MTMUG Presentation

Iowa Statewide Travel Demand Model

A Status Report

Paul Hershkowitz
Wilbur Smith Associates

Dane Ismart
The Louis Berger Group

Mary Lupa
Wilbur Smith Associates

Phil Mescher
Iowa DOT, Office of Systems Planning

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Purpose of Today's Presentation

- Review the two phases of the Iowa STM
- Discuss the key purposes of the Iowa STM
- Outline the findings of the architecture step
- Provide a status report on key model elements (see next slide)
- Obtain your feedback

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Iowa STM Model Elements

- Traffic Analysis Zones (Internal) geography
- Buffer Zones (External) geography
- Network
- Socioeconomic Forecasts
- Trucks

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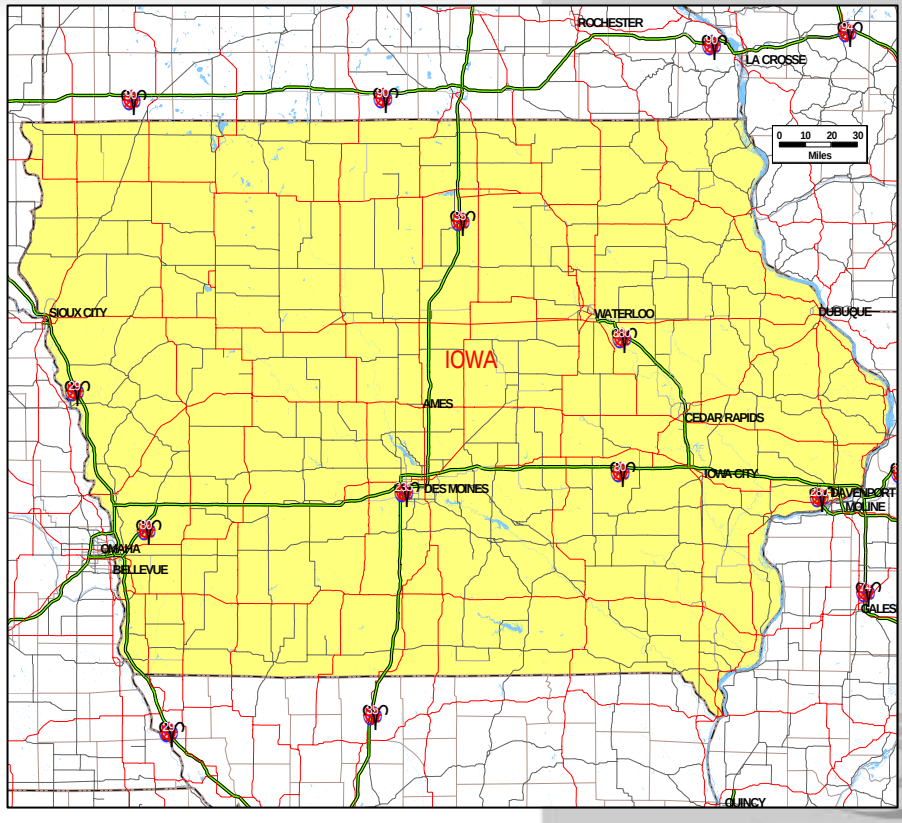
Phases I and II Work Flow

- Phase I developed the Iowa Statewide Model Framework for Phase II
  - ➢ Think “blueprint”
- Phase II is building the Iowa Statewide Model



Phase II Work Flow

Two parts of Phase II:

Part 1 – Construction of Iowa STM using the Architecture "blueprint" (began October 15, 2007)

Part 2 – Commodity Flow Model Component (TBD)

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Iowa DOT's Actions supported the STM

- Assembled a team of internal and external transportation specialists
- Established a technical steering team – the EPSC – Executive Planning Steering Committee, which includes MPO representatives
- Set up a cooperative hands-on workshop program for TAZ, network, and centroid tasks with both DOT and consultant members
- Launched the effort formally in October 2007

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Iowa STM Model Elements

Approach & Status

- Traffic Analysis Zones (Internal) geography
- Buffer Zones (External) geography
- Network
- Socioeconomic Forecasts
- Trucks

