

St. Louis Area Ozone Designation Meeting

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July 29, 2008
St. Louis, Missouri



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Presentation Overview

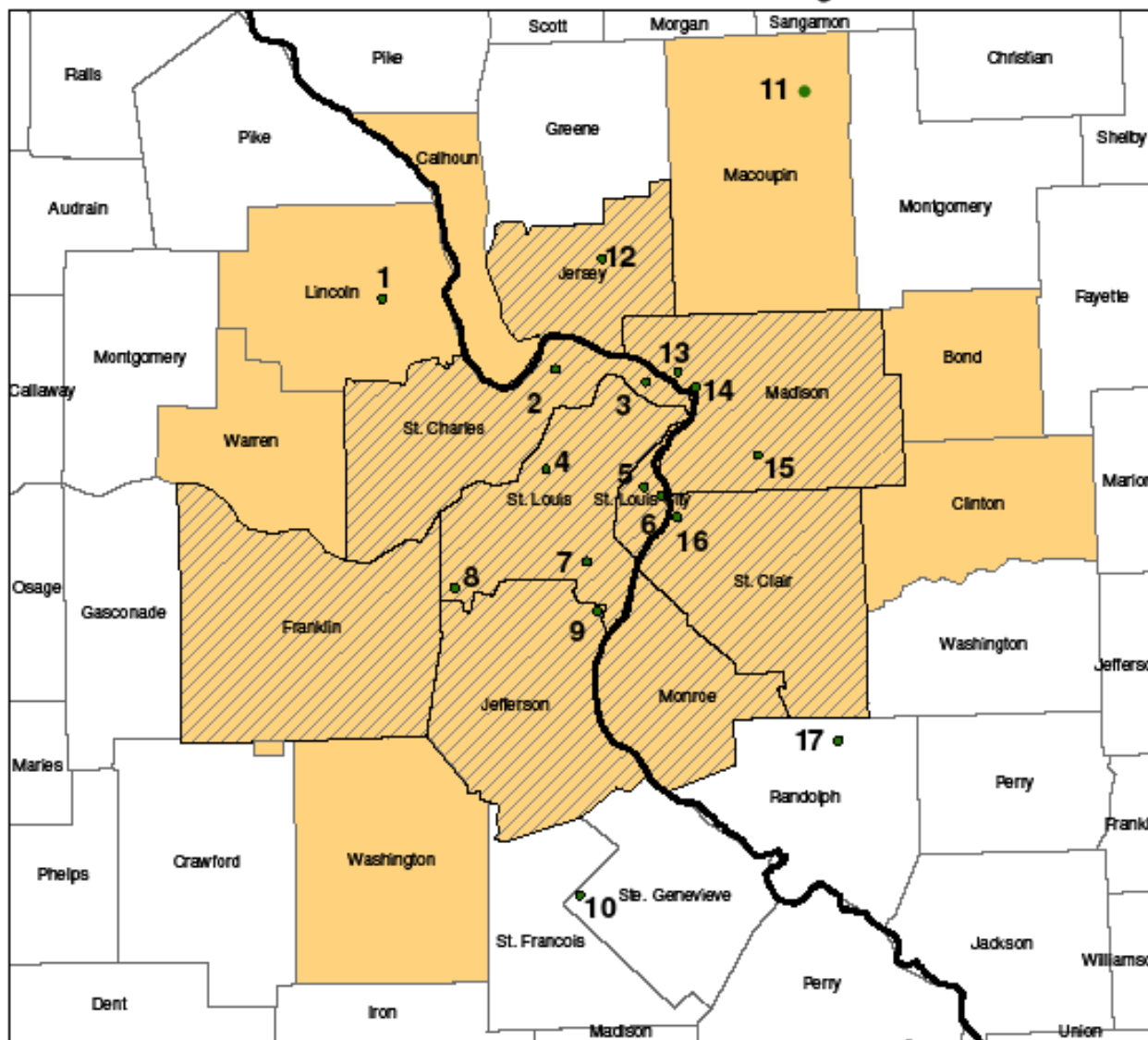
- Designation Process Review
- Summary Information for the St. Louis Area
- Area-Specific Criteria Information
- Stakeholder Involvement

EPA's New Ozone Standard

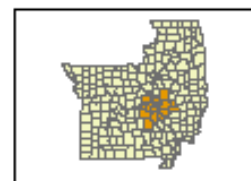
- Primary standard – 75 ppb
- Secondary standard – 75 ppb
- Area meets the new standard if design value (average of 4th highest 8-hour average at each monitor over three years) is less than or equal to 75 ppb

2008 St. Louis Ozone Sites and 05-07 Design Values

- Ozone sites
- ▨ Non-Attainment Area
- St. Louis MSA



- # - Site Name (ppb)
- 1 - Foley (87)
 - 2 - Orchard Farm (89)
 - 3 - West Alton (89)
 - 4 - Maryland Hts (88)
 - 5 - Margaretta (86)
 - 6 - Blair Street (84)
 - 7 - Sunset Hills (86)
 - 8 - Pacific (83)
 - 9 - Arnold (86)
 - 10 - Bonne Terre (83)
 - 11 - Nilwood (74)
 - 12 - Jerseyville (77)
 - 13 - Alton (83)
 - 14 - Wood River (83)
 - 15 - Maryville (84)
 - 16 - E. St. Louis (82)
 - 17 - Houston (75)



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 Prepared by Bern Johnson 3 JUN 2008



Eleven Boundary Criteria

- Emissions and air quality in adjacent areas
- Population density and degree of urbanization (significant difference from surrounding area)
- Ozone monitoring data in surrounding area
- Location of emission sources
- Traffic and commuting patterns
- Expected growth (extent, pattern and rate)

Eleven Boundary Criteria (cont.)

- Meteorology (weather and transport patterns)
- Geography/topography
- Jurisdictional boundaries (counties, air districts, current nonattainment area)
- Level of control of emission sources
- Regional emission reductions

Counties with violating monitor

- St. Charles (West Alton, Orchard Farm – 89 ppb)
- St. Louis (Maryland Heights – 88 ppb)
- St. Louis City (Margaretta – 86 ppb)
- Jefferson (Arnold – 86 ppb)
- Madison, IL (Maryville – 84 ppb)
- St. Clair, IL (E. St. Louis – 82 ppb)
- Jersey, IL (Jerseyville – 77 ppb)

- Lincoln (Foley – 87 ppb)
- Ste. Genevieve (Bonne Terre – 83 ppb)

