KYSTM Update

Census and TAZ Boundary Choices

for the

Kentucky Traffic Model Users' Group

June 14, 2011

Presentation Summary

- Why Update?
- Numbering System
- Counties to be Updated
- The Process
  - Geography
  - Attributes
  - Trip Matrices
- Integration

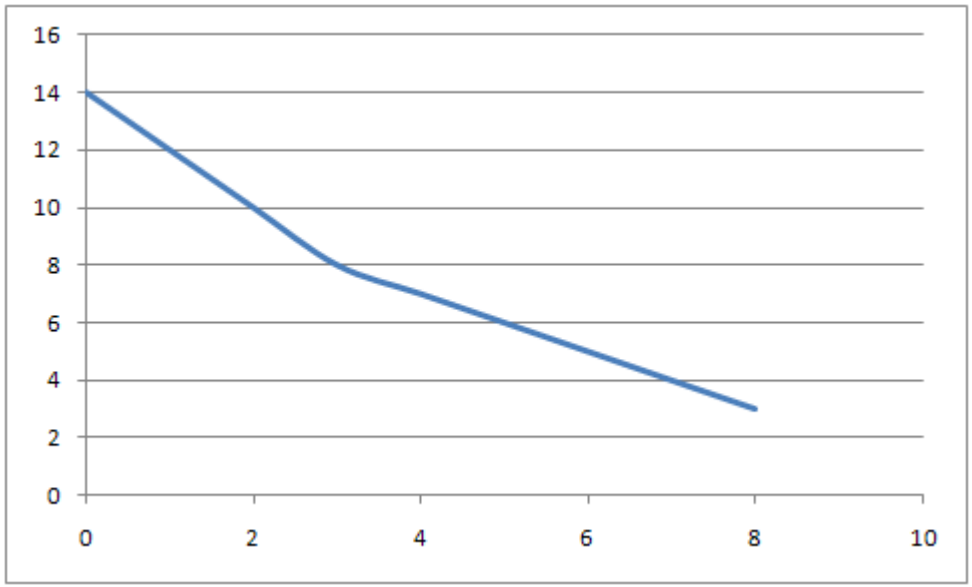
Why Update?

Why Update the TAZs?

- Make KYSTM more compatible with MPO / County Models within Kentucky
- Desire to reduce the overall error within the model
  - Reduce error within urbanized areas
- Set stage for recalibration of model to a new base year (2010) and new forecast year (2040)
  - 2003 / 2030 (current model)
- Add flexibility of model to add new zones