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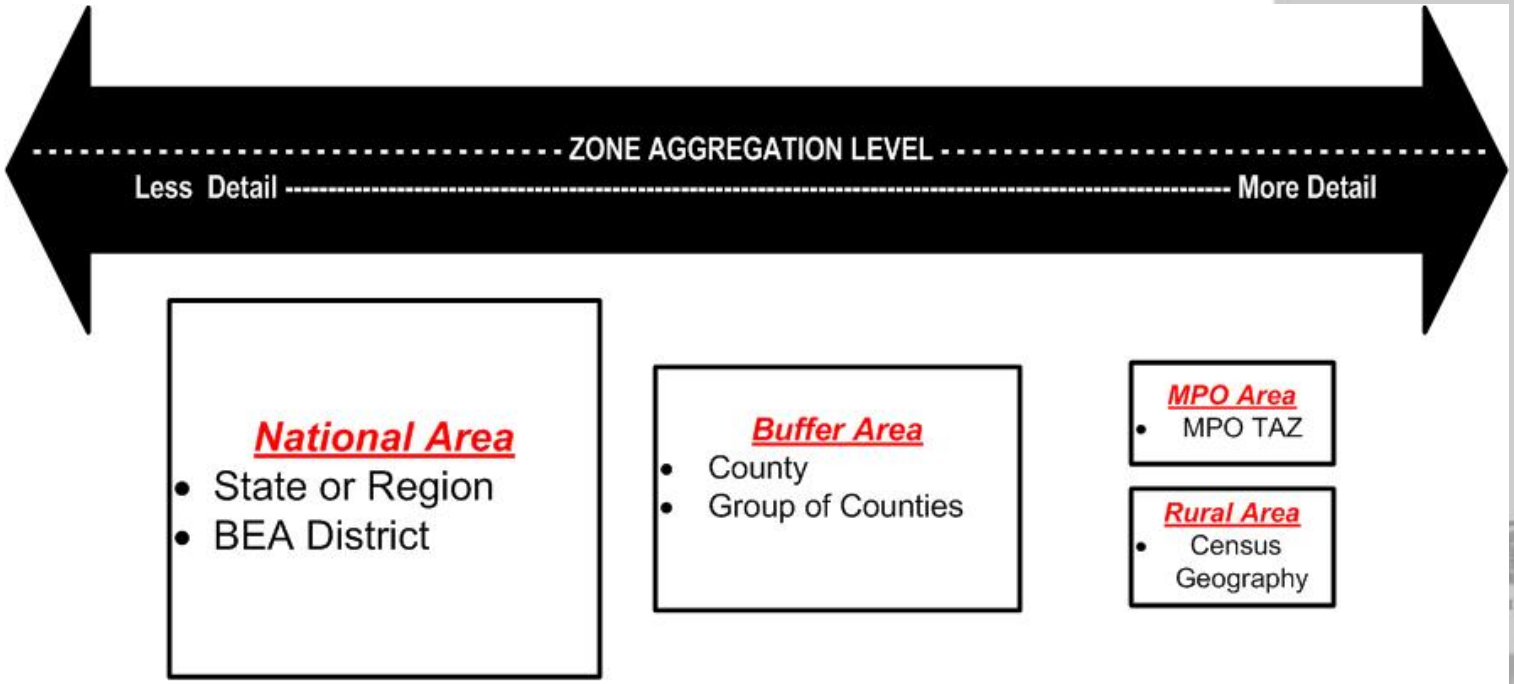
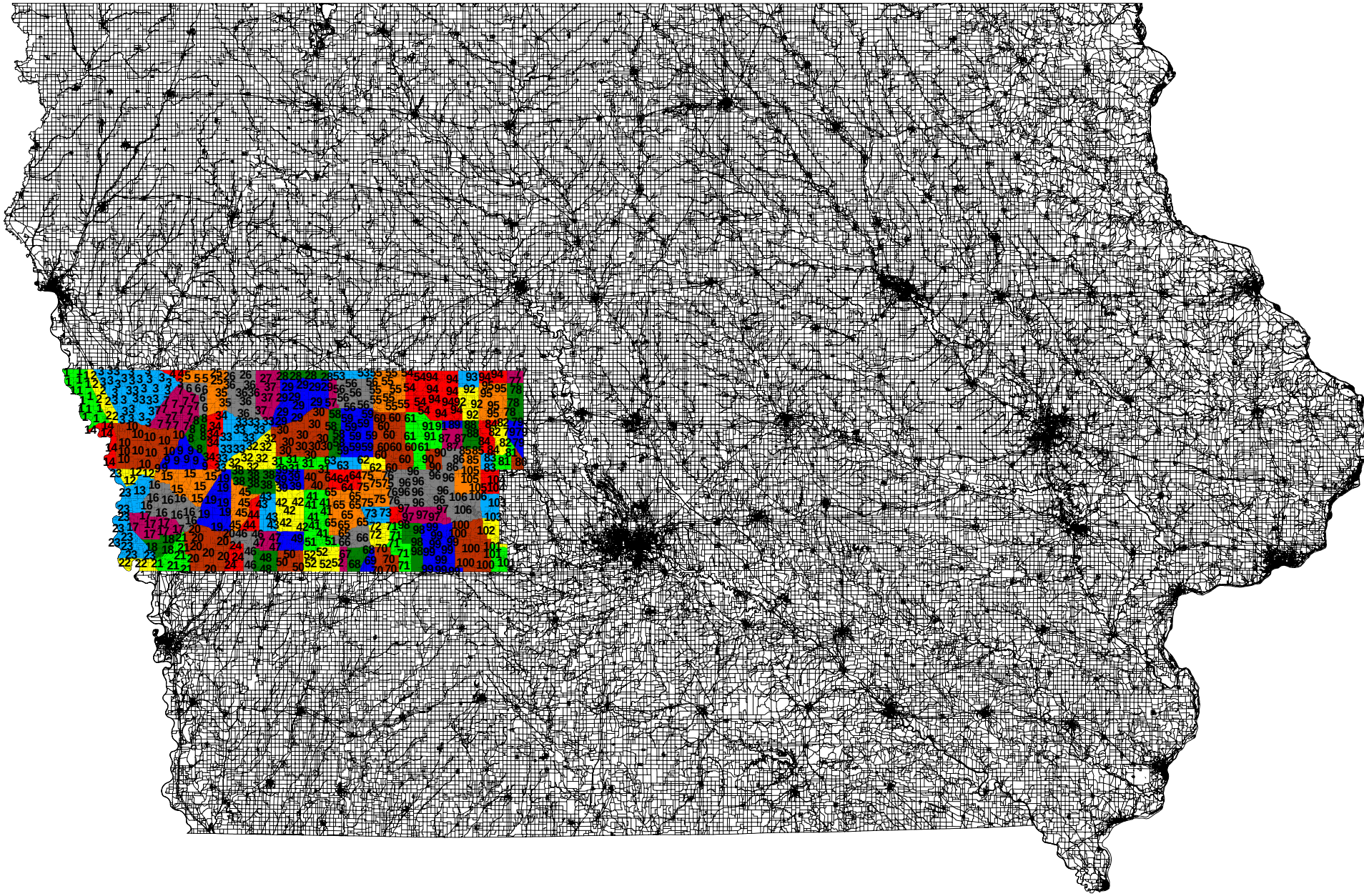
Zone System Scales

