reasonable to assume that at least some growth in the third and fourth quarters of 2008 was related to flood recovery efforts. Given the city's importance as a regional trade center, Waverly merchants may have enjoyed a temporary boost in sales to residents of a broader disaster-affected region.

The statewide trend in sales suggests that by the second quarter of 2009, the effects of the national recession were beginning to be felt in Iowa's retail sector. Sales in Waverly declined as well, beginning in the first quarter of 2009. Waverly's sales in the third quarter of 2009 were about 10% lower than the high levels achieved right after the floods. By the end of the second year following the flood, the city's sales levels had begun to stabilize.

Unemployment Rate

Business disruptions and failures may have contributed to temporary and permanent layoffs of workers in the region. While many job losses would have been covered by regular or emergency unemployment insurance programs, others may not have been. Rising unemployment rates can signal higher levels of household economic stress and may also correspond with growing numbers of households experiencing difficulty in meeting their monthly housing costs.

Figure 8 shows the monthly unemployment rate in Bremer County for two years prior to and after the period of flooding. The unemployment data were obtained from the US Bureau of Labor Statistics (BLS).

In order to compare Bremer County to its peers, the average unemployment rate for other small metropolitan counties in Iowa is also shown. The peer group includes the following counties: Benton, Black Hawk, Bremer, Dubuque, Grundy, Johnson, Jones, Linn, Story, Washington and Woodbury.

Bremer County's unemployment rate has closely tracked the pattern of change in other small metropolitan counties in Iowa. Since the floods, the unemployment rate in Bremer County has remained slightly lower than the peer group average.

Employment Change

Employment levels can be used to evaluate the overall performance of the local economy during and after the disaster period. Because employment levels have a high degree of seasonal variability, changes in employment trends are more easily detected by comparing employment in each month to the same month in the prior year.

Figure 9 shows year-over-year percentage changes in Bremer County employment and its comparison peer group (see section on unemployment in the summary report for a definition of the peer group). The employment data were obtained from the US BLS Quarterly Census of Employment and Wages.

Bremer County enjoyed year-over-year gains in employment for most of the five-year period beginning early in 2004 and ending late in 2008. The county's employment trend does not show notable changes during the period of the floods. The county began to experience year-over-year declines in early 2009, at the same time as the comparison peer group. The

Figure 8. Monthly unemployment rates

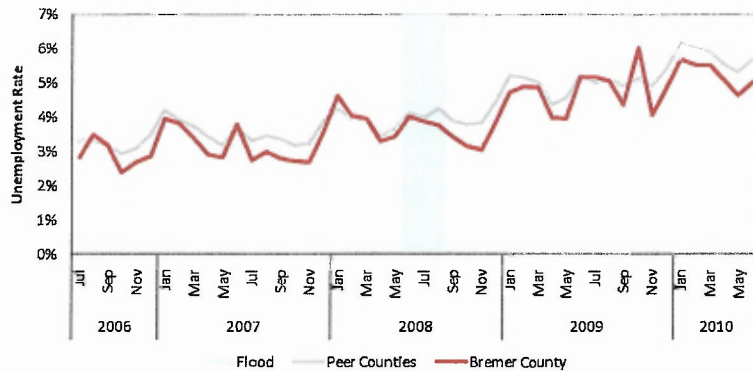
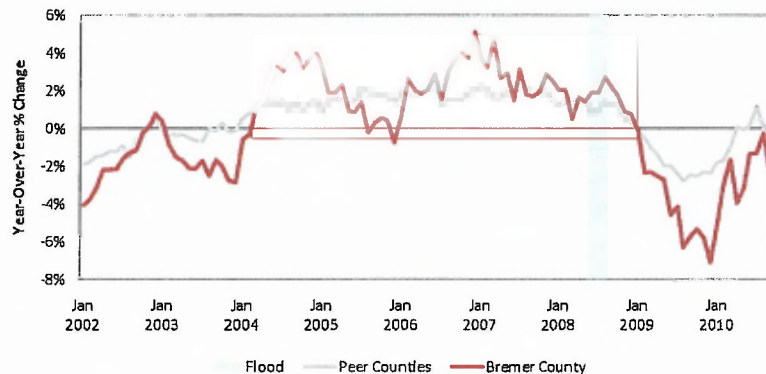


Figure 9. Monthly employment rates



pattern of these employment declines suggests that they were recession-related as opposed to flood-related. Employment growth in Bremer County has lagged its peer group slightly since 2009.

