Sub Regional Transport Model (SRTM) **26/03/2025**

Reference number TfSH242

SRTM USER GUIDE FOR APPLICANTS

SUB REGIONAL TRANSPORT MODEL (SRTM)

MODEL USER GUIDE FOR APPLICANTS

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Appendix D – Frequently Asked Questions
Appendix E– Example SRTM Modelling and Appraisal Outputs

1. INTRODUCTION

1.1.1 The Solent Sub-Regional Transport Model (SRTM) is an evidence based Land-Use and Transport Interaction model. It contains a suite of transport models and an associated Local Economic Impact Model (LEIM).

1.1.2 The SRTM provides a robust tool that provides a consistent and evidenced approach to the identification of transport needs and an objective analysis of the impact of both transport and land-use interventions across the sub-region.

1.1.3 The model suite can assist in the investigation and assessment of different policies and strategies on land-use and transport provision, use, management and investment. It provides Solent Transport with the ability to respond to transport funding opportunities as they arise.

1.1.4 The potential uses of the model could be development-driven, policy-driven or infrastructure-driven. For each of the potential model drivers a consistent set of model outputs can be produced for the user.

1.1.5 This guide contains details on what applications can be undertaken with the SRTM, along with details of the process for applying to use the model output. These processes are designed to standardise the request procedure, and help ensure widespread, cost-effective and consistent use of the model, to assist effective decision making relating to a wide range of policies and measures.

1.1.6 This document does not seek to replicate large sections of other publicly available SRTM data or Reports. The Solent Transport website (Solent Sub-Regional Transport Model – Solent Transport (solent-transport.com)) holds the relevant SRTM data/ reports including:

- Survey Report (2010 Base Year)
- Road Traffic Model Development and Validation (2015 Base Year)
- Public Transport Model Calibration and Validation (2015 Base Year)
- Main Demand Model (MDM) Development and Validation
- Road Traffic Model Development and Validation (2019 Base Year)
- Model Highway Network 2041 Reference Case (GiS File)
- Model Zone Structure (GiS File)

1.1.7 The remainder of this User Guide is structured as follows:

- Chapter 2 - Definition of Parties and Contact Details;
- Chapter 3 - SRTM Modelling Suite;
- Chapter 4 - Use of SRTM and Application Process
- Chapter 5 - Model Outputs;
- Chapter 6 - Model Run and Associated Fees;
- Chapter 7 - Model Outputs;
- Chapter 8 – Development Planning Uses; and
- Chapter 9 - Terms of Use.

1.1.8 The appendices to this guide provide the following forms and information for use in applying for model runs and output:

- Appendix A – Request to Use Form
- Appendix B – Reference Case Transport Infrastructure
- Appendix C – Reference Case Residential Dwellings by District
- Appendix D – Frequently Asked Questions
- Appendix E– Example SRTM Modelling and Appraisal Outputs

2. DEFINITION OF PARTIES AND CONTACT DETAILS

2.1 Solent Transport

2.1.1 Solent Transport (formerly Transport for South Hampshire & Isle of Wight) is an enabling and delivery body formed in 2007 for the South Hampshire sub-region, bringing together local transport authorities, transport operators, business interests and government agencies to deliver change. The organisation is a partnership made up of the highway authorities of Hampshire, Southampton, Portsmouth, and Isle of Wight.

2.1.2 The Solent Transport Vision seeks to develop improved transport for the sub-region to address current shortcomings and to support long term economic growth objectives.

2.2 Solent Transport Evidence Base Steering Group

2.2.1 The SRTM is administered by Solent Transport, in order to meet the requirement to develop and maintain an Evidence Base, consisting of TAG-compliant analysis and forecasting tools providing a shared resource for partners to define current and future challenges and develop practical solutions and transport interventions to solve them, in order to achieve local, regional and national objectives.

2.2.2 Updates on the application and improvement to the SRTM are reported to Solent Transport's Senior Management Board (SMB) which comprises the lead transport officers from Hampshire County Council, Southampton City Council, Portsmouth City Council, Isle of Wight Council. SMB is the decision making group for any matters relating to SRTM which fall outside normal operation or administration.

2.3 Solent Transport Modelling Consultants

2.3.1 SYSTRA led the development of the SRTM and now maintain and operate the model on a bureau basis on behalf of Solent Transport.

