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Document Control

<table>
<thead>
<tr>
<th>Owner</th>
<th>Mehdi Langroudi, Manager Network Performance</th>
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</thead>
<tbody>
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<td>Rafael Carvajal, A/Operational Modelling &amp; Visualisation Manager</td>
</tr>
<tr>
<td>Document Number</td>
<td>D18#717157</td>
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<tr>
<td>Issue Date</td>
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Recommendation and Approval

**Document Recommended by:**
- Name: Mehdi Langroudi
- Position: Manager Network Performance
- Document Status: Final
- Date: September 2018

**Document Approved by:**
- Name: Tony Earl
- Position: Executive Director Network Operations
- Date: September 2018
Disclaimer

This document is specific to Western Australia. It is intended to be a guide for traffic modelling practitioners and managers undertaking traffic modelling work seeking approvals from Network Operations Directorate, Main Roads.

The process provided in this document is accurate and relevant at the time of production.

This document only outlines the process for traffic model submission and approval. Receiving approval for traffic modelling does not constitute approval for the project as a whole. The application of the process outlined in this document does not guarantee that the traffic modelling developed will be fit for purpose or be automatically approved or supported by Main Roads.

Subject to any responsibilities implied at law which cannot be excluded, Main Roads is not liable to any party for any losses, expenses, damages, liabilities or claims whatsoever, whether direct, indirect or consequential, arising out of or referable to the use of this document, or its discontinuance, howsoever caused whether in contract, tort, statute or otherwise.
Definitions

Definitions of a number of terms used throughout this document are outlined below:

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Applicant – scheme ownership</td>
</tr>
<tr>
<td>Aimsun</td>
<td>Traffic modelling software developed by Aimsun (formerly TSS).</td>
</tr>
<tr>
<td>AITPM</td>
<td>Australian Institute of Traffic Planning and Management</td>
</tr>
<tr>
<td>AP</td>
<td>Area Performance team, NO, Main Roads</td>
</tr>
<tr>
<td>APC</td>
<td>Auditing Process Coordinator – Coordinates the auditing process.</td>
</tr>
<tr>
<td>DoT</td>
<td>Department of Transport, Western Australia</td>
</tr>
<tr>
<td>ETR</td>
<td>Existing Traffic Flow Reviewer – checks that existing traffic flow data is acceptable</td>
</tr>
<tr>
<td>FTR</td>
<td>Future Traffic Flow Reviewer – checks that future traffic flow estimation methodology is acceptable</td>
</tr>
<tr>
<td>IDD</td>
<td>Infrastructure Delivery directorate, Main Roads</td>
</tr>
<tr>
<td>JCT</td>
<td>JCT Consultancy Ltd, developer of LinSig.</td>
</tr>
<tr>
<td>LGA</td>
<td>Local government authority</td>
</tr>
<tr>
<td>LinSig</td>
<td>Traffic modelling software developed by JCT.</td>
</tr>
<tr>
<td>Main Roads</td>
<td>Main Roads Western Australia</td>
</tr>
<tr>
<td>MA</td>
<td>Model Auditor – Audits the base and proposed traffic models.</td>
</tr>
<tr>
<td>Model audit stages</td>
<td>A six-stage approval process required by Main Roads for traffic modelling submissions.</td>
</tr>
<tr>
<td>M</td>
<td>Modeller – develops the traffic models for Applicant</td>
</tr>
<tr>
<td>MSR</td>
<td>Metropolitan and Southern Regions directorate, Main Roads</td>
</tr>
<tr>
<td>NO</td>
<td>Network Operations directorate, Main Roads</td>
</tr>
<tr>
<td>NPD</td>
<td>Network Planning and Development team, PTS, Main Roads</td>
</tr>
<tr>
<td>OMV</td>
<td>Operational Modelling and Visualisation team, NO, Main Roads</td>
</tr>
<tr>
<td>PTA</td>
<td>Public Transport Authority, Western Australia</td>
</tr>
<tr>
<td>PTS</td>
<td>Planning Technical Services directorate, Main Roads</td>
</tr>
<tr>
<td>RO&amp;DS</td>
<td>Recognising Opportunities &amp; Developing Solutions, Main Roads project process.</td>
</tr>
<tr>
<td>ROM24</td>
<td>24-hr Regional Operations Model is Main Roads’ strategic transport model.</td>
</tr>
<tr>
<td>RTE</td>
<td>Road and Traffic Engineering branch, PTS, Main Roads</td>
</tr>
<tr>
<td>SCATS</td>
<td>Sydney Coordinated Adaptive Traffic System</td>
</tr>
<tr>
<td>SIDRA</td>
<td>Traffic modelling software developed by Sidra Solutions.</td>
</tr>
<tr>
<td>SLR</td>
<td>Signs and Lines Reviewer – checks signs and lines drawings and recommends for approval.</td>
</tr>
<tr>
<td>SRP</td>
<td>Statutory Road Planning team, PTS, Main Roads</td>
</tr>
<tr>
<td>TMS</td>
<td>Traffic Management Services branch, NO, Main Roads</td>
</tr>
<tr>
<td>TSAP</td>
<td>Traffic Signals Approval Policy, Main Roads</td>
</tr>
<tr>
<td>TSR</td>
<td>Traffic Signals Reviewer – checks signal changes and recommends for approval.</td>
</tr>
<tr>
<td>Vissim</td>
<td>Traffic modelling software developed by PTV.</td>
</tr>
<tr>
<td>WA</td>
<td>Western Australia</td>
</tr>
</tbody>
</table>
1 Introduction

