



Transportation Research Board

Innovations in Traffic Demand Forecasting

Using Toll Revenue Forecasts for Highway Investment Decisions

June 2008

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Agenda

- **Uses of Forecast**
 - Public Sector
 - Private Sector
- **Forecast Levels and Components**
- **Forecast Risk**
- **Risk Tolerance Perspectives**

Uses of a Forecast

Private Sector Party

- Assess interest in project (financial opportunity and risk)
- Submit Proposal, secure financing
- Operational Planning and Asset Management

Public Sector

- Assess feasibility of project
- Determine toll rate regime
- Development of commercial terms (Shadow Bid Model)
- Public Sector Comparator (Value for Money Analysis)

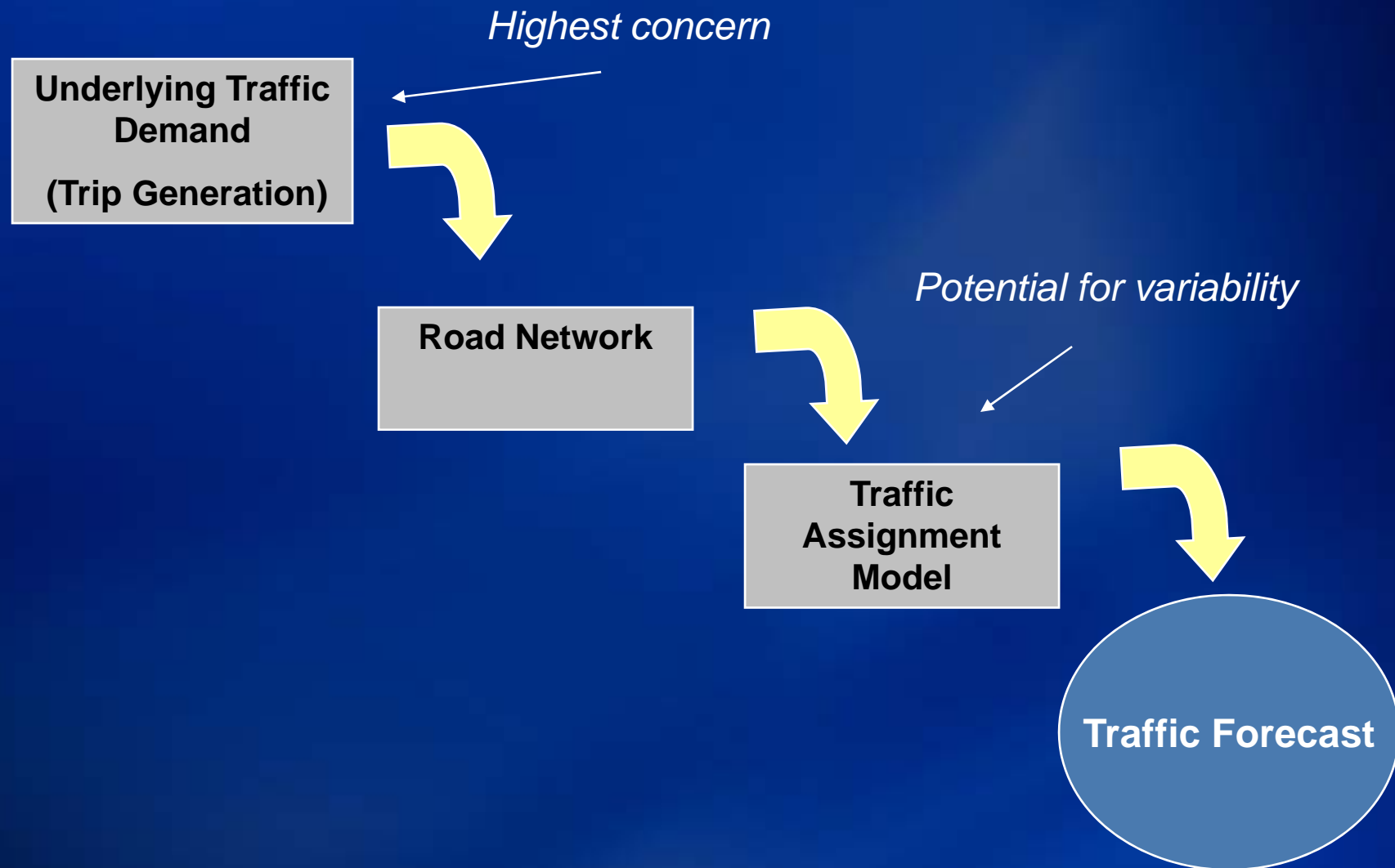
Levels of Forecast