2.4 Contact Details

SRTM CONSULTANT (SYSTRA) MANAGEMENT TEAM:

Ian Burden
Sam Carr
Emma Douglas
Chris Whitehead

SolentSRTM@systra.com

3. SRTM MODEL OVERVIEW

3.1 Introduction

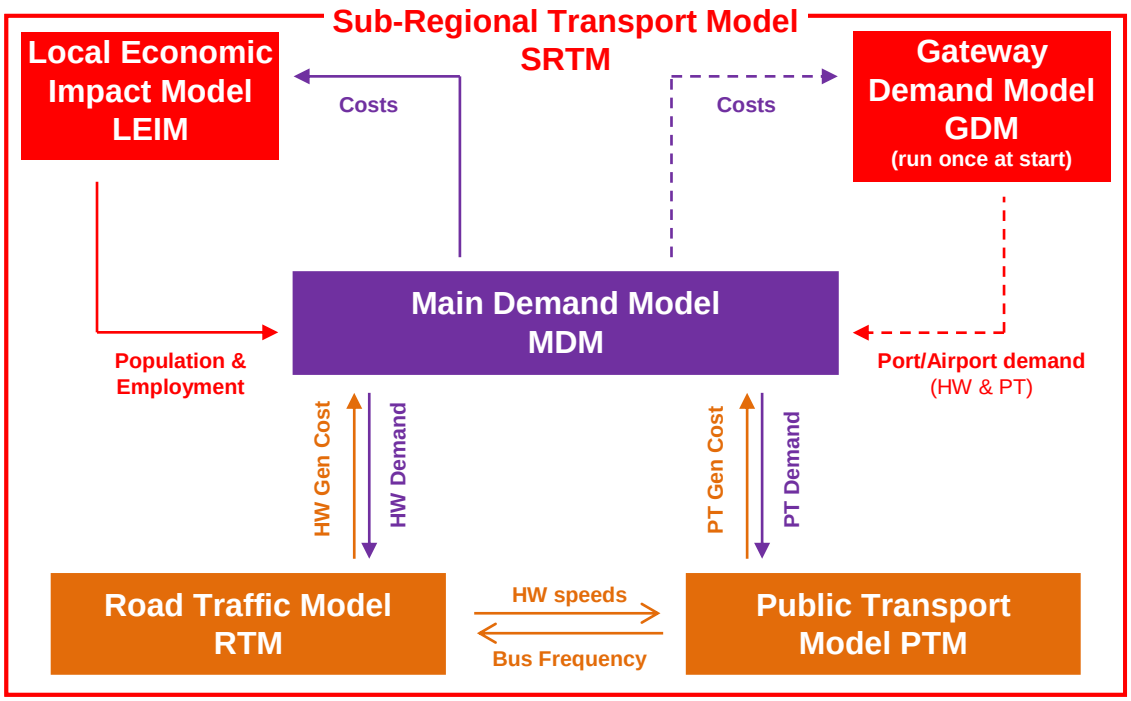
3.1.1 The chapter provides an overview of the SRTM in terms of model structure, geographic area represented, time periods and the Base and Forecast years available. More detailed information is provided within the documents identified in Section 1.1.6.

3.2 Model Structure

3.2.1 The Solent Transport Sub-Regional Transport Model (SRTM) is an evidence based Land-Use and Transport Interaction model. It contains a suite of transport models and an associated Local Economic Impact Model (LEIM). The suite of transport models comprises the Main Demand Model (MDM), the Gateway Demand Model (GDM), Road Traffic Model (RTM) and Public Transport Model (PTM).

3.2.2 Figure 1 shows the interaction of the various models within the SRTM. The LEIM takes transport costs from a converged run of the MDM and feeds back population and employment data, which is converted into demand matrices. The public transport and road traffic demand are assigned to the public transport and road traffic networks to estimate travel costs, which are then passed back to the MDM to re-estimate demand. The demand and cost calculations are run iteratively, until convergence.