Some Initial Statistics

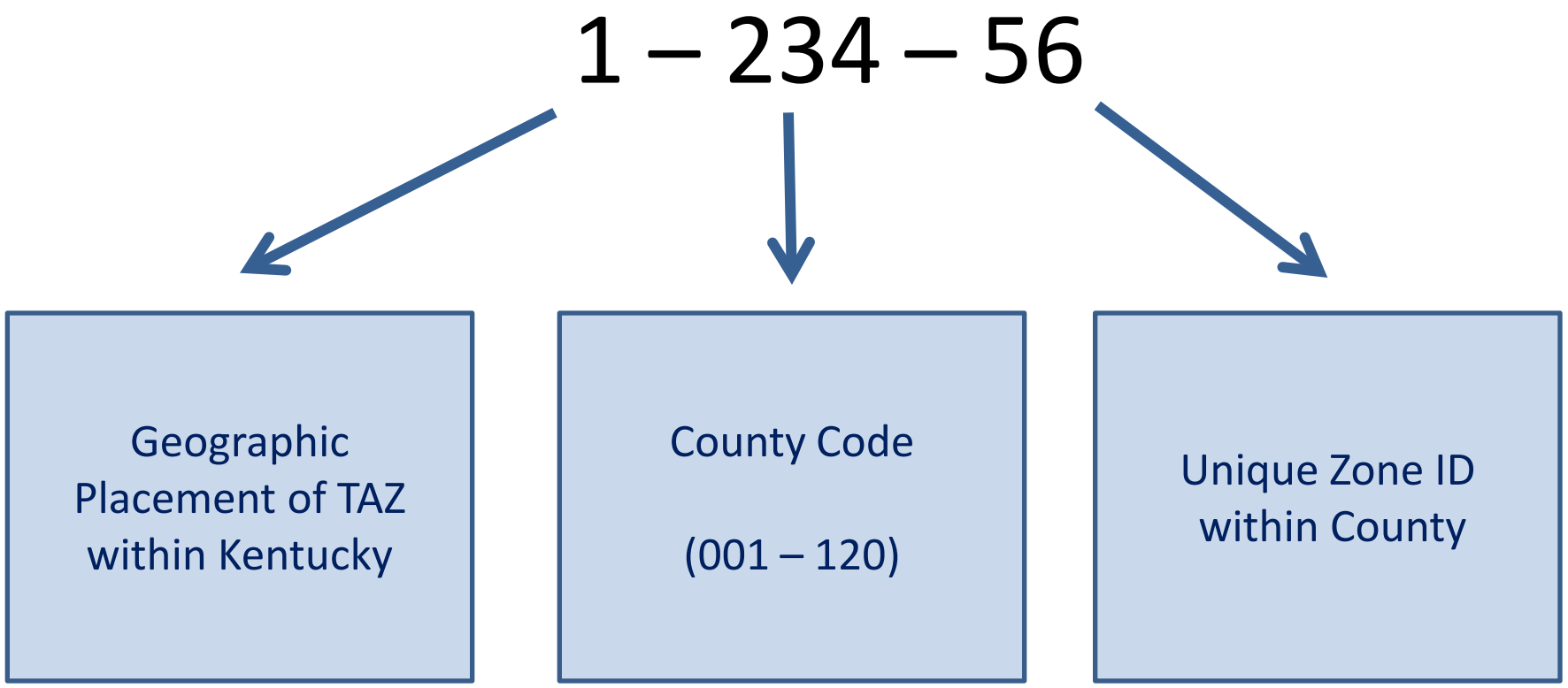
- In the existing (pre-update) version of the model, there are:
  - 3644 number of zones in Kentucky
    - 48 MPO / Small Urban Area Counties:
      - 2724 Zones
    - 72 “Other” Counties:
      - 920 Number of Zones



