



# **HUD's Office of Inspector General**

## **Office of Audit**

### **Field Analytic Support Team (FAST)**

Stacey Andersen, Senior Auditor  
Region 9 FAST Member

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# Overview

- Introduction to the U.S Department of Housing and Urban Development (HUD) Office of Inspector General (OIG)
- What is geospatial analytics
- How can it be used to draw conclusions and communicate issues



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# Introduction to HUD OIG

- When the IG Act of 1978 was enacted the HUD OIG became one of the original 12 federal OIGs.
- OIGs are authorized to audit, evaluate, investigate, and otherwise review the programs and operations of the agencies they oversee.
- HUD OIG executes its duties independently from HUD and reports to the HUD Secretary and Congress.



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# Office of Audit

- Performs internal reviews of HUD programs
- Performs external audits and reviews of outside entities and activities.
- Audits provide HUD recommendations on which departmental officials can take action to improve internal operations, program, and program activities.
- Recommendations also impact proposed legislation and regulations and prevent fraud, waste, and abuse in HUD operations and programs.
- Reports are published at [www.HUDOIG.gov](http://www.HUDOIG.gov)





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# Data Analytics In Audit

- Data analytics can be used to
  - Assess Risk
  - Identify anomalies
  - Visualize findings
- Data Analytic Tools
  - Tables
  - Graphs
  - Mapping visualizations (geospatial)



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# What is Geospatial Analytics

Geospatial analytics is the manipulation of data based on location.



# Background On Audit Report 2017-LA-1001

- **Entity:** Clark County, Las Vegas, NV
- **Audit Objective:** To determine whether Clark County followed procurement requirements, ensured CDBG projects met CDBG national objectives, and spent CDBG funds on eligible expenses.
- **Finding:** Clark County inappropriately used CDBG funds for general government expenses concerning code enforcement
- **Recommendations:** (1) Repay \$71,397 to the program for the use of CDBG funds for code enforcement costs related to general government expenses. (2) Revise its code enforcement program to meet CDBG requirements for the remaining \$33,603 budgeted or amend the use of the funding to another CDBG-eligible activity.



# Code Enforcement Criteria and Background

- 24 CFR 570.202(c) and 24 CFR 570.207(a)(2) state that funds may be used for code enforcement costs in deteriorating and deteriorated areas where such enforcement together with public improvements, rehabilitation, and services to be provided, may be expected to arrest the decline of the area and it is not for general government expenses.
- HUD Memorandum for Program Eligibility Determination on Housing Code Enforcement states that County's should define the specific boundaries of the area to be considered eligible for CDBG-funded code enforcement inspections, which is not synonymous with CDBG "low-moderate income areas"





