

Springfield Area Ozone Designation Meeting

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Missouri Department of Natural Resources

September 26, 2008

Springfield, Missouri



MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Presentation Overview

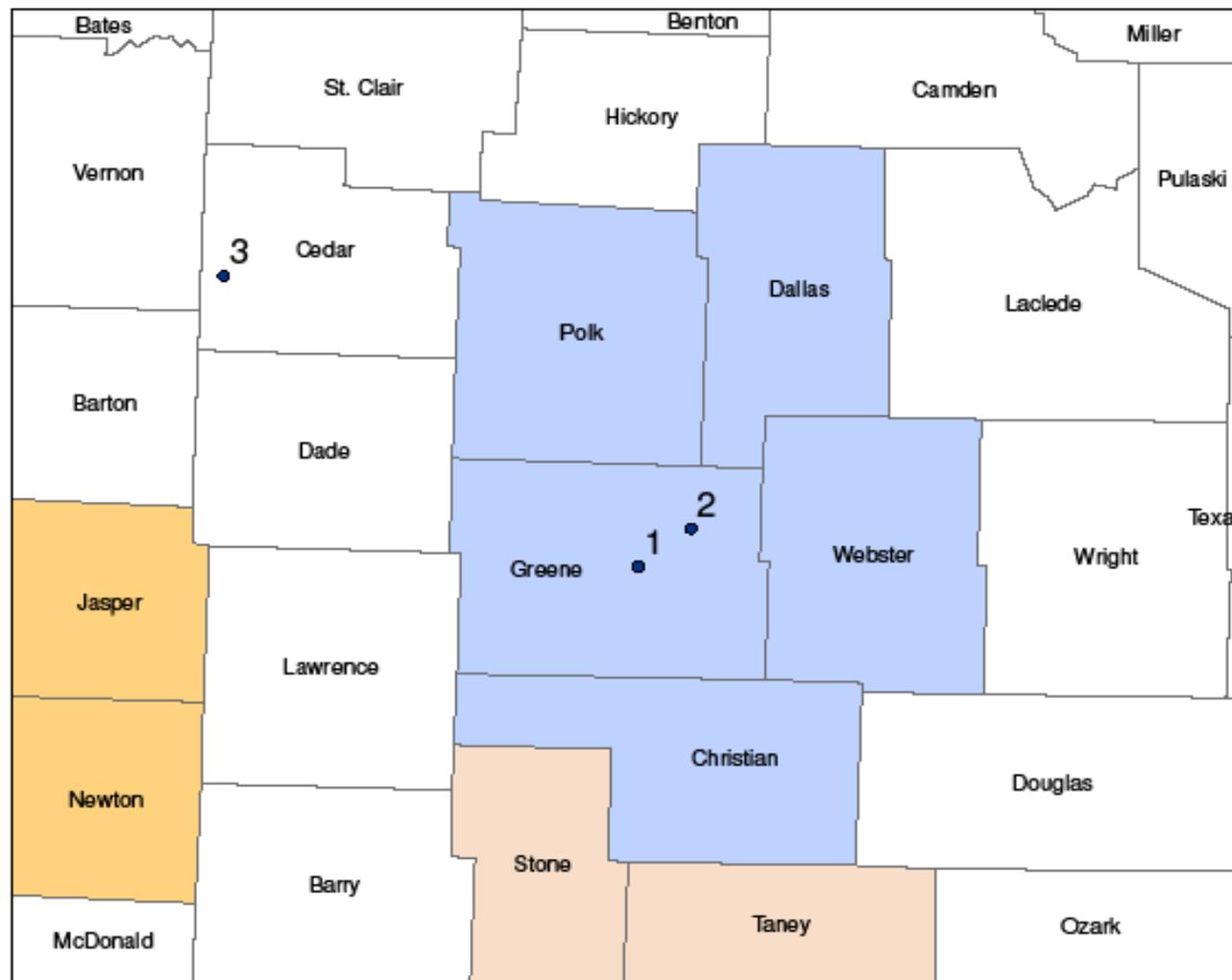
- Designation Process Review
- Draft Recommendation
- County-by-County Summary
- Good News/Bad News
- Next Steps/Stakeholder Involvement

EPA's 2008 8-Hour Ozone Standard

- Primary standard – 75 ppb
- Secondary standard – 75 ppb
- Area meets the new standard if design value is less than or equal to 75 ppb

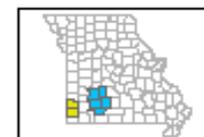
- 2005-07 Design Values
 - Springfield = 77 ppb
 - El Dorado Springs = 76 ppb
 - Tulsa, OK = 80 ppb

2008 Springfield Ozone Sites and 05-07 Design Values



- Ozone sites
- Springfield MSA
- Joplin MSA
- Branson MSA

- # - Site Name (ppb)
 1 - Hillcrest (77)
 2 - Fellows Lake (NA)
 3 - El Dorado Springs (76)




 Department of Natural Resources
 Division of Environmental Quality
 Air Pollution Control Program
 Prepared by Bern Johnson 30 APR 2008

0 20 40 80 Kilometers

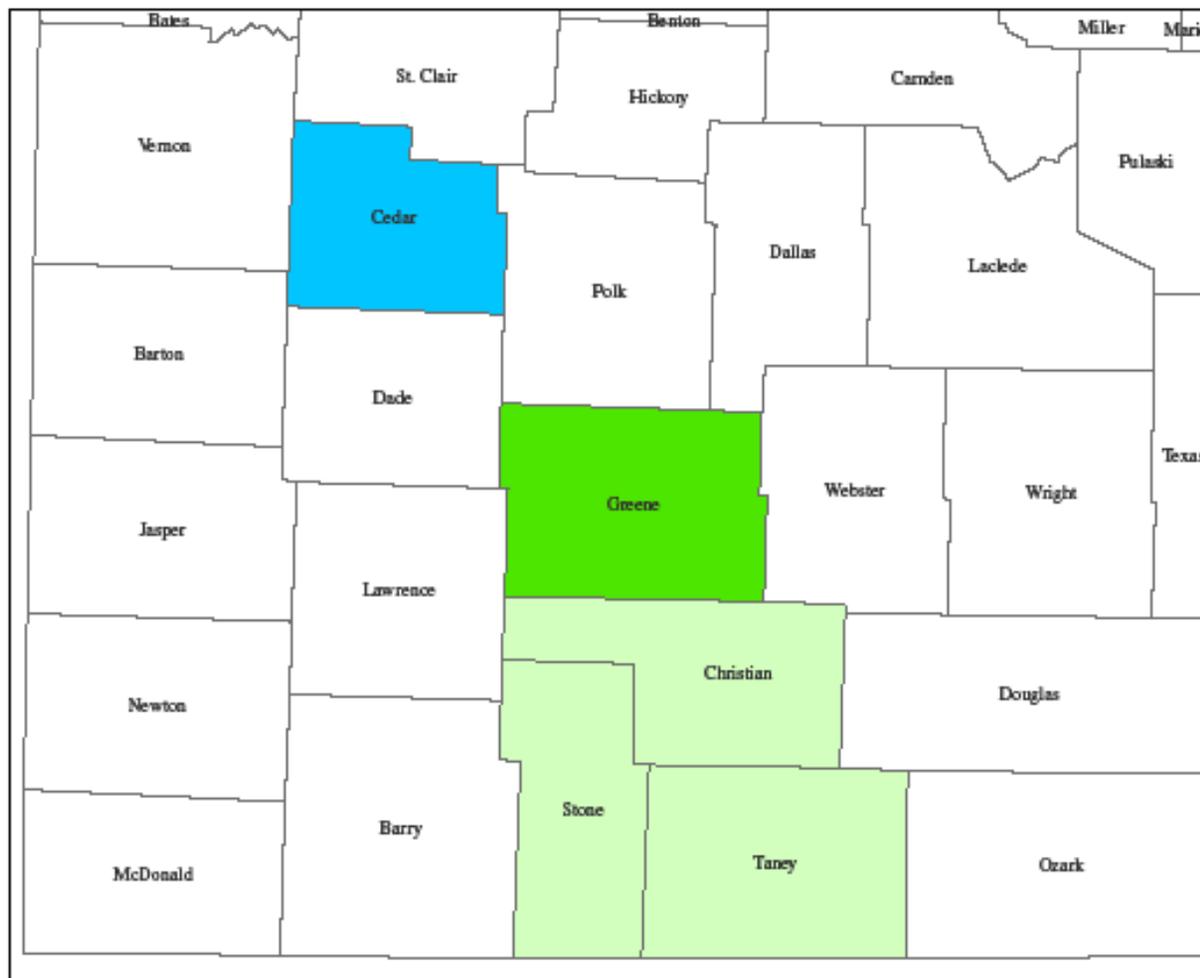
Questions to Determine Attainment Status

