

EMME/2 Conference

Gautrain Rapid Rail Link: Forecasting Diversion from Car to Rail

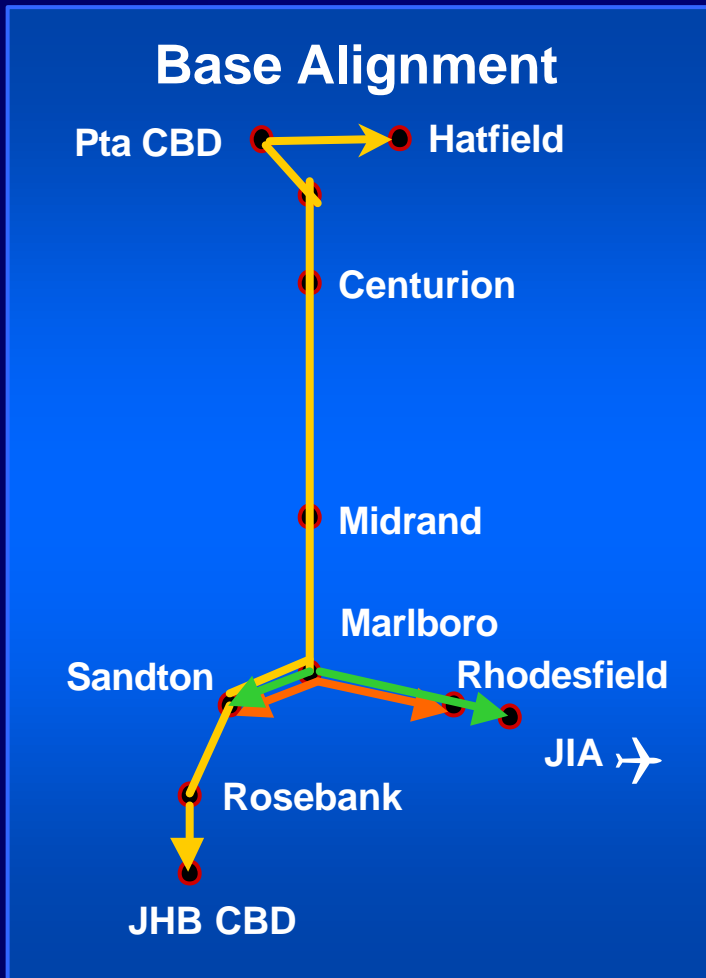
**Presented by
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8 September 2004

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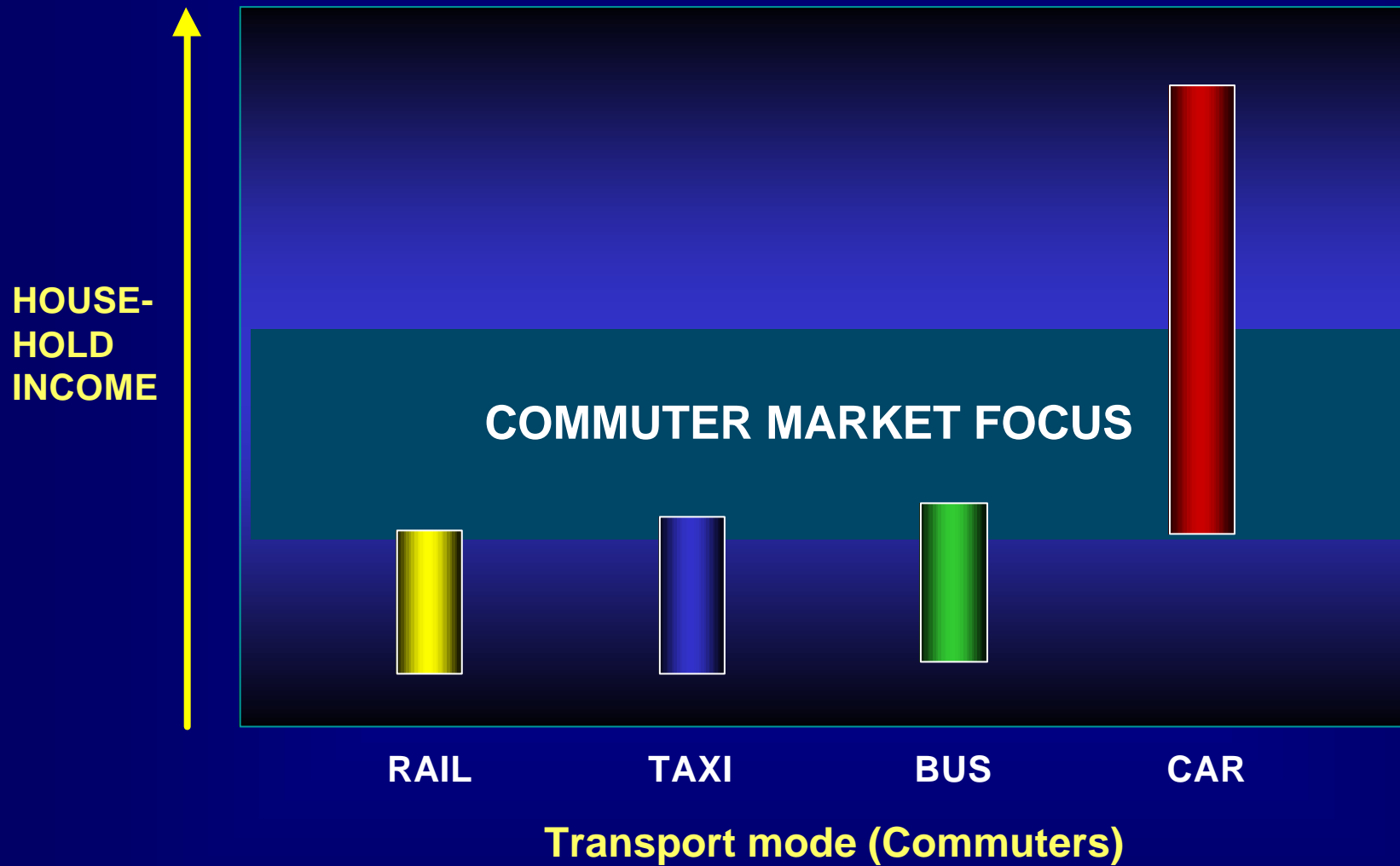
- **Background**
- **Market and Fares**
- **Model Development**
- **Modeling Process**

