MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Monitoring Network Review - 2010

INDEX

Monitoring Network Review - 2010:

I. Background:

Federal Regulations (40 CFR 58.10) require that State and Local Agencies operating ambient air quality monitoring networks shall review of their air quality monitoring networks 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 should be available for public comment. MDEQ's plan is available on the MDEQ website at http://www.deq.state.ms.us.

The annual network review specified in *40 CFR 58.10* contains the following elements that apply to each monitoring site:

- The 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 $PM_{2.5}$ NAAQS as described in part 58.30.
- The MSA, CBSA, 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.

II. Overview:

In the State of Mississippi the Mississippi Department of Environmental Quality 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 National Ambient Air Quality Standards, for public information such as EPA's AirNow data mapping web site, Air Quality Index reporting for public information, background data collection, spatial considerations and special projects. The AQI is currently reported as required for the Jackson Metro area and the Biloxi/Gulfport area, on the MDEQ web site at http://www.deq.state.ms.us under AQI. In addition all hourly ozone and PM continuous data is reported to the EPA Airnow site.

All site data is suitable for NAAQS comparisons per appendices A, C, D, and E. MDEQ's Quality Management Plan is current with an approval date of 4/23/09 while the Criteria Pollutants QAPP is dated 10/1/06.

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

Mississippi MSA	Pop Est. as of 7/2009
Memphis	1,304,926
Jackson	540,866
Hattiesburg	143,093
Gulfport – Biloxi	238,772
Pascagoula	155,603

Mississippi CBSA	Pop Est. as of 7/2009
Jackson-Yazoo	568,847
Gulfport-Biloxi-Pascagoula	394,375

There is also a new type of monitoring site known as **NCore** (National core monitoring site) which is designed to provide long term pollutant data. These sites will monitor for all pollutant parameters as well as meteorological parameters. The NCore multi-pollutant sites provide support to integrated air quality management data needs. Each state is required to operate one Ncore site. There will also be a few rural sites in addition to the required sites. Mississippi has one Ncore site located in the Jackson metro area.

III. 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 CFR parts 53 and 58 documents, census data and maps. All monitors operated by MDEQ are SLAMS with the exception of one SO2 and one NOx analyzer located in Jackson County at the Pascagoula site (28.059.0006). These monitors are special purpose (SPM), operated for MDEQ purposes.

The following describes the purpose 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. A summary may be seen in the Network Design Tables in Section IV.

1. ***Memphis MSA:***

   - **Hernando** (DeSoto Co. 28.033.0002) - The $PM_{2.5}$ sampler is designated a transport sampler and therefore is a required sampler. The ozone monitor is also required and the design value exceeds 85% of the standard. MDEQ has a monitoring agreement with Memphis, TN, and AR to meet Appendix D requirements section 2, e. A copy is attached and is on file at Region 4.

2. ***Jackson MSA:***

   - **Jackson Ncore** (Hinds Co. 28.049.0019) – A separate Ncore section follows starting on page 12.

- **Jackson Metro** (Hinds Co. 28.049.0010) – The existing Fire Station site (28.049.0010) with an ozone monitor and $PM_{2.5}$ samplers will be relocated, as resources are available, to another location north of the core down town area once the Ncore site is fully operational as required in January of 2011. The $PM_{2.5}$ sampler and the ozone monitor are required for the MSA.

- **PM_{10} Sampling** – PM_{10} sampling has been added in the Jackson metro area based on the sampling requirements for population in Appendix D. The PM_{10} samplers, both regular and collocated FRMs, are located at the Ncore site and are in operation. Beginning 01/10/11 raw collocated data will be entered into AQS.

- **Lead (Pb) Sampling** – Sampling for lead, based on the population requirement for the Jackson metro area, will be conducted at the Ncore site. The required start date is January 1, 2011. The samplers are currently in place.

3. ***Hattiesburg MSA:***

- **Hattiesburg** (Forrest Co. 28.035.0004) – The $PM_{2.5}$ sampler is required for the MSA and the design value exceeds 85% of the annual standard. A continuous sampler is also required and will be added. Permission to place a monitoring shelter on the site property has been received from the owners. This should be completed by the fall. This site will also meet the new ozone requirement for this MSA.

4. ***Gulfport-Biloxi MSA:***

- **Gulfport** (Harrison Co. 28.047.0008) – The $PM_{2.5}$ trends speciation sampler has been relocated to the Jackson Ncore site. The $PM_{2.5}$ sampler is needed based on population exposure. The ozone monitor design value exceeds 85% of the standard and thus is required.

- **Waveland** (Hancock Co. 28.045.0003) – The Waveland site in Hancock County consists of a $PM_{2.5}$ sampler, an ozone monitor and a met tower. It is in its second year of operation after restoration due to hurricane Katrina.

5. Pascagoula MSA:

- **Pascagoula** (Jackson Co. 28.059.0006) – The ozone monitor is needed for the MSA since it exceeds 85% of the design value. The $PM_{2.5}$ sampler is needed based on population exposure. A special purpose NOx analyzer and SO2 analyzer are located at this site for MDEQ data purposes as well as a met tower.

6. ***Non- MSA Sites:***

- **Laurel** (Jones Co. 28.067.0002) - The $PM_{2.5}$ sampler will continue since it exceeds 85% of the annual standard. In addition, the Laurel sampler has historically been the highest reading $PM_{2.5}$ sampler in the network. The $PM_{2.5}$ sampler is collocated with an

FRM sampler. Beginning 01/10/11 raw collocated data will be entered into AQS. In addition, to support the data a $PM_{2.5}$ speciation sampler is located at the site.

- **Grenada** (Grenada Co. 28.043.0001) – A $PM_{2.5}$ sampler operates at the Grenada site as a background monitor for $PM_{2.5}$ as required by the regulations.

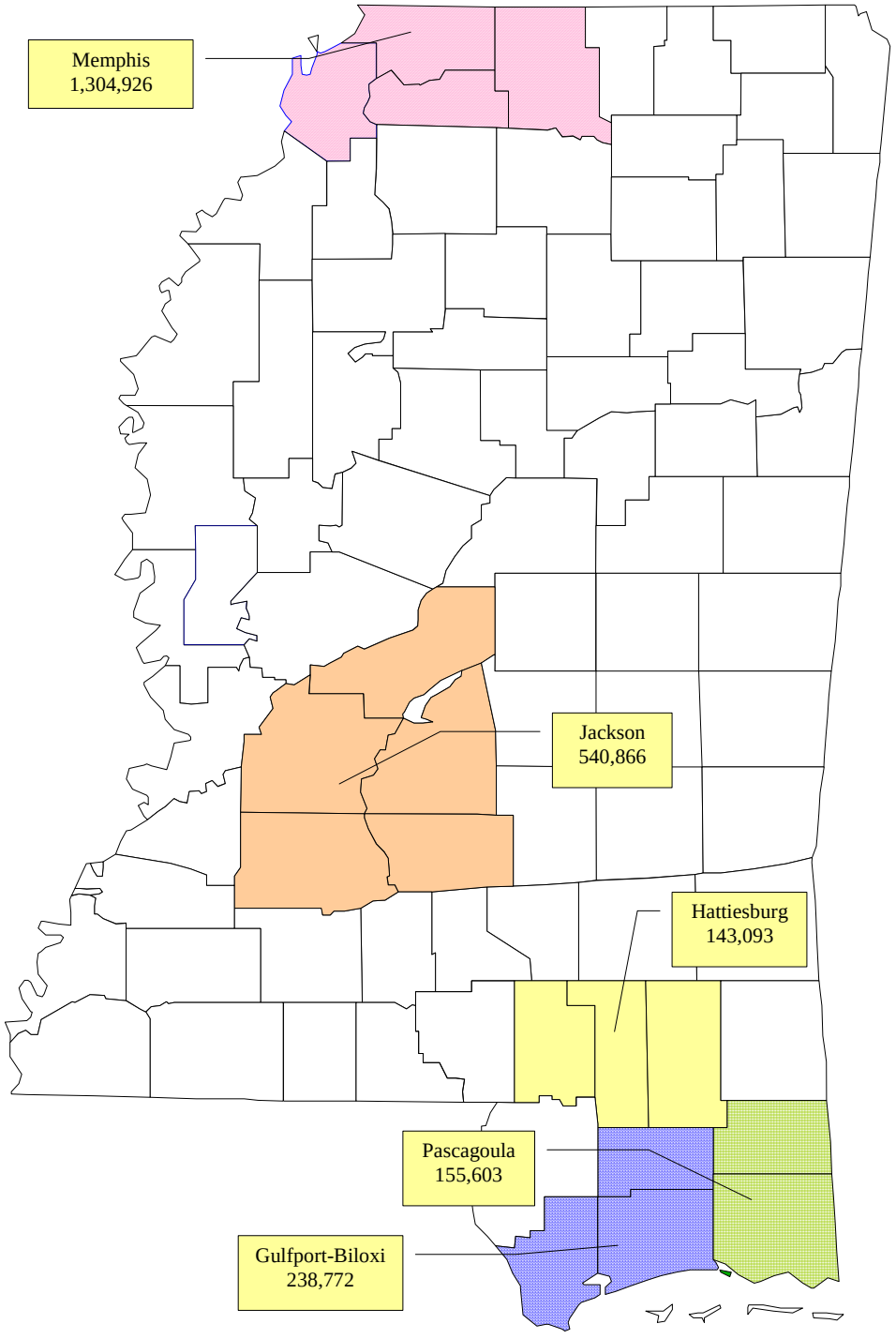
- **Meridian** (Lauderdale Co. 28.075.0003) – The $PM_{2.5}$ sampler is below 85% of each standard and will cease operation the end of calendar year 2010. The continuous sampler will remain in place. The ozone monitor exceeds 85% of the standard and will continue for spatial and population exposure purposes

- **Tupelo** (Lee Co. 28.081-0005) - The $PM_{2.5}$ sampler is below 85% of each standard and will cease operation the end of calendar year 2010. A collocated $PM_{2.5}$ sampler has been established based on the 2009 network review recommendations. The $PM_{2.5}$ collocated sampler will be relocated to an appropriate site. The continuous sampler will remain in place. The ozone monitor will continue for spatial and population exposure purposes. It also exceeds 85% of the standard.

- **Cleveland** (Bolivar Co. 28.011.0001) - The $PM_{2.5}$ sampler is below 85% of each standard and will cease operation the end of calendar year 2010. The continuous sampler will remain in place. The ozone monitor will remain since it exceeds 85% of the standard.

- **Natchez** (Adams Co. 28.001.004) - The $PM_{2.5}$ sampler is below 85% of each standard and will cease operation the end of calendar year 2010. The ozone monitor will remain since it exceeds 85% of the standard.

MSA MAP:



MISSISSIPPI MSA AREAS – 07/09

MEMPHIS – DeSoto, Tunica, Marshall, Tate
JACKSON – Hinds, Rankin, Copiah, Simpson, Madison
HATTIESBURG – Lamar, Forrest, Perry
GULFPORT-BILOXI – Hancock, Harrison, Stone
PASCAGOULA – Jackson, George

IV. *Network Tables:*

NETWORK DESIGN TABLES
MISSISSIPPI - 2010

PM 10

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Collocated	Type	Method	Schedule	Comment
Jackson	Hinds	Jackson	28-049-0019	Pop. Exp.	Neighborhood	1	Y	Manual	126	6 Day	At Ncore Site

PM 2.5

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Collocated	Type	Method	Schedule	Comment
Cleveland	Bolivar	N/A	28-011-0001	Pop. Exp.	Neighborhood	0	N	Manual & Continuous	118 SEQ 702 TEOM	3 Day Hourly	
Natchez	Adams	N/A	28-001-0004	Pop. Exp.	Neighborhood	0	N	Manual	118 SEQ	3 Day	
Hernando	DeSoto	Memphis	28-033-0002	Transport	Urban	1	N	Manual & Continuous	118 SEQ 702 TEOM	3 Day Hourly	
Hattiesburg	Forrest	Hattiesburg	28-035-0004	Pop. Exp.	Neighborhood	1	N	Manual & Continuous	118 SEQ 702 TEOM	3 Day Hourly	Continuous To Be Added
Grenada	Grenada	N/A	28-043-0001	Background	Neighborhood	1	N	Manual	118 SEQ	3 Day	
Waveland	Hancock	Gulf/Biloxi	28-045-0003	Pop. Exp.	Neighborhood	0	N	Manual	118 SEQ	3 Day	
Gulfport	Harrison	Pop. Exp.	28-047-0008	Pop. Exp.	Neighborhood	1	N	Manual & Continuous & Speciation	118 SEQ 702 TEOM MetOne	3 Day Hourly 3 Day	
Pascagoula	Jackson	Pascagoula	28-059-0006	Pop. Exp.	Neighborhood	0	N	Manual	118 SEQ	3 Day	
Jackson	Hinds	Jackson	28-049-0010	Pop. Exp.	Neighborhood	1	N	Manual & Continuous	118 SEQ 702 TEOM	3 Day Hourly	To Be Relocated 2011
Laurel	Jones	N/A	28-067-0002	Pop. Exp.	Neighborhood	0	Y	Manual & Speciation	118 SEQ MetOne	3 Day 6 day	
Meridian	Lauderdale	N/A	28-075-0003	Pop. Exp.	Neighborhood	0	N	Manual & Continuous	118 SEQ 702 TEOM	3 Day Hourly	
Tupelo	Lee	N/A	28-081-0005	Pop. Exp.	Neighborhood	0	Y	Manual & Continuous	118 SEQ 702 TEOm	3 Day Hourly	

Comments: All manual samplers are FRM and classified as SLAMS. The continuous samplers are non FEM.

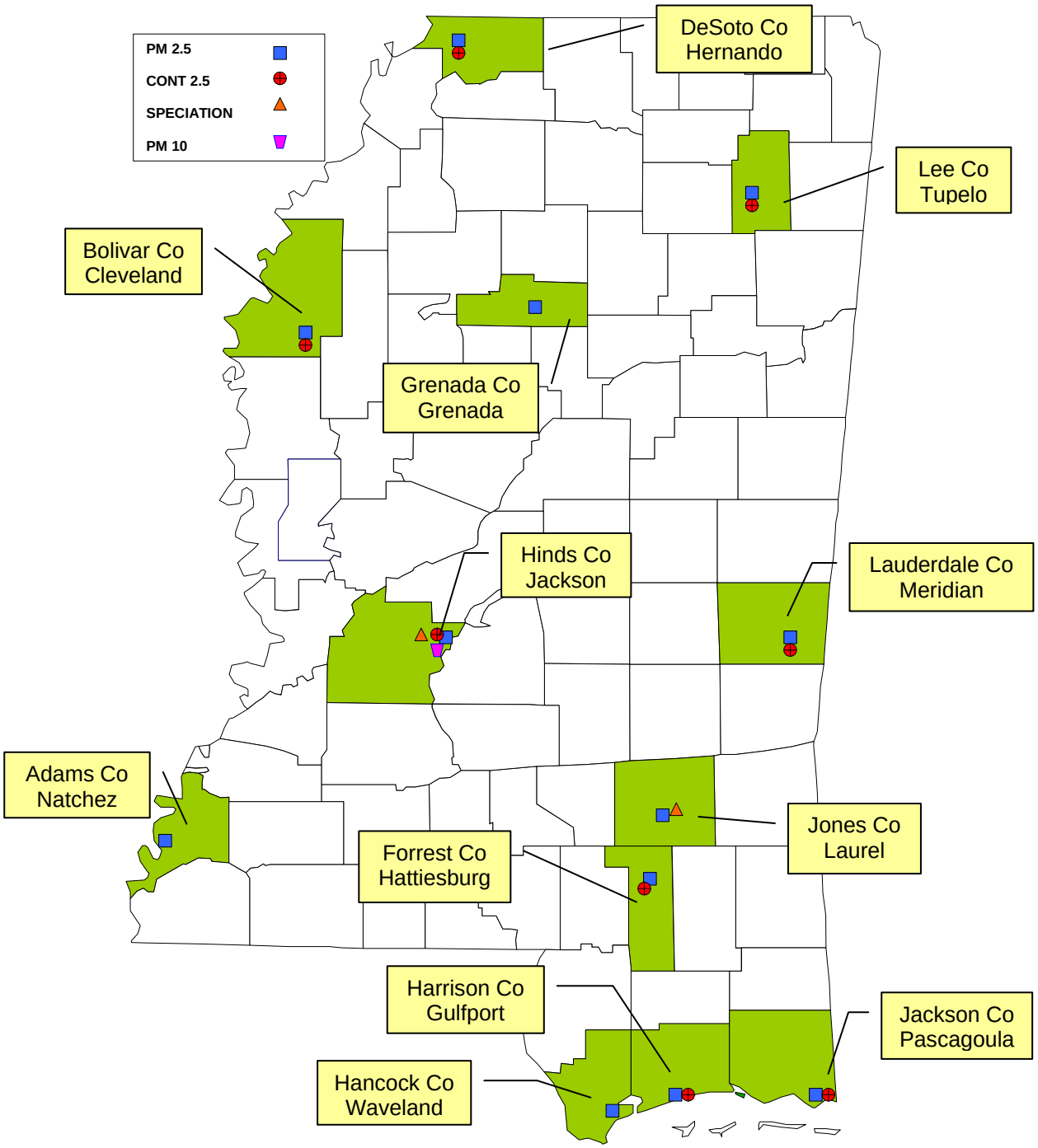
OZONE – 2010

Location	County	MSA	AQS ID	Monitoring Objective	Measurement Scale	MSA Min Required	Type	Method	Schedule	Comment
Cleveland	Bolivar	N/A	28-011-0001	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct	
Gulfport	Harrison	Gulf/Biloxi	28-047-0008	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct	
Waveland	Hancock	Gulf/Biloxi	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	28-049-0010	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct	To Be Relocated in 2011
Jackson	Hinds	Jackson	28-049-0019	Pop. Exp.	Urban	1	Continuous	UV Absorp	Mar - Oct	Ncore (New)
Meridian	Lauderdale	N/A	28-075-0003	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct	
Natchez	Adams	N/A	28-001-0004	Pop. Exp.	Urban	0	Continuous	UV Absorp	Mar - Oct	
Pascagoula	Jackson	Pascagoula	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	

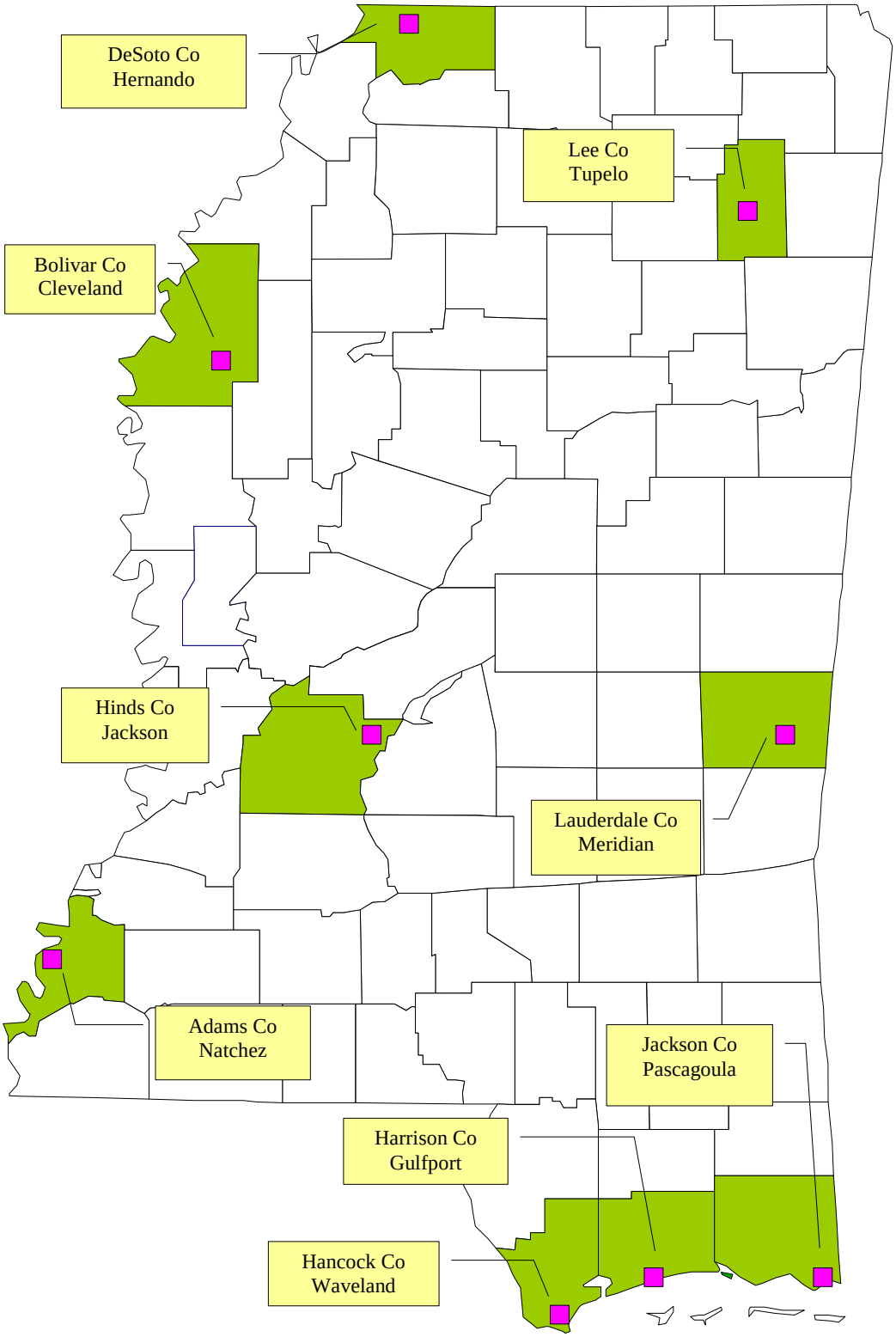
Comments: All monitors are classified as SLAMS

