

Final
TECHNICAL MEMORANDUM

**Travel Demand Training
Methodology**

Project No. SP-LC05(1)

Prepared For:



UTAH DEPARTMENT OF TRANSPORTATION

01 March 1999

Prepared By:



INTRODUCTION

Phase 1 of the Cache Valley Corridor study included development of a travel demand model that would assist the Cache Metropolitan Planning Organization (CMPO) in making transportation related decisions. After the model was developed by Wilbur Smith Associates using the MINUTP and VIPER software, it was turned over to the CMPO and other government agencies. The responsibility of updating the model in future years was turned over to the CMPO and other local government representatives.

UDOT and the CMPO recognized the need for three levels of training. The first level includes people who may manipulate and/or query the actual model. This group includes the CMPO staff, UDOT staff, and regional planning agencies. The second level includes people who need to know how the model works and the type of information it can produce. This group includes the CMPO Executive council and UDOT management. The third level includes city staff and the public. The model training program was developed in a manner that addressed the needs and time constraints of each group.

The training was conducted in three sessions. Details on the three sessions are listed below. A training manual was provided to participants.

1. Technical Session #1

- Format: 1 day travel demand modeling overview
 2 days hands-on training specific to the CVC model
 (Including problem assignment)
- Topics covered: See outline in Appendix
- Dates: January 19, 20, 21 (all day)
- Location: USU computer lab
- Invitations sent to: City Staff – cc: mayors (all cities in Cache County)
 BRAG (Jay)
 ACOE
 Cache County
- Participants: see list in Appendix

2. Executive Sessions

Format: 1/2 day modeling overview for managers and administrators

Topics covered: See outline in Appendix

Dates: February 2 - 6:00 pm - 9:30 pm
February 3 - 8:30 am - 12:00 pm
February 3 - 6:00 pm - 9:30 pm

Location: B.A.T.

Invitations sent to: City Staff – cc: mayors UDOT
BRAG Others
ACOE

Participants: see list in Appendix

3. Technical Session #2

Format: 1 day hands-on training specific to the CVC model
Follow-up for those that attended the first session

Topics covered: See outline in Appendix

Dates: February 25 (all day)

Location: USU computer lab

Invitations sent to: Participants in tech session #1

Participants:	Kelly Barrett	UDOT	Ivan Hooper	WSA
	Wayne Bennion	WFRC	Paul Morgan	Logan
	Mark Bunnell	MKC	Chris Nwakalo	CMPO
	Jared Burgess	Utah T ²	Garryn Parrett	Utah T ²
	Darin Duersch	UDOT	Walt Steinvorth	UDOT
	Shelley Dyer	Logan	Mark Teuscher	Cache County
	Tom Fisher	CMPO		

APPENDIX

- Technical Session #1
- Executive Sessions
- Technical Session #2

Technical Session #1

Training Seminar Outline

Introduction To Travel Demand Models

FIRST SESSION

January 19th-21th, 1999 – Logan, Utah

DAY ONE – JANUARY 19TH, 1999

- Workshop Overview and Objectives
- Participant Introductions
- The Cache Valley Corridor Study
- Introduction to Travel Demand Forecasting

MORNING BREAK

- Input and Data Assumptions
- Trip Generation Modeling

LUNCH BREAK

- Trip Distribution Modeling
- Mode Choice Modeling

AFTERNOON BREAK

- Trip Assignment

DAY TWO – JANUARY 20TH, 1999

- First Day Recap
- Model Calibration and Validation
- Model Output Analysis

MORNING BREAK

- Practice Problems and Exercises (I)
- Modeling Software Overview

LUNCH BREAK

- MINUTP Software Package
- TP+/VIPER Software Package

AFTERNOON BREAK

- Practice Problems and Exercises (II)

DAY THREE – JANUARY 21ST, 1999

- Prior Sessions Recap
- Objectives of the Cache Valley Corridor Model
- Cache County Zone System Review
- Land Use/Socio-economic Data
- Transportation Data Collection/Surveys

MORNING BREAK

- Highway Network Development
- Trip Generation Purposes
- Internal/External/Special Generator Trips

