Regional Transportation Model Conversion & Update

Model Calibration Presentation to the Planning Commission

February 1st, 2006

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Olsson Associates

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Agenda

- Steering Committee
- Modeling Overview
- TransCAD Overview
- Model Conversion & Update
- Model Output Statistics
- Comparisons to the 1998 Model
- Remaining Process-Phase II
- Questions?

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Steering Committee

- City of Lincoln PW
  - Virendra Singh
  - Mike Brienzo
  - Roger Ohlrich
  - Erin Sokolik
  - Randy Hoskins
- City of Lincoln Planning
  - David Cary
- Lancaster County
  - Doug Pillard
- NDOR
  - Ron Schlautman
- Olsson Associates
  - Michael Piernicky
  - Steve Miller
- Lima & Associates
  - Pat Ramos

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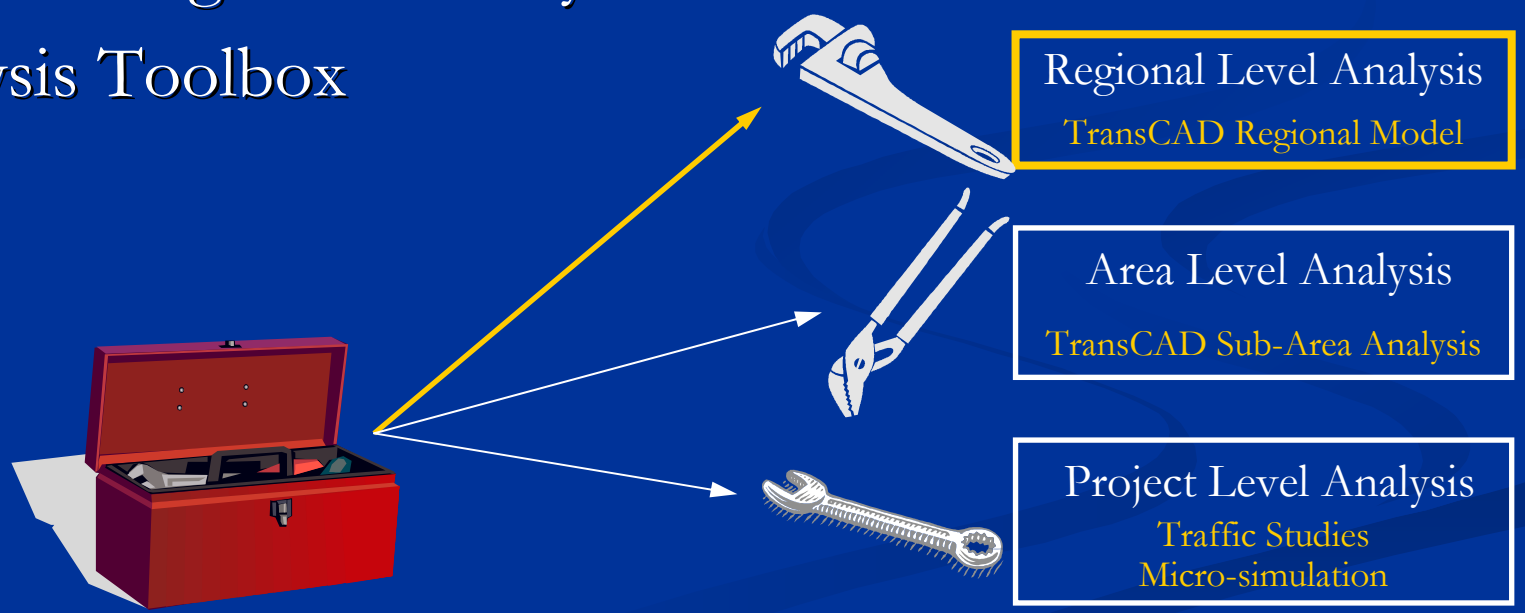
Modeling Overview

- Purpose of the Regional Model
  - General Network Planning
  - Level of Magnitude Analysis
  - Analysis Toolbox



