



MISSISSIPPI DEPARTMENT OF  
ENVIRONMENTAL QUALITY

## MONITORING NETWORK PLAN 2022



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## I. **Background:**

Federal Regulations (40 CFR 58.10) require that State and Local Agencies operating an ambient air quality monitoring network shall review their air quality monitoring network on an annual basis. Any needed modifications to the network should be identified. A detailed monitoring network description should also be included. In addition, the plan shall be available for public comment. MDEQ's Monitoring Network Plan is available on the MDEQ website at <http://www.deq.state.ms.us>.

The Monitoring Network review that is specified in *40 CFR 58.10* contains the following elements that apply to each monitoring site:

- The Air Quality System (AQS) site identification number.
- The location, including street address and geographical coordinates.
- The sampling and analysis method(s) for each measured parameter.
- The operating schedules for each monitor.
- Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.
- The monitoring objective and spatial scale of representativeness for each monitor as defined in appendix D of part 58.
- The identification of any sites that are suitable and sites that are not suitable for comparison against the annual Particulate Matter (PM)<sub>2.5</sub> and Ozone National Ambient Air Quality Standards (NAAQS) as described in part 58.30.
- The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Consolidated Statistical Area (CSA) or other area represented by the monitor.
- The annual monitoring network plans and or periodic network assessments are subject to Regional approval according to part 58.14.

## 2. **Overview:**

In the State of Mississippi, the Mississippi Department of Environmental Quality (MDEQ) is the only agency operating an ambient air quality network. There are no local agencies. In Mississippi, as in other State agencies, network monitors are operated for a variety of monitoring objectives. These objectives include determining if an area of the State meets the NAAQS, for public information such as EPA's AirNow data mapping web site, Air Quality Index (AQI) reporting for public information, background data collection, spatial considerations and special projects. The AQI forecast is currently reported for the Jackson Metro area, Biloxi/Gulfport area and DeSoto County area on the MDEQ web site at <https://www.mdeq.ms.gov/air/air-quality-forecast/>. In addition, hourly Ozone (O<sub>3</sub>), Particulate Matter (PM), Nitrogen Dioxide (NO<sub>2</sub>), Sulfur Dioxide (SO<sub>2</sub>), and Carbon Monoxide (CO) data is reported to the EPA AirNow website.

All site data are suitable for the NAAQS comparisons per appendices A, C, D, and E. MDEQ's Quality Management Plan (QMP) is current with an approval date of 10/03/2019, while the Criteria Pollutants Quality Assurance Project Plan (QAPP) has an, EPA, approval date of 12/06/18. The QMP, QAPP and SOPs were reviewed February 2021.

40 CFR 58 has set minimum monitoring requirements for the pollutants that are to be compared with the NAAQS. These minimum requirements are based on population, the level of monitored pollutants, and MSA as defined in the latest US Census information (See appendix III for the US Census information). The tables below and the discussion on the following pages summarize this information.

### 3. Site Discussion:

Mississippi's air quality monitoring network has been reviewed based on the historic monitoring data, air quality monitoring regulations, data representation based on spatial considerations, special data needs and changes needed based on the monitoring regulations. The items used in the evaluation were the AQS database, the 40 Code of Federal Regulations (CFR) parts 53 and 58 documents, census data and maps. All monitors operated by MDEQ are State and Local Air Monitoring Stations (SLAMS).

The following sections describe the purposes and any changes related to each site in the ambient monitoring network in the State of Mississippi based on our review of existing monitoring efforts.

#### **Memphis MSA:**

1. **Hernando** (DeSoto Co. 28.033.0002) – MDEQ operates an ozone monitor, and a continuous Federal Equivalent Method (FEM) PM<sub>2.5</sub> monitor at this site that is designated as a transport monitor and therefore is a required monitor. MDEQ has a regional monitoring agreement with Memphis, TN, and AR to meet Appendix D requirements section 2, e. A copy of this agreement is attached (see Appendix III) and is on file at EPA Region 4. Currently, the DeSoto Co. monitoring site has one continuous FEM PM<sub>2.5</sub> and an ozone monitor.
  - **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The ozone and continuous FEM PM<sub>2.5</sub> sample inlet are approximately 4 meters above ground level, and 69 meters, southwest, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
  - **Sampling train:** The probe tubing is Fluorinated Ethylene Propylene (FEP) and the fittings are Perfluoroalkoxy (PFA). The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

#### **Jackson MSA:**

1. **Jackson NCore** (Hinds Co. 28.049.0020) – The NCore site contains a full complement of monitors, including meteorological. The monitoring parameters currently include Ozone (O<sub>3</sub>), Sulfur Dioxide (SO<sub>2</sub>), Carbon Monoxide (CO), Nitric Oxides as NO<sub>y</sub>, manual Federal Reference Method (FRM) PM<sub>2.5</sub>, continuous FEM PM<sub>2.5</sub>, continuous FEM PM<sub>10</sub>, FEM PM<sub>10-2.5</sub>, speciated PM<sub>2.5</sub>, wind speed, wind direction, ambient temperature, and relative humidity. The FEM PM<sub>2.5</sub> continuous monitor operates as the primary PM<sub>2.5</sub> monitor while the FRM PM<sub>2.5</sub> will operate 1/3 days.
  - **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The ozone, carbon monoxide and sulfur dioxide sample inlet is approximately 4.5 meters above ground level. The nitric oxide sample inlet is approximately 8 meters above ground level. The continuous FEM PM<sub>2.5</sub>, FEM PM<sub>10</sub>, FEM PM<sub>10-2.5</sub>, and speciated PM<sub>2.5</sub> sample inlets are approximately 4 meters above ground level. Each sample inlet is approximately 40 meters, east, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
  - **Sampling train:** The Ozone, Sulfur Dioxide, Carbon Monoxide, Nitric Oxides as NO<sub>y</sub>, probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.



2. **Jackson Metro** (Hinds Co. 28.049.0021) – MDEQ operates an ozone monitor, and a continuous FEM PM<sub>2.5</sub> monitor at this site.

- **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The ozone sample inlet is approximately 4.5 meters above ground level, while the continuous FEM PM<sub>2.5</sub> is approximately 4.2 meters above ground level. Both the ozone and continuous FEM PM<sub>2.5</sub> monitors are approximately 247 meters, northeast, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
- **Sampling train:** The ozone probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

#### **Hattiesburg MSA:**

1. **Hattiesburg** (Forrest Co. 28.035.0004) – MDEQ operates a continuous FEM PM<sub>2.5</sub> monitor at this site. In addition, a collocated FRM PM<sub>2.5</sub> monitor will continue to operate on a 1/6 day schedule to meet MDEQ's collocated requirements.

- **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The continuous FEM PM<sub>2.5</sub> and FRM PM<sub>2.5</sub> sample inlets are approximately 3.5 meters above ground level and 14 meters, northwest, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.

#### **Gulfport-Biloxi-Pascagoula MSA:**

1. **Gulfport** (Harrison Co. 28.047.0008) – MDEQ operates an ozone monitor, and a continuous FEM PM<sub>2.5</sub> monitor at this site.

- **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The ozone sample inlet is approximately 4.5 meters above ground level, while the continuous FEM PM<sub>2.5</sub> is approximately 4.2 meters above ground level. Both the ozone and continuous FEM PM<sub>2.5</sub> monitors are approximately 45 meters, east, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
- **Sampling train:** The ozone probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

2. **Waveland** (Hancock Co. 28.045.0003) – MDEQ operates an ozone monitor, and a continuous FEM PM<sub>2.5</sub> monitor at this site.

- **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The ozone sample inlet is approximately 5.5 meters above ground level while the continuous FEM PM<sub>2.5</sub> is approximately 5.2 meters above ground level. Both the ozone and continuous FEM PM<sub>2.5</sub> monitors are approximately 24 meters, northwest, from the nearest road.
- **Sampling train:** The ozone probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

1. **Pascagoula** (Jackson Co. 28.059.0006) – MDEQ operates an ozone, sulfur dioxide, nitrogen oxide (NO<sub>x</sub>) monitor, and a continuous FEM PM<sub>2.5</sub> monitor at this site. The NO<sub>x</sub> monitor is designated as a RA-40 site. The SO<sub>2</sub> monitor is designated as a population weighted exposure index (PWEI) site.

- **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The O<sub>3</sub>, SO<sub>2</sub>, and NO<sub>x</sub> sample inlet is approximately 4.5 meters above ground level, while the continuous FEM PM<sub>2.5</sub> inlet is approximately 4.2 meters above ground level. The O<sub>3</sub>, SO<sub>2</sub>, NO<sub>x</sub>, and continuous FEM PM<sub>2.5</sub> monitor inlet is approximately 43 meters, northwest, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
- **Sampling train:** The probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

#### **Non- MSA Sites:**

1. **Meridian** (Lauderdale Co. 28.075.0003) – An ozone monitor is operated at this site.

- **Site Approval Status:** Site and monitor meet all design criteria for the monitoring network. The ozone sample inlet is approximately 4.5 meters above ground level and approximately 22 meters, west, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
- **Sampling train:** The O<sub>3</sub> probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

2. **Tupelo** (Lee Co. 28.081.0005) – An ozone monitor is operated at this site.

- **Site Approval Status:** Site and monitor meet all design criteria for the monitoring network. The ozone sample inlet is approximately 4 meters above ground level and approximately 14.5 meters, south, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
- **Sampling train:** The O<sub>3</sub> probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

3. **Cleveland** (Bolivar Co. 28.011.0002) – MDEQ operates an ozone monitor, and a continuous FEM PM<sub>2.5</sub> monitor (Background) at this site.

- **Site Approval Status:** Site and monitors meet all design criteria for the monitoring network. The ozone sample inlet is approximately 4.5 meters above ground level, while the continuous FEM PM<sub>2.5</sub> is approximately 4.2 meters above ground level. Both the ozone and continuous FEM PM<sub>2.5</sub> are approximately 71.7 meters, west, from the nearest road. There are no trees or obstacles that would impact the siting criteria for this site.
- **Sampling train:** The O<sub>3</sub> probe tubing is FEP and the fittings are PFA. The stainless steel fitting at the funnel has been drilled and the FEP tubing pushed through the fitting and extends into the funnel.

## 5. NCore Tables:

**NCore Site Table**

AQS ID	MSA	Site Name	County	City	Latitude	Longitude	Street Address	Elevation (meters)	Site start date	Location Setting
28-049-0020	Jackson	Jackson NCore	Hinds	Jackson	32.19.45	90.10.58	232 E Woodrow Wilson	93	7/01/2013	Urban and city center

**NCore Parameter Table**

Parameter	Monitoring Objective	Measurement Scale	Designation	Type	Method	Schedule	Comment
CO	Pop. Exp.	Neighborhood	NCore	Continuous Monitor	Non-Dispersive IR	Jan-Dec	
NO <sub>y</sub>	Pop. Exp.	Neighborhood /Urban	NCore	Continuous Monitor	Chemiluminescence	Jan-Dec	
O <sub>3</sub>	Pop. Exp.	Neighborhood /Urban	NCore	Continuous Monitor	UV Photometry	Jan-Dec	
SO <sub>2</sub>	Pop. Exp.	Neighborhood	NCore	Continuous Monitor	UV fluorescence	Jan-Dec	
FRM PM <sub>2.5</sub>	Pop. Exp	Neighborhood	NCore	Manual Reference Monitor (3 Day)	Gravimetric Analysis	Jan-Dec	
FEM PM <sub>2.5</sub>	Pop. Exp	Neighborhood	NCore	Continuous Monitor	Broadband Spectroscopy	Jan-Dec	T640x
PM <sub>2.5</sub> Speciation	Pop. Exp	Neighborhood	NCore	Manual Monitor (3 Day)	Multiple Methods	Jan-Dec	
PM coarse	Pop. Exp	Neighborhood	NCore	Continuous Monitor	Difference by Broadband Spectroscopy	Jan-Dec	T640x
Meteorological	--	--	NCore	--	Wind speed, direction, ambient temperature, humidity	Jan-Dec	
Radiation	Pop. Exp	Urban	Rad Net	Continuous / Manual Monitor		Jan-Dec	Non NCore

**Network Tables:****NETWORK DESIGN TABLES MISSISSIPPI****PM10**

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Collocated	Type	Method	Schedule	Comment
Jackson NCore	Hinds	Jackson	28-049-0020	Pop. Exp.	Urban	1	No	Continuous	239	Jan-Dec	T640x

**PM2.5**

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Collocated	Type	Method	Schedule
Hernando	DeSoto	Memphis	28-033-0002	Transport	Urban	1	No	Continuous	236 T640	Jan-Dec
Hattiesburg	Forrest	Hattiesburg	28-035-0004	Pop. Exp.	Neighborhood	1	Yes	Manual (1/6 day) collocated Continuous	145 SEQ 236 T640	Jan-Dec Jan-Dec
Waveland	Hancock	Gulf/Biloxi	28-045-0003	Pop. Exp.	Neighborhood	0	No	Continuous	236 T640	Jan-Dec
Gulfport	Harrison	Gulf/Biloxi	28-047-0008	Pop. Exp.	Neighborhood	1	No	Continuous	236 T640	Jan-Dec
Pascagoula	Jackson	Pascagoula	28-059-0006	Pop. Exp.	Neighborhood	0	No	Continuous	236 T640	Jan-Dec
Jackson NCore	Hinds	Jackson	28-049-0020	Pop. Exp.	Neighborhood	1	No	PM10-2.5 (primary)  Manual (3 Day) Continuous	238 T640x 240 T640x 145 SEQ	Jan-Dec Jan-Dec Jan-Dec
Jackson	Hinds	Jackson	28-049-0021	Pop. Exp.	Neighborhood	1	No	Continuous	236 T640	Jan-Dec
Cleveland	Bolivar	N/A	28-011-0002	Background	Neighborhood	1	No	Continuous	236 T640	Jan-Dec

**Comments:** All manual monitors are FRM and classified as SLAMS. The continuous FEM monitors will be primary.

**SO<sub>2</sub>**

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Type	Method	Schedule
Jackson NCore	Hinds	Jackson	28-049-0020	Pop. Exp.	Neighborhood	1	Continuous	600	Jan-Dec
Pascagoula	Jackson	Pascagoula	28-059-0006	Pop. Exp.	Neighborhood	0	Continuous	060	Jan-Dec

**Comments:** All monitors are classified as SLAMS

**NO<sub>x</sub>/NO<sub>y</sub>**

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Type	Method	Schedule
Jackson NCore	Hinds	Jackson	28-049-0020	Pop. Exp.	Neighborhood /Urban	1	Continuous	699	Jan-Dec
Pascagoula	Jackson	Pascagoula	28-059-0006	Pop. Exp.	Neighborhood	0	Continuous	099	Jan-Dec

Comments: All monitors are classified as SLAMS

**CO**

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Type	Method	Schedule
Jackson NCore	Hinds	Jackson	28-049-0020	Pop. Exp.	Neighborhood	1	Continuous	055	Jan-Dec