ALIGNMENT & SERVICE OPTION



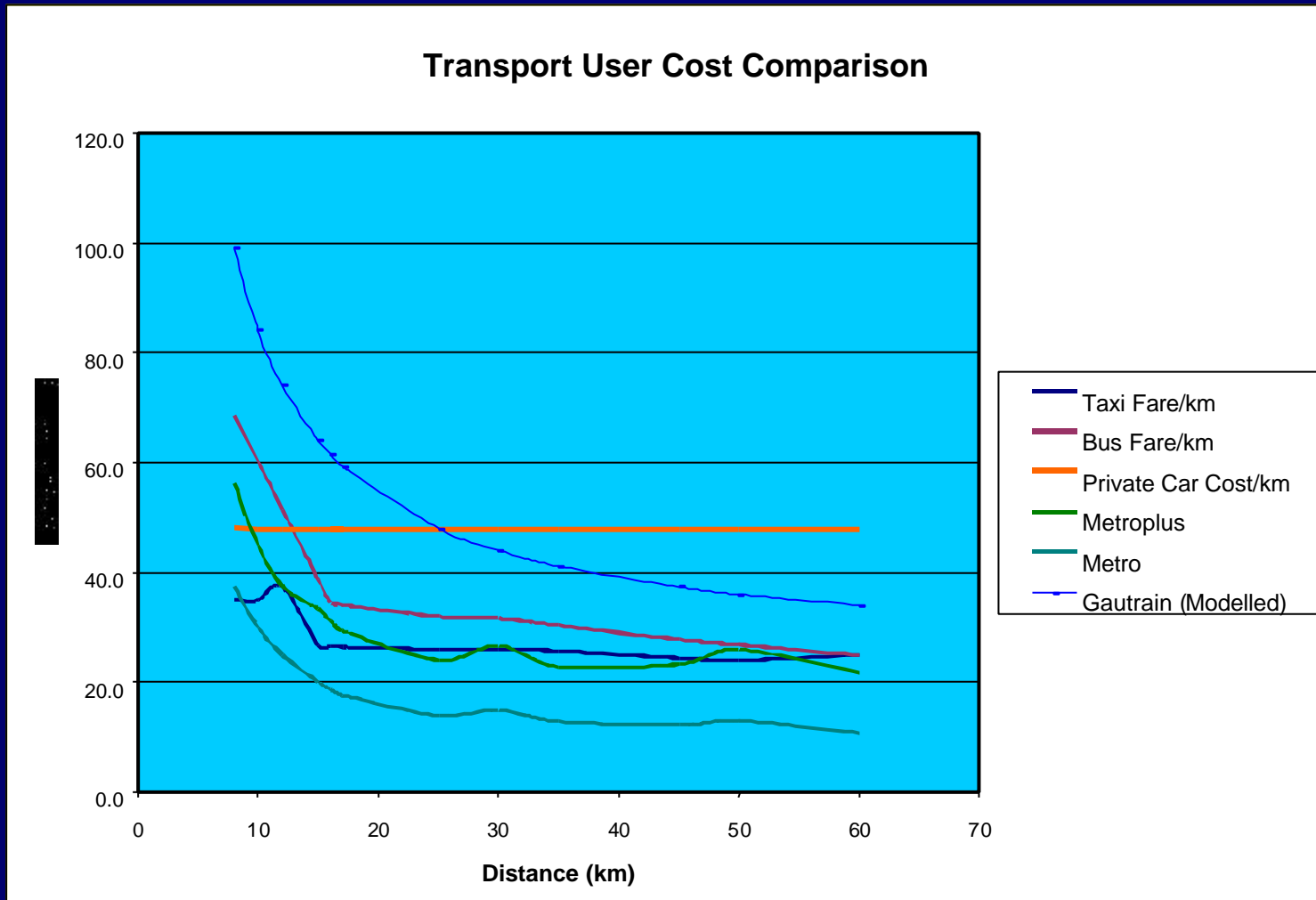
- **Base Service:**
 - Hatfield to JHB: 6 tph commuter
 - Sandton to JIA: 4 tph airport service
 - Sandton to Rhodesfield:
6 tph commuter
- **Station Access by:**
 - Car (Park & Ride; Kiss & Ride)
 - Feeder Bus
 - Walk
 - Existing Commuter Rail