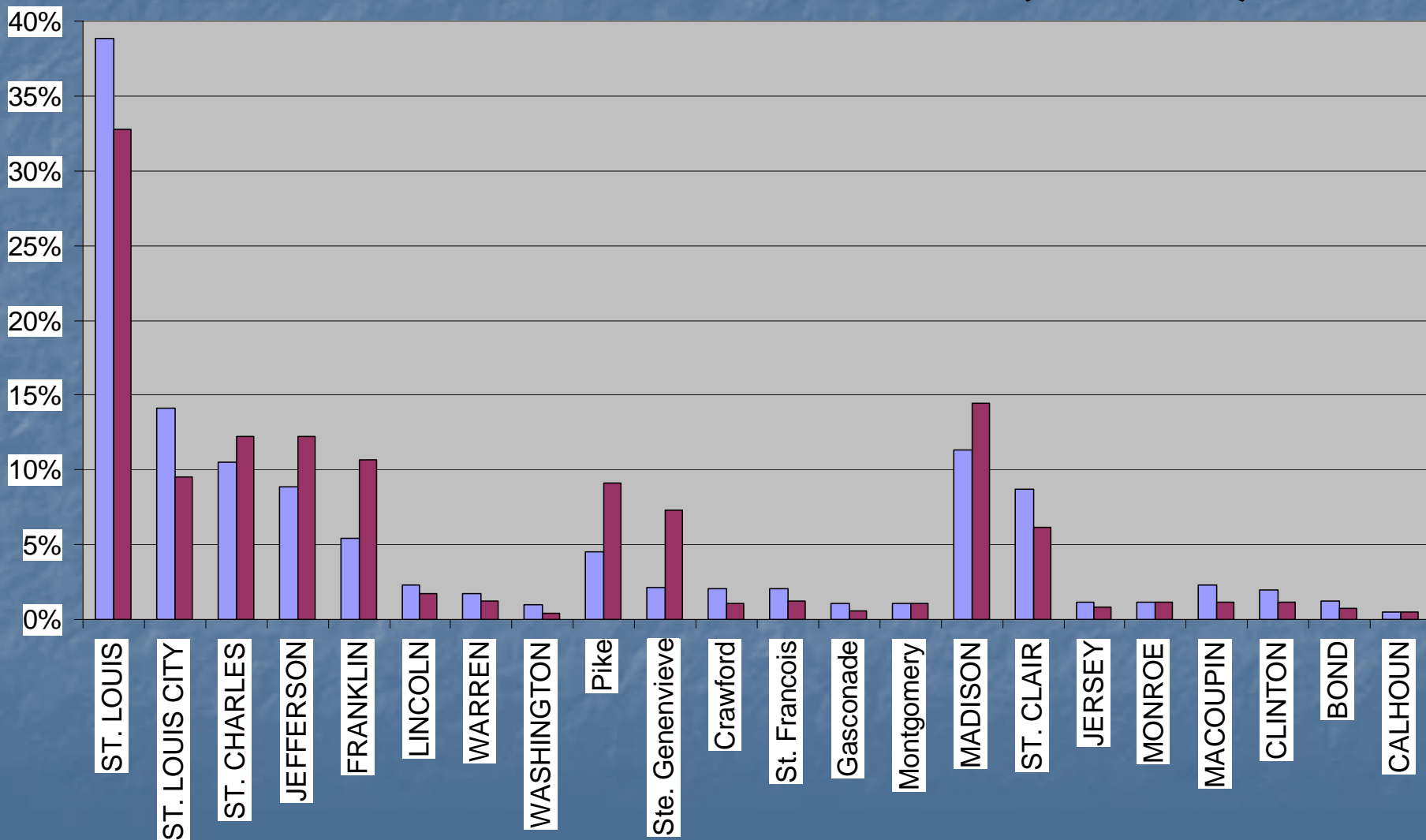
Contribution to Monitored Violations

- Key issues:
- Do VOC and NOx emissions from each county contribute to monitored violations in the area?
- Use eleven EPA criteria to evaluate contribution.

Evaluation Data

- Emission totals and percentage of overall "area" inventory for each county
- Emission density plots
- Population/Urbanization
- Connectivity
- Growth
- Meteorological

VOC/NOx - % NAA (2009)

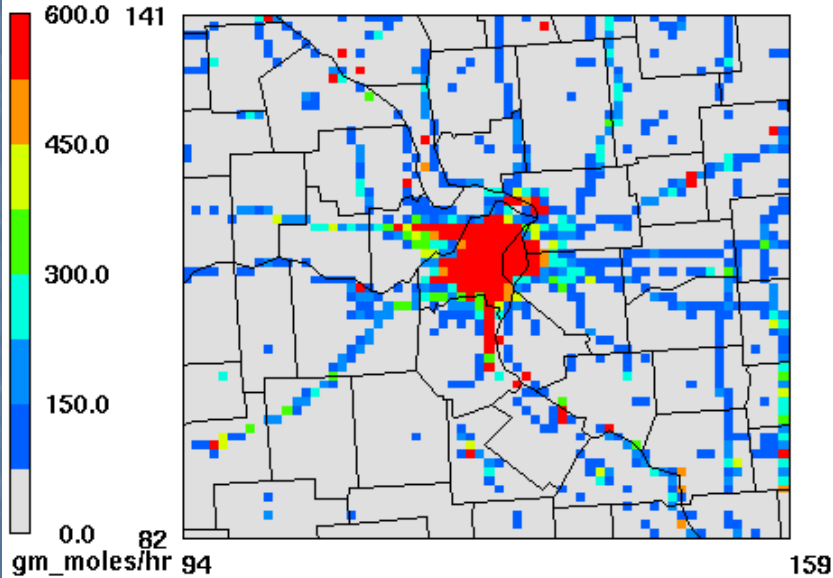


NOx Emission Density

Total Low-level NOx Emissions (2009)

Density Plot

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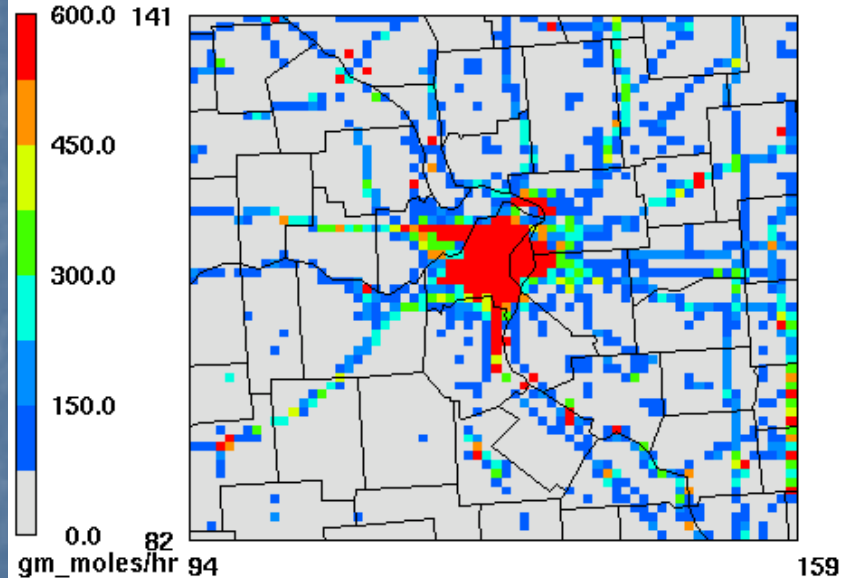
July 7, 2002 14:00:00

Min= 2.9 at (114,95), Max=8190.1 at (127,116)

Total Low-level NOx Emissions (2009)

Density Plot

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July 7, 2002 21:00:00

Min= 3.8 at (114,95), Max=9312.8 at (127,116)

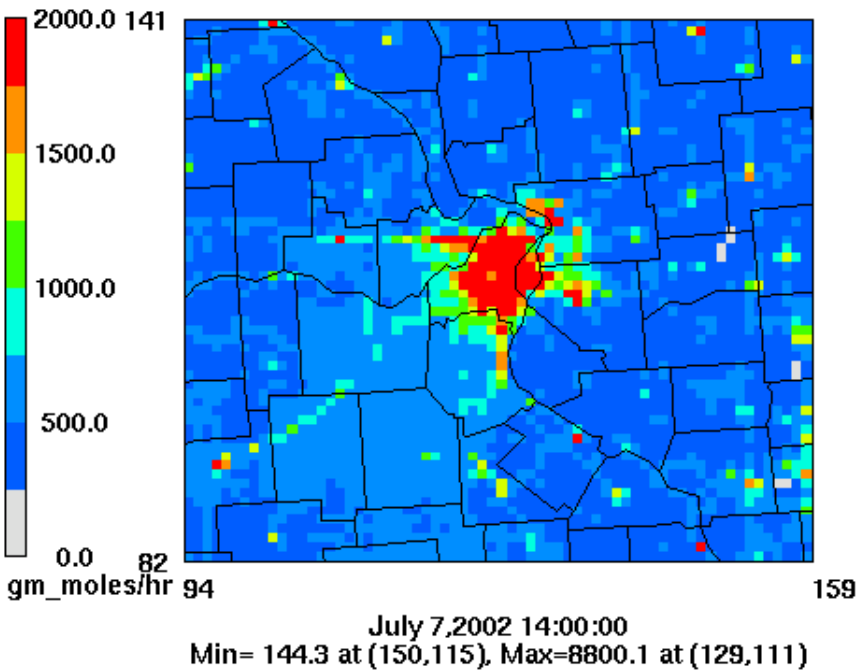
July 7, 2002 – 8 AM

July 7, 2002 – 3 PM

VOC Emission Density

Total Low-Level VOC Emissions (2009)

