

# Task 12 – Consideration of Available Commercial Travel Demand Software Packages

*presented to*

**TPB Travel Forecasting Subcommittee**

*presented by*

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# Task 12

## Travel Demand Forecasting Software Packages

- Assist in the development, assembly, and review of evaluation criteria for travel demand software packages
- Inventory which software packages are being used by the larger MPOs for travel demand forecasting

# Software Evaluation Process

- Definition of criteria
- Definition of alternatives
- Selection of evaluators
- Data collection
- Rating of alternatives
- Selection of a preferred alternative

# Software Evaluation Criteria

- Potential List of Criteria Developed Based on:
  - » TPB Model Work Program
  - » Similar Forecasting Software Review Processes:
    - Florida Department of Transportation
    - Kansas City Institute of Traffic Engineers
    - New Mexico Department of Transportation
    - Rhode Island Department of Transportation
    - South Dakota Department of Transportation
    - Southern California Association of Governments
    - Vermont Department of Transportation

# Software Evaluation Criteria

- Advances in Modeling
- Cost
- Customizability
- Data Processing
- Network Editing
- Regional Compatibility
- Report Generation
- Software Interface
- Spatial Analysis
- Support
- System Requirements
- Technical Functionality
- Transfer Issues
- User Interface
- User Preference

# Importance of Software Evaluation Criteria

- Method of software evaluation that places different weights on different criteria based on relative importance
- Allows for inclusion of criteria of all levels of importance

Sample:

| Criteria  | Importance   | Rank |
|---|--------------|------|
| Compatible with the City's Computer Environment             | Must Have    | 5    |
| Support the City's GIS System                               | Must Have    | 5    |
| Support Other Business Areas in the City                    | Must Have    | 5    |
| Support OCTA's Subarea Modeling Framework                   | Must Have    | 5    |
| Compatible with OCTA Modeling Software                      | Desirable    | 3    |
| Support Conversion of TRANPLAN Databases & Highway Networks | Desirable    | 3    |
| Network Editor  | Must Have    | 5    |
| Highway and Transit Path Builders                           | Must Have    | 5    |
| Matrix and Link Calculators                                 | Must Have    | 5    |
| Easy-to-Use Customized Scripts                              | Nice to Have | 1    |
| Wrapper or Transportation Modeler                           | Nice to Have | 1    |
| Capital and Maintenance Costs                               | Desirable    | 3    |
| Technical Support   | Must Have    | 5    |

Source: Southern California Association of Governments.