- Test #1 – Does a monitor in the area violate the standard?
- Test #2 – Do VOC and NO_x emission sources in each county contribute to ozone concentrations over the standard in a “nearby” area?

Draft Recommendation

- 2006-08 Design Values (up-to-date)
 - All counties in the region attainment
- 2005-07 Design Values
 - Nonattainment
 - Springfield – Christian, Greene, Stone, Taney
 - Cedar County - Section 182(h)
 - All other counties in the region attainment

Draft Recommendation for Springfield/Southwest Missouri 8-hour Ozone Nonattainment Areas based on 2005-7 Monitoring Data



0 10 20 40 Miles

-  Cedar County Nonattainment Area
-  Springfield Nonattainment Area - Contribution
-  Springfield Nonattainment Area - Violation

Contribution Summary

County	MSA	2009 VOC Total % (TPD)	2009 NOx Total % (TPD)	2007 Pop. % (1000)	Total Non-Met Summary
Greene	SPR	58.8 (23.3)	72.9 (44.1)	62.8 (264)	194.6
Jasper	JPLN	33.8 (13.4)	22.9 (13.9)	27.4 (115)	84.1
Taney	BRAN	37.8 (15.0)	8.5 (5.1)	10.9 (46)	57.2
Newton	JPLN	16.2 (6.4)	11.7 (7.1)	13.3 (56)	41.3
Stone	BRAN	27.2 (10.8)	6.0 (5.1)	7.5 (32)	40.7
Christian	SPR	14.2 (5.6)	8.4 (5.1)	17.4 (73)	40.0
Barry	None	17.6 (7.0)	7.1 (4.3)	8.6 (36)	33.4
Lawrence	None	13.8 (5.5)	9.2 (5.6)	9.0 (38)	32.3
Webster	SPR	11.8 (4.7)	10.0 (6.0)	8.6 (36)	30.3
Polk	SPR	9.2 (3.7)	5.8 (3.5)	7.2 (30)	22.1
McDonald	SPR	10.9 (4.3)	4.8 (2.9)	5.5 (23)	21.2
Cedar	None	11.7 (4.6)	3.4 (2.1)	3.3 (14)	18.3
Barton	None	6.9 (2.8)	6.1 (3.7)	3.0 (13)	16.1
Dallas	SPR	6.1 (2.4)	2.9 (1.8)	4.0 (17)	12.9
Dade	None	7.1 (2.8)	3.3 (2.0)	1.8 (8)	12.2

County-by-County Summary

■ **Greene County (Springfield NAA)**

- Largest emissions for both VOC (23.3 TPD) and NO_x (44.1 TPD) in Southwest Missouri
- Ozone monitoring for 2005-07 at the Hillcrest monitor shows a violation of the standard (77 ppb); current 2006-08 data shows attainment of the standard (73 ppb)
- Largest population in the area (263,980)
- Core metropolitan area (Springfield) is in Greene County
- Largest annual VMT in the area (2.1 billion VMT/year)
- Meteorological analysis is supportive of frequent contribution
- 27% population growth between 2000 and 2020 (over 300,000 in 2020)
- Located in the Springfield MSA
- Two largest industrial NO_x sources are included in the Missouri statewide NO_x rule and in the vacated CAIR

County-by-County Summary

■ **Jasper County (Attainment)**

- Second largest emission in Southwest Missouri for NO_x (13.9 TPD) and third largest for VOC (13.4 TPD)
- No ozone monitoring in the Joplin area (new monitoring proposed in 2009)
- Second largest population in the area (115,240)
- Limited connection to the core metropolitan area (Springfield) and is part of the Joplin economic/employment center
- Second largest VMT in the area (1.2 billion VMT/year)
- Meteorological analysis is supportive of contribution to El Dorado Springs
- 30% population growth between 2000 and 2020 (136,000 in 2020)
- Located in the Joplin MSA and not contiguous with the Springfield MSA
- Largest industrial NO_x source is included in the Missouri statewide NO_x rule and in the vacated

County-by-County Summary

- **Taney County (Springfield NAA)**
 - Second largest VOC emissions in Southwest Missouri (15.0 TPD) and 5.1 TPD for NOx
 - No ozone monitoring in the Branson area
 - Population of less than 50,000 (45,721)
 - Some connection to the core metropolitan area (Springfield) 8,000 commuters per day to/from Branson area
 - Medium VMT (622 million VMT/year)
 - Meteorological analysis is supportive of contribution to Hillcrest monitor
 - 49% population growth between 2000 and 2020 (59,000 in 2020)
 - Located in the Branson MSA and contiguous with the Springfield MSA

County-by-County Summary

- **Newton County (Attainment)**
 - Third largest NOx emission in Southwest Missouri (7.1 TPD) and VOC (6.4 TPD)
 - No ozone monitoring in the Joplin area (new monitoring proposed in 2009)
 - Population of more than 50,000 (56,038)
 - Limited connection to the core metropolitan area (Springfield) and is part of the Joplin economic/employment center
 - Third largest VMT in the area (944 million/year)
 - Meteorological analysis is supportive of contribution to El Dorado Springs
 - 18% population growth between 2000 and 2020 (62,000 in 2020)
 - Located in the Joplin MSA and not contiguous with the Springfield MSA

County-by-County Summary

- **Stone County (Springfield NAA)**
 - Fourth largest VOC emissions in Southwest Missouri (10.8 TPD) and 5.1 TPD for NOx
 - No ozone monitoring in the Branson area
 - Population of less than 50,000 (31,552)
 - Some connection to the core metropolitan area (Springfield) 8,000 commuters per day to/from Branson area
 - Small VMT (400 million VMT/year)
 - Meteorological analysis is supportive of contribution to Hillcrest monitor
 - 31% population growth between 2000 and 2020 (40,000 in 2020)
 - Located in the Branson MSA and contiguous with the Springfield MSA

County-by-County Summary

- **Christian County (Springfield NAA)**
 - Combined emissions over 10 TPD (VOC - 5.6 TPD and NOx - 5.1 TPD)
 - No ozone monitoring in county
 - Second largest population in the Springfield MSA (73,066)
 - North central portion of county is contiguous with the Springfield metropolitan complex
 - Medium VMT (728 million VMT/year)
 - Meteorological analysis is supportive of contribution to Hillcrest
 - Largest projected population growth in Missouri between 2000 and 2020 (nearly 100% - 107,000 in 2020)
 - Located in the Springfield MSA