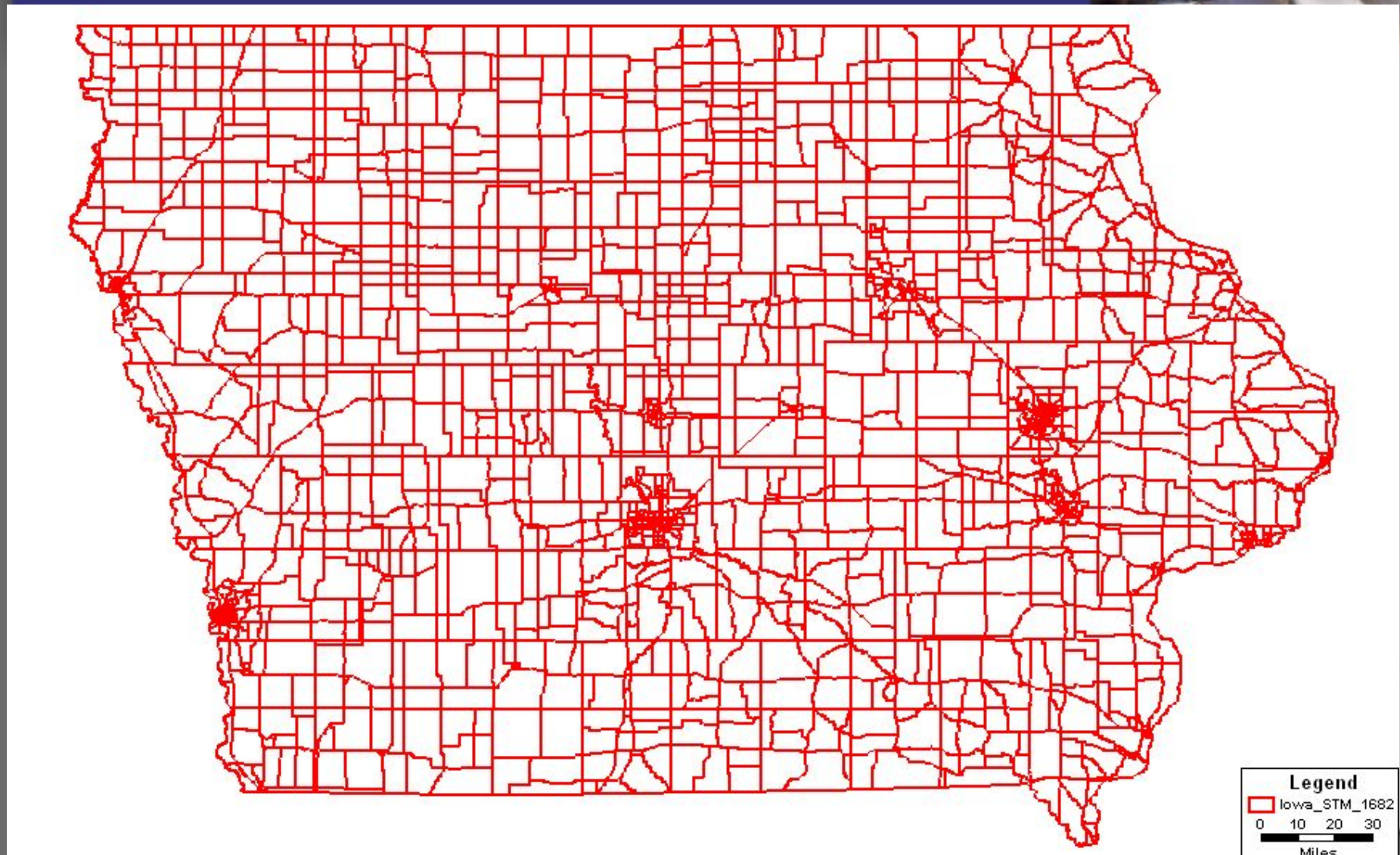
A "telescoping" size approach to the zone systems is being used.