Depending on the use, different levels of forecasts are developed:

- **Planning Level**
- **Intermediate Level**
- **Investment Grade Level**

The difference depends level of work on the assumptions

Basic Elements of Forecast



Basic Assumptions of a Forecast

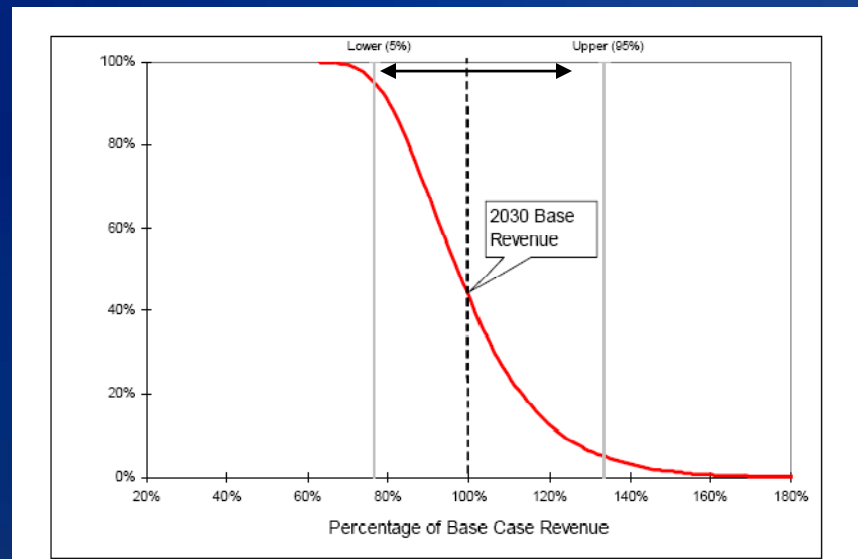
A Traffic model is developed in order to produce forecast. A Traffic Model is made up of various elements:

- **Data Collection**
 - Traffic Counts
 - Speed and Delay
 - Origin and Destination Surveys
 - Stated Preference and Value of Time Analysis
- **Regional Transportation Plans**
- **Demographic Projections**
- **Development Plans in Area**
- **Independent Economic Assessment**

Greenfield toll roads require significantly more work due to lack of historical data