# Weighted Average Scoring Methodology

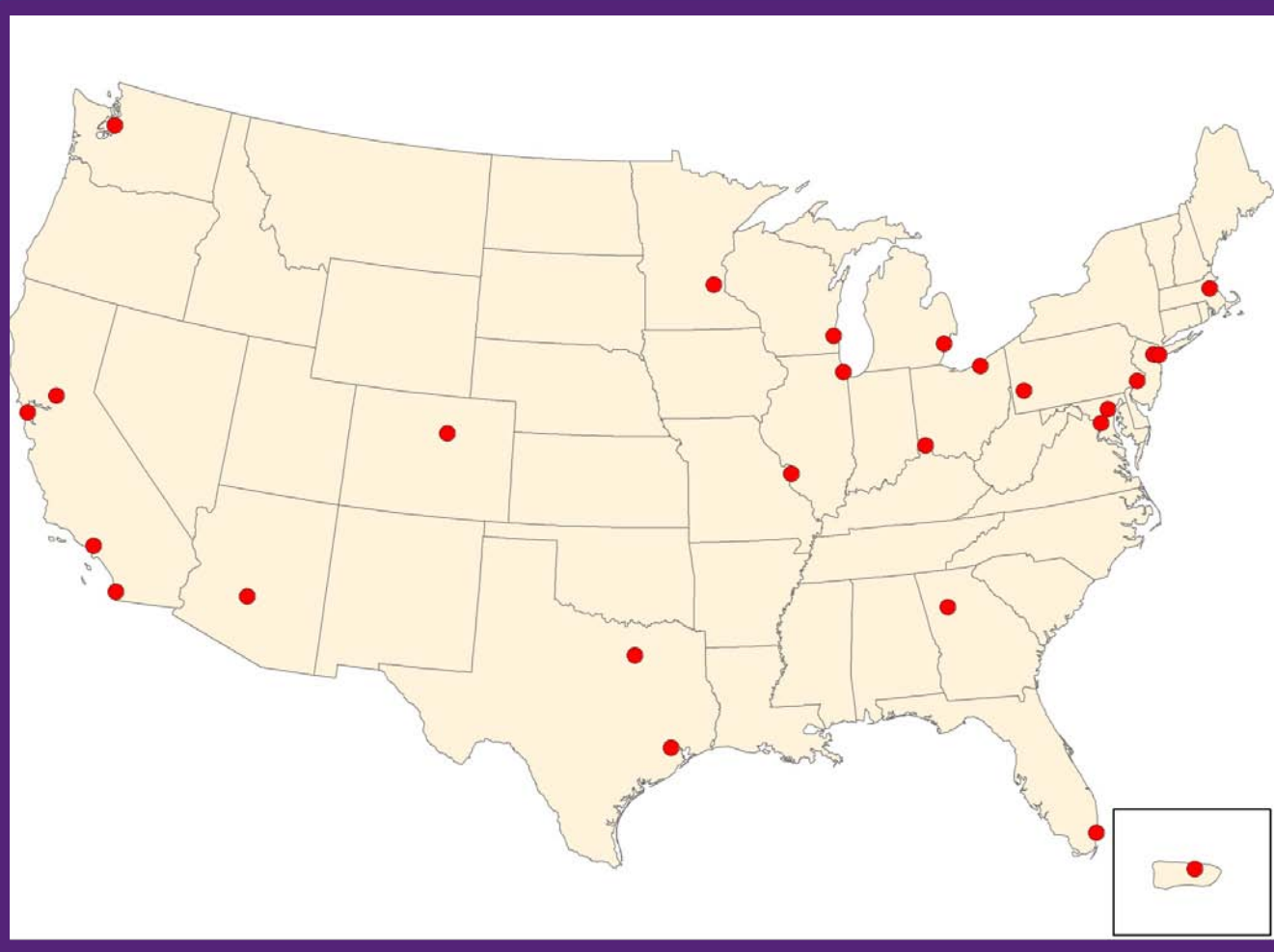
- Each alternative is rated on each criteria, then weighted by relative importance

Sample:

| Criteria    | Importance | Alternative 1 | Alternative 2 | Alternative 3 |
|-------------|------------|---------------|---------------|---------------|
| Criterion 1 | 5          | $4*5=20$      | $5*5=25$      | $5*5=25$      |
| Criterion 2 | 3          | $5*3=15$      | $5*3=15$      | $3*3=9$       |
| ...         | 1          | $4*1=4$       | $5*1=5$       | $4*1=4$       |
| Criterion N | 3          | $5*3=15$      | $4*3=12$      | $4*3=12$      |
| Sum         | –          | 54            | 57            | 50            |
| Rank        | –          | 2             | 1             | 3             |