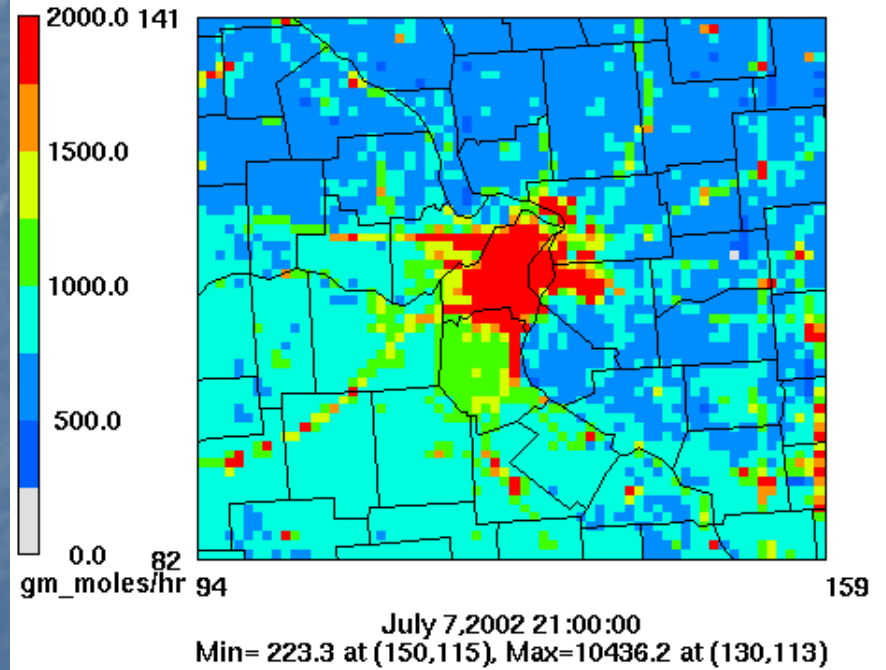
Density Plot (minus ISOP&FORM)
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July 7, 2002 – 8 AM

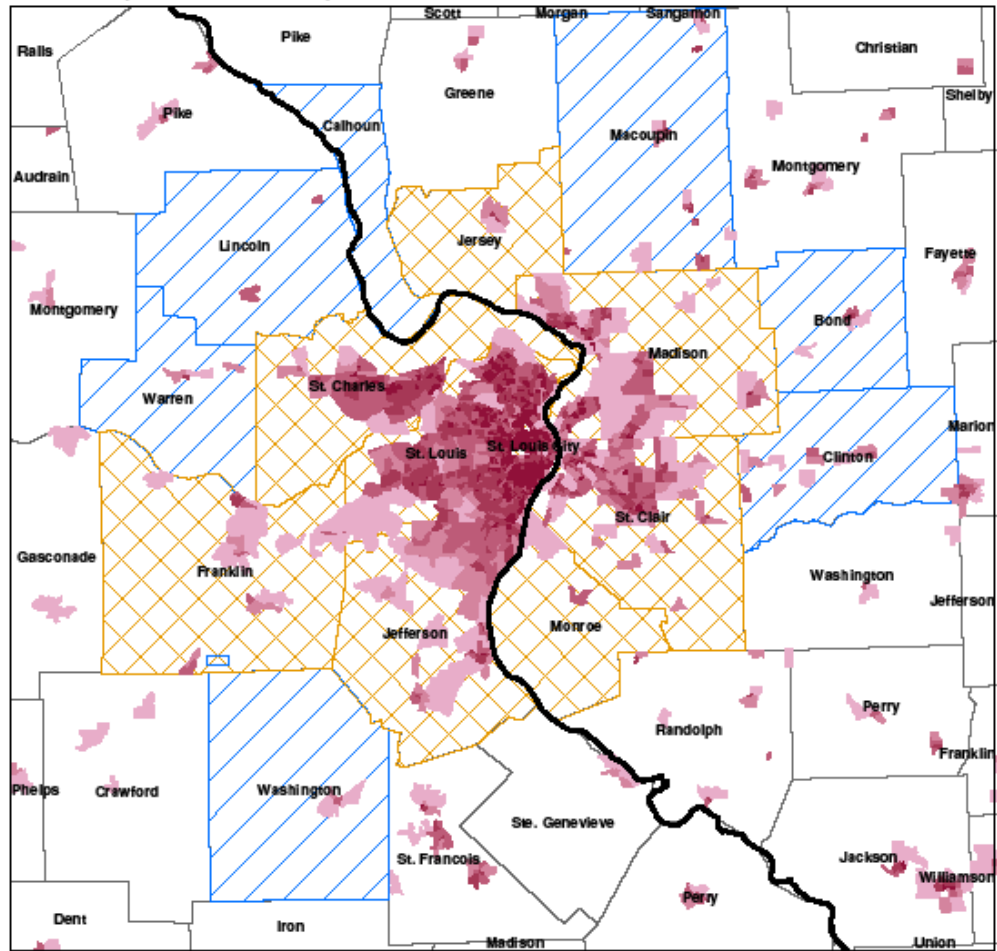
Total Low-Level VOC Emissions (2009)

Density Plot (minus ISOP&FORM)
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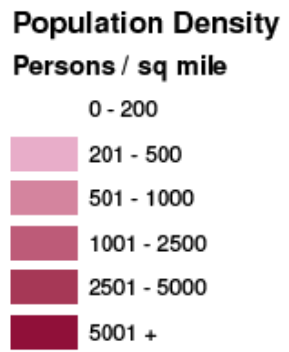
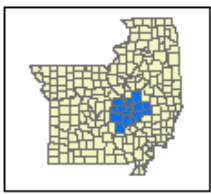
July 7, 2002 – 3 PM




