

TCRPC Deficiency & Alternatives Analysis

Transportation Technical Committee
Monday, October 6, 2008

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Tri-County Regional Planning Commission

Deficiency Analysis

- 2005 AM & PM Calibration Year
- 2010 AM & PM Trend Forecasts
- 2035 AM & PM Wise Growth Forecasts
- 2035 AM & PM Trends Forecasts

Deficiency Analysis

- > 1.00 = Deficient= **RED**
- .800 to .999= Near Deficient= **Orange**
- .701 to .799= Approaching= **Blue**

Deficiency Analysis

- Other Tools—
- AM & PM Actual Capacities and Volume Plots, Other Maps or Aerials, References
- Earlier Plan Results and Local Knowledge
- Model on Laptop & Projector for Close-ups, Network or SE Data Questions
- Team With 100 Years of Experience Including MDOT and TCRPC Staff
- Debug Networks, Look at Paths, Reiterate

Deficiency Analysis

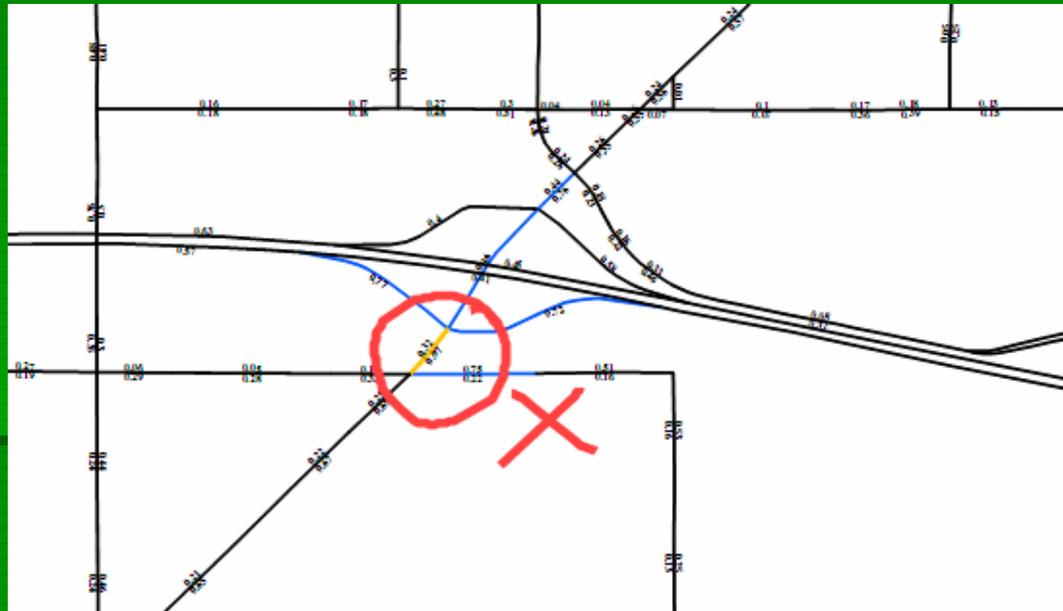
More Art than
Science?

“Professional
Judgment”

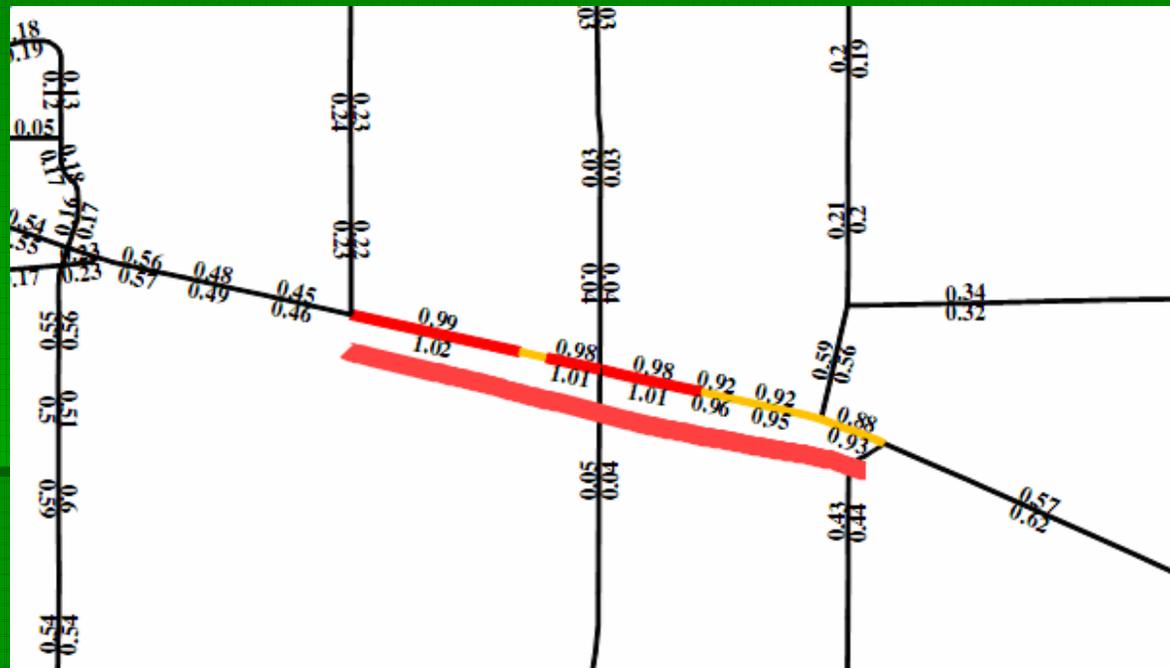
To Smooth or Not to Smooth?