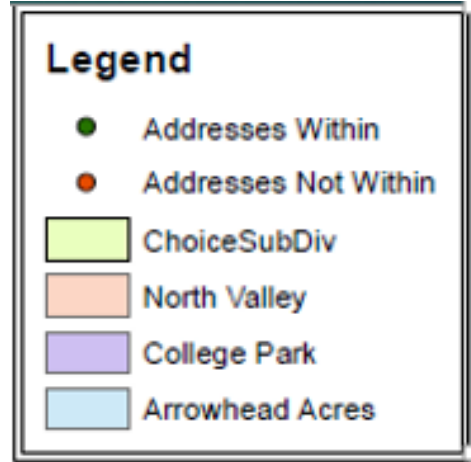
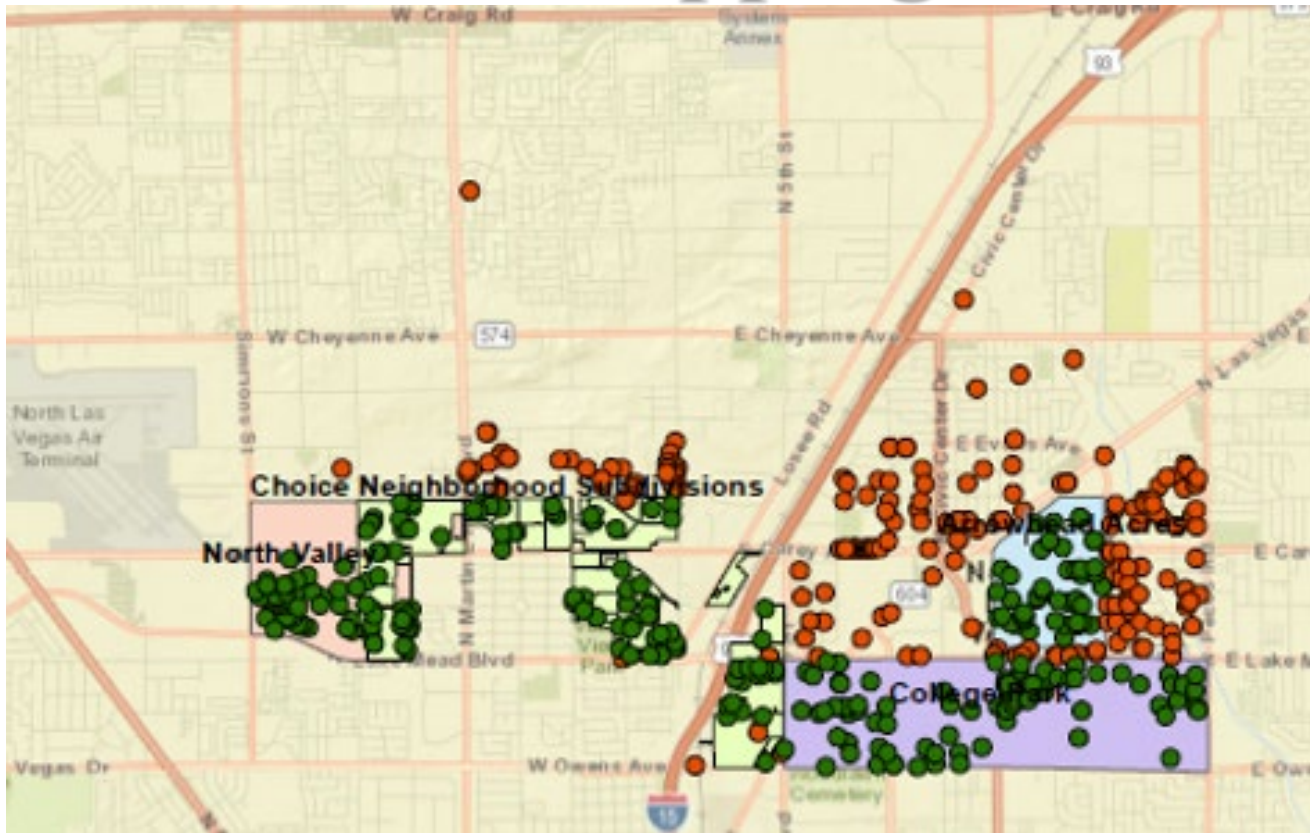
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# Why We Used Geospatial Analytics and What We Did

- We identified various indicators that the code enforcement costs were being used for general government expenses. As a result, we wanted to ensure that all costs were within the boundaries defined by the County.
- We obtained shape files from the County for the neighborhoods it determined were deteriorating. These shape files contained the specific parcels used to define the boundary.
- We combined this data with a list of addresses that had code enforcement activity and mapped each address.



