

# Paramics Microsimulation Modelling RTA NSW Manual for Modellers

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## GTA Consultants

- GTA Consultants are Traffic Engineers and Transport Planners
- Offices currently operating out of Sydney and Melbourne
- Users of Q-Paramics and VISSIM
- Key clients include:
  - Department of Infrastructure
  - Roads and Traffic Authority – NSW
  - VicRoads
  - Various Councils
  - Private Sector

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# Background

*The report is not intended to a rigorous technical appraisal of simulation modelling rather a practical day to day working document for those involved in the industry.*

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## Background

- Many documents have been presented which outlines the procedures of microsimulation.
- This has caused many issues such as :
  - Lack of overarching documents describing practice of microsimulation
  - Existence of inconsistencies and inaccuracies
  - Limitations that existing documents place on the practice of microsimulation modelling

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## Scope

- The manual is intended to cover the following:
  - All microsimulation model types
  - All geographic areas and jurisdictions nationally within Australia
  - All clients across public and private sectors
  - Specifically for users of the Q-Paramics platform

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## Project Classification

In order to assist in the selection of those cases where microsimulation modelling is likely to be both practical and useful, an indicative classification system has been developed. These are:

- **1. Complex Intersection Analysis**
- **2. Small Linear Models**
- **3. Medium Linear Models**
- **4. Large Linear Models**
- **5. Small Town Centre (Grid Network) Models**
- **6. Large Town Centre (Grid Network) Models**

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## When to use...

### When to Use Microsimulation Modelling?

Characteristics that determine when to use include:

- Project Classification
- Level Of Congestion
- Number of Intersections
- Number of Zones
- Model Length
- Public Transport

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## When to use...

And not forgetting:

- Time
- Quality
- Cost

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## Reference Documents

Report Title	Author
Guidelines for Preparing Consultants Briefs for developing Paramics Models for Main Roads WA Projects	Main Roads WA
Calibration and Validation - LCT	NSW RTA
Calibration and Validation	NSW RTA
Direction On Paramics Modelling for Bus Priority	NSW RTA
Manual for Roads and Bridges, Volume 12 - Traffic Appraisal of Road Schemes, Section 2 - Traffic Appraisal Advice, Chapter 4 Traffic Model Development	UK Highways
Q-Paramics Projects Standardised Protocol and Guidelines	GTA Consultants
Road/Transport Network Data Report	NSW RTA
Model Operational Analysis Report	NSW RTA
Model Calibration Report	NSW RTA
Procedure for Technical Audit of Paramics Applications	NSW RTA
Auditing a Micro-Simulation Model	Rod Tudge
Professional Services Agreement - Auditing Paramics Models For As You Like It	NSW RTA

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## Stages

- Four stages have been identified as being typically required in the conduct of a Paramics assignment.

These are:

- **Stage 1- The Model Brief**
- **Stage 2- Modelling procedure**
- **State 3- Output and reporting**
- **Stage 4- Auditing a Paramics Model**

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## Stage 1- The Model Brief

- **Creating a microsimulation model for a specific purpose is not always a simple task.**
- **Defining the Purpose of the model:**
  - **Why build Q-Paramics model?**
  - **Who are the recipients of the results - Who approves the model?**
  - **Required data and information**
  - **Peak period of modelling**

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## Stage 2- Modelling procedure

**After preparing modelling brief and setting the input and output parameters, next process is building the Paramics model.**

**This includes:**

- Base Model Build
- Calibration and Validation
- Determining when the model is “Fit for Purpose”
- Options Testing

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## Stage 3- Output and reporting

**The information extracted from the model needs to be reported in a suitable format.**


**This can include:**

- Establishing what needs to be reported
- Presentation of results and report
- Comparison of options

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## Stage 4- Auditing a Paramics Model

**Model auditing is an important process for a completed model as it requires an independent party to confirm that the model is satisfactory, and provides the auditor with an opportunity to suggest improvements to the model.**

**The audit Procedure should be adapted to the reflect the size of the model and its classification**



## Discussion