2000 Population Density - St. Louis



0 12.5 25 50 Kilometers

-  Non-Attainment Area
-  St. Louis MSA

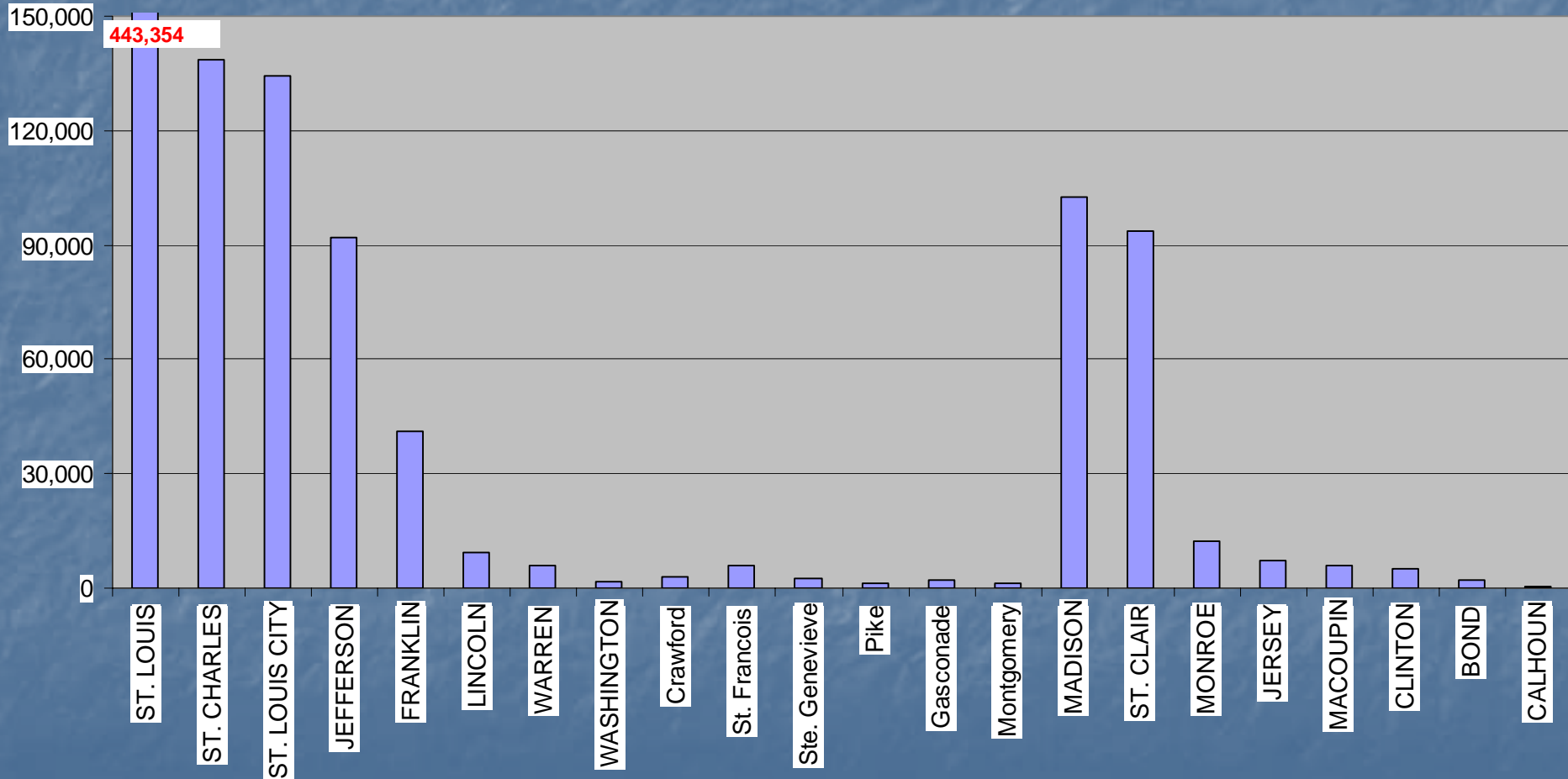


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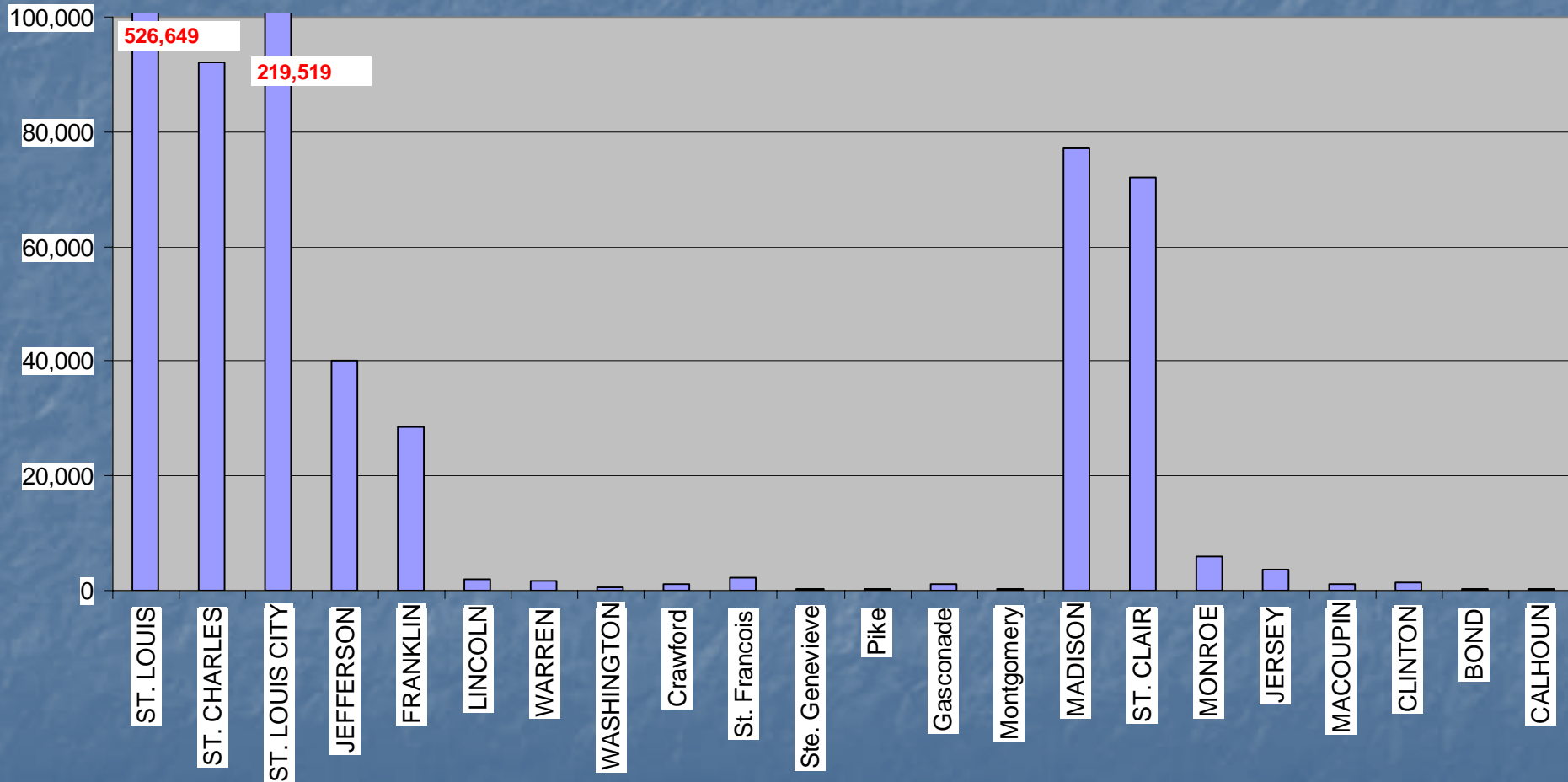
“Connectivity”

- Two ways to evaluate this:
 - Number of people living in one county working in another (i.e. people living in Jefferson County working in St. Louis County)
 - Number of people working in one county living in another (i.e. people living in St. Louis County living in Jefferson County)