# Mapping Results



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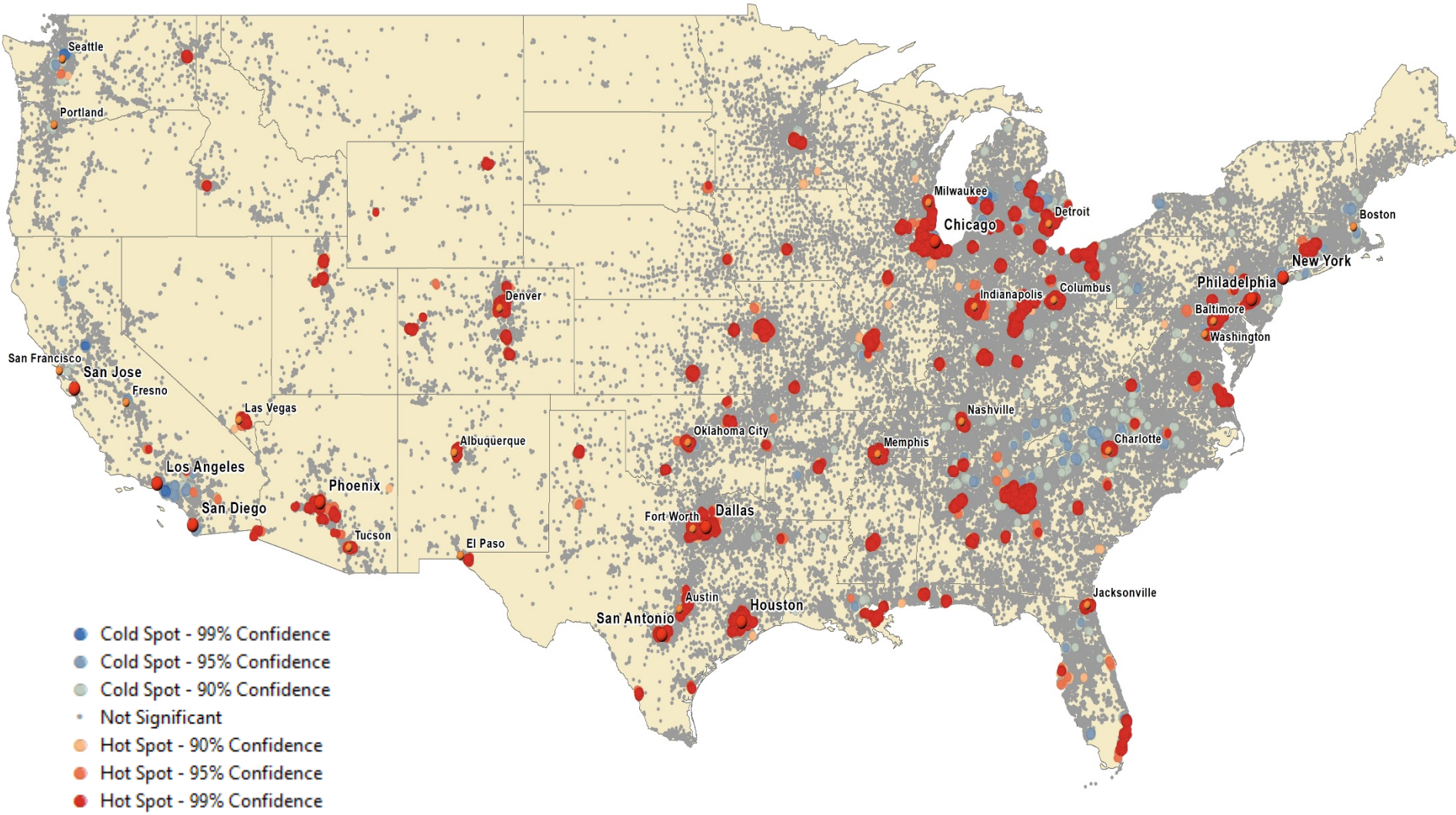
# Using Geospatial Analytics Nationwide – FHA Delayed Conveyance Background

- Federal Housing Administration (FHA) provides mortgage insurance for a person to purchase or refinance a principal residences. The loan is funded by a lending institution and is insured by HUD.
- FHA mortgages have a set amount of time to convey back to HUD.
- Using two HUD systems (one that tracks defaults and claims, and another that tracks properties after conveyed), HUD OIG determined the universe of loans that had delayed conveyances.





