Mapping the Foreclosure Crisis in North Las Vegas

Using GIS to influence decision making

6/5/2009
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Introduction

- The City of North Las Vegas is a separate municipal jurisdiction from Las Vegas
- One of the highest foreclosure rates in the nation
- Limited data collected for this municipality separate from “greater Las Vegas area” or “Clark County” or “Southern Nevada”
Notices of Default
August 2008 – January 2009

Month

0 200 400 600 800 1000 1200

Notices of Default

644 652 905 764 1083 1041

8/08 9/08 10/08 11/08 12/08 01/09

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Today’s Agenda

- What we are trying to accomplish with the mapping project in general and the NSP program in particular
- Indicator selection and data sources
- How we pulled data together and how we are using it
- Challenges with the data and using GIS to minimize those challenges
- Next Steps
Alphabet Soup

- Department of Housing and Urban Development (HUD)
- Housing and Recovery Act of 2008 (HERA)
- Neighborhood Stabilization Program (NSP)
- American Recovery and Revitalization Act of 2009 (ARRA)
Background

- We began in early 2008 with Neighborhood Services Conducting outreach into various communities
- We were seeking to engage neighborhoods with the City for beautification and other quality of life activities.
- Obvious barrier to neighborhood organizing was the housing crisis
Patterns began to emerge……..

- Neighborhoods with increasing crime, DCFS referrals also had high default & foreclosure rates

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Background

Patterns began to emerge……

- Was there a correlation? Could we prove it?
- What do we do about it once we prove it?
Background

Patterns began to emerge…….

- We were attempting to direct limited staff time to those areas most in need
- We set out to demonstrate the correlation between various factors and the foreclosure crisis
- Then HERA 2008 passed…
Overview

Significant influx of Federal funding from HERA
- HUD responsible for dispersion of NSP funds
- City of North Las Vegas received $8.6 million
- Timeline of 18 months to spend it effectively
- Cannot do foreclosure prevention
NSP Overview

Requirements

- Give priority to areas with the greatest need
  - Greatest % of foreclosures
  - Highest % of sub-prime loans
  - Most risk for rise in foreclosures
- 15% discount on the appraised value
- Obligate $$$$ within 18 months
What we are trying to accomplish

- Our focus shifted from research to action
- More than demonstrating correlations between factors, the City will use those correlations to support decision making and implementation of its NSP plan
- Quick and effective distribution of funds are crucial
What we are trying to accomplish

- Refine data so that it accurately described North Las Vegas
  - Existing aggregated data too broad
- Focus in 3 key zip codes
  - Get to block level with analysis
- Empirically support decision making
  - Recognize political realities of funds
Indicators and Data Sources

◆ HUD Established some key indicators
  ■ # of foreclosures, # of sub-prime loans, etc.

◆ HUD data undercounted, miscounted
  ■ Needed to include additional indicators to determine “need” and potential impact

◆ Execute objective system to select where money goes
  ■ Foreclosure problem is so large and widespread EVERY neighborhood in the City has been adversely affected
Indicators and Data Sources

- UCR Part I
- Code Enforcement violations
- Zero reads from utility meters
- Graffiti
- Notices of Default
- Vacant/Abandoned Properties
- Foreclosures
- Sales Data
Why we chose these indicators

- Looking for valid vacancy rates
- Standard markers of instability
- Ability to establish a baseline and track movement
- Indicators that are amenable to intervention in addition to HUD defined factors
How we pulled the data together

- **Assessor Data**
  - Assessor Parcel Number (APN) is gold standard to tie data points to a parcel and a neighborhood

- **Inter-departmental requests**
  - Work through compartment mentality to share existing data collected for other purposes but useful in this analysis

- **Partner with private sector**
  - Greater Las Vegas Association of Realtors’ MLS data
  - Title Companies

- **Partner with Non-Profits and Educational Institutions**
  - University of Nevada Las Vegas (UNLV)
  - Clark County School District (CCSD)
How we pulled the data together

- The end products are overlays of the factors, displayed as the percent of parcels with issues by subdivision.
- Getting to this point proved a challenge; accuracy was crucial, but time and expertise were in limited supply.
- Datasets provided were in various formats (.xls, .mdb, .txt, etc.) and needed to be prepared for easy manipulation with a GIS.
- Datasets were imported into a Personal Geodatabase to allow flexibility between ArcGIS for GIS users and Microsoft Access for non-GIS users.
Methodology

- Records were joined by APN to the Clark County Assessor’s Parcel Database “Parcel” feature class and errors were refined through frequency and comparison tables; the refined products provided standardized geographic locations and APN’s for features within the factors, that, should the need arise, are compatible with any standard Assessor-based datasets throughout Clark County.

- Finalized data was then exported to a separate File Geodatabase designated for finalized data.

- Selection sets of residential subdivisions within the target ZIP Codes were created and exported to their own feature class.
Methodology

- A key to the analysis was the ability to analyze by subdivision, but having obtained data from several sources, the subdivision-name fields from in various sources’ data varied in format, if they existed.

- This issue was solved by performing an “Identity” between feature classes of the factors and the subdivision feature class; this served a two-fold purpose: 1: Provide a standardized subdivision-name field and 2: Identify any remaining features that were out-of-bounds of the subdivisions.

- The next obstacle was getting counts of records of the factors and numbers of residential parcels within subdivisions. These were obtained by creating Frequency tables based the subdivision-name fields given to them from performing the Identities earlier. The res

- Selecting data based on its location and then Identity did have its limitations, but in doing spot checks, we confident that this method was providing the necessary accuracy.
Methodology

Other methods of analysis included using points created by geocoding addresses.

- The subdivision feature class’ polygons did not extend to some crucial streets’ centerlines, excluding an unacceptable percentage of our Factors’ features due to their geocoded location which placed them on street centerlines instead of within subdivisions.
We overcame this by buffering the points to enlarge their area so a portion of any given point could be accounted for within a subdivision’s boundaries.

We then perform various methods of adding “scores”, Unioning, and Dissolving those buffers.

These methods often had buffers that should be associated with a single subdivision “bleeding” over to nearby subdivisions and throwing their scores off.

Due to the sheer number of records within these factors, the Unions also created monstrous datasets that had, in some cases, 12 million polygons. They were too much to handle and we felt there could be a simpler method devised that would yield similar results.
Methodology

- Frequency of incidences made were then joined back up by subdivision name and set exported.
- Average from # of Incidences in each subdivision / # of parcels in each subdivision.
Methodology

- Simpler methods explored
- How we dealt with monstrous data sets
Challenges with Data

- Time consuming
- Data collected for other purposes
  - Doesn’t always have key points needed
  - Not collected consistently within or across departments
  - Timeframes not consistent with project time frames
- Territoriality
  - Data “belongs” to someone or an entity
  - Public good not always a consideration when sharing data
Using the Data

- Weighted indicators
- Building the infrastructure
- Normalizing it
Using the Data

- The trial and error process
- Outputs – maps, database
- Outcomes – decisions, policy
Summary

- What we learned
- Ways to apply lessons
Next Steps

What Happens Next?