Working in NAA, Living in this County



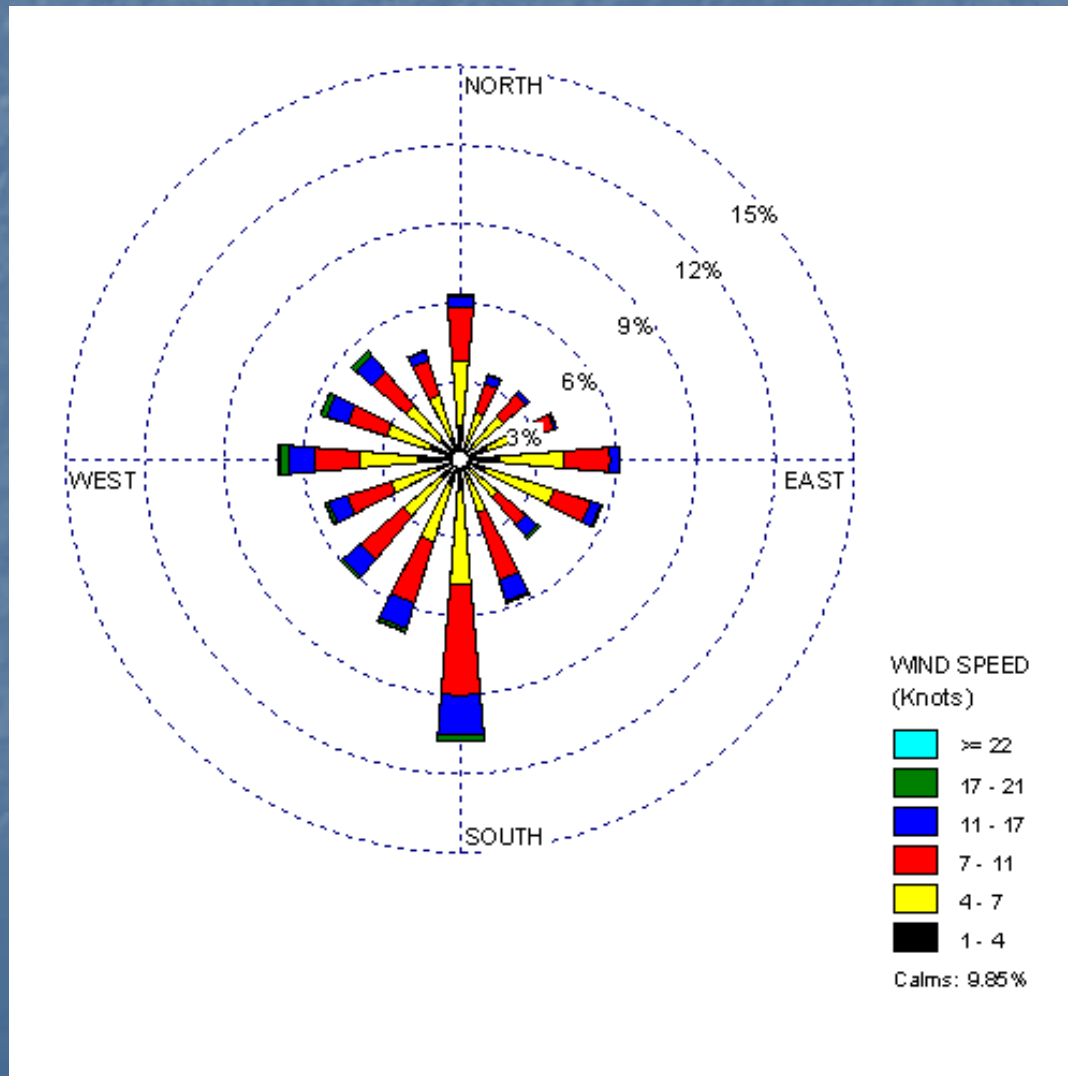
Living in NAA, Working in this County



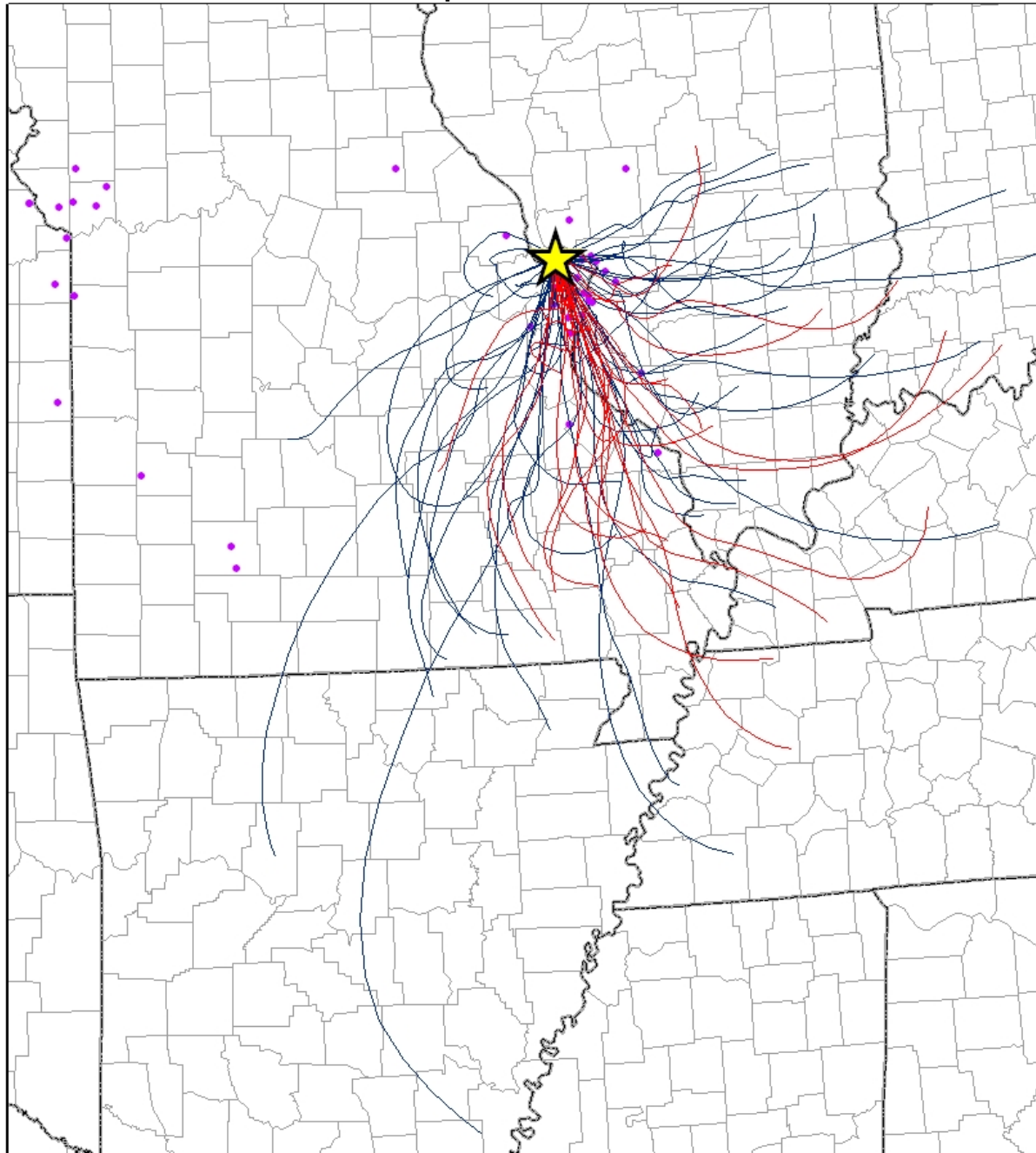
Population Growth

COUNTY	2000	2010	2020	2030	00-10 Growth %	00-20 Growth %
ST. LOUIS	1,016,300	987,799	967,196	956,817	-2.80%	-4.83%
ST. LOUIS CITY	348,189	350,800	350,385	349,004	0.75%	0.63%
ST. CHARLES	283,893	364,607	439,068	499,126	28.43%	54.66%
JEFFERSON	198,099	222,183	244,003	260,276	12.16%	23.17%
FRANKLIN	93,807	102,419	110,704	117,122	9.18%	18.01%
LINCOLN	38,944	56,010	74,529	91,294	43.82%	91.37%
WARREN	24,525	32,377	40,174	46,241	32.02%	63.81%
Crawford	22,804	24,608	26,561	27,895	7.91%	16.48%
St. Francois	55,641	64,538	69,815	73,382	15.99%	25.47%
Washington	23,344	24,789	26,294	27,294	6.19%	12.64%
Pike	18,351	18,589	18,669	18,728	1.30%	1.73%
Ste. Genevieve	17,842	17,899	18,161	18,426	0.32%	1.79%
Gasconade	15,342	15,611	15,890	15,921	1.75%	3.57%
Montgomery	12,136	11,881	11,727	11,513	-2.10%	-3.37%
MADISON	259,391	267,588	285,586	296,342	3.16%	10.10%
ST. CLAIR	256,532	254,235	253,924	243,453	-0.90%	-1.02%
MONROE	27,667	32,920	38,754	43,111	18.99%	40.07%
JERSEY	21,706	24,334	28,280	31,071	12.11%	30.29%
MACOUPIN	49,103	51,161	55,948	59,442	4.19%	13.94%
CLINTON	35,593	40,058	43,075	44,621	12.54%	21.02%
WASHINGTON	15,178	15,805	16,534	16,793	4.13%	8.93%
CALHOUN	5,084	5,018	5,260	5,572	-1.30%	3.46%