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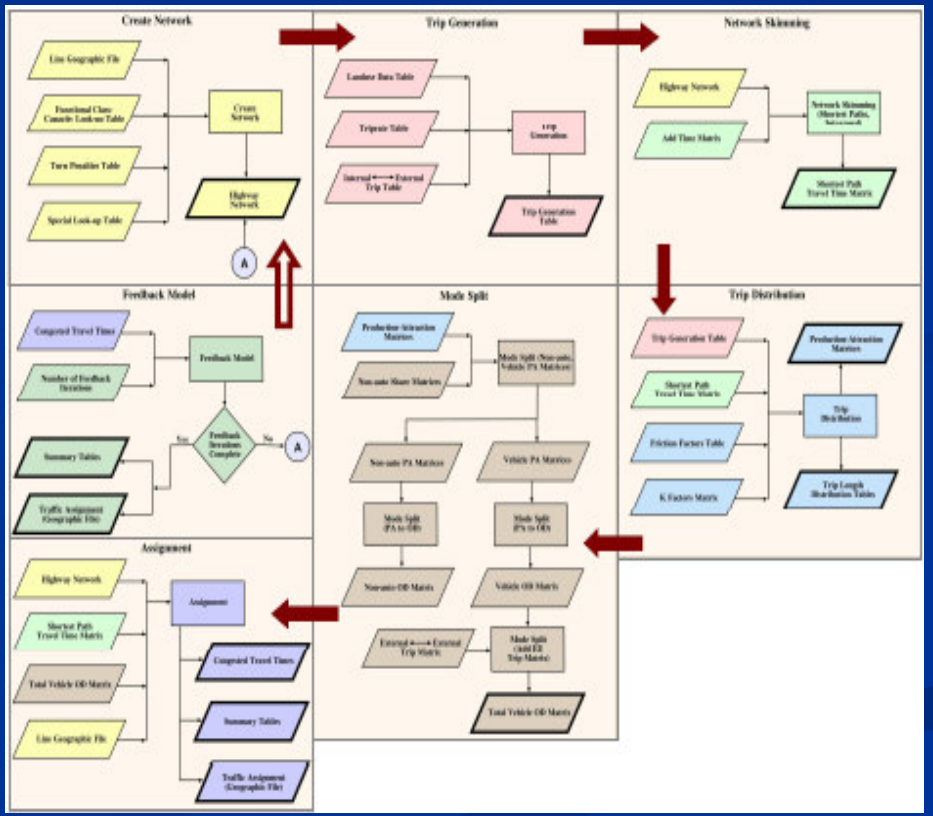
Modeling Overview

- 4 Step Transportation Planning Process
  - Trip Generation
  - Trip Distribution
  - Mode Split
  - Trip Assignment



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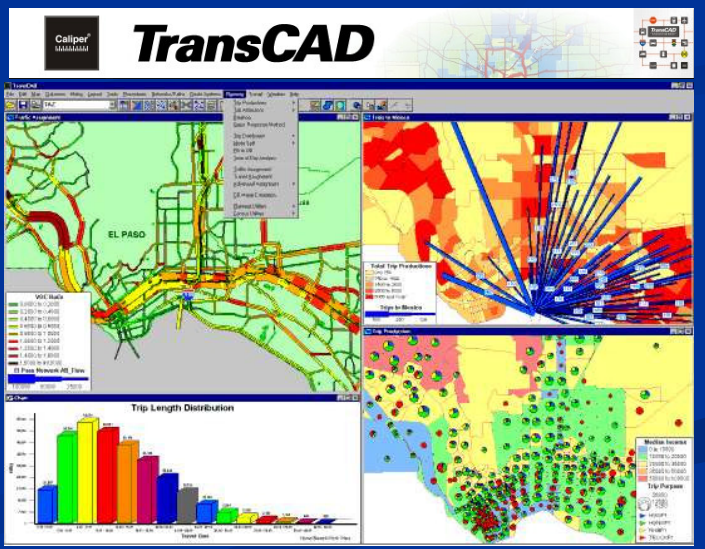
TransCAD Overview

- Existing Viper/TP+ Model Dropped
- Incorporates New Methodology (Person Trips)
- Direct GIS Connection
  - Production of Public Information
  - Reduced Effort
- Air Quality Modeling
  - Mobile 6 w/LLCHD



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Model Conversion & Update

- Network Creation
- Trip Generation
- Network Skimming
- Trip Distribution
- Mode Split
- Trip Assignment
- Model Calibration/Validation