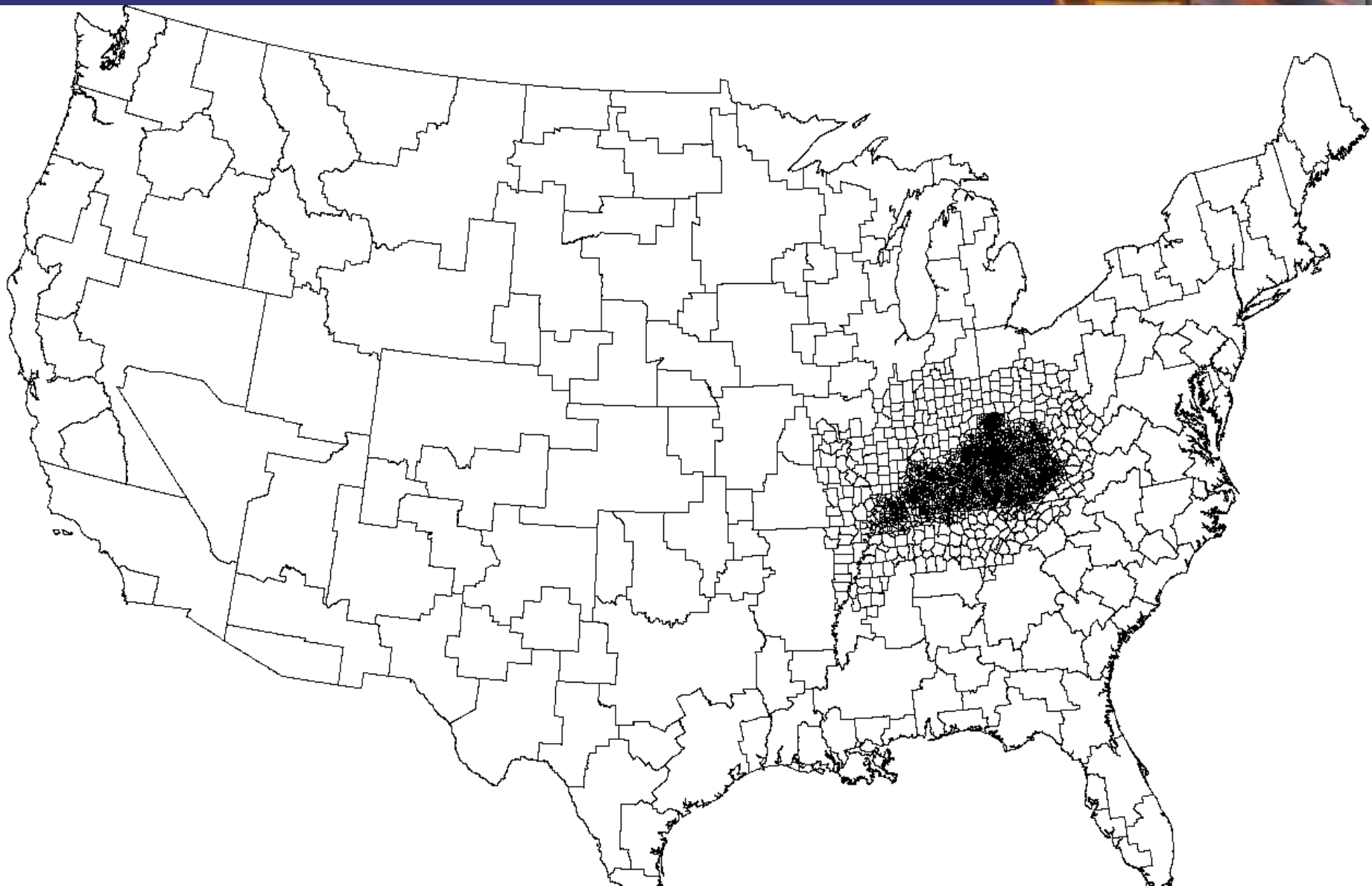
Traffic Analysis Zones (Internal)- Before TAZ Aggregation