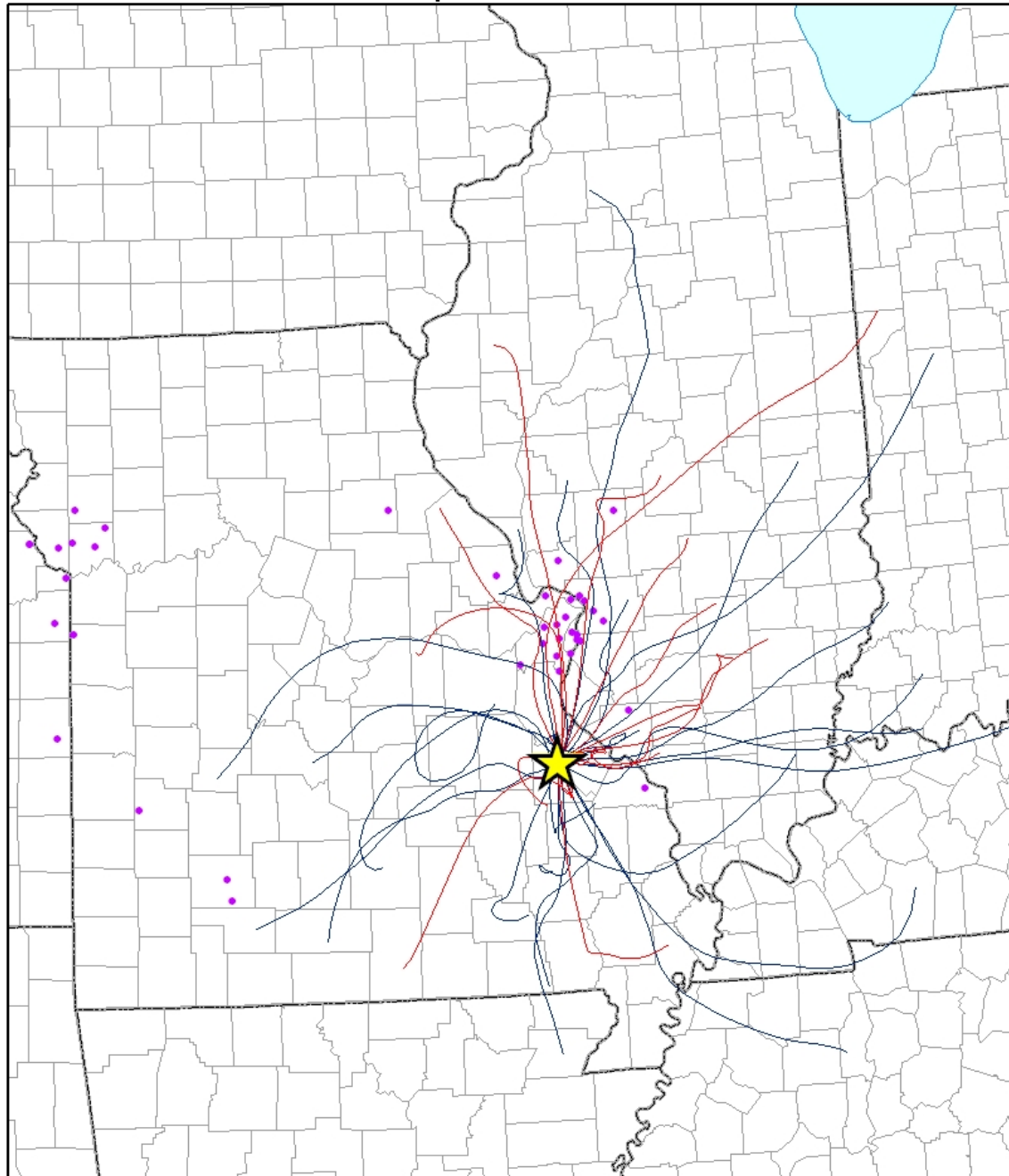
St. Louis – Lambert Wind Rose April – September (2003-2007)



