



# Wellington Weekend Traffic Patterns

**Pushing the Boundaries of Traffic Modelling**

Hailin (Bob) Hu  
Transportation Modeller  
Hailin.Hu@opus.co.nz

# WWTP - AGENDA

- WHY weekend?
- WHERE to start?
- HOW to analyse?
- WHAT we found?
- WHO benefits?
- Questions



# WWTP – WHY weekend?

- ↳ Congestion
- ↳ Benefits
  - ▣ Economics
  - ▣ Road Design
  - ▣ Operational TM
- ↳ High variability
- ↳ Research needs



# WWTP – WHERE to start?

## Base model?

- ▣ Variability
- ▣ Sat vs. Sun
- ▣ Peak
- ▣ Factors






## Forecast model?

- ▣ Growth
- ▣ Distribution
- ▣ Relation



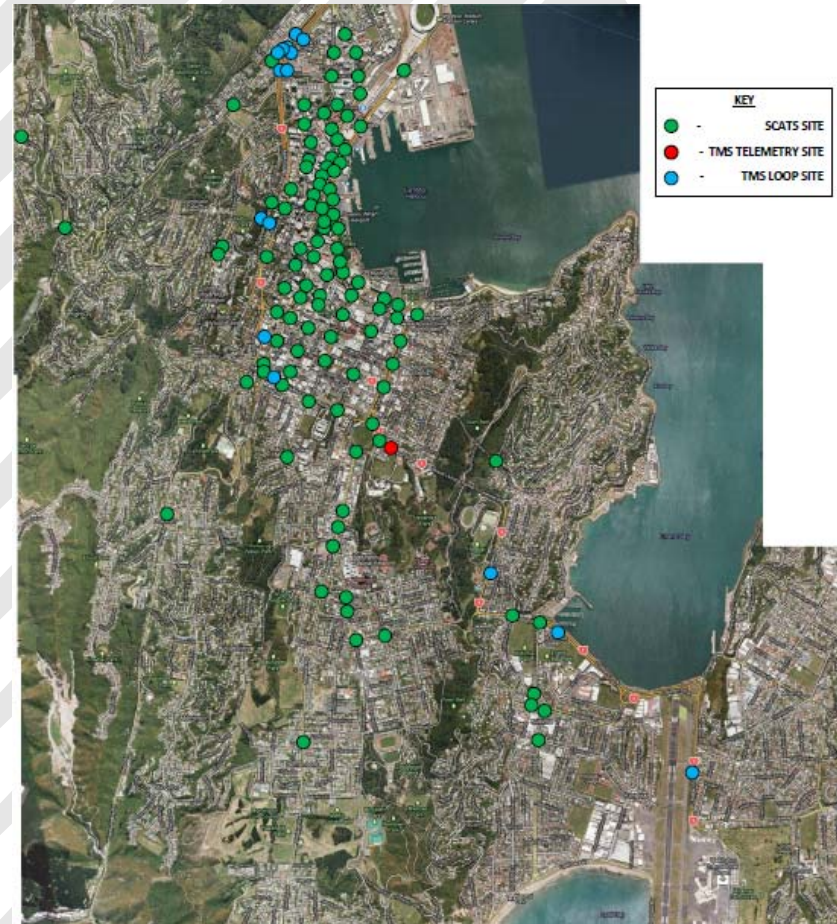
# WWTP – WHERE to start?