The Auditing Process for Operational Modelling has been developed by Network Operations (NO) directorate, Main Roads, to outline the traffic modelling audit process for projects requiring approvals for regulatory devices.

This process is for traffic modelling submission and approval only. Project approval requirements are set out in Main Roads’ Traffic Signal Approval Policy (TSAP).

This document should be read in conjunction with Main Roads’ Operational Modelling Guidelines, which details modelling best practice, to ensure consistency in the quality of all models received and assessed by Main Roads.

1.1 Document Structure

This document is designed to give a common structure for modelling submissions using Main Roads’ supported traffic model software. The structure of this document is detailed below:

- Section 1: Background and Purpose
- Section 2: Process Overview
- Section 3: Stages
- Section 4: Online Forms and Templates.

It is intended that this document will be reviewed and updated as required to ensure its currency, usefulness and relevance for practitioners, and to incorporate innovative thinking and advancements in traffic and transport modelling.

1.2 Modelling Requirements

The requirement for traffic modelling is outlined by The Western Australian Planning Commission’s Transport Impact Assessment Guidelines (August 2016) and in the Transport Modelling Guidelines for Development in Activity Centres produced by Department of Transport’s (DoT).

A number of Main Roads’ policies and guidelines detail the need for traffic modelling assessment or define traffic modelling requirements, such as Vehicular Signals Policy and Traffic Signals Approval Policy (please refer to Main Roads website for copies of these policies).

The purpose of the Operational Modelling Guidelines is to ensure consistency in traffic modelling practice and to promote the production of accurate modelling outputs that will result in high-quality project design and assessment that easily transitions into operations.

The Transport Modelling Code of Conduct, developed by the Australian Institute of Traffic Planning and Management (AITPM), aims to promote consistency in transport modelling practices in the transport planning industry and encourage ethical behaviour. The code is intended for modelling practitioners and the consumers of their services.
Any parties undertaking traffic modelling for Main Roads approval must do so in accordance with industry standards as set out in Main Roads’ Operational Modelling Guidelines and AITPM’s Transport Modelling Code of Conduct.

1.3 Purpose

The purpose of this document is to detail the auditing process for operational modelling. This includes the various stages of model development and also when and how model audits will be carried out by Main Roads. This provides transparency for all parties as it explains their roles and responsibilities in the model audit stages.
2 Auditing Process Overview

This section provides an overview of the Main Roads’ auditing process for operational modelling and the roles involved in the process.

The auditing process includes six stages:

- **Stage 1** – scope meeting
- **Stage 2** – base model development
- **Stage 3** – Main Roads base model audit (checkpoint)
- **Stage 4** – option model(s) development
- **Stage 5** – proposed model development
- **Stage 6** – Main Roads proposed model audit (checkpoint).

For any project that could have an impact on traffic, early engagement with Main Roads is essential in order to ensure that modelling activities are supported by Main Roads. This will also reduce the potential for delays during the model audit stages.

Figure 2-1 details the stages of the auditing process for operational modelling.
As detailed in the flow chart, there are two audits carried out by Main Roads:

- **Stage 3** – base model audit will confirm whether the model can be used for option models development.
- **Stage 6** – proposed model audit will confirm if the proposed model is suitable for submission to Main Roads for project approval.
2.1 Model Audit Roles and Responsibilities

Generally, an interested party, hereby referred to as Applicant, engages Modeller to develop traffic modelling to either confirm the viability of a proposal or to test a range of options.