LUNCH BREAK

- Mode Choice
- Trip Distribution
- Auto Vehicle Assignment

AFTERNOON BREAK

- Practice Problems and Exercises (III)
- Closure

Actual attendees

Contacts for CMPO Model Technical Training - Session #1

Day 1	RSVP	Days 2 & 3	Represents	Contact Name	Phone No.	FAX No.	Comments
3	3	Logan	2	Ron Johnson	750-9829	752-3720	
2	2	North Logan		Jeff Jorgensen	752-1310	752-1357	Nathan Lee
1	1	Hyde Park		Mayor Mark Daines	563-6507;		Jay Nielson (planner) 750-8960(H); 797-3742(W)
1	0	Smithfield		Jim Gass	563-6226	563-6228	
0	0	River Heights		Mayor Ralph Degn	787-4070(h);		
0	0	Providence		Mayor Alma Leonhardt	752-2642(city)		
0	0	Nibley		Mayor Jay Nelson	752-9441	753-1586	Interested in February - a couple of people
0	0	Hyrum		Brent Jensen	752-0431	753-1510	Larry Ander
0	0	Wellsville		Don Hartle	245-6033	245-4758	May want to attend the executive workshop
0	0	Richmond		Mayor Kip Panter	245-3666	245-7658	May want to attend the executive workshop
0	0	Millville			757-6424;	258-2092	May want to have someone attend the exec workshop
4	4	Tech Transfer		Curry Doyt Bolling	752-8943		
2	2	WERC		Kip Billings	1-800-822-8878	797-1185	
2	2	MAG		Carl Johnson	292-4469	801-229-3843	Mike Brown ✓
5	4	UDOT Region 1		Rod Terry	801-229-3801	399-5926	Brian Allen, Tim Buntrock, Kelly Barret, Darin Duersch, Rod Terry
1	1	SWCA		Spencer Martin	399-5921	322-4308	
1	1	Entranco		Lorraine Richards	322-4307	322-4308	
2	2	BRAG		Jay Aguilera	266-5951	266-5952	
1	1	MK Centennial		Mark Bunnell	752-7242	752-6962	
1	1	WSA		Ivan Hooper	268-9805	268-2736	
1	1	Logan Transit		Geoff Straw	363-3955	363-3972	
1	1	CMPO		Tom Fisher	750-7128	752-3720	
1	1	ACOE		Mike Schwinn	753-3631	753-3426	
1	1	Cache County		Mark Tuescher	295-8380	295-8842	
					753-3631	753-3426	

Executive Sessions

TO: Members of the CMPO Executive Council

FROM: Tom Fisher, Transportation Planner
Cache Metropolitan Planning Organization

SUBJECT: Transportation Demand Forecasting Model Executive Training Sessions

DATE: January 8, 1999

As was requested at your last meeting, our consultants will conduct three executive training sessions for our Transportation Demand Forecasting Model. They will be held during the following days and times (there will be a further announcement stating the location, but we are attempting to get a room at the Bridgerland Applied Technology Center):

- Session 1: Tuesday, February 2, 1999, 6:00 - 9:30 p.m.
- Session 2: Wednesday, February 3, 1999, 8:30 a.m. - 12:00 p.m.
- Session 3: Wednesday, February 3, 1999, 6:00 - 9:30 p.m.

Three sessions are being conducted in order to allow all Executive Council members, city/county council members, planning and zoning boards and city/county full-time staff to have the opportunity to attend. It is important for you and as many as the people listed above attend one of these sessions.

I am sending this early notice so that you can alert your councils and boards of the availability of the sessions. The consultant will also send invitations for the sessions.

Any questions concerning these training sessions can be directed to me at the number listed above.

Thank you

Executive Council:

Mayors: Chairman Mark E. Daines, Hyde Park; Ralph Degn, River Heights; Jack R. Draxler, North Logan; Gale J. Hall, Millville; Alma H. Leonhardt, Providence; H. Jay Nelson, Nibley; Douglas E. Thompson, Logan City; Kent F. Ward, Smithfield Other Members: Steven J. Bodily, Utah Transportation Commission; Lynn Lemon, Cache County Executive; Geoff Straw, Logan Transit District



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State of Utah

DEPARTMENT OF TRANSPORTATION

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Commission
Glen E. Brown
Chairman
James G. Larkin
Ted D. Lewis
Hal M. Clyde
Dan R. Eastman
Shari L. Griffith
Stephen M. Bodily

Cache Valley Corridor

EXECUTIVE TRAINING SESSION

Cache MPO Computer Travel Model

The Cache Valley Corridor Study Team would like to extend an invitation to you to attend a computer modeling seminar. Three identical seminars are being offered, each of which will focus on computer based travel demand forecasting models. The sessions will cover the Travel Analysis Zone (TAZ) structure, highway and transit network development, trip generation, trip distribution, mode split, and typical do's and don'ts of modeling.

This seminar is intended for local-decision makers who have an interest in the modeling process and effort for the Cache Valley Corridor Project. Three identical sessions of the seminar will be held on February 2 and 3, 1999 so as to accommodate most schedules:

- When:** February 2 – 6:00 - 9:30 pm
February 3 – 8:30 am -12:00 pm
February 3 – 6:00 - 9:00 pm
- Where:** Bridgerland Applied Technology Center, Room 901
1301 North 600 West, Logan
- Cost:** Free

To attend one of the sessions, please RSVP to the following phone, fax or email no later than January 25, 1999:

Amy McMullen, ENTRANCO, Inc.
Phone: (801) 266-5951, or Toll free 1-888-722-1540
Fax: (801)266-5952, Email: amcmullen@entslc.com

Note Please make sure to indicate a preferred session and the number of people attending.

Sincerely,

Walter Steinworth
UDOT Project Manager

TECHNICAL TRAINING NOTICE

Cache MPO Computer Travel Model

The Cache Valley Corridor Study team will provide a three-day training workshop in January 1998. This first day will cover basic elements of a travel demand forecasting computer model. These elements include establishment of a Travel Analysis Zone (TAZ) system; highway and transit network development; trip generation, trip distribution, mode choice and trip assignment submodels; and typical errors and mistakes (do's and don'ts of modeling).

