



Utilizing GIS to Trap West Nile Virus: Tarrant County's Story

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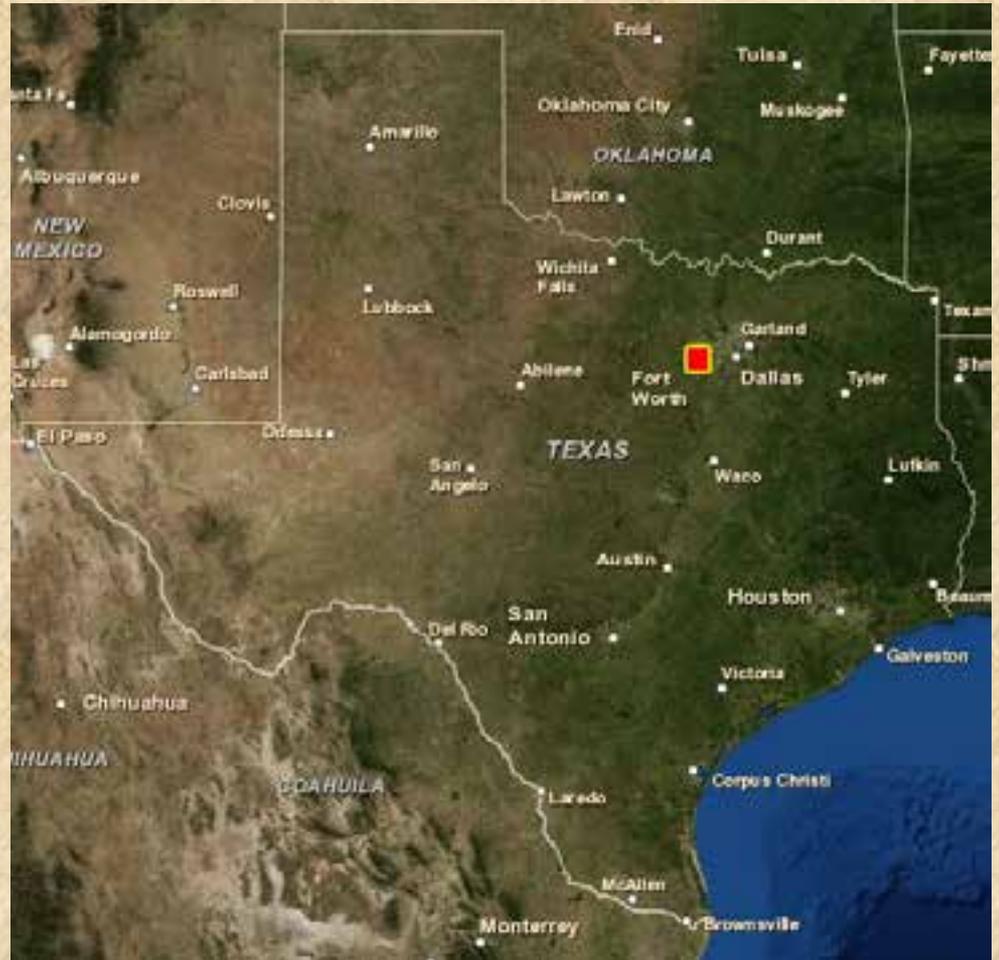
Introduction

- ⊕ Background
- ⊕ 2012 – Problem
- ⊕ 2012 - Solution
- ⊕ Analysis
- ⊕ Future



Background

- 🦟 2012 Texas
– highest incidences of West Nile Virus
- 🦟 Tarrant County
– 1.88 million people
- 🦟 TAKE ACTION!





2012 - Problem

- ⊕ Data stored in spreadsheets
- ⊕ Maps created in ArcGIS Desktop
- ⊕ Printed or emailed for distribution





2012 - Solution

- ⊕ SQL Server database created
- ⊕ Tarrant County Public Health analyst verifies points
- ⊕ Script runs nightly to import data into database
- ⊕ Website displays results based on user query



Date Range Search

Tarrant County Public Health
WNV interactive mapping tool

WNV Result Statistics

Based On:
Date Range: 5/1/2013 - 6/17/2013

Positive Samples: 0

Negative Samples: 813

KELLER: 17
ARLINGTON: 44
UNINCORPORATED: 103

Export As: Excel

Public Information

Announcements | **WNV WNV** | Layers | Tools

What Would You Like To Search For?