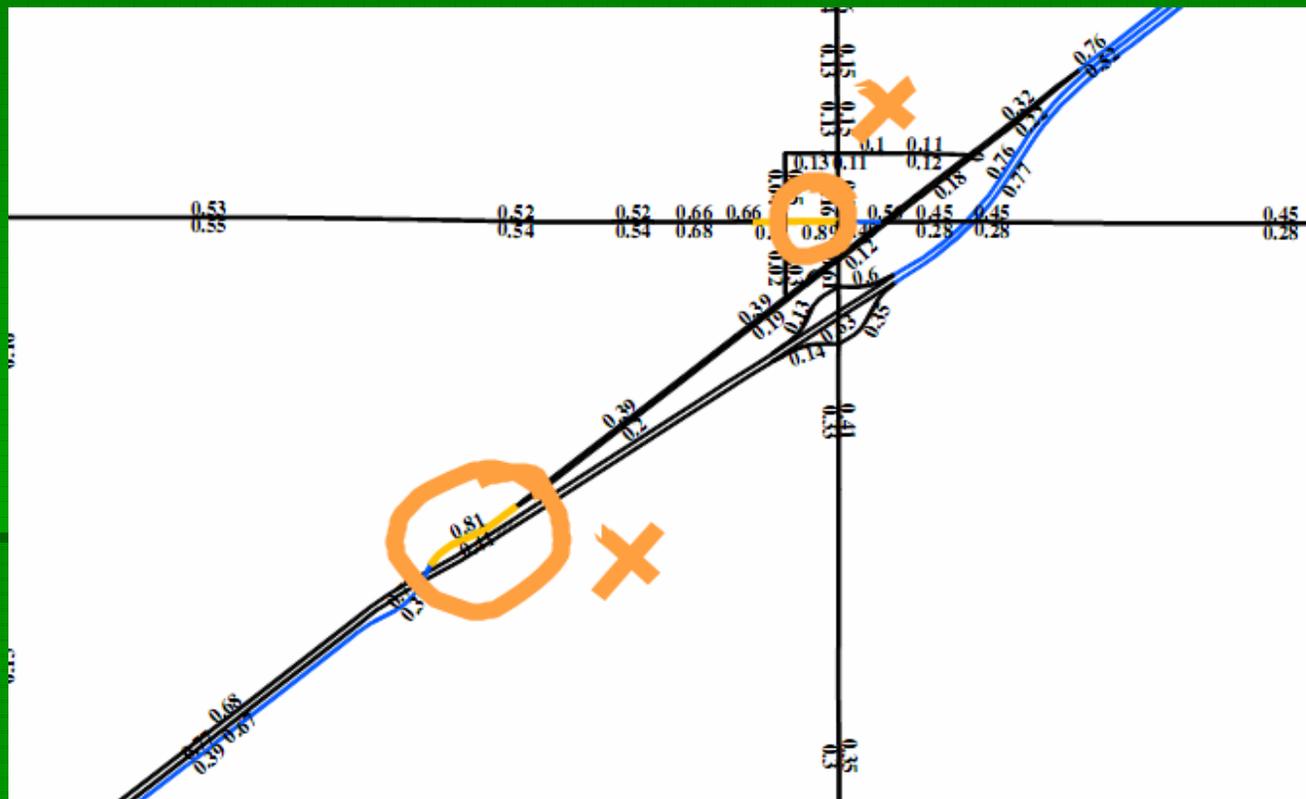
2005 AM



2035 PM Trend Growth



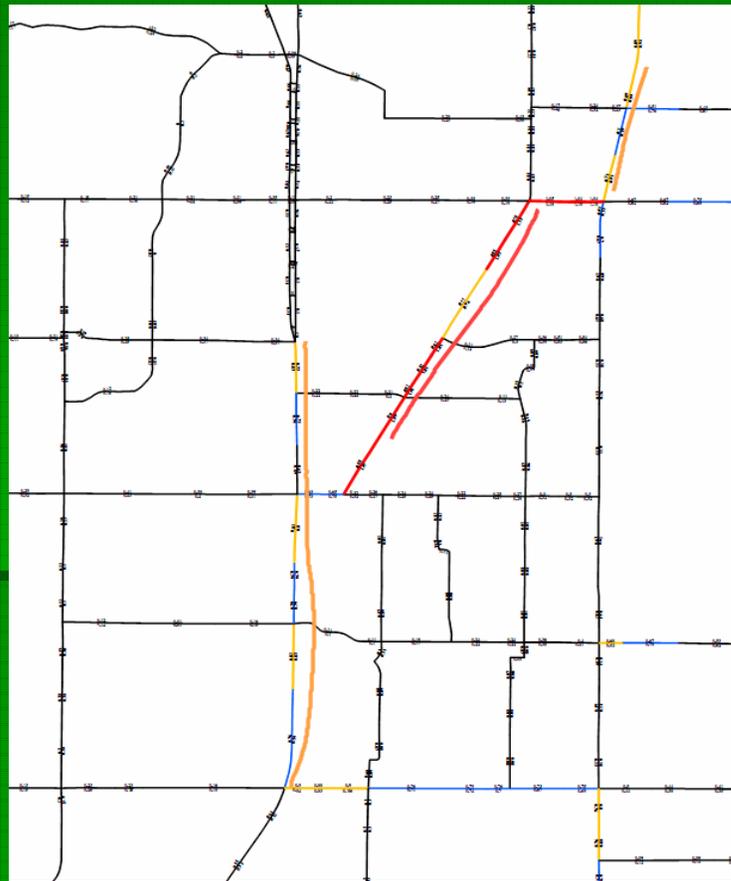
2035 PM Wise Growth



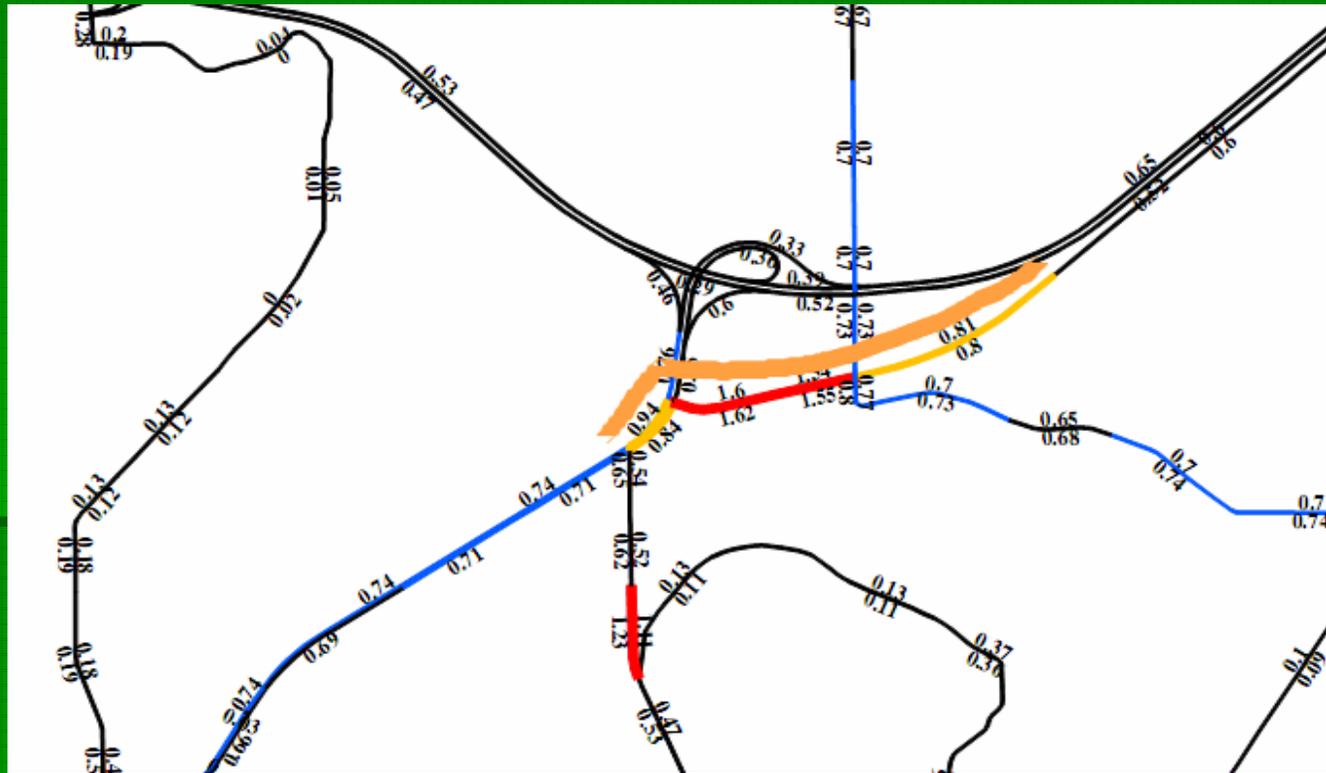
2035 PM Wise Growth



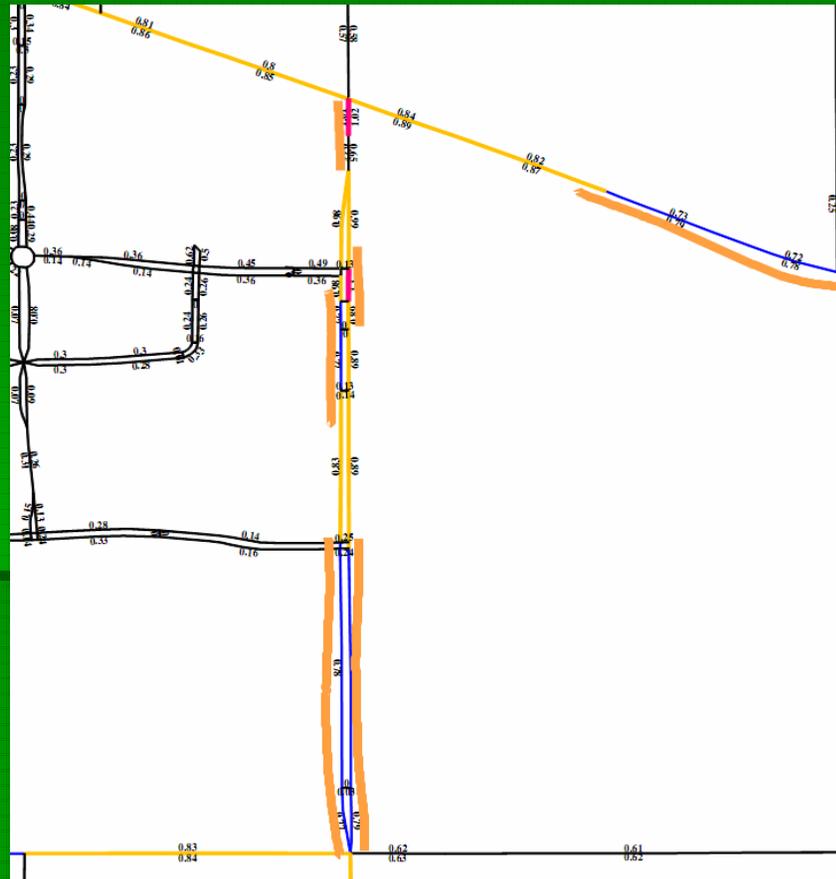
2035 PM Wise Growth



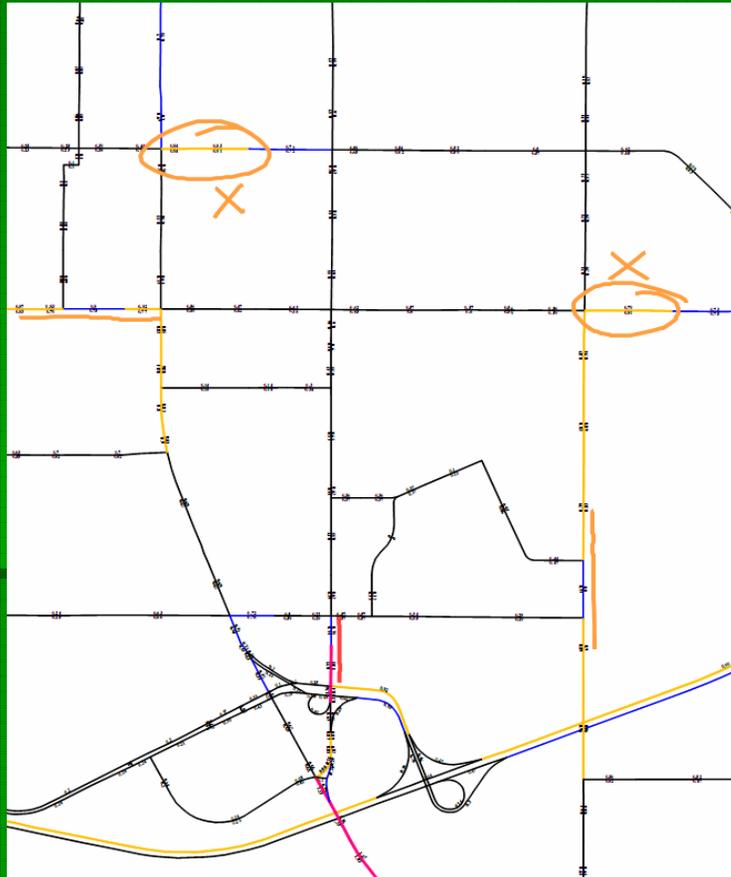
2035 PM Wise Growth



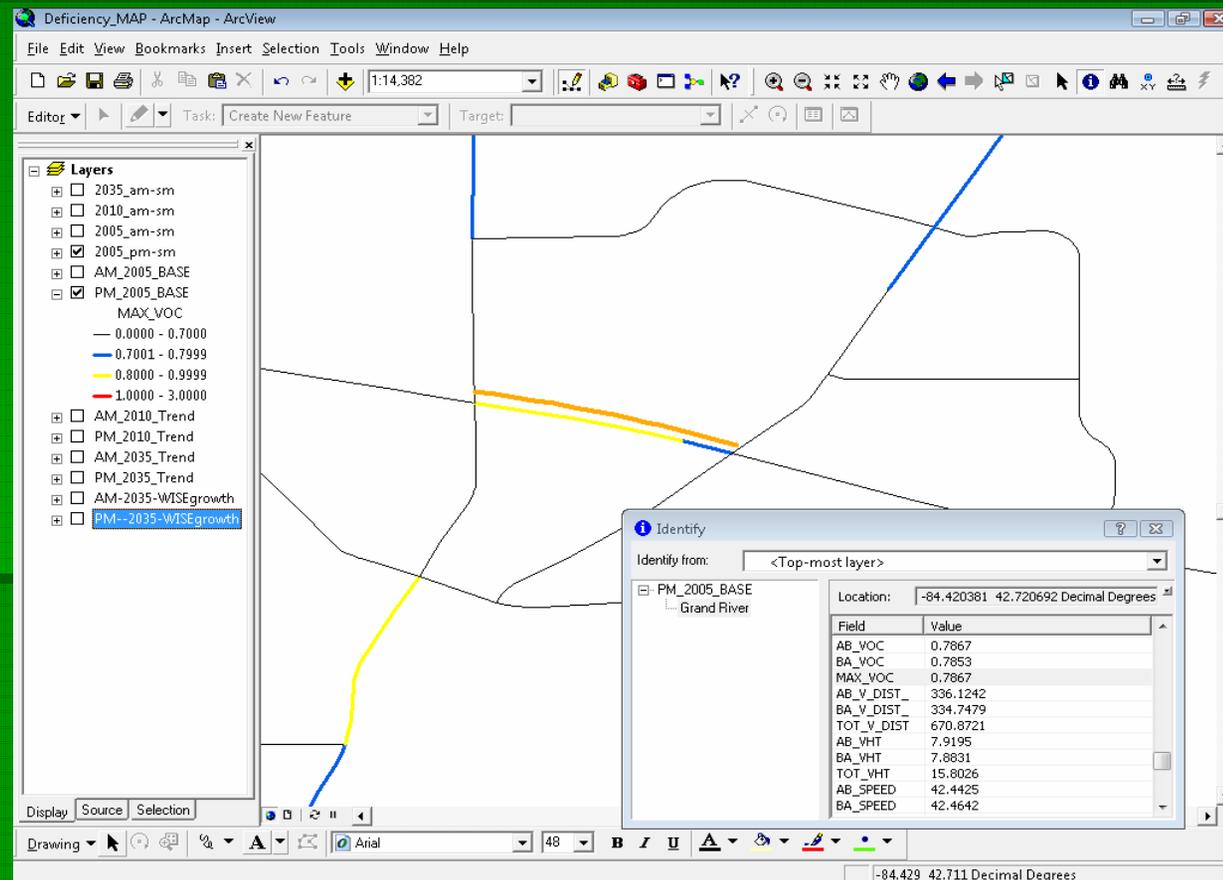
2035 PM Wise Growth



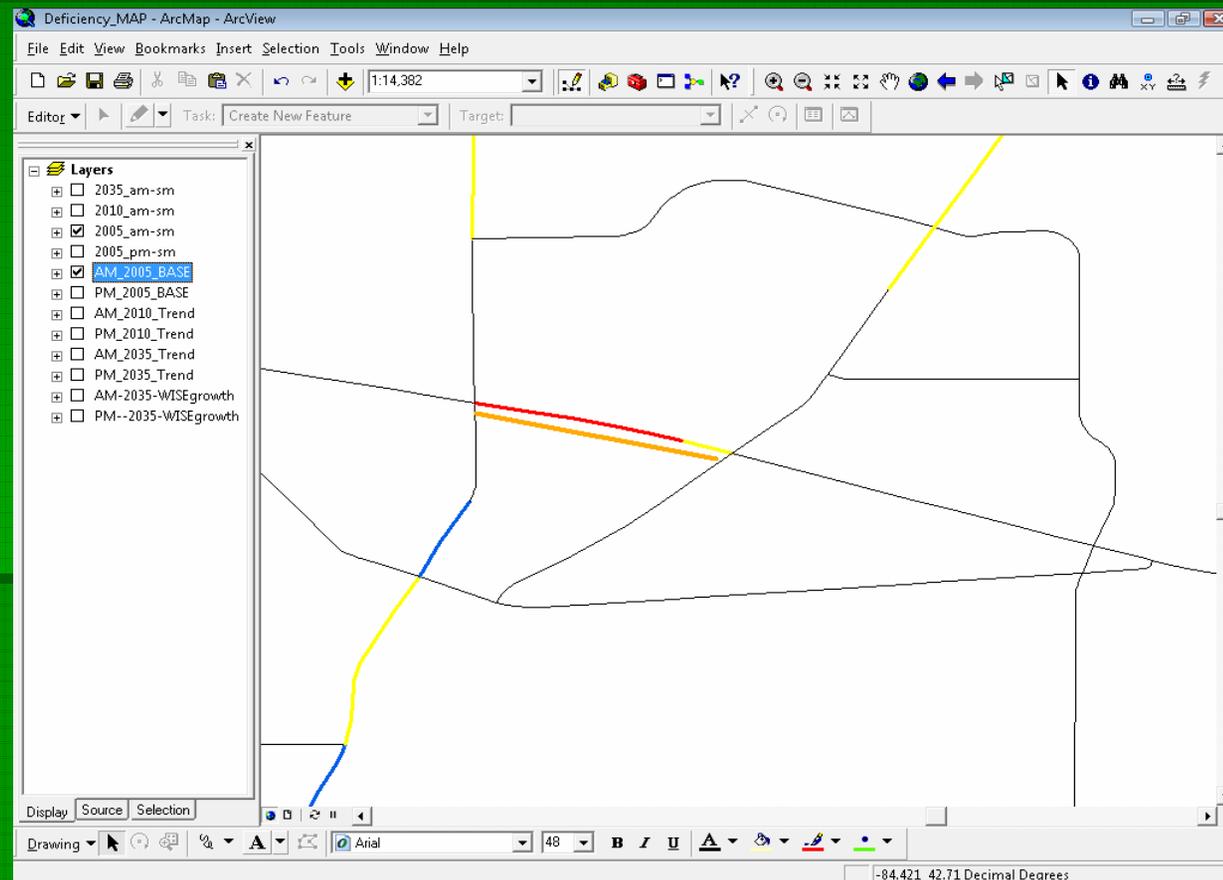
2035 PM Wise Growth



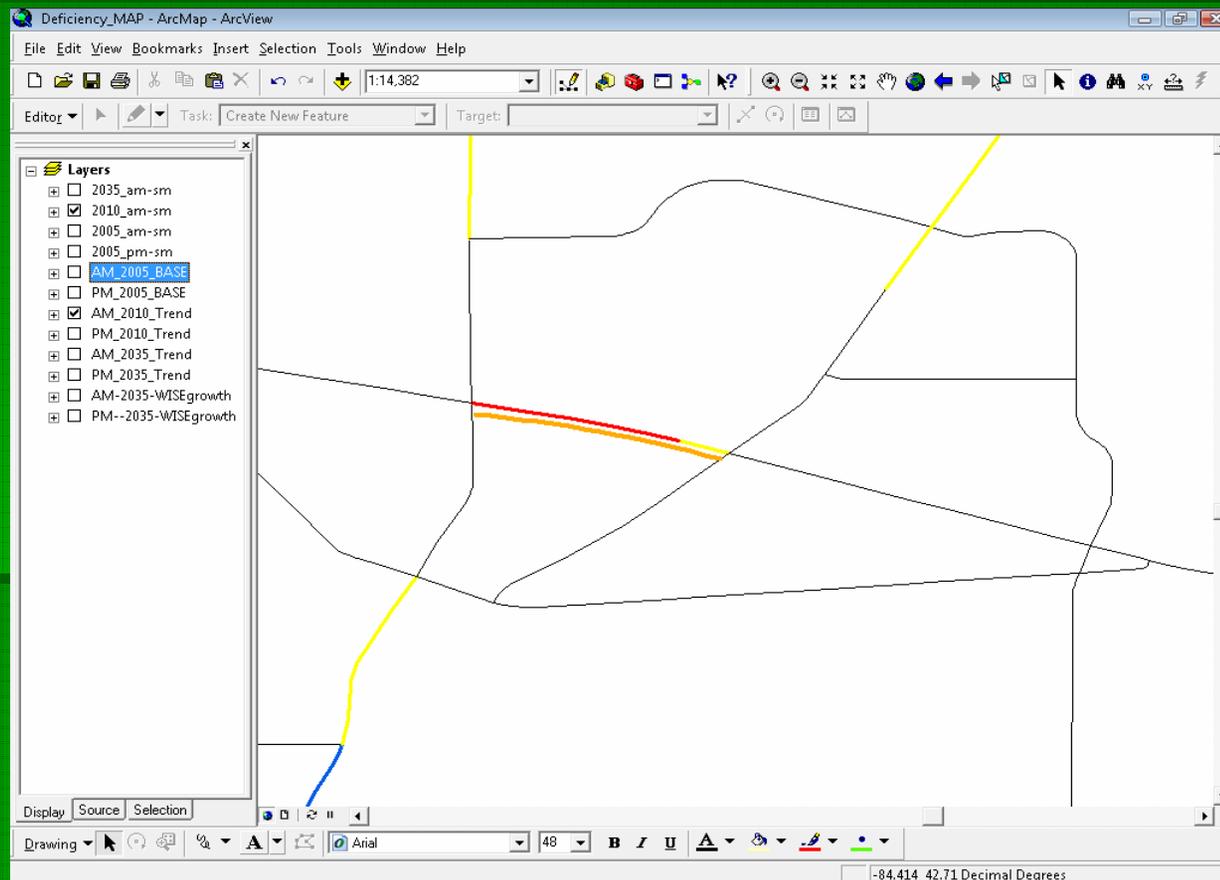
2005 PM



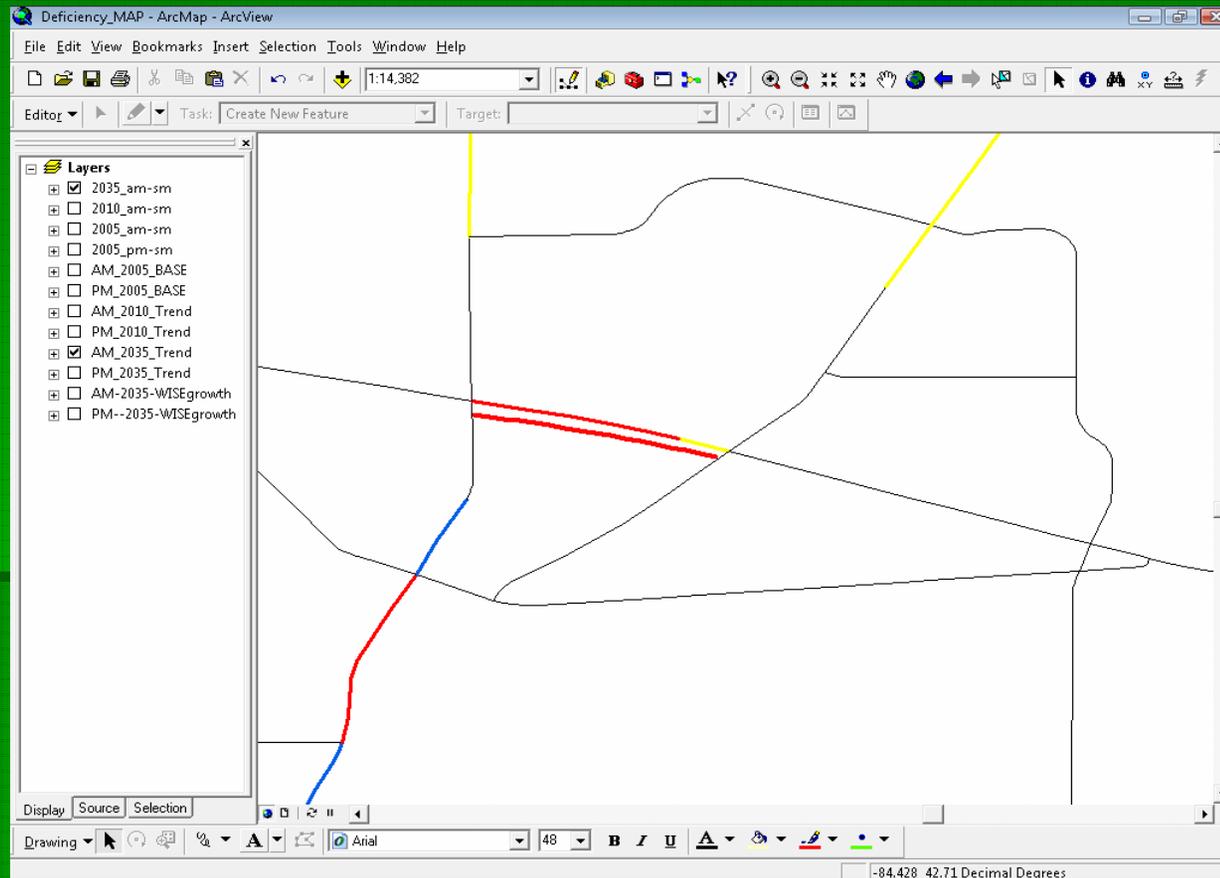
2005 AM



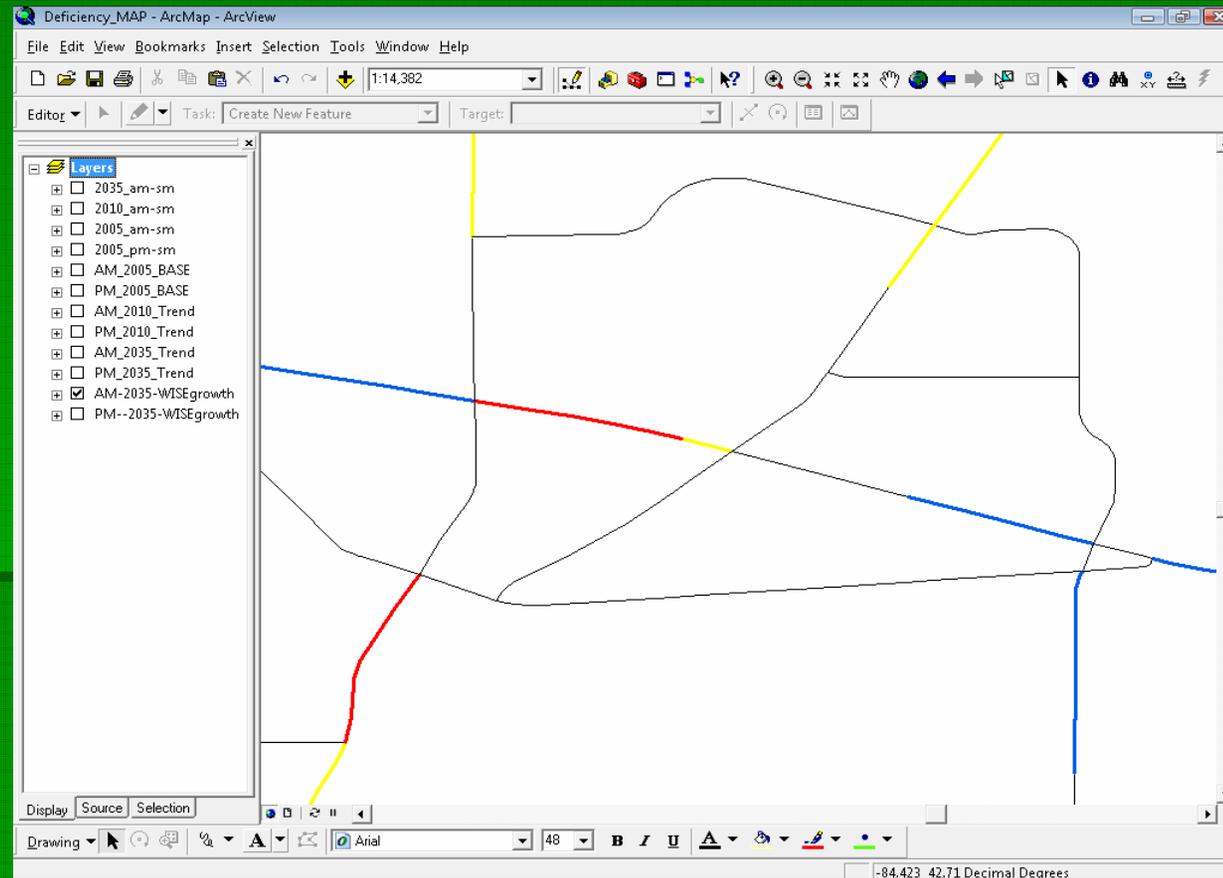
2010 AM



2035 AM Trend



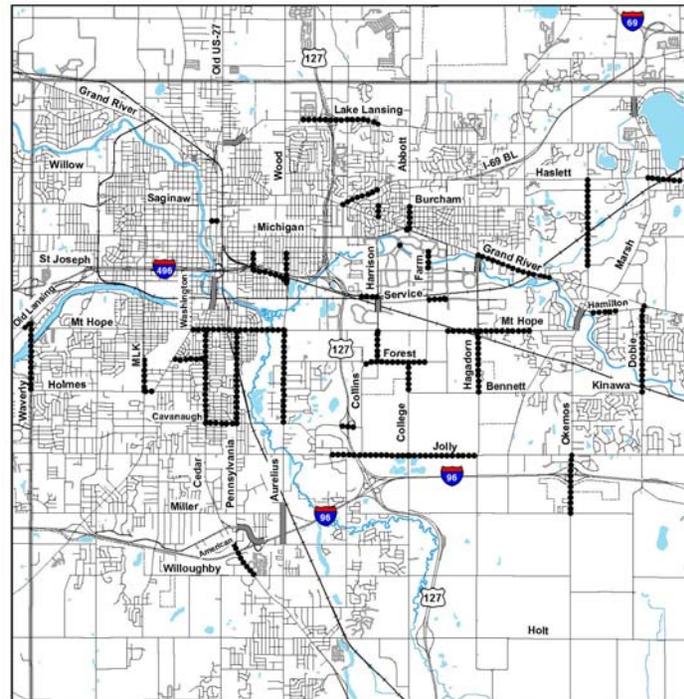