**OZONE**

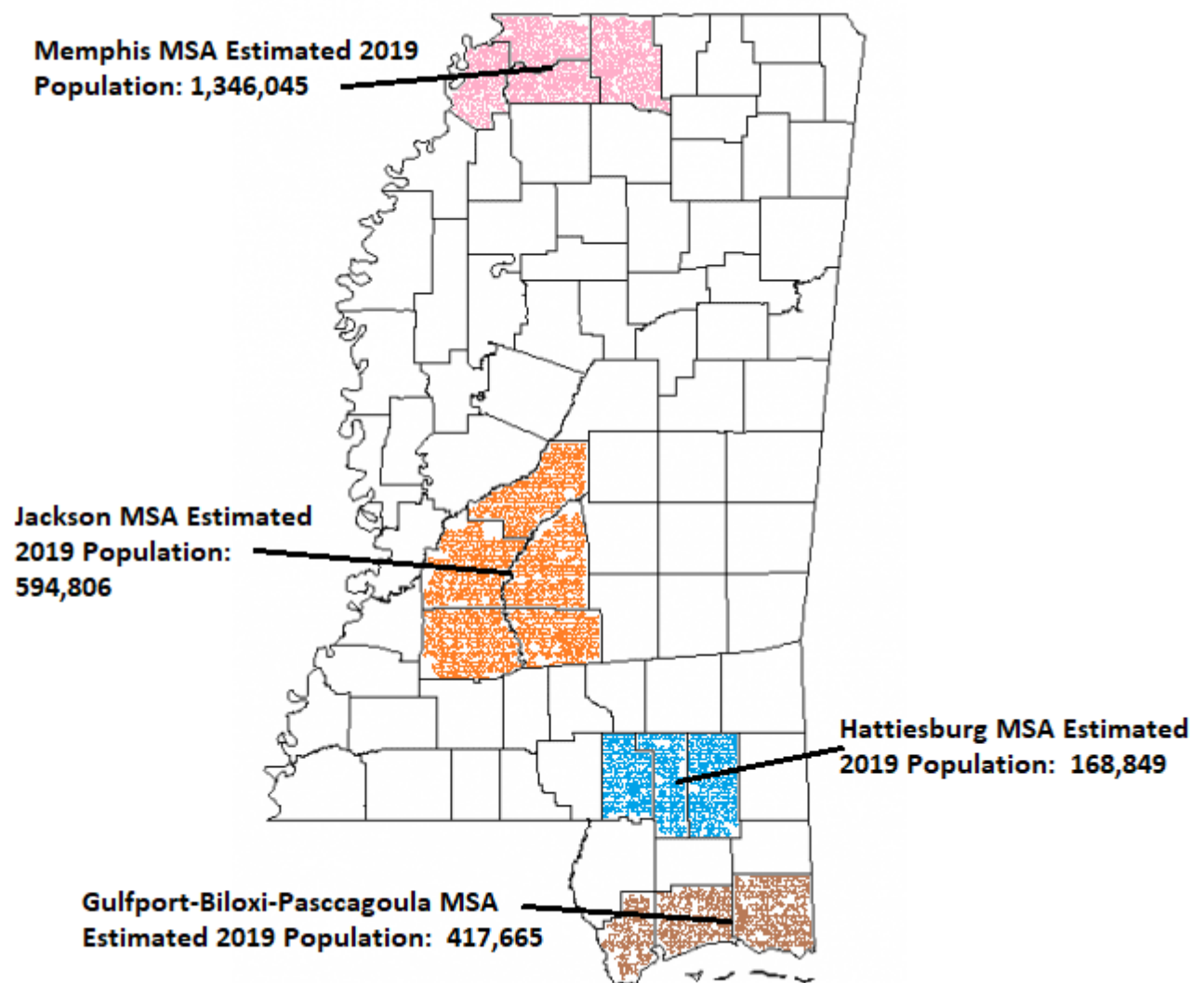
Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Type	Method	Schedule
Cleveland	Bolivar	N/A	28-011-0002	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct
Gulfport	Harrison	Gulf/Biloxi/Pas	28-047-0008	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct
Waveland	Hancock	Gulf/Biloxi/Pas	28-045-0003	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct
Hernando	DeSoto	Memphis	28-033-0002	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct
Jackson	Hinds	Jackson	28-049-0021	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct
Jackson NCore	Hinds	Jackson	28-049-0020	Pop. Exp.	Urban	1	Continuous	UV Absorp	Jan - Dec
Meridian	Lauderdale	N/A	28-075-0003	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct
Pascagoula	Jackson	Gulf/Biloxi/Pas	28-059-0006	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct
Tupelo	Lee	N/A	28-081-0005	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct

Comments: All monitors are classified as SLAM

## 6. Site Location Coordinates

#	SITE ID	LAT		LONG			NAME	COUNTY	ADDRESS
1	28-011-0002	33	45	3	90	44	3 CLEVELAND	BOLIVAR	HWY 8 Cleveland (Delta State)
2	28-033-0002	34	49	14	89	59	16 HERNANDO	DESOTO	5 East South St.
3	28-035-0004	31	19	26	89	17	32 HATTIESBURG	FORREST	101 Ferguson St.
4	28-045-0003	30	18	4	89	23	45 WAVELAND	HANCOCK	400 Baltic St.
5	28-047-0008	30	23	24	89	2	59 GULFPORT YC	HARRISON	47 Maples Dr.
6	28-049-0021	32	19	14	90	10	50 HINDS CC	HINDS	3925 Sunset Dr.
7	28-049-0020	32	19	45	90	10	58 JACKSON NCORE	HINDS	232 E Woodrow Wilson
8	28-059-0006	30	22	41	88	32	2 PASCAGOULA	JACKSON	Hospital Rd. and Vega St.
9	28-075-0003	32	21	52	88	43	53 MERIDIAN	LAUDERDALE	Hwy 19 and 53rd Ave.
10	28-081-0005	34	15	54	88	45	58 TUPELO	LEE	West Jackson at Tupelo Airport