As there are numerous roles involved in the model auditing process, it is important to identify who is assigned to each role and to understand their responsibilities throughout the process.

Table 2-1 identifies the roles involved in the model audit and provides a description of each role and the responsible party. Model audit roles must be discussed at the scope meeting.

**Table 2-1: Model audit roles and responsibilities**

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsible party</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicant (A)</td>
<td>Developer / Department of Transport / Local Government Agency / Main Roads / Public Transport Authority</td>
</tr>
<tr>
<td>Modeller (M)</td>
<td>As assigned by Applicant</td>
</tr>
<tr>
<td>Auditing Process Coordinator (APC)</td>
<td>Traffic Management Services branch for local roads in metropolitan area</td>
</tr>
<tr>
<td></td>
<td>Area Performance team for state roads in metropolitan area</td>
</tr>
<tr>
<td></td>
<td>Regional branches for roads in regional areas</td>
</tr>
<tr>
<td>Model Auditor (MA)</td>
<td>Traffic Management Services branch for local roads in metropolitan and regional areas</td>
</tr>
<tr>
<td></td>
<td>Area Performance team or Operational Modelling and Visualisation team for state roads</td>
</tr>
<tr>
<td>Traffic Signals Reviewer (TSR)</td>
<td>SCATS and SVD team</td>
</tr>
<tr>
<td></td>
<td>Electrical Services team</td>
</tr>
<tr>
<td></td>
<td>Electrical Asset Management team</td>
</tr>
<tr>
<td>Signs and Lines Reviewer (SLR)</td>
<td>Traffic Management Services branch for metropolitan area</td>
</tr>
<tr>
<td></td>
<td>Regional branches for regional areas</td>
</tr>
<tr>
<td>Existing Traffic Flow Reviewer (ETR)</td>
<td>Traffic Management Services branch for local roads in metropolitan area</td>
</tr>
<tr>
<td></td>
<td>Area Performance team for state roads in metropolitan area</td>
</tr>
<tr>
<td></td>
<td>Regional branches for roads in regional areas</td>
</tr>
<tr>
<td>Future Traffic Flow Reviewer (FTR)</td>
<td>Statutory Road Planning team for developments</td>
</tr>
<tr>
<td></td>
<td>Network Planning and Development team for structure plans</td>
</tr>
<tr>
<td></td>
<td>Traffic Management Services branch for intersections on local roads</td>
</tr>
<tr>
<td></td>
<td>Area Performance team for intersections on state roads</td>
</tr>
<tr>
<td></td>
<td>Regional branches for regional areas</td>
</tr>
</tbody>
</table>
Table 2-2 summarises which roles are involved in each stage of the model auditing process.

Table 2-2: Required involvement during the model audit stages

<table>
<thead>
<tr>
<th>Role</th>
<th>Model audit stages</th>
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</thead>
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<tr>
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<td>1</td>
</tr>
<tr>
<td>Applicant (A)</td>
<td>✓</td>
</tr>
<tr>
<td>Modeller (M)</td>
<td>✓</td>
</tr>
<tr>
<td>Auditing Process Coordinator (APC)</td>
<td>✓</td>
</tr>
<tr>
<td>Model Auditor (MA)</td>
<td>✓</td>
</tr>
<tr>
<td>Traffic Signals Reviewer (TSR)</td>
<td>✓</td>
</tr>
<tr>
<td>Signs and Lines Reviewer (SLR)</td>
<td>✓</td>
</tr>
<tr>
<td>Existing Traffic Flow Reviewer (ETR)</td>
<td>✓</td>
</tr>
<tr>
<td>Future Traffic Flow Reviewer (FTR)</td>
<td>✓</td>
</tr>
</tbody>
</table>
3  Stages

This section provides details on the six stages of the Main Roads’ auditing process for operational modelling.

3.1  Stage 1 – Scope Meeting

A meeting\(^1\) is required to define the modelling scope. This will include the following:

- Purpose of the project.
- Extent of the model.
- Roles and responsibilities.
- Data inputs and model outputs for calibration and validation of the base model in accordance with Main Roads’ Operational Modelling Guidelines.
- Availability of existing traffic models.
- Availability of current traffic flow data.
- Feasible options to be considered. Please refer to TSAP.
- Future traffic estimation methodology.
- Any other factors that may impact on the project.