Site Location Coordinates

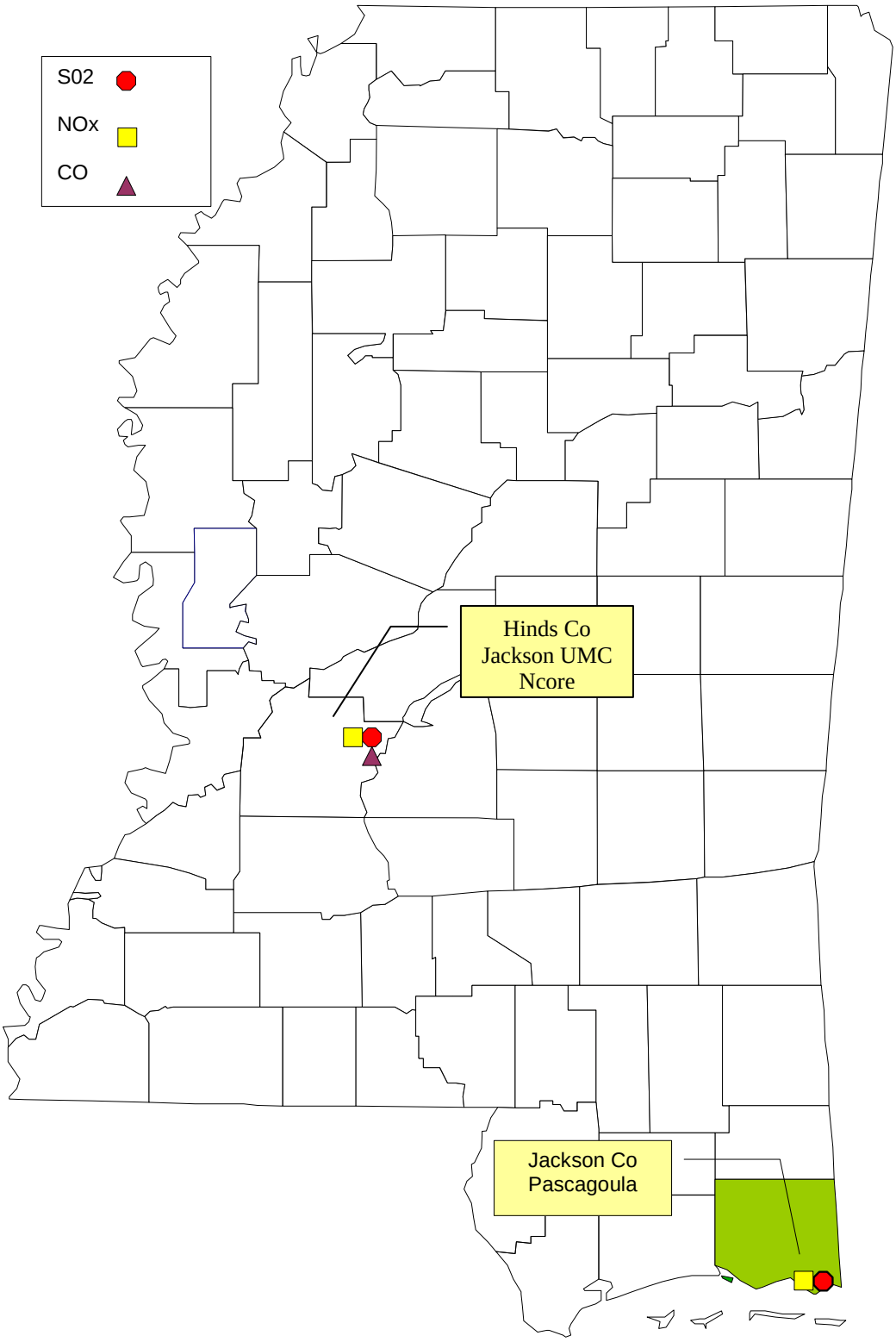
#	SITE ID	LAT			LONG			NAME	COUNTY	ADDRESS
1	28-001-0004	31	33	37	91	23	25	NATCHEZ	ADAMS	Old Natchez Water Works on Brenham St.
2	28-011-0001	33	44	45	90	43	23	CLEVELAND	BOLIVAR	213 North Bayou Ave.
3	28-033-0002	34	49	14	89	59	16	HERNANDO	DESOTO	5 East South St.
4	28-035-0004	31	19	23	89	17	14	HATTIESBURG	FORREST	205 Bay St.
5	28-043-0001	33	50	4	89	47	34	GRENADA	GRENADA	Hwy 332 at Grenada Airport
6	28-045-0003	30	18	4	89	23	45	WAVELAND	HANCOCK	400 Baltic St.
7	28-047-0008	30	23	24	89	2	59	GULFPORT YC	HARRISON	47 Maples Dr.
8	28-049-0010	32	23	8	90	8	28	JACK FS19	HINDS	5810 Ridgewood Rd.
9	28-049-0019	32	19	49	90	9	58	JACK UMC	HINDS	University Drive
10	28-059-0006	30	22	41	88	32	2	PASCAGOULA	JACKSON	Hospital Rd. and Vega St.
11	28-067-0002	31	41	17	89	8	4	LAUREL	JONES	26 Mason St
12	28-075-0003	32	21	52	88	43	53	MERIDIAN	LAUDERDALE	Hwy 19 and 53rd Ave.
13	28-081-0005	34	15	54	88	45	58	TUPELO	LEE	West Jackson at Tupelo Airport



MDEQ PARTICULATE SITES – 2010



MDEQ OZONE SITES AS OF - 2010



MDEQ SO2 / NOx/ CO SITES - 2010

NCORE SITE:

I. Background:

This part of the network review covers the Ncore (National core monitoring site) site information. This site is designed to provide long term pollutant data as well as very low level gaseous measurements. This site will monitor for all pollutant parameters as well as meteorological parameters. The Ncore multi-pollutant site provides support to integrated air quality management data needs. Each state is required to operate one Ncore site. Mississippi will have one Ncore site located in the Jackson metro area. The Jackson metro area (Jackson MSA) is the largest population center in the State therefore the location choice for the Ncore site.

II. Site Discussion:

Mississippi's air quality monitoring network will be enhanced with the addition of the Ncore multi pollutant monitoring site. The site objectives will be to help determine compliance with the NAAQS, provide long term data trends as well as AQI data, and provide data for research related to air quality.

The Ncore site is located in the Jackson metro area. The Ncore site will contain a full compliment of instruments, including meteorological. The parameters currently include Ozone, Sulfur Dioxide, Carbon Monoxide, Nitric Oxides as NOy, PM $_{2.5}$ manual, $PM_{2.5}$ continuous, $PM_{10\text{-}2.5}$, Speciated $PM_{10\text{-}2.5}$, wind speed, direction, ambient temperature and relative humidity. All samplers used at the Ncore site including $PM_{2.5}$ samplers will be reference or equivalent. The Ncore site will also be the location for MDEQ's urban PM_{10} sampling as well as urban lead sampling. The Ncore site and associated parameters are required to be in operation and producing data by January 1, 2011. The PM samplers are currently in operation.

The monitoring scales for most site parameters are urban. However, a more realistic scale of representation is probably an area up to approximately 18 miles or 15 kilometers from the site location, not 40 kilometers.

The physical site consists of a 12' x 14' shelter with a roof mounted deck and a meteorological tower. It is located on the University of Mississippi Medical Center. The latitude and longitude is 32.19.49 and -90.09.58. The AQS site number is 28-049-0019.

The tables on the following page summarize all of the required elements related to the site as well as each parameter. In addition a typical wind rose pattern for the Jackson metro area is included.

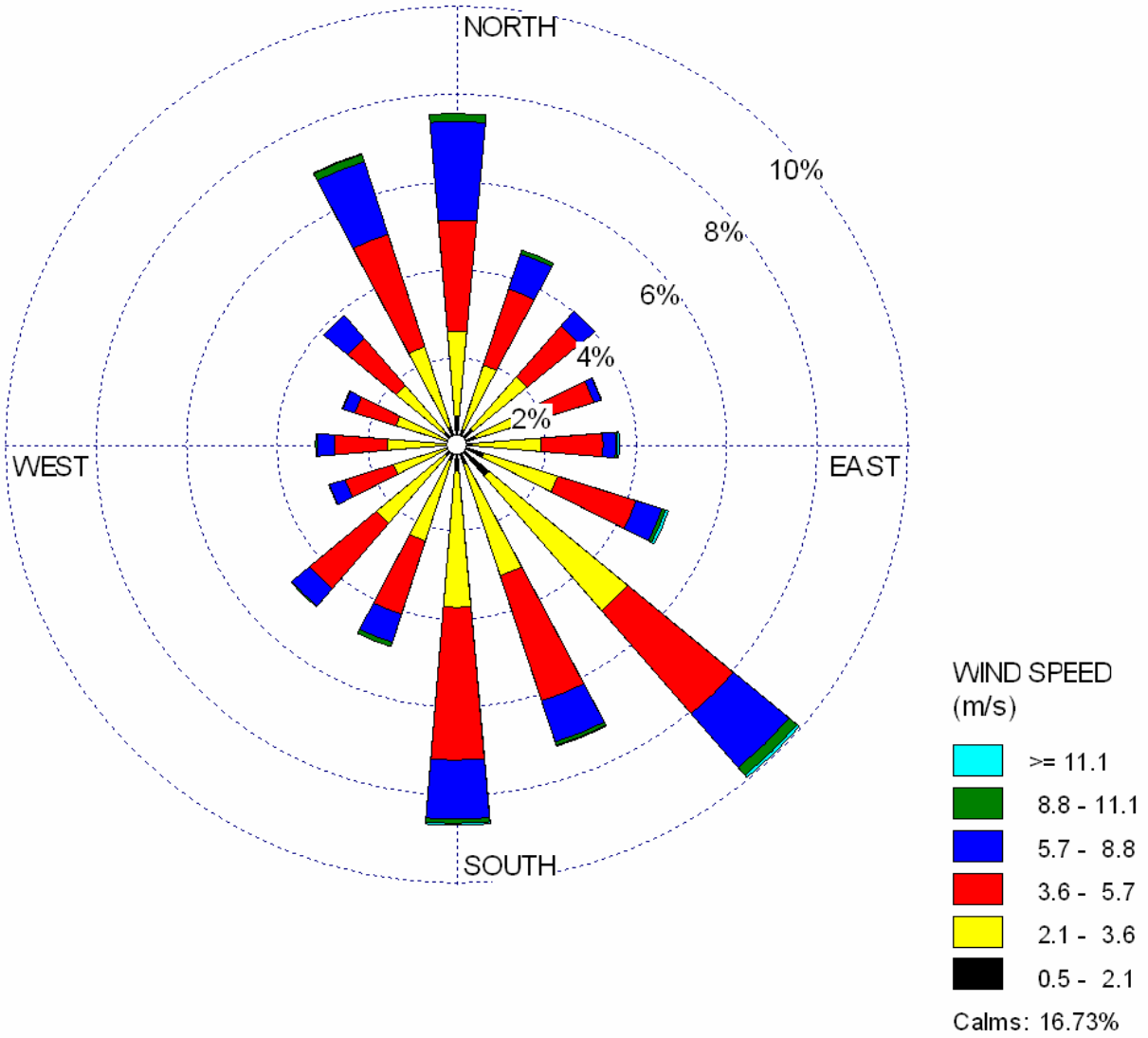
III. *Ncore Tables:*

Ncore Site Table - 2010

AQS ID	MSA	Site Name	County	City	Latitude	Longitude	Street Address	Elevation (meters)	Site start date	Location Setting
28-049-019	Jackson	Univ Miss Medical Center	Hinds	Jackson	32.330194 (32.19.49)	-90.166111 (90.09.58)	Univ of Miss Medical Center Dr. UMC Campus	93	1/01/2011	Urban and city center

Ncore Parameter Table - 2010

Parameter	Monitoring Objective	Measurement Scale	Designation	Type	Method	Schedule	Comment
CO	Pop. Exp.	Neighborhood	Ncore	Continuous Analyzer	Non-Dispersive IR	Continuously	
NOy	Pop. Exp.	Neighborhood /Urban	Ncore	Continuous Analyzer	Chemiluminescence	Continuously	
O3	Pop. Exp.	Neighborhood /Urban	Ncore	Continuous Analyzer	UV Photometry	Continuously	
SO2	Pop. Exp.	Neighborhood	Ncore	Continuous Analyzer	UV fluorescence	Continuously	
FRM PM 2.5	Pop. Exp	Neighborhood	Ncore	Manual Reference Sampler	Gravimetric Analysis	1 in 3 days	
FEM PM 2.5	Pop. Exp	Neighborhood	Ncore	Continuous Analyzer	Beta or Gravimetric	Continuously	
PM 2.5 Speciation	Pop. Exp	Neighborhood	Ncore	Manual Sampler	Multiple Methods	1 in 3 days	Trends In Operation
PM coarse	Pop. Exp	Neighborhood	Ncore	Manual Sampler	Difference by Gravimetric Analysis	1 in 3 days	
Metrological	--	--	Ncore	--	Wind speed, direction, ambient temperature, humidity	Continuously	
Lead	Pop. Exp	Urban	Ncore	Manual sampler	Manual Method via PM 10	1 in 6 days	Required for the metro area 500,000+ , non Ncore
PM 10	Pop. Exp	Urban	SLAMS	Manual Reference Sampler	Gravimetric Analysis	1 in 6 days	Required for the metro area 500,000+, non Ncore
Radiation	Pop. Exp	Urban	Rad Net	Continuous / manual		Continuously	Non Ncore


NORTH
EAST
SOUTH
WEST
2%
4%
6%
8%
10%
WIND SPEED
(m/s)
>= 11.1
8.8 - 11.1
5.7 - 8.8
3.6 - 5.7
2.1 - 3.6
0.5 - 2.1
Calms: 16.73%

Appendix I

Mississippi Air Quality Network Review for 2010

Regional Monitoring Agreement

MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT

YVONNE S. MADLOCK
DIRECTOR

HELEN G. MORROW, M.D., MPA
ACTING HEALTH OFFICER

DR. WILLIE W. HERENTON
CITY OF MEMPHIS
MAYOR

A C WHARTON, JR.
SHELBY COUNTY
MAYOR

July 9, 2008

Jerry Beasley, Environmental Regulator
Mississippi Department of Environmental Quality (MDEQ)
Office of Pollution Control
P.O. Box 2261
Jackson, MS 39225

Subject: Memorandum of Agreement (MOA) – Air Monitoring

Dear Jerry,

Enclosed you will find an original MOA for the Memphis Area Air Monitoring Network. This original has been executed and signed by all parties.

If you have any questions or comments, please feel free to contact me at (901) 544-7775.

Sincerely,

Jim Holt, Assistant Manager
Pollution Control Section

Enclosures:

JUN 2 7 2007

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

Participating Agencies:

Memphis and Shelby County Health Dept. (MSCHD)
Air Pollution Control Program

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

Arkansas Department of Environmental Quality (ADEQ)

PURPOSE/OBJECTIVES/GOALS

The purpose of this Memorandum of Agreement (MOA) is to establish the Memphis, Tennessee-Mississippi-Arkansas Metropolitan Statistical Area (MSA) Criteria Pollutant Air Quality Monitoring Agreement among MSCHD, MDEQ AND ADEQ 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 of an aerodynamic diameter of 2.5 micrometers and less (PM2.5), and ozone; as well as other criteria pollutant 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:

County	Federal Reference Method PM2.5	Continuous PM2.5	Speciation PM2.5	Colocated PM2.5
Shelby County, TN **MSCHD**	2	1	1	1
Crittenden County, AR **ADEQ**	1	1		
DeSoto County, MS **MDEQ**	1	1		1

Criteria Air Pollutant MSA monitoring network include:

County	PM 10	O_3	$NO_X/NO/NO_2$	CO	SO_2
Shelby County, TN **MSCHD**	2	2	1	1	1
Crittenden County, AR **ADEQ**		1	1		
DeSoto County, MS **MDEQ**		1			

RESPONSIBLITIES/ACTIONS

Each of the parties to this Agreement is responsible for ensuring that its obligations under 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 MSCHD, 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 MSCHD, MDEQ or ADEQ, their officers or employees, or any other person. This MOA does not apply to any entity outside MSCHD, 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 MSCHD, 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.

APPROVALS

We agree with the provisions outlined in this Memorandum of Agreement and commit our agencies to implement them in a spirit of cooperation and mutual support.

Shelby County Government
Memphis and Shelby County Health Dept. (MSCHD)
Air Pollution Control Program

BY: _____

TITLE: Mayor, Shelby County Government

DATE: May 18, 2008

APPROVED AS TO AND LEGALITY:
Assistant Contract Administrat
Assistant County Attorney

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

BY: Maya Rao

TITLE: Chief, Air Division

DATE: 05/28/08

Arkansas Department of Environmental Quality (ADEQ)