# MSA and Pollutant Maps



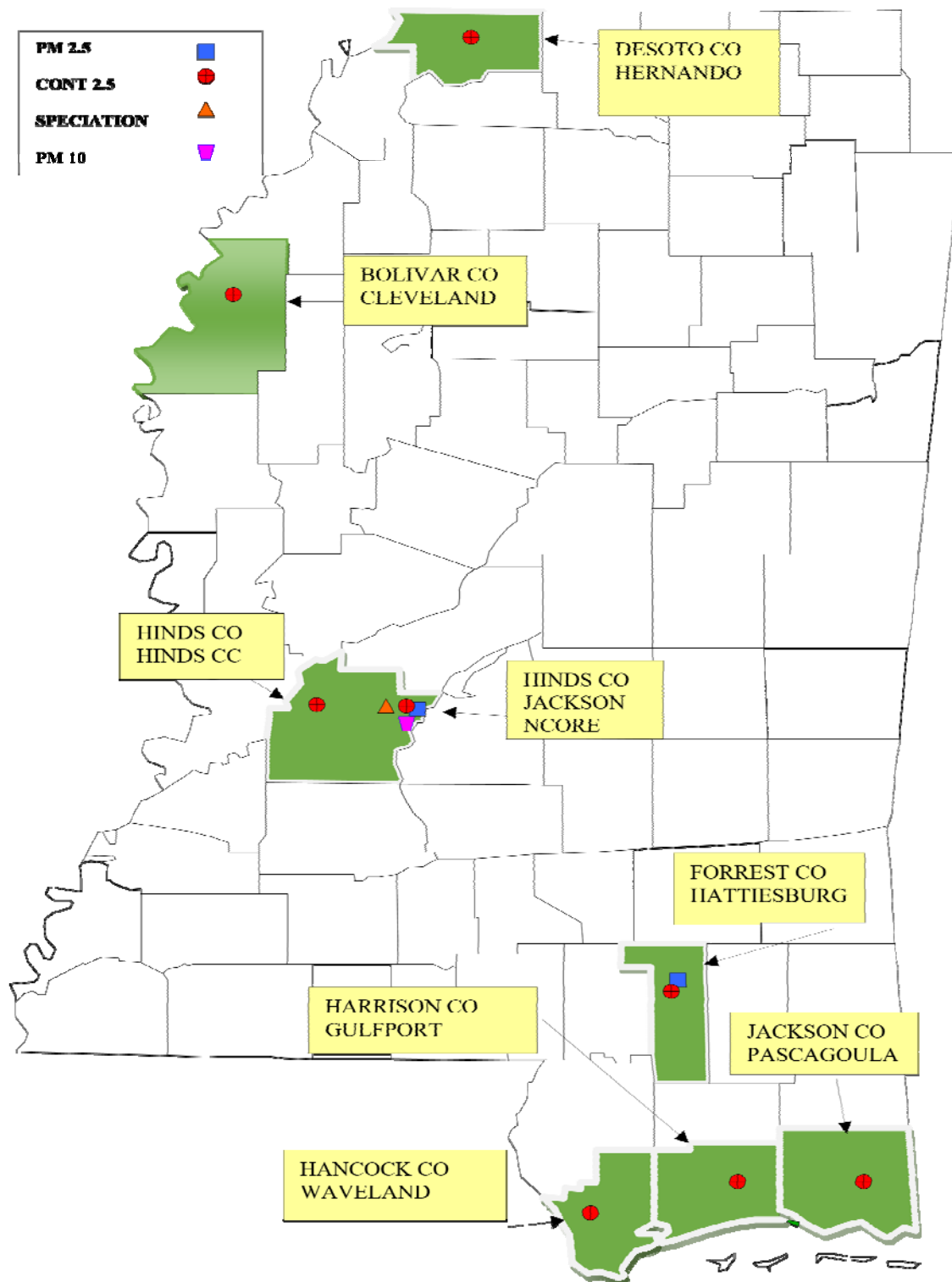
MISSISSIPPI MSA AREAS 2022

MEMPHIS – DeSoto, Tunica, Marshall, Tate

JACKSON – Hinds, Rankin, Copiah, Simpson, Madison

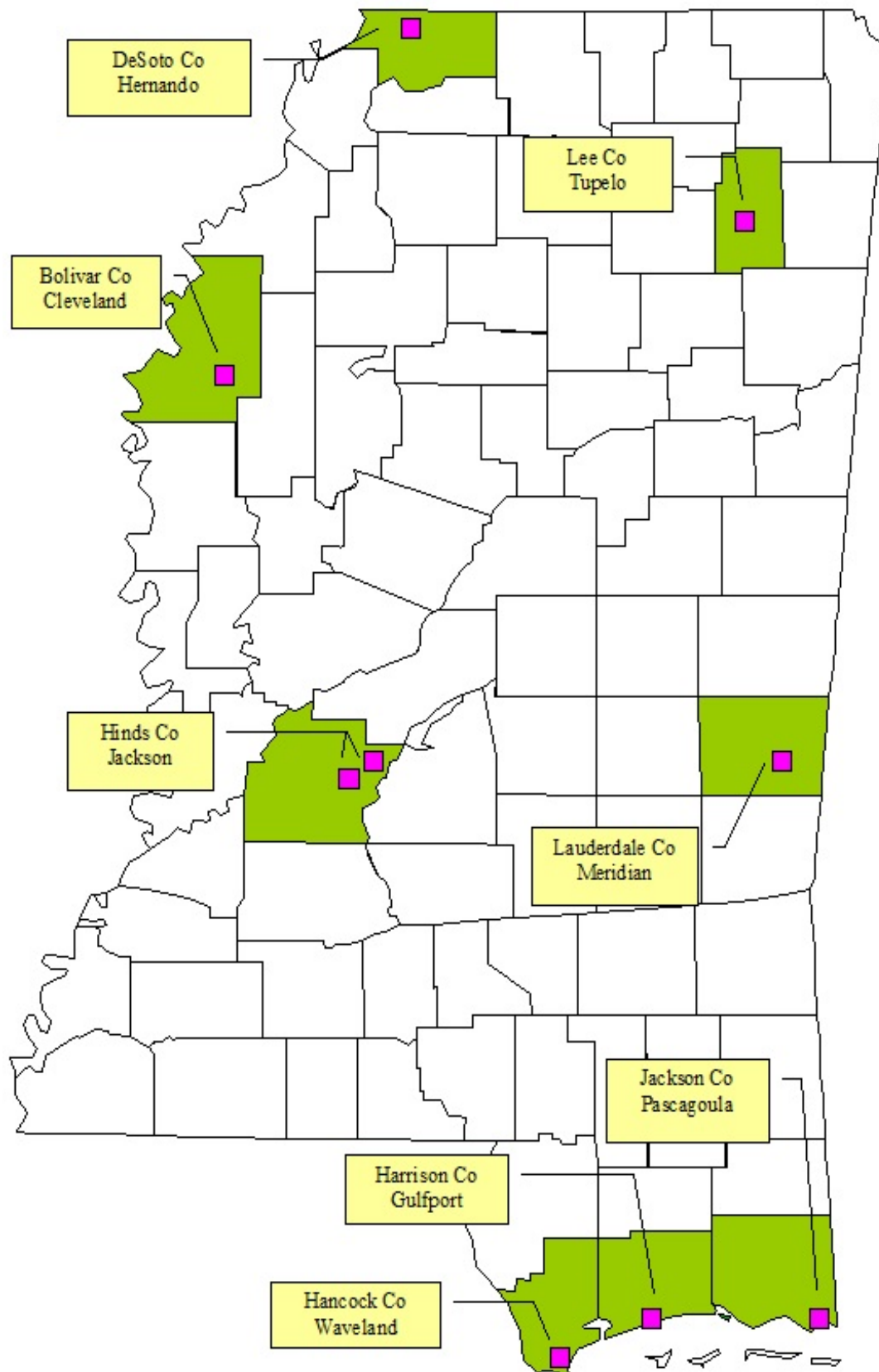
HATTIESBURG – Lamar, Forrest, Perry

GULFPORT-BILOXI-PASAGOULA – Hancock, Harrison, Jackson

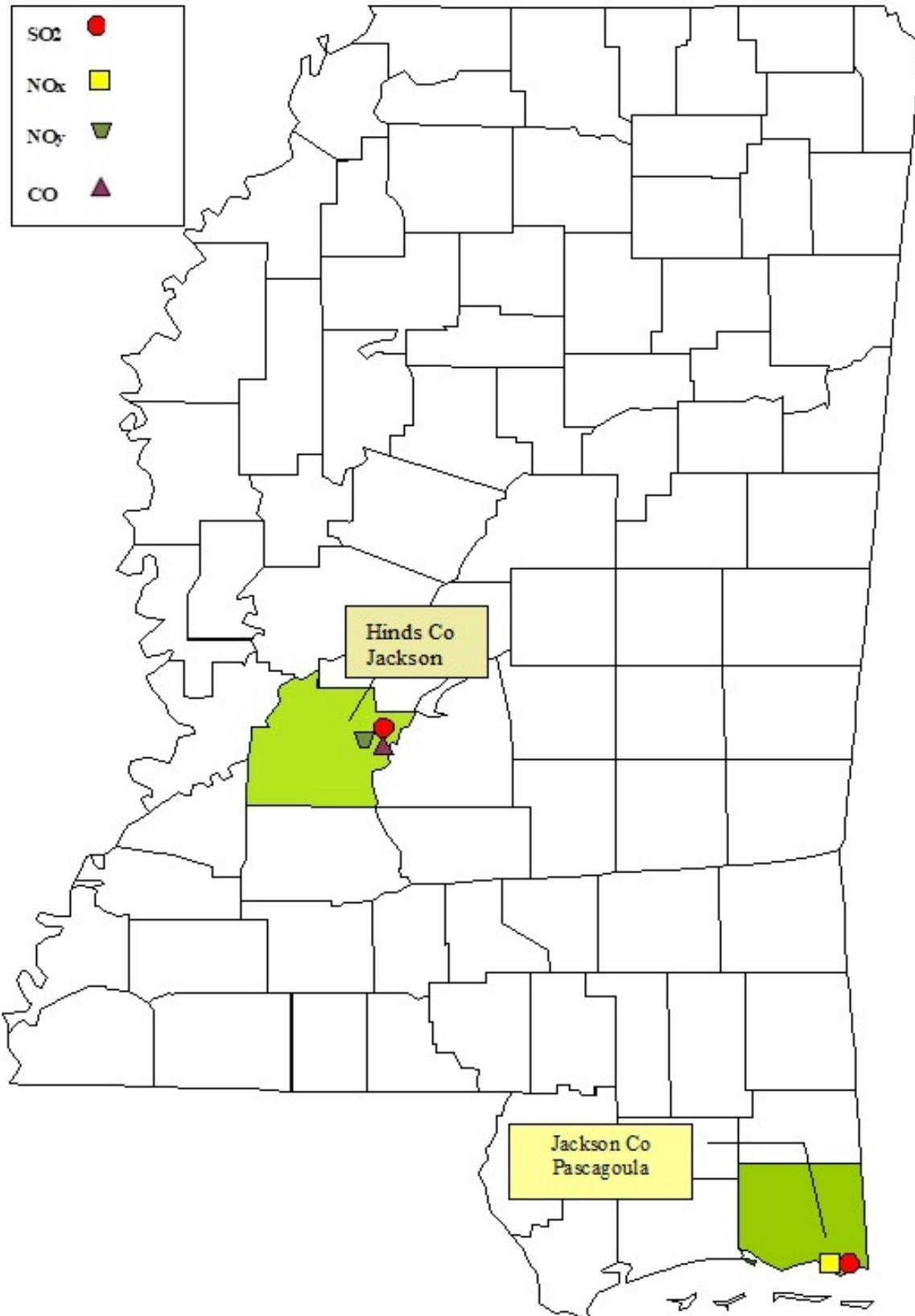


**MDEQ PARTICULATE SITES-2022**





**MDEQ Ozone Sites - 2022**

MDEQ SO<sub>2</sub> / NO<sub>x</sub> / NO<sub>y</sub> / CO SITES - 2022

## Site Maps and Photos



Cleveland- North



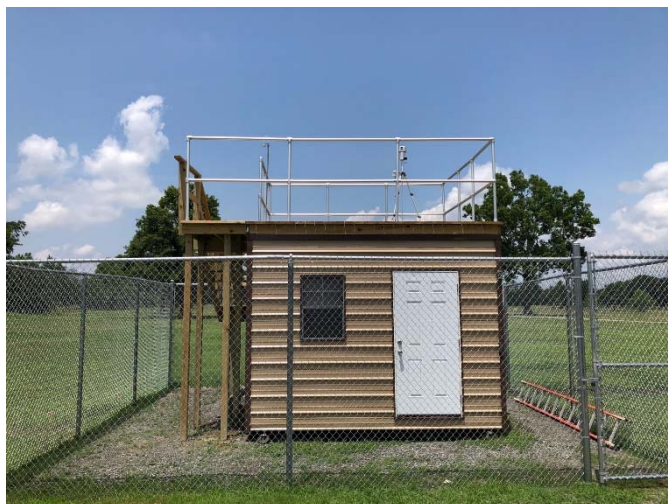
Cleveland- South



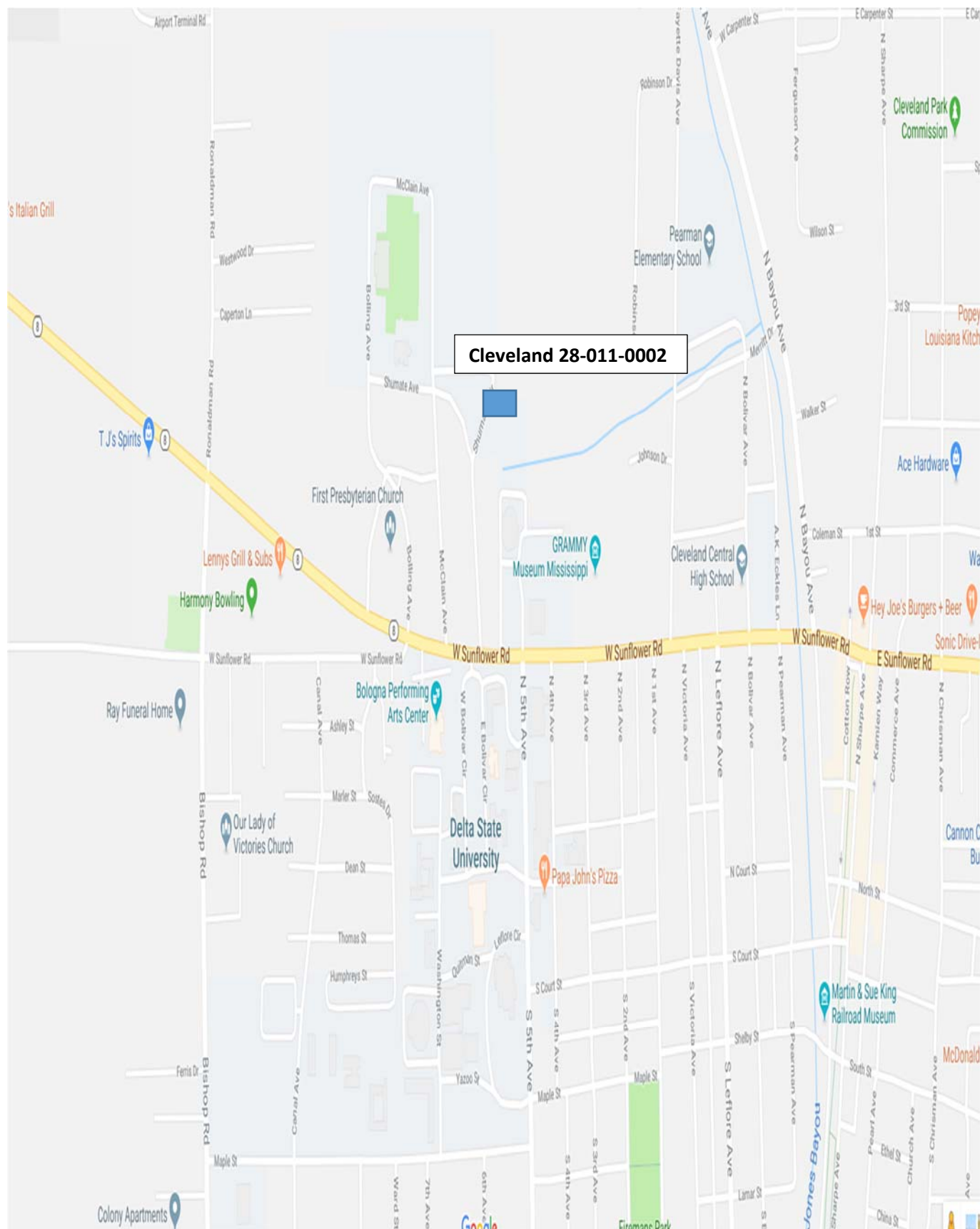
Cleveland- East



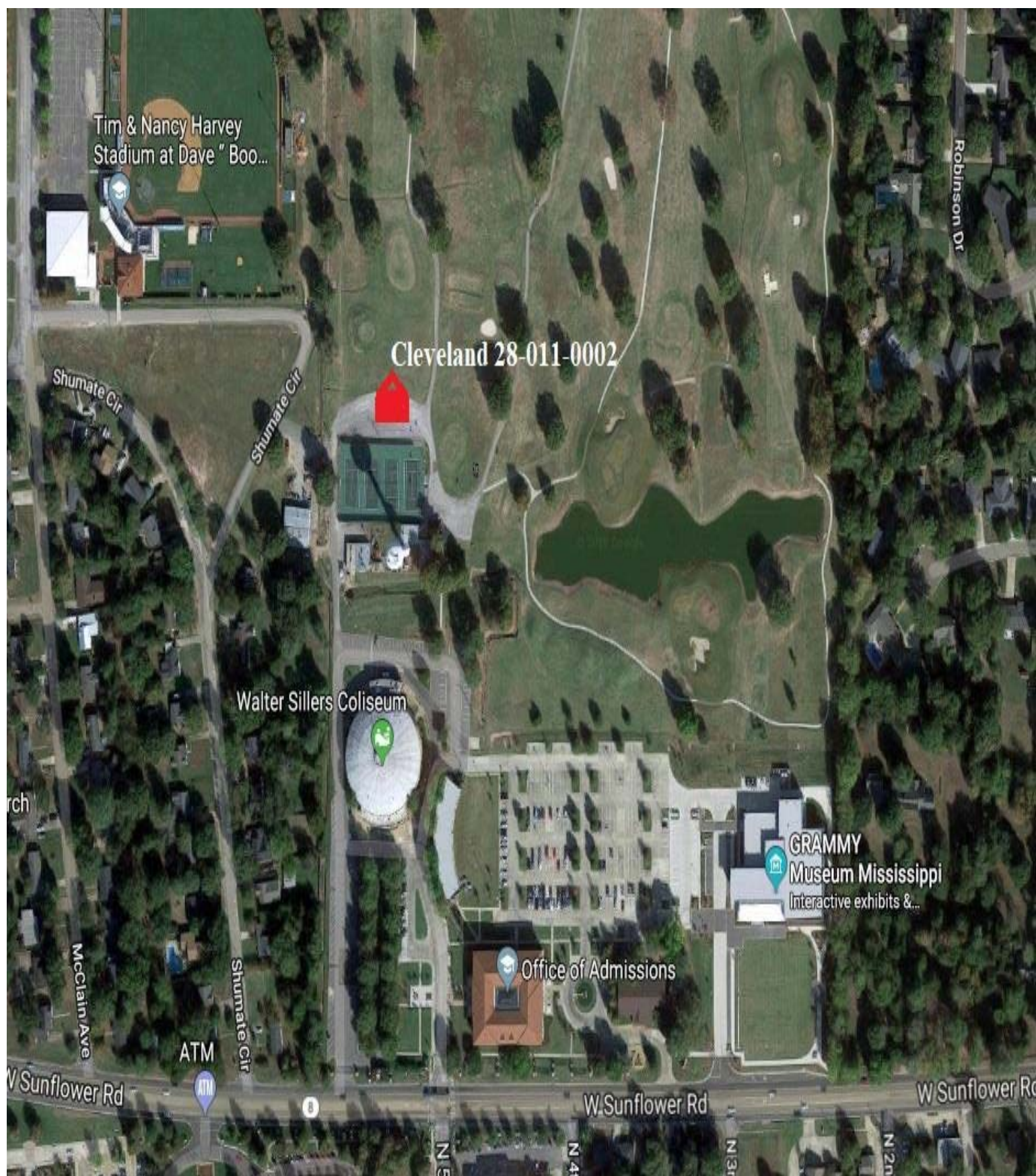
Cleveland- West



Cleveland 28-011-0002











Hernando- North



Hernando- South



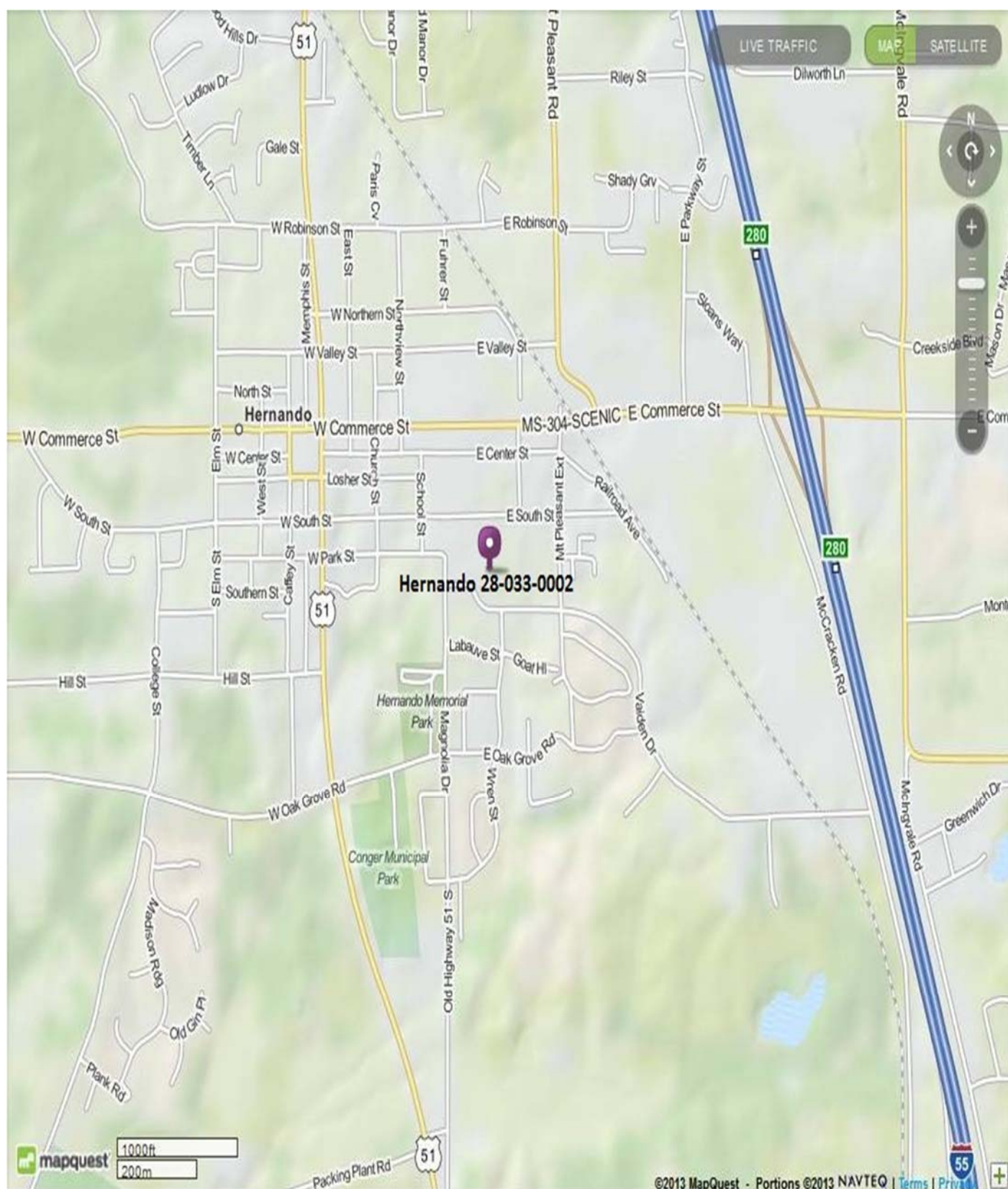
Hernando- East



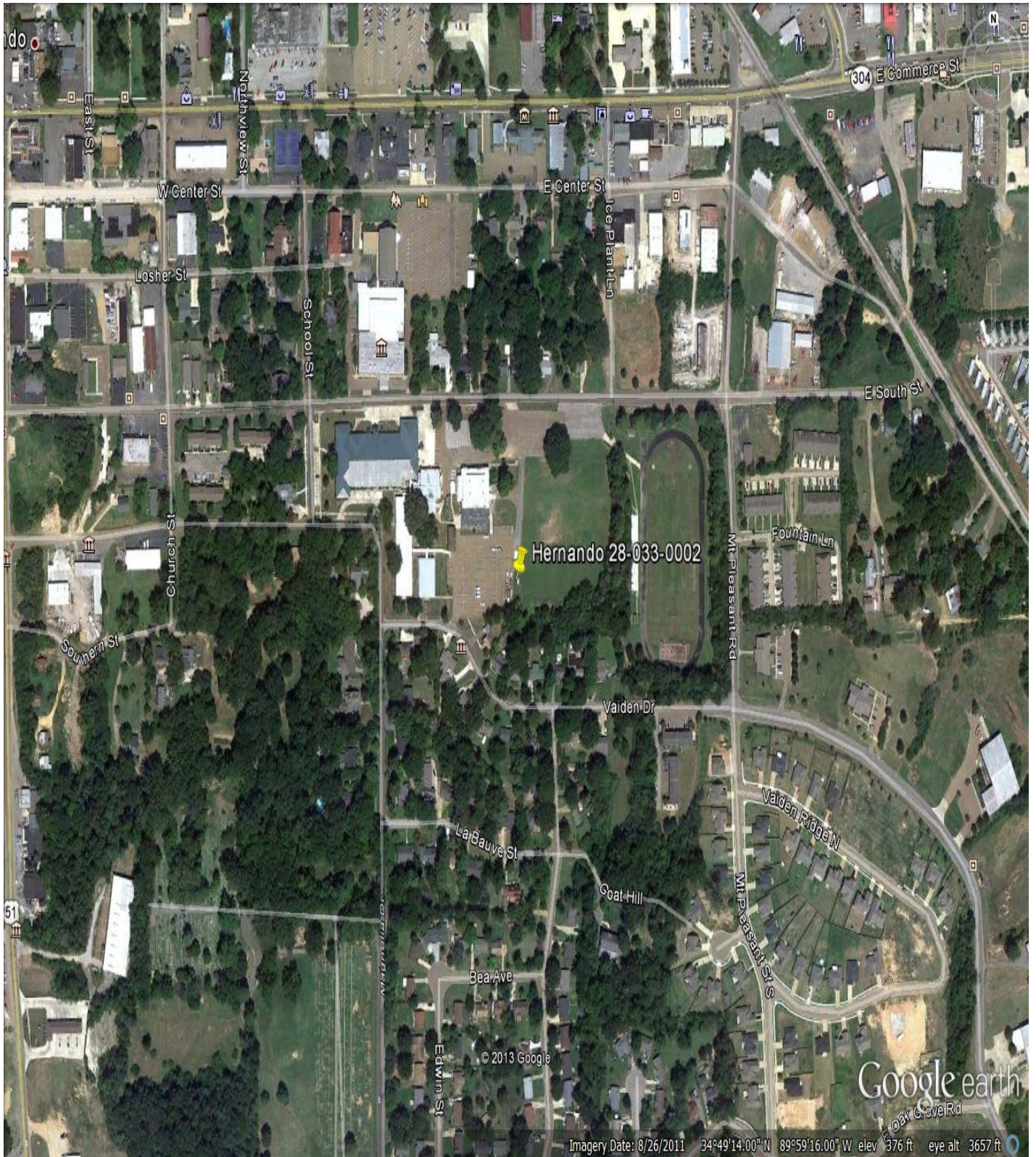
Hernando- West



Hernando 28-033-0002











Tupelo-North



Tupelo-South



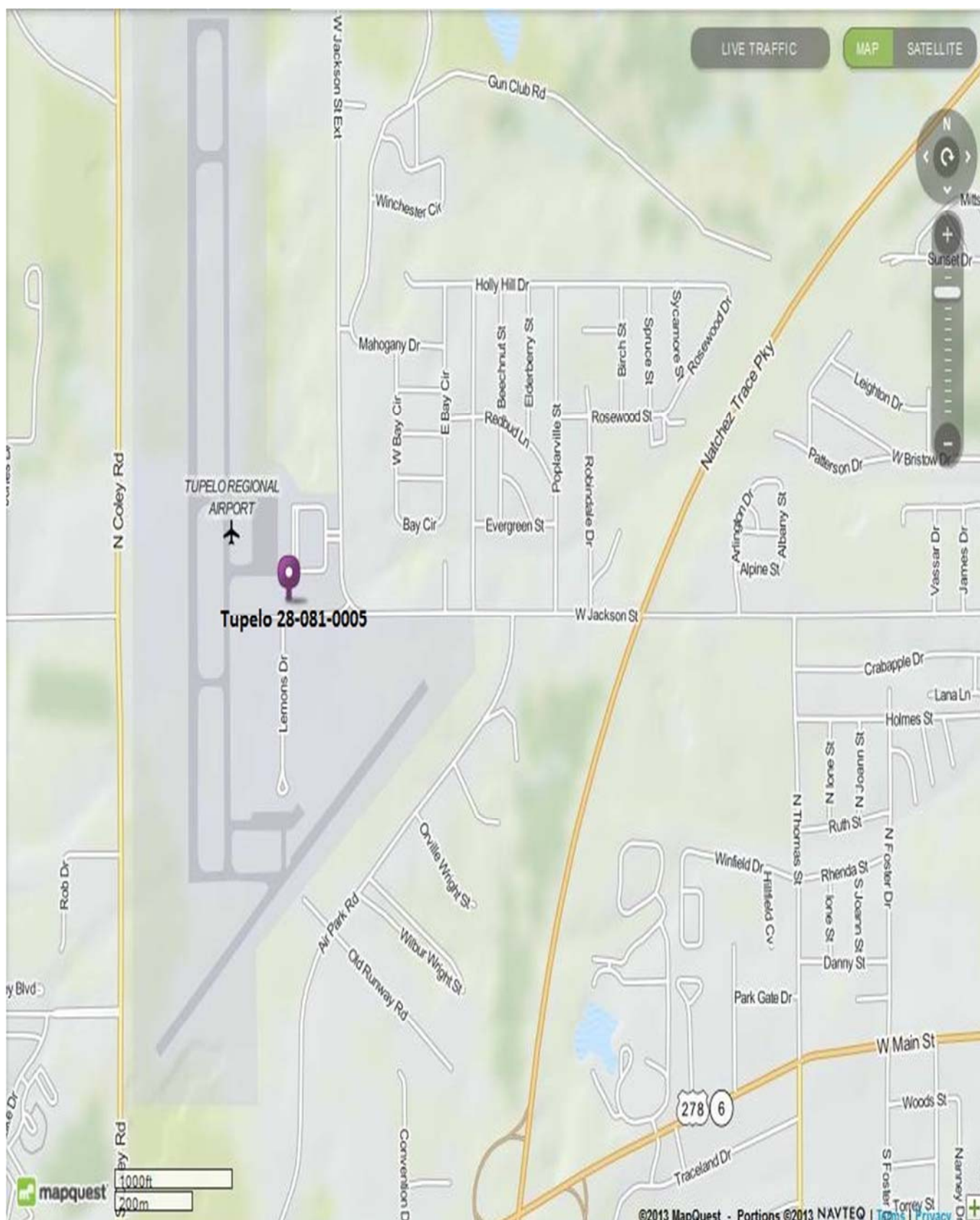
Tupelo-East



Tupelo-West



Tupelo 28-081-0005











Meridian- North



Meridian- South



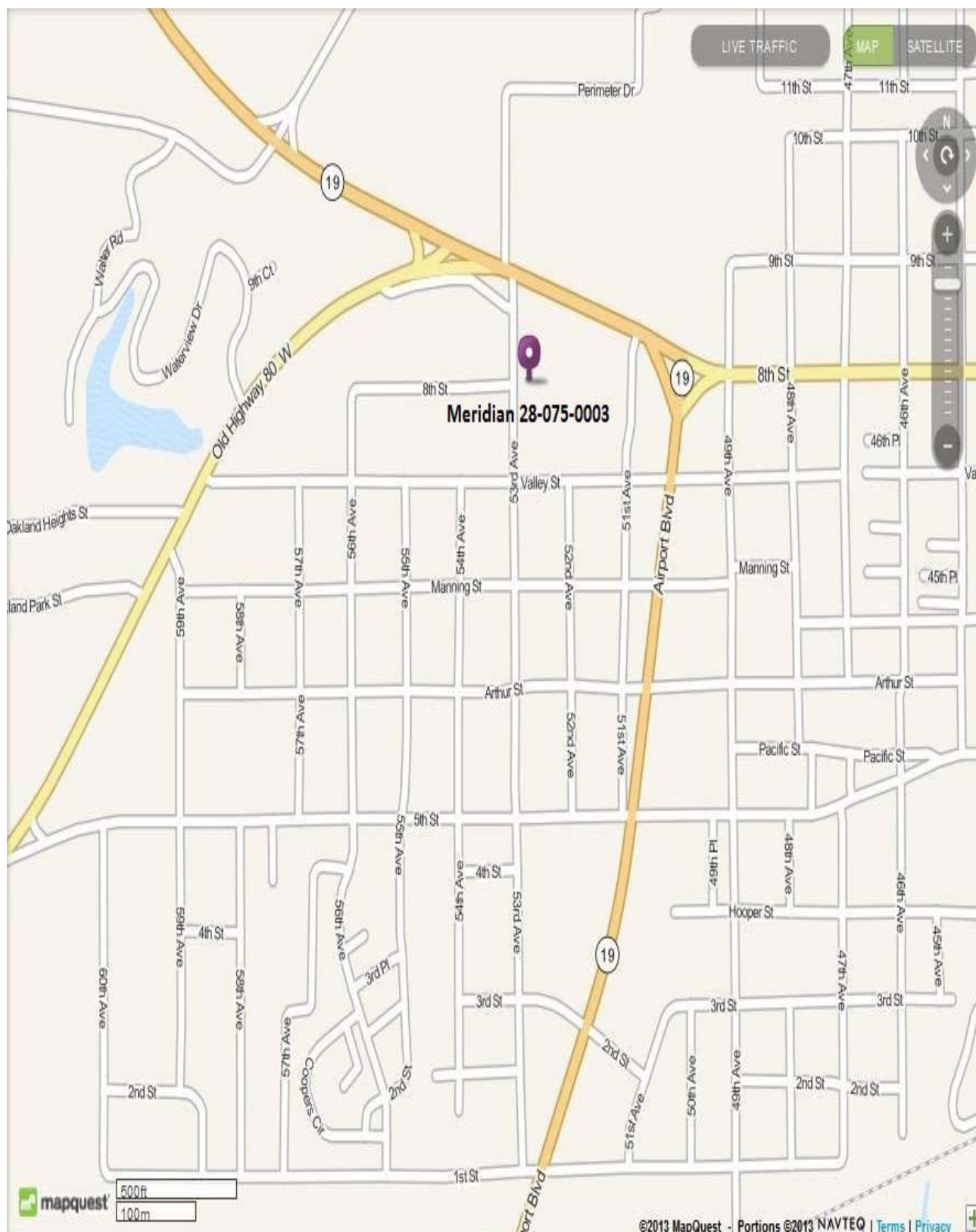
Meridian- East



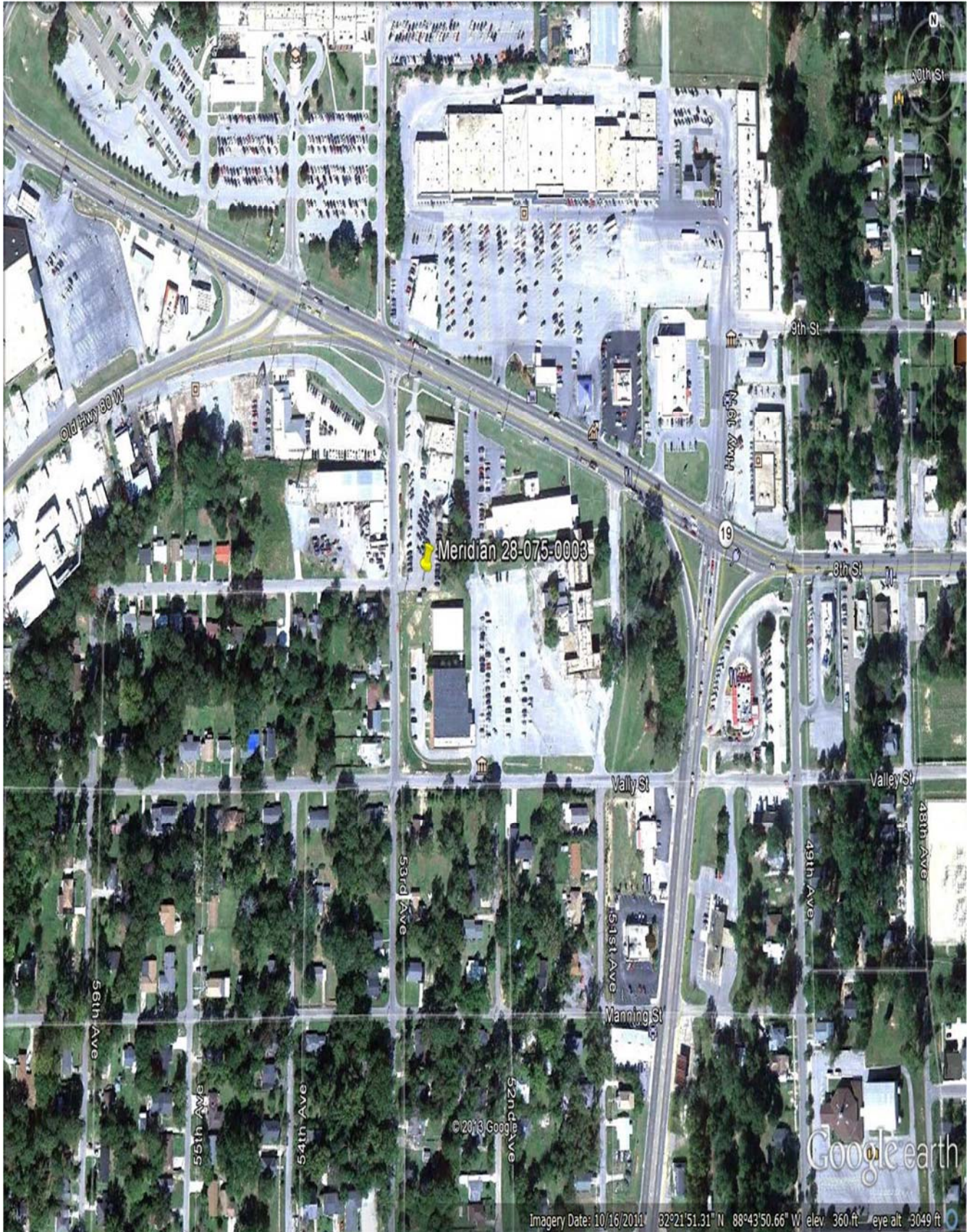
Meridian- West



Meridian 28-075-0003











NCore- North



NCore- South



NCore- East

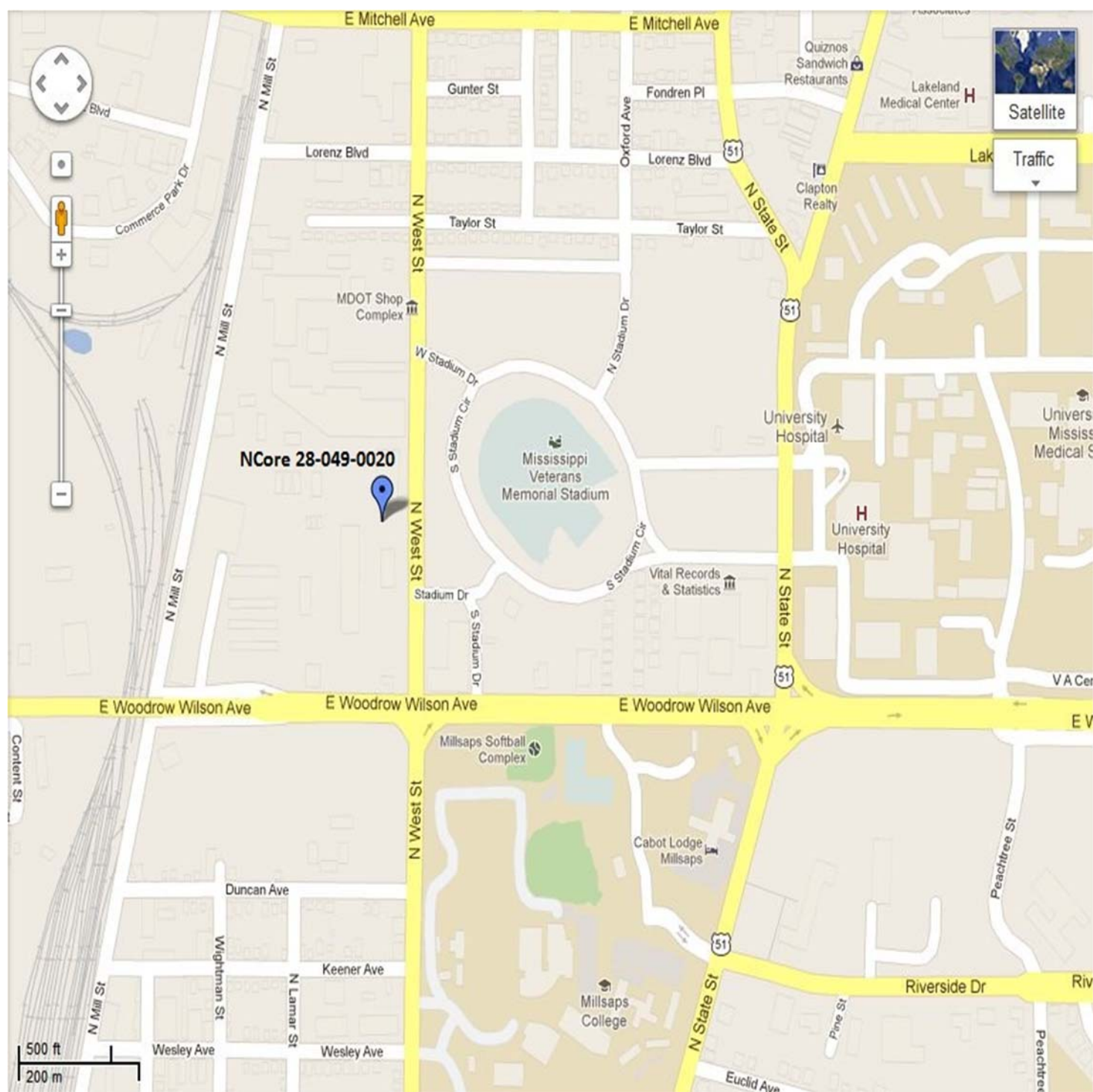


NCore- West

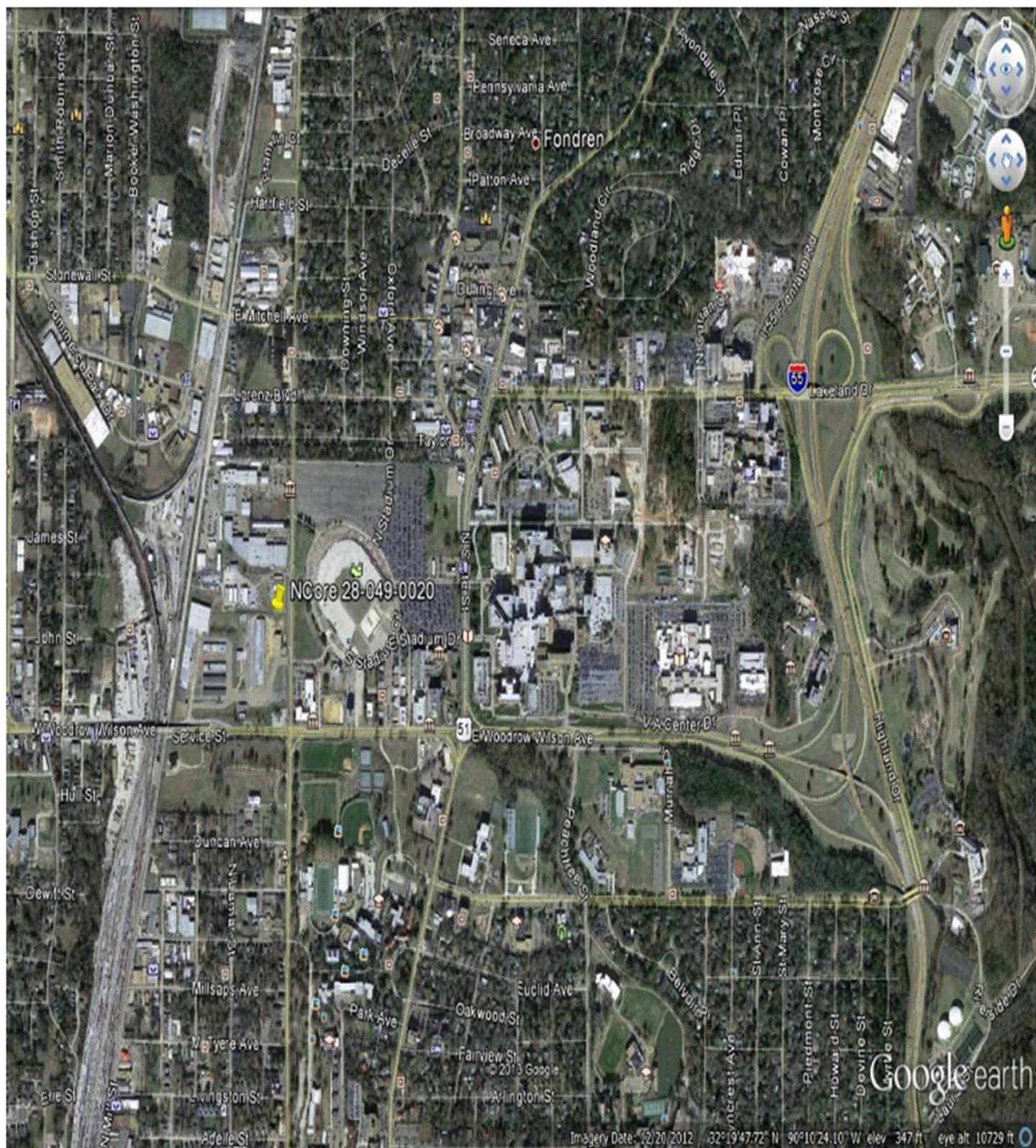


Jackson NCore 28-049-0020













Hinds CC- North



Hinds CC- South



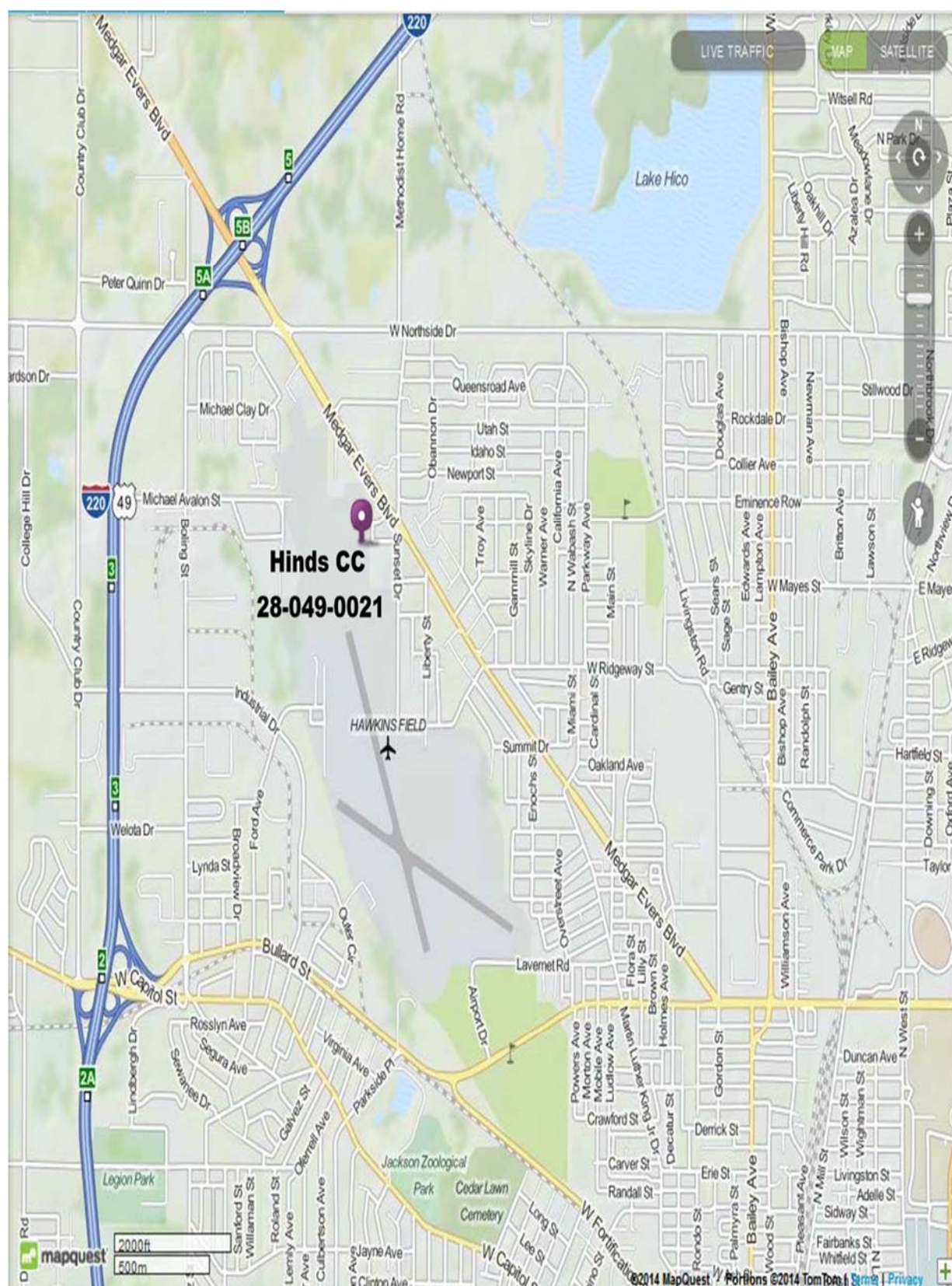
Hinds CC- East



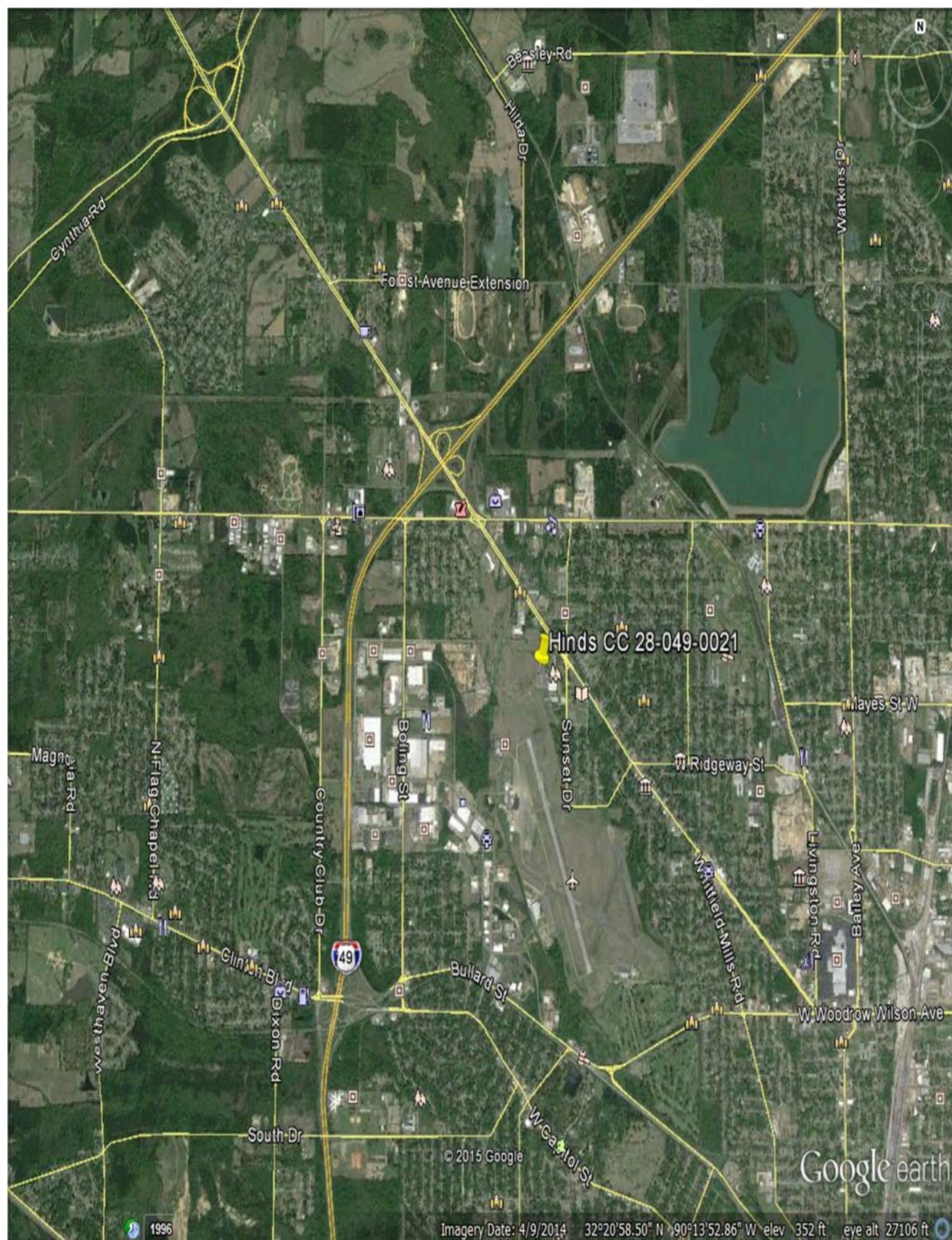
Hinds CC- West