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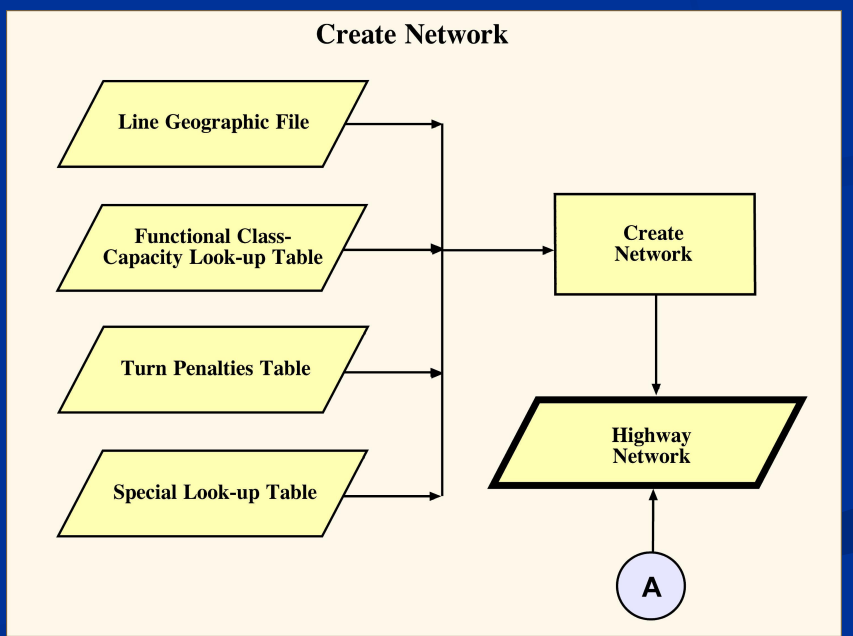
Network Creation

- Line Geographic Database
- Base Year Model Network
- Number of Lanes
- Posted Speed Limits
- Functional Classification
- Area Type
- Capacity
- Turn Penalties/Special Lookup
- TAZ's