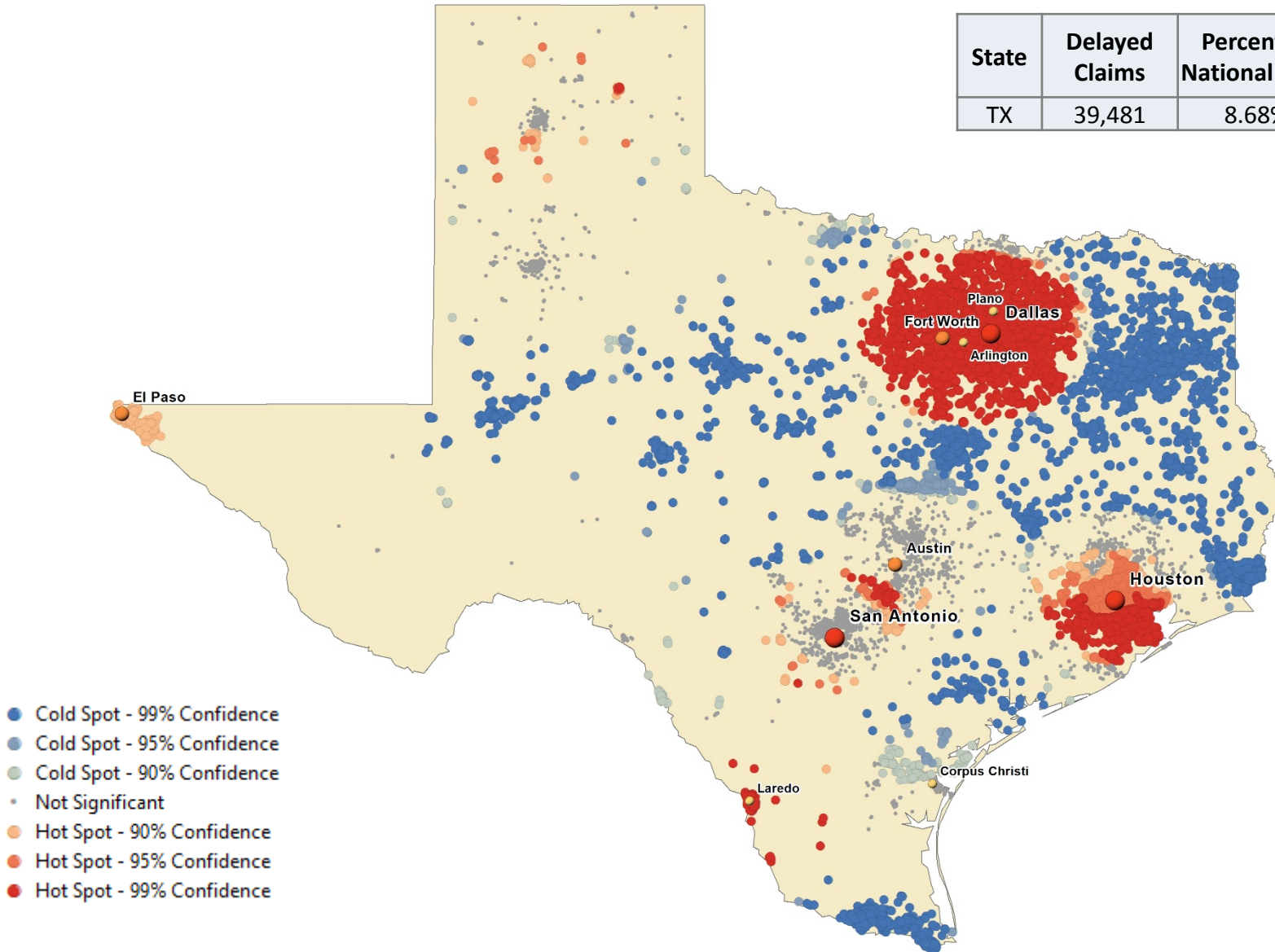
# Hot Spot Analyses – National Density Map