Hinds CC 28-049-0021











Gulfport- North



Gulfport- South



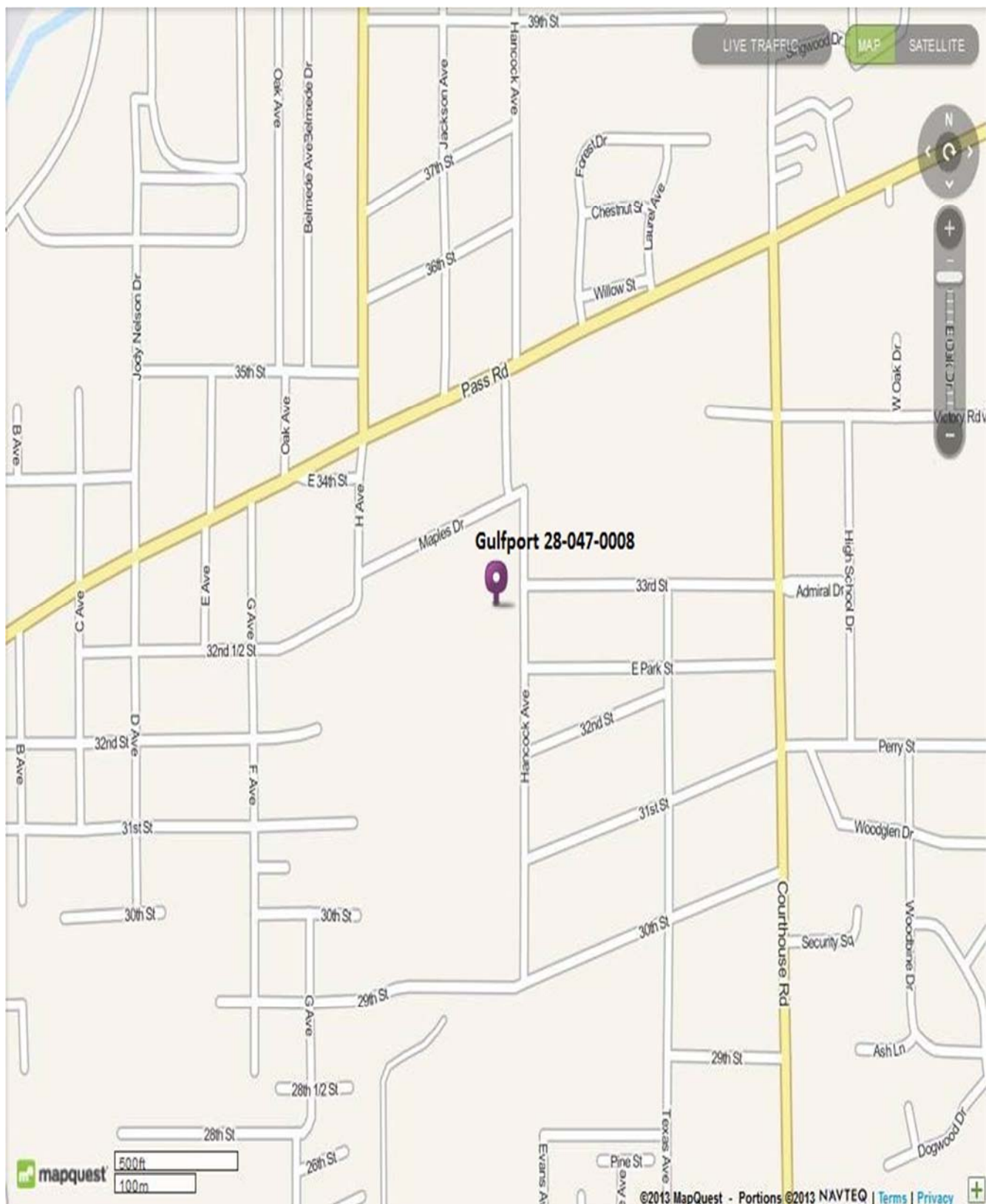
Gulfport- East



Gulfport- West



Gulfport 28-047-0008











Waveland-North



Waveland-South



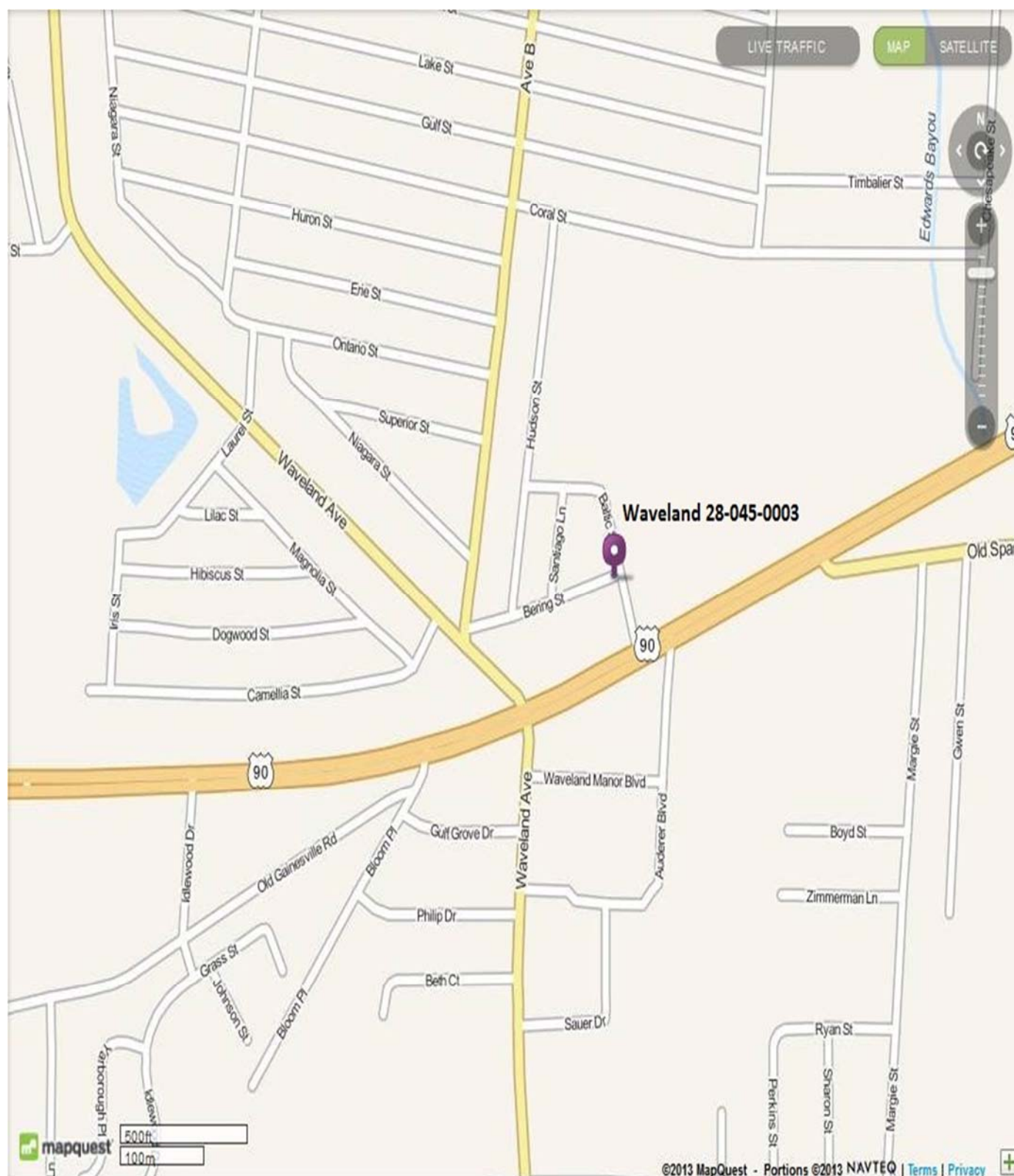
Waveland- East



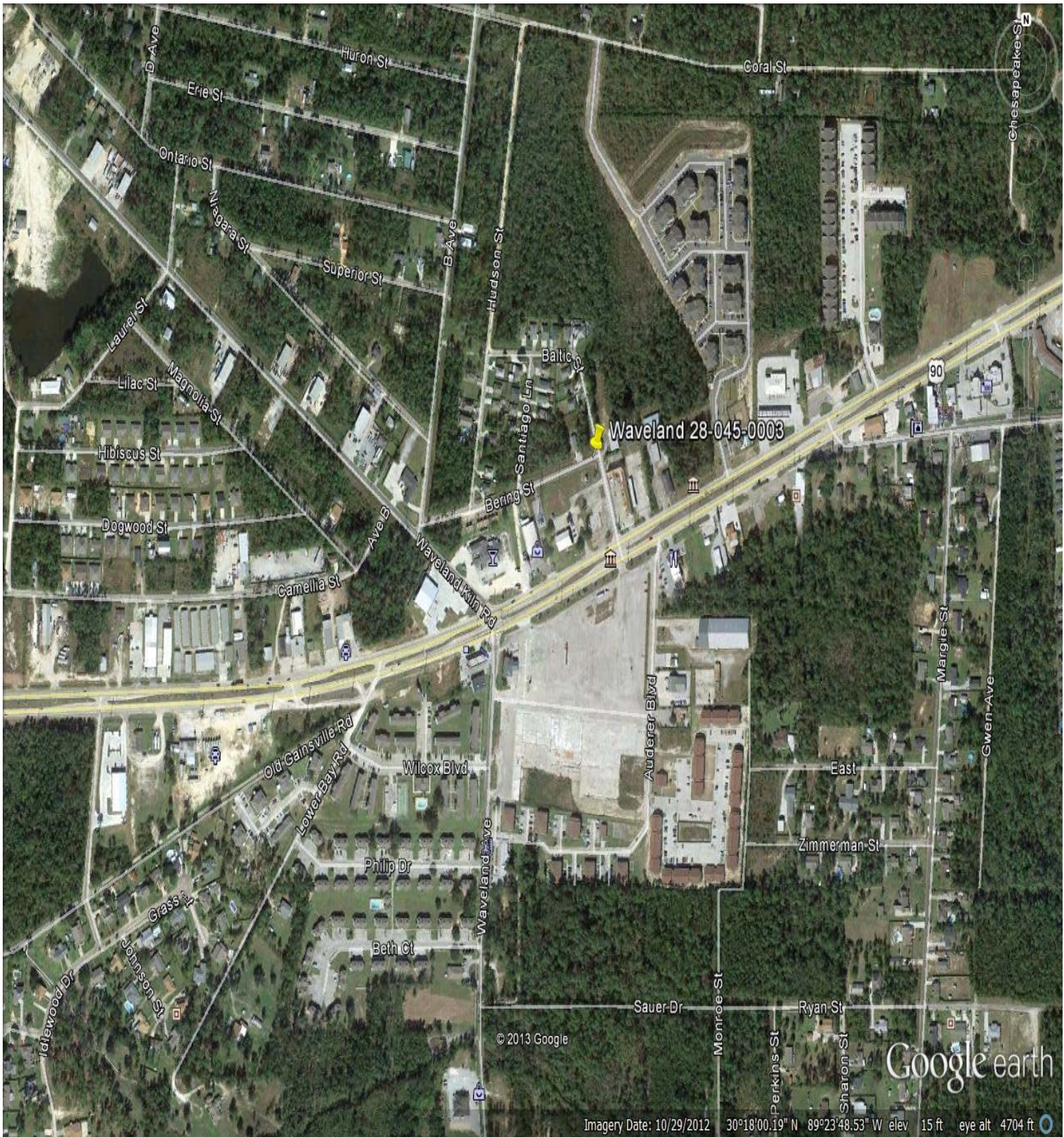
Waveland- West



Waveland 28-045-0003











Pascagoula- North



Pascagoula- South



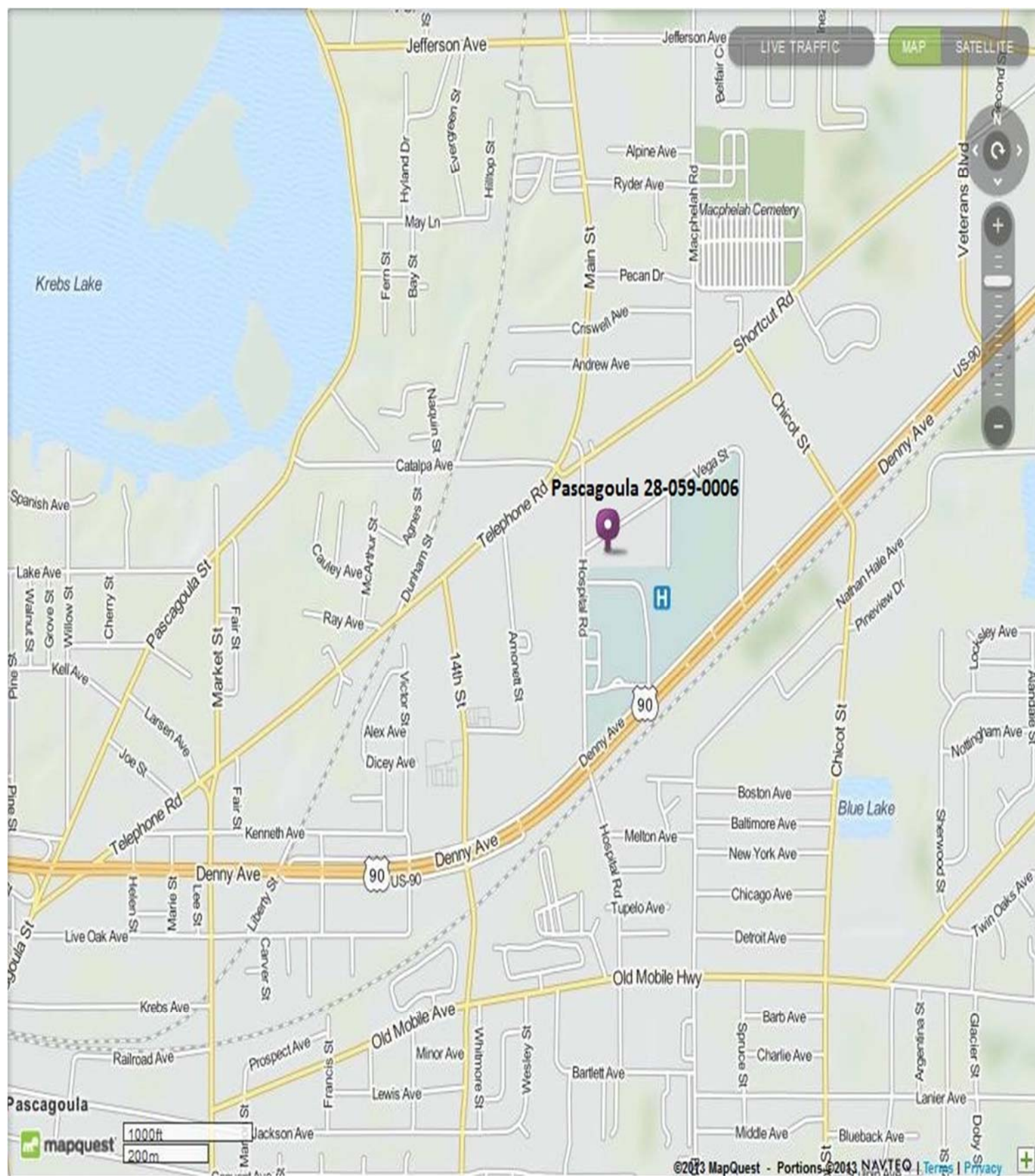
Pascagoula- East



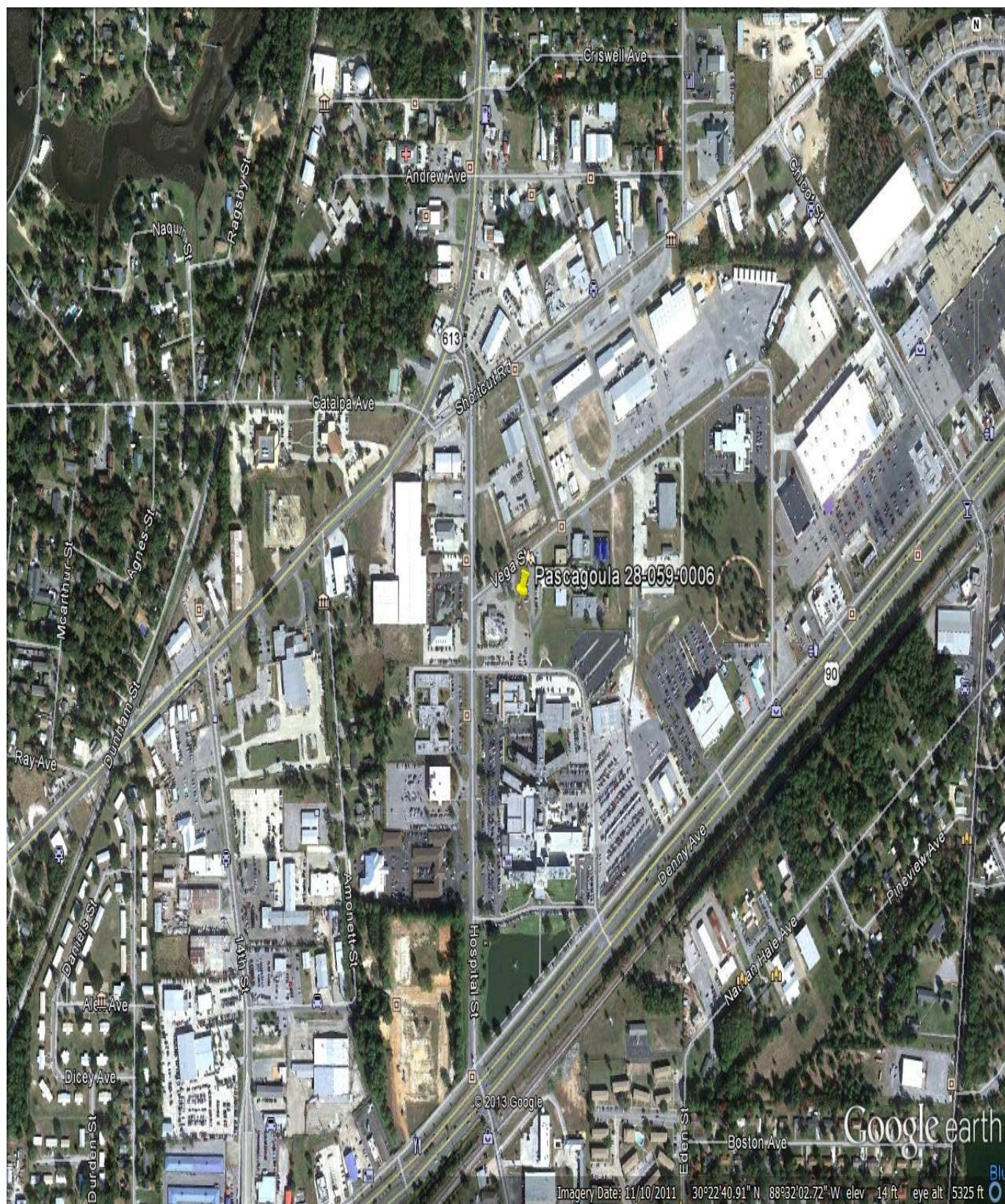
Pascagoula- West



Pascagoula 28-059-0006











Hattiesburg- North



Hattiesburg- South



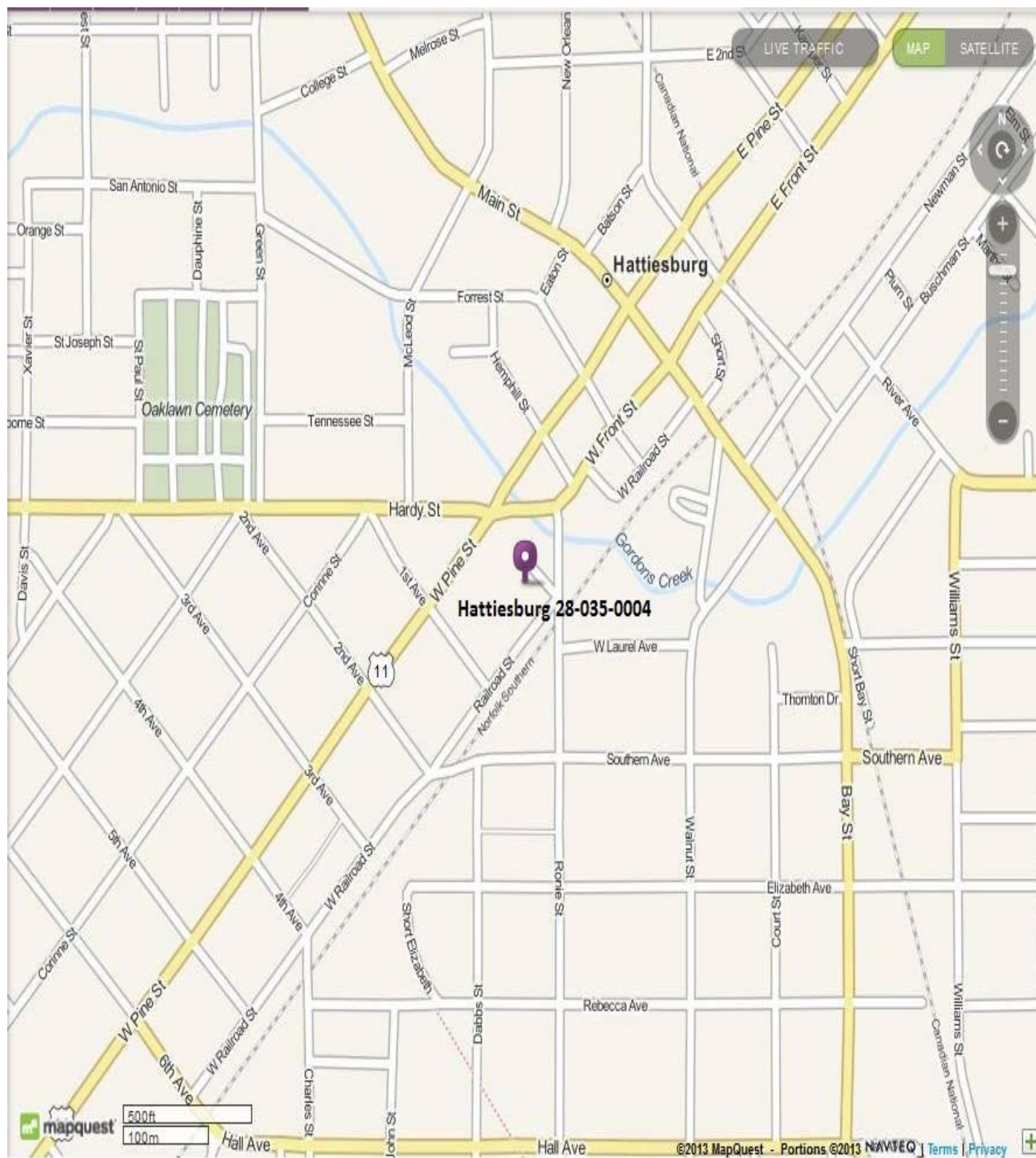
Hattiesburg- East



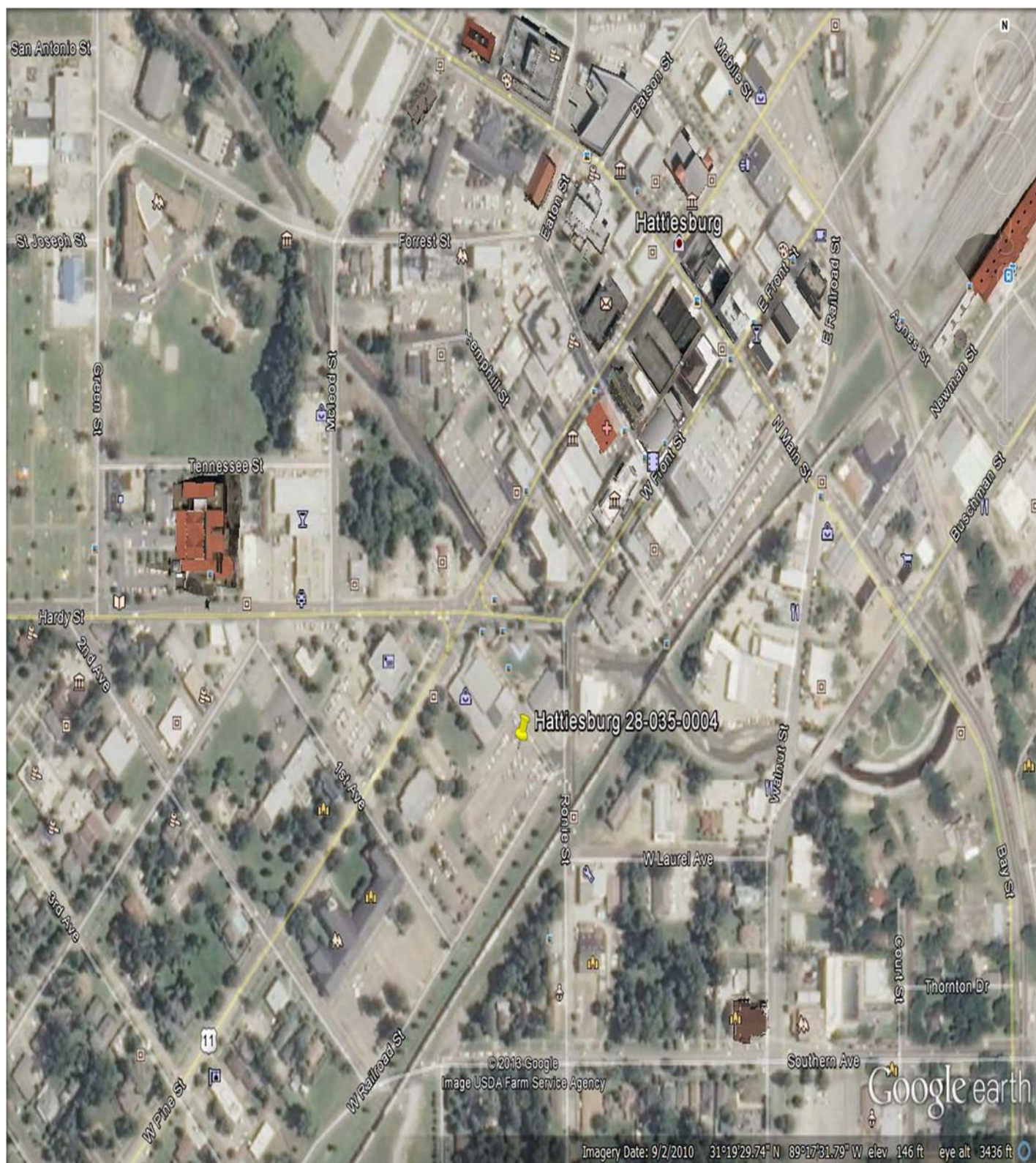
Hattiesburg- West



Hattiesburg 28-035-0004







## US Census information

# Annual Estimates of the Resident Population for Metropolitan Statistical Areas in the United States and Puerto Rico: April 1, 2010 to July 1, 2019

Geographic Area	April 1, 2010		Population Estimate (as of July 1)									
	Census	Estimates Base	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>United States</b>	<b>308,745,538</b>	<b>308,758,105</b>	<b>309,321,666</b>	<b>311,556,874</b>	<b>313,830,990</b>	<b>315,993,715</b>	<b>318,301,008</b>	<b>320,635,163</b>	<b>322,941,311</b>	<b>324,985,539</b>	<b>326,687,501</b>	<b>328,239,523</b>
<b>In Metropolitan Statistical Area</b>	<b>263,096,669</b>	<b>263,107,172</b>	<b>263,659,728</b>	<b>265,915,286</b>	<b>268,257,389</b>	<b>270,477,083</b>	<b>272,833,441</b>	<b>275,213,195</b>	<b>277,549,076</b>	<b>279,600,181</b>	<b>281,282,516</b>	<b>282,828,515</b>