2035 AM Wise Growth



Deficiencies Maps/Lists

Figure 10-3 : 2030 Adopted "Wise Growth" Deficiencies

2030 Adopted "Wise Growth" Deficiencies



2030 Deficiencies

- AM and PM
- PM Peak Hour Only



December 20, 2005

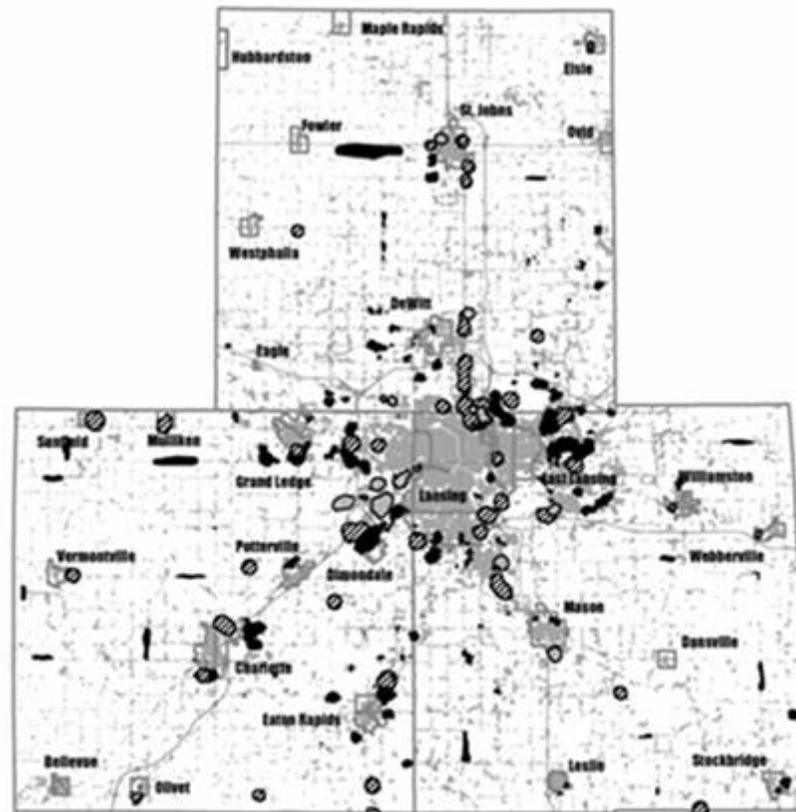
Alternatives Analysis

- Land Use

- Networks

Adopted Trend Forecast Land Use Pattern

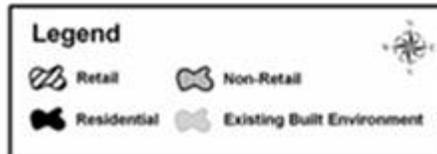
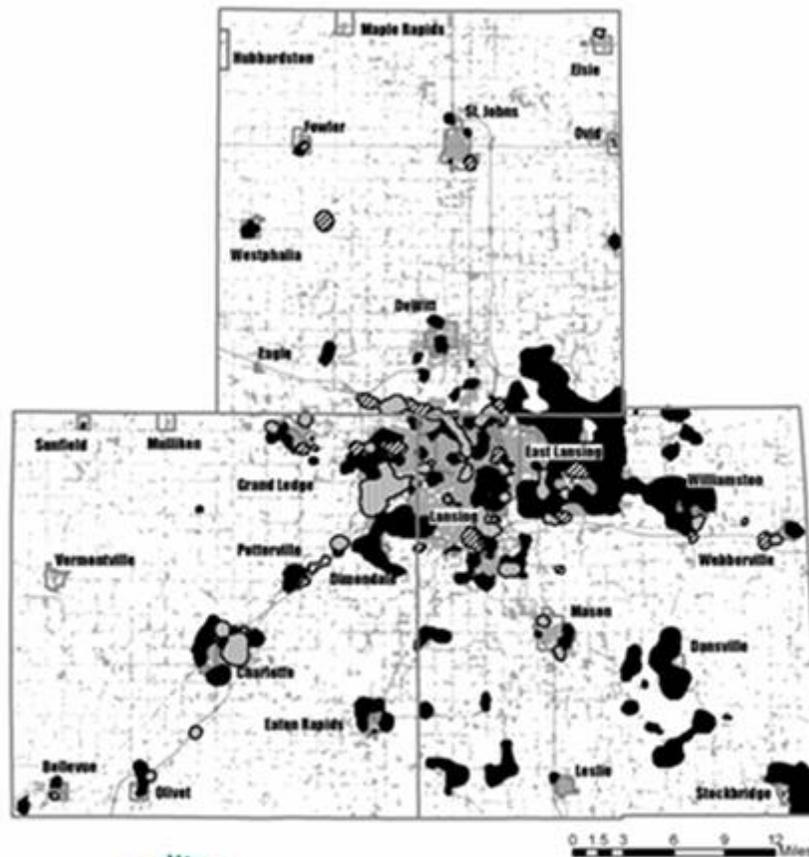
Business As Usual



February 20, 2003

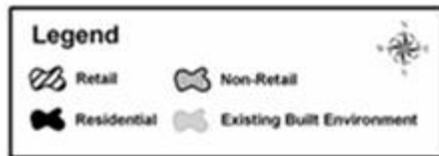
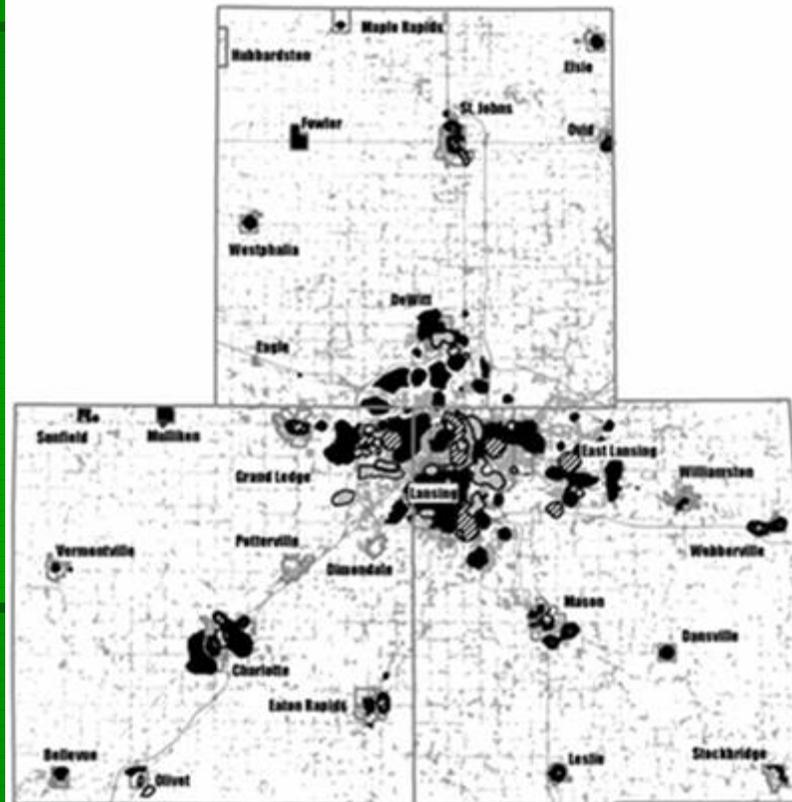
Build Out Scenario Based on Existing Zoning

Build Out



Wise Growth

Wise Growth



Preliminary Comparative Analysis of Scenarios Used in Selecting the Preferred Alternative