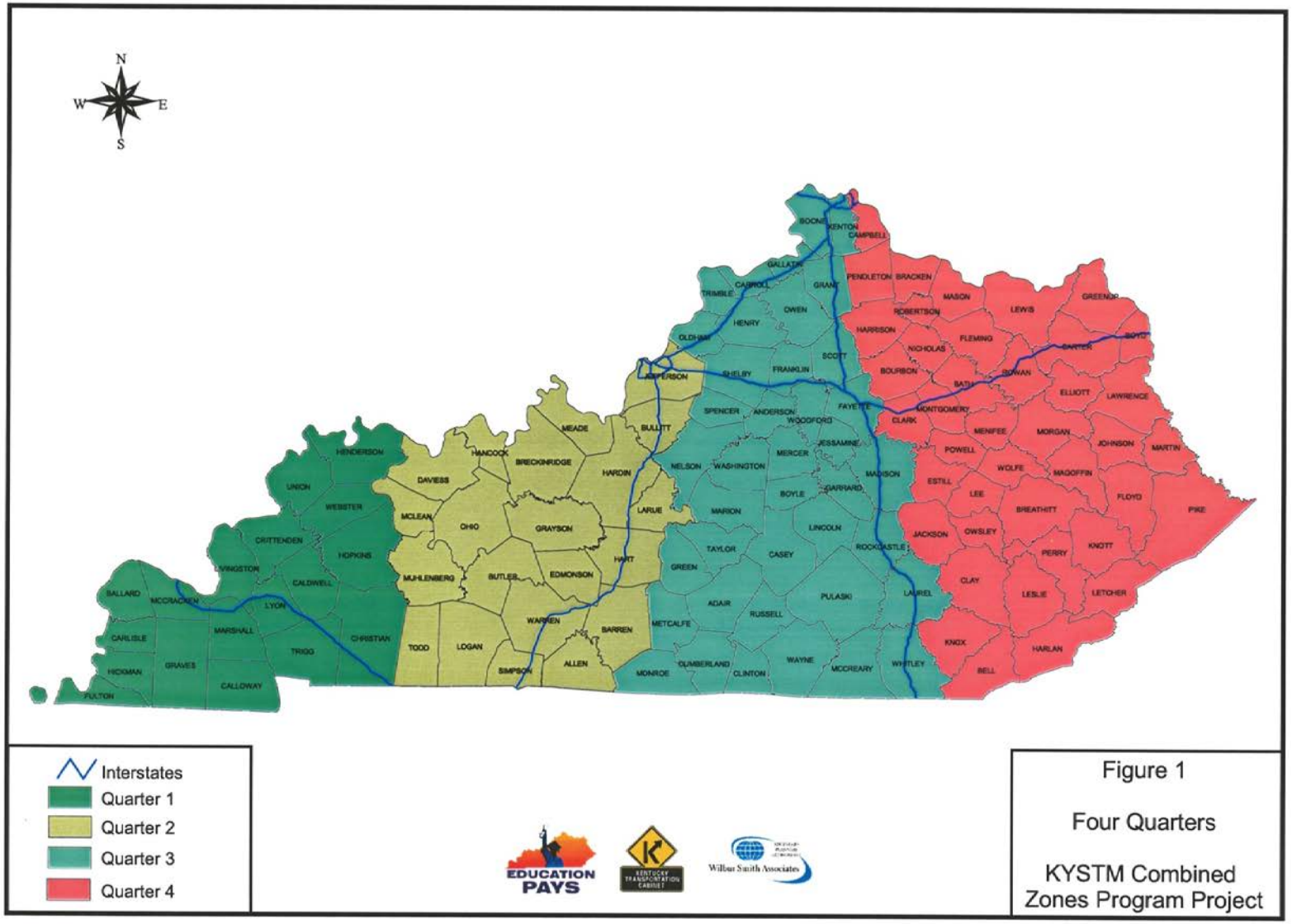
Zone Numbering

Older Numbering System

- The following numbering system was used for zones within Kentucky:



Remember this?



Source: Final Report – Technical Memorandum: Combined Zones Projects for the Kentucky Statewide Traffic Model; October 2002

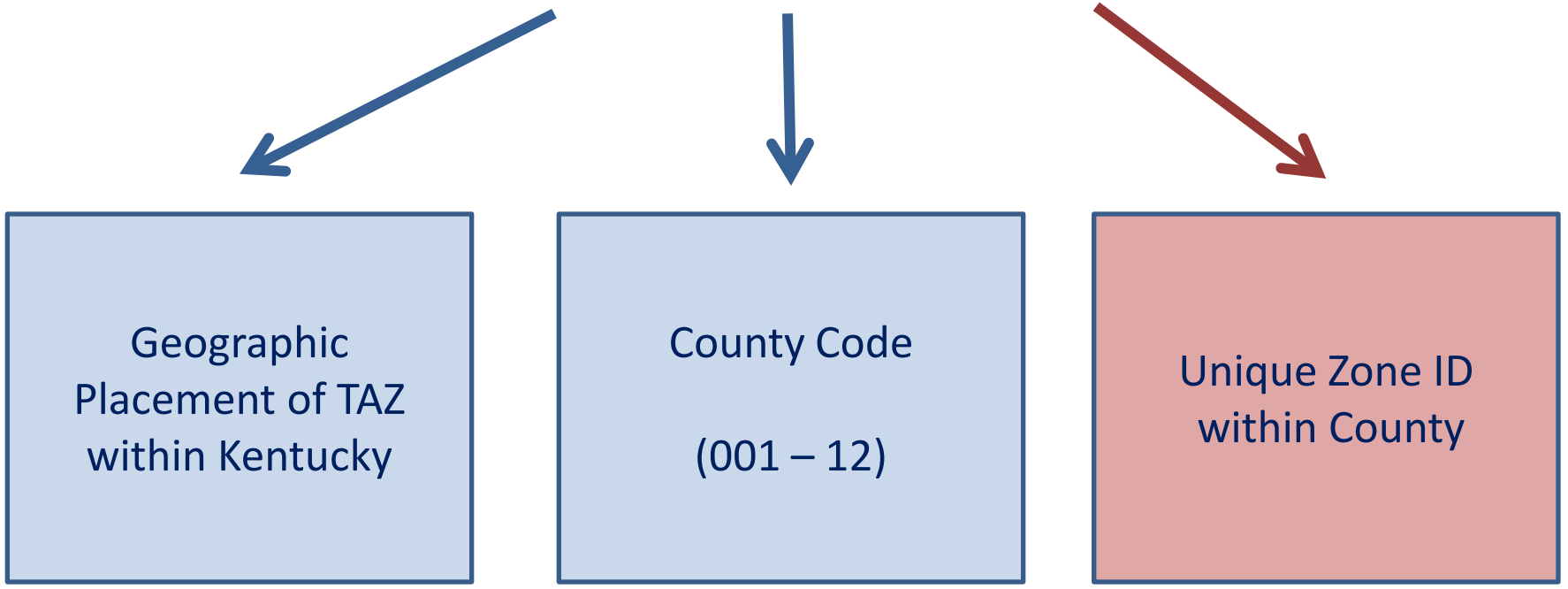
Limitations

- As noted, the old numbering system capped the number of zones to 99 within each county
- This allowed no flexibility in more populated zones:
  - Jefferson County (was 95 zones)
  - Fayette County (was 97 zones)