## Data! Data! Data!

-  TMS
-  SCATs
-  Tube
-  Turn
-  GPS







**200+ Sites**

**Over 2 years**



# WWTP – HOW to analyse?

## Statistical analysis

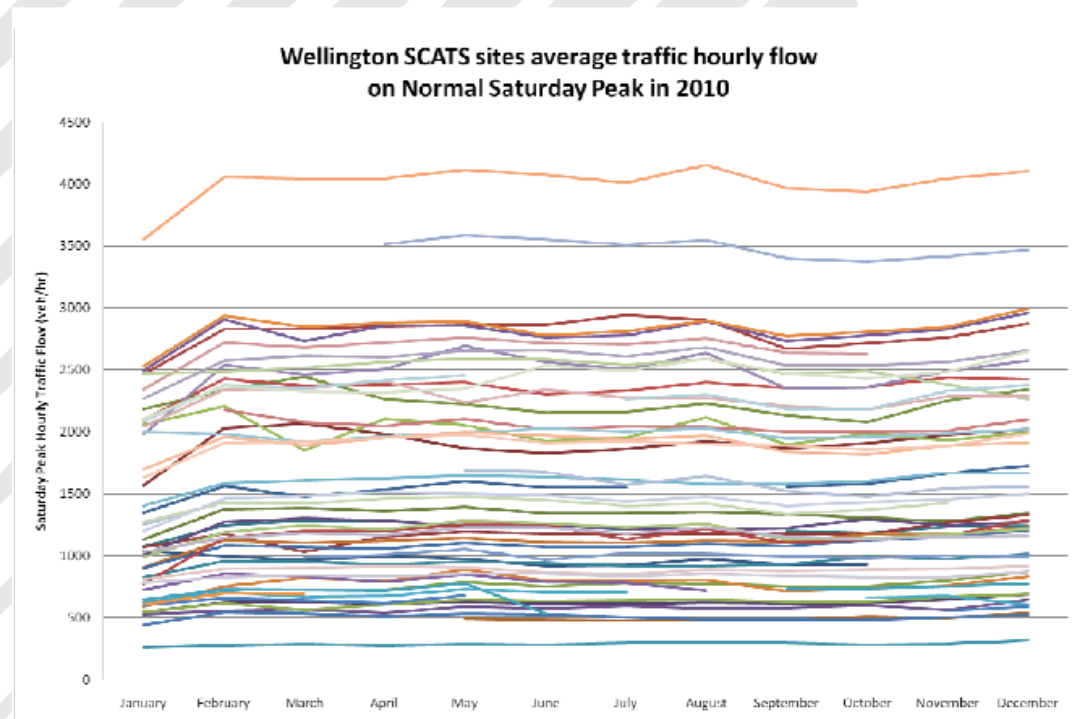
-  Data cleaning
-  Analysis of Variance (ANOVA)
-  Regression
-  Analysis of Factor
-  Cluster analysis
-  Validation analysis



# WWTP – WHAT we found?

## Base model achievable!

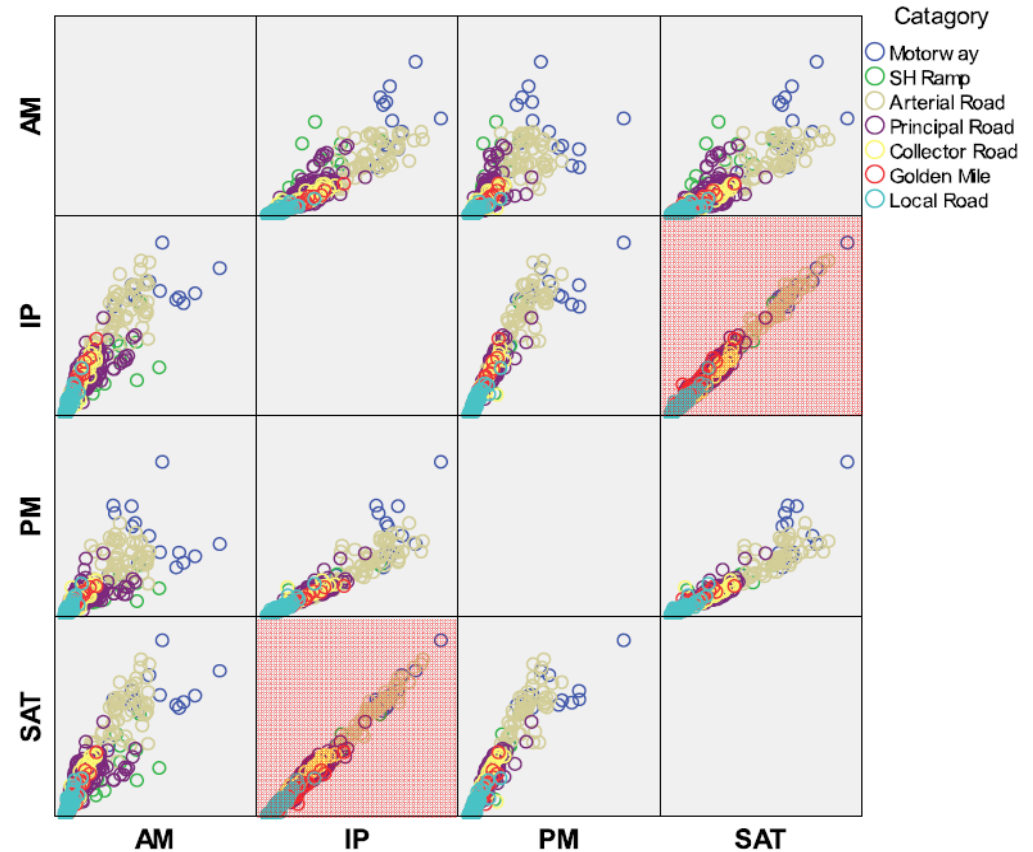
- Low variability
- Sat > Sun
- No Long wknd
- Normal Sat
- 1pm – 2pm



# WWTP – WHAT we found?

## Forecast model achievable!

- Low Growth
- Similar with IP
- Effects No
- $SAT = 1.214 \times IP$
- High  $R^2$
- Good-fit





# WWTP – WHO benefits?

- ↳ Local government
- ↳ Road authority
- ↳ Engineers
- ↳ Economists



# WWTP – QUESTION?