Positive Mosquito Sample ■

Negative Mosquito Sample ■

Zip Codes With Positive Human Cases ■

Date Range (Required):

From Date: 5/1/2013 To Date: 6/17/2013

By Location (Optional)

Address Zip Code City

Address:

For best results, enter address as shown below:
200 E WEATHERFORD ST FORT WORTH TX 76102

Address Buffer Within:

Radius: 0.5 Miles

Show Statistics Find Clear



Zip Code Search

Tarrant County Public Health
WNV interactive mapping tool

WNV Result Statistics

Based On:
Date Range: 5/1/2013 - 6/17/2013 & Zip Code:
76102, 76104, 76120, 76133

Positive Samples: 0

Negative Samples: 47
FORT WORTH: 16
ARLINGTON: 1

Export As: Excel

Public Information

Announcements **WNV View** Layers Tools

What Would You Like To Search For?

Positive Mosquito Sample ■

Negative Mosquito Sample ■

Zip Codes With Positive Human Cases ■

Date Range (Required):

From Date: 5/1/2013 To Date: 6/17/2013

By Location (Optional)

Address **Zip Code** City

All
75019
75022
75028
75050
75051

(Use CTRL button + left mouse button to select more than one Zip Code)

Show Statistics Find Clear

76104



City Search

Tarrant County Public Health
WNV interactive mapping tool

WNV Result Statistics

Based On:
Date Range: 5/1/2013 - 6/17/2013 & City:
ARLINGTON, BENBROOK, SAGINAW, WHITE SETTLEMENT

Positive Samples: 0

Negative Samples: 58
ARLINGTON: 44
BENBROOK: 14

Export As: Excel

Public Information

Announcements | **WNV Cases** | Layers | Tools

What Would You Like To Search For?

Positive Mosquito Sample ■

Negative Mosquito Sample ■

Zip Codes With Positive Human Cases ■

Date Range (Required):

From Date: 5/1/2013 To Date: 6/17/2013

By Location (Optional)

Address Zip Code City

All
ARLINGTON
AZLE
BEDFORD
BENBROOK
BLUE MOUND

(Use CTRL button + left mouse button to select more than one City)

Show Statistics Find Clear

GIS

esri

DeLorme, NAVTEQ, Esri, USGS



Address Search

WNV Result Statistics

Based On:
Date Range: 5/1/2013 - 6/17/2013 & Address: 450 S Cooper St
Arlington, TX

Positive Samples: 0

Negative Samples: 39

ARLINGTON: 21
PANTEGO: 18

Export As: Excel

Public Information

Announcements **WNV News** Layers Tools

What Would You Like To Search For?

- Positive Mosquito Sample
- Negative Mosquito Sample
- Zip Codes With Positive Human Cases

Date Range (Required):

From Date: 5/1/2013 To Date: 6/17/2013

By Location (Optional)

Address Zip Code City

Address: 450 S Cooper St Arlington

For best results, enter address as shown below:
200 E WEATHERFORD ST FORT WORTH TX 76102

Address Buffer Within:

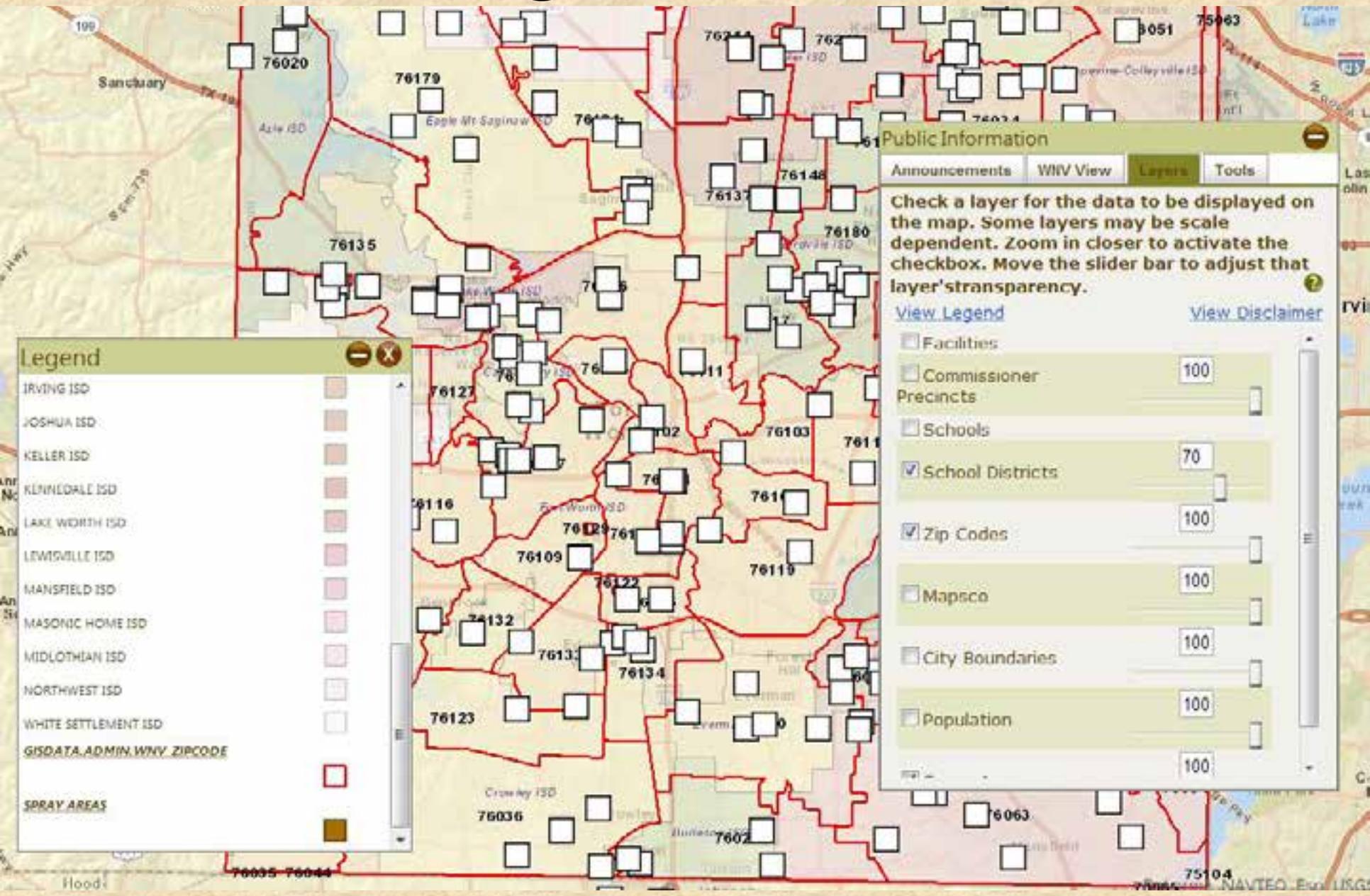
Radius: 3 Miles

Show Statistics Find Clear

esri

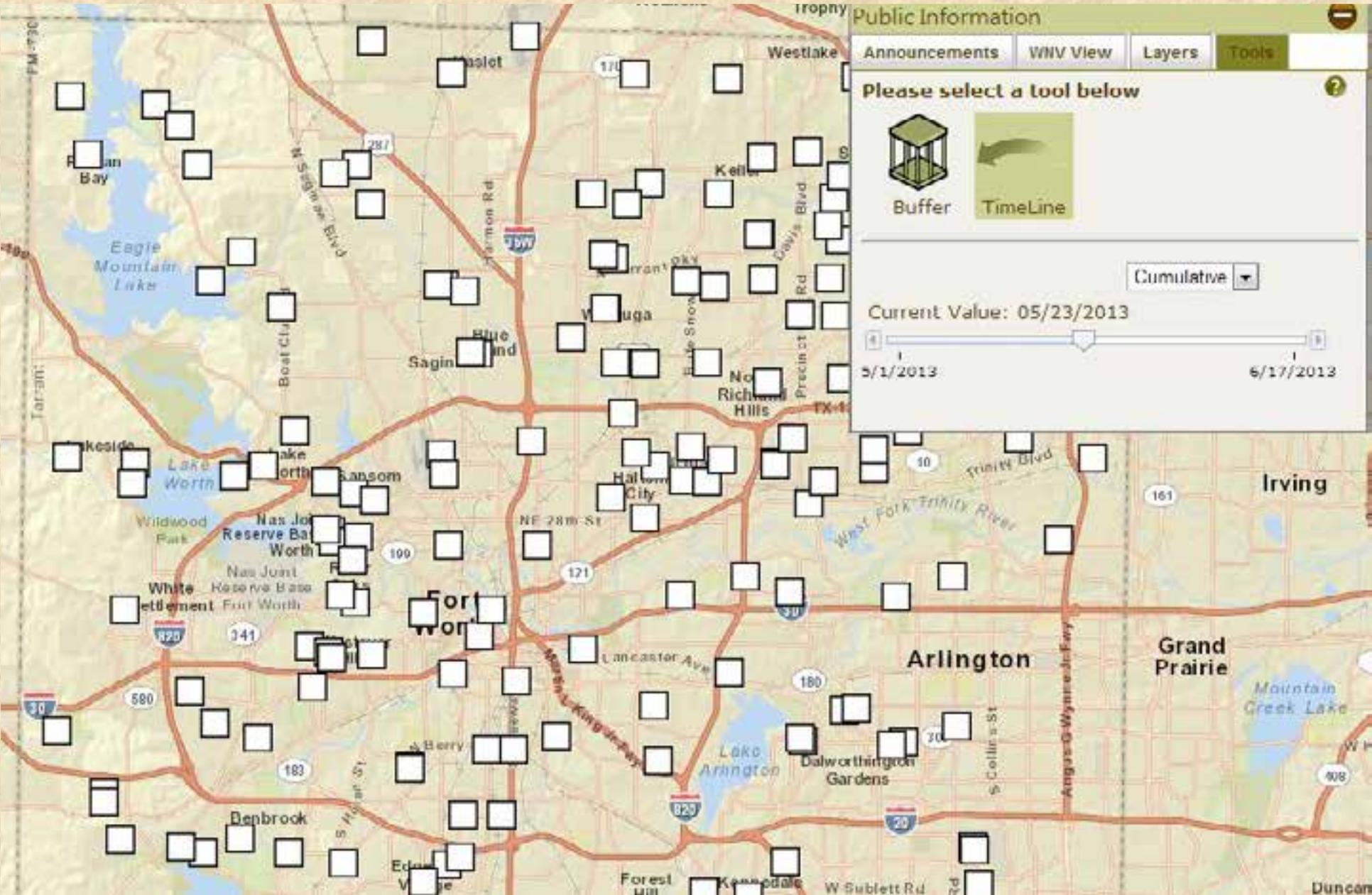


Layers List





Timeline Feature





Export Data

Positive Samples: 0

Negative Samples: 813

KELLER: 17
 ARLINGTON: 44
 UNINCORPORATED: 103
 HALTOM CITY: 20
 LAKE WORTH: 19
 KENNEDALE: 15
 WESTOVER HILLS: 4
 NORTH RICHLAND HILLS: 22
 RIVER OAKS: 12
 FORT WORTH: 271
 EDGECLIFF VILLAGE: 4
 SOUTHLAKE: 45
 COLLEYVILLE: 31
 HURST: 19
 BURLESON: 38
 PANTEGO: 19
 SAMSON PARK: 3
 RICHLAND HILLS: 9
 LAKESIDE: 5
 EULESS: 15
 GRAPEVINE: 27
 BEDFORD: 23
 EVERMAN: 6
 WATAUGA: 2
 BLUE MOUND: 5
 BENBROOK: 14
 HASLET: 9
 CROWLEY: 5
 RENO: 1
 PELICAN BAY: 1
 MANSFIELD: 5