BY: Teresa Marks

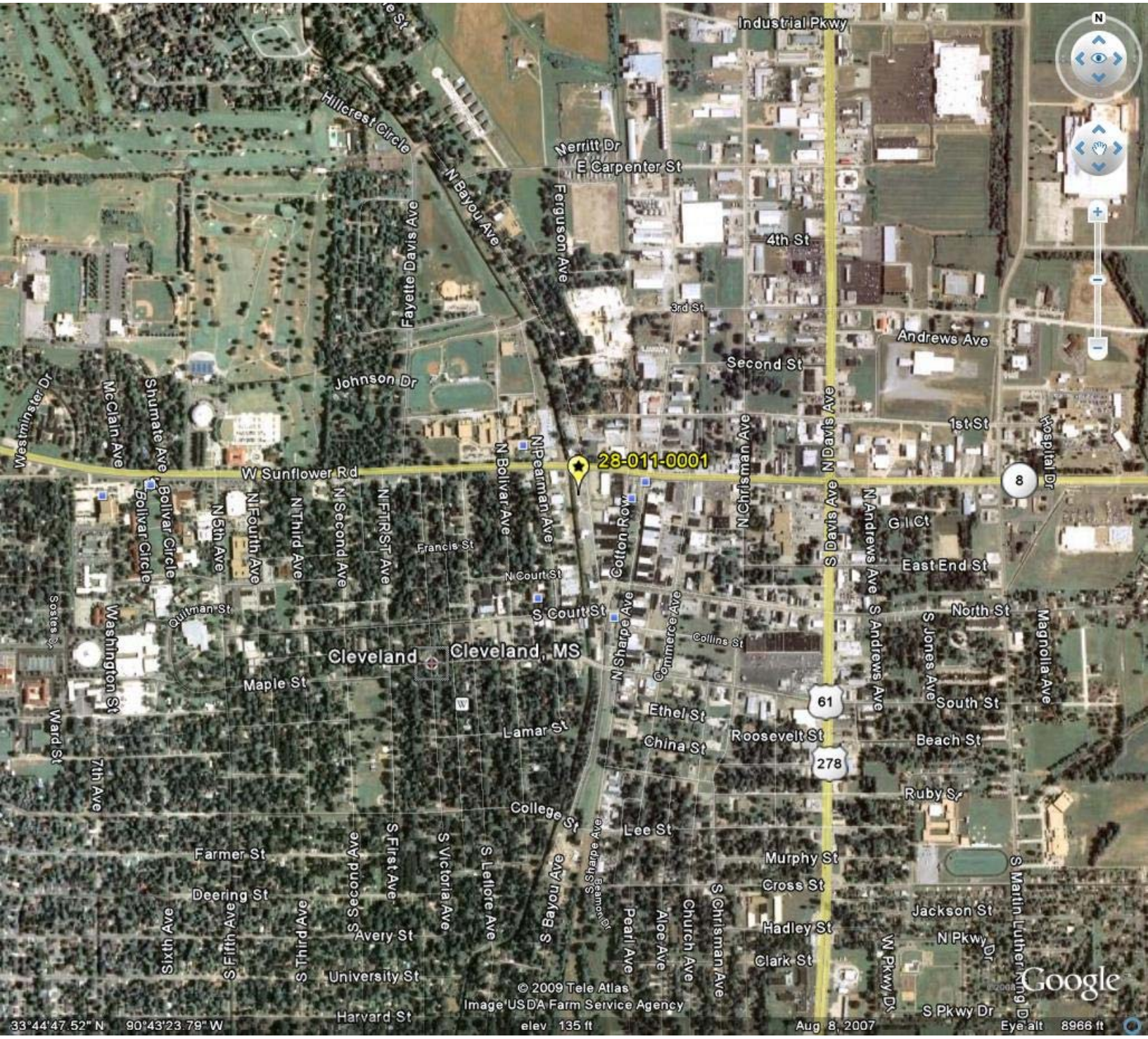
TITLE: Director

DATE: 6/20/08

Appendix II

Site Maps and Photos

CLEVELAND, MS - 28-011-0001



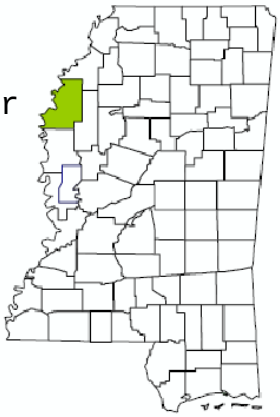
CLEVELAND - N

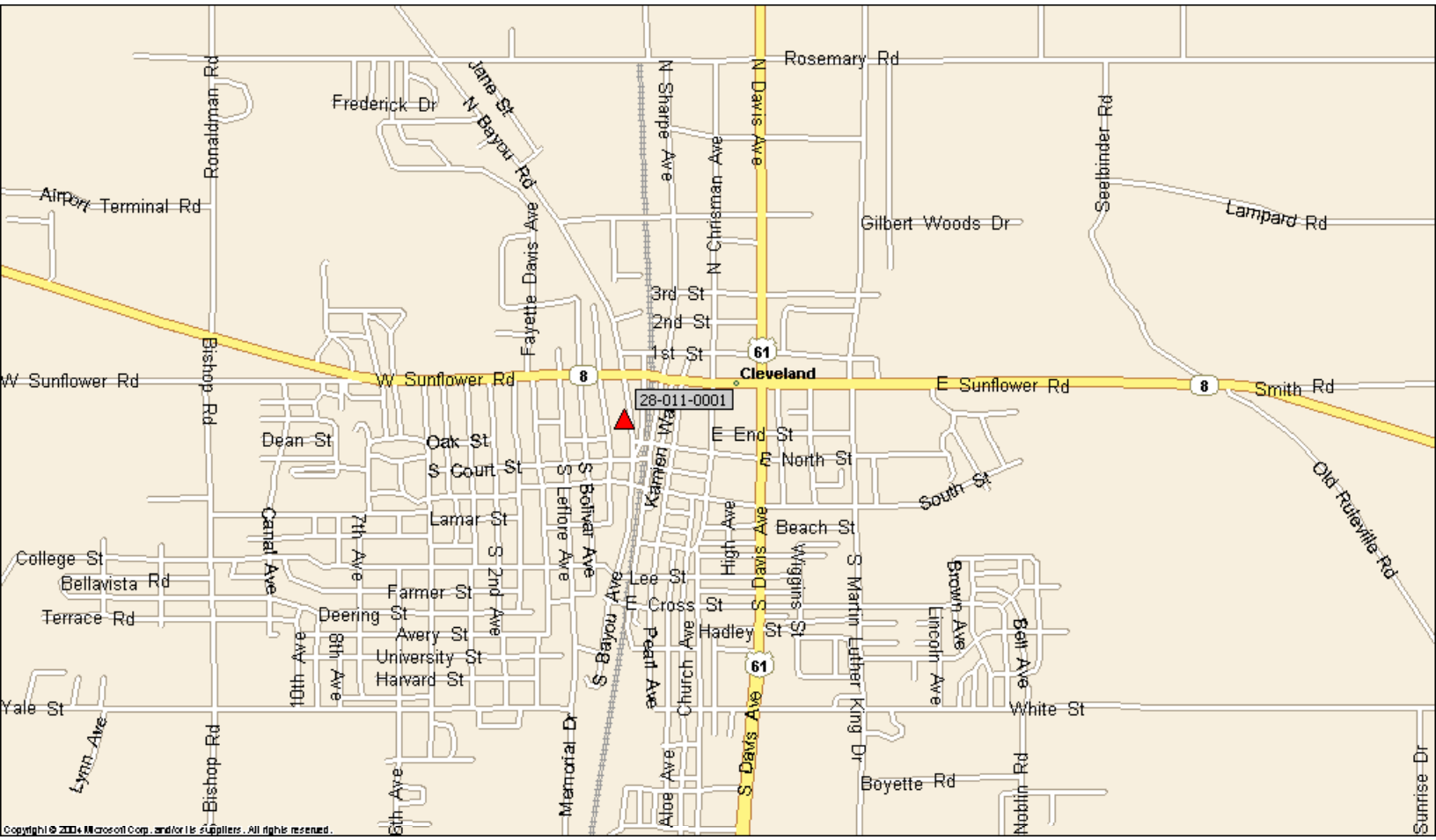
CLEVELAND - E

CLEVELAND - S

CLEVELAND -W

CLEVELAND – 28-011-0001





CLEVELAND 28-011-0001

GRENADA, MS - 28-043-0001

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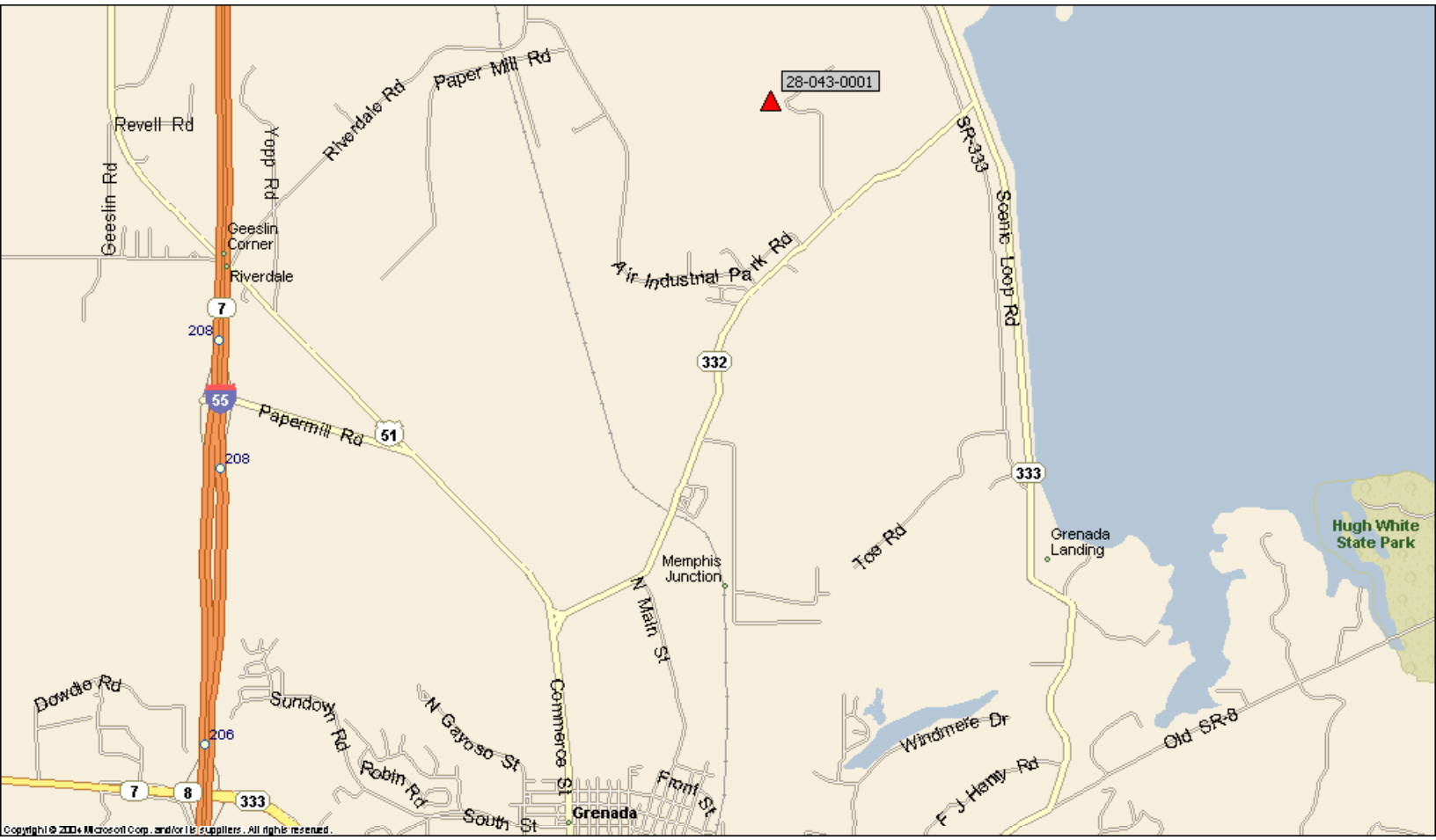
GRENADA- E

GRENADA - S

GRENADA -W

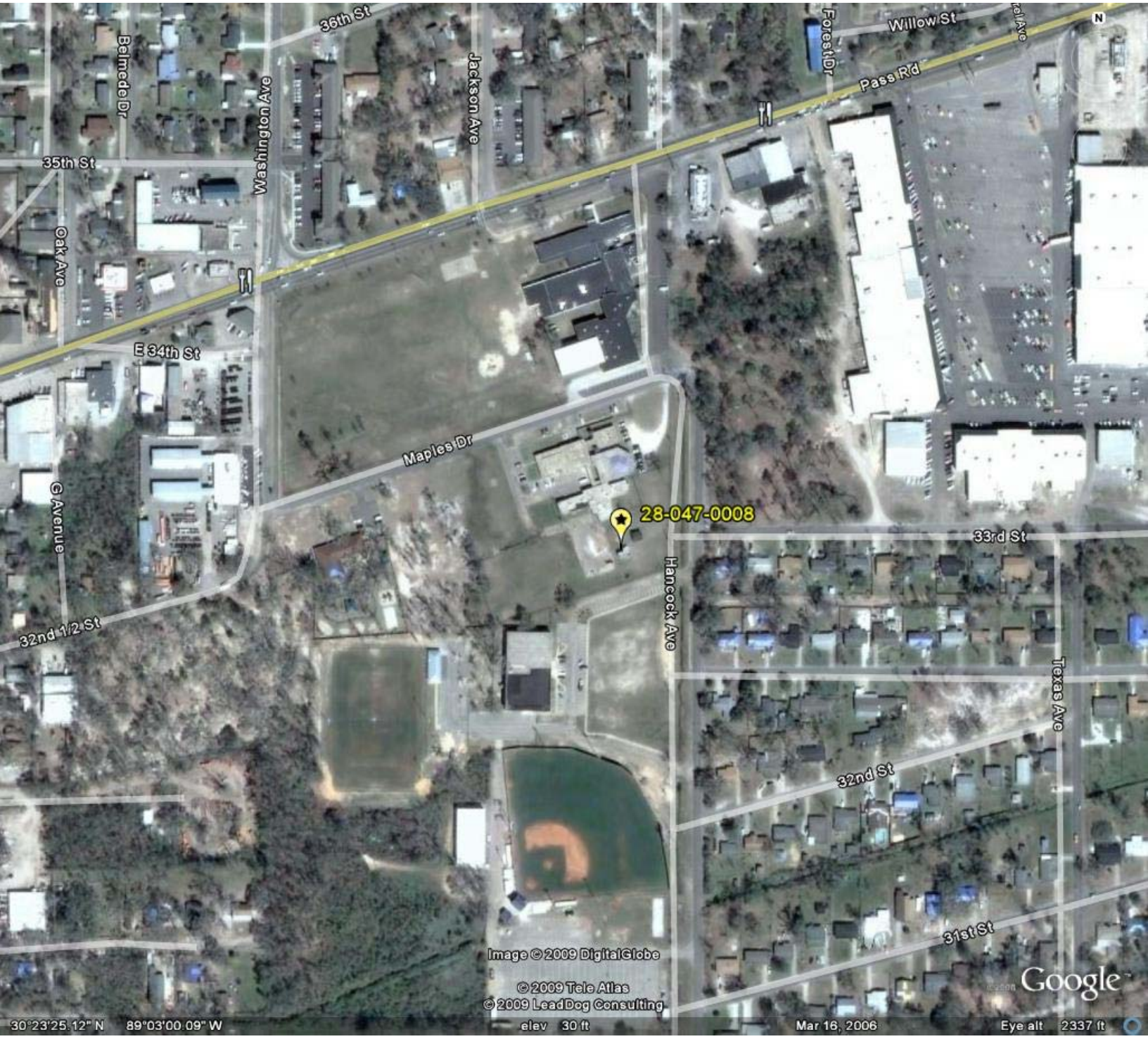
GRENADA – 28-043-0001

Grenada



GRENADA 28-043-0001

GULFPORT, MS - 28-047-0008



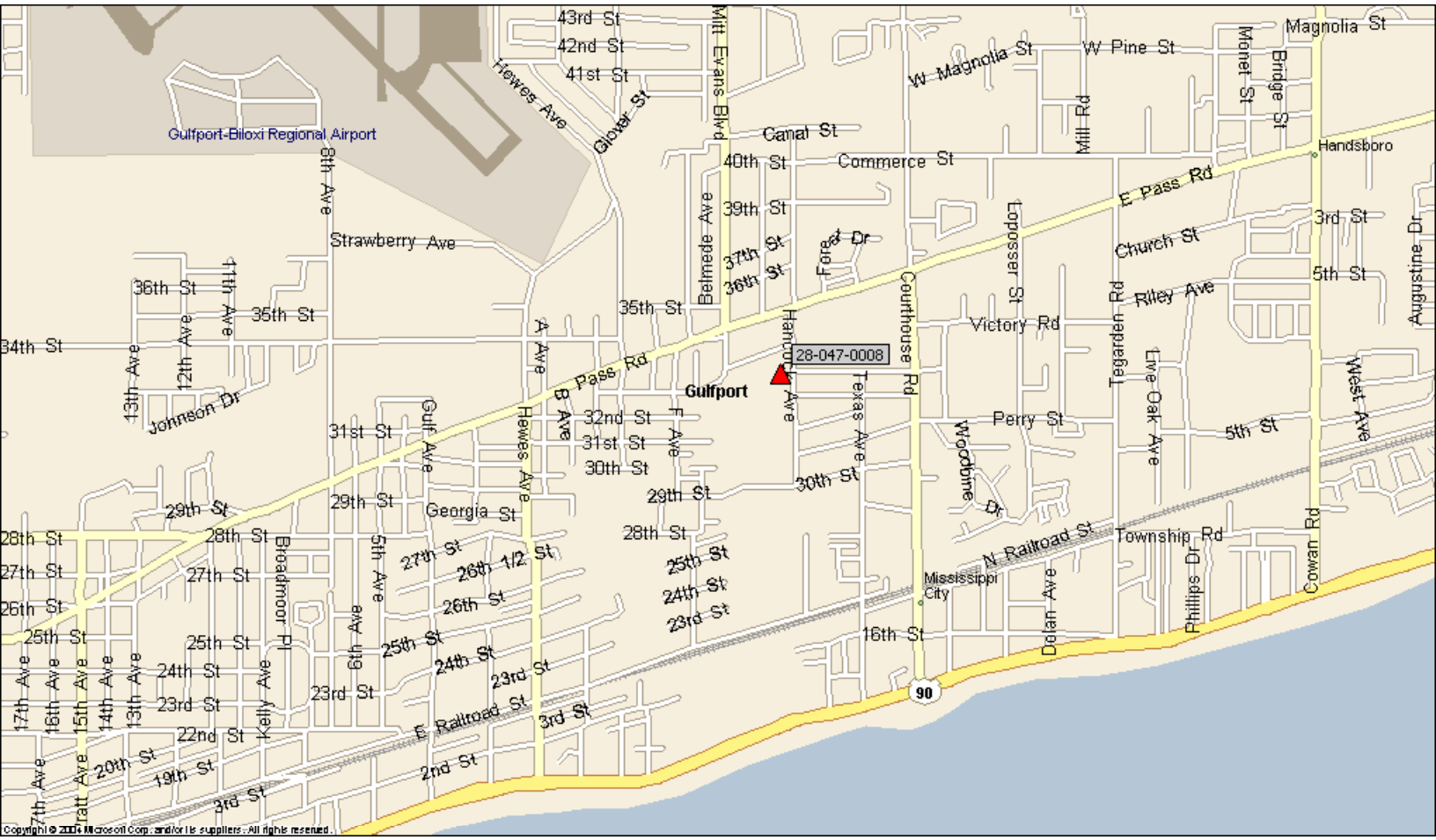
GULFPORT - N

GULFPORT- E

GULFPORT - S

GULFPORT -W

GULFPORT – 28-047-0008



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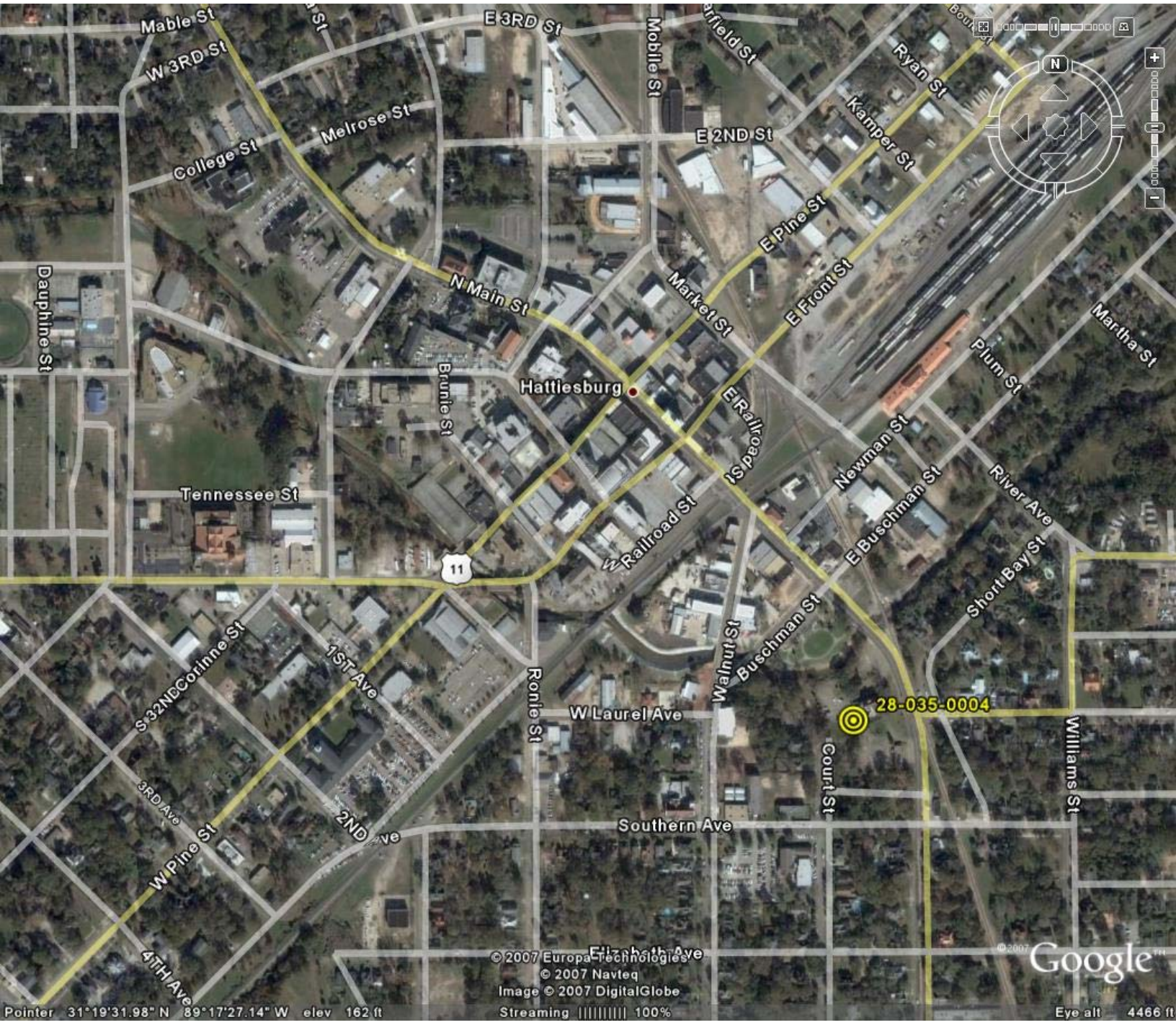
HATTIESBURG, MS - 28-035-0004



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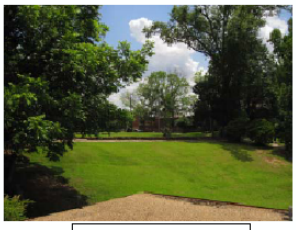
HATTIESBURG- E



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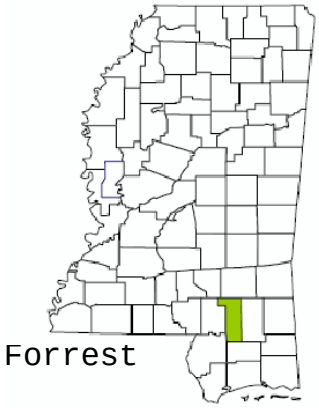
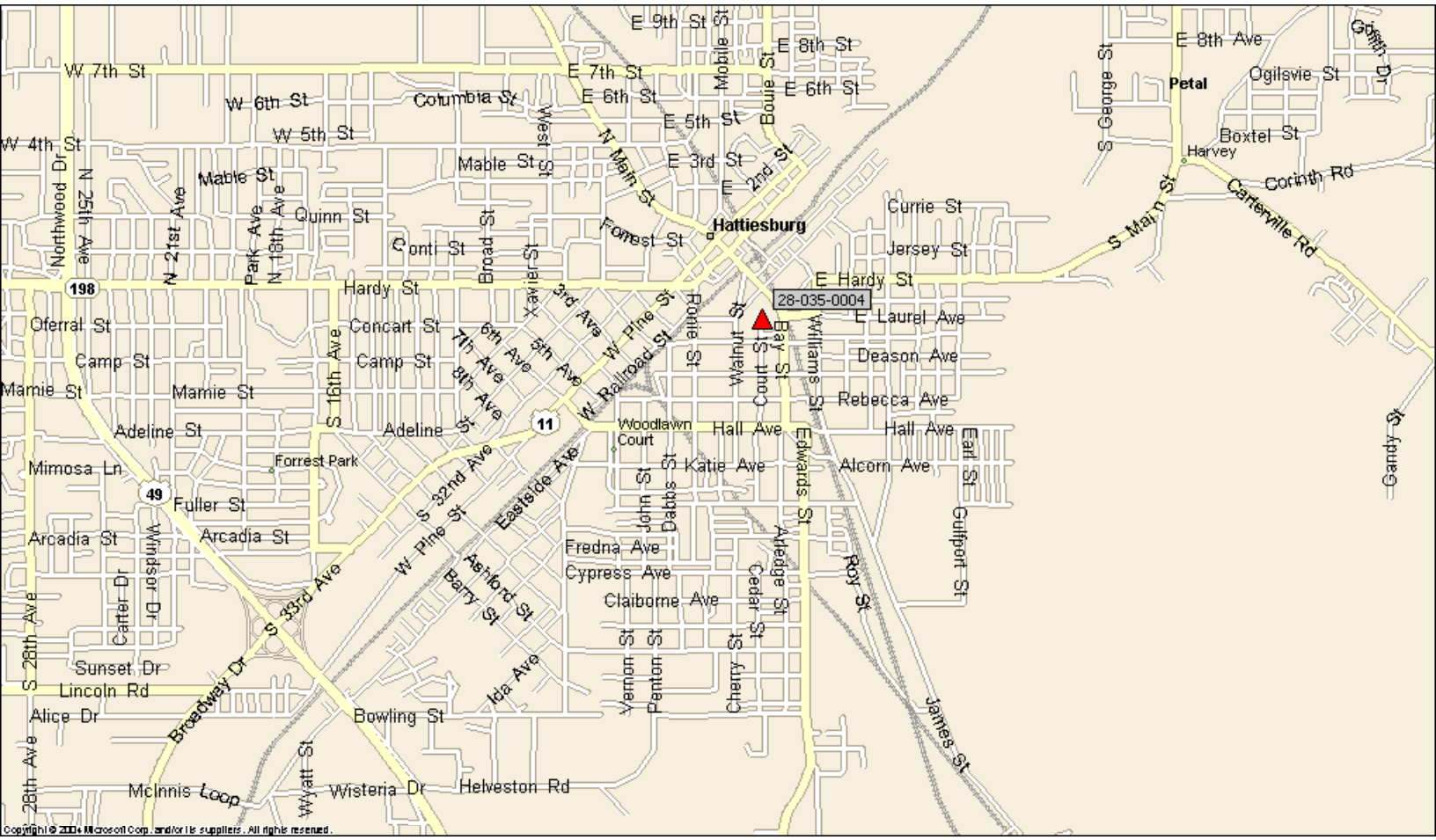
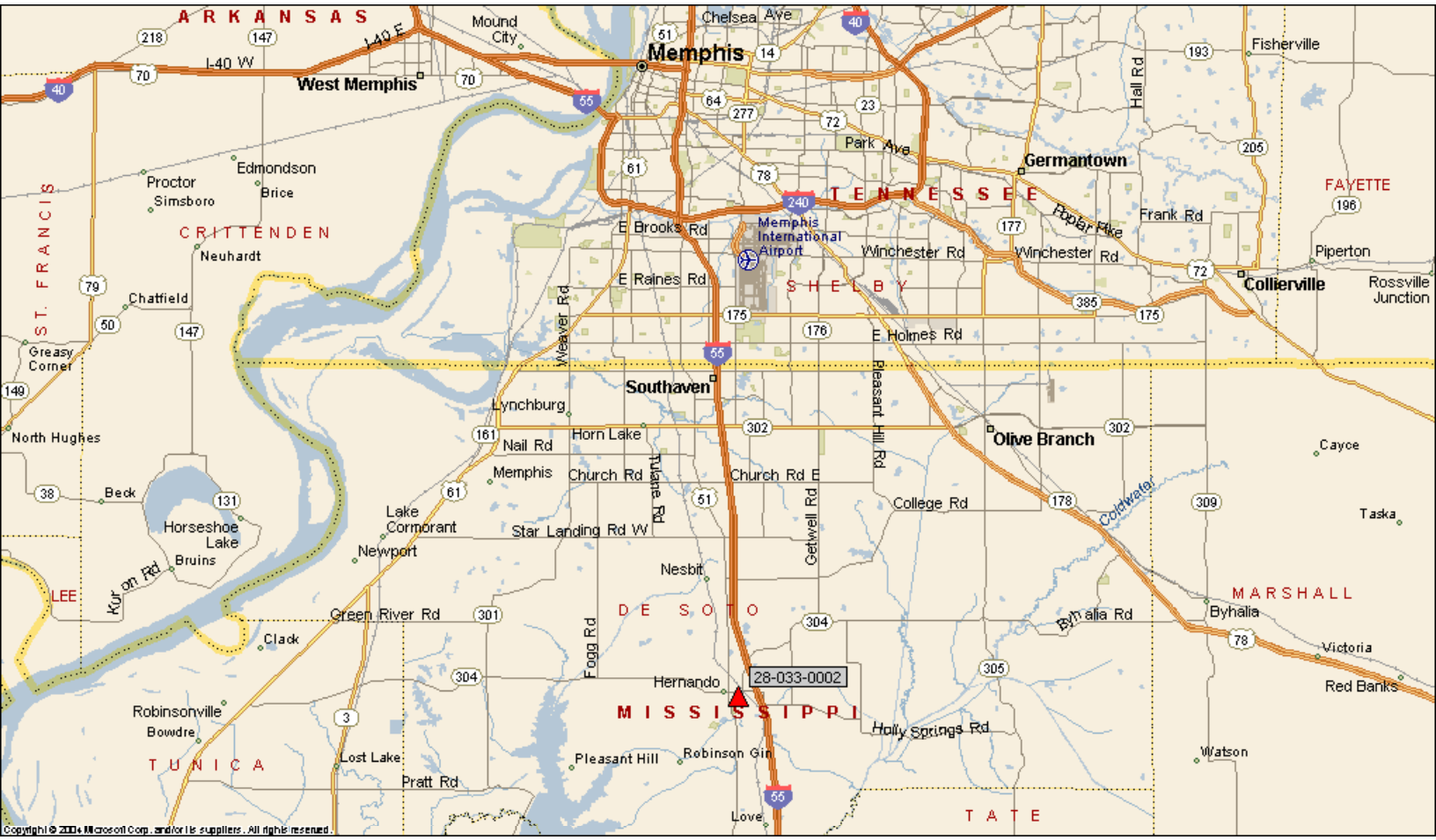
HATTIESBURG – 28-047-0008