Impact category	Trend Forecasts	Wise Growth	Build Out	Wise Growth Build Out
Agricultural land consumed (acres)	21,889	14,471	39,047	14,471
Open space (not ag) consumed (acres)	11,853	6,868	31,930	6,868
Environmental areas preserved (acres)	195,100	200,100	175,100	200,100
Total developed land area (acres)	201,098	191,002	239,770	191,002
Developed land per capita	0.37	0.35	0.16	0.13
Total non-retail area (acres)	8,106	8,052	15,081	8,052
Total retail area (acres)	19,573	9,519	11,002	9,519
Total residential area (acres)	150,196	145,208	190,464	145,208
Developed residential land per capita	0.27	0.26	0.13	0.10
End-year Population	550,166	550,166	1,462,666	1,462,666
End-Year Retail Employment	68,857	68,857	112,547	112,547
End-Year Non-retail Employment	270,923	270,923	377,378	377,378
Population change (#)	101,913	101,913	1,014,413	1,014,413
Population in developed areas (#)	324,598	352,106	453,426	1,082,373
Population in developed areas (%)	59%	64%	31%	74%
Population in undeveloped areas (#)	225,568	198,060	1,009,240	380,293
Population in undeveloped areas (%)	41%	36%	69%	26%

Preliminary Comparative Analysis of Scenarios Used in Selecting the Preferred Alternative (continued)

Impact category	Trend Forecasts	Wise Growth	Build Out	Wise Growth Build Out
Percent of households within 1/4-mile radius of transit routes	42%	48%	23%	49%
Percent of new households within 2-mile radius of community parks	90%	92%	73%	93%
Percent of new households within 1/4-mile radius of neighborhood parks	40%	44%	23%	46%
% of new households in sewer service area	42%	67%	16%	67%
% of new households in water service area	45%	69%	15%	69%
New students in excess of existing available capacity*	5,816	2,510	69,359	107,338
New police expenditures (current LOS per unit)	\$16,512,000	\$20,182,000	\$113,968,000	\$189,401,000
New fire/EMS expenditures (current LOS per unit)	\$7,183,000	\$11,415,000	\$60,299,000	\$81,987,000
Minority population within 1/4-mile radius of transit routes	44%	90%	21%	26%