# Travel Demand Software Inventory

- Survey of 26 Large US MPOs





# Travel Demand Software Inventory

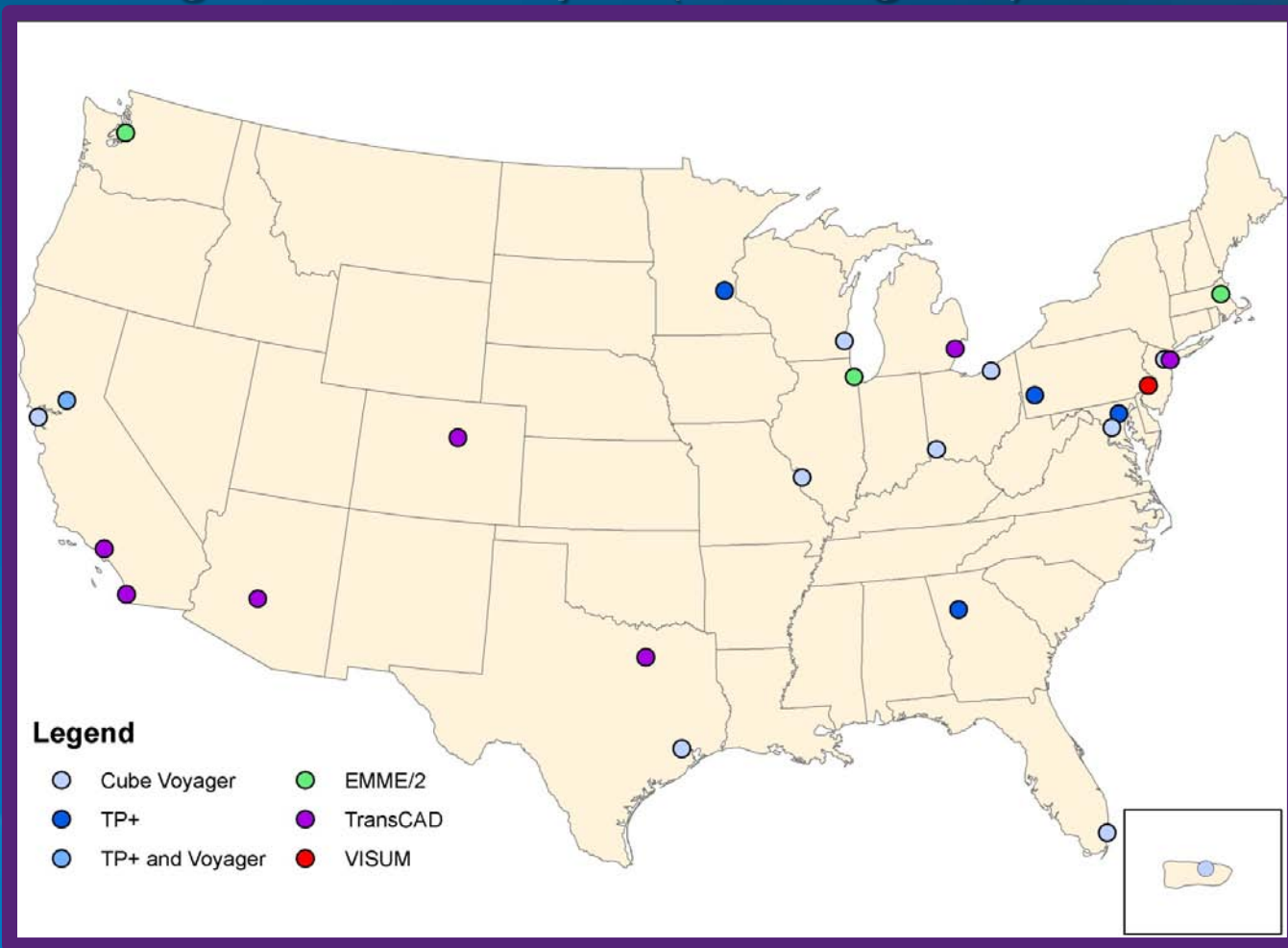
- 26 Large MPOs surveyed (including TPB)

| Software Platform     | Number of MPOs |
|-----------------------|----------------|
| Caliper TransCAD      | 7              |
| Citilabs TP+          | 11             |
| Citilabs Cube Voyager | 5              |
| INRO EMME/2           | 3              |
| PTV VISUM             | 1              |

Based on staff interviews and reviews of model documentation.

# Travel Demand Software Inventory

- 26 Large MPOs surveyed (including TPB)



# Conclusions

- Software Evaluation Criteria
  - » A range of criteria of varying importance would need to be investigated for all potential software platforms
  - » Detailed data collection efforts would be needed in cooperation with software vendors and other MPOs
- Travel Demand Forecasting Software Inventory
  - » Of the 26 largest MPOs, the majority (16) use one of Citilabs' products: TP+ or Cube Voyager. Seven use TransCAD, three use EMME/2, and one uses VISUM
  - » The change in the list of travel demand forecasting products over the last decade is noteworthy and illustrative of how the travel demand forecasting software platform market is an ever-evolving area