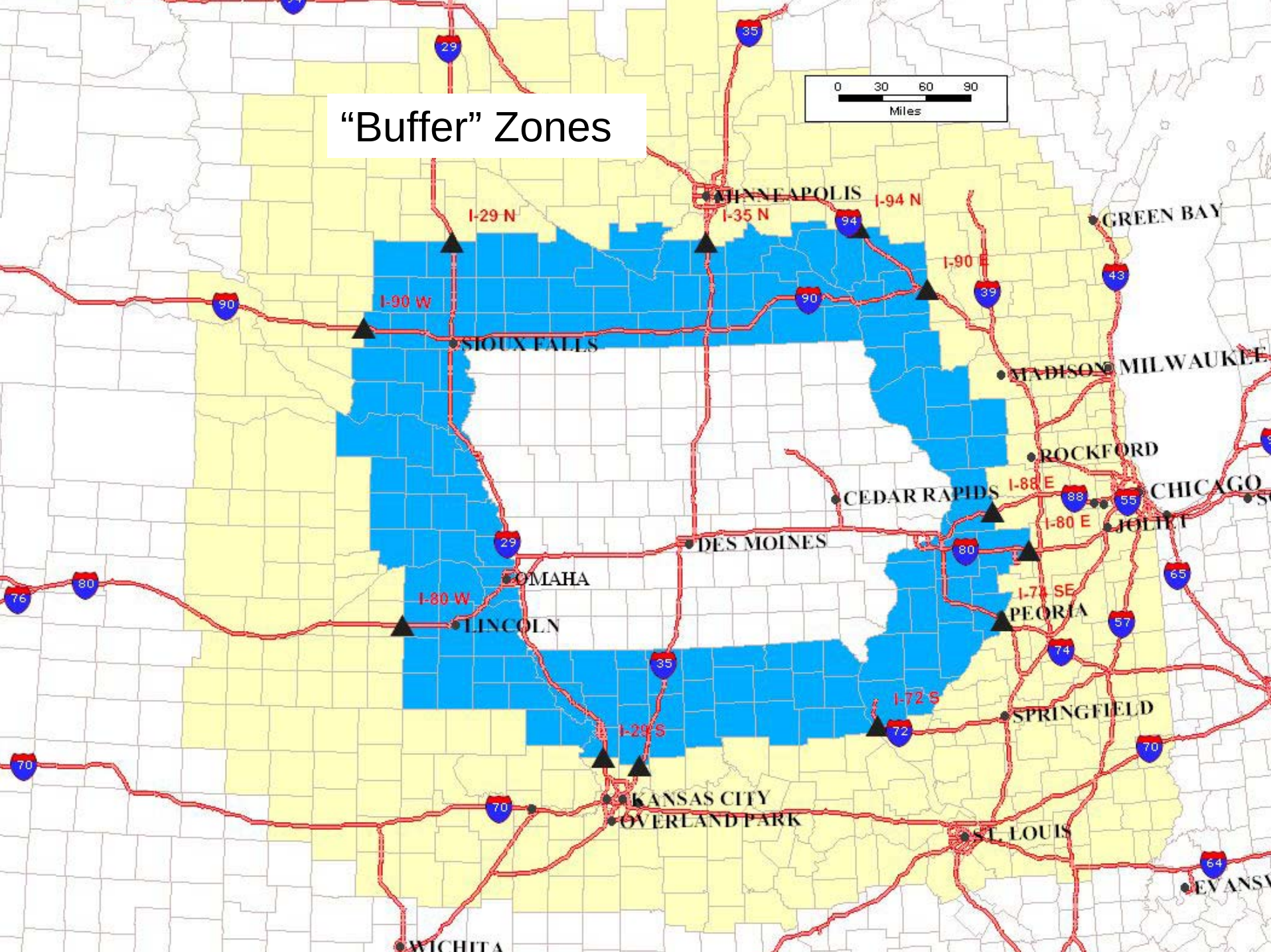


Traffic Analysis Zones (Internal)
After TAZ Aggregation



Sample of Buffer and National Zone System
(External)




“Buffer” Zones
0 30 60 90
Miles
I-29 N
I-35 N
I-94 N
I-90 E
I-90 W
I-80 W
I-80 E
I-74 SE
I-72 S
I-29 S
MINNEAPOLIS
GREEN BAY
SIOUX FALLS
MADISON
MILWAUKEE
ROCKFORD
CEDAR RAPIDS
CHICAGO
JOLIET
DES MOINES
OMAHA
LINCOLN
PEORIA
SPRINGFIELD
KANSAS CITY
OVERLAND PARK
ST. LOUIS
WICHITA
29
35
94
90
43
39
88
55
80
65
57
74
72
70
76
64

Iowa Highway Network
(Internal)

Network congruence is desired with the Iowa Road database - GIMS (Geographic Information Management System)

The Iowa DOT is reviewing the GIMS for connectivity, and assignability prior to formal network development

There is an opportunity to interface with the Iowa DOT LRS road file product under development in 2008.

Much work ahead of us.

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Highway Network
(External)

- Begin with National Highway Network or FAF2.2 Highway network
- Adjust to the buffer TAZ system with telescoping scale
- Collect traffic counts at Iowa portals, both land and bridges.

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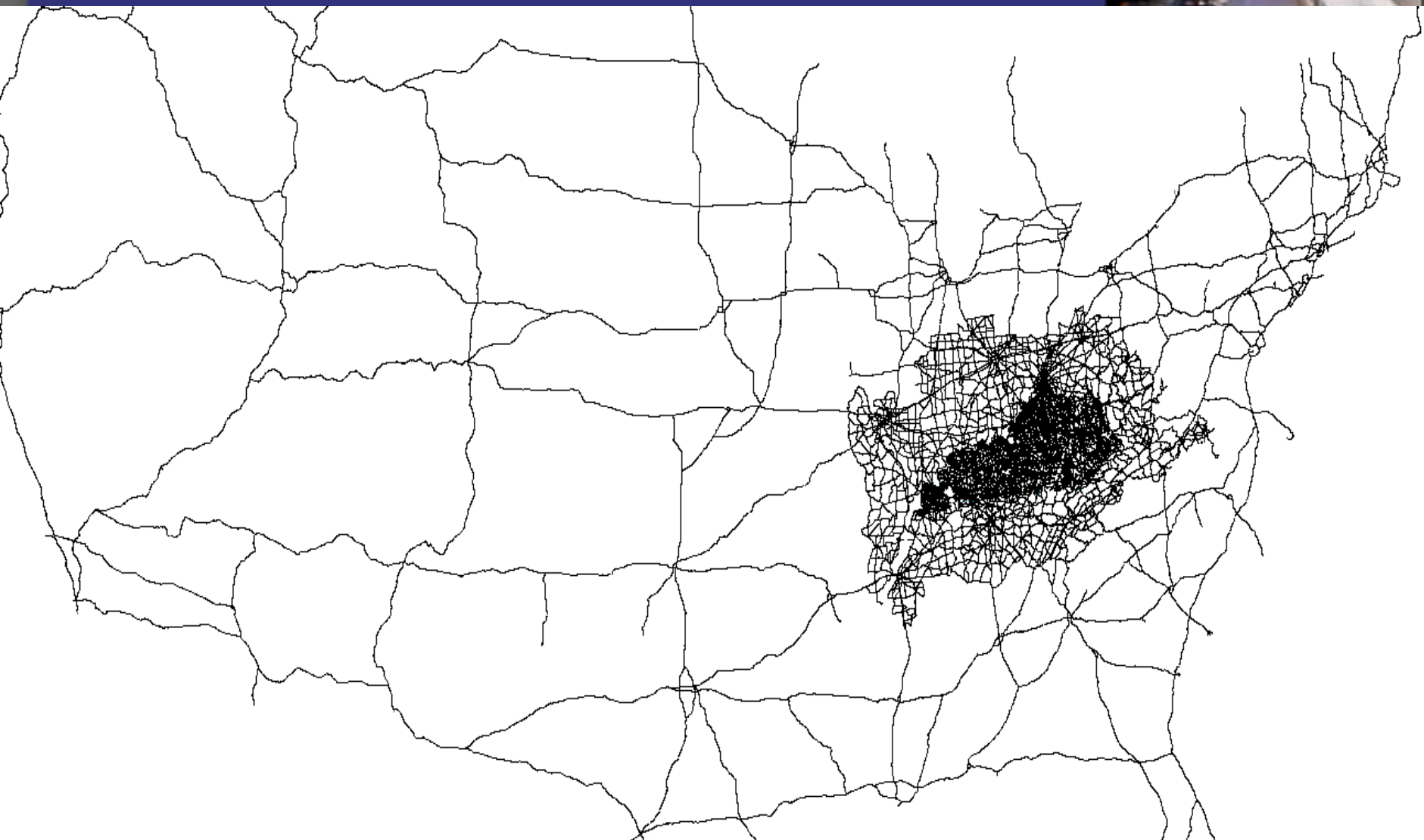
Sample of Buffer and National Network
(External)