The second and third days of the workshop will focus on understanding and using the Cache County travel demand forecasting model. This workshop will include computer hands-on training for all attendees. The workshop will start with an overall description of the Cache County model, and it will then cover the installation and utilization of the MINUTP and VIPER software packages, setup and operation of the Cache County model, data input, land use and network editing, output retrieval (printouts and plots), and output interpretation. The workshop will also include a discussion of the Cache County model calibration and validation, and its results. A sample data set and problem sets will be provided to workshop attendees to be tested in the computers provided utilizing the concepts presented in this workshop. This workshop will also address the operation of the TP+ model, the next generation software of travel demand modeling.

Please note that this 3-day workshop is intended for governmental staff who desire a hands-on experience with the Model. There will be another 4-hour training session in February that will be geared toward local decision-makers. The future "Executive Workshop" will provide an overview of the Model.

What: Technical training workshop for the Cache MPO Travel Model

When:

Day 1	January 19	8:30 am until 3:30 PM
Day 2	January 20	8:30 am until 4:00 PM
Day 3	January 21	8:30 am until 4:00 PM

Format: Beverages and snacks provided for breaks.
Lunch on your own.

Location: To be determined after RSVP's compiled.

Cost: Free

Please contact Skip Hudson (1-800-266-6205) and RSVP no later than 1/8/99. We need to know how the names of attendees for Day 1 and Days 2-3.

EXECUTIVE TRAINING SESSION

Cache Valley Corridor

Introduction to Travel Demand and Forecasting Models



UTAH DEPARTMENT OF TRANSPORTATION



**CACHE METROPOLITAN
PLANNING ORGANIZATION**

February 1999

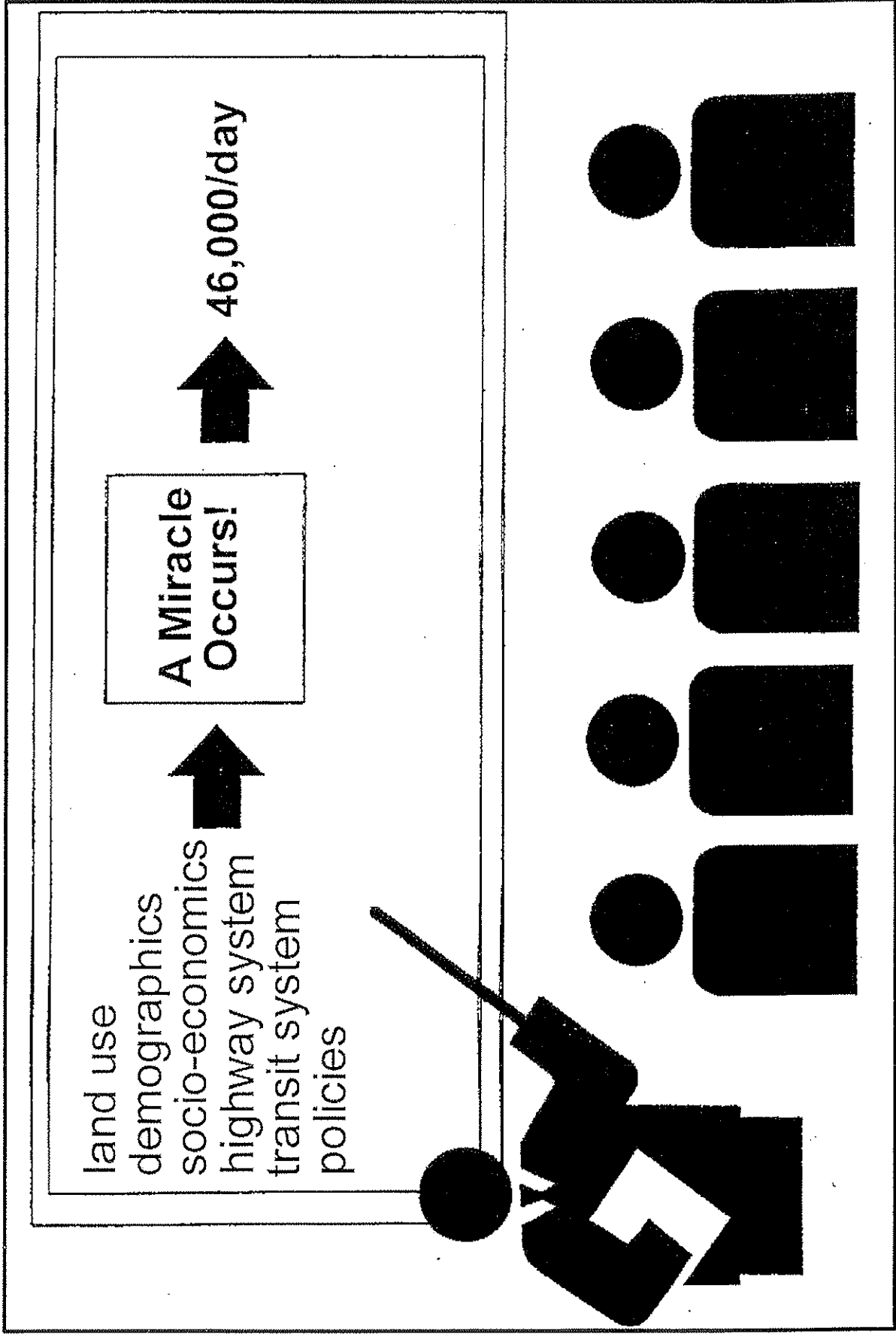
MK CENTENNIAL

CENTENNIAL ENGINEERING, INC.