County-by-County Summary

■ **Barry County (Attainment)**

- Combined emissions over 10 TPD (VOC - 7.0 TPD and NOx - 4.3 TPD)
- No ozone monitoring in county
- Population of less than 50,000 (36,197)
- No strong connection to the Springfield or Joplin metropolitan areas
- Low VMT (393 million VMT/year)
- Meteorological analysis is somewhat supportive of contribution to both El Dorado Springs and Hillcrest
- 20% projected population growth between 2000 and 2020
- Not located in or adjacent to the Springfield MSA

County-by-County Summary

■ **Lawrence County (Attainment)**

- Combined emissions over 10 TPD (VOC - 5.5 TPD and NOx - 5.6 TPD)
- No ozone monitoring in county
- Population of less than 50,000 (37,650)
- Some connection to the Springfield or Joplin metropolitan area (I-44)
- Medium VMT (851 million VMT/year)
- Meteorological analysis is somewhat supportive of contribution to both El Dorado Springs and Hillcrest
- 20% projected population growth between 2000 and 2020
- Not located in, but adjacent to the Springfield MSA

County-by-County Summary

■ Webster County (Attainment)

- Combined emissions over 10 TPD (VOC - 4.7 TPD and NOx – 6.0 TPD)
- No ozone monitoring in county
- Population of less than 50,000 (35,927)
- Somewhat connected to the Springfield metropolitan area (along I-44)
- Medium VMT (689 million VMT/year)
- Meteorological analysis is supportive of contribution to Hillcrest
- 48% projected population growth between 2000 and 2020 (2020 population of 46,000)
- Located in the Springfield MSA

County-by-County Summary

- **Polk and Dallas Counties (Attainment)**
 - Combined emissions under 10 TPD (Polk/Dallas VOC - 3.7 / 2.4 TPD and NOx – 3.5 / 1.8 TPD)
 - No ozone monitoring in counties
 - Population of less than 50,000 (Polk/Dallas - 30,216 / 16,831)
 - Some connection to the Springfield metropolitan area
 - Low VMT (Polk – 447 million and Dallas 216 million VMT/year)
 - Meteorological analysis suggests these counties are downwind of the Springfield area
 - Polk 34% and Dallas 27% projected population growth between 2000 and 2020 (2020 population of less than 40,000 for both counties)
 - Located in the Springfield MSA

County-by-County Summary

- **McDonald, Barton, and Dade (Attainment)**
 - Combined emissions under 10 TPD (all VOC less than 4.3 TPD and all NOx less than 3.7 TPD)
 - No ozone monitoring in counties
 - Population of less than 50,000 (all counties less than 25,000)
 - Limited connection to the Springfield metropolitan area
 - Low VMT (all counties less than 325 million VMT/year)
 - Meteorological analysis suggest these counties might contribute to the El Dorado Springs monitor
 - All counties are projected to grow less than 20% between 2000 and 2020 (2020 population of less than 30,000 for all counties)
 - Not located in, but Dade is adjacent to the Springfield MSA

County-by-County Summary

■ Cedar County (Nonattainment)

- Combined emissions under 10 TPD (VOC – 4.6 TPD and NO_x – 2.1 TPD)
- Ozone monitoring for 2005-07 at the El Dorado Springs monitor shows a violation of the standard (76 ppb); current 2006-08 data shows attainment of the standard (72 ppb)
- Population of less than 50,000 (13,729)
- Very limited connection to the Springfield metropolitan area
- Low VMT (145 million VMT/year)
- Meteorological analysis suggests this county is downwind of the Joplin/Tulsa or Northwest Arkansas areas
- Projected population decrease between 2000 and 2020 (-1.7%)
- Located not in, but adjacent to the Springfield MSA

GOOD NEWS

- The entire Southwest Missouri region is in attainment of the ozone standard using the 2006-08 monitoring data

BAD NEWS

- The 2005-07 monitoring data shows violations of the ozone standard at the Hillcrest and El Dorado Springs monitors
- The 2008 ozone season has been very mild meteorologically in Missouri
- The 2009 and future ozone seasons could be worse and trigger a nonattainment designation

MORE GOOD NEWS

- The Ozarks Clean Air Alliance exists
- Based on community participation in this group and implementation of necessary emission reductions, the ground-level ozone problem in SW Missouri could be solved by your on-going efforts

MORE GOOD NEWS

- The Department of Natural Resources has no desire to recommend designation of this area as nonattainment for the ozone standard now or in the future
 - BAD - Air quality above the standard is bad for your community's health
- We encourage you to work together to solve problems where each community/citizen has the most influence (LOCALLY)

MORE GOOD NEWS

- Incoming ozone generated by other sources in Missouri and outside Missouri must be addressed not only for SW Missouri, but for Kansas City and St. Louis as well
- MDNR will continue to work sources in Missouri and with other state agencies and USEPA to control ozone precursors and address incoming ozone to this area

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 support document and proposed recommendation posted on the webpage for ozone designation process
 - <http://www.dnr.mo.gov/env/apcp/ozone/8hourdesignationprocess.htm>
- Provide comments on the recommendation or any data, if necessary

Next Steps in Designation Process

- Today's meeting is the last meeting for this process
 - Designations proposed at this time are not necessarily final
 - Still have an opportunity to review technical data and rationale for recommendation and provide comments
- The overall draft recommendation will be made available for the entire state of Missouri by November 4th
 - 30 days prior to the public hearing before the Missouri Air Conservation Commission on December 4, 2008

Missouri Timeline for Boundary Designation Submission

- Public comment period
 - Comment period to start in early November
- Public hearing
 - December 4th MACC meeting
- MACC adoption of boundary recommendations
 - February MACC meeting