Gulfport-Biloxi-Pascagoula, MS Metro Area	388,488	388,591	389,324	393,744	396,803	399,940	403,841	406,604	408,865	412,754	414,686	417,665
Hattiesburg, MS Metro Area	162,410	162,418	162,856	164,801	165,994	166,971	167,179	167,873	168,158	167,719	168,292	168,849
Jackson, MS Metro Area	586,320	587,115	588,272	593,409	595,585	596,325	597,357	597,928	599,170	599,358	597,376	594,806
Memphis, TN-MS-AR Metro Area	1,316,100	1,316,102	1,317,489	1,323,741	1,331,396	1,332,114	1,333,432	1,334,790	1,336,204	1,338,582	1,342,497	1,346,045

Note: The estimates are based on the 2010 Census and reflect changes to the April 1, 2010 population due to the Count Question Resolution program and geographic program revisions. All geographic boundaries for the 2019 population estimates series except statistical area delineations are as of January 1, 2019. The Office of Management and Budget's statistical area delineations for metropolitan, micropolitan, and combined statistical areas, as well as metropolitan divisions, are those issued by that agency in September 2018. For population estimates methodology statements, see <http://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>.

## Suggested Citation:

Annual Estimates of the Resident Population for Metropolitan Statistical Areas in the United States and Puerto Rico: April 1, 2010 to July 1, 2019 (CBSA-MET-EST2019-ANNRES)

Source: U.S. Census Bureau, Population Division

Release Date: March 2020

# Annual Estimates of the Resident Population for Combined Statistical Areas in the United States and Puerto Rico: April 1, 2010 to July 1, 2019

Geographic Area	April 1, 2010		Population Estimate (as of July 1)									