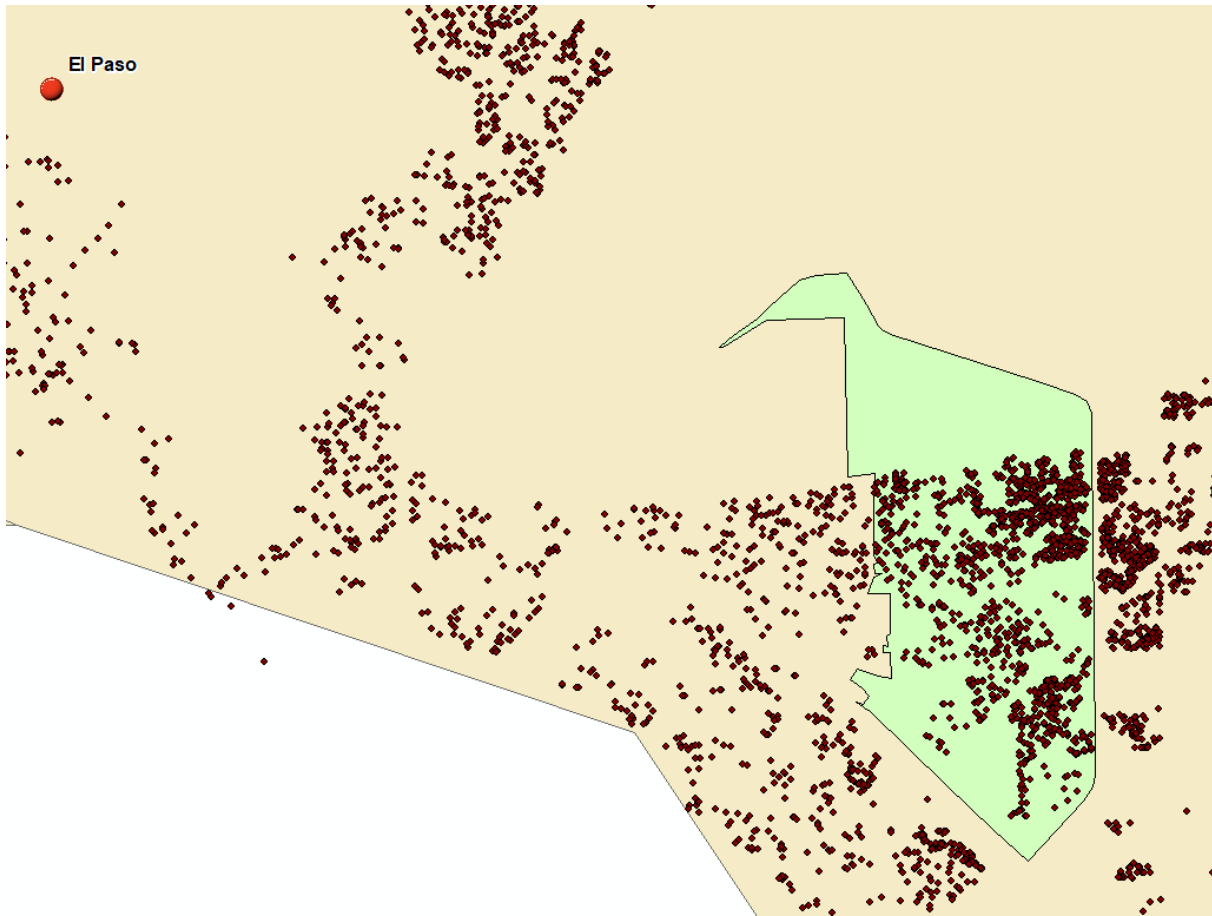


# Hot Spot Analyses – Texas

State	Delayed Claims	Percent of National Total
TX	39,481	8.68%



# Zip Code/Street Level Hot Spot Analyses – Case Studies

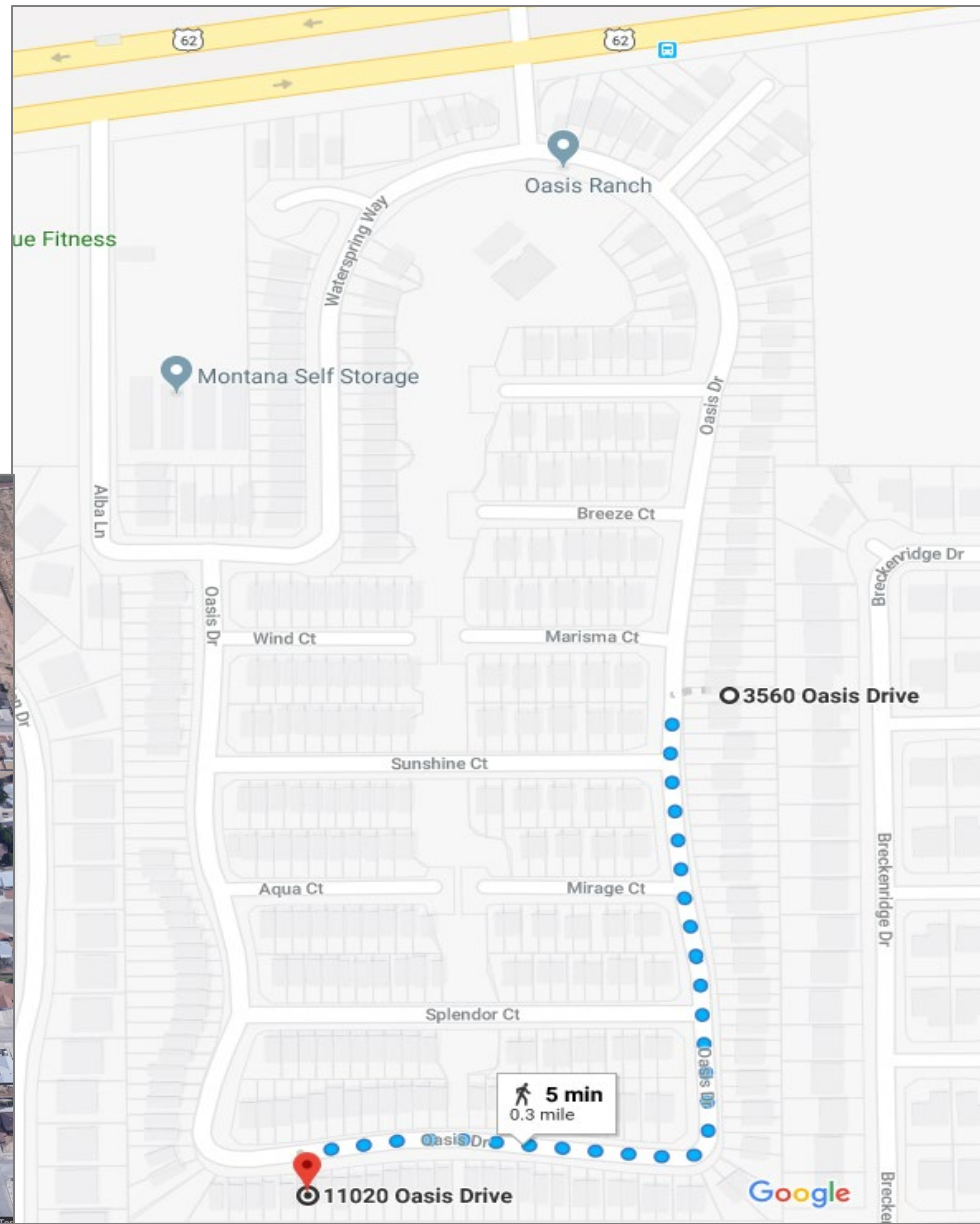


Zip Code: 79936  
El Paso, TX  
• 1,267 Delayed  
Conveyance  
Properties



# Zip Code/Street Level Hot Spot Analyses – Case Studies

Zip Code: 79936  
El Paso, TX  
3560 to 11020 Oasis Drive  
15 Properties within .3 miles





# FHA Delayed Conveyance Results

- HUD OIG issued audit report 2017-KC-0001.
  - Objective: To determine whether HUD paid servicers' claims for properties that did not foreclose or convey on time.
  - Finding: HUD paid claims for an estimated 239,000 properties that servicers did not foreclose upon or convey on time.
    - HUD paid an estimated \$141.9 million for servicers' claims for unreasonable and unnecessary debenture interest that was incurred after the missed foreclosure or conveyance deadline. (Part A)
    - HUD paid an estimated \$2.09 billion for servicers' claims for unreasonable and unnecessary holding costs that were incurred after the deadline to convey. (Part B)