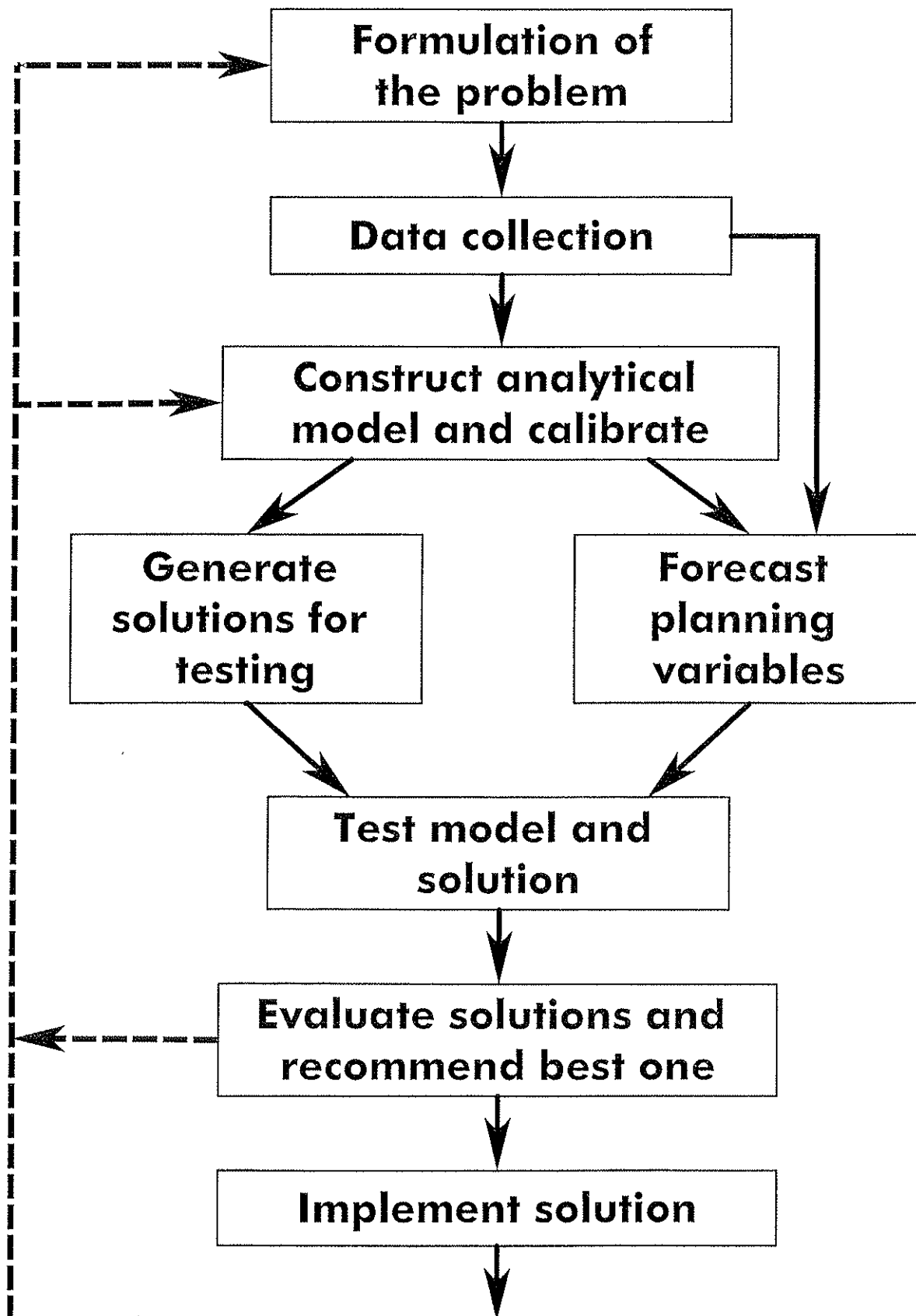


WILBUR SMITH ASSOCIATES