Figure 9 shows the timing and magnitude of employment change, but not the reasons for change. It cannot be concluded whether employment changes during and after the flooding were attributable to the flood itself, the recession, or other local or external causes. Using a method called shift-share analysis, we can attempt to isolate changes explained by local factors by controlling for external economic influences.

Shift-share analysis deconstructs job gains or losses into three explanatory components: statewide growth, industry mix and local competitive share. The statewide growth component provides an expected value for employment growth based on the average performance of all nonfarm industries across the state. Industry mix accounts for local concentrations of employment in sectors that, at the statewide level, outperformed or underperformed the nonfarm industry average. The competitive share component measures the performance of local firms in comparison to other firms in the same industries in other counties.

Figure 10 shows a competitive shift-share analysis for employment change in Bremer County from 2007 to 2009. The industry-level employment data used for this analysis were obtained from the US Bureau of Economic Analysis.

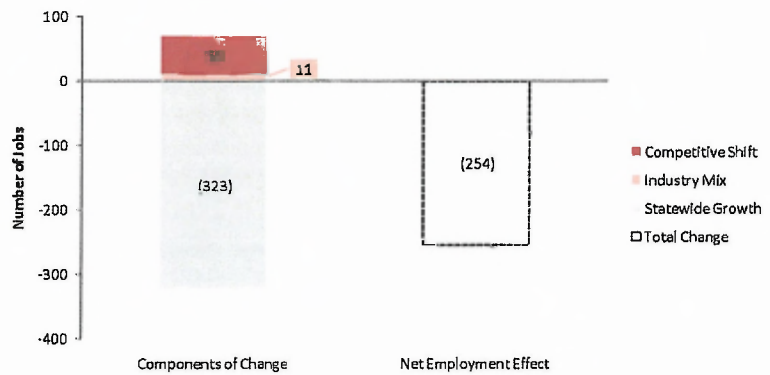
Had all industries in Bremer County performed at the statewide nonfarm average rate, the county would have lost 323 jobs from 2007 to 2009. The industry mix in Bremer County was weighted slightly toward industries that outperformed the statewide nonfarm average rate. That industrial mix should have offset the county's expected job loss by 11 jobs.

Bremer County actually lost only 245 jobs for the period, suggesting that its industries performed better than their statewide counterparts. The county's positive competitive shift was equivalent to 59 jobs. This analysis shows that the Bremer County economy remained competitive with the rest of the state despite the 2008 floods.

Summary of Recent Economic and Demographic Trends

This analysis did not identify significant changes in regional economic activity that could be attributed solely to the weather-related disasters of 2008. Despite the losses experienced by individual households and businesses as a result of the disasters, the overall performance of the Waverly/Bremer County economy did not show evidence of lasting structural change. Population and enrollment trends suggest continued growth in the city. Recent unemployment trends and declines in retail trade and employment levels are more suggestive of recession-related effects than flood-related effects.

Figure 10. Shift-share analysis of employment change in Bremer County, 2007–2009



Summary of Documentary Materials

Pre- and post-flood housing plans and flood plans were reviewed to determine whether prior planning reduced the economic impacts of the 2008 floods and/or aided in the recovery process. The following questions were used to guide the search process:

1. Does the City of Waverly have a housing needs assessment document?
2. Are there documents that report losses related to the 2008 floods?
3. Does the City of Waverly have plans that include issues related to flooding and housing?
4. Did any of these documents change after the 2008 floods?