HATTIESBURG 28-035-0004

HERNANDO-MEMPHIS AREA



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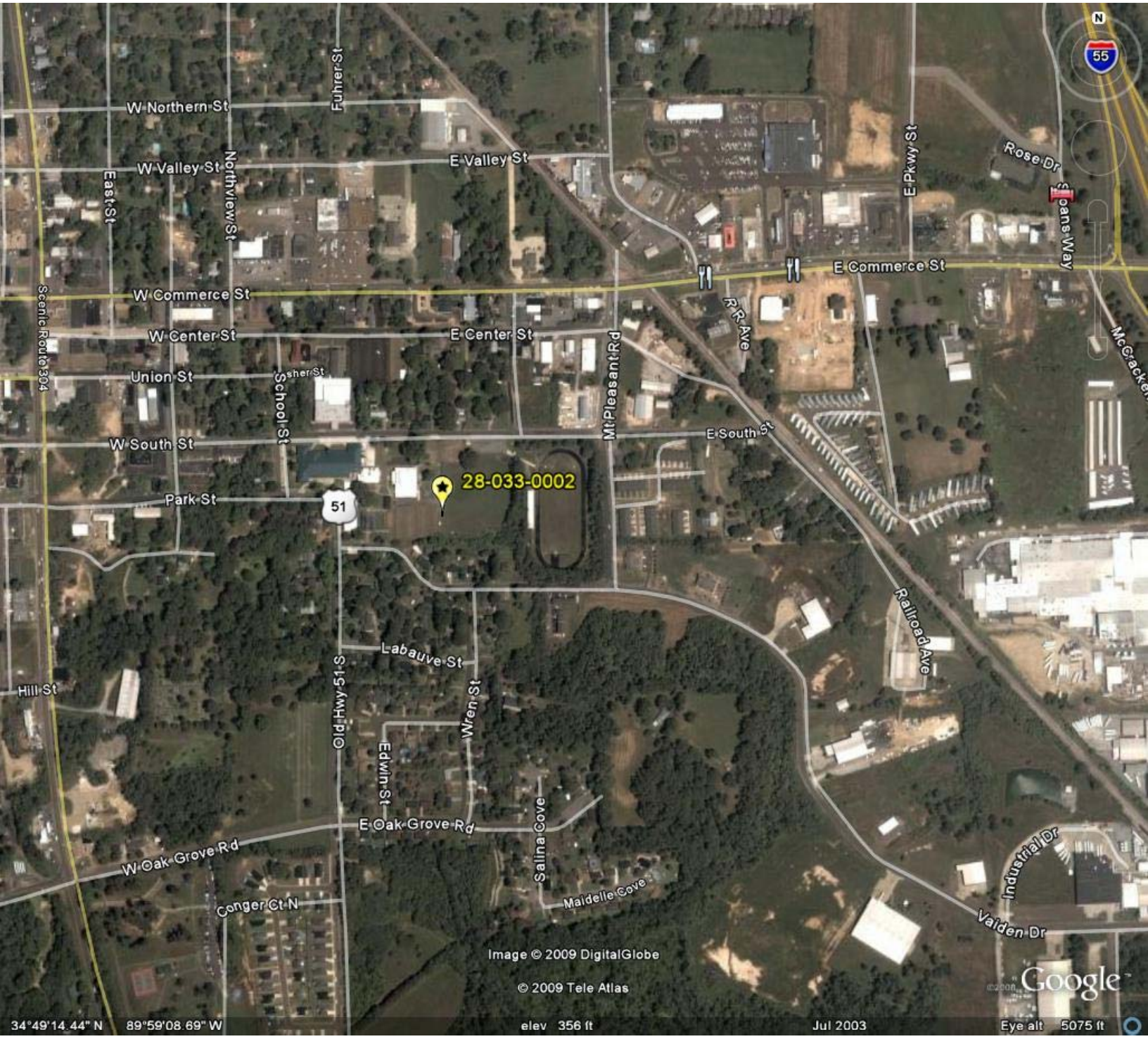

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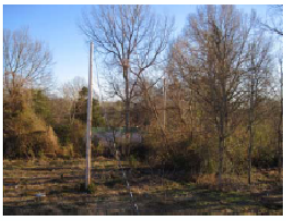
HERNANDO- E

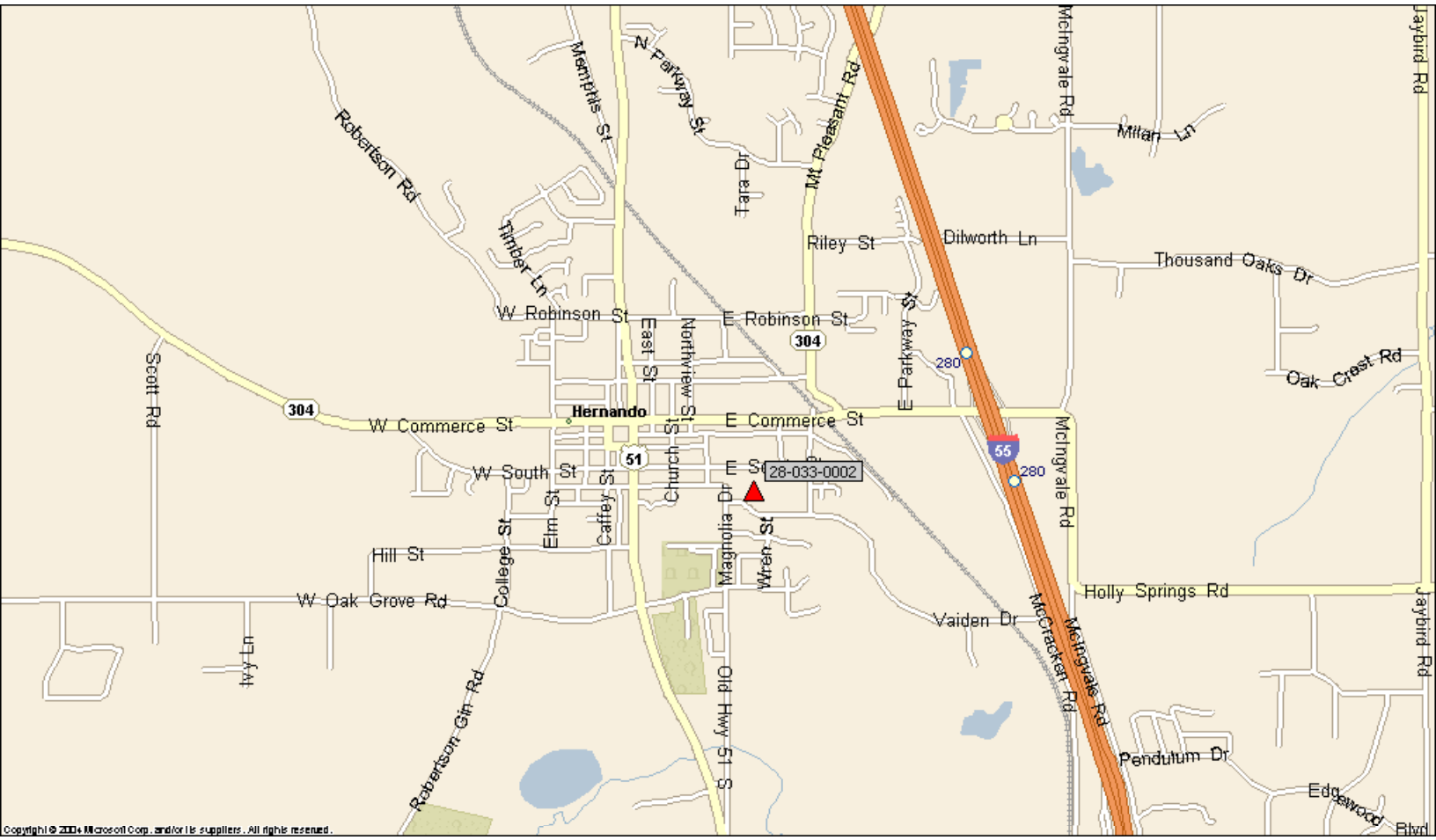


HERNANDO - S

HERNANDO -W

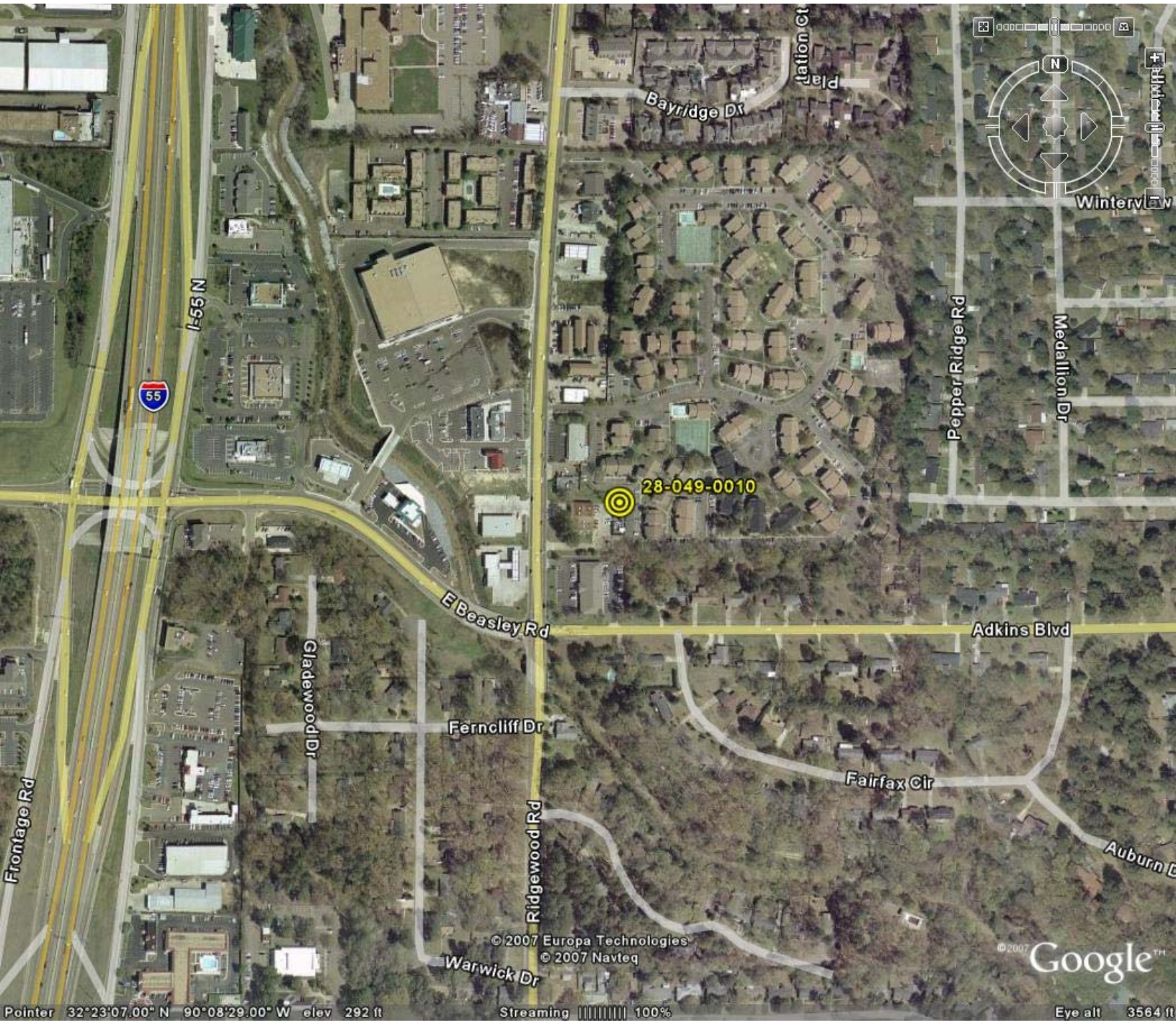
HERNANDO – 28-033-0003

DeSoto



HERNANDO 28-033-0002

JACKSON, MS - 28-049-0010



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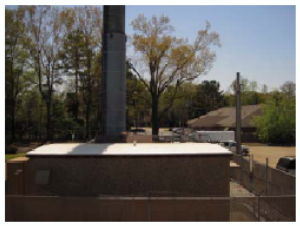
JACK FS19 - E



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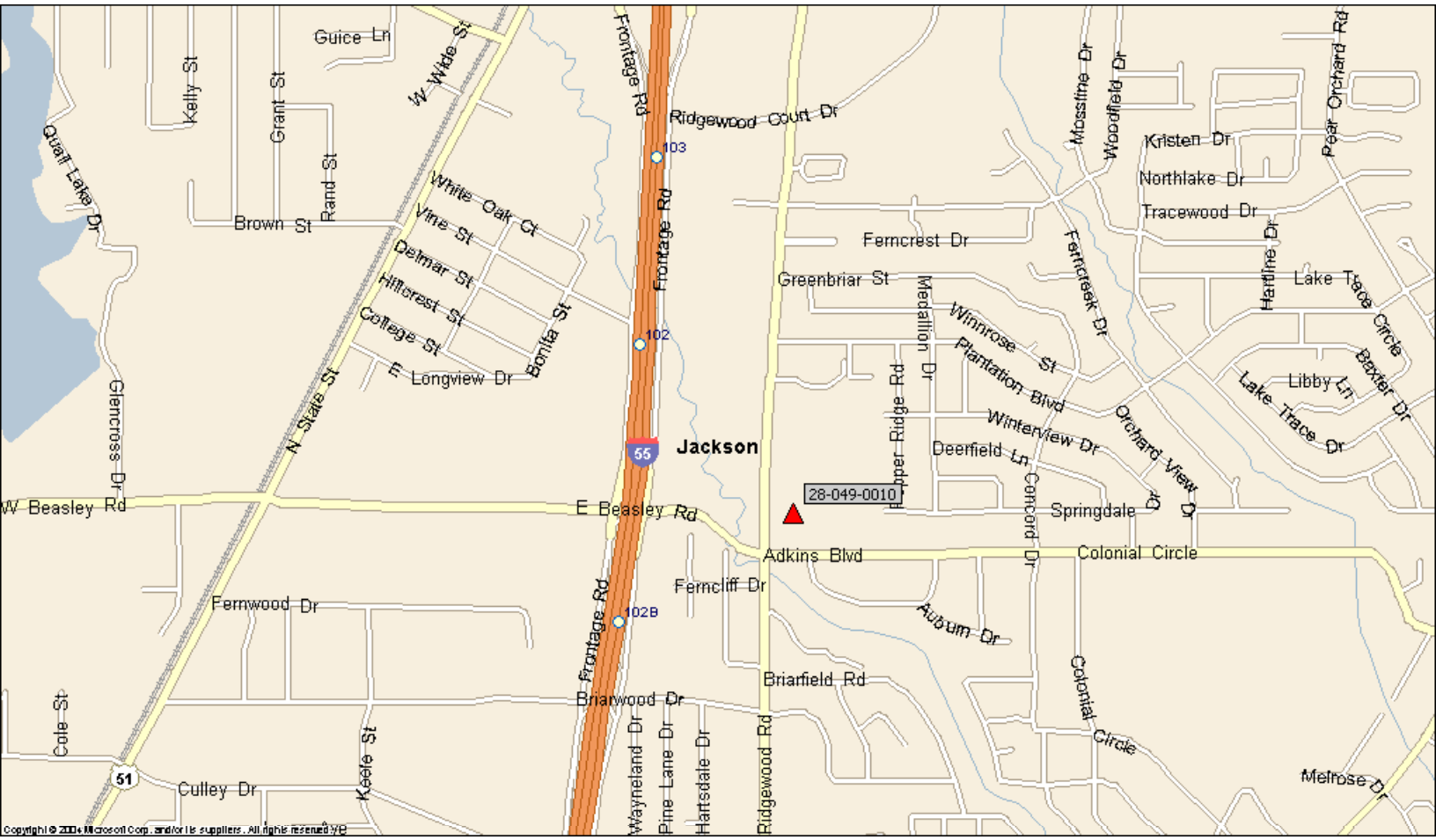
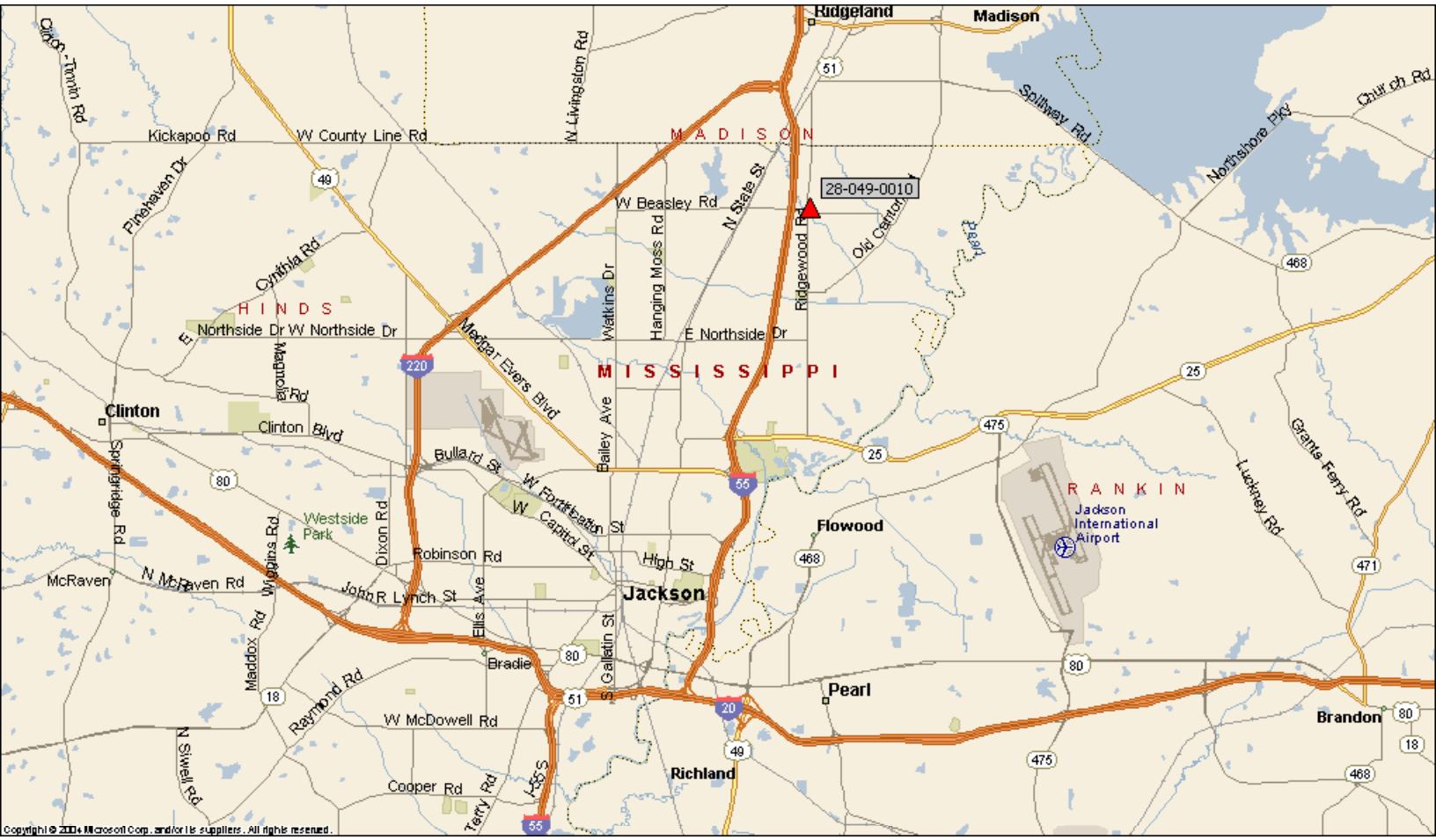
JACK FS19 -W

JACK FS19 – 28-049-0010



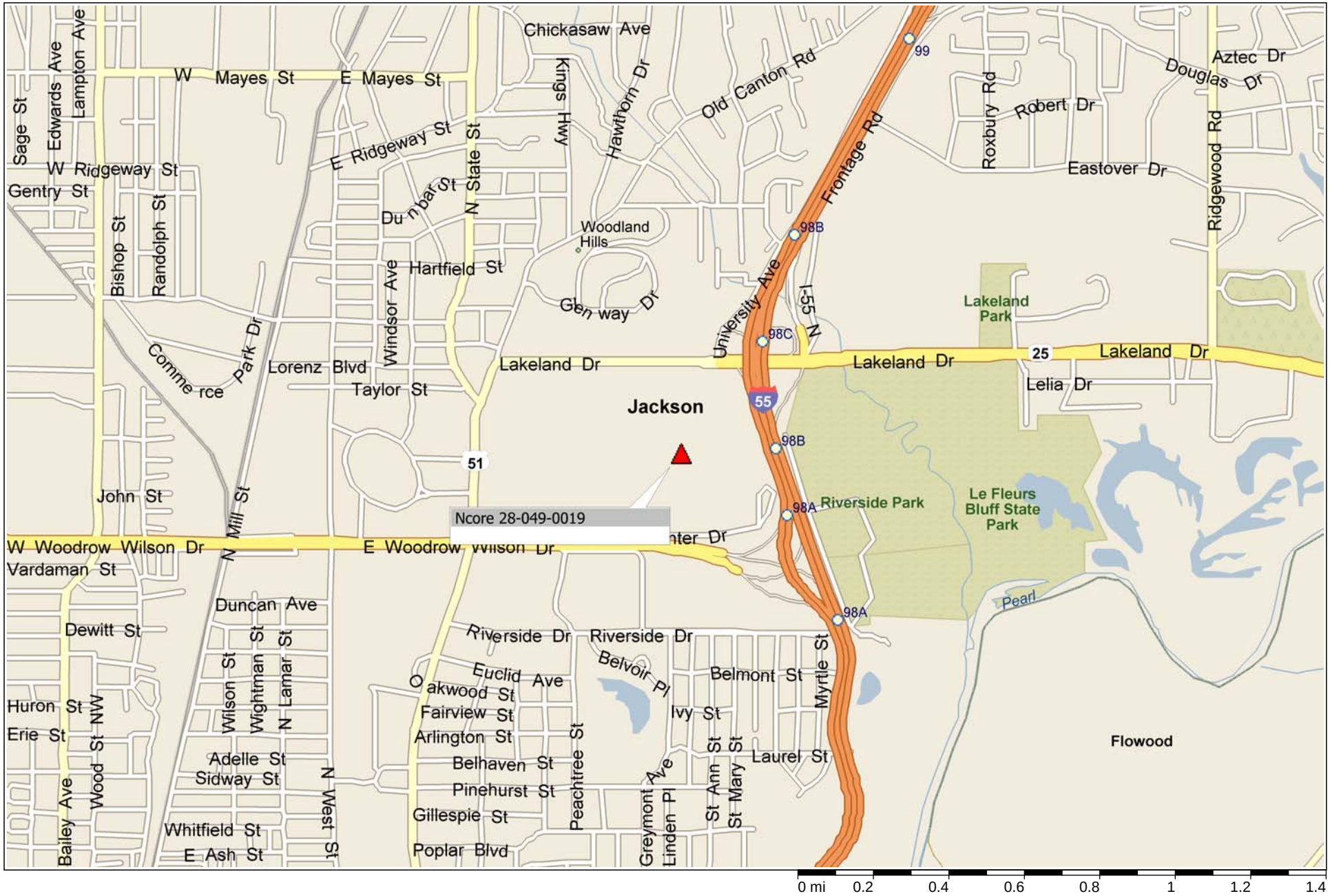
JACKSON 28-049-0010

JACKSON METRO



Ncore 28-049-0019

Hinds Co.