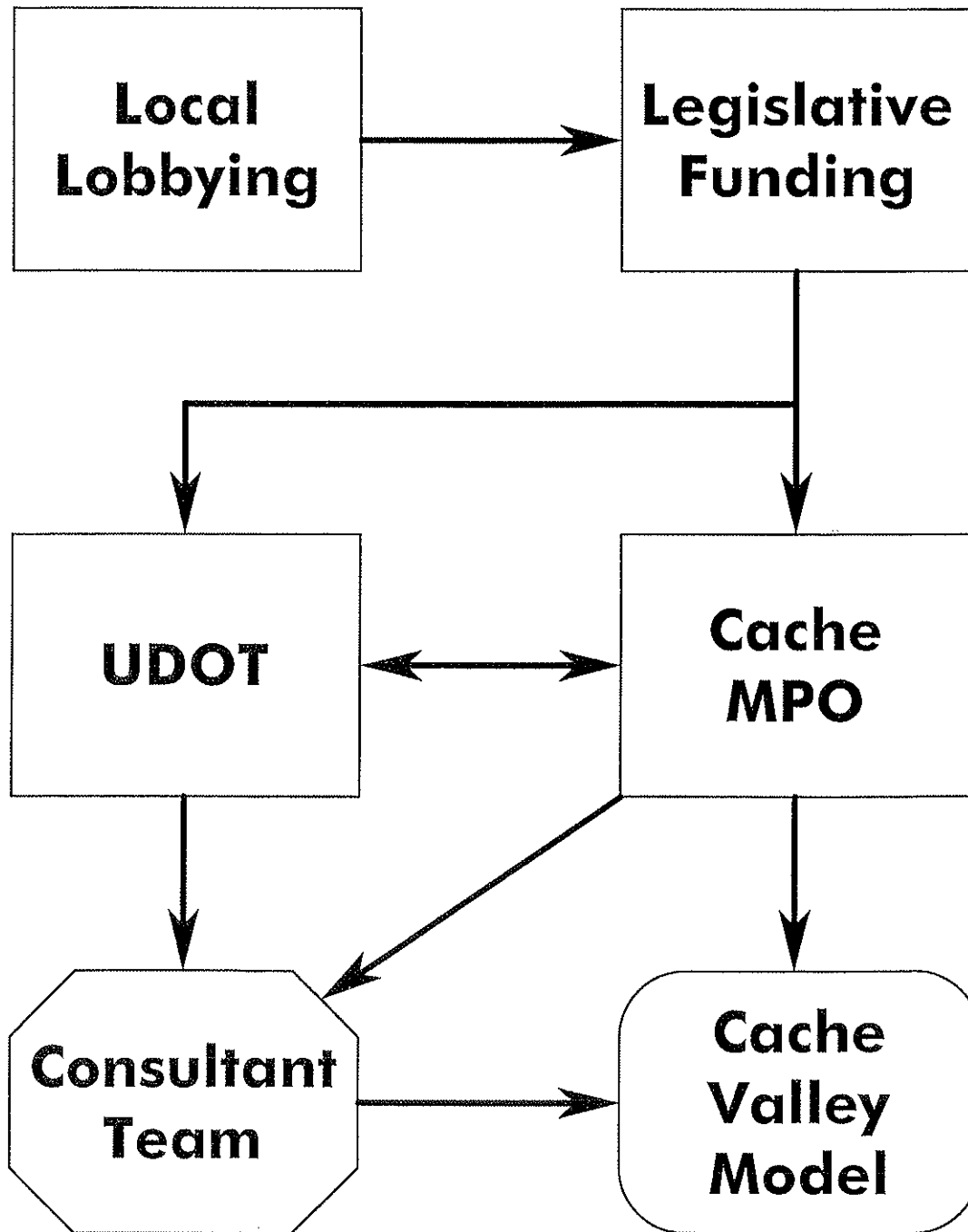
TRAVEL FORECASTING IN TRANSPORTATION PLANNING