2003 Limitations → 2010 Re-numbering

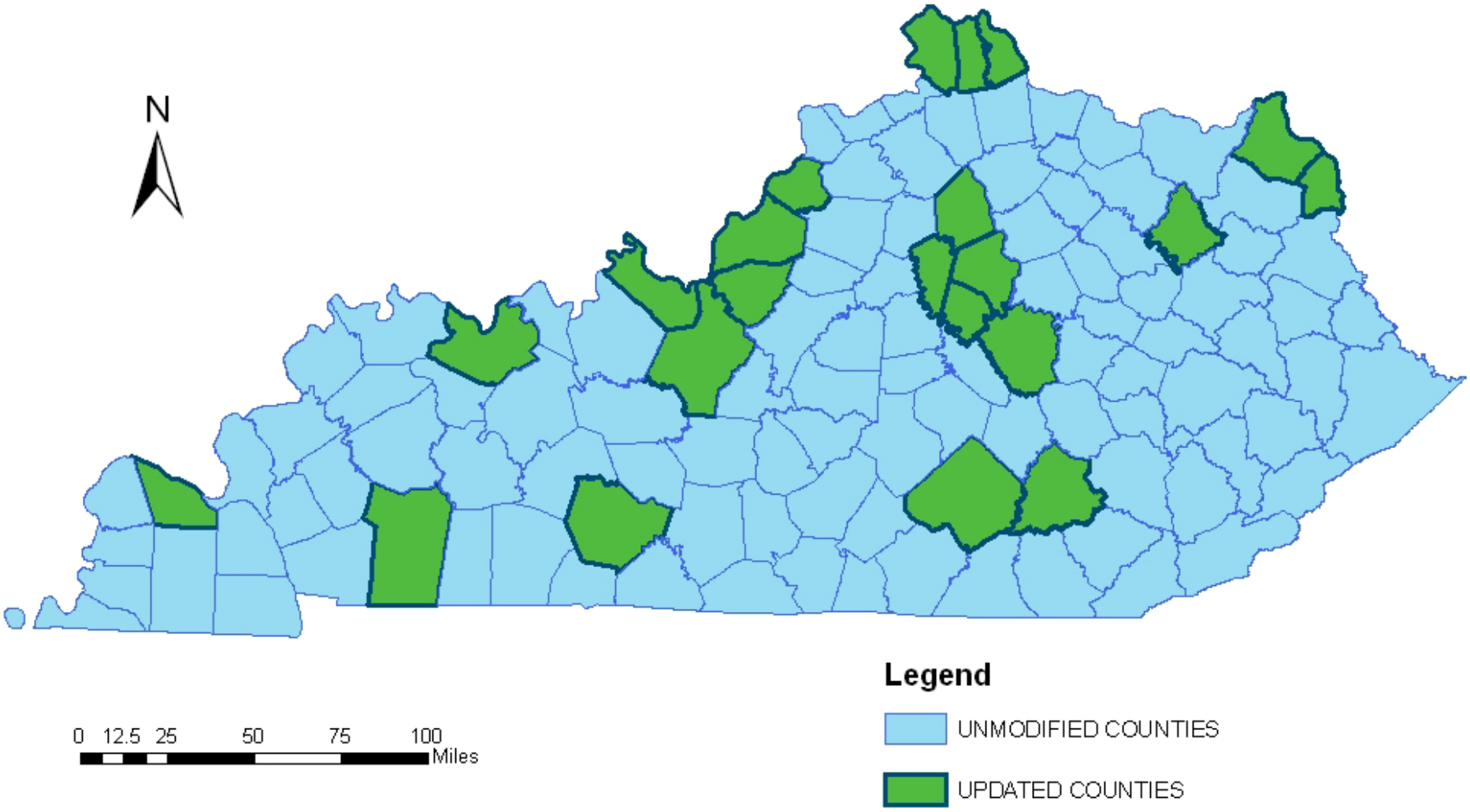
- New numbering system will look similar to old system (but keeps consistency):
  - Will increase from 6 to 7 digits