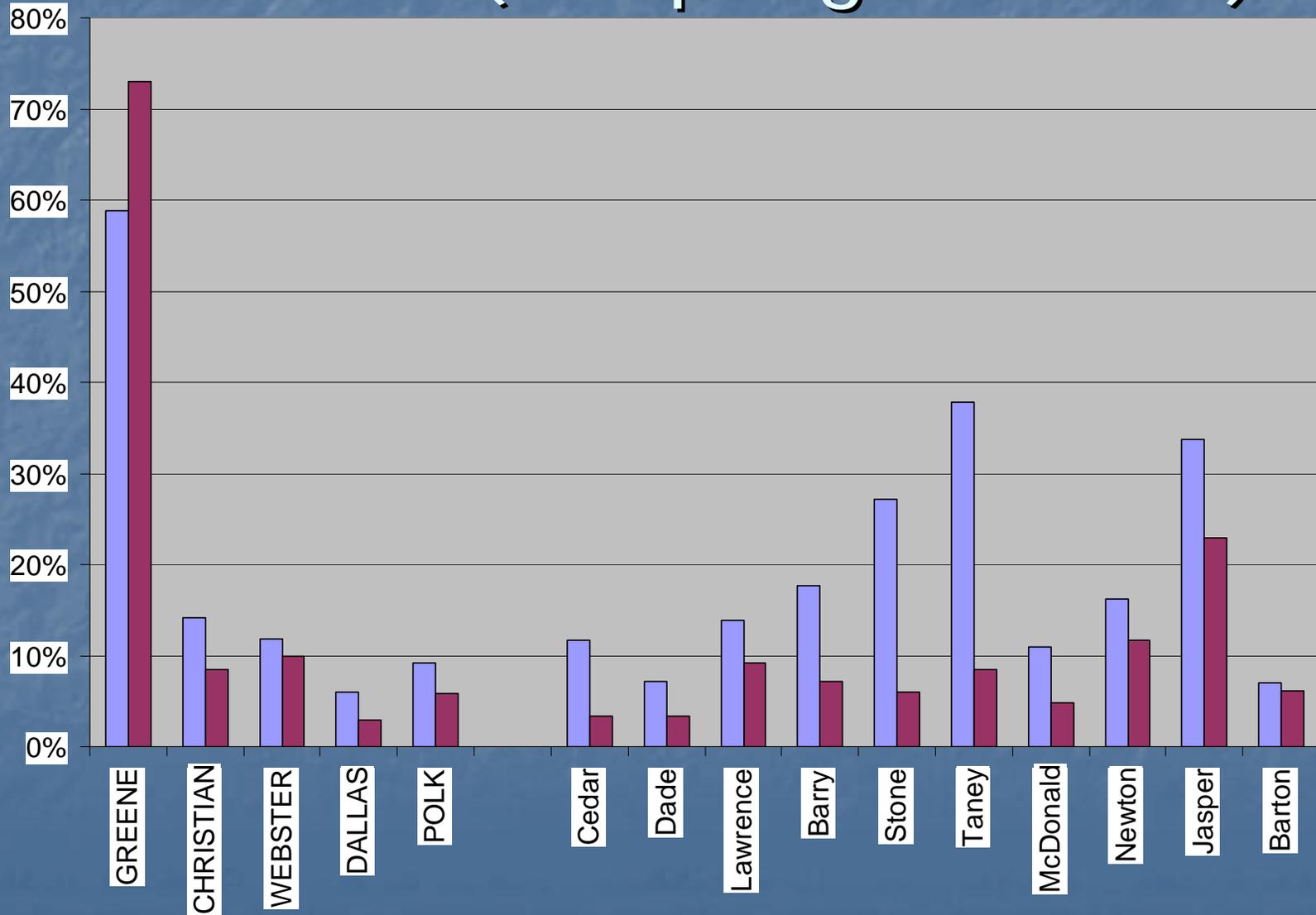
Questions/Comments?

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Evaluation Data

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

Southwest Missouri VOC/NOx Emission (% Springfield MSA)

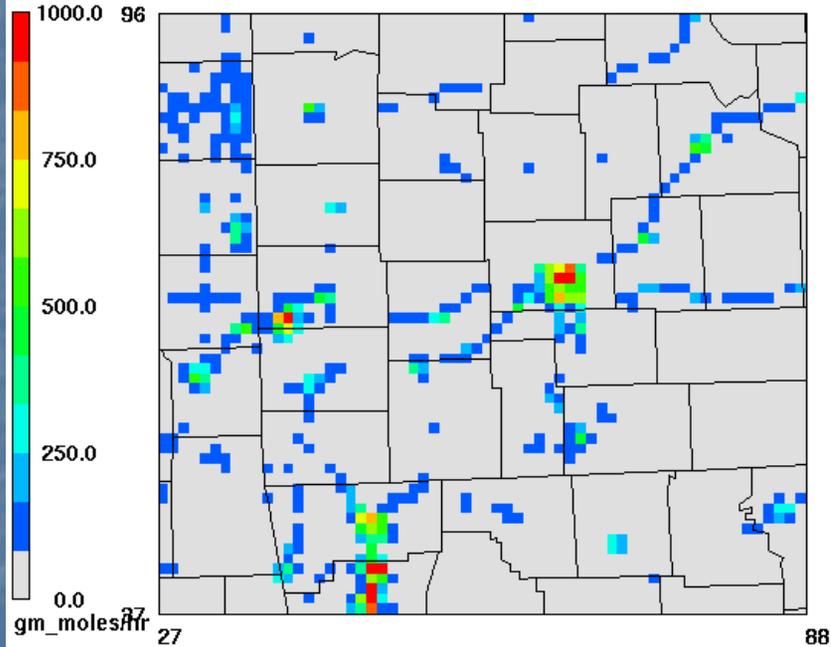


NOx Emission Density

Total Low-level NOx Emissions (2009)

Density Plot

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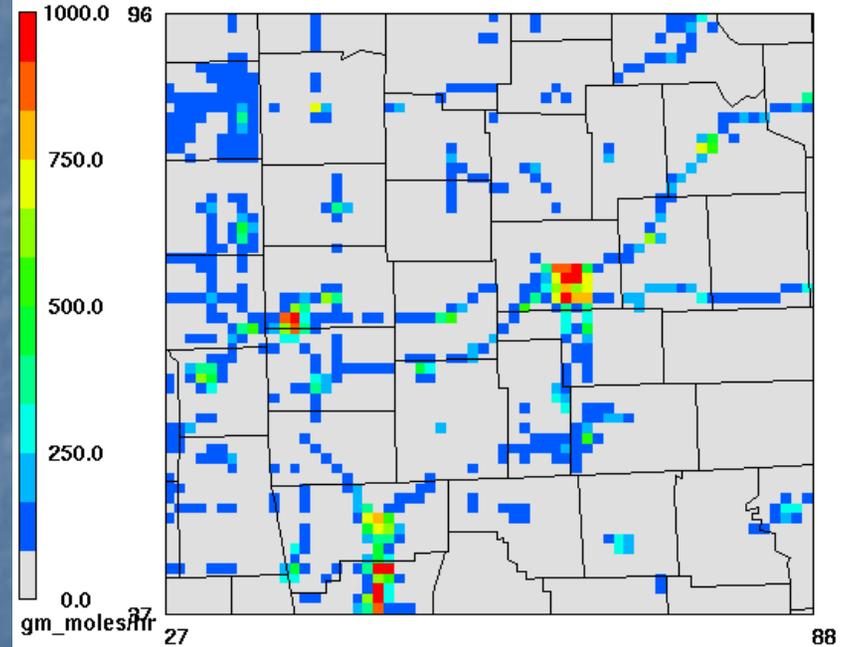


July 7, 2002 14:00:00
Min= 4.7 at (85,56), Max=1234.2 at (48,41)

Total Low-level NOx Emissions (2009)

Density Plot

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July 7, 2002 21:00:00
Min= 5.8 at (70,61), Max=1349.3 at (48,41)

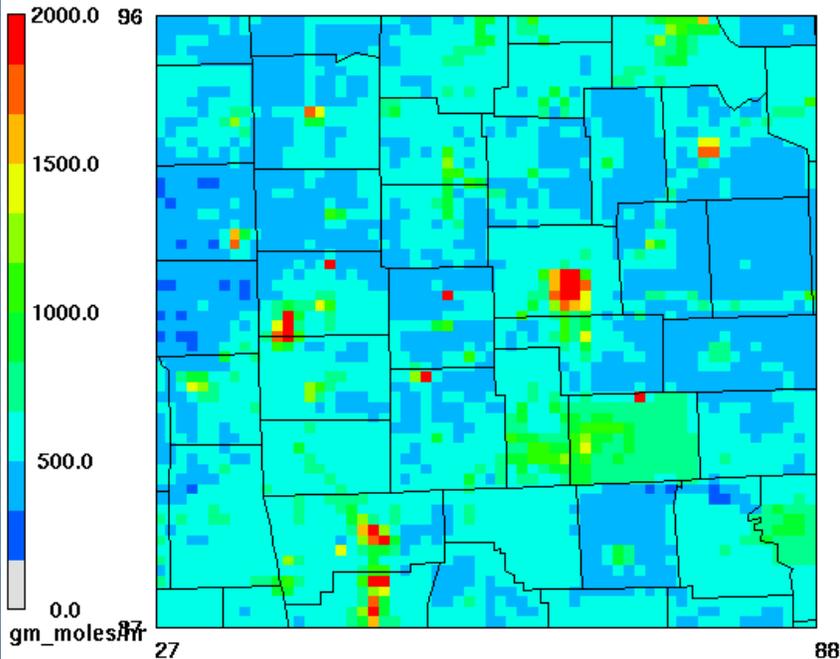
July 7, 2002 – 8 AM

July 7, 2002 – 3 PM

VOC Emission Density

Total Low-level VOC Emissions (2009)