JACK UMC - N

JACK UMC - E

JACK UMC - S

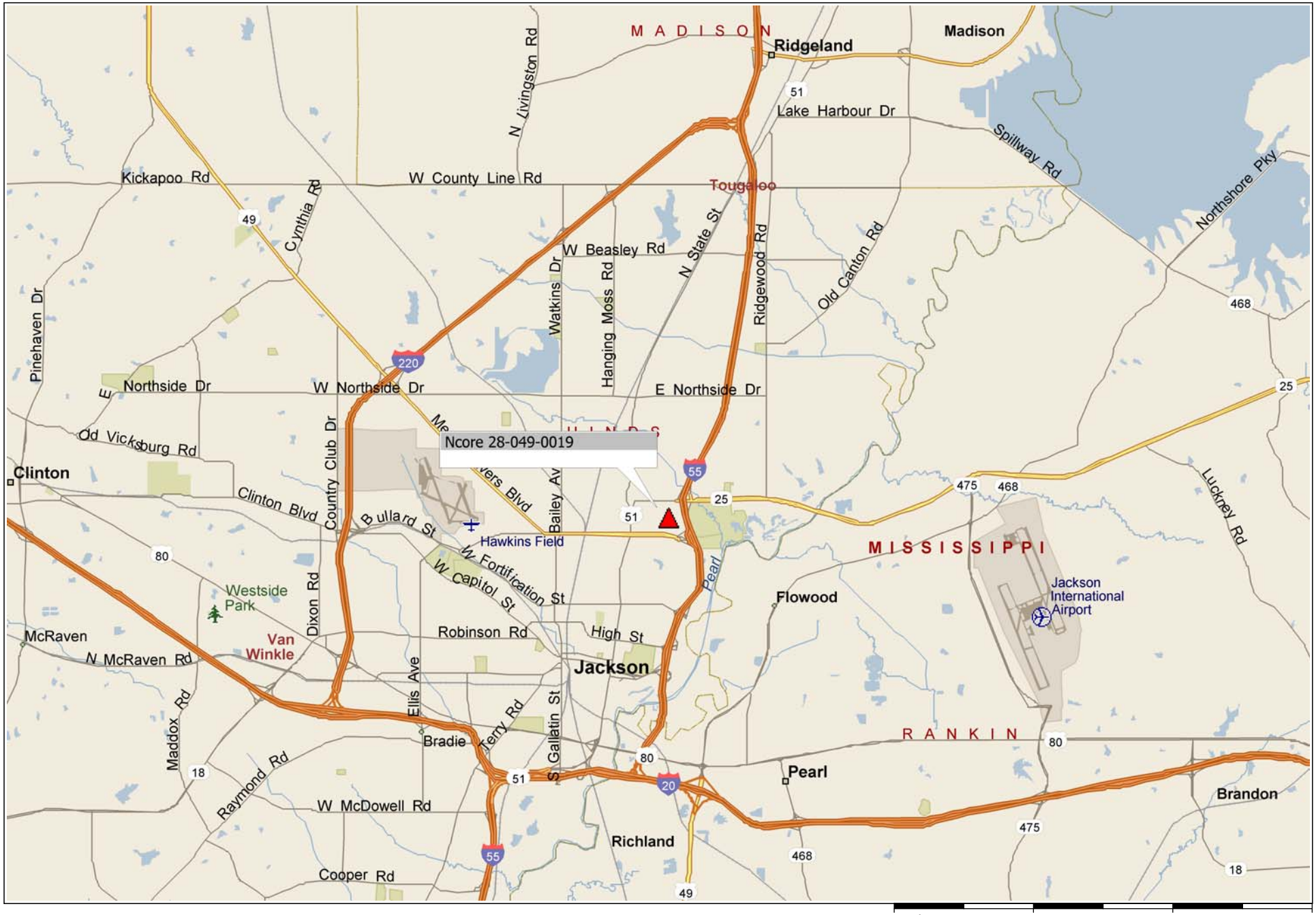
JACK UMC -W

JACK UMC – 28-049-0019

JACKSON UMC
NCORE SITE
VIEWS
28-049-0019

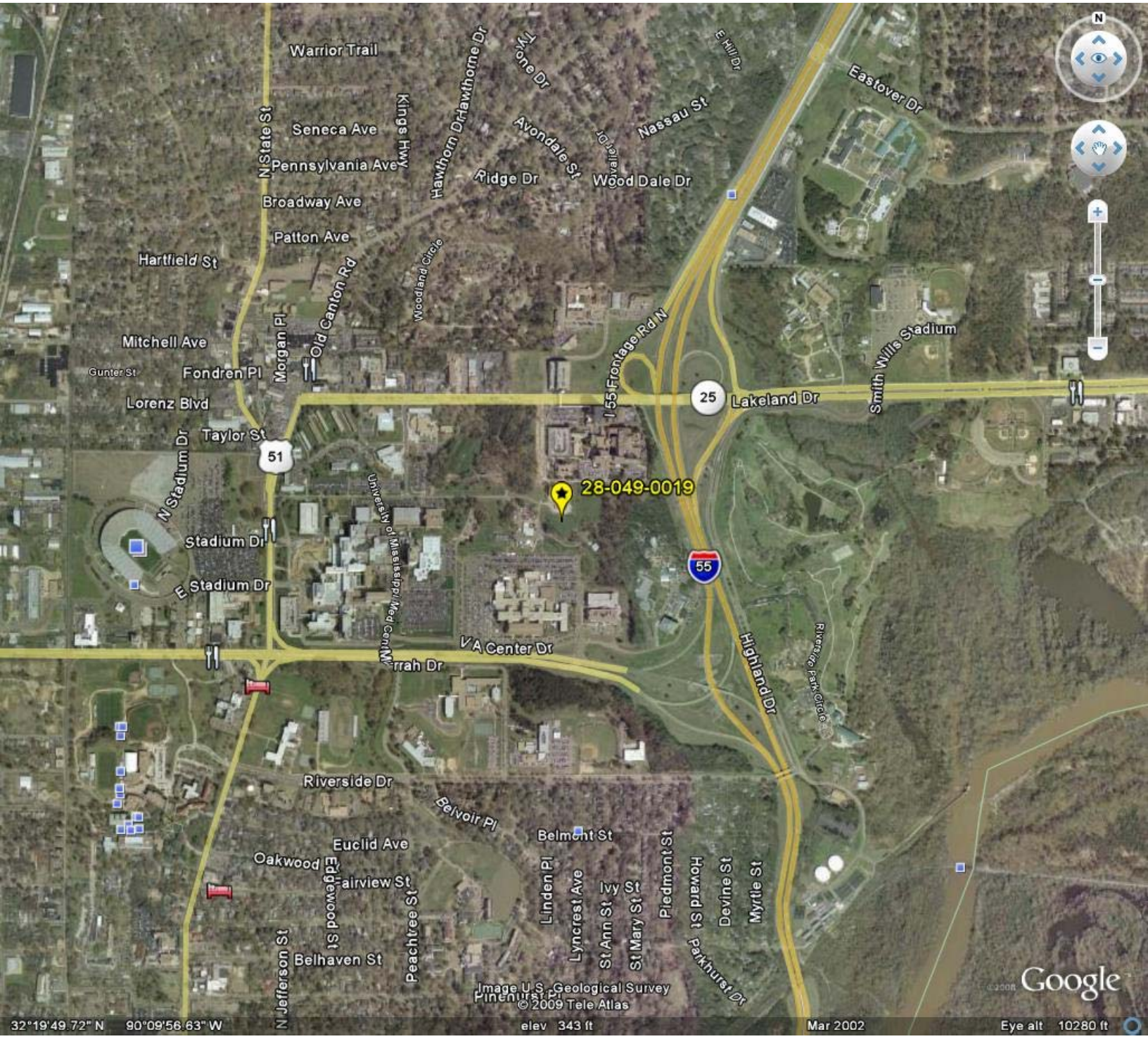
Ncore Jackson Urban

Hinds Co.



NCORE JACKSON, MS 28-049-0019

NCORE JACKSON, MS - 28-049-0019



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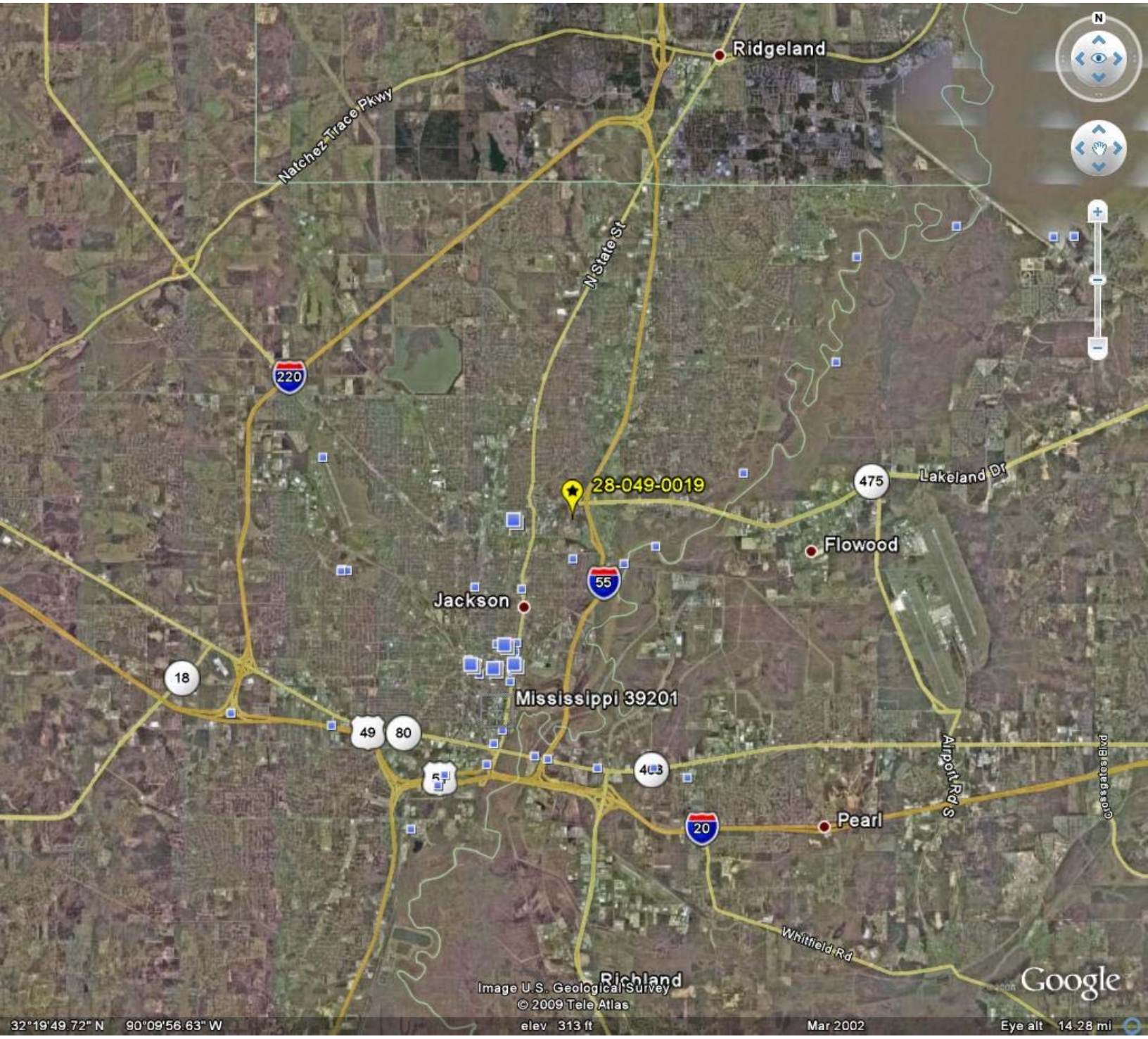


LAUREL, MS - 28-067-0002

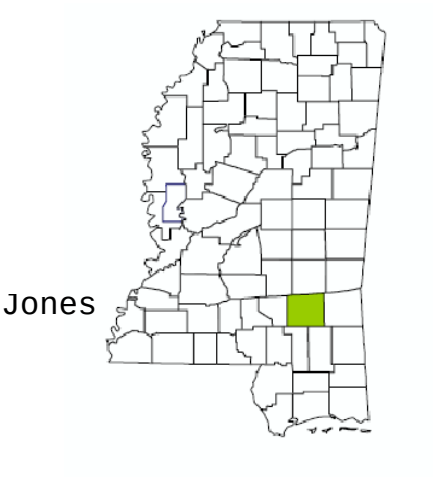
LAUREL - N

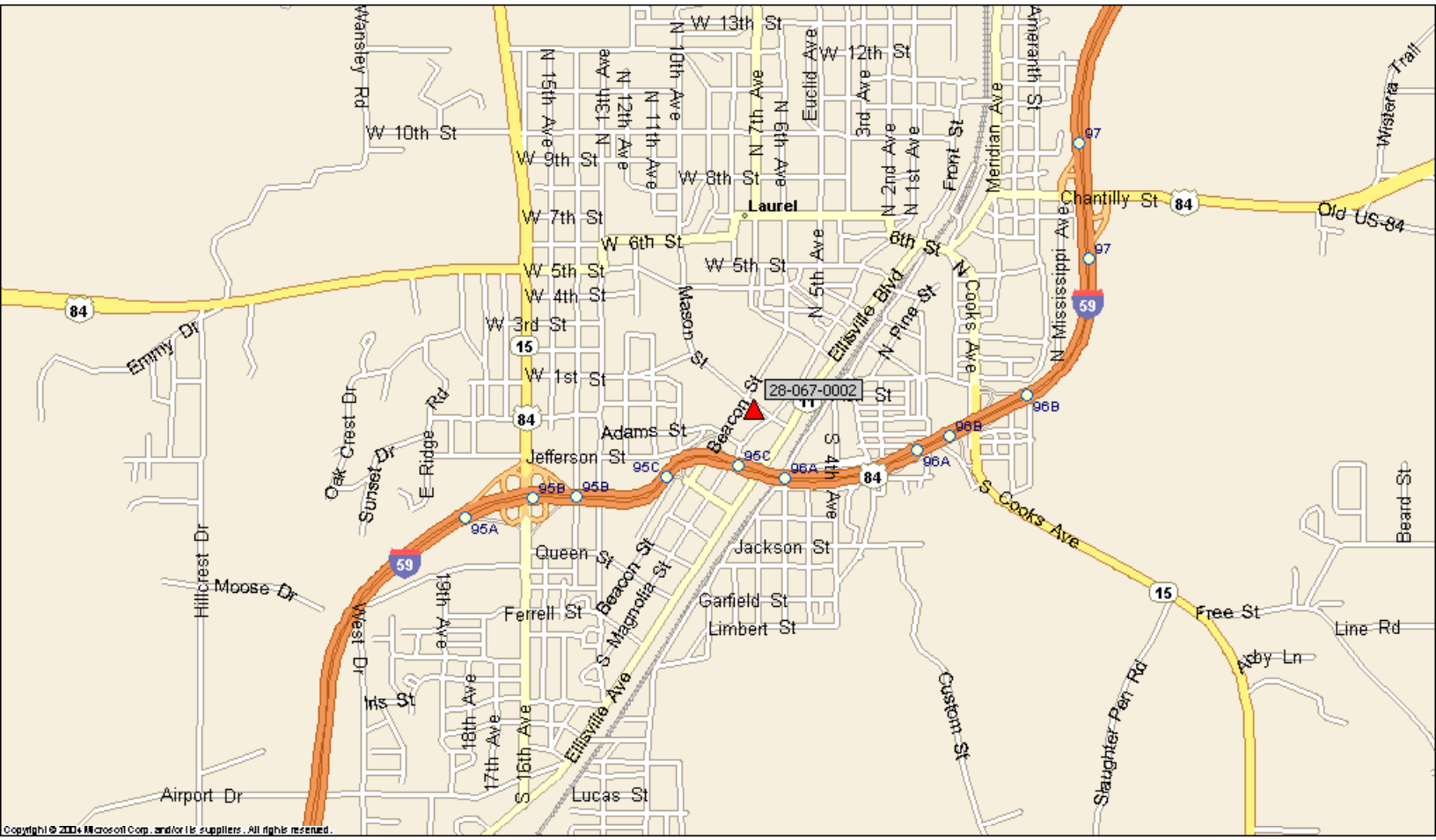
LAUREL - E

LAUREL - S

LAUREL -W

LAUREL – 28-0067-0002





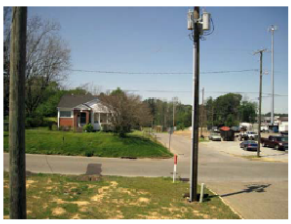
LAUREL 28-067-0002

MERIDIAN, MS - 28-075-0003

MERIDIAN - N

MERIDIAN - E

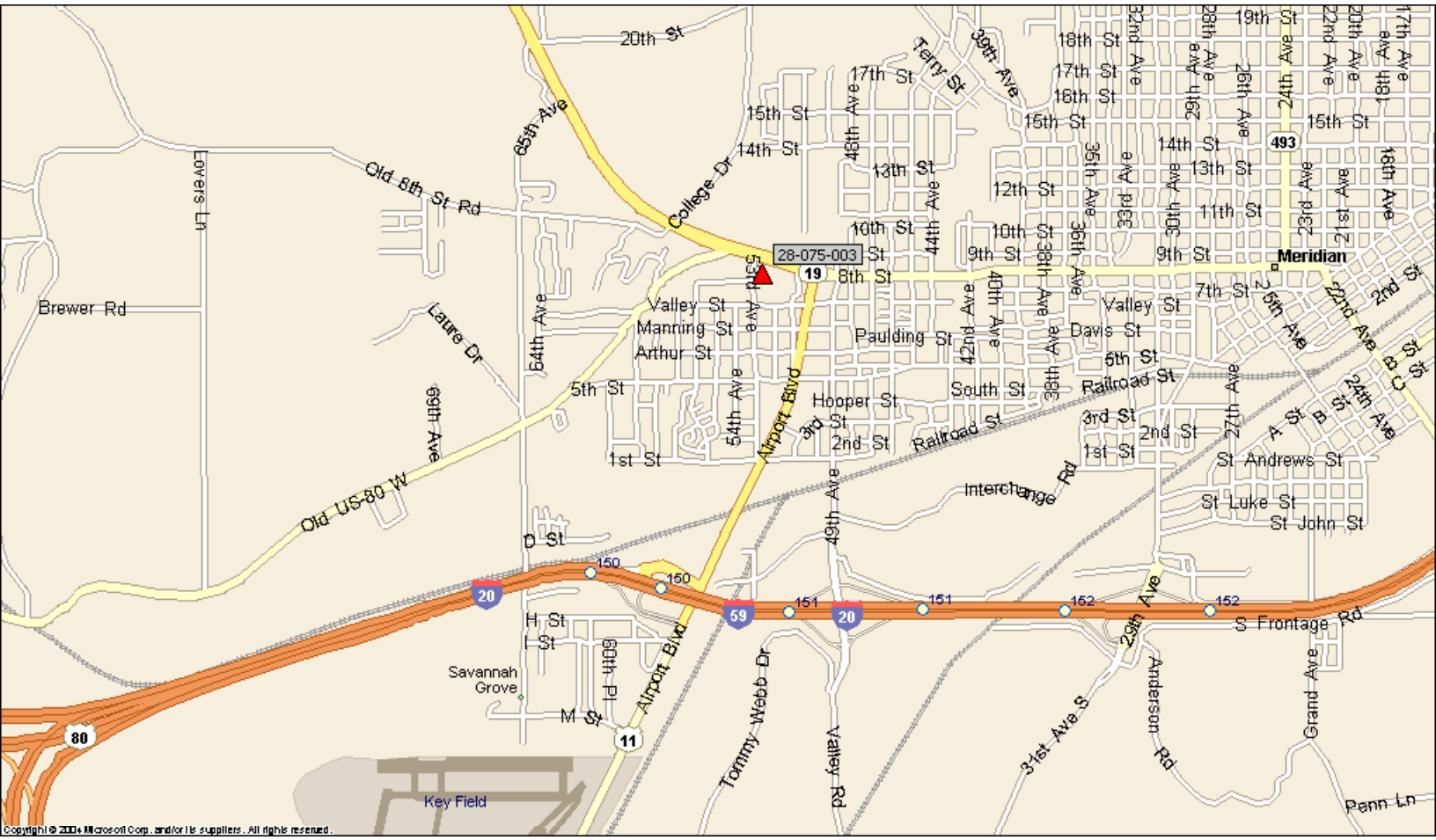
MERIDIAN - S



MERIDIAN -W

MERIDIAN – 28-075-0003

Lauderdale



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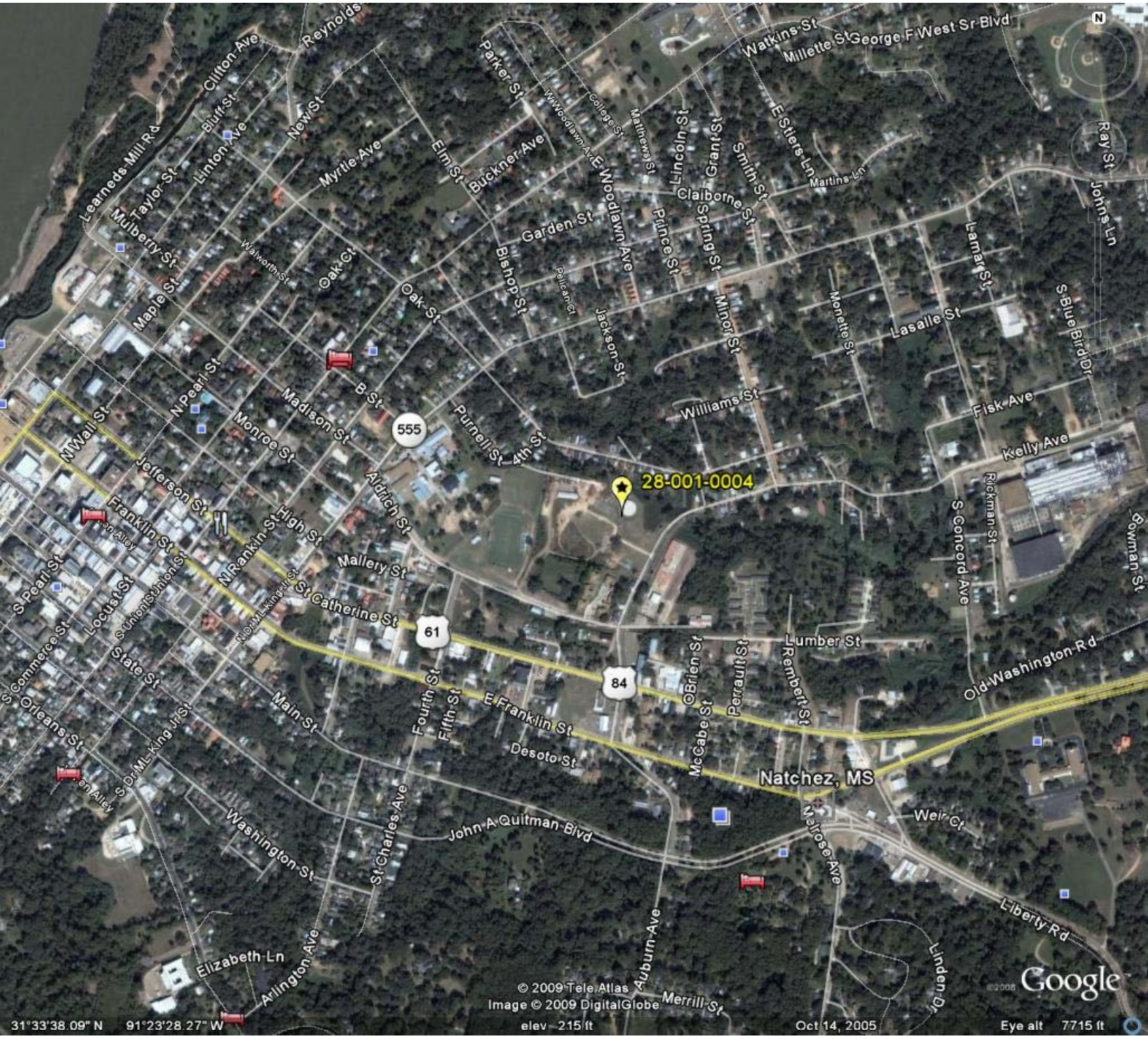