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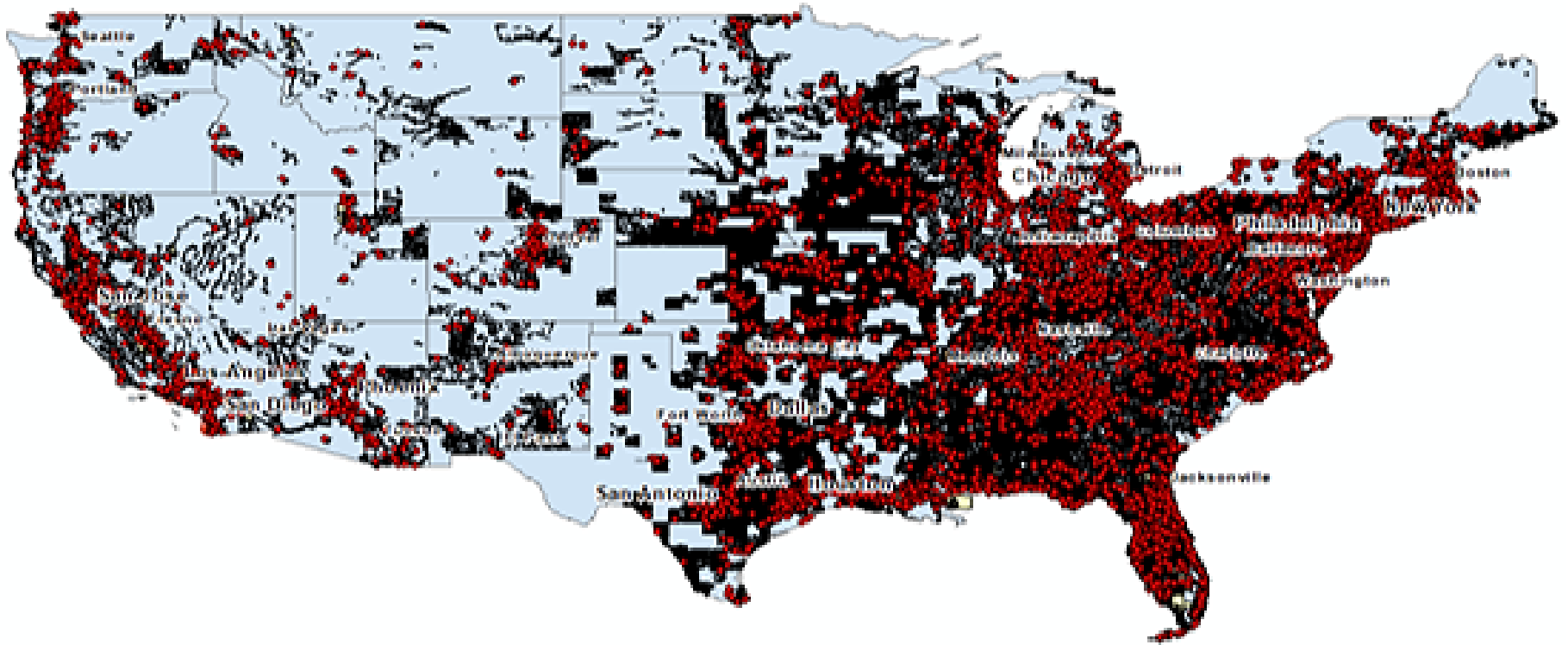
# Working With Other Agencies

- The Inspector General Empowerment Act of 2016 provided an exemption to the Privacy Act's computer matching provisions for OIG Oversight work as long as it is in connection with audit, investigation, inspection, evaluation, or other review.
- There are still road blocks with regards to data matching due to different agency goals, resources, or disputes about conducting oversight.
- Sharing data can help agencies reduce errors, improve program efficiency, and identify and prevent fraud.