Agreed modelling scope should be recorded in the Modelling Instruction Form (Refer to Section 4.1).

3.1.1  Stage 1 Roles and Responsibilities

Stage 1 includes the following actions:

1. **A** provides project information and a draft *Modelling Instruction Form* to **APC**.
2. **APC** arranges a scope meeting to define modelling requirements.
3. **A**, **M**, **APC**, **MA**, **TSR**, **SLR**, **ETR**, and **FTR** attend the scope meeting to agree on the modelling requirements.
4. **A** submits the final *Modelling Instruction Form* to **APC**. **M** can assist with this.
5. **ETR** confirms the modelling period(s) to be modelled and the day for traffic surveys.
6. **APC** agrees the modelling inputs and desired outputs.
7. **MA** reviews and signs the *Modelling Instruction Form*.

3.1.2  Stage 1 Outcome(s)

The outcomes of Stage 1 are:

- agreement of modelling scope
- approved *Modelling Instruction Form*.

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\(^1\) “Meeting” in this document refers to any type of meeting such as in person, web conference or email communications.
3.2 **Stage 2 – Base Model Development**

At this stage the base model is developed by M. It is recommended that M refers to Main Roads’ *Operational Modelling Guidelines* and *TSAP* prior to developing the base model. M must meet the modelling requirements as agreed in the *Modelling Instruction Form*.

A submission package should be prepared as part of the base model development. It must include:

- An electronic version of the base model(s).
- Approved *Modelling Instruction Form* (Refer to Section 4.1).
- All raw input data used in the traffic model, for example:
  - traffic survey(s)
  - site observation notes (e.g. observed queue length, measured saturation flows, demand dependent and alternative signal phases and driver behaviour)
  - IDM or SCATS History File(s)
  - SCATS traffic flows
  - drawings, e.g. LM drawings and SCATS graphics.
- Any calculations, preferably in a spreadsheet format, for example:
  - peak hour estimation
  - PCU calculations
  - saturation flow factor(s)
  - average signal timings
- Drawings or pictures with measured parameters used for calculations, for example, turning radius, lane width and length.
- Base *Model Audit Checklist* (Refer to Section 4.2).
- Draft base modelling report to confirm data inputs (including calibration and validation details) and assumptions in the development of the base model (Refer to Section 4.3).

The base model must be reviewed by an experienced senior modeller prior to submission to Main Roads.

3.2.1 **Stage 2 Roles and Responsibilities**

Stage 2 includes the following actions:

1. M develops the base model and populates the base *Model Audit Checklist* (Refer to Section 4.2).
2. M sends the base model submission package to A.
3. A endorses and then forwards the base model submission package to APC.
4. APC acknowledges the receipt of the model submission package.

3.2.2 **Stage 2 Outcome(s)**

The outcome of Stage 2 is the base model submission package.
3.3 **Stage 3 – Checkpoint – Main Roads Base Model Audit**

Stage 3 is the audit of the base model by Model Auditor. This is the first Main Roads checkpoint of the auditing process.

The audit will only commence when all of the required information has been submitted to the Auditing Process Coordinator. The Applicant should allow ten business days for a model audit to be undertaken by the Model Auditor. However, the Applicant will be notified if there is any delay expected due to other commitments.

3.3.1 **Stage 3 Roles and Responsibilities**

Stage 3 includes the following actions:

1. **APC** arranges with **MA** for the base model to be audited.
2. **MA** audits the base model and provides feedback to **A**, **M** and **APC** using the base Model Audit Checklist (Refer to Section 4.2).
3. **M** amends the base model and provides additional information to **APC** and **MA** if required.
4. **M** must finalise the base modelling report once all comments have been addressed.
5. **MA** approves the base model, signs *Base Modelling Approval Memo* and advises **APC**.
6. **APC** advises **A** to proceed to Stage 4.

Actions 2 and 3 could be an iterative process between the **MA** and **M** until the model meets model validation requirements.

3.3.2 **Stage 3 Outcome(s)**

The outcomes of Stage 3 are:

- approved base model
- signed *Base Modelling Approval Memo* (only valid for 12 months)
- final base modelling report.
3.4 Stage 4 – Option Model(s) Development

Stage 4 is the development of option models. Firstly, a meeting should be arranged by APC to confirm:

- Validity of the approved base model.
- Options to be tested.
- Assessment criteria. (Refer to Traffic Signal Approval Policy)
- Scenario years to be modelled.
- Future traffic flow estimation methodology (drafted by M prior to the meeting).