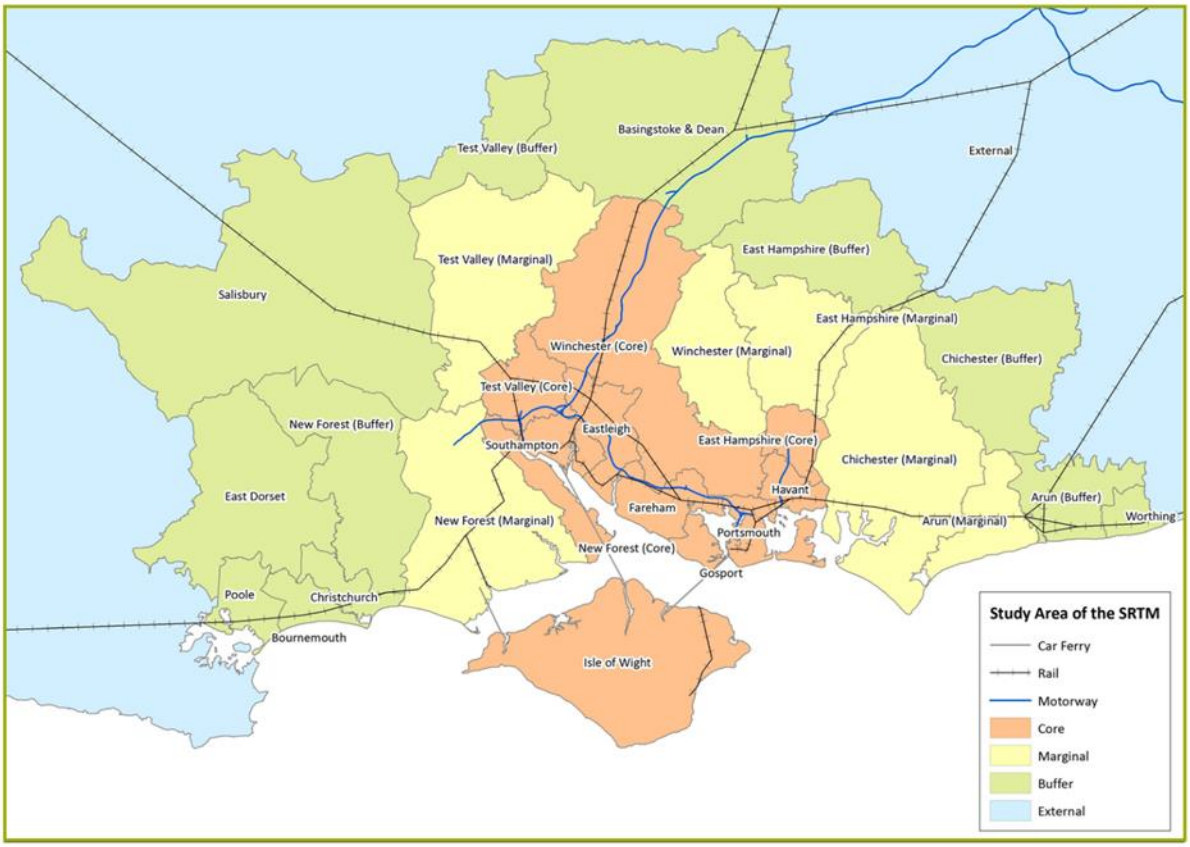
Figure 1. Solent Transport Sub-Regional Transport Model Structure



3.3 Model Regions

3.3.1 The model has the four model regions shown Figure 2. In the Core and Marginal Fully Modelled Areas (FMA), the zones are defined as groups of Census Output Areas and include a full set of information on the population, employment and land use associated with these zones. Outside the FMA, the buffer area and beyond external area zones are based on Districts and, farther away, on Counties. These areas do not use full data about, nor forecast, population, employment and land use information.

Figure 2. Study Area and Regions



3.4 Model Dimensions and Segmentation

3.4.1 The SRTM considers all weekday (Monday to Friday) travel over a 24 hour period. Four distinct travel time periods are modelled:

- morning peak (07:00-10:00);
- inter peak (10:00-1600);
- evening peak (1600-1900); and
- off-peak (1900-0700).

3.4.2 For personal trips, six trip purposes are modelled. These are home-based work, home-based employer's business, home-based education, home-based other, non home-based employer's business, and non home-based other.

3.4.3 Three car availability classes and 4 person-types are also defined. The three car availability classes are defined for households: households with no car, households with car competition (fewer cars than adults) and households with no car competition (number of cars is greater or equal to the number of cars). The four person types are: child, working adult, non-working adult, retired.

3.5 SRTM Base and Forecast Year

3.5.1 The Base year for the current version of SRTM is 2019. Previous base years were 2010 and 2015.

3.5.2 In forecasting mode, the SRTM produces demand and cost estimates for 2026, 2031, 2036, 2041 and 2046. LEIM produces population and employment forecasts for the next forecast year. Along with the adjusted trip rates, these forecasts are used to calculate growth factors for the productions and attractions. The trip rates vary by period and mode of transport, for the 12 person-type/household categories.

3.6 Reference Case Scenario

3.6.1 The starting point for all forecast year model runs are the standard SRTM reference case scenarios. Development sites with planning permission and/or allocated in an adopted Local Plan and committed highway schemes are included within the models' reference case scenarios (2026, 2031, 2036, 2041 and 2046) to provide the most accurate representation of future year conditions.