To answer these questions, the following documents were reviewed:

- a) Subdivision and New Housing Statistics 1999–2006
- b) Single Family New Home Permits, Calendar Years 2007–2010
- c) Flood Recovery Projects & Expenditures 2010
- d) City of Waverly HMGP Buy Out List 2010
- e) City of Waverly Hazard Mitigation Plan 2009
- f) City of Waverly Rebuilding after the 2008 Flood
- g) Chapter 102: Floodplain Management of the Waverly Code of Ordinances
- h) City of Waverly Comprehensive Land Use Plan 2005
- i) City of Waverly Hazard Mitigation Plan 2009
- j) City of Waverly Plan of Action for Potential Flooding 2009

- k) Waverly Flood Study Jan. 2001 (Appendix)
- l) Waverly Flood Study: Dry Run Creek Hydrologic Model, Sept. 2002 (Appendix)

The City of Waverly has made significant efforts related to flood mitigation, including sandbagging plans, numerous flood and river studies, mitigation plans, property buyouts, and multiple construction projects.

There are a total of 1,169 properties within the 100-year flood zone in Waverly, the bulk of which are residential (786 properties or 67.2%). Assuming a total loss of all properties, damages would reach close to \$71.7 million (2009 Hazard Mitigation Plan) After the 2008 floods, it was recorded that 156 (96.7%) residential properties were damaged, resulting in recorded damages of \$5.3 million. Of the 156 properties affected by the 2008 flooding, 151 are zoned residential. The remaining five properties are zoned commercial (three properties) and religious (two properties). Of the 151 residential properties, 69 (45.7%) were purchased by the city and will no longer contain buildings of any type. The number of buyouts was the largest ever by the city; the highest number of buyouts before the 2008 flood was 10, following flooding in 1999.

To prevent future flooding damage, properties in flood zones received higher levels of review. On any property in the floodplain, new construction is prohibited unless the lowest occupied level sits at least one foot above the 100-year flood level (Code of Ordinances of the City of Waverly). Since the majority of housing in flood zones is older homes built on smaller lots, new construction is extremely limited, allowing for a gradual reduction in the number of occupied properties within the floodplains.

Waverly is currently implementing major flood mitigation strategies. The largest project to date is the removal of the old concrete dam and the construction of an inflatable dam. The new dam is designed to limit flooding upstream of the dam, minimizing the flood zones in northwest Waverly, the hardest hit area in 2008. Another project currently under consideration is the widening and deepening of Dry Run Creek. The project will greatly reduce the extent of the 100-year flood zone for the creek, removing approximately 440 properties from the 100-year floodplain. Of those 440 properties, 315 (71.6%) are zoned for residential use. The bulk of the additional protection serves northwest Waverly. A second project under consideration is the dredging of the Cedar River, which will deepen the shallow river and increase its flow. The proposed dredging requires several sand/silt islands to be removed, vastly increasing water's total surface area. The removal of the islands is primarily viewed as a recreation and tourism action rather than a flood mitigation action.

Waverly is making large strides to protect its citizens from future flood damage, gaining the attention of several

organizations. The Environmental Protection Agency (EPA), FEMA, and RIO held a workshop in Waverly on smart-growth principles, with the flood buyout properties as a key issue. Future plans for Waverly incorporate more smart-growth principles that will help limit the damage to persons and properties within Waverly. It is Waverly's goal to become the "green" capital of northeast Iowa.

It is recommended that the Waverly continue the flood mitigation strategies in place. After the completion of major projects, studies will be needed to assess flood zones in the future. Slight policy adjustments may be required after the impacts of the new flood mitigation efforts can be assessed.

Geospatial Analysis

An obvious observation drawn from the maps of Waverly included at the end of this document is that a significant portion of the city lies within the historically delineated floodplain, making much of the residential dwellings vulnerable to the effects of flooding. The discovery that many of the destroyed properties are within that area is indeed not surprising.

The spatial analysis and mapping using the county assessor's records show those dwellings that lost 50% or more of their value during the flood of 2008. Waverly lost 44 dwelling units to the flood. These dwellings had an average assessed value of \$64,533. Subsequent dwelling development resulted in 47 residential building permits for new construction from 2008 to 2010 with an average value of \$182,436.

The first map shows the residential distribution of the lost dwellings and the second map shows the distribution of new dwellings in relationship to those lost. New residential construction is shown to be significantly more expensive and is sprawling away from the core of the city.