1 – 234 – 567



Selected Counties

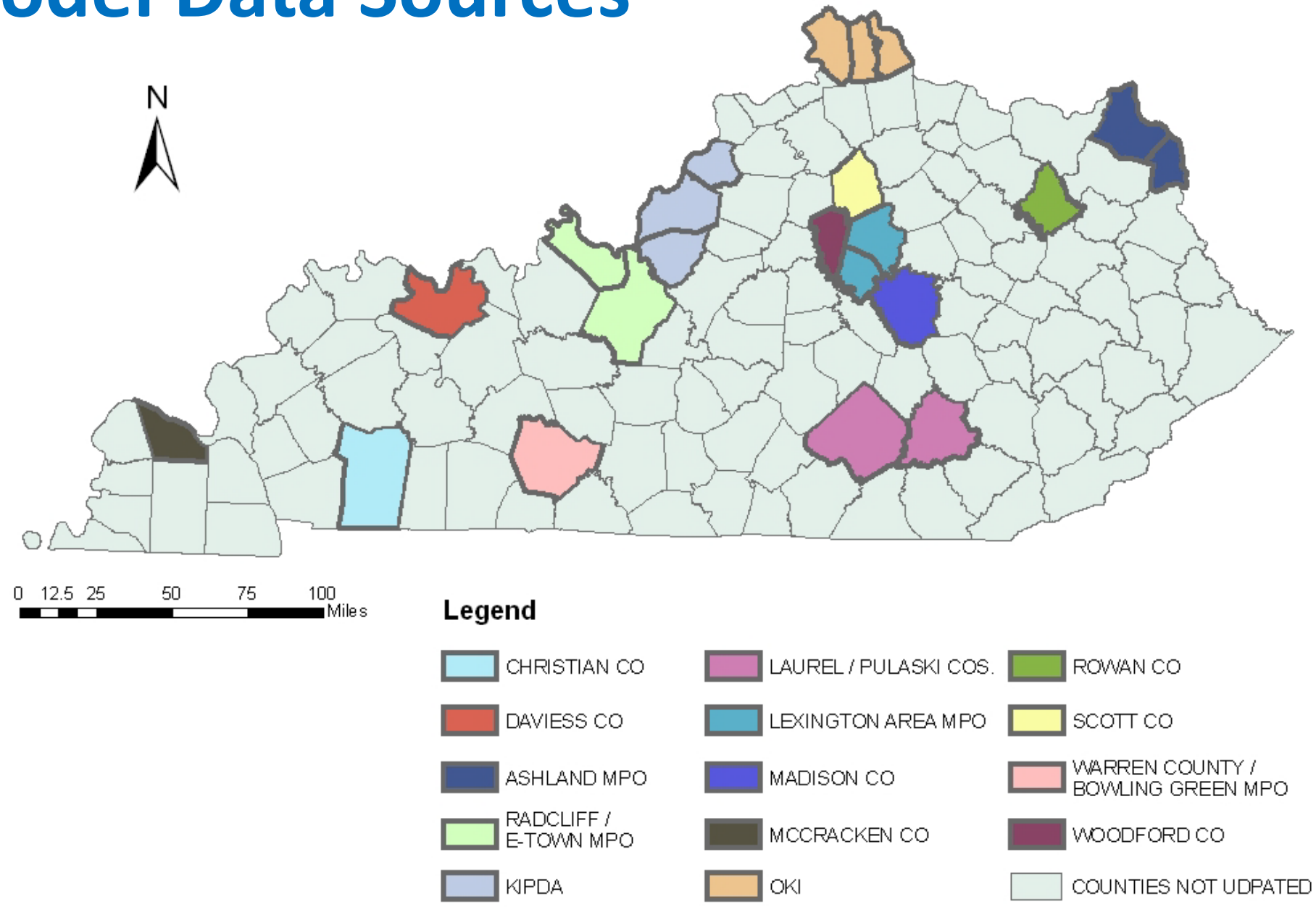
What Counties were Selected?