Site: Orchard Farm
Years of Operation: 2003-2007



Site: Bonne Terre
Years of Operation: 2003-2007



Current Missouri 8-hour Ozone Nonattainment Counties

- St. Louis
- St. Louis City
- St. Charles
- Jefferson
- Franklin

Current 8-hour Nonattainment Area



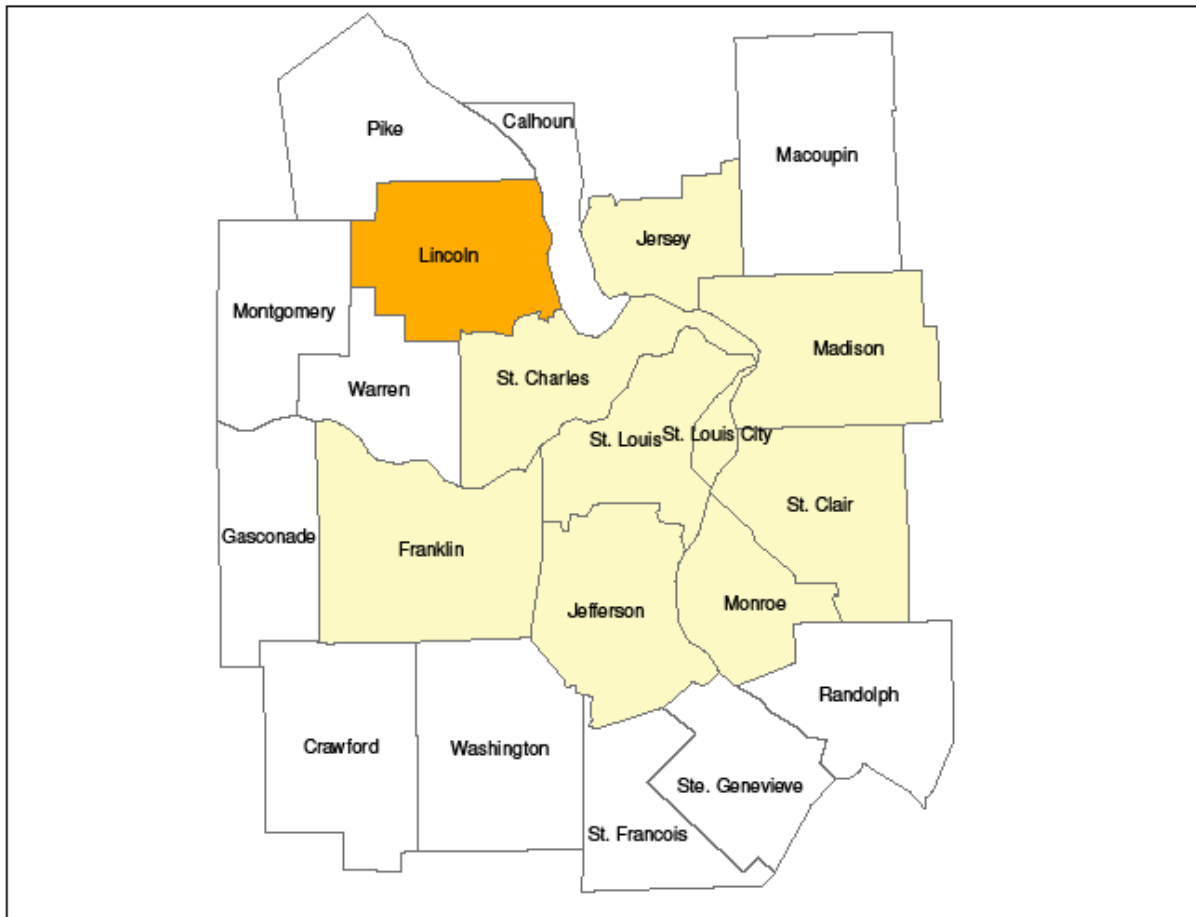
Summary of Current Information

- All monitoring sites in the NA area violate the 2008 ozone standard
- All Missouri Counties in NA area have a minimum of 5% VOC and NOx emission total
- All Missouri Counties in NA area have current population (2007) over 100,000 people
- All Missouri Counties in NA area have areas of urbanization, population density, and emission density higher than surrounding counties
- All Missouri Counties in NA area have over 85% connectivity within the nonattainment area

Missouri County in the St. Louis Metropolitan Statistical Area (MSA) with violating monitor

- Lincoln

MSA Violating Monitor



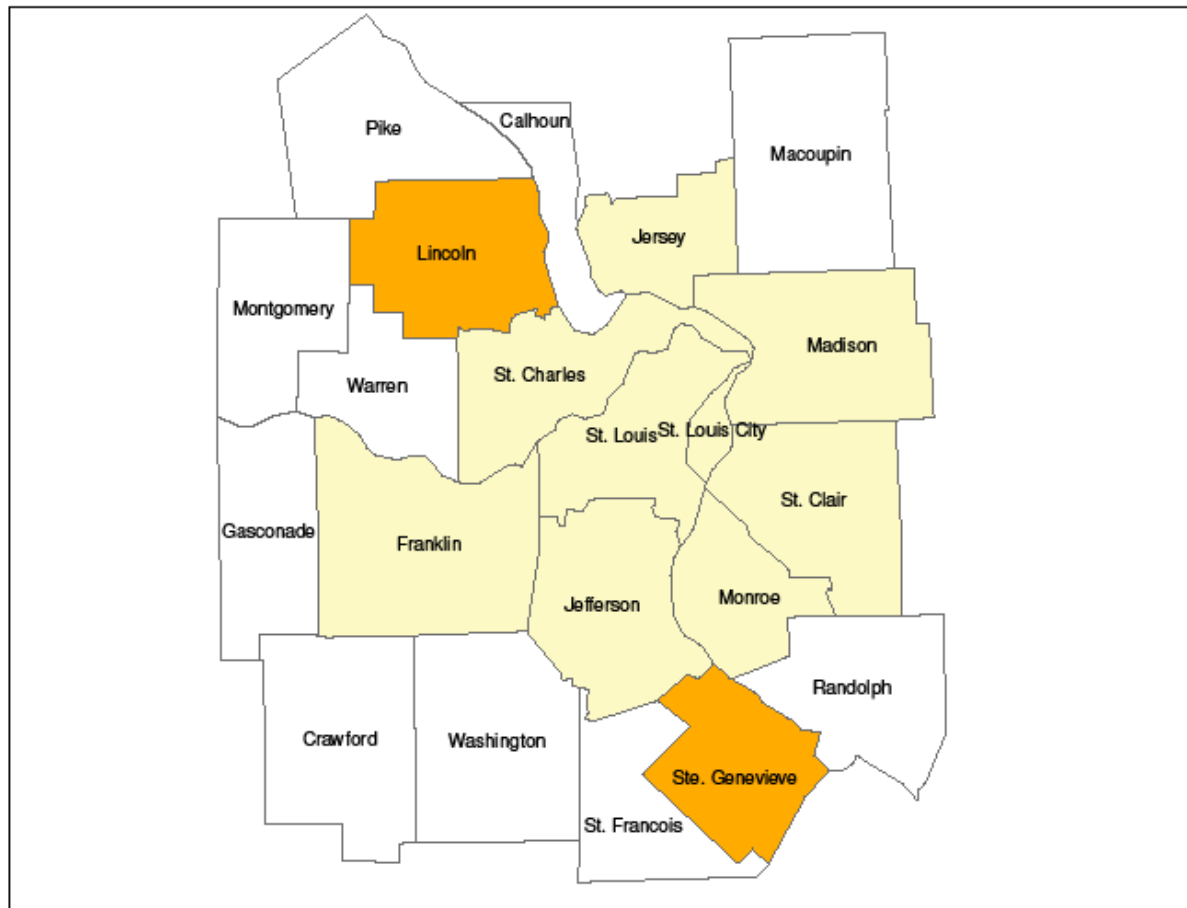
Summary of Current Information

- Lincoln County has a current design value of 87 ppb
- Meteorological analysis illustrates that nearly all of the ozone exceedance days at the Foley site have significant contribution from the St. Louis metropolitan complex
- Significant population growth predicted (over 40% between 2000 and 2010)
- 90% of working population employed in MSA