Zip Code(s) With Human Cases: 0

Positive Samples: 0

Negative Samples: 813

KELLER: 17
 ARLINGTON: 44
 UNINCORPORATED: 103
 HALTOM CITY: 20
 LAKE WORTH: 19
 KENNEDALE: 15
 WESTOVER HILLS: 4
 NORTH RICHLAND HILLS: 22
 RIVER OAKS: 12
 FORT WORTH: 271
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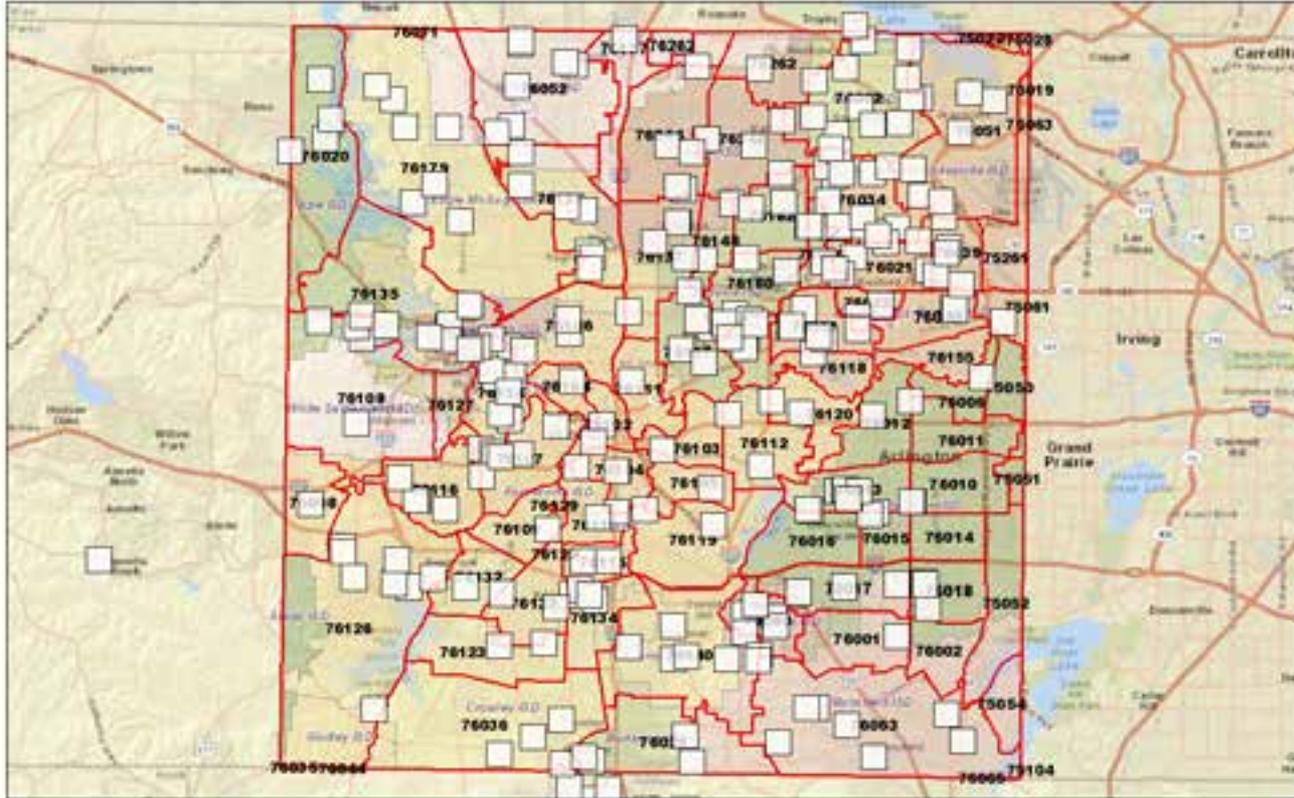
Zip Code(s) With Human Cases: 0





Print Output

WNV Demo



June 17, 2013



Source: Esri, DeLorme, NAVTEQ, USGS, Intermap, Inc., NRCAN, Esri, Japan, METI, Swisstopo, Mapbox, Swisstopo, Swisstopo, 2013

Powered by Tarrant County Public Health. This map is for general informational purposes. Tarrant County does not guarantee the correctness or accuracy of any values or data information on this map only shows an approximate relative location and may be changed at any time. Tarrant County assumes no responsibility for any information that is not shown on this map.