About those Counties…

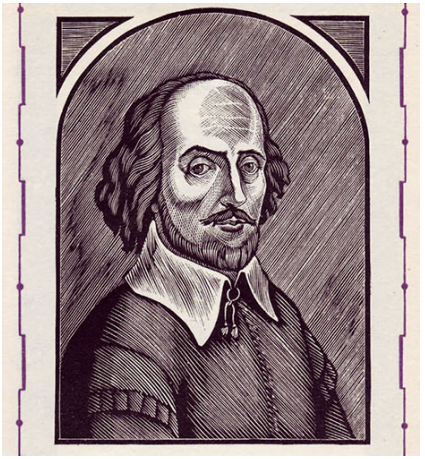
- 15 Counties from MPO Models
  - Maintained by either MPO or KYTC
- 7 County Models
  - Maintained by KYTC
- Official number of counties was not quite known during scoping until models were transferred at beginning of project

Model Data Sources



Zone Splitting

To Split or Not to Split?



- That ~~is~~ has been the question
- In most cases, the county zones and KYSTM zones were compatible
- Decision was made whether to split KYSTM zone
- Considerations:
  - Proposed Network / Railroads / Bodies of Water
  - Urban Areas (how much detail needed?)

KYSTM (Old)

- 68 Zones

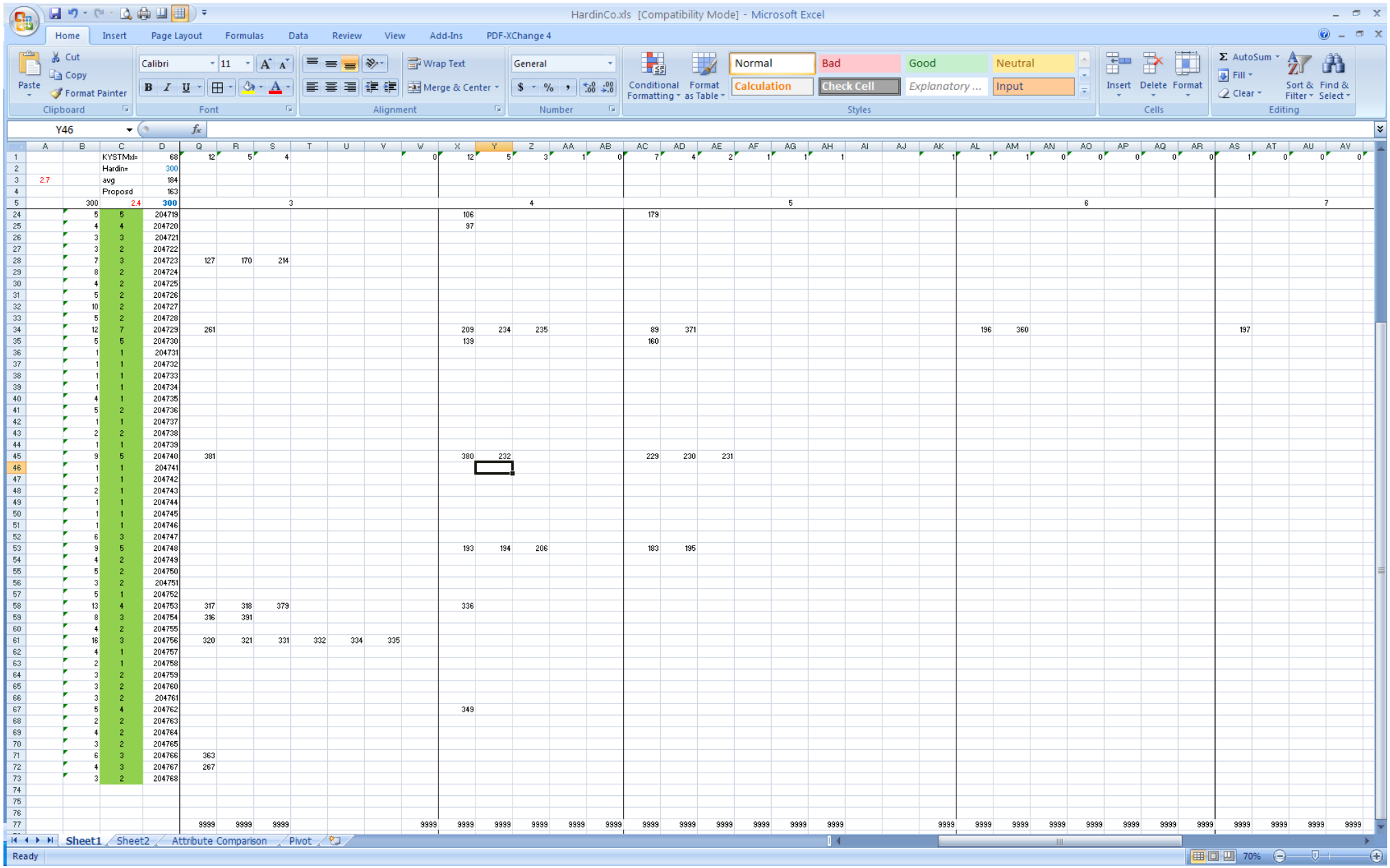
Radcliff / E-town MPO Model

- 300 Zones

KYSTM vs. MPO Model

Tools

- Two primary tools used in TAZ Update:
  - TransCAD
    - Compare Layers Visually
  - Spreadsheet
    - Keep Update “Clean”
      - Will need to know numbers for trip table updates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Neutral
Calculation
Check Cell
Explanatory ...
Input
Sheet1
Sheet2
Attribute Comparison
Pivot
Ready

New KYSTM vs. MPO Model

- Process resulted in 95 Total Zones

The Update Process

- The TransCAD / Excel process was used to update the 22 counties under consideration
- KYSTM Zones were split – MPO / County model zones were not
- Spreadsheets are set-up so that adjustments during review will be fairly painless

Statistics / Results

Current Statistics

Order	County (FIPS)	Name	# of County / MPO Zones	Old # KYSTM Zones	New # KYSTM Zones	Increase
8	21015	Boone KY	87	38	57	19
14	21019	Boyd KY	129	51	67	16
22	21029	Bullitt KY	58	29	41	12
11	21037	Campbell KY	85	58	70	12
17	21047	Christian KY	158	81	97	16
18	21059	Daviess KY	205	86	115	29
10	21067	Fayette KY	330	97	177	80
13	21089	Greenup KY	63	36	47	11
1	21093	Hardin KY	300	68	163	95
21	21111	Jefferson KY	537	95	257	162
7	21113	Jessamine KY	115	69	80	11
19	21117	Kenton KY	129	52	76	24
16	21125	Laurel KY	144	79	108	29
3	21145	McCracken KY	513	80	203	123