* Where information on capacity and enrollment is available

Transportation System Performance Measures: Land Use Alternatives Analysis

Performance Measures	2000	Trend Forecasts	Wise Growth	Build Out	Wise Growth Build Out
Deficient VMT	16.4	94.7	191.7	4,473.0	2,566.5
Near Deficient VMT	153.5	582.5	673.8	1453.3	2200.1
Deficient VHT	1154.0	5760.0	11,721.0	441,900.0	283,431.0
Near Deficient VHT	6419	21,381	25,677	93,077	60,971
Hours of Delay	4.9	9.1	10.1	100.6	59.6
Transit Ridership	19,451	20,044	25,473	21,310	47,970



Air Quality Analysis

Total VOC (HC) Emissions - Kgs/Day

Area	1995	2000	Trend	Wise Growth	Build Out	Wise Growth Build Out
Clinton County	5,558	5,013	5,668	5,382	14,096	8,002
Eaton County	5,807	5,029	5,584	5,112	15,334	8,389
Ingham County	14,136	12,255	12,088	12,866	21,003	22,915
Region	25,501	22,296	23,340	23,360	50,433	39,306

Exhaust CO Emissions - Kgs/Day

Area	1995	2000	Trend	Wise Growth	Build Out	Wise Growth Build Out
Clinton County	46,937	38,072	41,160	39,141	98,591	57,380
Eaton County	46,318	37,031	40,685	37,436	108,889	60,435
Ingham County	103,106	87,303	94,627	101,019	164,793	181,973
Region	196,362	162,407	176,471	177,596	372,273	299,788

Exhaust NOX Emissions - Kgs/Day

Area	1995	2000	Trend	Wise Growth	Build Out	Wise Growth Build Out
Clinton County	7,865	7,905	10,560	10,088	23,942	14,416
Eaton County	7,632	7,196	9,913	9,155	25,808	14,510
Ingham County	15,404	14,133	16,514	17,420	27,956	29,628
Region	30,901	29,234	36,987	36,663	77,706	58,554

Summary of Impacts

	Adopted Trend Forecast	Wise Growth	Build Out	Wise Growth Build Out
Community Services				
Environmental	33,742	21,339	70,977	21,339
Environmental Justice	44%	90%	21%	26%
Utilities	43.5%	68%	15.5%	68%
Cost of Public Service	\$ 23,695,000	\$ 31,597,000	\$ 173,997,000	\$ 271,388,000
Transportation	\$ 45,800,000	\$ 91,800,000	\$ 1,690,700,000	\$ 136,500,000
Land Use	201,098	191,002	239,770	191,002
Quality of Life				
Good	Fair	Poor		

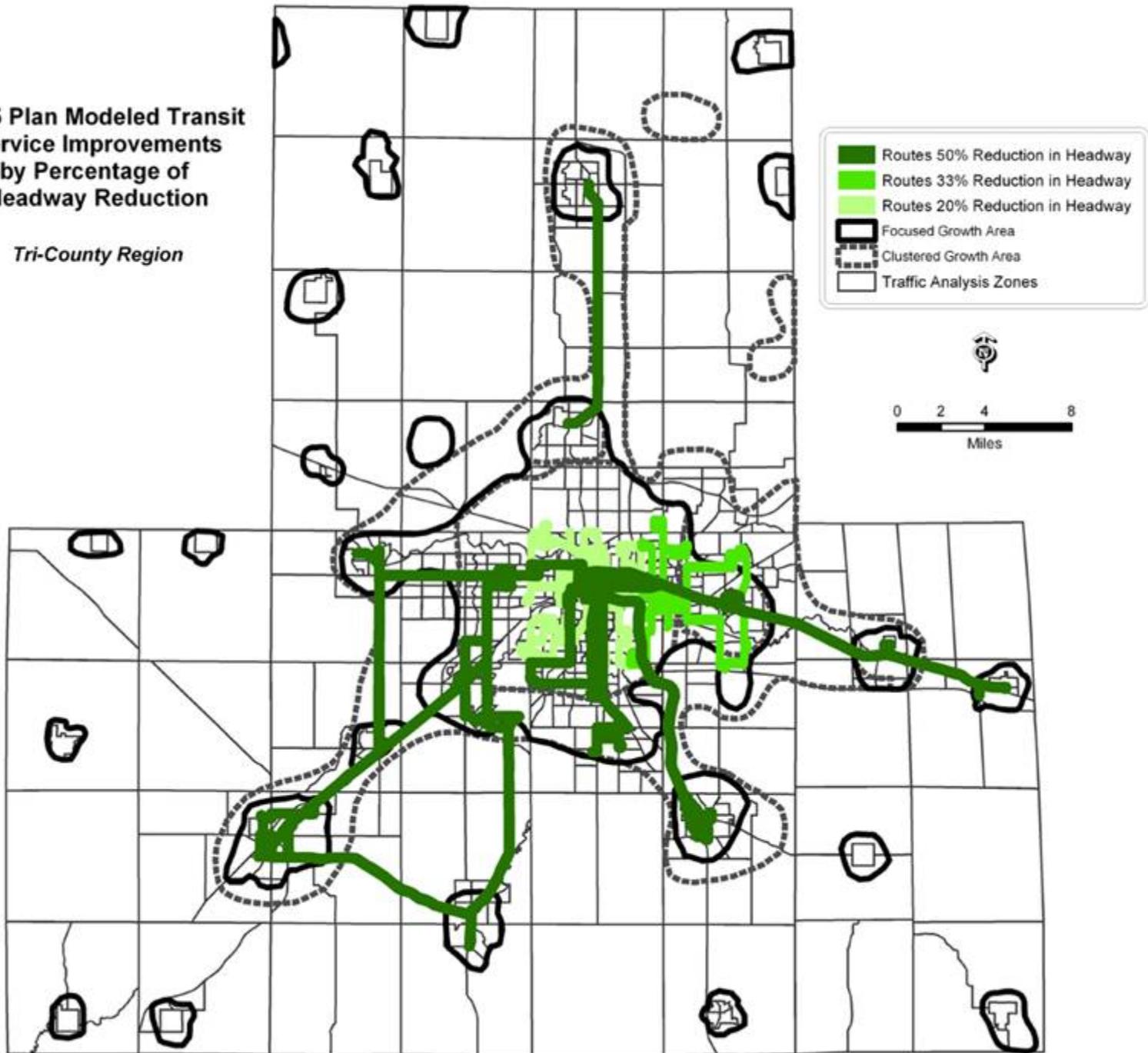


Network Alternatives

- 1. High Transit
- 2. Medium Transit
- 3. Demand Reductions/Improve Ops.
- 4. Combination of 2 + 3
- 5. Combination of 2+ 3+ 6A
- 6A. Potential Options on Wise Growth
- 6B. Potential Options on Trend
- 7. Highways Only