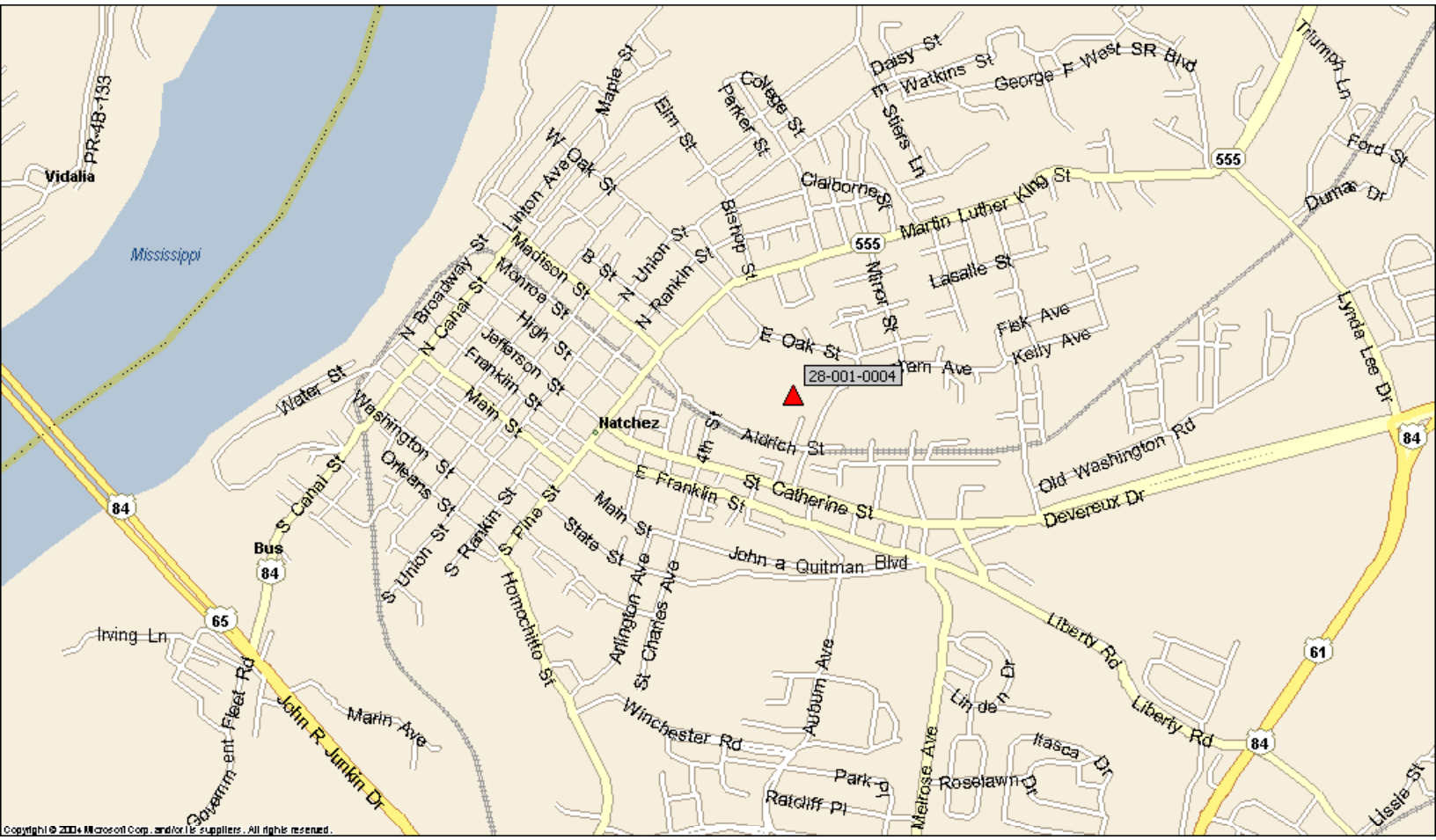
NATCHEZ - N

NATCHEZ - E

NATCHEZ - S

NATCHEZ -W

NATCHEZ – 28-001-0004



NATCHEZ 28-001-0004

PASCAGOULA, MS - 28-059-0006

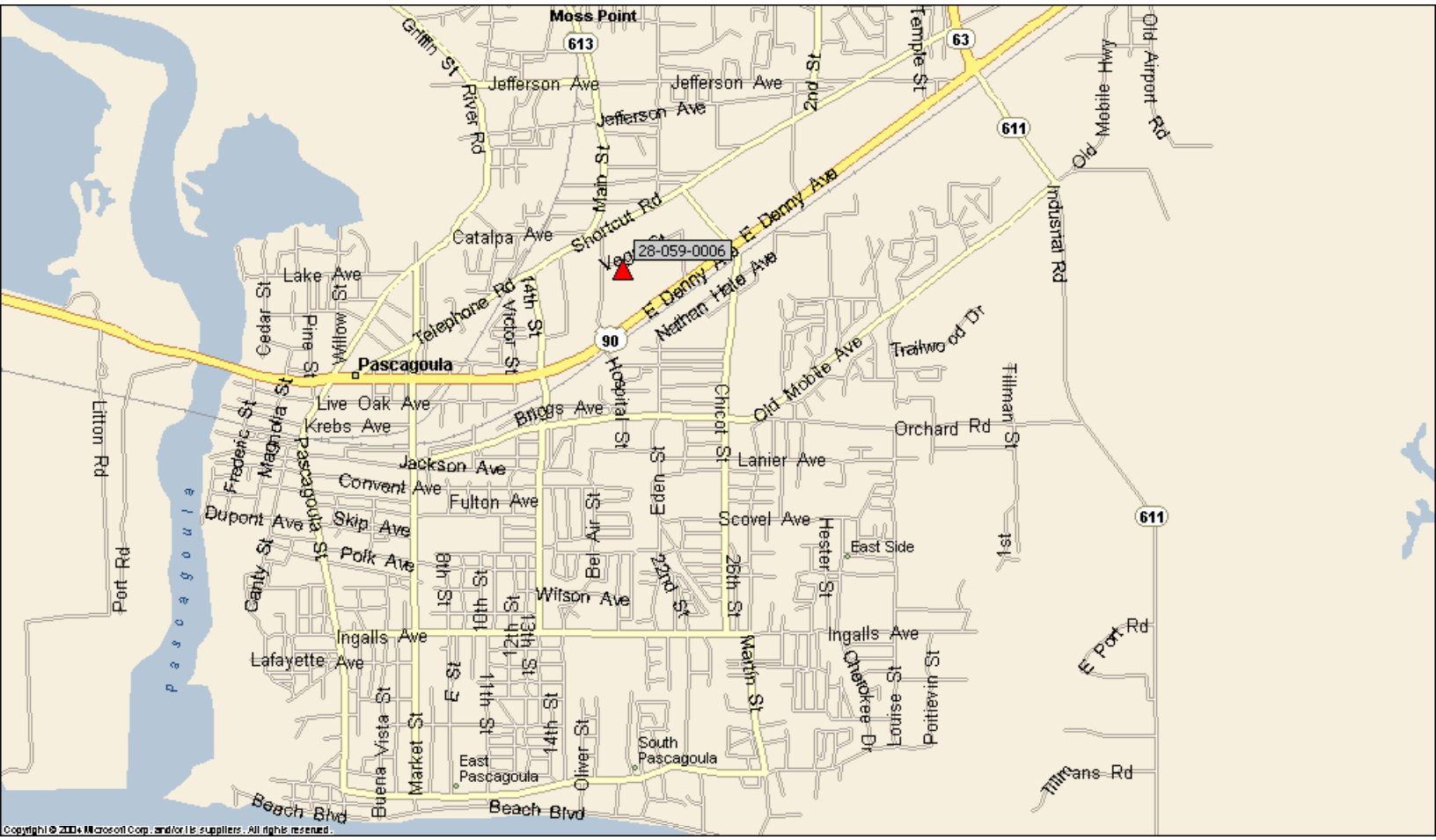
PASCAGOULA - N

PASCAGOULA - E

PASCAGOULA - S

PASCAGOULA -W

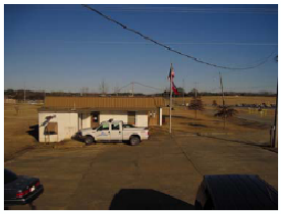
PASCAGOULA – 28-059-0006



PASCAGOULA 28-059-0006

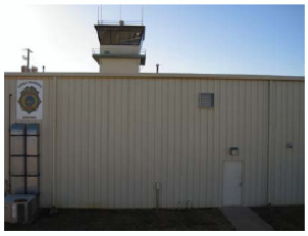
TUPELO, MS - 28-081-0005

TUPELO - N



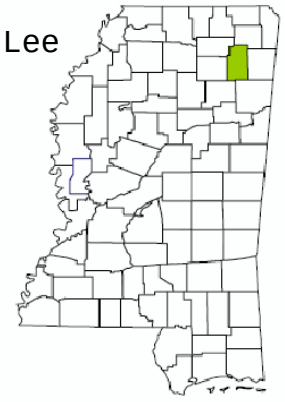
TUPELO - E

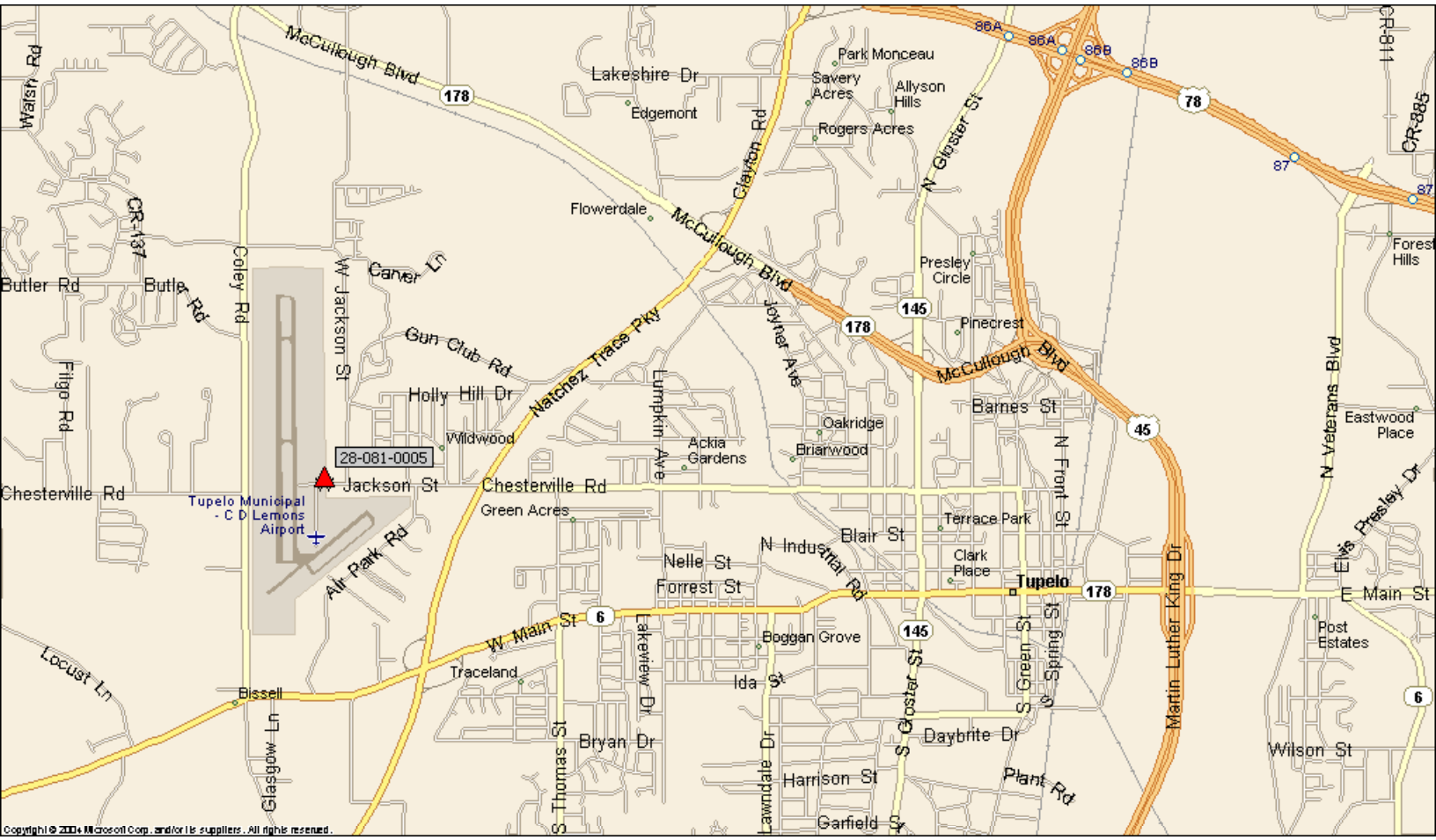
TUPELO - S



TUPELO -W

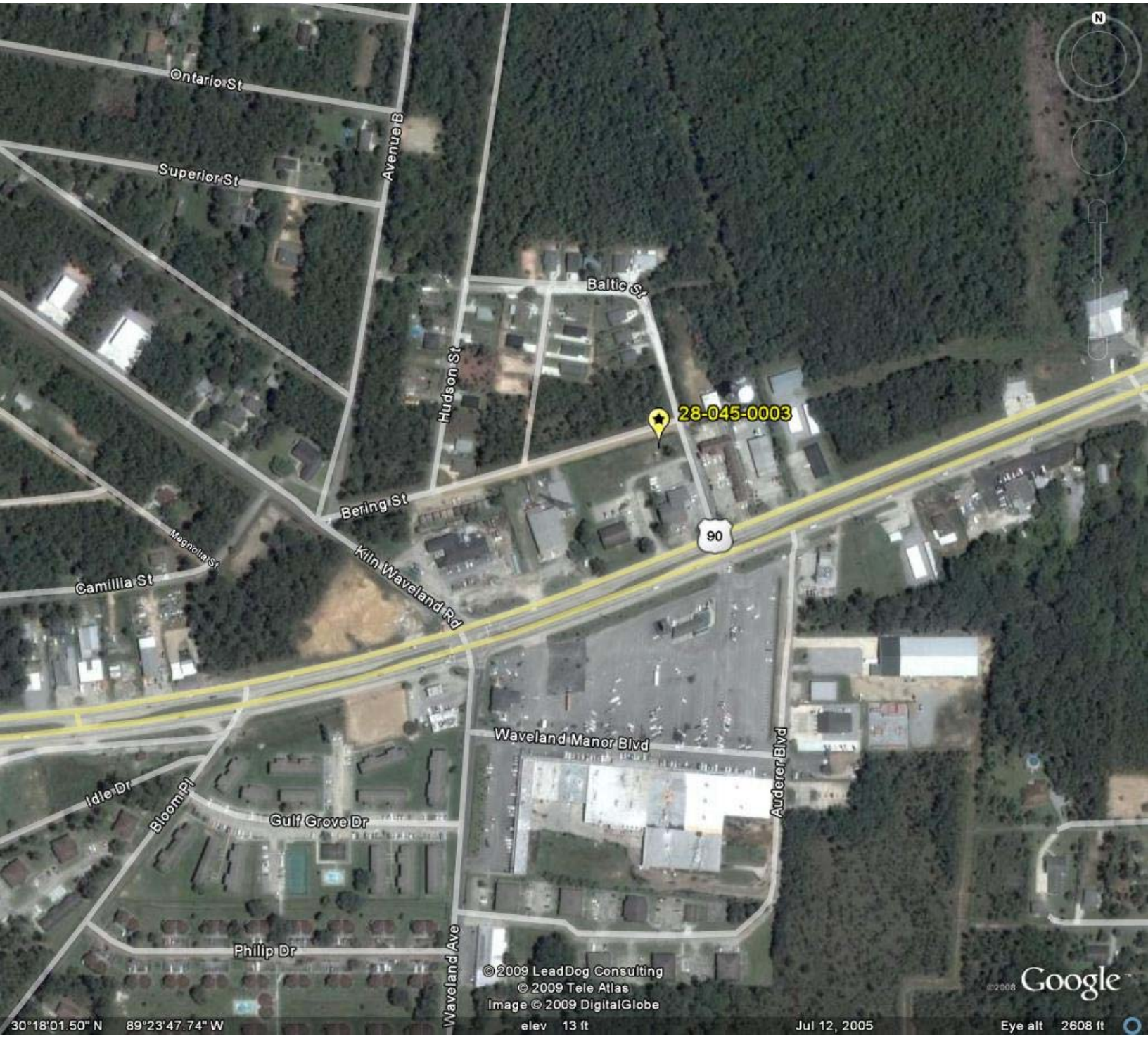
TUPELO – 28-081-0005





TUPELO 28-081-0005

WAVELAND, MS - 28-045-0003



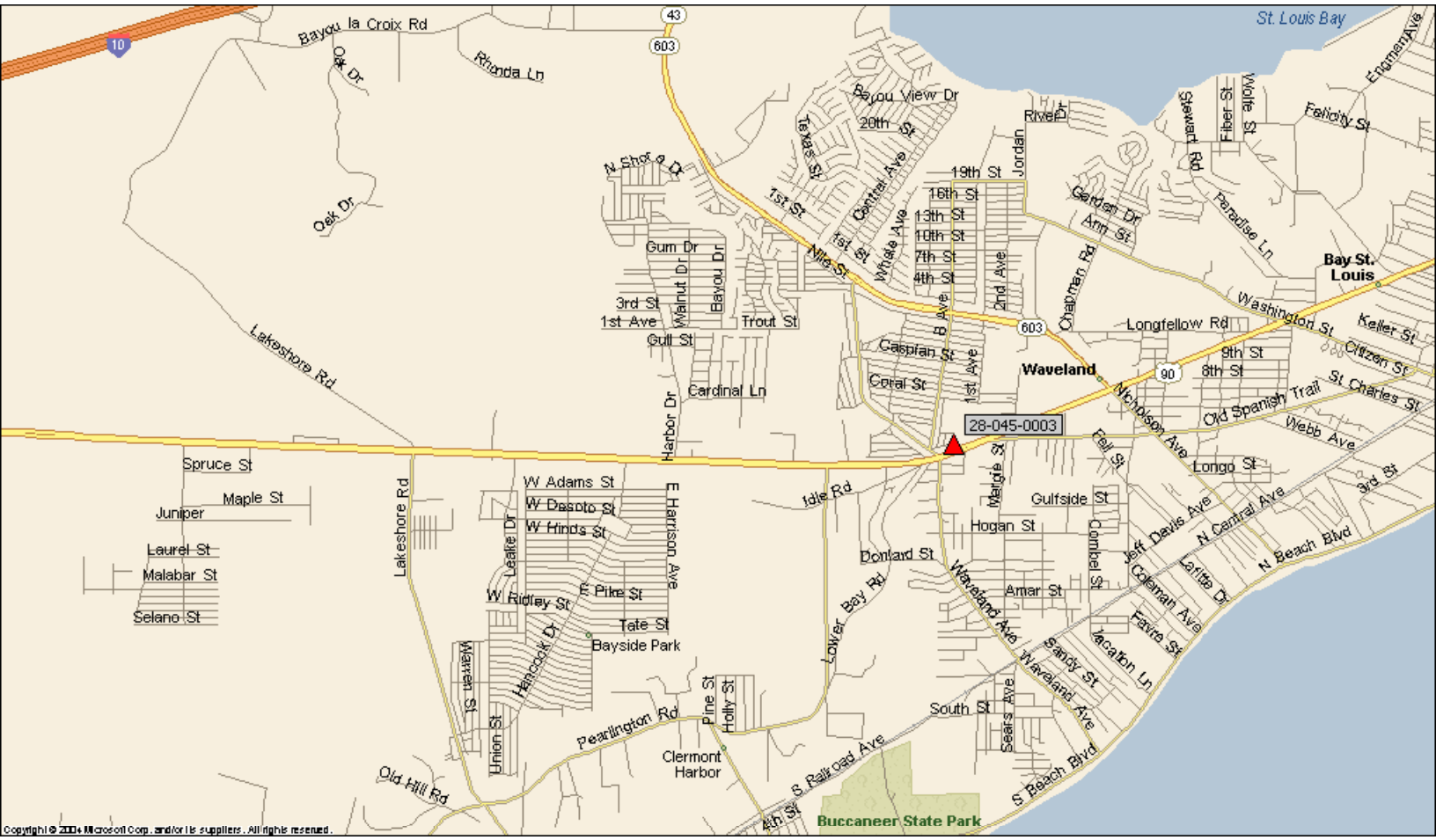
WAVELAND - N

WAVELAND - E

WAVELAND - S

WAVELAND -W

WAVELAND – 28-045-0003



WAVELAND 28-045-0003

Appendix III

Mississippi Five Year Network Assessment for 2010

FIVE YEAR NETWORK ASSESSMENT

JULY 2010

Mississippi's air quality monitoring network reflects the nature of the state. Mississippi's population is relatively low with the majority of that population residing in three areas – the coastal counties, the Jackson urban area and the extreme northern part near Memphis, TN. The remainder is very rural with small towns and cities. Air quality has been conducted in many areas over the years that are no longer monitored after it was determined that the area was well within the existing NAAQS.

Mississippi's geography varies little from the south to the north. It begins at sea level and rises to 250 to 350 feet mostly as a rolling landscape. The Mississippi river delta area is the exception to this type of landscape. It is very flat and lower than the surrounding area.

The wind meteorology across the State is generally from the south to southeast the majority of the year with a more northerly flow during the winter months, as expected. Northerly flow during the ozone season can result in elevated concentrations in our DeSoto county monitor located in the Memphis AQCR.

The following discussions refer to the CRF requirements and the Region IV recommendations as presented in a summary document to the State and local agencies.

NETWORK REVIEW OBJECTIVES

These review objectives are based on consideration of:

1. Population statistics
2. Five year pollutant trends
3. Network scale and representativeness
4. Network redundancy or gaps
5. Programmatic issues related to data needs
6. Statistical tools provided by EPA

I. Appendix D:

The Mississippi DEQ air quality monitoring network currently in operation meets the objectives of Appendix D of Part 58. These include providing timely air pollution data to the public. This is

accomplished by participation in EPA AIRNow data reporting as well as the MDEQ web page, printed reports and public outreach. Each monitor has an appropriate scale of representatives, primarily neighborhood for particulates, SO_2 and NOx and urban for ozone. The monitoring site data primarily supports compliance with the NAAQS. Finally, since the data is reported as indicated above, it is available to support air pollution research and special studies.

Each pollutant meets the minimum monitoring requirements as defined in Appendix D, Part 58, in relation to number and location.