Several of the newly permitted constructed dwellings are shown to be immediately in the area of this current flood. Other permits were issued to allow construction in or adjacent to drainage areas that are actually part of the floodplain, although separated from the river. Also note that in the region of the floodplain (light blue) that a considerable amount of housing was not damaged to the point at which it needed to be demolished. These dwellings may continue to be vulnerable to future flood events.

Figure 11. Focus group questions

1. What has been the greatest impact on the availability of housing in your community as a result of the floods of 2008?
2. What populations have had the hardest time replacing the housing they lost?
3. What areas have you noticed developing faster than others and what is it about those areas that may have presented an attractive option for housing?
4. What type of incentives or programs do you think the State could develop to meet the housing needs that haven't been addressed yet?
5. What are some ways that people grieved the losses resulting from the flood and what impact did the immediacy of their needs have on your ability to help people plan for a sustainable future?
6. What could have been done differently to make this recovery process more responsive to your needs?

Qualitative Analysis of Focus Groups and Key Informant Interviews

A focus group was held in Waverly on September 14, 2010, with four community leaders participating. IDED, RIO and IFA generated the lists from which focus group participants were populated. The lists followed a set of selection criteria that included city administrators, city planners, economic developers, school district officials, public housing authorities, public works superintendents, realtors, bankers, county and city elected officials, councils of government, community action agencies, consumer credit counseling, nonprofit agencies working in disaster relief efforts, county emergency management officials and neighborhood groups. A facilitator from the ISU Extension Community and Economic Development program conducted the focus groups, which were recorded, transcribed and analyzed.

Focus groups in each of the study cities received the same list of questions (see figure 11). The questions provided structure for a guided conversation during which the

Table 3. Highest Frequency Responses for Waverly

Statement	No. of responses
Shortage of rental housing	3
Training for responders is needed	3
Need to keep emergency response team intact	3
Availability of rental housing for college students	2
Need money to raise homes for existing homeowners who did not have flood insurance	2
People must help themselves	2
Flood resulted in new green spaces	2

participants could share community-specific examples of the impact of the 2008 floods on their housing stock and identify specific populations affected most severely. Participants were asked about particular areas of town that were affected the most and where current development of replacement housing is occurring. The questions were drafted in a way to elicit responses on participants' experiences with local, state and federal programs. Attendees were asked to identify the barriers they faced using the assistance programs available, describe what could have been done differently to meet their needs more adequately, and most importantly, make recommendations to the state to develop programs that will assist them in filling the remaining gaps in their overall housing and community development recovery strategy.

Key Themes Analysis of Waverly Focus Groups

Table 3 shows the key themes and highest frequency responses to the focus group questions by Waverly respondents. The responses of the participants fell into two clusters. The first cluster of most frequently cited issues was an overall shortage of rental housing in the community and the need to keep a trained emergency response team intact to respond to future flooding events. The second cluster of responses included the need for rental housing for the town's college students, the difficulty in assisting homeowners whose home repairs exceeded the limits of their insurance coverage, and a need for a community plan for what will now be a plethora of green spaces left after the buyout of flood-impacted structures.

Figure 12. Key informant interview questions

1. What have been some of the challenges you have faced in meeting your community's housing needs since the flood?
2. Are there particular types of housing, specific neighborhoods, or certain price points, which have failed to develop through the private market to date?
3. Were there particular populations or certain types of housing problems that you had difficulty solving using the programs that were made available to you?
4. What kinds of problems did people have that you could NOT help them resolve?
5. How well did your pre-flood plans, ordinances and building codes prepare your community for responding to the post-flood housing issues you have experienced?
6. What role did your local elected leaders play in the flood recovery process?
7. What types of public processes have you used since the flood to involve citizens in decision making and planning for housing and neighborhoods?
8. What types of barriers did you encounter in working with private businesses such as insurance companies, housing or real estate developers, realtors and major employers in the flood recovery process?