2025 Plan Modeled Transit Service Improvements by Percentage of Headway Reduction

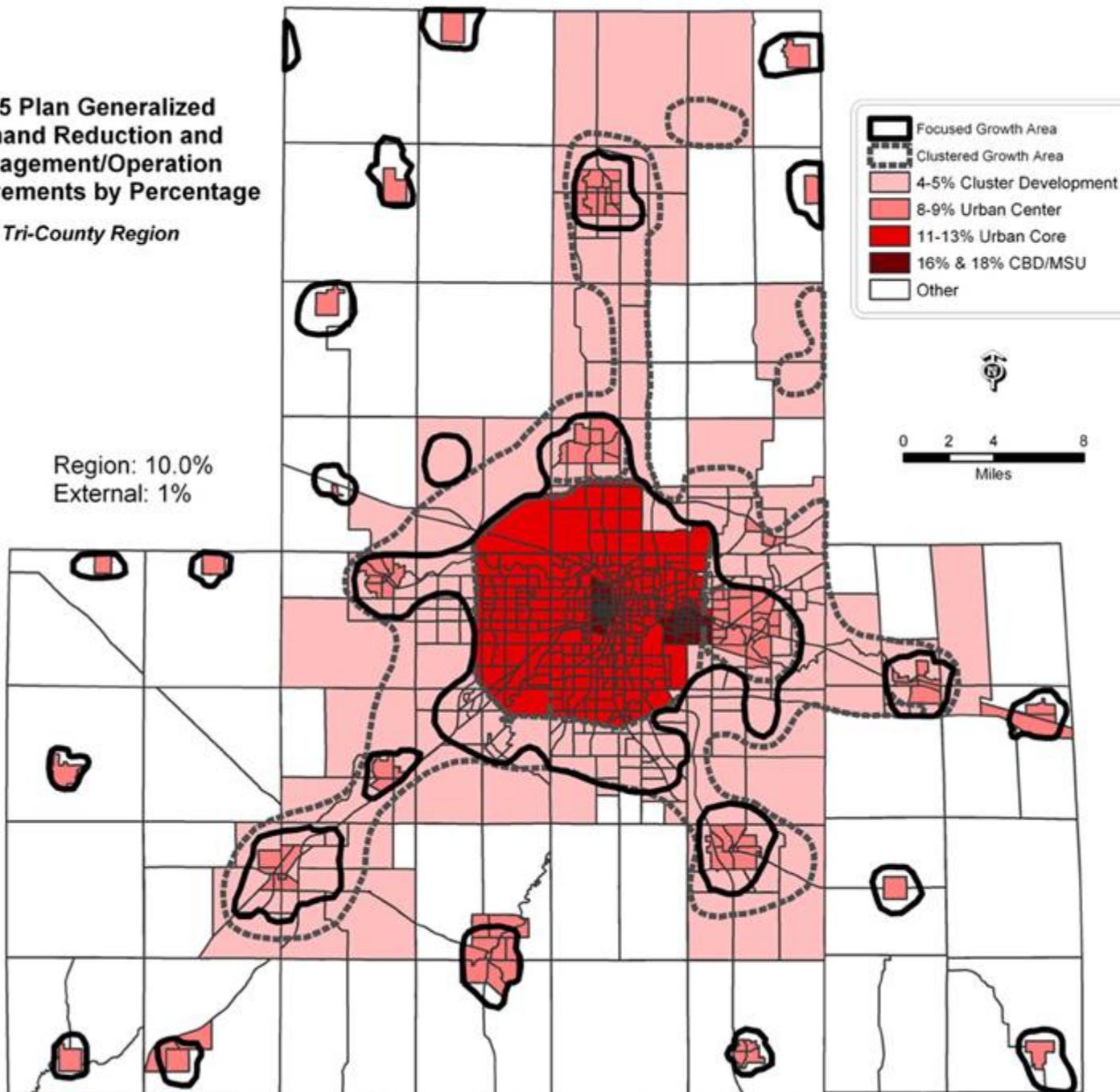
Tri-County Region



2025 Plan Generalized Demand Reduction and Management/Operation Improvements by Percentage

Tri-County Region

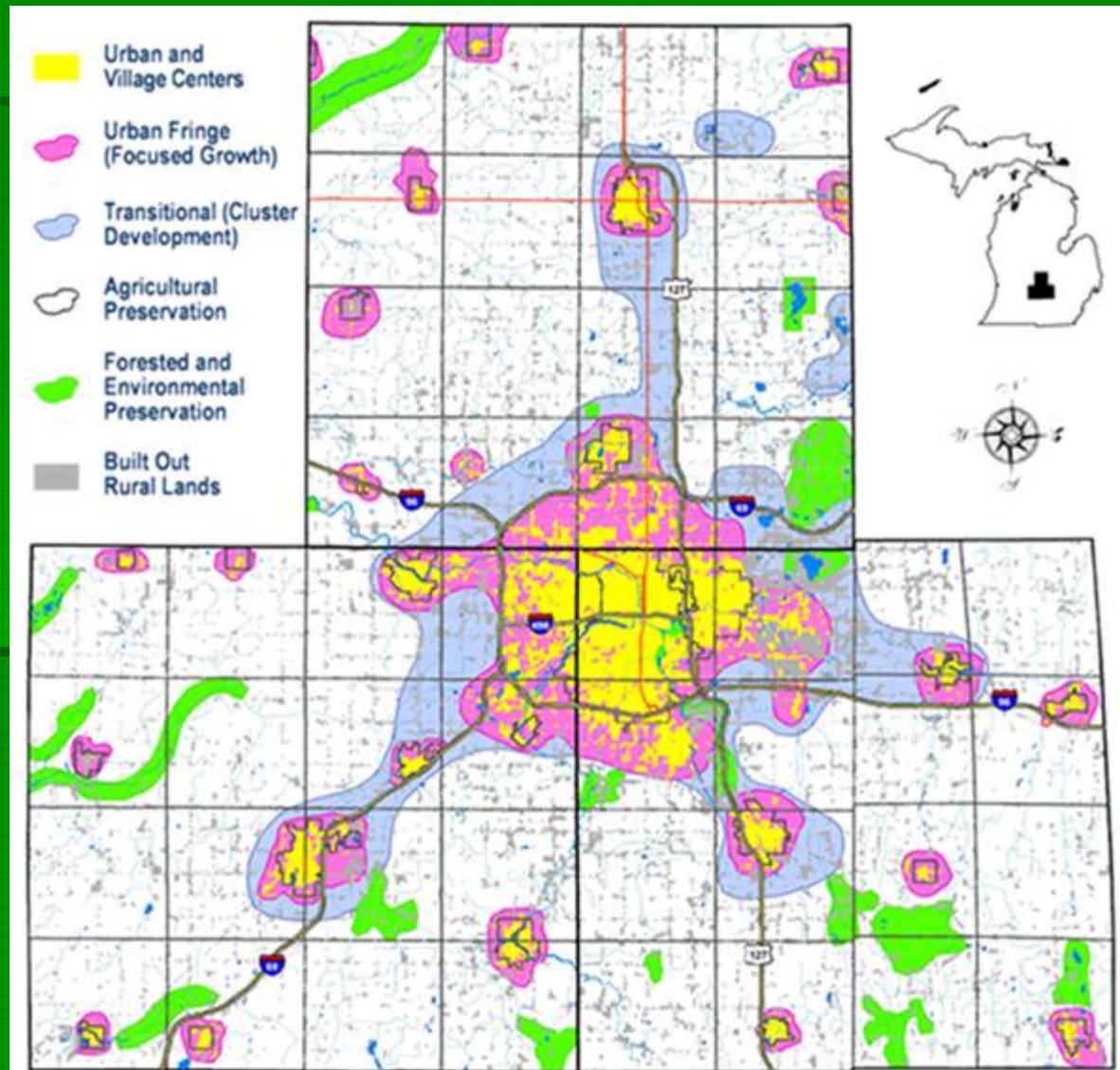
Region: 10.0%
External: 1%



DAILY CONGESTED VEHICLE HOURS OF TRAVEL (VHT) BY ALTERNATIVE BY FUNCTIONAL CLASSIFICATION (Actual Hours)

	1 High Transit	2 Medium Transit	3 Demand Reduction/ Improve Operations	4 Combination of 2 and 3	5 Combination of 2, 3 and 6a	6a Potential Options on Preferred Land Use	6b Potential Options on Trend Land Use	7 Highways Only
Interstate	408	337	714	952	726	591	681	619
Other Freeway	814	863	0	177	0	121	0	0
Principal Arterial	5635	5741	2759	2814	1280	1413	1045	1479
Minor Arterial	5734	5159	2752	2243	2073	1962	1378	2508
Collector	1838	2079	1096	957	861	974	735	847
Local	185	327	112	102	41	50	20	125
Tri-County Total	14614	14507	7433	7245	4981	5109	3860	5577

Adopted Regional Land Use Vision



Thank You

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