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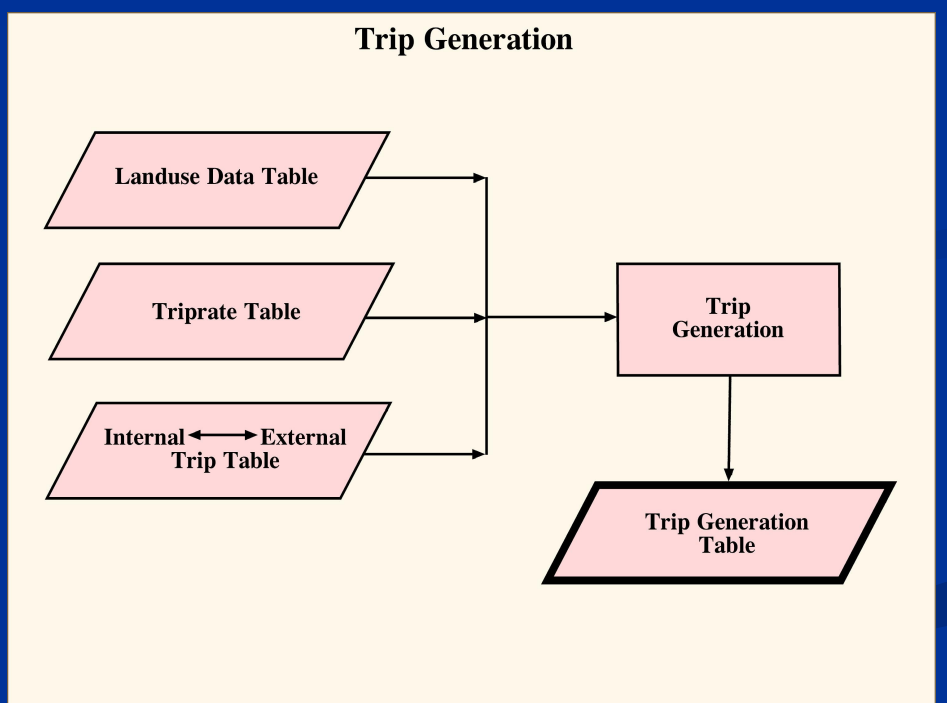
Functional Class	FC Code	Area Type Name	Area Type Code	Saturation Lane Capacity	Percent Green Time	Peak Hour Factor	Hourly Lane Capacity	Capacity Added Due to Left Turn Lanes	Total Hourly Lane Capacity (VPH)	Peak-Hour AM & PM Lane Capacity	Percent of Traffic in Peak Hour	Calculated 24-hrs Capacity Max.	24 Hour Approach Lane Capacity (AWDT)	LOS C Percent	24 Hours Lane Capacity LOS C
IH/Freeway	1	CBD	1	2200	100%	0.90	1980	0	1980	1980	0.095	20,842	20,842	75%	15,632
		Urban	2	2200	100%	0.90	1980	0	1980	1980	0.095	20,842	20,842	75%	15,632
		Suburban	3	2200	100%	0.92	2024	0	2024	2024	0.100	20,240	20,240	75%	15,180
		Rural	4	2200	100%	0.92	2024	0	2024	2024	0.110	18,400	18,400	75%	13,800
Expressway	2	CBD	1	2000	60%	0.90	1080	50	1130	1130	0.090	12,556	12,556	75%	9,417
		Urban	2	2000	60%	0.90	1080	50	1130	1130	0.090	12,556	12,556	75%	9,417
		Suburban	3	2000	70%	0.92	1288	50	1338	1338	0.095	14,084	14,084	75%	10,563
		Rural	4	2000	80%	0.95	1520	45	1565	1565	0.110	14,227	14,227	75%	10,670
Principal Arterial (Div)	3	CBD	1	1900	58%	0.90	992	42	1034	1034	0.090	11,487	11,487	75%	8,615
		Urban	2	1900	60%	0.89	1015	42	1057	1057	0.090	11,740	11,740	75%	8,805
		Suburban	3	1900	66%	0.88	1100	42	1142	1142	0.095	12,019	12,019	75%	9,014
		Rural	4	1900	70%	0.90	1197	24	1221	1221	0.110	11,100	11,100	75%	8,325
Principal Arterial	4	CBD	1	1900	53%	0.89	900	38	938	938	0.090	10,425	10,425	75%	7,819
		Urban	2	1900	58%	0.90	987	38	1025	1025	0.095	10,794	10,794	75%	8,095
		Suburban	3	1900	64%	0.88	1066	24	1090	1090	0.095	11,478	11,478	75%	8,609
		Rural	4	1900	68%	0.90	1163	0	1163	1163	0.110	10,571	10,571	75%	7,928
Minor Arterial	5	CBD	1	1900	53%	0.88	886	32	918	918	0.090	10,202	10,202	75%	7,651
		Urban	2	1900	56%	0.88	936	32	968	968	0.095	10,193	10,193	75%	7,645
		Suburban	3	1900	55%	0.86	899	0	899	899	0.100	8,987	8,987	75%	6,740
		Rural	4	1900	55%	0.86	899	0	899	899	0.120	7,489	7,489	75%	5,617
Collector	6	CBD	1	1800	46%	0.86	712	29	741	741	0.095	7,801	7,801	75%	5,851
		Urban	2	1800	37%	0.81	539	0	539	539	0.100	5,395	5,395	75%	4,046
		Suburban	3	1800	37%	0.90	599	0	599	599	0.110	5,449	5,449	75%	4,087
		Rural	4	1800	37%	0.95	633	0	633	633	0.130	4,867	4,867	75%	3,650
Ramp	7	CBD	1	1700	100%	0.83	1411	0	1411	1411	0.090	15,678	15,678	75%	11,758
		Urban	2	1700	100%	0.83	1411	0	1411	1411	0.090	15,678	15,678	75%	11,758
		Suburban	3	1700	100%	0.83	1411	0	1411	1411	0.090	15,678	15,678	75%	11,758
		Rural	4	1700	100%	0.90	1530	0	1530	1530	0.130	11,769	11,769	75%	8,827
Major Collector State	8	Suburban	3	1700	60%	0.85	867	0	867	867	0.100	8,670	8,670	75%	6,503
		Rural	4	1700	60%	0.95	969	0	969	969	0.130	7,454	7,454	75%	5,590
Major Collector County	9	Suburban	3	1700	60%	0.85	867	0	867	867	0.100	8,670	8,670	75%	6,503
		Rural	4	1700	60%	0.95	969	0	969	969	0.130	7,454	7,454	75%	5,590
Minor Collector	10	Rural	4	1700	60%	0.95	969	0	969	969	0.150	6,460	6,460	75%	4,845
Others	11	Rural	4												1,500

Trip Generation

- 2004 Land Use Data
- Triprate Table
  - Standard Triprates
  - Special Generators
- IE & EE Trip Tables



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Trip Generation

- Lincoln MPO Total Person Trips

TABLE 16. TOTAL TRIPS BY PURPOSE FOR BASE YEAR 2004

Trip Purpose	Lincoln MPO	Percentage of Trips - Lincoln MPO	Percentage of Trips -West North Central*
Home-based Work	204,025	13.8%	10.9%
Home-based Shopping	302,640	20.5%	21.8%
Home-based Social/Recreational	168,871	11.4%	13.8%
Other Home-based	343,006	23.2%	20.5%
Not Home-based	459,816	31.1%	33.0%
TOTAL	1,478,358	100.0%	100.0%