3.6.2 The Reference Case inputs are updated periodically to account for recent infrastructure and landuse changes and can also be varied as part of a commission as required by the Applicant and as discussed with Solent Transport/ SRTM Consultant.

Transport Infrastructure

3.6.3 A list of the committed (planning approval and funded) highway schemes included in the Reference Cases is provided as Appendix B. The list of schemes to be included in the standard reference case was developed in consultation with Solent Transport Officers and LTA Officers.

3.6.4 Appendix B also lists some of the larger infrastructure schemes where model coding already exists but the schemes are not yet considered 'approved' (i.e. planning or funding still needs to be obtained). Inclusion of these (or other) schemes in the commissioned runs needs to be confirmed by the Applicant.

3.6.5 The model base year is 2019 and so any scheme not constructed at that point in time is considered a 'future year' scheme within the SRTM (this includes schemes that have since been constructed and are operational). It is strongly recommended that the Applicant review the reference case list of schemes prior to model commissioning and discuss with Solent Transport/ SRTM Consultant if they believe there any infrastructure schemes missing in their geographic area of interest.

Landuse (drivers of Population and Employment)

3.6.6 The Reference Case incorporates land use floorspace identified as either 'committed' or 'permissible'. Committed sites are those that have received planning permission and for modelling purposes are considered certain to be built-out. 'Permissible' sites refer to those locations identified as suitable for future development (i.e. allocated sites) but that have not yet been subject to planning approval. The locations and maximum land use quantum of the permissible sites are based on Local Authority inputs as at April 2020 (2021 for some areas such as the Isle of Wight) in accordance with adopted Local Plans at that time. The take-up of permissible developments is determined by processes within the model and is based on the local conditions (the relative 'attractiveness' of the development compared to other sites e.g. accessibility of the site).

3.6.7 An update to the SRTM land use reference case data comprising of completions, permissions, and allocations was completed in late 2024 using planning data up to April 2023 (the latest available at the time of data collection).

3.6.8 Information on the size and location of individual development sites within the Reference Case at a zonal level is available. A summary of the Reference Case residential dwellings by District is included within Appendix C.

4. USE OF SRTM AND APPLICATION PROCESS

4.1 When should the SRTM be used?

4.1.1 The SRTM would be appropriate to assist in the following fields:

- Undertaking the appraisal of various highway, public transport, and active mode (walking/cycling) improvements (including Park and Ride);
- Undertaking assessment and comparison of impacts of various planning policies such as changes to the housing location and density for new development; and
- Forecasting and testing future land-use and demographic changes and the interaction between future land use and transport provision.

4.1.2 In addition the following outputs can be generated by the SRTM:

- Environmental analysis, including projection of transport based emissions;
- Accessibility analysis;
- Health appraisal
- Economic, financial and cost-benefit analysis of schemes; and
- Inputs into micro-simulation models or other models for more detailed local/ junction analysis.

4.1.3 In general due to their size and strategic nature, land use and transport models are focused towards investigating the effects of significant policy changes and/or major interventions, rather than individual minor changes to the transport system. Also, the model can be used to provide input to more detailed analysis of, for example, detailed junction modelling and design tasks associated with a development.