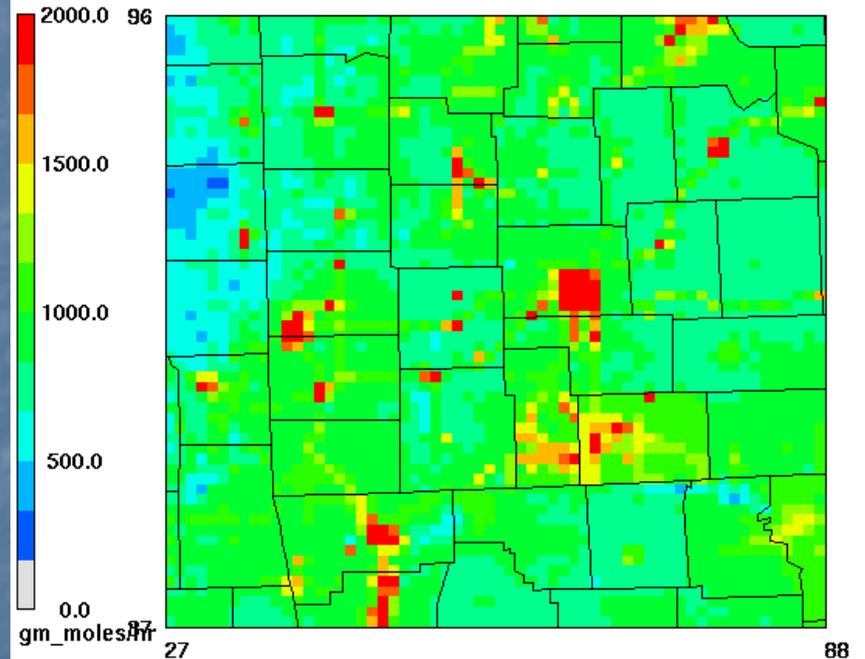
Density Plot (minus ISOP and FORM)
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July 7, 2002 14:00:00
Min= 270.2 at (27,79), Max=12036.9 at (48,41)

Total Low-level VOC Emissions (2009)

Density Plot (minus ISOP and FORM)
w=emiss_low.base4T_09_OTB.stl4km.20020707.CAMx

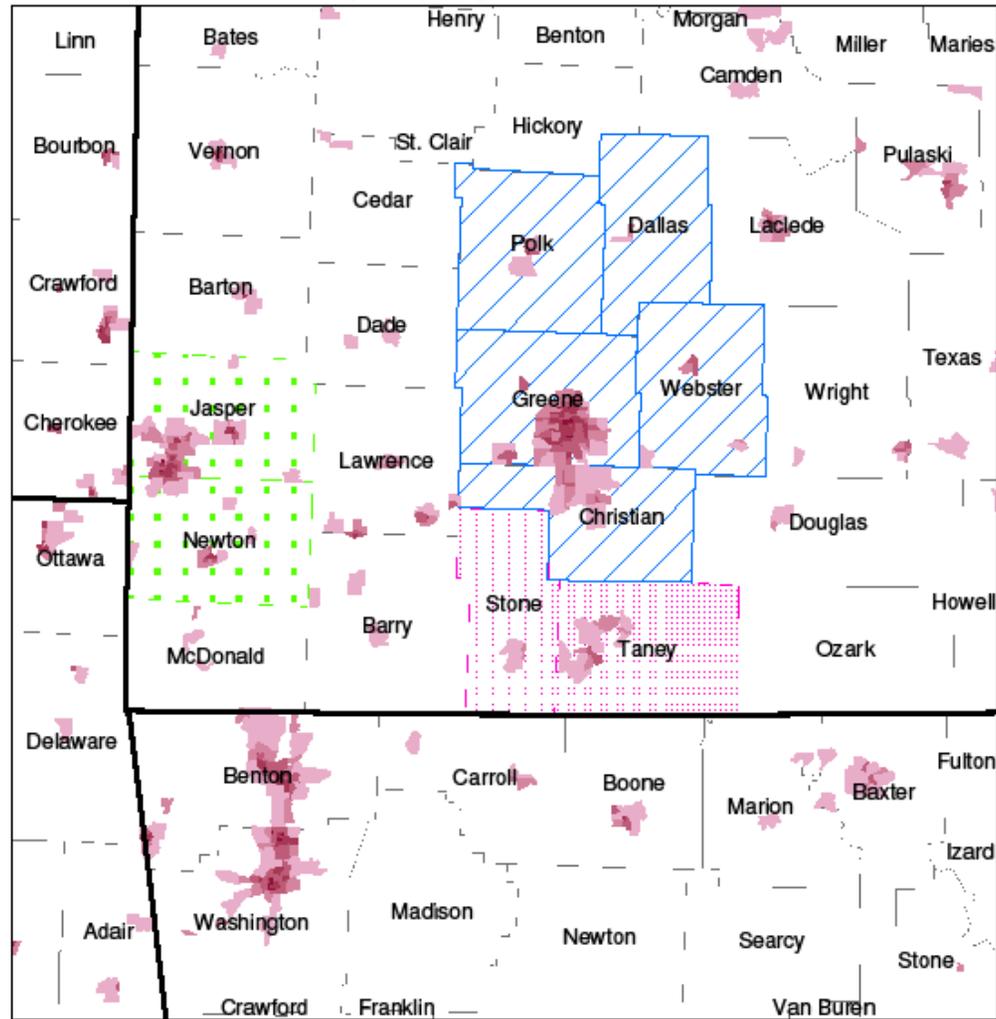


July 7, 2002 21:00:00
Min= 325.1 at (27,79), Max=8466.9 at (48,41)

July 7, 2002 – 8 AM

July 7, 2002 – 3 PM

2000 Population Density - Springfield



-  Springfield MSA
-  Joplin MSA
-  Branson MSA

Population Density

Persons / sq mile

0 - 200

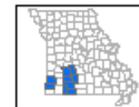
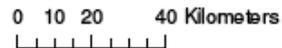
 201 - 500