Using population estimates dated 07/2009; an appropriate number of Ozone monitors and $PM_{2.5}$ samplers are located in each MSA as indicted in Table D-2 and D-5 of Appendix D. Additional monitors are located in the MDEQ network for population and spatial purposes. Included are particulate transport and background sites. The current ozone season for Mississippi is March – October.

A PM_{10} sampler is located in the Jackson MSA as required by Table D-4 of Appendix D, for the Jackson MSA. One NOx and one SO_2 monitor is located in the Pascagoula MSA for MSDEQ purposes due to local industrial sources. There are no requirements for NOx, SO2 or CO monitoring in Mississippi.

Based on population levels and any local sources an appropriate scale of representative-ness is assigned to each monitor in the network. This is basically neighborhood for PM monitors and urban for ozone monitors.

II. New Monitoring Sites:

Review of the network and the data set indicated no need for additional PM or ozone monitors in currently monitored or unmonitored areas with the exception of changes indicated in the Annual Network Review.

There are several pending new regulatory requirements that do impact the MDEQ monitoring network. Additional funding will be necessary for each of these efforts. Those items are as follows:

Lead – An urban lead sampler is in place at the Ncore site. Lead analysis is not currently being conducted although samples are being collected as PM_{10}. An individual lead analysis contract will need to be obtained by MDEQ or a preferred method would be to participate in a regional contract. Currently there are no required lead source monitors. Monitoring is to be in effect 1/01/10.

Ozone – There are requirements for an ozone monitor in the Hattiesburg MSA, an additional monitor in the Jackson MSA, a monitor in a Federal or State forested land, a transport site in area not currently monitored and a monitor in a Micropolitan Statistical Area (met by an existing site). These changes will result in the placement of four additional ozone monitors. Monitoring effect dates will be indicated in the final rule in August of 2009.

NO_2 – There is a new requirement for a roadside NOx monitor in the Jackson urban. The site is expected to be in an area of maximum traffic flow (vehicle count). The target date for this new site is 01/01/13.

SO_2 – New SO_2 monitoring regulations will require the establishment of two new SO_2 monitors in the network; one in the Biloxi/Gulfport CBSA and one in the Jackson CBSA. The Ncore SO_2 monitor located in the Jackson CBSA will meet the monitoring requirement for Jackson. These SO_2 monitors are to be in operation by 01/01/13.

III. Site / Monitor Termination:

Some FRM $PM_{2.5}$ monitors are being terminated at the end of CY 2009 as indicted in the MDEQ Annual Network Review. The proposed terminations are all meeting the $PM_{2.5}$ NAAQS. Non FEM continuous samplers will continue to operate at these sites. No actual sites are being terminated, only monitors. These monitor terminations will depend on regional concurrence. No other changes are proposed. A reduction in some of the manual sampler numbers will help with the increased workload as new monitoring regulations began, such as the Ncore site and additional SO_2 analyzers.

IV. New Technologies:

FEM continuous particulate samplers will be incorporated as resources allow. They are much less labor intensive than manual PM samplers. New communication technologies are also being implemented/explored such as cell modems and modbus protocols.

V. Areas of High Population With Susceptible (Asthma) Individuals:

The areas of high population in the state have monitors for PM and ozone pollution. One of the higher incident areas for asthma is the Mississippi delta region; however, the population density is low. The continuous $PM_{2.5}$ sampler in that area located in Cleveland will continue to operate to provide data along with the associated ozone monitor.

VI. Data User and Health Study Impacts:

The impact on data users and health studies is an unknown quantity. Based on past experiences no matter where data is collected and archived a user will request data in an area where there are no monitors or air quality database. Where any monitors are discontinued there is a long term database.

VII. $PM_{2.5}$ Site / Monitor Changes:

Changes in the PM2.5 sampling network are indicated in sections II and III.

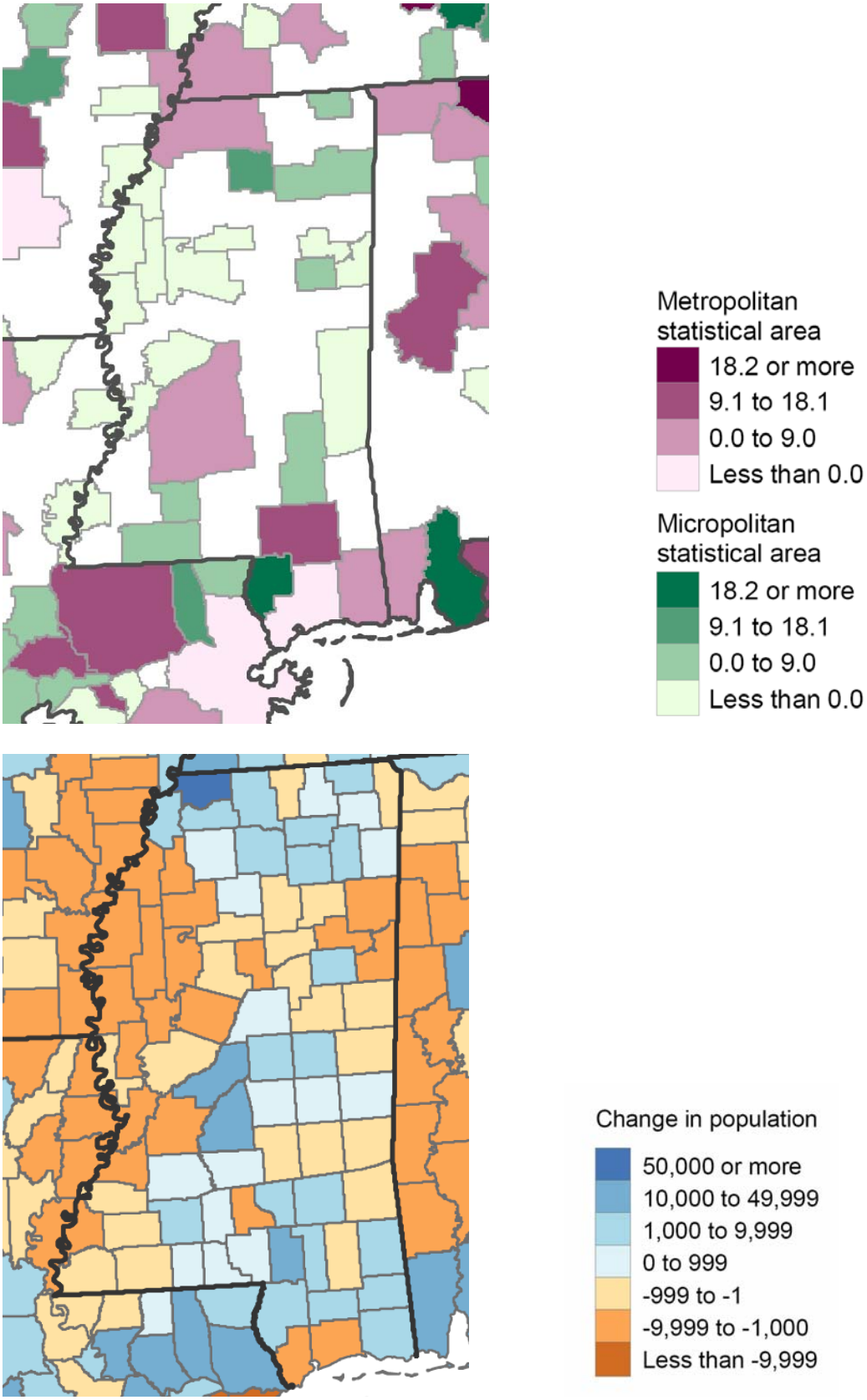
SUPPORTING DOCUMENTS

Population Maps

Ozone Trends

PM 2.5 Trends

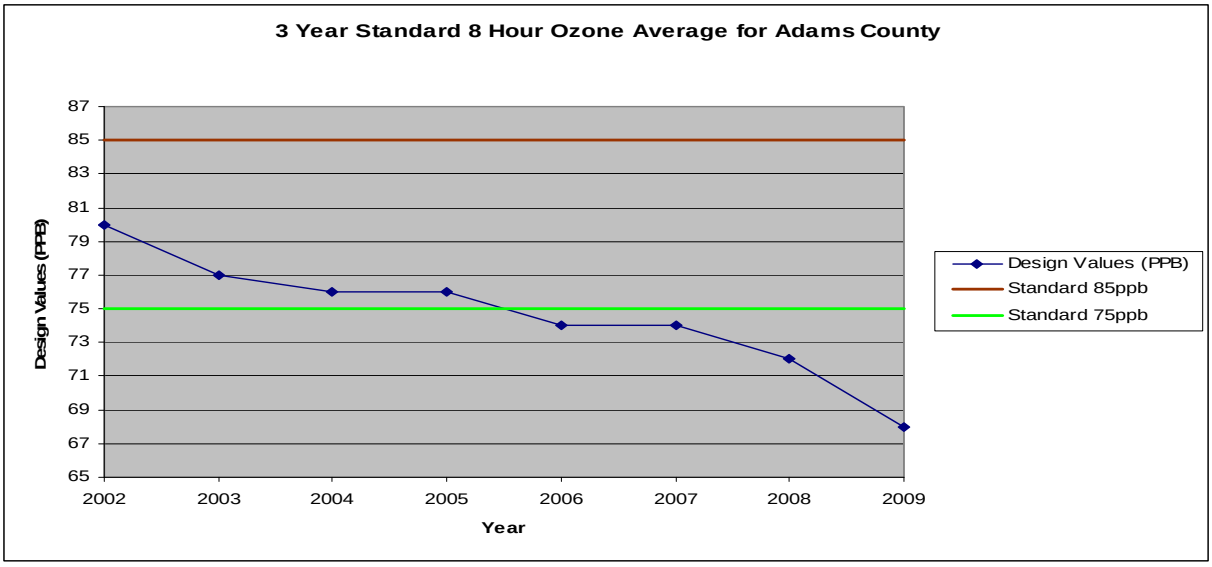
Statistical Tool Examples



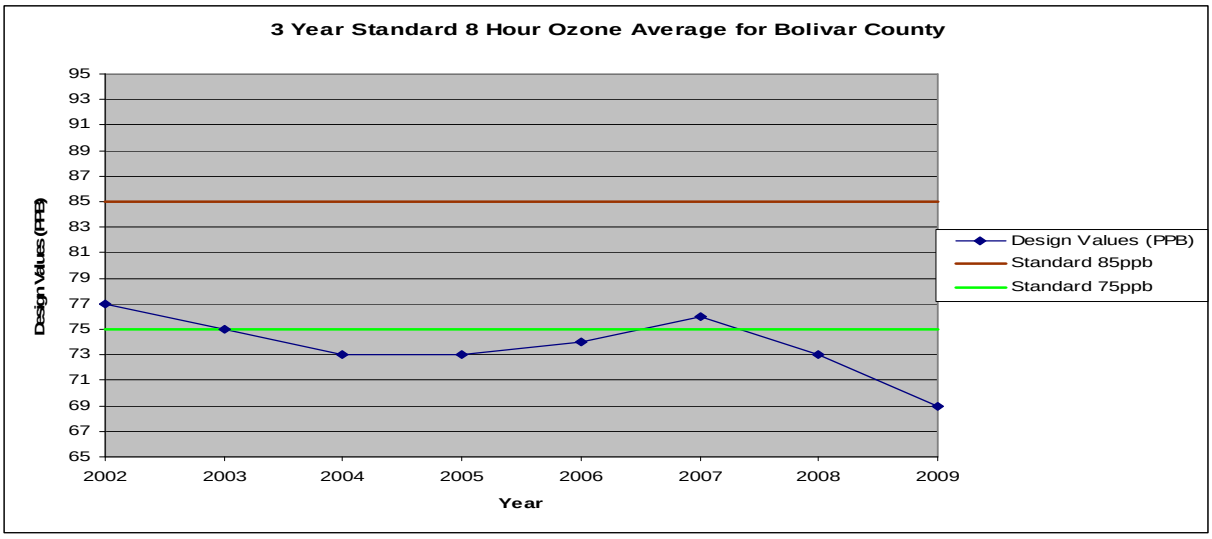
Mississippi Estimated Population Changes 2000 - 2009

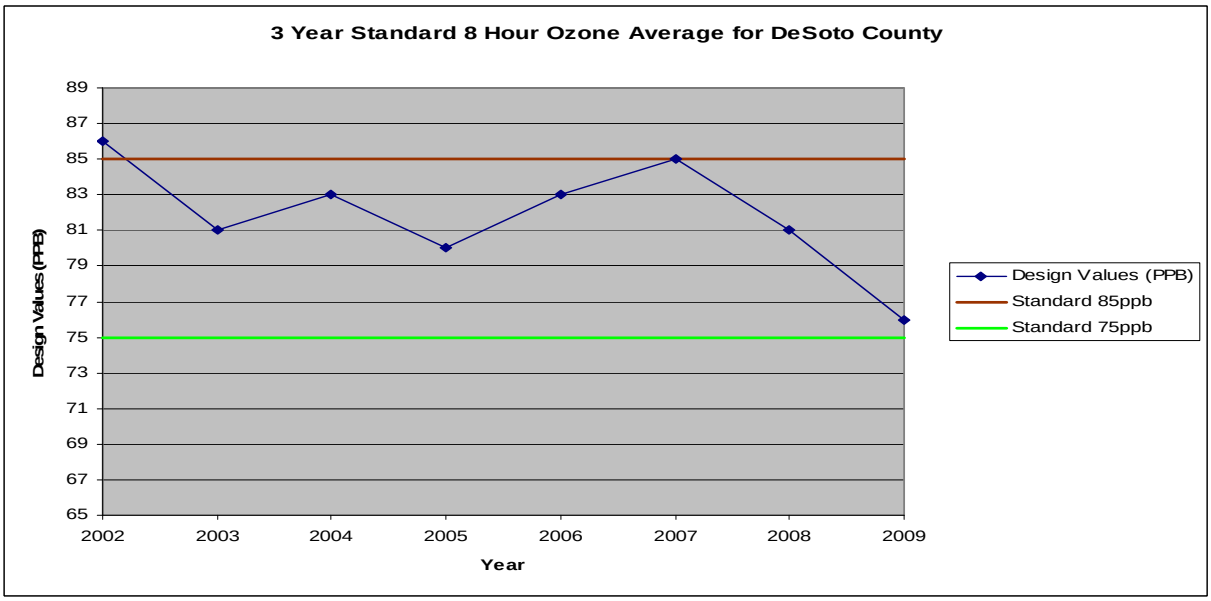
	2002 2000-2002	2003 2001-2003	2004 2002-2004	2005 2003-2005	2006 2004-2006	2007 2005-2007	2008 2006-2008	2009 2007-2009
Adams	80	77	76	76	74	74	72	68
Bolivar	77	75	73	73	74	76	73	69
DeSoto	86	81	83	80	83	85	81	76
Harrison	81	80	80	83	83	83	81	79
Hinds	76	73	69	69	72	73	72	66
Hancock*								-
Jackson	82	80	78	80	80	79	78	75
Lauderdale	76	73	71	72	75	76	71	64
Lee	81	79	75	73	73	75	72	68

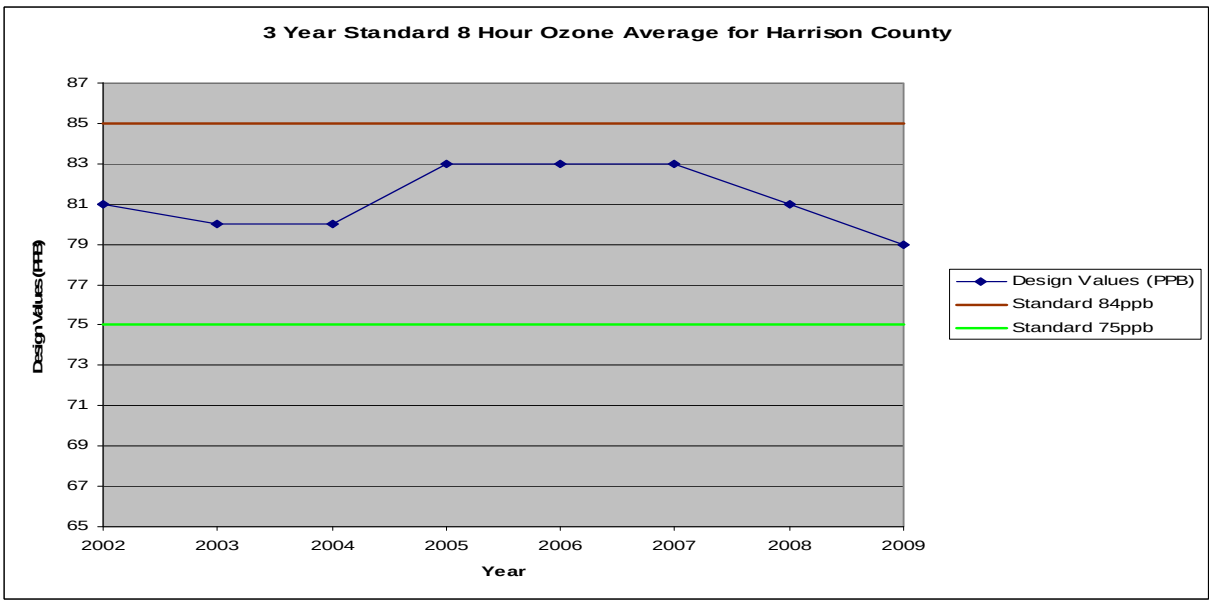
*** 2009 Restart**

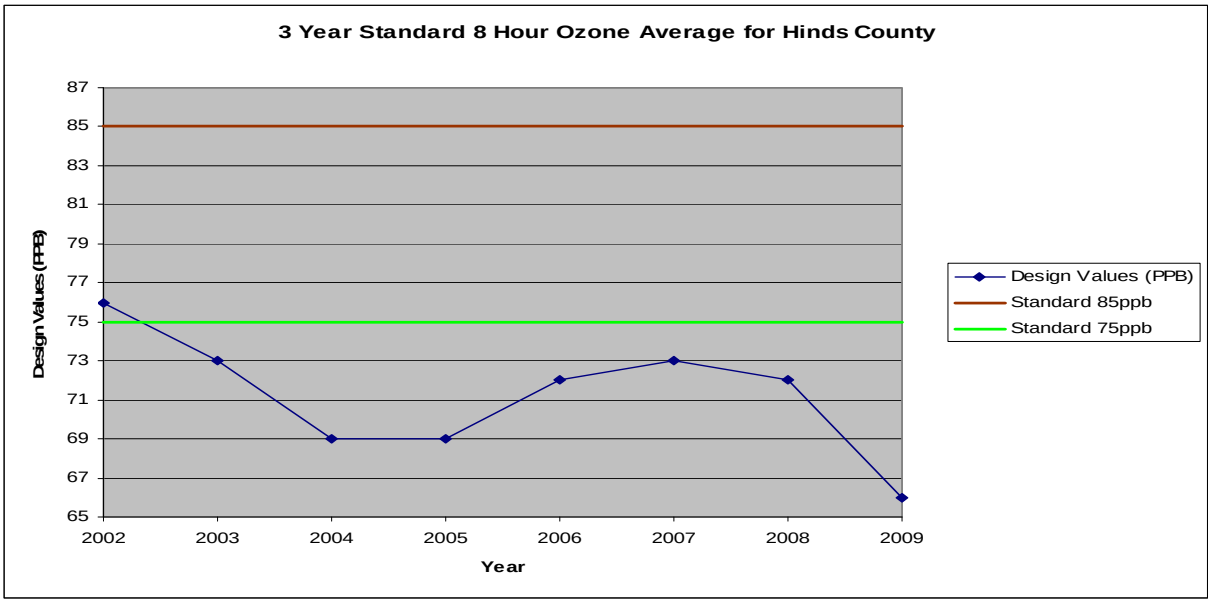


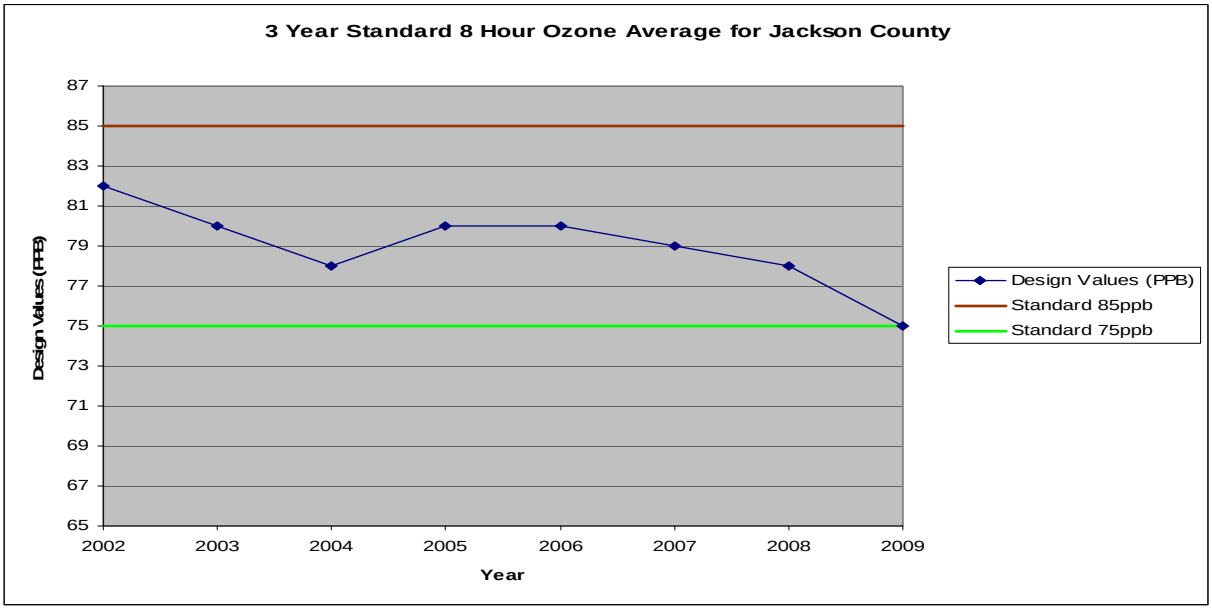
Ozone Design Value Trends by Site Location: 2002 - 2009


3 Year Standard 8 Hour Ozone Average for Bolivar County
Design Values (PPB)
95
93
91
89
87
85
83
81
79
77
75
73
71
69
67
65
2002
2003
2004
2005
2006
2007
2008
2009
Year
Design Values (PPB)
Standard 85ppb
Standard 75ppb


3 Year Standard 8 Hour Ozone Average for DeSoto County
Design Values (PPB)
89
87
85
83
81
79
77
75
73
71
69
67
65
2002
2003
2004
2005
2006
2007
2008
2009
Year
Design Values (PPB)
Standard 85ppb
Standard 75ppb


3 Year Standard 8 Hour Ozone Average for Harrison County
Design Values (PPB)
87
85
83
81
79
77
75
73
71
69
67
65
2002
2003
2004
2005
2006
2007
2008
2009
Year
Design Values (PPB)
Standard 84ppb
Standard 75ppb


3 Year Standard 8 Hour Ozone Average for Hinds County
Design Values (PPB)
87
85
83
81
79
77
75
73
71
69
67
65
2002
2003
2004
2005
2006
2007
2008
2009
Year
Design Values (PPB)
Standard 85ppb
Standard 75ppb