6	21151	Madison KY	205	77	116	39
2	21163	Meade KY	99	16	75	59
20	21185	Oldham KY	43	34	36	2
15	21199	Pulaski KY	121	74	107	33
5	21205	Rowan KY	129	30	52	22
9	21209	Scott KY	138	75	86	11
4	21227	Warren KY	236	71	150	79
12	21239	Woodford KY	82	54	64	10

Quick Stats

- As it currently stands, 894 new zones would be added to the KYSTM
- The following counties would experience the highest number of gains:
  - Jefferson County
  - Fayette County
  - McCracken County

Quick Stats (cont)

- Model Evolution

	Outside of Kentucky	In Kentucky
MINUTP Model	706	755
2003-2005 TransCAD	1109	3644
Current Update	1109	4538

Attribute Updates

Attributes (Data Sources)

- There are multiple data sources to consider:
  - The MPO / County Models (in most cases) should have the best data for:
    - Populations
    - Households
    - Employment
  - The 2010 Census Data provides control totals for the base year model
    - 2010 Population
    - 2010 Households

Attributes (Data Sources) (cont)

- For employment:
  - Will rely upon data from MPO / County models
  - Will work with KYTC on obtaining ES202 data (where available)

Attributes (Forecasting)

- There are multiple data sources to consider:
  - Again, the MPO / County Models are a primary source for Population, Households, and Employment
- Will work with Project Team to make sure control total and allocations are appropriate

Other Attributes

- The existing KYSTM had five Claritas "Settlement" Area Types:
  - Urban
  - Second City
  - Suburban
  - Small Town
  - Rural
- There are now only 4 area types:
  - Small Town / Rural → Town / Country

Trip Matrices

Update Trip Matrices

- Changes to the zone system requires changes to the trip matrices:
  - Long Distance Trip Matrix
  - Journey to Work Trip Matrix
  - Truck Trip Matrices
- KYSTM Documentation from earlier update will be consulted so that disaggregation parameters are consistent

Everything else…

Other Tasks

- New Centroids
- Work on GISDK Script for Special Generators
- Documentation

QUESTIONS?