Waikato Regional Transportation Model

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Interesting Issues
- Background to the project
- Management Structure

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- Geographic coverage

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- Data collection
- Model structure
Interesting Issues

- Background to the project
- Management Structure
- Geographic coverage
- Data collection
- Model structure
- Peer review process

Background

- First Hamilton model built in 1967
- Updated in 1977-80
- Period models developed in the 80’s
- Regular updates – but still using 1967 data
- Other models built for Cambridge, Te Awamutu
- Also a region wide assignment model

Modelling prior to 2010

Scoping Study

- Scoping Study undertaken in 2006
- Recommended
  - A new model be built following a data collection exercise.
  - A management structure that would ensure long term benefits for the model owners
- Gabites and TDG engaged in October 2007 to build and operate the model

Objectives for the WRTM

1. A single transport model for the Waikato Region
   As opposed to
   - Two modeling platforms
   - Five different models

Objectives for the WRTM

1. A single transport model for the Waikato Region

2. Quality data and modelling:
   Currently
   - Existing models used old or borrowed data
   - Taking more (too much) of existing models
Objectives for the WRTM

1. A single transport model for the Waikato Region
2. Quality data and modelling
3. Minimise project and administration overhead
   - Range of project managers and administrators

WRTM Project Structure

NZTA  EW  HCC  Waikato  Waipa  Taupo  MPDC  TCDC

Gibbets Porter

LASS

Manage, Maintain
Promotion
Property rights

WRTM

Project Timetable

- Project = Model Build + Operation
- Contract signed 19th October 2007
- Initial Completion date April 2009
- Defined by Home Interview Survey
- Clean HIS data available March 2009
- Model build completed Jan 2010

Geographic Coverage

Covers the whole of the Waikato region

More detailed around Hamilton
Includes Tauranga and ...

Data Collected
- Household Interview Surveys
- Household Interview Surveys
- Roadside Interview Surveys

Data Collected
Household Interview Surveys
- Survey: March 2008 to January 2009
- Face-to-face interviews conducted
- 2,000 Households (1,000 in Hamilton)
- Saturday survey for additional 500 HHs
- Trip rates:
  - Unexpanded = 9.4 daily person trips/HH
  - Expanded = 11.2 daily person trips/HH

Data Collected
Roadside Interview Surveys
- Survey: December 2007 to March 2008
- 18 locations in total
- Auckland & Tauranga data borrowed
- All-rail, 1 direction, 12 hours
- 6 Hamilton sites ANPR

Data Collected
- Household Interview Surveys
- Roadside Interview Surveys
- Bus Passenger Interview Surveys
**Data Collected**

- **Bus Passenger Interview Surveys**
  - Survey: July 2008 to November 2008
  - Survey: 50% peak & 33% off-peak services
  - On-board interview survey
  - Interviewed 4,700 passengers
  - 30% sample (16k pax/day)
  - Expand to EW patronage data

- **Household Interview Surveys**
- **Roadside Interview Surveys**
- **Bus Passenger Interview Surveys**
- **Census Data (JTW & Crosstabs)**
- **Traffic Counts**
- **Journey Time Surveys**

**Capabilities of the Models**

- Two models
  - Vehicle driver

- Vehicle Driver
  - Includes light and heavy vehicles separately
  - Three periods
    - Morning Peak – 0700 to 0900
    - Inter peak – 1100 to 1300
    - Evening peak – 1600 to 1800
**Capabilities of the Models**

**Vehicle Driver**
- Suitable for:
  - Road network analysis
  - Network operation
  - Land use planning
  - Inputs to economic analysis

**Person model**
- Computes one trips by mode
  - Car driver
  - Car Passenger
  - Bus Passenger
  - Walk and Cycle

**Capabilities of the Models**

**Two models**
- Vehicle driver
- Person

**Capabilities of the Models**

**Person model**
- Two periods
  - Morning Peak – 0700 to 0900
  - Inter Peak – 1100 to 1300

**Capabilities of the Models**

**Person model**
- Suitable for:
  - Travel demand management analysis
  - Bus Passenger service design
  - Land use Planning

**Model Form**
- Standard three and four step models
**Model Form**

Standard three and four step models
Trip generation – 10x4 category model
Gravity Distribution – ve exponential functions
Logit mode split model

**Model Form**

Standard three and four step models
Trip generation – 10x4 category model
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Road Assignment – full intersection modelling

**Model Form**

Standard three and four step models
Trip generation – 10x4 category model
Gravity Distribution – ve exponential functions
Logit mode split model
Road Assignment – full intersection modelling
Public Transport time sliced assignment

**Some Basic Statistics**

900 Zones
Some Basic Statistics

900 Zones
8400 Nodes
20,000 Links
13 Trip Purposes

Three step takes 6 minutes per period
Four step takes a little longer

TRACKS software platform
A look at the future

Deficiency analysis at
2006
2021
2041

Hamilton PM peak LOS

2006

Key Link LOS
Road
LOS D
LOS E
LOS F

2021

Hamilton PM peak LOS

2041

Peer Review
Reviewer (Ian Clark)
Involved from inception
Peer Review

Reviewer (Ian Clark)
Involved from inception
Assisted client with:
• the RFT for model build
• data collection
• technical note review

Questions?

Change in Level of Service

Basic Travel Statistics