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**Analysis of Costs Associated with
Obtaining Elevation Certificates
for Low-Income Households in San
Marcos, Texas**



Introduction

San Marcos has a history of flooding, and many of its most flood-prone areas are inhabited by low-income citizens. The elevation survey necessary to obtain flood insurance can cost up to \$1,000, putting it out of reach of some of these low-income residents.

The City of San Marcos is working towards a Community Development Block Grant to help these residents obtain elevation surveys and flood insurance.



Why GIS?

GIS was selected as the tool of choice for this project because it allows decision makers to visualize where flooding is likely or has occurred in the past, and where it overlaps with low-income residents. The intent of the project is to provide an estimate of the number of flood-prone, low-income properties falling in or near the floodplain.

Original Data

- Flood plains (floodway, 100-year, 500-year, elevation cross-sections)
- 1998 flooding (areas inundated, parcels damaged)
- Flood insurance (active policies, past claims, current elevation certificates)
- Base map (address points, building footprints, city limit, extraterritorial jurisdiction, creeks, railroads, San Marcos River, streets)
- Property (parcels, tax appraisals)

Data created

- Insurance - parcels with active policies, past claims (join tabular data with geodata)
- 1998 floods - parcels with damage, areas inundated outside floodplain (convert CADD to shapefile)
- Parcels in floodplains - floodway, 100-year, 500-year
- Parcels in 500-year floodplain or damaged in 1998
- Parcels with total assessed value less than \$15,000, \$30,000, and \$45,000

Results

Of the 13,568 parcels entirely or partially within the city limits or ETJ of San Marcos...

- 74 have elevation certificates.
- 324 parcels have active flood insurance policies. Of those 324...
 - 280 lie within the 500-year floodplain.
 - 93 have a total assessed value of less than \$30,000.
- 632 parcels are in the 500-year floodplain and have a total assessed value of less than \$30,000.
- 479 parcels are in the 100-year floodplain and have a total assessed value of less than \$30,000.

There have been 267 claims since 1979.

34 addresses have more than one claim.

Rough estimates

The cost of an elevation survey is estimated to range between \$500 and \$1,000, depending on complexity of survey.

- For 632 parcels in the 500-year floodplain with total assessed value under \$30,000

$$632 \times \$1,000 = \$632,000$$

- For 479 parcels in the 100-year floodplain valued at less than \$30,000

$$479 \times \$500 = \$239,500$$



Conclusions

Our results were an overview of the data the City of San Marcos possessed; we were asked to do analysis based on the insurance and income data they provided. Our results showed a significant area of the floodplains that were low income and without flood insurance. Our data also indicates that some properties flood repeatedly.