Qualitative Analysis of Waverly Key Informant Interviews

One-on-one key informant interviews were conducted by phone or in person between October 2010 and January 2011. The names of those interviewed came from the initial lists provided by IDED, RIO and IFA and the persons contacted were individuals who had not participated in the Waverly focus group. All key informants in each of this study's participating cities were asked the same questions (see figure 12). Participants were asked about particular areas of town that were affected the most and where current development of replacement housing is occurring. The questions were drafted in a way to elicit responses on participants' experiences with local, state and federal programs. Interviewees were asked to identify barriers they faced using the assistance programs available, describe what could have been done differently to meet their needs more adequately, and most importantly, make recommendations to the state to develop programs that will assist them in filling the remaining gaps in their overall housing and community recovery strategy. The interviews were recorded, transcribed, and analyzed for key themes, frequency of responses and content analysis.

Table 4 identifies the most frequent responses given by key informants interviewed from the Waverly community. Generally, interviewees spoke most frequently about the difficulty of implementing assistance programs—learning what was available, informing the public about what was available, and working within a variety of programs with complicated pre-existing rules. In terms of housing, the most frequently mentioned needs were affordable single-family rental units and affordable home ownership opportunities, as well as the need for handicapped-accessible units and building lots for future affordable housing development. While interviewees felt that pre-flood plans served them adequately in responding to the floods of 2008, they also identified a need for plans to address larger-scale catastrophic disasters. Respondents also cited Waverly's leadership as being very involved in informing and assisting the public and in coordinating the recovery.

Table 4. Most frequent responses by Waverly key informants to interview questions

Question	Response
Challenges faced in meeting community's housing needs since flood	Flood insurance too expensive to buy home in floodplain
	Need for inflatable dam/flood prevention; no guarantee with help in south party of community
	Displaced people
	People moving back into damaged houses
	Time involved in educating people, city staff about options, programs
	Finding temporary rental housing for dislocated families
	Delays with buyouts, tearing down buyout homes
	Loss of starter homes in older neighborhoods
	Finding available housing for rent or purchase
	Insurance problems
	Clients' lack of knowledge of FEMA benefits
	Finding affordable housing not in the floodplain
	IDED timeliness issue
	People's lack of understanding regarding floodplain damage requirements, required permits
	Occupied nearly all of staff persons' time for past two years
	Future use of property from buyout
Affordable housing adjacent to Wartburg campus—and not in the floodplain—for students	
Some staff moved away due to loss of LMI starter housing	
Types of housing, specific neighborhoods, or certain price points that have failed to develop	Homes in floodplain
	Not many 20-year-old houses/affordable, decent units for first-time home buyers
	Older, lower-priced housing lost, not replaced (NW area of Waverly)
	Fair amount of affordable rental housing lost, not replaced
	Affordable, decent housing
	No
	LMI needs
	Lower-priced housing not in floodplain
	Lack of affordable lots
	College student housing
Short-term rental housing shortage	

Table 4. Most frequent responses by Waverly key informants to interview questions

Question	Response
Populations or types of housing problems that were difficult to solve using available programs	Buyouts were option; lots will become green space and can't be used for housing in the future
	No special population or style
	Two-year delay in payments for residents who got buyouts; still had to make mortgage payments
	Will see a need for smaller, less expensive houses for young families as economy improves
	Case management needs not met
	Low-income poverty
	Communication barrier for some clients
	Inconsistencies among different mortgage services, insurers
	Realtors had little access to programs to help families impacted by flood
	Makes no sense to rehab houses then tear them down two years later; timing of buyout details, decisions
	People who wanted to stay and repair homes but did not want to raise them up; felt forced to take the buyout
	Relocation housing for occupants of damaged, older, affordable homes
	Lack of affordable lots for LMI housing
	Problems people had that could not be resolved
Help with relocation into another rental property	
Duplication of effort challenges/limitations	
Wait up to two years for buyout money for house they couldn't live in	
Clients came almost too late, already five to six months behind in payments	
Clients not aware of available resources until problems compounded	
Emergency funding for longer-term temporary housing for LMI families	
How long it took to find out buyout terms, eligibility, then get money	
Lack of affordable housing (\$70,000-\$100,000)	
Shortage of electrical and mechanical contractors	
Perceived slow response of flood insurance assessment, adjustment teams	
Lack of decent, affordable rental housing/no rental inspection program	
People who did not spend assistance money appropriately	
Demolition phase issues; timing/public frustration	