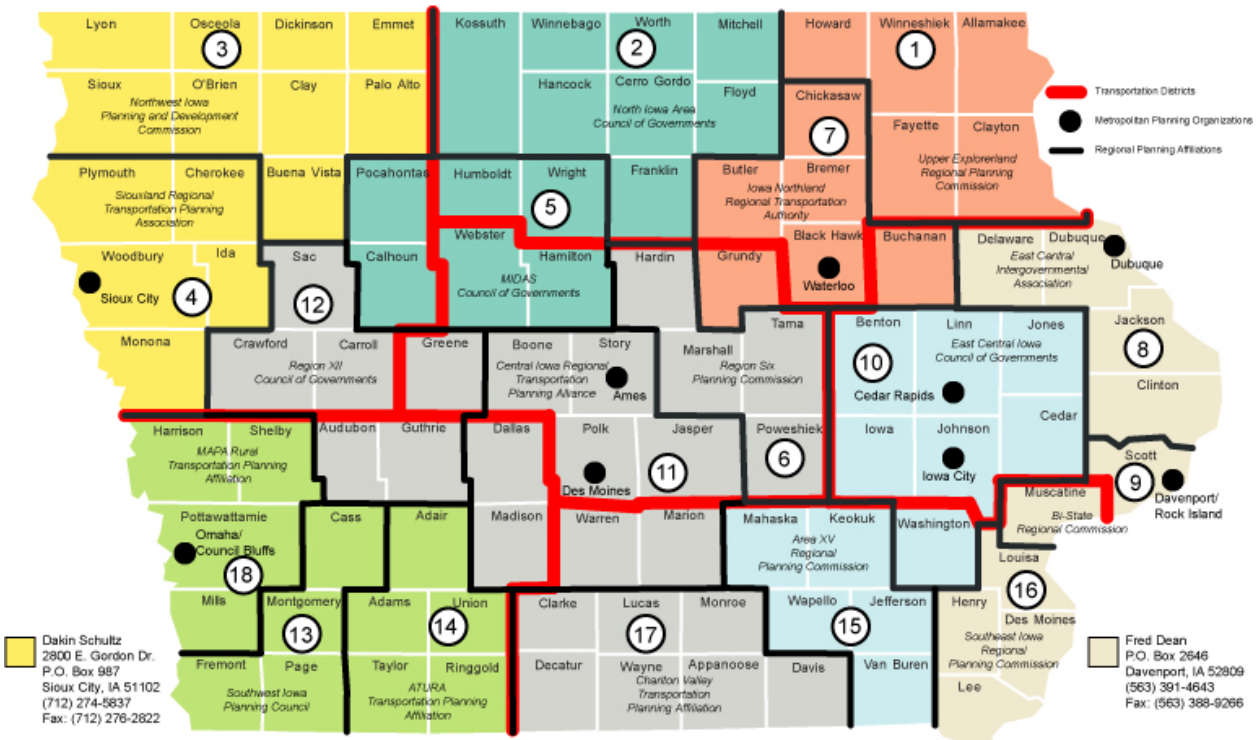


Socioeconomic Forecasts

District Transportation Planners' Areas of Responsibility

Metropolitan Planning Organizations and Regional Planning Affiliations

Iowa Department of Transportation
April 2007



Dakin Schultz
2800 E. Gordon Dr.
P.O. Box 987
Sioux City, IA 51102
(712) 274-5837
Fax: (712) 276-2822

Fred Dean
P.O. Box 2646
Davenport, IA 52809
(563) 391-4643
Fax: (563) 388-9266

Scott Suhr
2210 E. 7th St.
Atlantic, IA 50022
(712) 243-7627
Fax: (712) 243-6788

Mike Clayton
1020 S. Fourth St.
Ames, IA 50010
(515) 239-1202
Fax: (515) 239-1472

Des Moines

Lorne Wazny
1020 S. Fourth St.
Ames, IA 50010
(515) 239-1996
Fax: (515) 239-1472

Krista Rostad
1420 Fourth St. SE
P.O. Box 741
Mason City, IA 50402
(641) 422-9447
Fax: (641) 423-0246

Catherine Cutler
P.O. Box 3150
Cedar Rapids, IA 52406
(319) 286-4908
Fax: (319) 364-9614

Rod Larsen
1875 W. Ridgeway
P.O. Box 1888
Waterloo, IA 50704
(319) 235-1832
Fax: (319) 232-5234

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Data Sources

Internal TAZ

- Population - from 2000 Census with growth trends from REMI or Woods & Poole
- Employment - from Iowa Workforce Development with growth trends from REMI or Woods & Poole
- MPOs will assist the Iowa DOT on obtaining congruency of forecast totals in their areas
- TAZs within Iowa will be scaled towards the micro size (small).

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Data Sources

External TAZ

Population - from 2000 Census with growth trends from Woods & Poole

Employment - from Woods and Poole with growth trends from Woods & Poole

MPOs will provide SE data for the portions of MPOs outside of Iowa.

TAZs outside Iowa will be scaled larger than those within the state.