MARKET FOCUS



FARE STRUCTURE

Transport User Cost Comparison



DEMAND MODELS

- 1. Diversion of car trips – EMME/2 Model**
- 2. Diversion of trips to / from JIA – Spreadsheet Model**
- 3. Diversion of public transport trips – Spreadsheet Model**

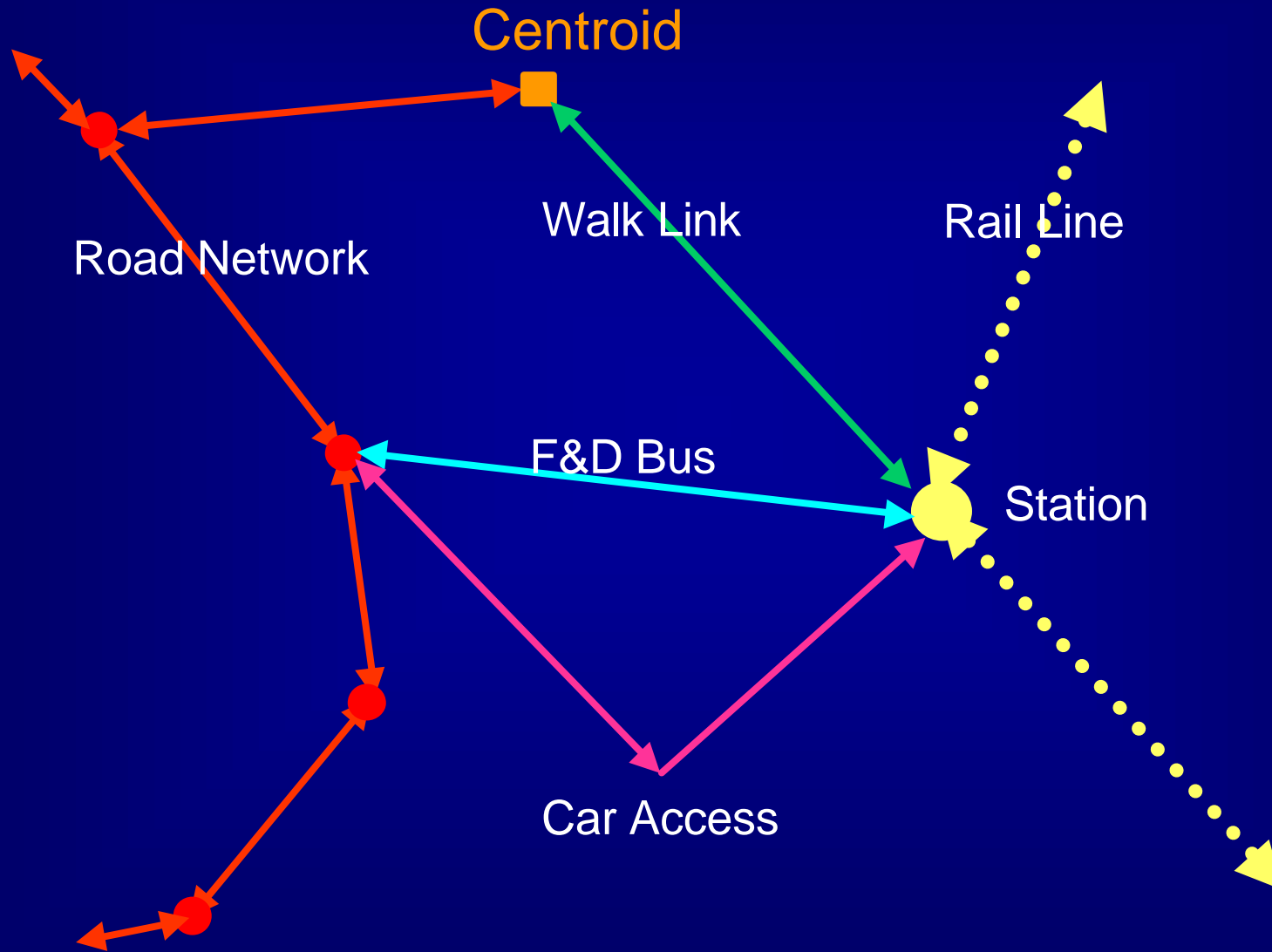
This presentation will focus on diversion from car.