 501 - 1000

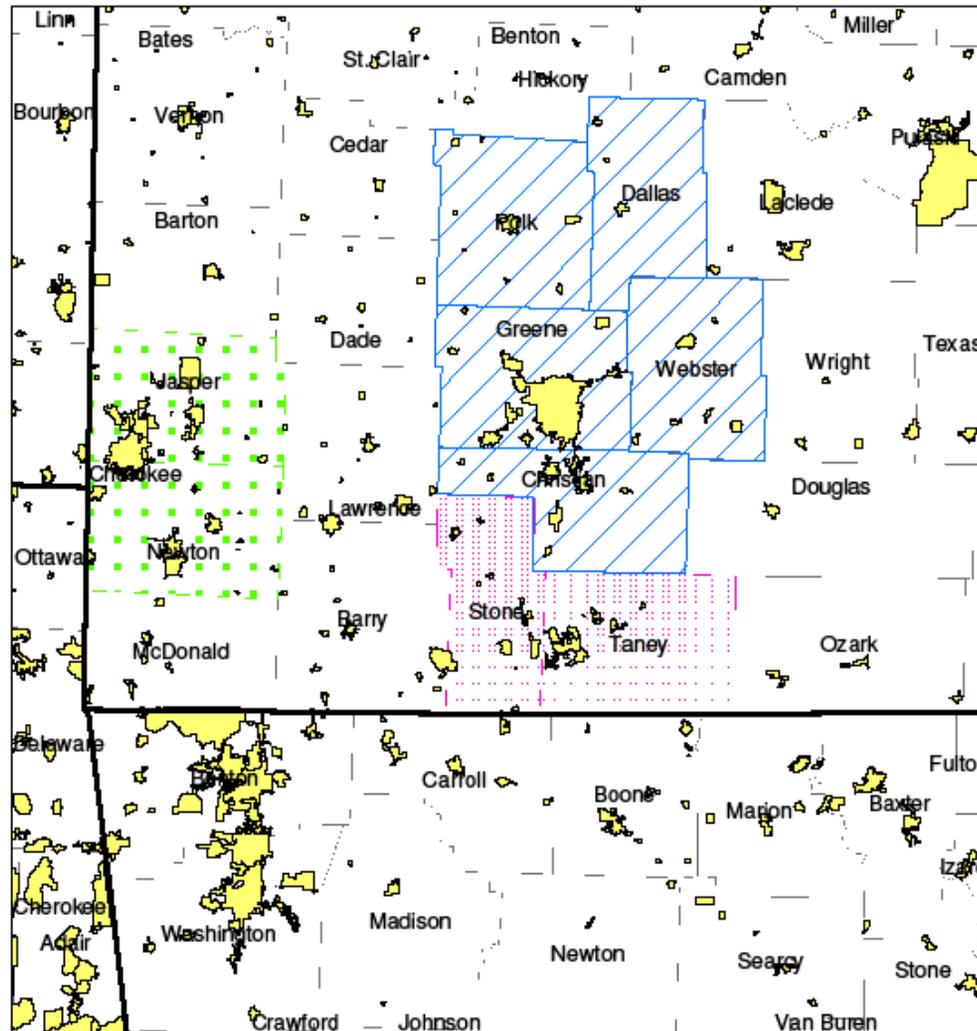
 1001 - 2500

 2501 - 5000

 5001 +



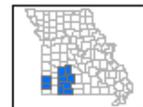
2000 Urbanization - Springfield



 Urban Areas
 0 10 20 40 Kilometers

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 Prepared by Bern Johnson 9 JUL 2008

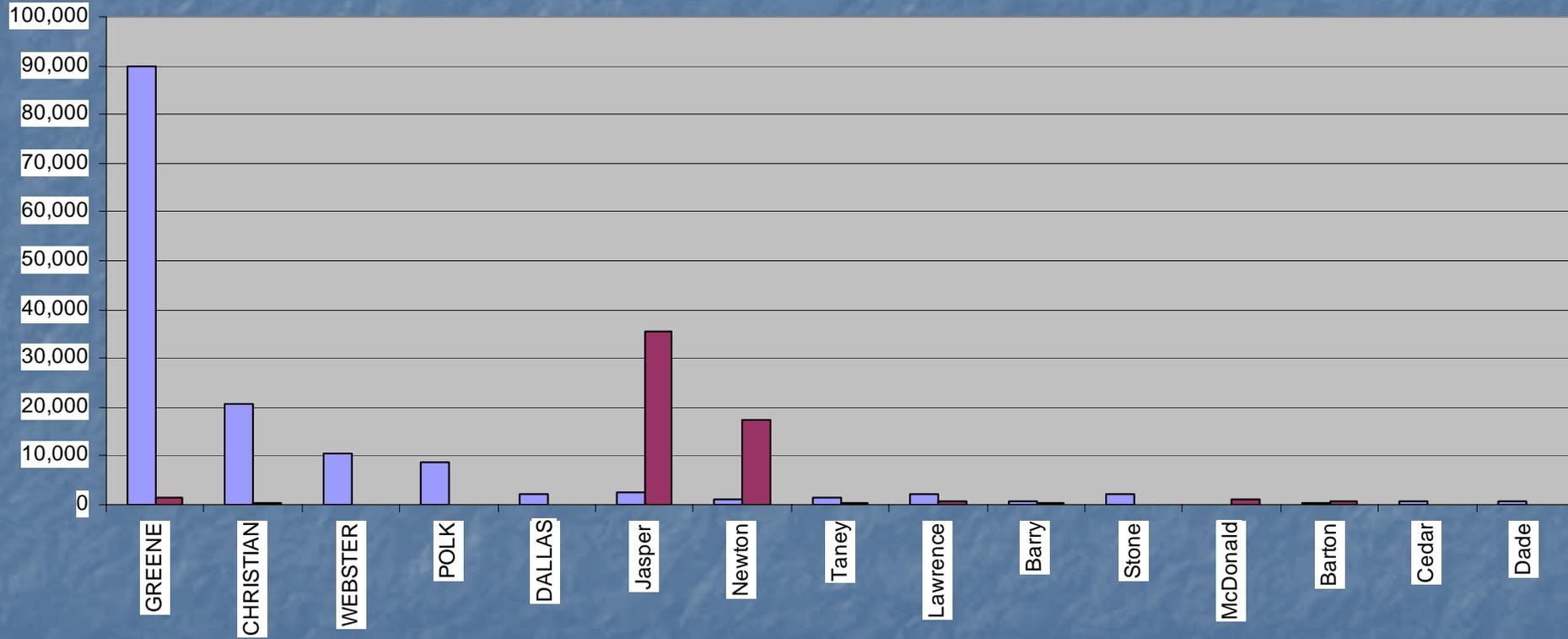
 Springfield MSA
 Joplin MSA
 Branson MSA



Connectivity

- Concept of commuting patterns between counties within the area of interest
- Two ways to evaluate this:
 - Number of people living in one county working in another (i.e. people living in Taney County working in Greene County)
 - Number of people working in one county living in another (i.e. people working in Taney County living in Greene County)