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REMI in Iowa

- Used statewide since 1991
- Custom developed by REMI on fixed Iowa districts
- Contains population & total employment
- 1990 to 2050 by one-year increments
- Run by the Office of Program Management in the Planning, Programming and Modal Division
- Used by Iowa DOT for two highway corridor studies:
  - ✓ US 63 from Waterloo to the Twin Cities
  - ✓ US 20 from Fort Dodge to Sioux City

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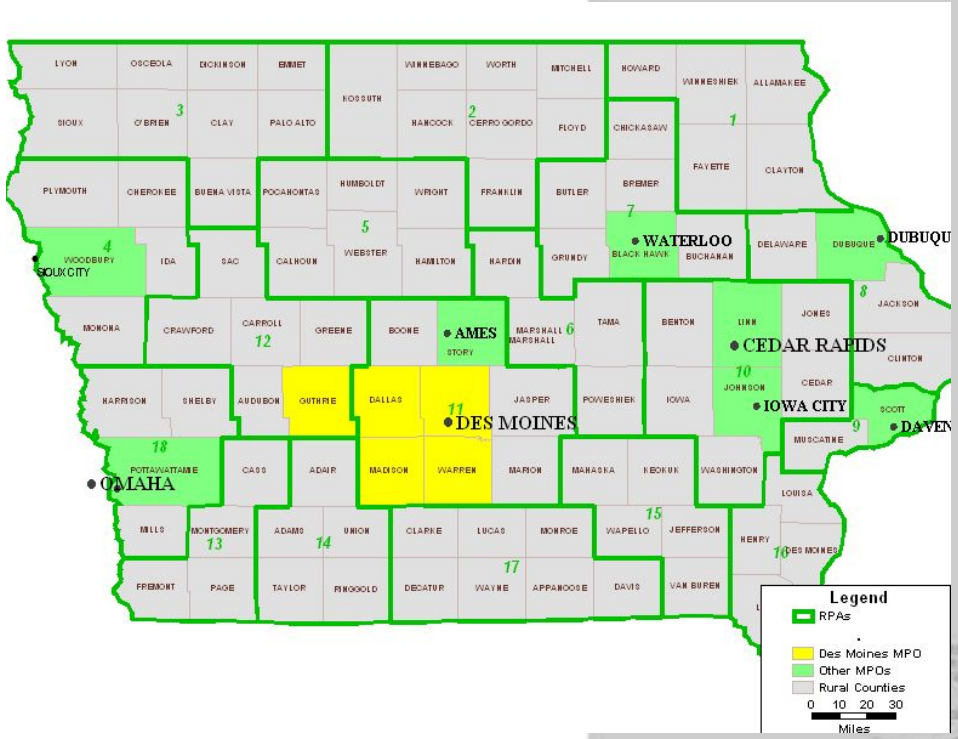
Current REMI Districts

- Five Des Moines counties individually (yellow)
- Eight MPO counties as a unit (green)
- Remainder of Iowa (gray)



SE Challenge

- REMI estimates are locally derived providing the best overall fit to Iowa conditions

- How to solve the “eight in one” city/county problem?

  Sioux City, Council Bluffs, Ames, Waterloo, Cedar Rapids, Iowa City, Dubuque and Davenport are forecast as a group.

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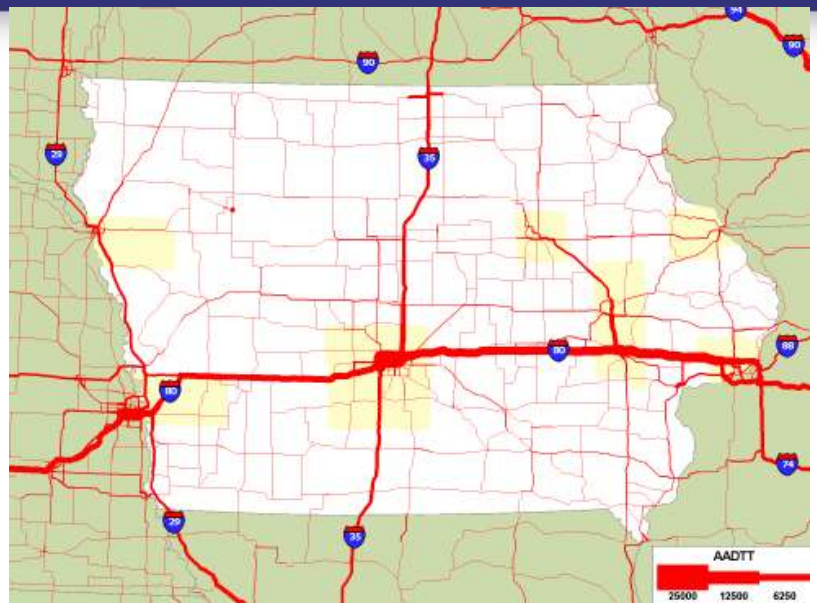
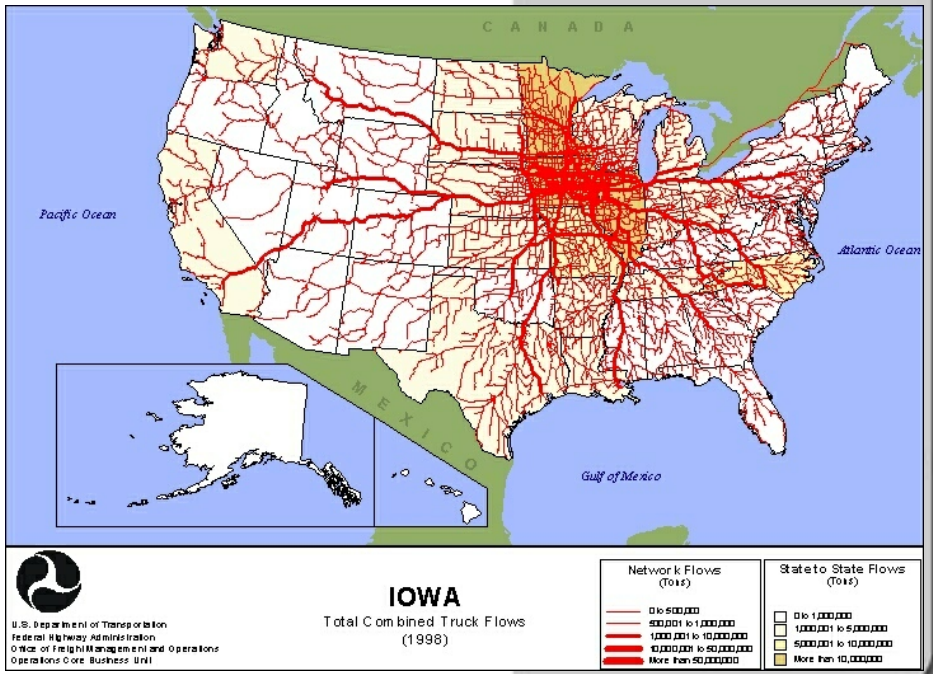
Iowa Truck Flows