- ◆ **Base model = Gautrans EMME/2 Toll Model**
 - ◆ **Zones = 668**
 - ◆ **Total link = 10 500**
- ◆ **Gautrain model: Additions to Toll Model**
 - ◆ **Zone = 772**
 - ◆ **Total link = 13 000**
- ◆ **Coding of:**
 - ◆ **Rail network & Services**
 - ◆ **Car access links**
 - ◆ **Walk links**
 - ◆ **Bus Feeder and Distribution Services**
- ◆ **Logit Mode Choice Model:**
 - ◆ **Car vs Rail Generalised Cost**

Generalised Cost Components:

- ◆ **Car**
 - ◆ **Travel Time**
 - ◆ **Distance – Vehicle operating cost**
- ◆ **Gautrain**
 - ◆ **Access Time – Bus, Walk & Car**
 - ◆ **Bus Fare & Penalty**
 - ◆ **Car Access Cost - Vehicle operating cost**
 - ◆ **Car Parking Cost**
 - ◆ **Rail In Vehicle Time**
 - ◆ **Waiting & Dwell Time**
 - ◆ **Transfer**
 - ◆ **Rail Fare**
 - ◆ **Egress Cost (Time & Cost)**

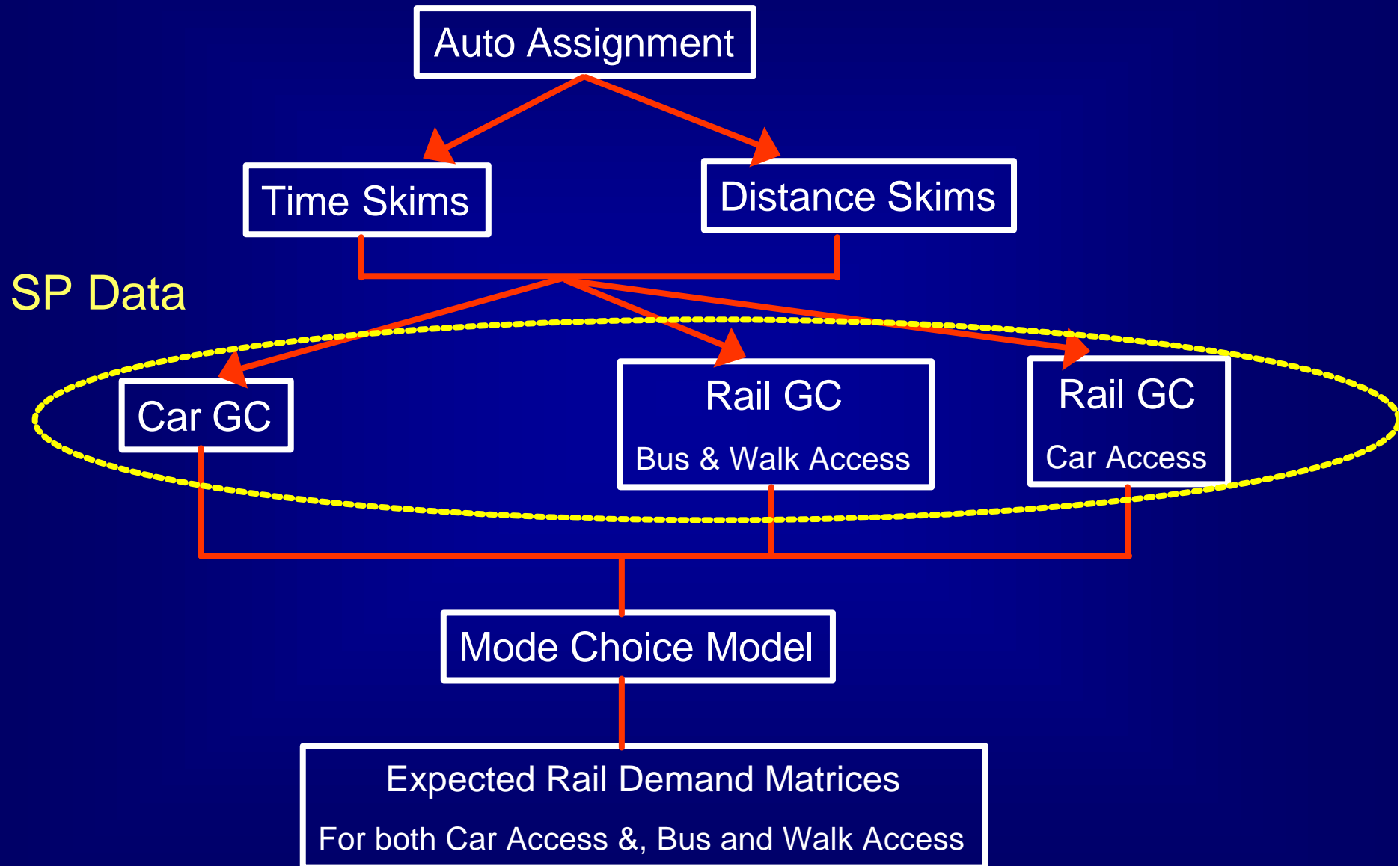
MODEL DEVELOPMENT

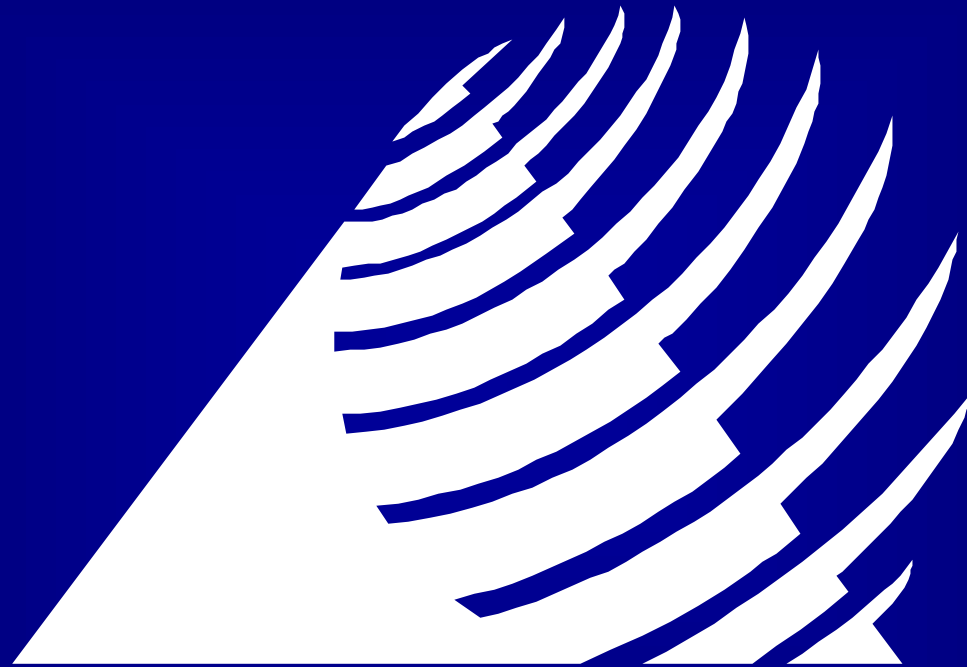


Fare Structure:

- ◆ **Car Parking Fare – Fixed Fare**
 - ◆ **Applied to access link**
- ◆ **Bus Access & Egress Fare**
 - ◆ **Boarding Fare: Applied to Link**
 - ◆ **Variable Fare (c/km): Applied as line user data**
 - ◆ **Bus Penalty: Applied to Link**
- ◆ **Rail Fare**
 - ◆ **Boarding Fare: Applied to Node (Station)**
 - ◆ **Variable Fare (c/km): Applied as line user data**

MODEL STRUCTURE





THANK YOU