	Census	Estimates Base	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>United States</b>	<b>308,745,538</b>	<b>308,758,105</b>	<b>309,321,666</b>	<b>311,556,874</b>	<b>313,830,990</b>	<b>315,993,715</b>	<b>318,301,008</b>	<b>320,635,163</b>	<b>322,941,311</b>	<b>324,985,539</b>	<b>326,687,501</b>	<b>328,239,523</b>
Cleveland-Indianola, MS CSA	63,595	63,536	63,087	62,328	62,404	61,885	61,223	60,107	59,042	57,860	57,326	55,738
Columbus-West Point, MS CSA	80,413	80,427	80,356	80,111	80,001	80,158	79,950	79,702	79,403	78,768	78,164	77,911
Hattiesburg-Laurel, MS CSA	247,233	247,259	247,683	249,590	250,977	252,421	252,111	253,056	253,219	252,657	252,913	253,330
Jackson-Vicksburg-Brookhaven, MS CSA	669,962	670,751	672,002	676,598	678,646	679,339	680,031	679,931	680,503	680,380	677,679	674,340
Memphis-Forrest City, TN-MS-AR CSA	1,344,358	1,344,355	1,345,683	1,351,735	1,359,388	1,359,622	1,360,520	1,361,441	1,362,551	1,364,579	1,368,006	1,371,039
Tupelo-Corinth, MS CSA	198,601	198,593	198,678	199,716	200,955	201,758	201,602	201,856	202,374	202,659	202,516	203,079

Note: The estimates are based on the 2010 Census and reflect changes to the April 1, 2010 population due to the Count Question Resolution program and geographic program revisions. All geographic boundaries for the 2019 population estimates series except statistical area delineations are as of January 1, 2019. The Office of Management and Budget's statistical area delineations for metropolitan, micropolitan, and combined statistical areas, as well as metropolitan divisions, are those issued by that agency in September 2018. For population estimates methodology statements, see <http://www.census.gov/programs-surveys/popest/technical-documentation/methodology.html>.