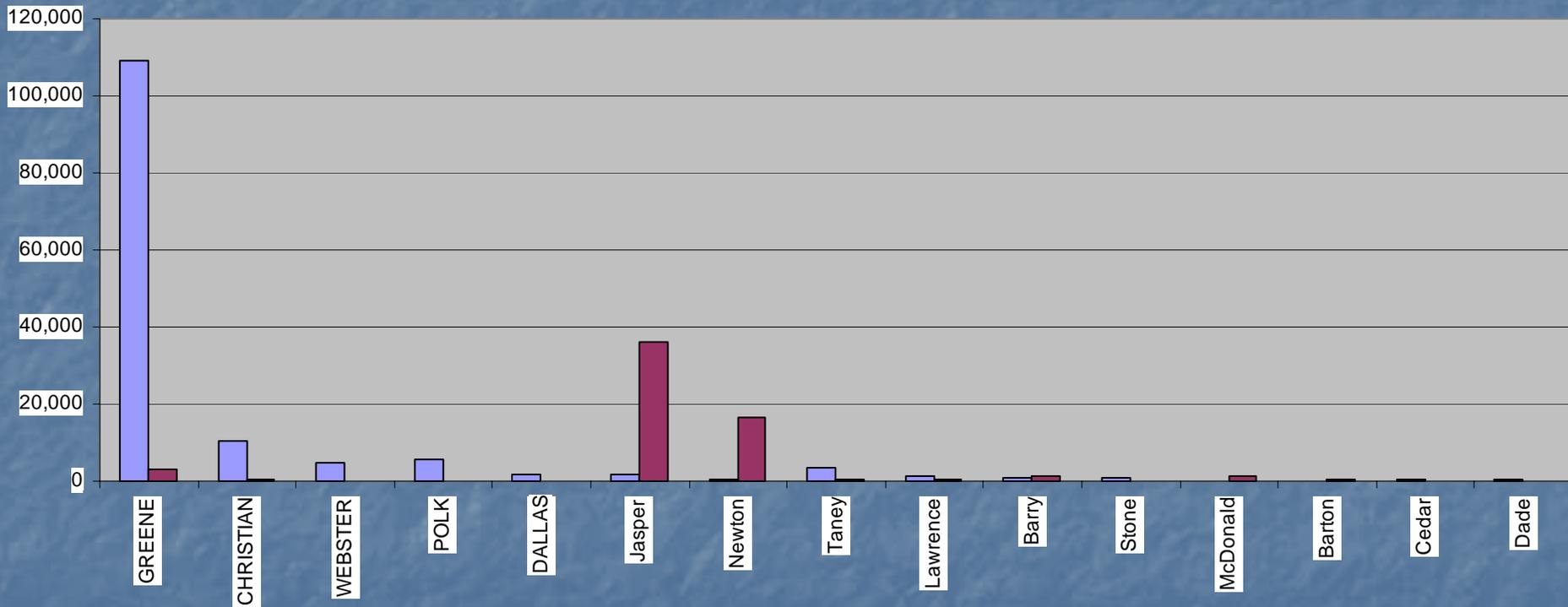
Working in Springfield MSA, Joplin MSA Living in this County



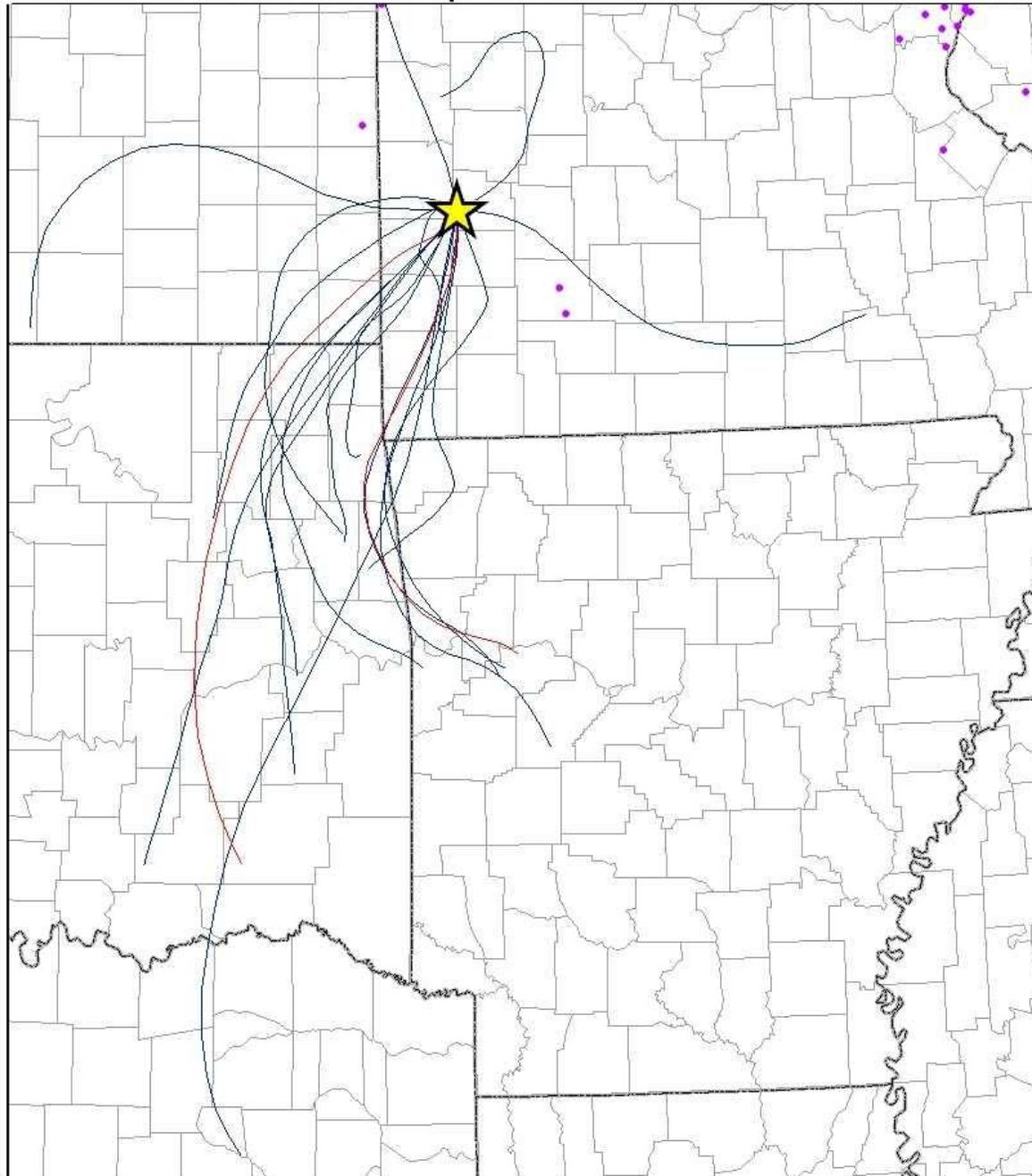
Population Growth

County	2000	2010	2020	2030	00-10 Growth %	00-20 Growth %
GREENE	240,391	272,322	305,012	329,825	13.3%	26.9%
CHRISTIAN	54,285	79,937	107,318	131,066	47.3%	97.7%
WEBSTER	31,045	37,946	45,880	53,282	22.2%	47.8%
POLK	26,992	31,470	36,172	40,139	16.6%	34.0%
DALLAS	15,661	17,432	19,984	22,172	11.3%	27.6%
<u>Jasper</u>	104,686	119,317	136,389	152,490	14.0%	30.3%
<u>Newton</u>	52,636	57,265	62,218	66,663	8.8%	18.2%
Taney	39,703	48,463	59,227	68,041	22.1%	49.2%
Lawrence	35,204	38,905	43,272	47,249	10.5%	22.9%
Barry	34,010	37,072	40,917	44,295	9.0%	20.3%
Stone	28,658	32,994	37,427	40,346	15.1%	30.6%
McDonald	21,681	23,401	25,625	28,078	7.9%	18.2%
Cedar	13,733	13,756	13,493	13,207	0.2%	-1.7%
Barton	12,541	12,910	13,173	13,730	2.9%	5.0%
Dade	7,923	7,559	7,294	6,977	-4.6%	-7.9%