Additionally, A must ensure that the agreed actions at the initial scope meeting are still valid. At this meeting the Modelling Instruction Form may be extended to include additional options to be tested.

It is important to ensure that the Stage 3 base model is still valid, that is, the input data is no greater than 12 months old with no significant local network changes, unless agreed otherwise during scope meeting. If the base model is no longer valid, the model and model checklist must be updated and audited again before option testing can commence.

Following testing of the options, the option models outputs must be compared to identify the preferred option to progress to detailed design. A meeting must be arranged with Main Roads to discuss the option model outputs and agree on the preferred option, justifying why the option was chosen taking into consideration of aspects such as safety, network performance, cost and experience of all road users.

3.4.1 Stage 4 Roles and Responsibilities

Stage 4 includes the following actions:

1. When options modelling is ready to proceed, A contacts APC to request a meeting to define modelling requirements.
2. APC arranges this meeting to agree option model scenarios with A, M, MA, TSR and SLR.
3. A, M, APC, MA, TSR, SLR, ETR and FTR attend this meeting to review the Modelling Instruction Form to ensure that the original scope is still valid and that any additional requirements are understood and agreed.

Actions 4, 5 and 6 occur if traffic flows used in the approved base model are more than 12 months old or network conditions have changed.

4. ETR advises the date to be used for traffic surveys if the base model needs to be updated.
5. M amends the base model and updates the Model Audit Checklist if required.
6. MA audits/approves the amended base model and advises APC.
7. M prepares the future traffic estimation methodology and calculations, fills the Future Traffic Flow Sense Check Form (Refer to Section 4.4), and submits them to APC and FTR.
8. **FTR** audits the future traffic estimation methodology and calculations and sign the final approved *Future Traffic Flow Sense Check Form* prior to the option testing.

9. **M** uses the approved base model to develop the options model(s).

10. **M** prepares an analysis comparing options then submits to **A**.

11. **A** contacts **APC** to arrange a meeting to discuss the modelling results.

12. **APC** arranges this meeting.

13. **A, M, APC, MA, TSR, SLR** attend the meeting to agree on which option to progress as the proposed model and provide comments to design.

### 3.4.2 Stage 4 Outcome(s)

The outcomes of Stage 4 are:

- agreed future traffic calculations
- agreement of preferred option(s) to be modelled.
3.5 **Stage 5 – Proposed Model Development**

Stage 5 is the development of the proposed model based on the preferred option identified in Stage 4 after the proposed drawings have been finalised. It should be noted that the proposed model requires adjustments to take into account factors including:

- Road geometry modifications.
- Changes to lane use.
- Updated signal timings.
- Proposed changes to signal phasing.

A submission package should be prepared as part of the proposed model development. It must include:

- An electronic version of the approved base model.
- An electronic version of the proposed model.
- Approved *Modelling Instruction Form* (Refer to Section 4.1).
- All input data used in the traffic model, for example:
  - calculation of future traffic flows
  - approved *Future Traffic Flow Sense Check Form*
  - proposed signal timings
- Proposed design drawings
- Proposed *Model Audit Checklist* (Refer to Section 4.2).
- Draft proposed modelling report to document the development of the proposed traffic model, including input data and modelling assumptions (Refer to Section 4.3).

The proposed model must be reviewed by an experienced senior modeller prior to submission to Main Roads.

### 3.5.1 Stage 5 Roles and Responsibilities

Stage 5 includes the following actions:

1. **M** develops the proposed model and populates the proposed model audit checklist.
2. **M** sends the proposed model submission package to **A**.
3. **A** forwards the proposed model submission package to **APC** for audit.
4. **APC** acknowledges the receipt of the model submission package.

### 3.5.2 Stage 5 Outcome(s)

The outcome of Stage 5 is the proposed model submission package.
3.6 **Stage 6 – Checkpoint – Main Roads Proposed Model Audit**

Stage 6 is the audit of the proposed model by Model Auditor. This is the second checkpoint and final stage of the auditing process.

The audit will only commence when all of the required information has been submitted to the Auditing Process Coordinator. The Applicant should allow ten business days for a model audit to be undertaken by the Model Auditor. However, the Applicant will be notified if there is any delay expected due to other commitments.