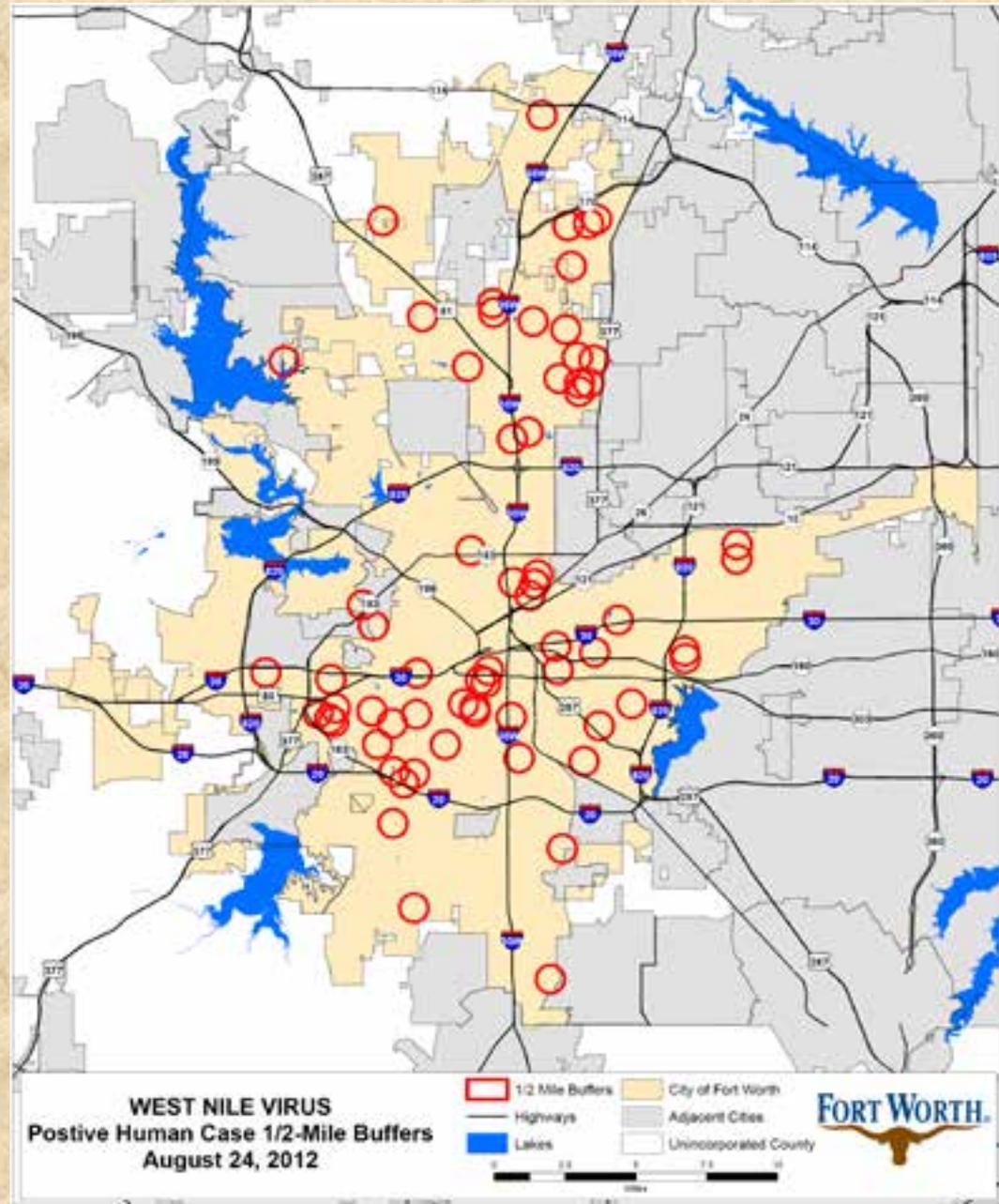
Analysis

- ⊕ Human Case Clusters
- ⊕ Mosquito Trap Site Selection
- ⊕ Pesticide Spray Route Delineation
- ⊕ Public Notification Overlay
- ⊕ Environmental Assessment



Human Case Clusters

- ⊕ Geocode positive human cases
- ⊕ Buffer positive human cases by ½ mile
- ⊕ Identify spatial trends





Mosquito Trap Site Selection

- ⊕ Identify mosquito trap target areas
- ⊕ Mosquito habitat overlays
- ⊕ Open channels
- ⊕ Stormwater lines
- ⊕ Parks
- ⊕ Riparian corridors



Pesticide Spray Route Delineation

- Proximity analysis of positive human case buffers and positive mosquito pools
- Designate areas for pesticide application
- Delineate pesticide spray routes
- Potential street closures due to construction/utility
- Maps disseminated to internal staff only





Public Notification Overlay

- ⊕ Need to notify citizens within spray neighborhoods
- ⊕ Parcel ownership and spray route analysis
- ⊕ Neighborhood Organization overlay
- ⊕ Public Information Officers





Environmental Assessment

- ⊕ Potential pesticide runoff
- ⊕ Monitor potential environmental impacts
- ⊕ Stormwater infrastructure
- ⊕ Open channels
- ⊕ Parks
- ⊕ Riparian corridors
- ⊕ Site visits prior to and after pesticide spraying





Future

- ④ Customize public web application “HIPAA-friendly”
- ④ Take directives from Tarrant County Public Health
- ④ Analysis Templates
- ④ Common Operating Picture



Questions

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