Missouri County adjacent to MSA with violating monitor

- Ste. Genevieve

Adjacent Violating Monitor



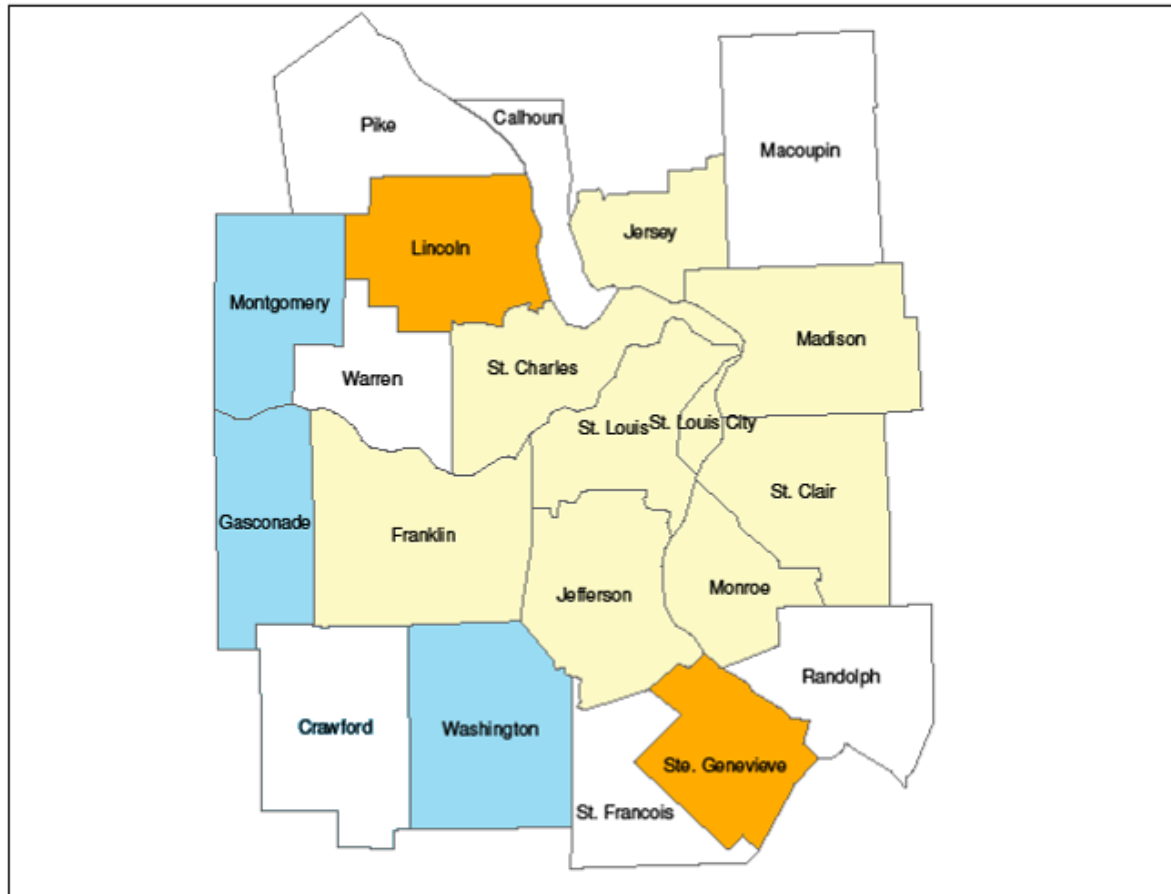
Summary of Current Information

- Ste. Genevieve County has a current design value of 83 ppb
- Meteorological analysis illustrates that many of the ozone exceedance days at the Bonne Terre site have significant contribution from the St. Louis metropolitan complex
- NOx emissions account for over 7% of the total nonattainment inventory
- Upwind of the nonattainment area under predominant wind conditions
- Limited connectivity with the St. Louis metropolitan area

Missouri Counties with Small Preliminary Contribution Assessment

- Montgomery
- Gasconade
- Washington

Preliminary Small Contribution Assessment



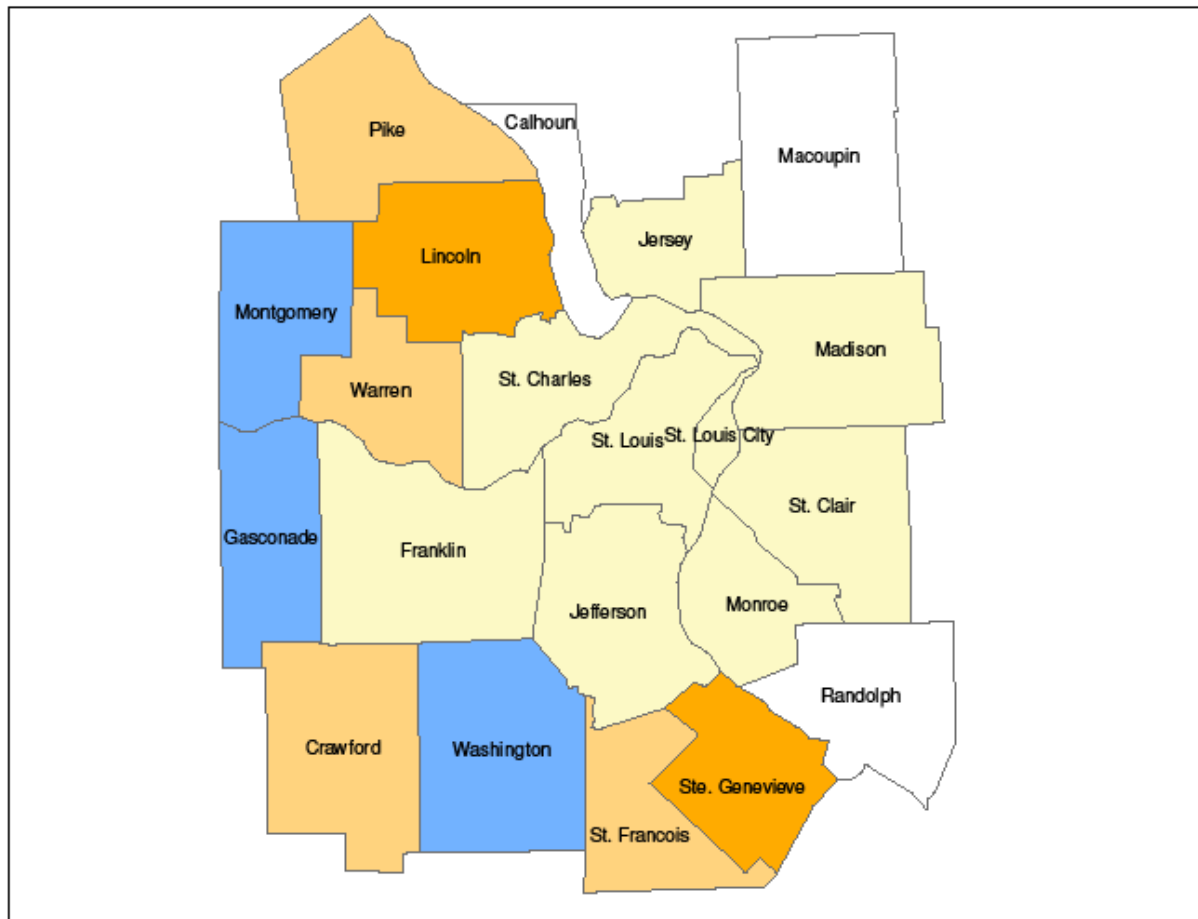
Summary of Current Information

- All Counties have less than 1.5% of the total VOC and NOx emissions
- All Counties have little urbanization, low population density, and low connectivity with the St. Louis area
- All Counties have current population less than 25,000

Missouri Counties that need further evaluation

- St. Francois
- Pike
- Warren
- Crawford

Further Evaluation Necessary



Summary of Current Information

- All Counties have 1.5% of the total NA area VOC and/or NOx emissions
- St. Francois – 6,000 people working in NA area; 60,000 population; 2% VOC emissions; 15% population growth from 2000-2010
- Pike – 25% of working population employed in MSA; 4% VOC and 9% NOx of NA area emissions; <20,000 population
- Warren – 85% of working population employed in MSA; 30% population growth from 2000-2010; <2% VOC and NOx emissions; 30,000 population
- Crawford – 2% VOC of NA area emissions; 35% of working population employed in MSA; 25,000 population

Timeline for Implementation

<u>Milestone</u>	<u>Date</u>
EPA Administrator signed final rule	March 12, 2008
Effective Day of final rule (60 days following the publication in the Federal Register)	June 2008
State provide recommendations on designations to EPA	March 2009 (based on 2005-2007 monitoring data)
Final Designations by EPA	March 2010
Effective Date of Designations	Summer 2010
SIPs Due	Summer 2013
Attainment Dates	2013-2030 depending on severity of problem

Opportunity for Input

- Review technical information posted on the webpage for ozone designation process
 - <http://www.dnr.mo.gov/env/apcp/ozone/8hourdesignationprocess.htm>
 - Meteorological data
 - Emission data
 - Commuter data
 - Eleven boundary criteria
 - Population / Growth data
 - Provide comments on any data, if necessary (especially on population growth, economic growth/business development)

Next Steps in Designation Process

- One additional stakeholder meeting
- Last meeting expected to be late September
 - Provide draft designation boundaries for areas
 - Designations proposed at that time will not necessarily be final
 - Opportunity to review technical data and logic for recommendation
- Ultimately, EPA will make final boundary decision

Missouri Timeline for Boundary Designation Submission

- Missouri will follow normal MACC adoption process
- Public comment period
 - Comment period to start in late October
- Public hearing
 - December MACC meeting
- MACC adoption of boundary recommendations
 - February MACC meeting

Questions/Comments?

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