3.6.1 **Stage 6 Roles and Responsibilities**

Stage 6 includes the following actions:

1. **APC** arranges for the proposed design to be reviewed by **TSR** and **SLR**.
2. **TSR**, **SLR** provide comments on the proposed design to **APC**.
3. **APC** arranges for the proposed model to be audited by **MA**.
4. **MA** audits the proposed model and provides feedback to **A**, **M** and **APC** using the proposed Model Audit Checklist.
5. **M** amends the proposed model and provides additional information to **APC** and **MA** if required.
6. **M** must finalise the proposed modelling report once all comments have been addressed.
7. **MA** approves the amended proposed model, signs *Proposed Modelling Approval Memo* and advises **APC**.
8. **APC** advises **A** of the final outcome.

The proposed model audit could be an iterative process. Communication between all responsible parties may be needed until the proposed model meets the requirements set out in Main Road’s Operational Modelling Guidelines.

3.6.2 **Stage 6 Outcome(s)**

The outcomes of Stage 6 are:

- approved proposed model
- approved proposed modelling report
- signed *Proposed Modelling Approval Memo*.

3.7 **Model Audit Stages Matrix**

Table 3-1 identifies each of the model audit roles and the responsible party. This table summarises the required tasks for each role and the order, defined by the step number, in which they are to be carried out during each stage. As there are numerous roles involved in the model auditing process it is important to identify who is assigned to each role and to understand their responsibilities at each stage of the model audit stages.
### Table 3-1: Model audit roles and responsibilities matrix

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibility</th>
<th>Stage 1 Scope meeting</th>
<th>Stage 2 Base model development</th>
<th>Stage 3 – Main Roads base model audit</th>
<th>Stage 4 Option model(s) development</th>
<th>Stage 5 Proposed model development</th>
<th>Stage 6 – Main Roads proposed model audit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicant (A)</strong></td>
<td>Developer / DoT / LGA / MRWA / PTA</td>
<td>1</td>
<td>Provide project information and a draft Modelling Instruction Form to the APC</td>
<td>3</td>
<td>Forward base model submission package to APC</td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Attend scope meeting</td>
<td>3</td>
<td>Receive status updates from APC</td>
<td>3</td>
<td>Contact APC to arrange meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Fill in Modelling Instruction Form and submit to APC</td>
<td>3</td>
<td>Update model and provide additional information to MA if required</td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>Attend scope meeting</td>
<td>3</td>
<td>Update base model and checklist if required</td>
<td>5</td>
<td>Update base model and checklist if required</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>Assist A with Modelling Instruction Form</td>
<td>2</td>
<td>Send base model submission package to A</td>
<td>9</td>
<td>Build option models using approved base model</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>4</td>
<td>Finalise the base model report</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>10</td>
<td>Prepare analysis comparing options and submit to A</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>13</td>
<td>Attend meeting and agree preferred option to progress to Stage 5.</td>
</tr>
<tr>
<td><strong>Modeller (M)</strong></td>
<td>As Assigned by the A</td>
<td>3</td>
<td>Attend scope meeting</td>
<td>1</td>
<td>Arranges meeting with A / M / MA / ETR / FTR / TSR / SLR and relevant stakeholders.</td>
<td>2</td>
<td>Arranges meeting to agree option model scenarios with A / M / MA / TSR / SLR</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
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<tr>
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<td></td>
<td></td>
<td>6</td>
<td>Advise A to proceed to Stage 4</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>13</td>
<td>Attend meeting and agree preferred option to progress to Stage 5.</td>
</tr>
<tr>
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<td></td>
<td>13</td>
<td>Attend meeting and agree preferred option to progress to Stage 5.</td>
</tr>
<tr>
<td><strong>Auditing Process Coordinator (APC)</strong></td>
<td>TMS for local roads AP for state roads</td>
<td>2</td>
<td>Arranges meeting with A / M / MA / ETR / FTR / TSR / SLR and relevant stakeholders.</td>
<td>1</td>
<td>Arranges meeting to agree option model scenarios with A / M / MA / TSR / SLR</td>
<td>3</td>
<td>Arranges proposed design review with TSR / SLR</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>4</td>
<td>Acknowledges the receipt of the model submission package</td>
</tr>
<tr>
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<td></td>
<td>8</td>
<td>Advise A of final outcome</td>
</tr>
<tr>
<td><strong>Model Auditor (MA)</strong></td>
<td>TMS for local roads AP or OMV for state roads</td>
<td>3</td>
<td>Attend scope meeting</td>
<td>2</td>
<td>Audit base model*</td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>5</td>
<td>Approve base model and advise APC</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>6</td>
<td>Audit and approve updated base model if required **</td>
</tr>
<tr>
<td></td>
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<td>7</td>
<td>Review and Signs Modelling Instruction Form</td>
<td>11</td>
<td>Sign Base Modelling Approval Memo</td>
<td>13</td>
<td>Attend meeting and agree preferred option to progress to Stage 5.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>2</td>
<td>Approve proposed model *</td>
</tr>
<tr>
<td><strong>Traffic Signals Reviewer (TSR)</strong></td>
<td>SCATS and SVD Team</td>
<td>3</td>
<td>Attend scope meeting for awareness</td>
<td>No action</td>
<td>No action</td>
<td>No action</td>
<td>Review proposed design and provide comments to APC</td>
</tr>
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<td></td>
<td></td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
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<td></td>
<td>13</td>
<td>Attend meeting and agree preferred option to progress to Stage 5 and provide comments to design.</td>
</tr>
<tr>
<td><strong>Signs and Lines Reviewer (SLR)</strong></td>
<td>TMS</td>
<td>3</td>
<td>Attend scope meeting for awareness</td>
<td>No action</td>
<td>No action</td>
<td>No action</td>
<td>Review proposed design and provide comments to APC</td>
</tr>
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<td></td>
<td></td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
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<td></td>
<td>13</td>
<td>Attend meeting and agree preferred option to progress to Stage 5 and provide comments to design.</td>
</tr>
<tr>
<td><strong>Existing Traffic Flow Reviewer (ETR)</strong></td>
<td>TMS for local roads AP for state roads</td>
<td>3</td>
<td>Attend scope meeting</td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
<td>No action</td>
<td>No action</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5</td>
<td>Agree date of traffic flows and check peak hour</td>
<td>3</td>
<td>Attend meeting to agree option model scenarios</td>
<td>No action</td>
<td>No action</td>
</tr>
<tr>
<td><strong>Future Traffic Flow Reviewer (FTF)</strong></td>
<td>SRP for developments NPD for structure plans TMS for local intersections AP for state intersections</td>
<td>3</td>
<td>Attend scope meeting to agree future traffic methodology</td>
<td>No action</td>
<td>No action</td>
<td>No action</td>
<td>No action</td>
</tr>
</tbody>
</table>