Estimated Iowa Daily Truck Traffic

Source: FHWA



Iowa Total Domestic Truck Flows

Source: FHWA

Trucks

- Iowa DOT wanted the most recent national and state data
- The new Freight Analysis Framework (FAF2) freight data will be used for national truck flow information to/from and through Iowa.

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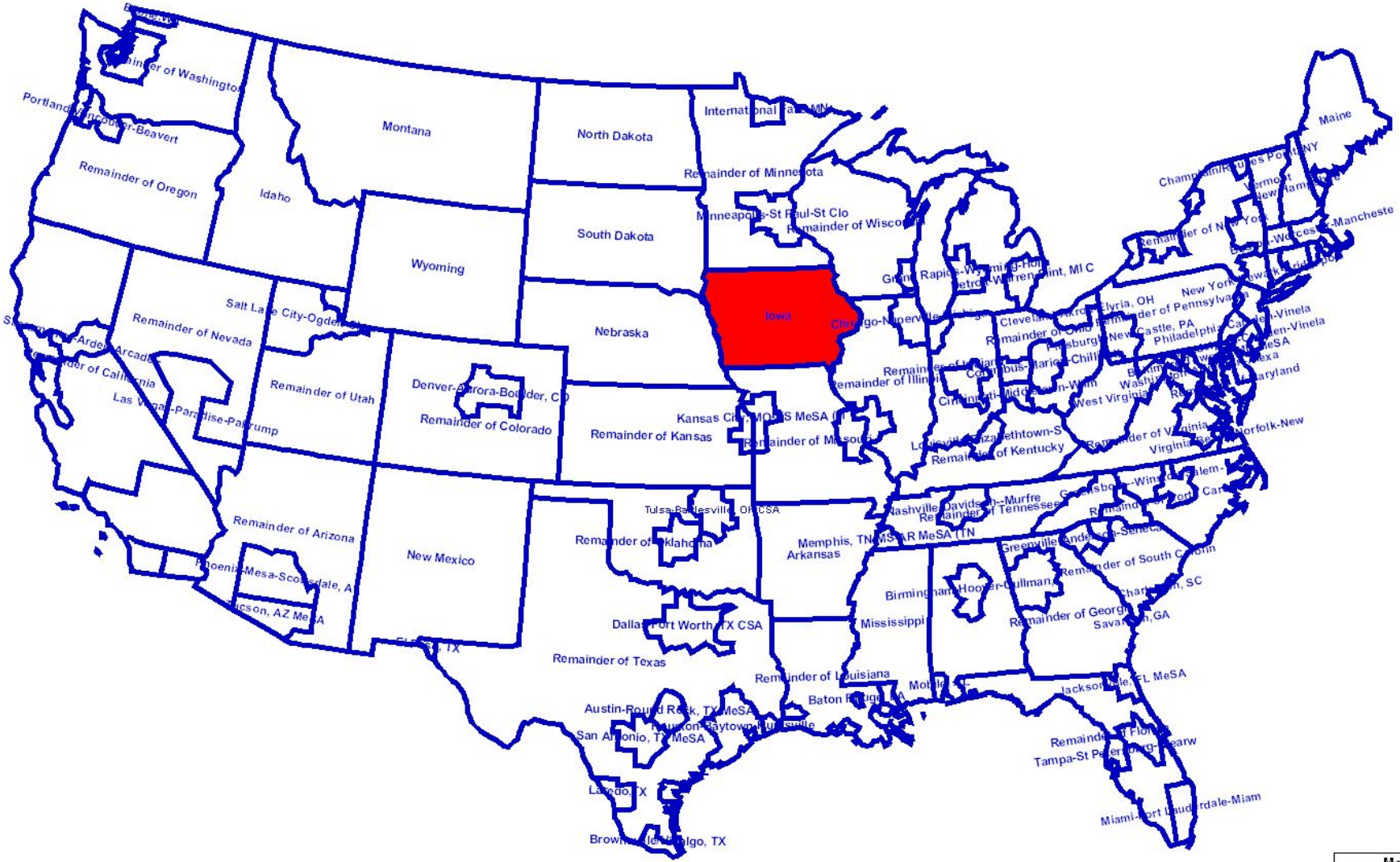
FAF2 Districts



Comments and Questions?

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