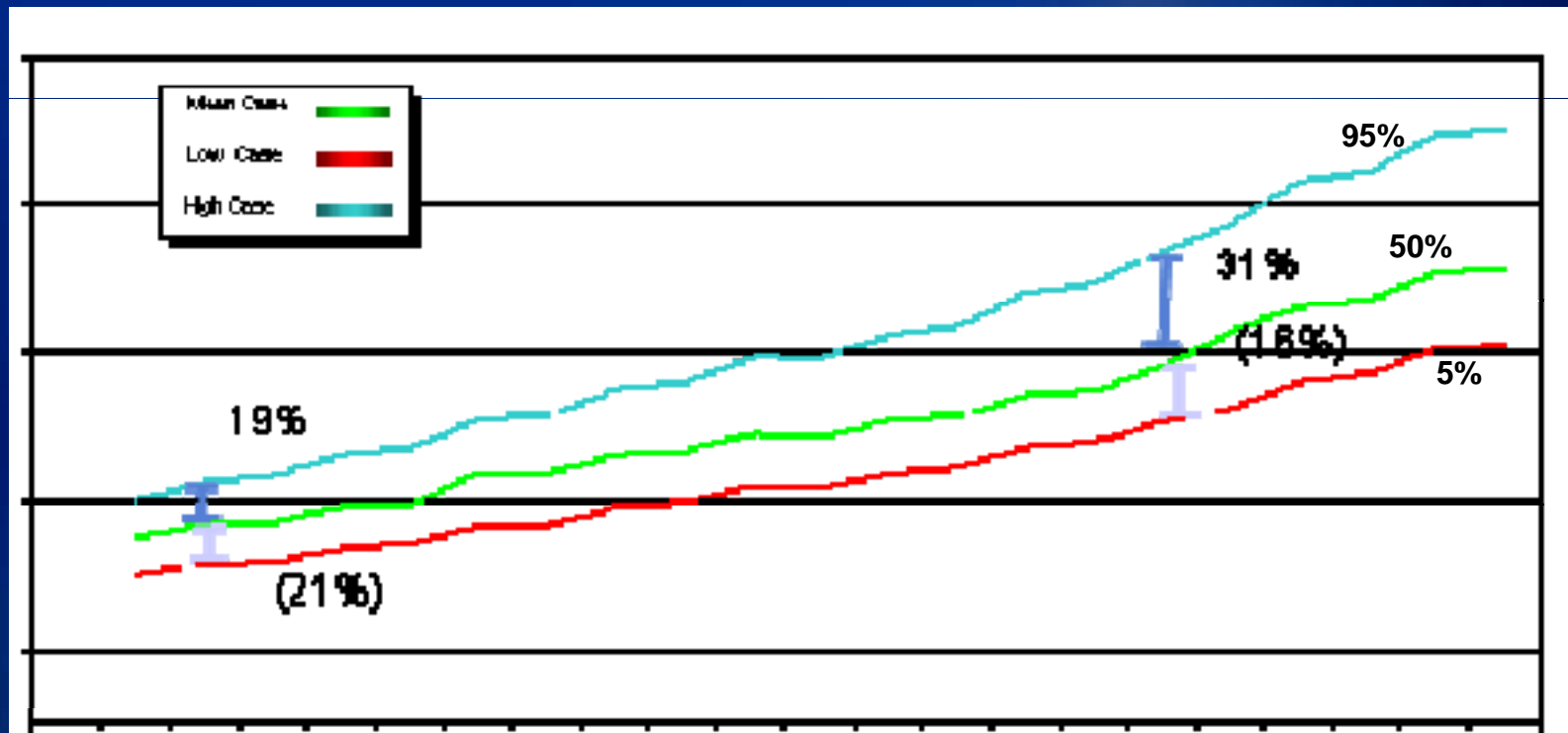
Forecast Risk

- Forecasting is inherently a “risky business”
- Industry has generally focused on “Point Estimate
BUT: A forecast is not a singular point – based on a risk distribution
- Important to understand the risk distribution
 - Riskier projects have a wider risk distribution (greenfield vs. brownfield, type of project, urban vs. rural, etc., toll sensitivity)
 - Different parties have different appetites for risk



Forecast Risk

The forecast at various points on the curve is depicted as follows (sample forecast):



Views on Risk Tolerance Perspective

Each Party will have a different risk perspective:

- Equity
 - Tend to take the more “aggressive view”
 - Must seek board approval
- Lenders
 - Likely to take more conservative view (downside risk focus)
 - Will build in appropriate coverage ratios to cover risk
- Public Sector
 - Depends on use
 - Value for money forecast depends on policy and methodology used (bonding capacity, concession view, risk adjusted view)

Concluding Thoughts

- **Forecast is one of most important elements in a project**
 - Project development (Project feasibility)
 - Element that distinguishes a winning bid
- **Level of Forecast varies depending on use**
- **Variability in Forecast depends on risk of project**
- **Risk perspective varies between party**