A Primer for Traffic Forecasting for Project Managers

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Introduction & Overview

About Me

• 10 years at FDOT
• Currently work in District 5 Systems Planning (part of PLEMO)
• Manage design traffic, ESAL reports, travel demand model

Goals of This Presentation

• Target Audience: Project Managers – In House & Consultant
• Discuss forecasting for various traffic-related reports for different project types
• Inform of rules/regulations/policies/practices
Outline of Topics

• Tools Used for Forecasts & Applications
• Report Types & Applications
• Which Report Do I Need
• Unusual/Special Projects
• Rules, Regulations, Policies, Practices
• Question & Answers
Tools Used for Forecasts

• **Travel Demand Models**
  • Primary source of forecasts
  • Intricate process of calculating and distributing trips
  • Mathematical equations
  • Variables: population, jobs, network, trip generation rates, etc.
  • Calibrated & validated on two levels

• **Applications**
  • Regionwide vs. Project-specific
  • Differences
  • Types of Reports
Tools Used for Forecasts

• **Forecasting Using Trends**
  • Area not covered by travel demand model
  • Less complex
  • Uses historic traffic volumes to forecast future volumes
  • Is history indicative of future?

• **Applications**
  • Project-specific
  • Types of Reports
Report Types & Applications

• **Two Primary Types of Reports**
  - Project Traffic Analysis Report (PTAR)
  - Equivalent Single-Axle Loading Report (ESAL)

• **Other Types of Reports – Not Covered Here**
  - Planning-Level Traffic
  - Operation analysis
  - Interchange Access Request
  - Intersection Control Evaluation (ICE)
  - Traffic Noise Reports*

* Related to PTARs
Project Traffic Analysis Report (PTAR)

• **Formerly known as a Design Traffic Technical Memorandum (DTTM)**
  • Required document for a roadway-related Project Development & Environmental (PD&E) study
  • Highly detailed
  • Traffic volumes – existing & future forecasted
  • Uses travel demand model for forecasts
  • 20 year span – Opening through Design year
  • Measures effectiveness of project through various metrics
  • Forecasted volumes → design of roadway (number of through lanes, intersection geometries, etc.)
Equivalent Single-Axle Loading Report (ESAL)

• Used for pavement design
• Determines thickness of pavement based on volumes & damage from vehicles over lifespan of pavement
• 20 year span – Opening through Design year
• Can use travel demand model or forecasted trends
• Needs current data – traffic volumes, % heavy trucks
• ESAL Analysis Tool – Excel Spreadsheet
  • Simple inputs and outputs
Differences – PTAR & ESAL

• Use & intent of reports - purpose of projects
• How traffic volumes are forecasted
• Differences in volumes
• Model volumes ≠ Design volumes!
Which Report Do I Need?

- Capacity-added projects – PTAR
- PD&E reports - PTAR
- RRR – ESAL
- Other Types
Unusual & Special Projects

• Lane reductions
• Lane utilization – heavy trucks
• Queuing on roadway
• Field observations
  • Very important – communicate!
Rules, Regulations, Policies & Practices

- 525-030-120 - Project Traffic Forecasting
- 525-030-020 - Capacity Improvement Alternatives
- 000-525-006 - Level of Service Targets for the SHS

https://fms.fdot.gov
Rules, Regulations, Policies & Practices

• For Traffic Practitioners
  • FDOT Traffic Forecasting Handbook – 2014
  • FDOT Traffic Analysis Handbook - 2014
  • FDOT PD&E Manual – January 2019
    • *Part 2, Chapter 2: Traffic Analysis*
  • FDOT Interchange Access Request (IAR) Users Guide - 2018
  • FDOT Manual on Intersection Control Evaluation (ICE) - 2017
Rules, Regulations, Policies & Practices

• **Lifespan of a Traffic Report**

  *FHWA - “Pavements shall be designed to accommodate current and predicted traffic needs in a safe, durable, and cost-effective manner”*

  • No definitive answer
  • Florida – generally 2 year shelf life
  • Context and location
Resources

- https://www.fdot.gov/planning/systems/programs/sm/ptf/default.shtm

Project Traffic Forecasting – Computer-Based Training
- http://wbt.dot.state.fl.us/ois/ProjectTrafficForecasting/Traffic101_Fundamentals_Intro.htm
Q & A
Thank You!

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