3 Year Standard 8 Hour Ozone Average for Jackson County
Design Values (PPB)
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85
83
81
79
77
75
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65
2002
2003
2004
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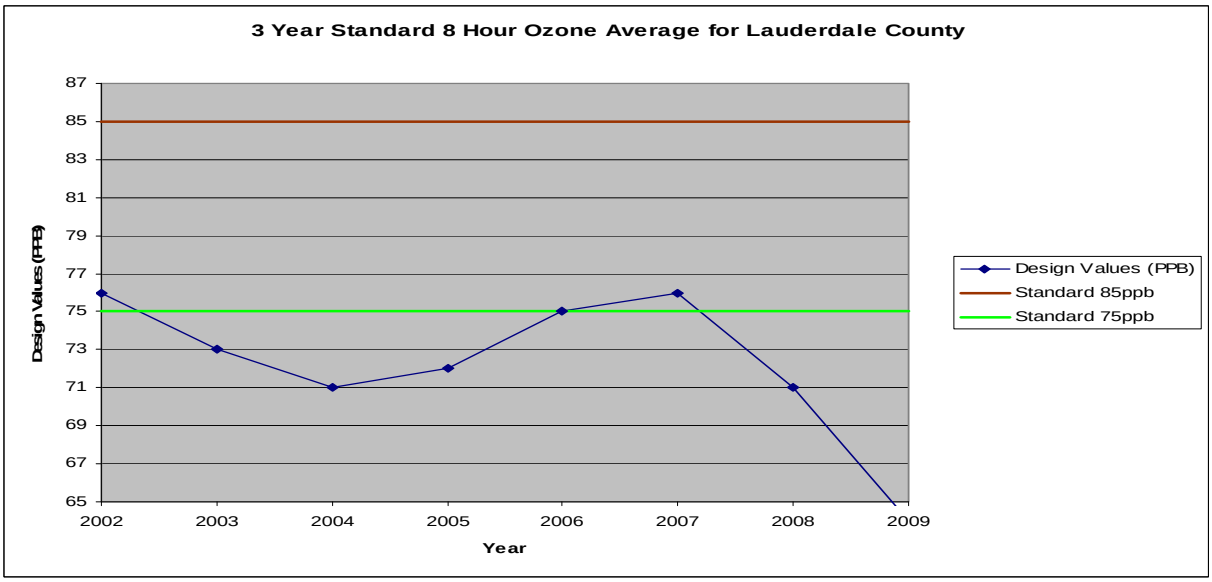
2006
2007
2008
2009
Year
Design Values (PPB)
Standard 85ppb
Standard 75ppb


3 Year Standard 8 Hour Ozone Average for Lauderdale County
Design Values (PPB)
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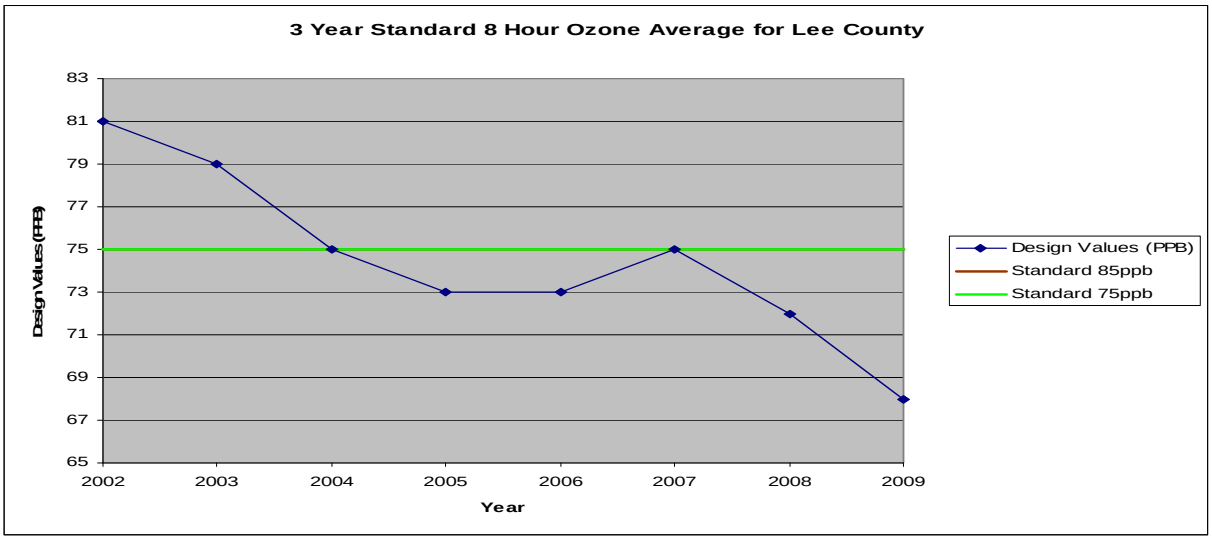
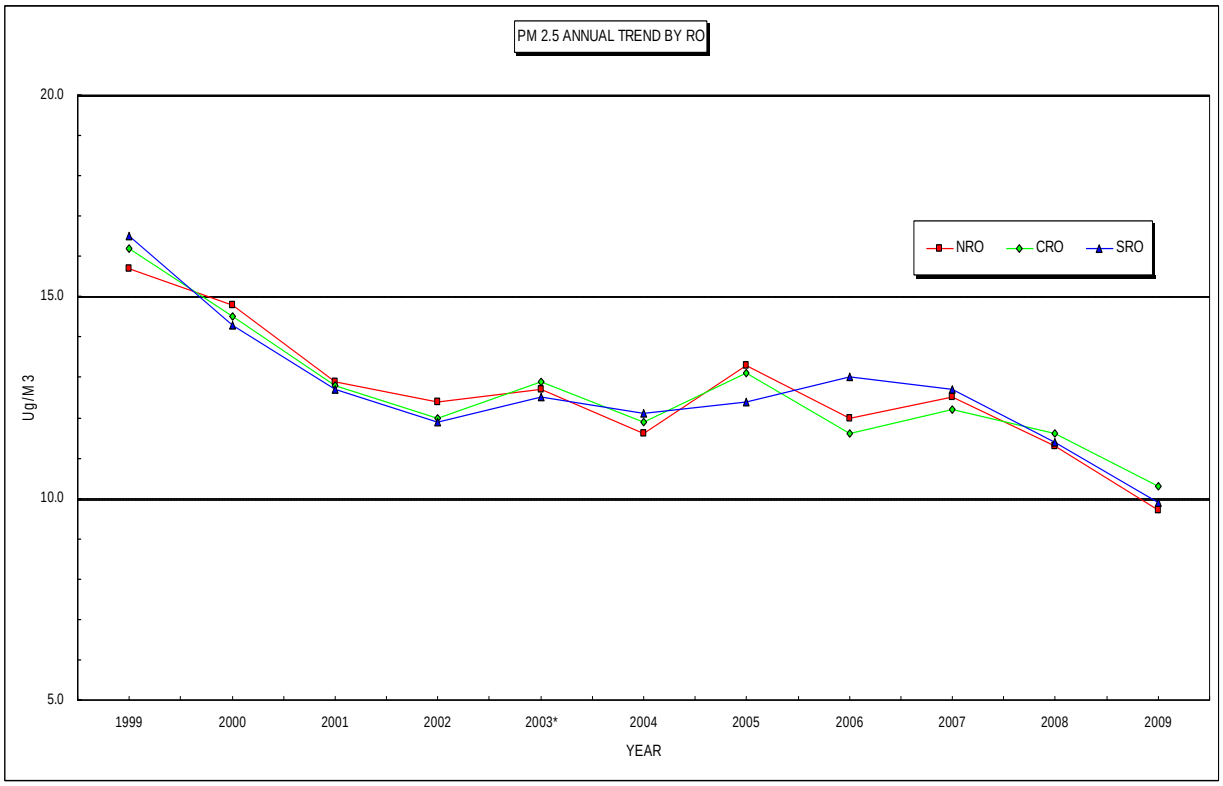
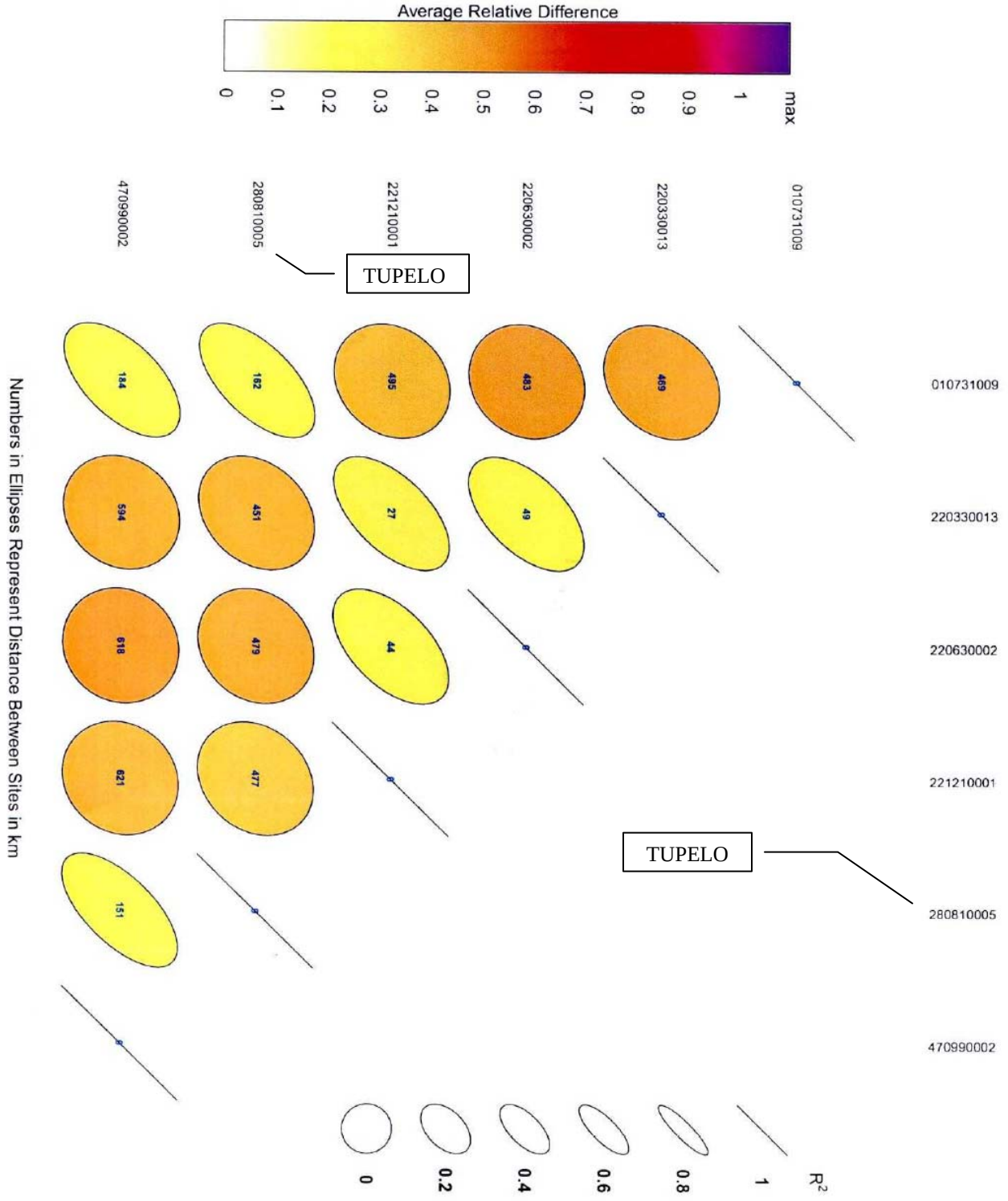
73
71
69
67
65
2002
2003
2004
2005
2006
2007
2008
2009
Year
Design Values (PPB)
Standard 85ppb
Standard 75ppb

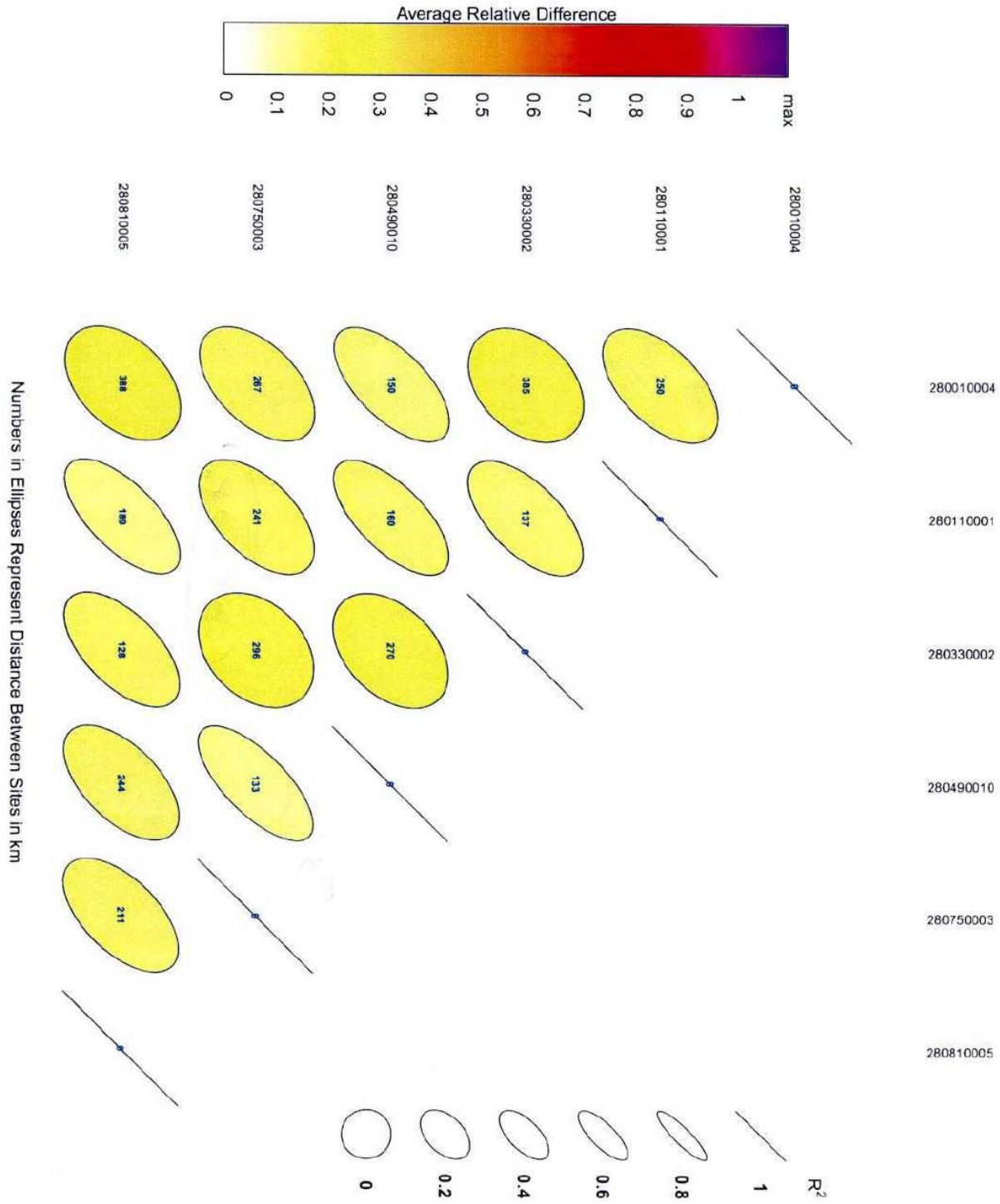




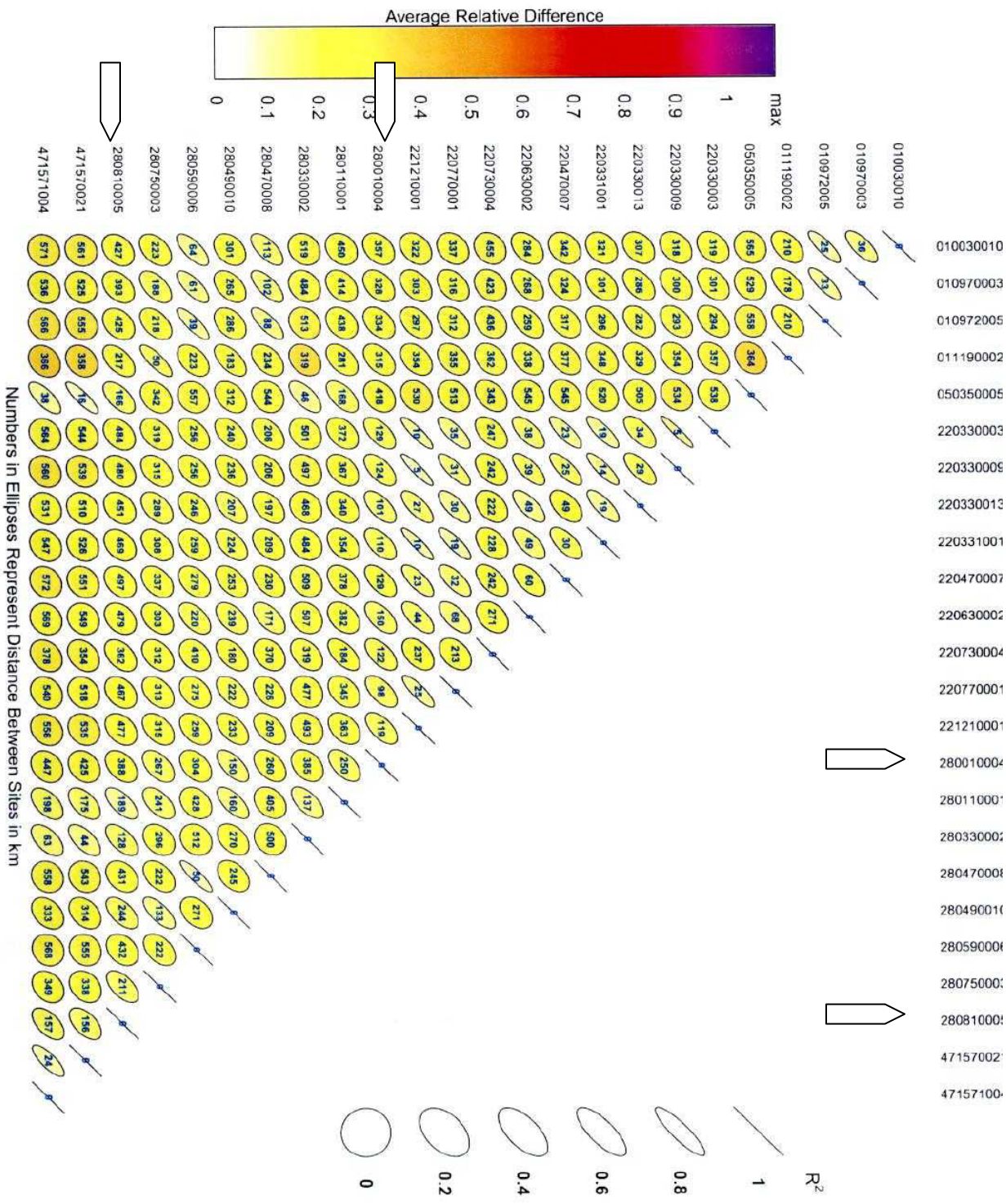
PM 2.5 Trends by Regional Office Area – North, Central, South



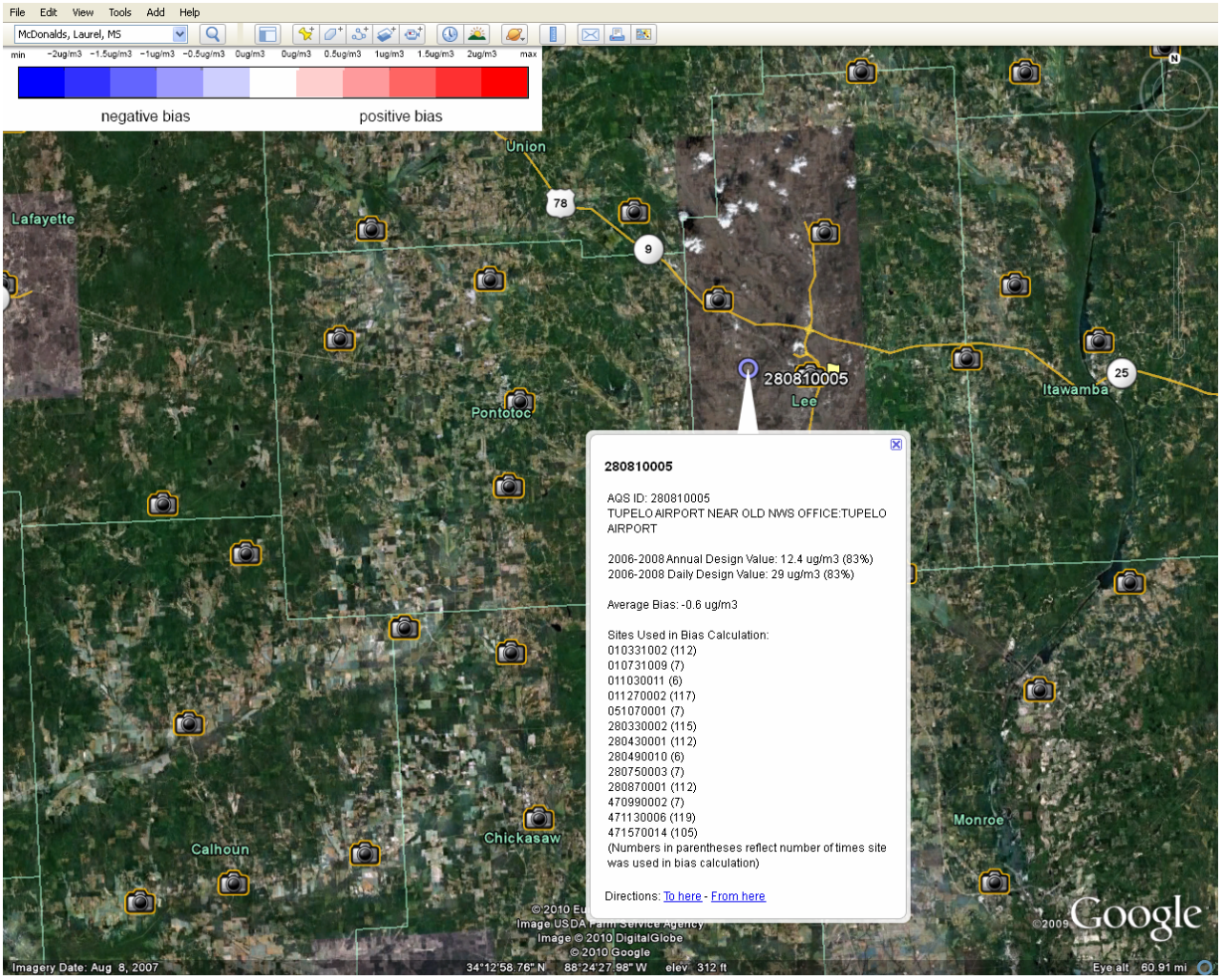
Example - PM Continuous Site Comparison across State Lines



Example - Ozone Site Comparison within State Lines



Example - Ozone Site Comparison across State Lines



Example – Site removal Bias Tool

280810005

AQS ID: 280810005
TUPELO AIRPORT NEAR OLD NWS OFFICE: TUPELO AIRPORT

2006-2008 Annual Design Value: 12.4 ug/m3 (83%)
2006-2008 Daily Design Value: 29 ug/m3 (83%)

Average Bias: -0.6 ug/m3

Sites Used in Bias Calculation:
010331002 (112)
010731009 (7)
011030011 (6)
011270002 (117)
051070001 (7)
280330002 (115)
280430001 (112)
280490010 (6)
280750003 (7)
280870001 (112)
470990002 (7)
471130006 (119)
471570014 (105)

(Numbers in parentheses reflect number of times site was used in bias calculation)

Example – Site Removal Bias Tool Results