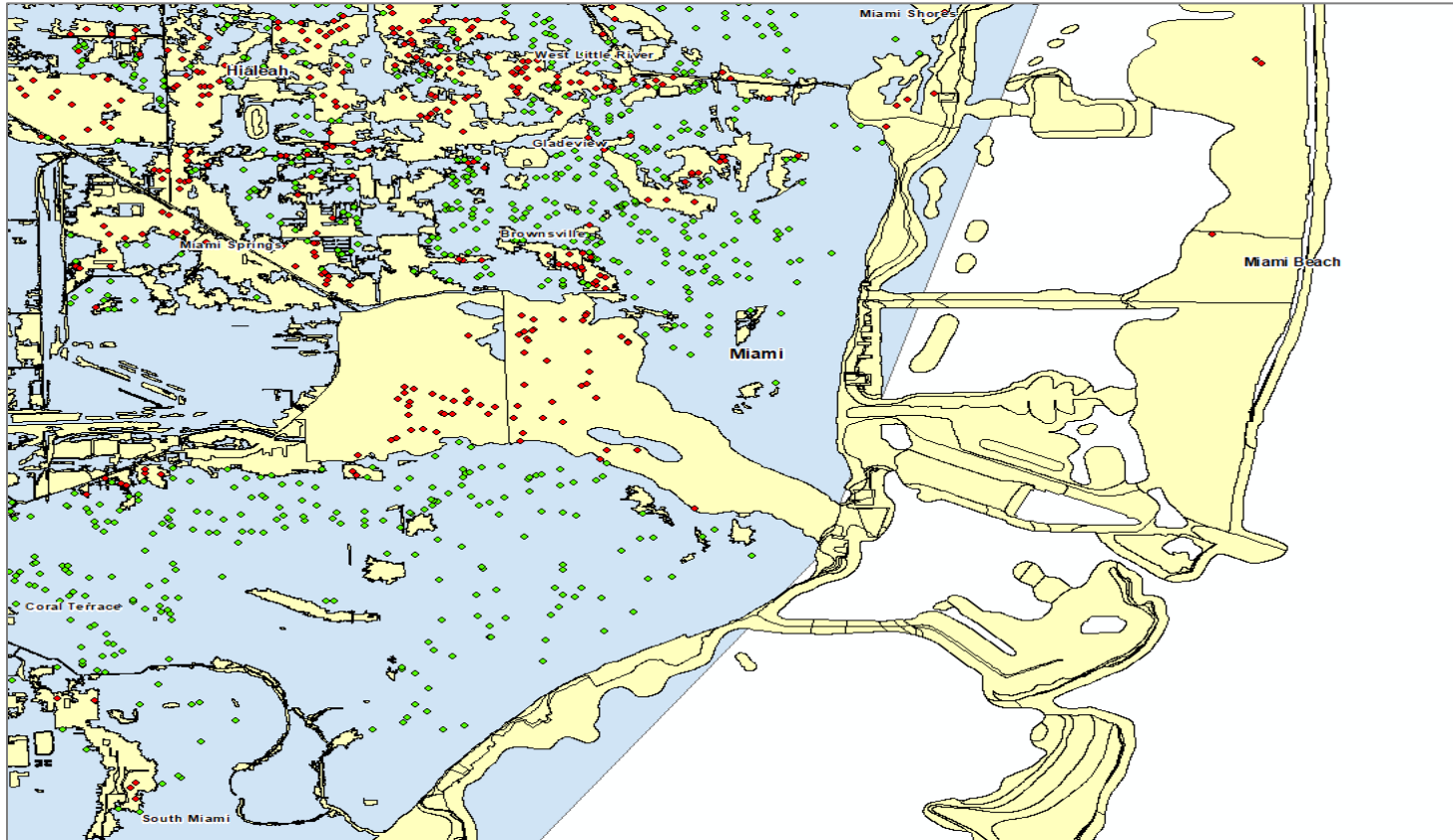
# Mapping Results

Intersection of Agency 1 Data and Agency 2 Data



# Mapping Results

Zoomed View: Intersection of Agency 1 & Agency 2 Data data



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# Use of Geospatial Analytics

## Question to ponder:

Can geospatial analytics play a significant role in how we answer our work load objectives, demonstrate impact, report results/make recommendations; and ultimately, improve our strategic workload planning?







**Questions?**