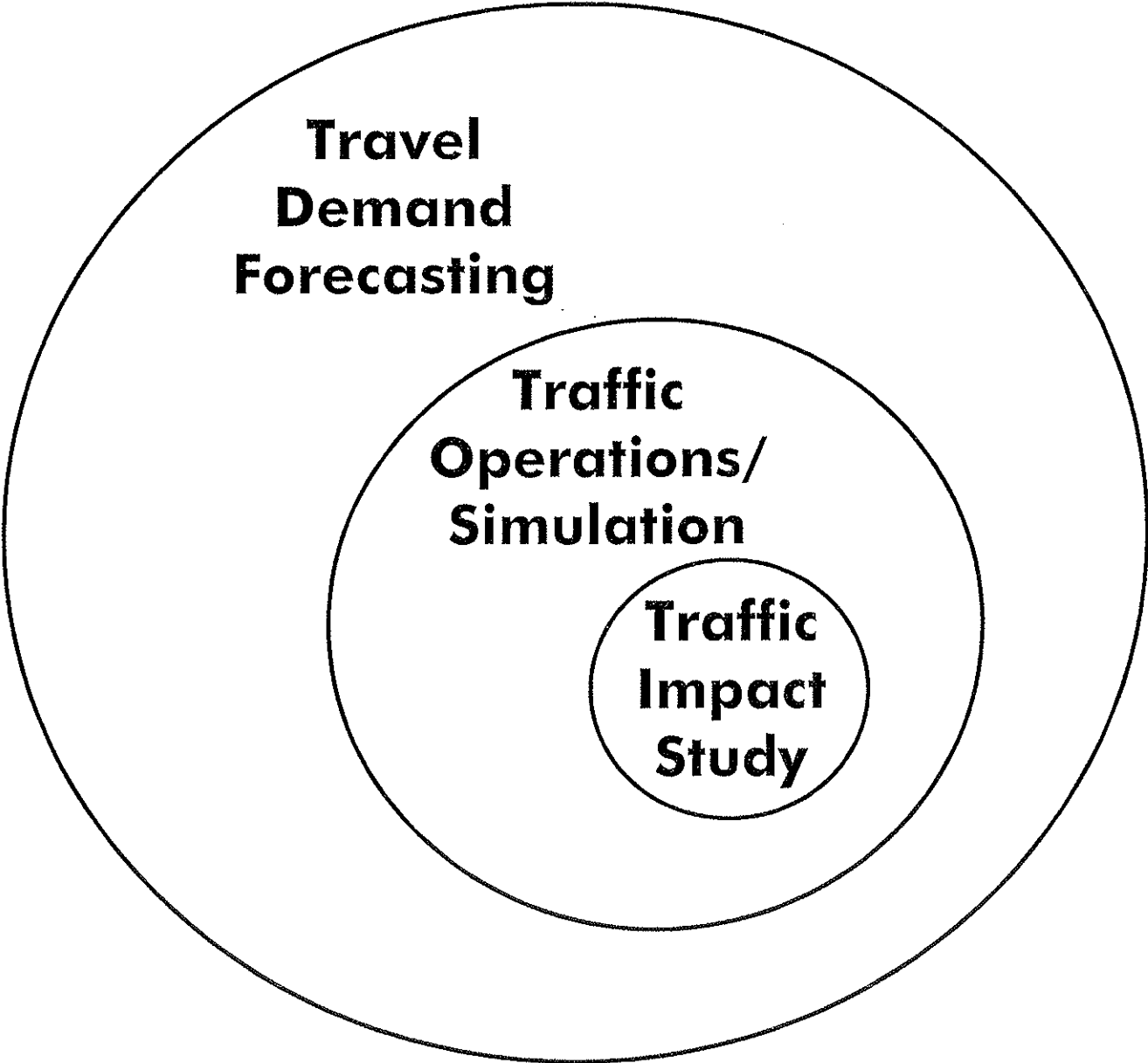
APPLICATION OF A TRAVEL DEMAND MODEL IN THE DECISION MAKING PROCESS



JOINT DEVELOPMENT EFFORT



TRANSPORTATION MODELS



TRANSPORTATION MODEL APPLICATIONS

TYPE OF TRANSPORTATION ANALYSIS	TRAVEL DEMAND FORECASTING MODEL (TP+/MINUTP, TRANPLAN, EMM2)	TRAFFIC OPERATIONS/SIMULATION MODEL (SYNCHRO, TRAFNETSIM, CORSIM, TRANSYT-7F)	TRAFFIC IMPACT STUDY (TRAFFIX, HCS)
Period of Analysis	Daily, AM & PM Peaks	AM, Midday & PM Peaks	AM & PM Peaks
LONG RANGE TRANSPORTATION SYSTEM PLANNING			
New Corridors	●	○	○
Network Changes	●	○	○
Land Use Planning	●	○	○
Transportation Master Plan	●	○	○
Air Quality Evaluation	●	○	○
NEAR-TERM TRANSPORTATION SYSTEM PLANNING OR DESIGN			
Traffic Signal Location	○	●	○
Access Control	○	●	○
Corridor Progression	○	●	○
Traffic Signal Operations	○	●	○
Traffic Signal System Coordination	○	●	○
SITE SPECIFIC DEVELOPMENT			
Traffic Impacts	○	○	●
Traffic Control Needs	○	○	●
Infrastructure Needs	○	○	●
Impact Fees	○	○	●
Driveway/Access Location	○	○	●

NOTES:

- Recommended
- Supplementary

CACHE COUNTY MODEL APPLICATION

▪ **Today**

- Quantify immediate problems
- Initiate planning

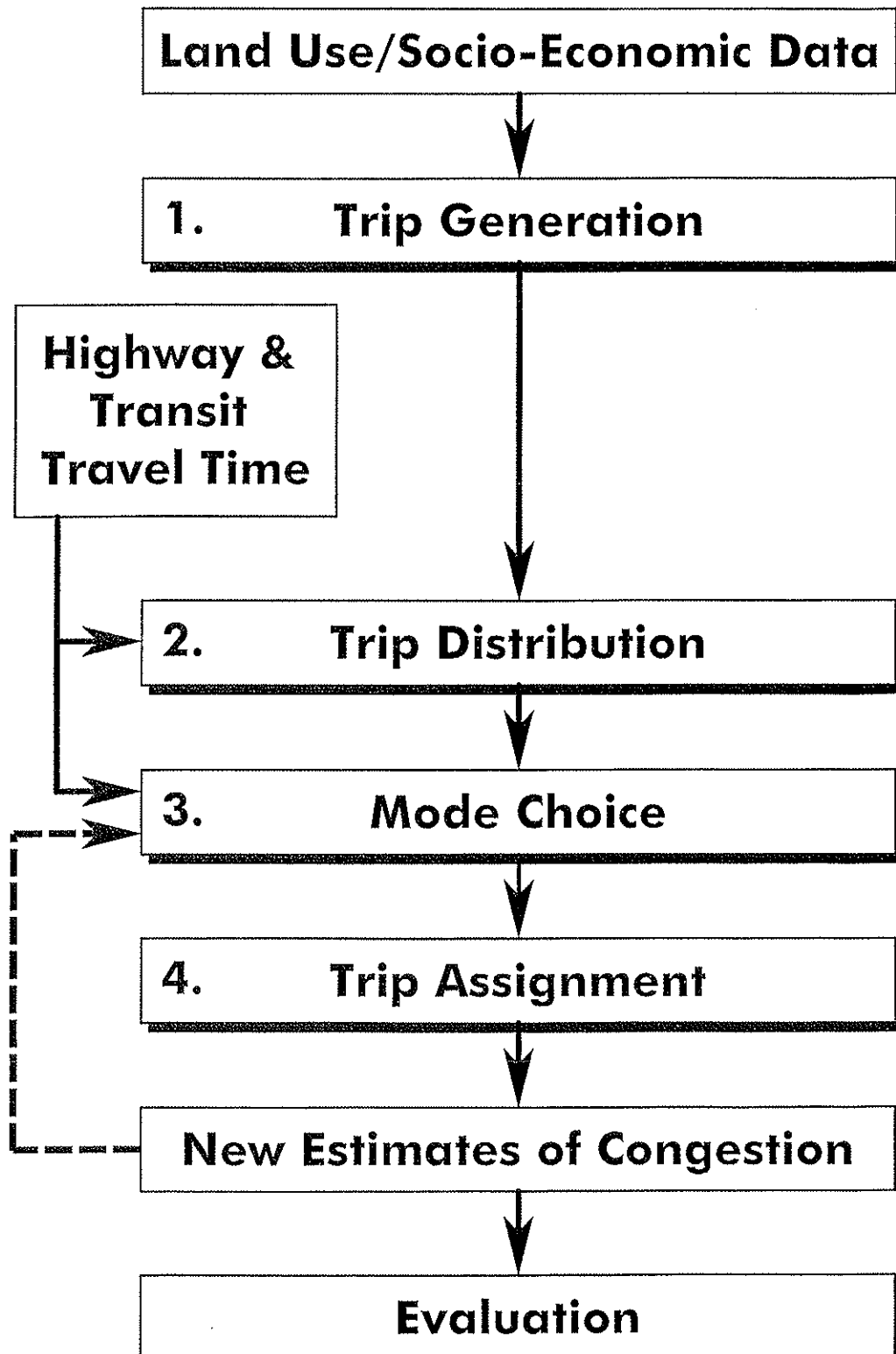
▪ **Five-year Horizon**

- Identify TIP projects
- Support other planning efforts

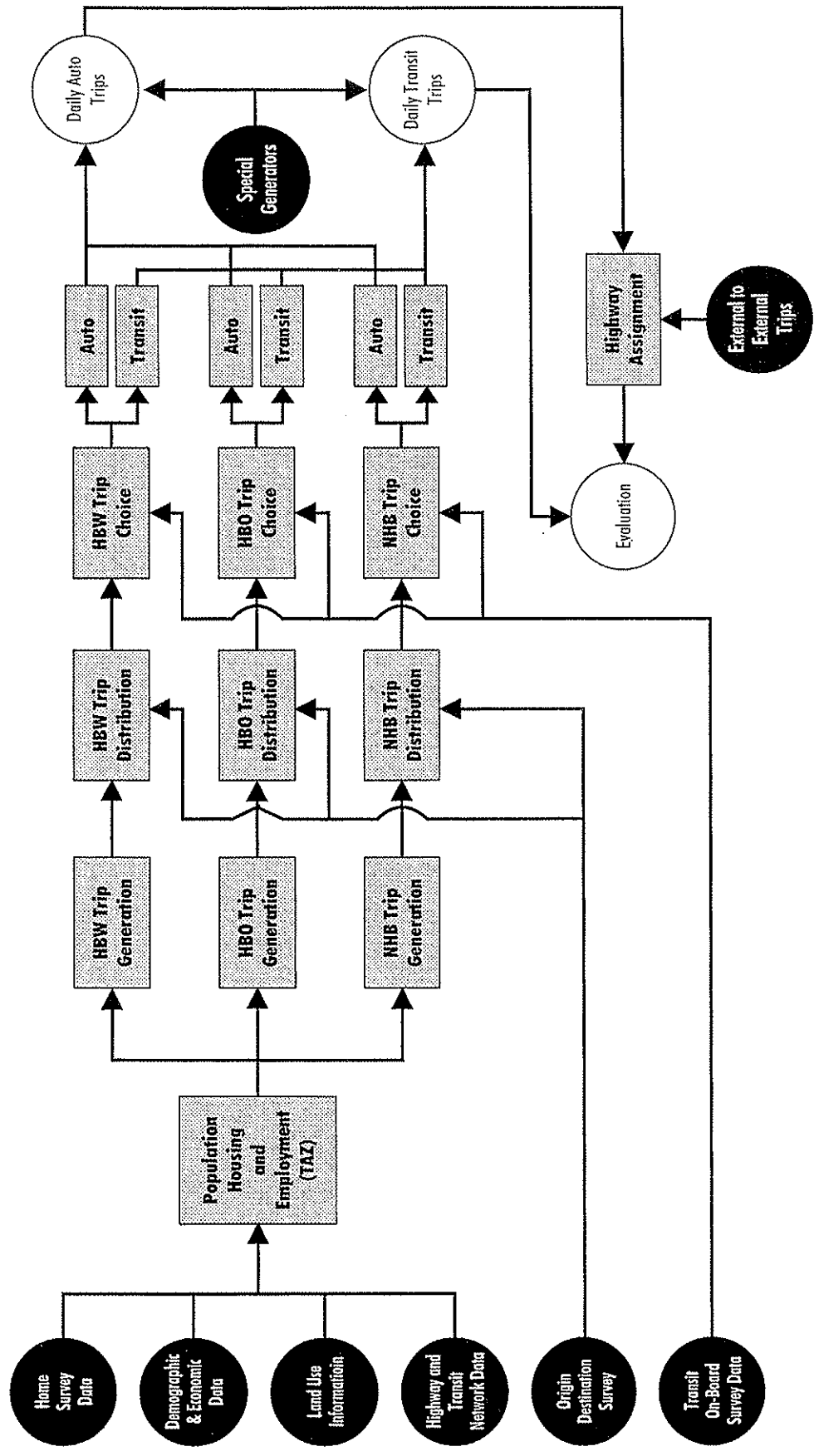
▪ **Twenty-year Horizon**

- Develop long range projects
- Changes to the General Plan

TYPICAL FOUR-STEP TRAVEL FORECASTING PROCESS



CACHE COUNTY TRAVEL DEMAND FORECASTING MODEL PROCESS



WSA WILBUR SMITH ASSOCIATES

CACHE VALLEY CORRIDOR STUDY

MODEL MAINTENANCE / UPDATE

COMPONENT	TRIGGER	FREQUENCY
Socio-economic & land use data	As often as changes in future land use variable are available	Typically every one to two years
Transportation Network	When there are major network changes or changes in the TIP and/or LRP	Every two to three years
Recalibration of Model Coefficients & Algorithms	Concurrent with major model updates	Every five years. At a minimum every ten years when US Census data becomes available

Confirmed Attendees of CMPO Executive Training Session February 2 and 3, 1999

Feb 2 6-9:30pm

Feb 3 8:30am-12:00pm

Feb 3 pm 6-9:30pm

Attendee:

Doug Thompson, Mayor of Logan
 Rod Blossom, City of Logan
 Russell Goodwin
 Mike Johnson, City of Millville
 Dwayne Benson, River Heights
 Tom Fisher, CMPO
 Jeff Jorgenson, City of North Logan
 Sue Patterson, Countywide Planning
 and Development
 James Smart, City of Smithfield
 Chandler Baer, City of Smithfield

Dee Hadfield, City of Logan
 Ron Johnson, City of Logan
 Mike Meecham, City of Logan
 Alma Leonhardt, Mayor of Providence
 Wes Bare, Providence Planning and Zoning
 Jay Nielson, USU Campus Planning
 Lynn Nelson, Cache Co. Sheriff
 Lt. Kim Cheshire, Cache Co. Sheriff's office