*Source: National Household Travel Survey(2001), U.S. Department of Transportation, Bureau of Transportation Statistics

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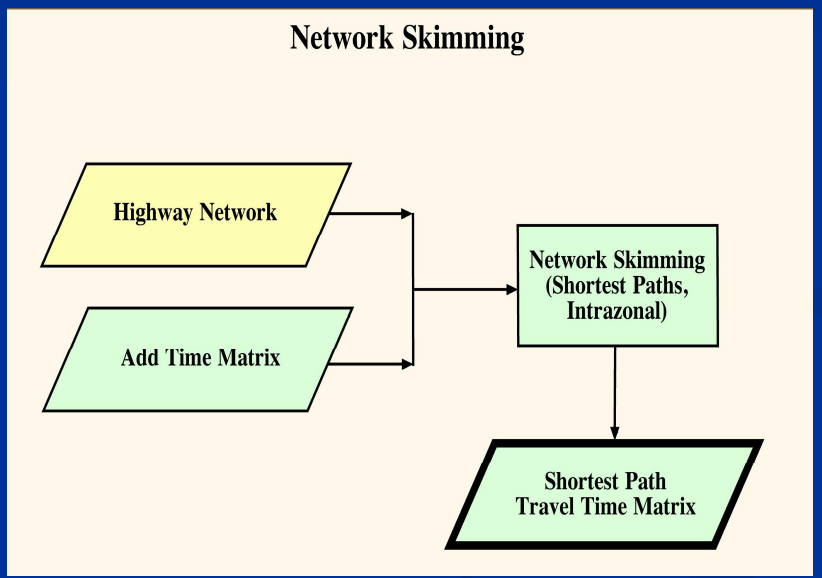
Network Skimming

- Shortest Travel Time Determination
  - Shortest Time Path
  - Add Time Matrix
  - Original Path
  - Travel Time Iterations



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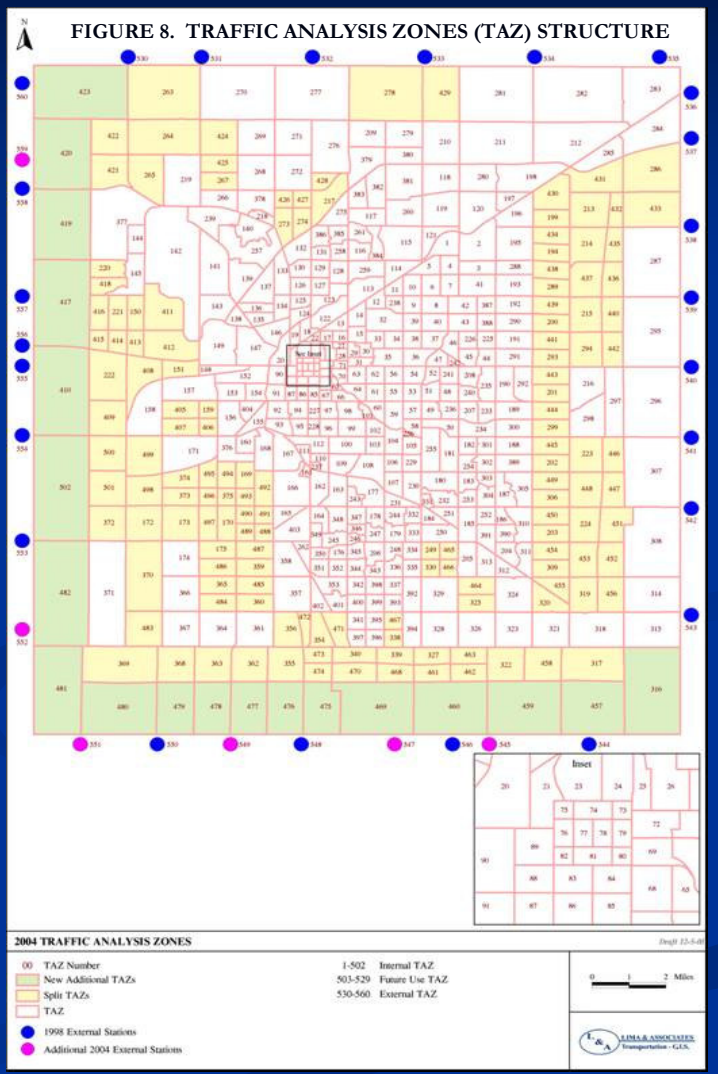

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