## Suggested Citation:

Annual Estimates of the Resident Population for Combined Statistical Areas in the United States and Puerto Rico: April 1, 2010 to July 1, 2019 (CSA-EST2019-ANNRES)

Source: U.S. Census Bureau, Population Division

Release Date: March 2020

## Regional Monitoring Agreement





LEE HARRIS  
MAYOR

## SHELBY COUNTY HEALTH DEPARTMENT

LASONYA HARRIS HALL, MPH, PHD  
INTERIM DIRECTOR

BRUCE RANDOLPH, MD, MPH  
HEALTH OFFICER



**Public Health**  
Prevent. Promote. Protect.

May 11<sup>th</sup>, 2021

Ms. Michelle Walker Owenby, Air Director  
Tennessee Department of Environment and Conservation  
Air Pollution Control Division  
William R. Snodgrass Tennessee Tower  
312 Rosa L. Parks Ave., 15<sup>th</sup> Floor  
Nashville, TN 37243-1531

Ms. Melissa Fortenberry, Air Division Chief  
Mississippi Department of Environmental Quality  
Office of Pollution Control, Air Division  
P.O. Box 2261  
Jackson, MS 39201

Mr. William K. Montgomery, Associate Director  
Arkansas Department of Environmental Quality  
Office of Air Quality  
5301 Northshore Dr.  
North Little Rock, AR 72118-5317

Dear All,

In accordance with the provisions of the Memorandum of Agreement (MOA) signed in May and June of 2008 between the Shelby County Health Department (SCHD), Mississippi Department of Environmental Quality (MDEQ) and the Arkansas Department of Environmental Quality (ADEQ), this letter serves as a notification that no changes have been made in our current network.