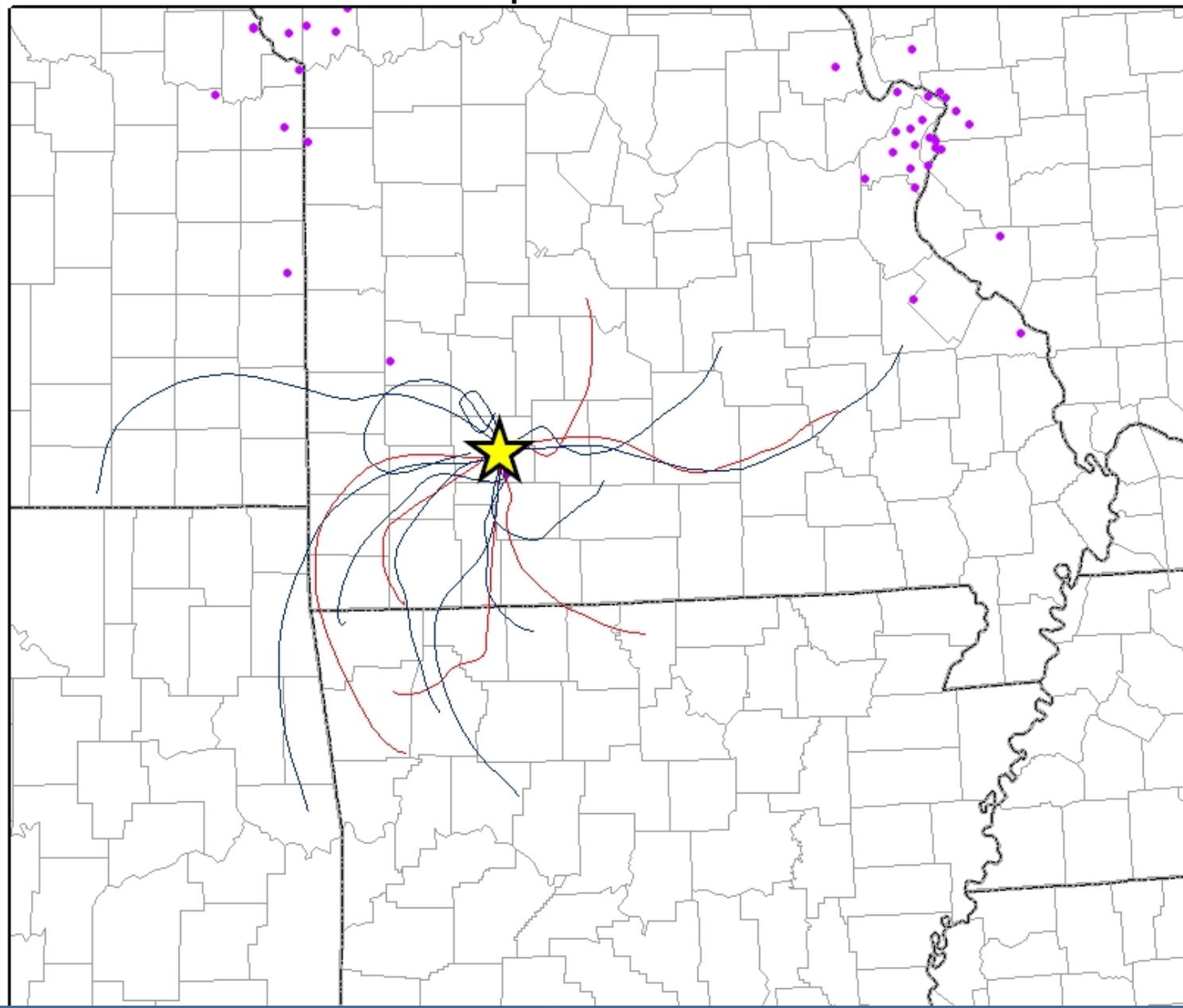
Living in Springfield MSA, Joplin MSA Working in this County



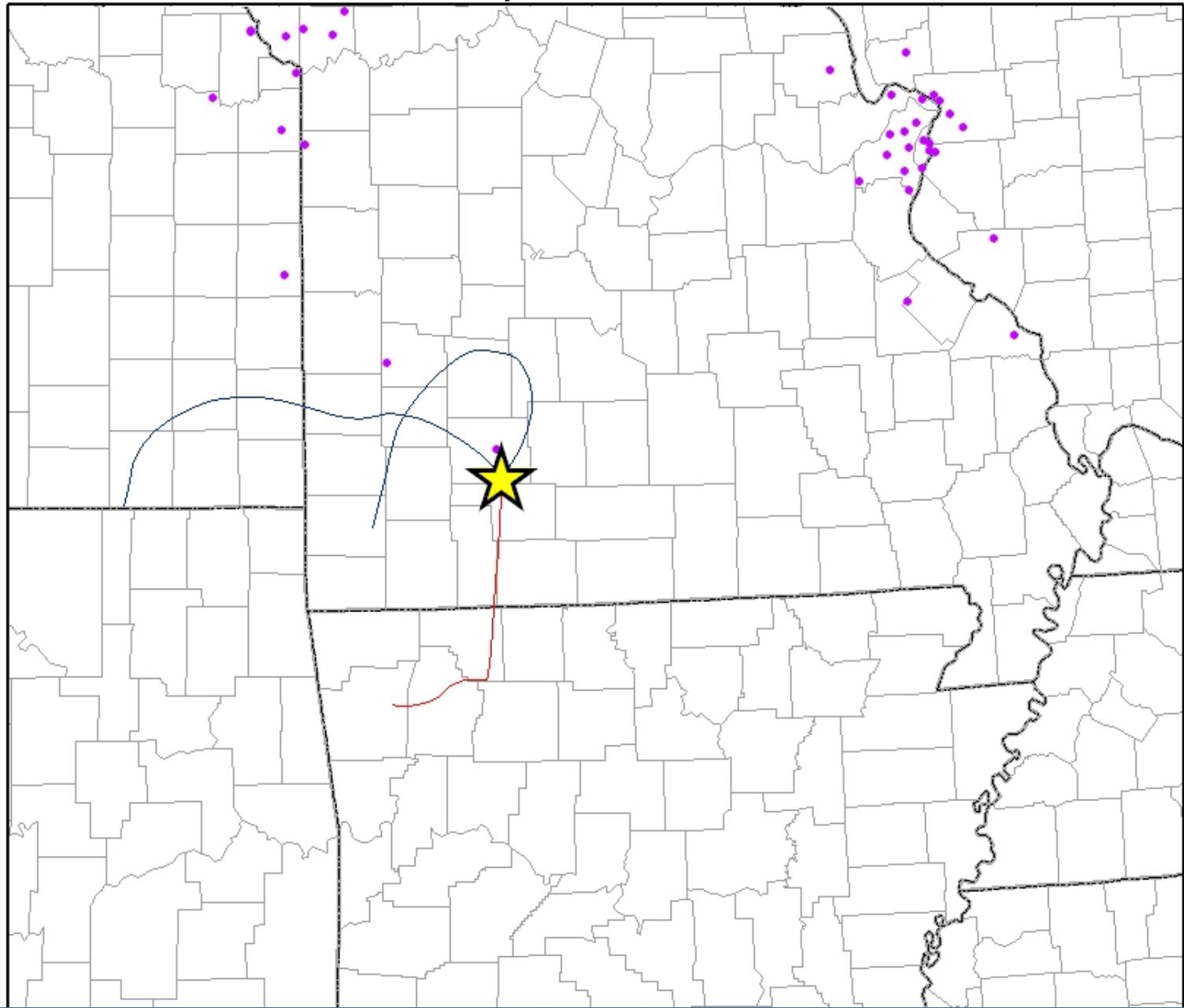
Site: El Dorado Springs
Years of Operation: 2003-2007



Site: Hillcrest
Years of Operation: 2003-2007



Site: S. Charleston
Years of Operation: 2003-2007



Site: Linn County
Years of Operation: 2003-2007