 Jim Gass, CMPO
 Dr. Larry Peterson, Logan City Schools
 DeSiree Stodart, Logan Neighborhood Councils
 Bob Harris, Nibley Planning and Zoning
 Jim Skidmore, Hyde Park City
 Sara Krebs, Hyde Park City
 Steve Norton, Cache County Schools
 Wayne Reese, Cache County Schools
 Ralph Degn, Mayor of River Heights
 Charles Batten, North Cache Soil Cons. Distr.
 Lynn Lemon, Cache County
 Kris Monson, City of Smithfield
 Kris Oliverson, City of Smithfield
 Char Izatt, City of Smithfield
 Don Hartle, City of Wellsville
 Lorene Greenlough, Cache County
 Jon Wells, City of Smithfield

Frank Ashcroft, City of Hyde Park
 John Payne, Nibley Planning and Zoning
 Richard Leishman, Nibley Planning and Zoning
 Louise Nielsen, Nibley Planning and Zoning
 Todd Hansen, Nibley City Council member
 Jay Harrison, Nibley City Council Member
 Jay Nelson, Mayor of Nibley
 Tammy Pyfer, Logan Neighborhood Council
 Steve Sweat, Logan Neighborhood Council
 Steve Seamons, City of Hyde Park
 Kerry Otte, City of Smithfield
 Ray Winn, City of Smithfield
 Rick Vernon, City of Smithfield
 Larry Ahnder, City of Nibley

Technical Session #2

Training Seminar Outline

Introduction To Travel Demand Models

THIRD SESSION

February 25th, 1999 – USU, Logan, Utah

- Workshop Overview and Objectives
- Participant Introductions
- Previous Workshops Recap
- Prior Sessions Questions and Answers
- The Cache County Model Setup

MORNING BREAK

- Practice Exercise: Highway Network Modifications
- Model Output Analysis
- Questions and Answers

LUNCH BREAK

- Practice Exercise: Land Use Updates
- Model Output Analysis
- Questions and Answers

AFTERNOON BREAK

- Interaction with traffic operations/models
- Interaction with traffic impacts models
- Closure