If your agencies do not have current changes to the Network or may be contemplating changes in the near future, please notify the respective agencies of your intentions.

If you have any questions, please call me at (901) 222-9599.

Sincerely,

Larry Smith, Acting Manager  
Pollution Control Section  
Shelby County Health Department

### Mission

*To promote, protect and improve the health and environment of all Shelby County residents.*

1826 Sycamore View Rd ♦ Memphis, TN 38134 ♦ 901 222-9000 ♦ [www.shelbytnhealth.com](http://www.shelbytnhealth.com)



**MEMORANDUM OF AGREEMENT  
ON AIR QUALITY MONITORING FOR CRITERIA  
POLLUTANTS FOR  
THE MEMPHIS, TN- MS- AR  
METROPOLITAN STATISTICAL AREA (MSA)**

Participating Agencies:

Shelby County Health Department (SCHD)  
Air Pollution Control Program

Mississippi Department of Environmental Quality (MDEQ)  
Office of Pollution Control, Air Division

Arkansas Department of Environmental Quality (ADEQ)

**PURPOSE / OBJECTIVE / GOALS**

The purpose of this Memorandum of Agreement (MOA) is to inform the entities of the Memphis, Tennessee-Mississippi-Arkansas Metropolitan Statistical Area of monitoring network changes. The MOA between SCHD, MDEQ, and ADEQ is to collectively meet United States Environmental Protection Agency (EPA) minimum monitoring requirements for particles of an aerodynamic diameter of 10 micrometers and less ( $PM_{10}$ ), particles of an aerodynamic diameter of 2.5 micrometers and less ( $PM_{2.5}$ ), and ozone; as well as other criteria pollutants air quality monitoring deemed necessary to meet the needs of the MSA as determined reasonable by all parties. This MOA will formalize and reaffirm the collective agreement in order to provide adequate criteria pollutant monitoring for the Memphis, TN-MS-AR MSA as required by 40 CFR 58 Appendix D, Section 2, (e).

PM 2.5 MSA monitoring network include:

<u>County</u>	<u>Federal Referenced Method PM<sub>2.5</sub></u>	<u>Continuous PM<sub>2.5</sub></u>	<u>Speciation PM<sub>2.5</sub></u>	<u>Collocated PM<sub>2.5</sub></u>
Shelby County, TN <b>SCHD</b>	T640x at NCore with collocated FRM 1 FRM at Alabama Ave. (collocated) and 1 FRM at Near Road	1	1	2
Crittenden County, AR <b>ADEQ</b>	1	1		
DeSoto County, MS <b>MDEQ</b>		1		

Criteria Air Pollutant MSA monitoring network include:

<u>County</u>	<u>PM<sub>10</sub></u>	<u>O<sub>3</sub></u>	<u>NO<sub>x</sub>/NO/NO<sub>2</sub></u>	<u>CO</u>	<u>SO<sub>2</sub></u>
Shelby County, TN <b>SCHD</b>	2 (TEOM at Alabama Ave. and T640x at NCore)	3	1 (includes 1 at the Near Road Station)	2 (includes 1 trace at NCore and 1 trace at the Near Road Station)	1 (trace at NCore)
Crittenden County, AR <b>ADEQ</b>		1	1		
DeSoto County, MS <b>MDEQ</b>		1			

### **RESPONSIBILITIES / ACTIONS**

Each of the parties to this Agreement is responsible for ensuring that its obligations under the MOA are met. As conditions warrant, the affected agencies may conduct telephone conference calls, meetings, or other communications to discuss monitoring activities for the MSA. Each affected agency shall inform the other affected agencies via telephone or email of any monitoring changes occurring within its jurisdiction of the MSA at its earliest convenience, after learning of the need for the change or making the changes. Such unforeseen changes may include evictions from monitoring sites, destruction of monitoring sites due to natural disasters, or any occurrences that result in an extended (greater than one quarter) or permanent change in the monitoring network.

### **LIMITATIONS**

- All commitments made in this MOA are subject to the availability of appropriated funds and each agency's budget priorities. Nothing in this MOA obligates SCHD, MDEQ, or ADEQ to expend appropriations or to enter into any contract, assistance agreement, interagency agreement or other financial obligation.
- This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between parties to this agreement will be handled in accordance with applicable laws, regulations, and procedures, and will be subject to separate agreements that will be affected in writing by representatives of the parties.
- This MOA does not create any right or benefit enforceable by law or equity against SCHD, MDEQ, or ADEQ, their officers or employees, or any other person. This MOA does not apply to any entity outside SCHD, MDEQ, or ADEQ.
- No proprietary information or intellectual property is anticipated to arise out of this MOA.

### **TERMINATION**

This Memorandum of Agreement may be revised upon the mutual consent of SCHD, MDEQ and ADEQ. Each party reserves the right to terminate this MOA. A thirty (30) day written notice must be given prior to the date of termination.



## Equipment List

Inventory Number	Item	Manufacturer	Type	Serial Number	Condition	Purchase Date
			<b>OZONE</b>			
89589	OZONE ANALYZER	API	400E	159	Poor	6/1/2003
90740	OZONE ANALYZER	API	400E	1098	Fair	9/1/2006
90741	OZONE ANALYZER	API	400E	1099	Fair	9/1/2006
90742	OZONE ANALYZER	API	400E	1100	Fair	9/1/2006
90743	OZONE ANALYZER	API	400E	1101	Fair	9/1/2006
91211	OZONE ANALYZER	API	400E	1563	Fair	12/31/2007
91212	OZONE ANALYZER	API	400E	1098	Fair	9/1/2006
92174	OZONE ANALYZER	API	T400	131	Good	6/14/2011
92175	OZONE ANALYZER	API	T400	132	Good	6/14/2011
93180	OZONE ANALYZER	API	T400	1858	Good	6/17/2015
93181	OZONE ANALYZER	API	T400	1857	Good	6/17/2015
93182	OZONE ANALYZER	API	T400	1856	Good	6/17/2015
93493	OZONE ANALYZER	API	T400	3304	Good	6/16/2017
93494	OZONE ANALYZER	API	T400	3305	Good	6/16/2017
93495	OZONE ANALYZER	API	T400	3306	Good	6/16/2017
93846	OZONE ANALYZER	API	T400	4206	Good	8/20/2018
93847	OZONE ANALYZER	API	T400	4207	Good	8/20/2018
			<b>SO2</b>			
90923	SO2 ANALYZER	API	100E	68	Poor	6/1/2007
92019	SO2 ANALYZER	API	100EU	128	Good	6/15/2010
93620	SO2 ANALYZER	API	T100U	279	Good	7/12/2017
93621	SO2 ANALYZER	API	T100U	280	Good	7/12/2017
			<b>NOy/NO2/NOx/NO</b>			



-	NOx ANALYZER	API	200E	93	Poor	-
90598	NOx ANALYZER	API	200E	52	Poor	2/1/2006
92020	NOx ANALYZER	API	200E	3523	Poor	6/15/2010
92990	NOx ANALYZER	API	T200	1655	Fair	10/31/2014
93194	NOy ANALYZER	API	T200U	235	Good	10/21/2015
			<b>CO</b>			
93615	CO ANALYZER	API	T300U	379	Good	6/22/2017
			<b>PARTICULATE SAMPLERS</b>			
91054	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B220020708	Fair	9/14/2007
91055	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B220030708	Fair	9/14/2007
91056	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B220040708	Fair	9/14/2007
91057	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B220050708	Fair	9/14/2007
91142	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B22026	Fair	11/14/2007
91143	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B2202679	Fair	11/14/2007
91144	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B220270709	Fair	11/14/2007
91794	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B225390905	Good	6/12/2009
92143	SEQUENTIAL AIR SAMPLER	Thermo	2025	2025B227831104	Good	4/15/2011
92144	SEQUENTIAL AIR SAMPLER	R&P	2025	2025B227481104	Good	4/15/2011
93390	CONTINUOUS PARTICULATE SAMPLER	API	T640	105	Good	1/20/2017
93391	CONTINUOUS PARTICULATE SAMPLER	API	T640	111	Good	1/20/2017
93392	CONTINUOUS PARTICULATE SAMPLER	API	T640	107	Good	1/20/2017
93393	CONTINUOUS PARTICULATE SAMPLER	API	T640	108	Good	1/20/2017
93394	CONTINUOUS PARTICULATE SAMPLER	API	T640	110	Good	1/20/2017
93395	CONTINUOUS PARTICULATE SAMPLER	API	T640	109	Good	1/20/2017
93396	CONTINUOUS PARTICULATE SAMPLER	API	T640	106	Good	1/20/2017
93397	CONTINUOUS PARTICULATE SAMPLER	API	T640	104	Good	1/20/2017

93808	CONTINUOUS PARTICULATE SAMPLER	API	T640	60-S	Good	Jun-18
93676	CONTINUOUS PARTICULATE SAMPLER	API	T640X	286	Good	12/11/2017
-	CONTINUOUS PARTICULATE SAMPLER	API	T640X	-	Good	2020
			<b>FLOW DEVICES</b>			
91596	FLOW METER	BIOS	220-H	114705	Good	8/14/2008
91790	FLOW METER	BGI	Deltacal	781	Good	6/12/2009
92105	FLOW METER	BIOS	220-L	120907	Good	3/15/2011
92220	FLOW METER	BGI	Deltacal	1052	Good	9/15/2011
93370	FLOW METER	BIOS	220-H	151292	Good	9/27/2016
93371	FLOW METER	BIOS	220-L	146603	Good	9/27/2016
93652	FLOW METER	BGI	Tetracal	156675	Good	10/24/2017
93674	FLOW METER	BGI	Deltacal	158052	Good	1/9/2018
N/A	FLOW METER	BGI	Tetracal	600	Good	10/31/2009
N/A	FLOW METER	BGI	Tetracal	603	Good	10/31/2009
94036	FLOW METER	Alicat	Whisper	-	Good	1-22-2020
94037	FLOW METER	Alicat	Whisper	208694	Good	1-22-2020
			<b>DATA LOGGERS</b>			
91050	DATA LOGGER	ESC	8832	A2059	Good	9/14/2007
91051	DATA LOGGER	ESC	8832	A2058	Good	9/14/2007
91134	DATA LOGGER	ESC	8832	A2020	Good	11/14/2007
91135	DATA LOGGER	ESC	8832	A2021	Good	11/14/2007
91136	DATA LOGGER	ESC	8832	A2040	Good	11/14/2007
91137	DATA LOGGER	ESC	8832	A2041	Good	11/14/2007
91788	DATA LOGGER	ESC	8832	A3222K	Good	6/12/2009
91789	DATA LOGGER	ESC	8832	A3223K	Good	-
92942	DATA LOGGER	ESC	8832	A4838K	Good	-
92943	DATA LOGGER	ESC	8832	A4837K	Good	-
92944	DATA LOGGER	ESC	8832	A4836K	Good	-



92945	DATA LOGGER	ESC	8832	A4839K	Good	-
92949	DATA LOGGER	ESC	8832	4838	Good	-
94072	DATA LOGGER	Agilaire	8872	0923	Good	7-24-2019
94077	DATA LOGGER	Agilaire	8872	0924	Good	7-24-2019
94078	DATA LOGGER	Agilaire	8872	0925	Good	7-24-201
-	DATA LOGGER	Agilaire	8872	-	Good	2020
-	DATA LOGGER	Agilaire	8872	-	Good	2020
-	DATA LOGGER	Agilaire	8872	-	Good	2020
			<b>CALIBRATORS</b>			
88441	CALIBRATOR	API	700	740	Fair	7/1/2001
90599	CALIBRATOR	API	700	1278	Fair	2/1/2006
92084	CALIBRATOR	API	T700U	55	Good	-
92849	CALIBRATOR	API	T700U	167	Good	-
92850	CALIBRATOR	API	T700	814	Good	-
93385	CALIBRATOR	API	T703U	122	Good	12/27/2017
93386	CALIBRATOR	API	T703U	123	Good	12/27/2017
93387	CALIBRATOR	API	T703U	3010	Good	12/30/2016
93490	CALIBRATOR	API	T703U	180	Good	6/17/2017
93491	CALIBRATOR	API	T703U	181	Good	6/17/2017
93492	CALIBRATOR	API	T703U	182	Good	6/17/2017
93656	CALIBRATOR	API	T703U	190	Good	11/17/2017
93675	CALIBRATOR	API	T703U	194	Good	12/5/2017
93677	CALIBRATOR	API	T700	3732	Good	1/8/2018
93852	CALIBRATOR	API	T703U	230	Good	Aug-18
93853	CALIBRATOR	API	T703U	231	Good	Aug-18
			<b>ZERO AIR UNITS</b>			
No Inv #	ZERO AIR UNIT	API	701	1365	Fair	-

No Inv #	ZERO AIR UNIT	API	701	1875	Fair	-
83371	ZERO AIR UNIT	Sabio	2020	5930537	Fair	5/1/1993
89694	ZERO AIR UNIT	Sabio	2020	2440703	Fair	8/1/2003
91623	ZERO AIR UNIT	API	701-H	2839	Good	12/12/2008
92435	ZERO AIR UNIT	Sabio	2020	-	Good	8/17/2012
92436	ZERO AIR UNIT	Sabio	2020	-	Good	8/17/2012
92437	ZERO AIR UNIT	Sabio	2020	-	Good	8/17/2012
92486	ZERO AIR UNIT	Sabio	2020	-	Good	8/17/2012
92487	ZERO AIR UNIT	Sabio	2020	-	Good	8/17/2012
93388	ZERO AIR UNIT	API	701H	1653	Good	1/20/2017
93389	ZERO AIR UNIT	API	701H	1654	Good	1/20/2017
93496	ZERO AIR UNIT	API	701H	1684	Good	6/16/2017
93848	ZERO AIR UNIT	API	701H	1744	Good	8/1/2018
93849	ZERO AIR UNIT	API	701H	1745	Good	8/1/2018
93916	ZERO AIR UNIT	API	701	1611	Good	2/1/2019
93917	ZERO AIR UNIT	API	701	1610	Good	2/1/2019
93915	ZERO AIR UNIT	API	701	1609	Good	2/1/2019
			<b>MDEQ 2022 EQUIPMENT LIST</b>			
Inventory Number	Item	Manufacturer	Type	Serial Number	Condition	Purchase Date
MISCELLANEOUS						
83364	STRIP CHART RECORDER	Cole Palmer	0555-000	10933	Fair	5/1/1993
83370	STRIP CHART RECORDER	Cole Palmer	0585-0000	10909	Fair	5/1/1993
89684	WEATHER STATION	-	-	C1735	Fair	5/1/2003
91632	WEATHER STATION	Auto Met	-	H10447	Good	1/15/2009
91633	WEATHER STATION	Metone	-	H10709	Good	1/15/2009
91634	WEATHER STATION	Metone	466A	H10448	Good	1/15/2009