* = Estimated turnaround for audit is 10 working days, this will only commence once all data has been provided
** = Approved base model may need to be updated and audited, if input data is older than 12 months or significant network changes

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Network Operations Directorate:
- TMS = Traffic Management Services
- APC = Area Performance
- NP = Network Performance

Planning and Technical Services Directorate:
- NPD = Network Planning and Development
- SRP = Statutory Road Planning
4 Online Forms and Templates

This section outlines the various forms and templates associated with traffic model development and the model auditing process.

4.1 Modelling Instruction Form

The *Modelling Instruction Form* details traffic modelling requirements in terms of scenarios, data input and model outputs. It provides transparency for all parties from the start of the process.

The form contains guidance as well as examples on how to fill the form for various project types. The *Modelling Instruction Form* is available from the Main Roads website.

4.2 Model Audit Checklist

The purpose of the *Model Audit Checklist* is to ensure that the modeller has considered all of the key parameters in the development of the traffic model. There is an individual checklist for each of the Main Roads’ supported operational modelling software packages including LinSig, SIDRA, Vissim and Aimsun. The checklist provides an audit trail of the auditing process.

Using the checklist in the development of the model also assists in the auditing process, as it will easily identify where there are variations from the parameters recommended in the *Operational Modelling Guidelines*. Any variations must be justified and documented in the modelling report.

The *Model Audit Checklist* is available for download from the Main Roads website.

4.3 Modelling Report Templates

The Modelling Report Template contains the recommended modelling report structure to document all of the important information used in the development of a base or proposed traffic model.

The base and proposed modelling report templates are available to download from the Main Roads website.

4.4 Future Traffic Flow Sense Check Form

The *Future Traffic Flow Sense Check Form* is used to confirm that Main Roads agrees with the methodology applied to derive the future traffic flow data in the traffic models.

The *Future Traffic Flow Sense Check Form* is available to download from the Main Roads website.