Table 4. Most frequent responses by Waverly key informants to interview questions

Question	Response
Adequacy of pre-flood plans, ordinances and building codes	Don't know
	Bringing some older homes up to standard is impractical—stair requirements, bathrooms, size, electrical
	No adequate plan in place
	Would like more precautions in potential flood zone
	Wide diversity within region
	Building codes in place, enforced
	Floodplain regulations helped limit damage in unincorporated Bremer County
	Large flood that no amount of preparation would have helped
	No formal rental inspection program in place
	Hard to be fair, don't know what is reasonable
	Lift station issue should have been anticipated
	Planning under way now
	Proposed new dam will be more costly due to requirements that come with government funding
Role of local elected officials in the flood recovery process	Don't know
	They were very involved, very active
	Communicating
	Meetings about buyout process
	Emergency policy-making role, guiding policy
	Playing a role to mitigate future flooding
	Not proactive to reach out to coalition
Public processes used since the flood to involve citizens in housing/neighborhood decision-making and planning	New committees formed
	Task force committees, public open houses, meetings
	City studies done
	State meetings held for public input
	Quite a few meetings, efforts in Waverly
	Citizen coalition set up to study long-term recovery
	Updating comprehensive plan, incorporating flood-related issues into plan, citizen input included
Smart growth seminar; public meetings held	

Table 4. Most frequent responses by Waverly key informants to interview questions

Question	Response
Barriers encountered in working with private businesses in the flood recovery process	No answer/none
	Flood insurance necessary to be helped by insurance, confusion about insurance coverage
	Fall-off in attendance at affordable housing advisory committee meetings
	Lenders (especially those without local contact) with mortgage loans unwilling to accept short sales
	Some contractors shortcut building safety codes to quickly repair homes, businesses
	Floodplain identification, compliance disputes with lenders, owners
	Getting permission from client to speak/advocate on their behalf
	Learning process for insurance representatives
	People exhausted by paperwork requirements, said not worth it
	Better coordination of forms and programs needed to reduce paperwork for victims
	Dragged out process meant those most savvy and professional got funds, not lowest income or most needy
	Dealing with insurance companies (including new sewer backup flood-related rider)
	Cost of flood insurance, dealing with FEMA
What advice would you give to another city experiencing similar housing issues after a natural disaster	Learn FEMA rules, regulations; how to appeal
	City needs relationship with FEMA, state
	Have workable plan, based on communities that have gone through similar experiences
	Need earlier notice of flood threat
	Should not take two to three years to resolve housing issues
	List resources, state agencies, and prioritize
	Communication is key
	Coordinate with COG, other assistance programs
	Make sure to have areas for development available outside the floodplain
	Do not develop in the floodplain
	Still struggling with it
	Takes three years to transition back to normal
	Immediate relief efforts; quick assessment and prioritization; build coalition; practice skills
	Demolition, cleanup more expensive when government is involved
	Uncertainty regarding impact of dike, rubber dam
	Proposed 30-unit project in another community in region killed by local banker
	Concentrating on green building on every unit
	Why did Jumpstart money go to communities not adjacent to the river?
IDED requirements for lots make lots and housing more expensive	

Conclusion

Waverly has experienced larger negative impacts from the effects of the nationwide recession than as a consequence of the 2008 floods. The areas on which Waverly can improve to better prepare for future flooding events include updating floodplain maps and developing ordinances to better protect properties at high risk for flooding. In conjunction with the smart-growth planning effort, some attention should be paid to how the community can best use the 69 lots purchased as

green spaces or parks. In terms of housing, a housing needs assessment specific to the community is highly encouraged, particularly to address the long-term need for housing affordable to college students and low-income citizens. Another long-term need that can be addressed is developing a homeowner/rental inspection program to ensure that existing housing remains decent, safe and sanitary.

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