4.2 Who can apply for SRTM runs and output?

4.2.1 Output from the SRTM is available to a wide range of existing and potential users, including:

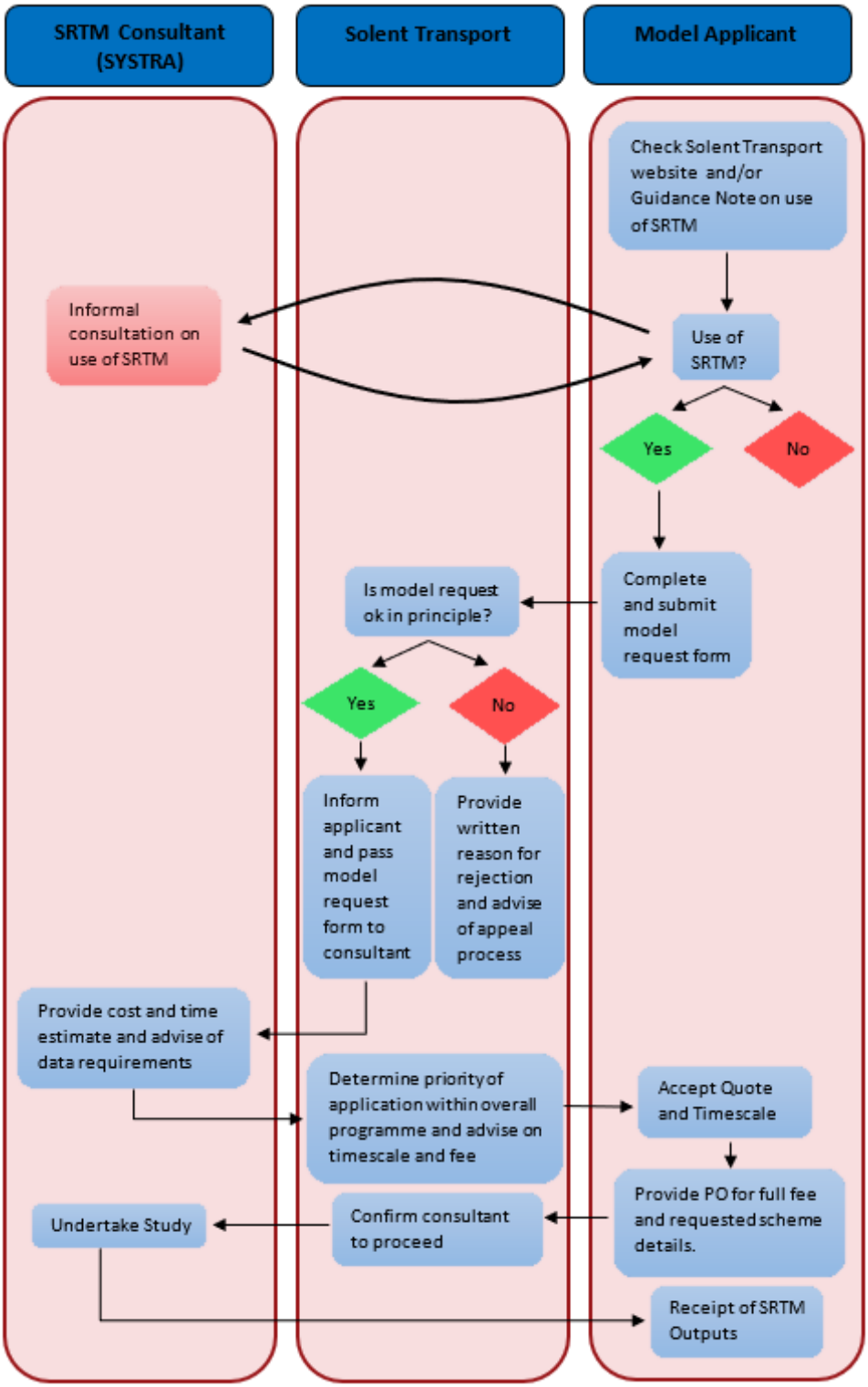
- Hampshire County Council, Southampton City Council, Portsmouth City Council, Isle of Wight Council, and District and Borough Councils within Hampshire;
- Transport for the South East (TfSE) and other Sub-National Transport Body's
- National Highways;
- Department for Transport (DfT) and other government departments;
- Network Rail;
- Public Transport Operators;
- Partnership for South Hampshire (PfSH);
- The Solent Local Enterprise Partnership (LEP);
- Chambers of Commerce;
- Other interested organisations, including academia, developers and health boards;
- Consultancies working on behalf of any of the above.

4.2.2 The model is only be available to use on a bureau basis, run by the Solent Transport modelling consultants.

4.3 Process Overview

4.3.1 The application process for SRTM runs and output is detailed in Figure 3.

Figure 3. SRTM application to use process



4.4 Initial Stages

4.4.1 The initial stages in the process of applying for model runs and output are to firstly to read this guidance document and the information on the SRTM section of the Solent Transport website, to determine if the SRTM can assist with your specific requirements.

4.4.2 If the SRTM is considered the appropriate tool to use, then it is strongly recommended that the potential user contacts the Solent Transport modelling consultants to discuss their requirements. The consultants will be able to advise on the technical aspects of the model and whether or not it is indeed the appropriate tool for the proposed application.

4.4.3 At this stage it is useful to discuss as much of the technical detail as possible with the Solent Transport modelling consultants, for example forecast year, scenario assumptions etc., however it should be noted that this does not constitute any form of contractual agreement. The application can only be approved by the Solent Transport following submission of the Request for Use Form, described below.

4.5 Request for Use Form

4.5.1 The next stage in the application process is to complete a request form. The request form will ideally be completed following a discussion with the SRTM consultants.

4.5.2 The form is designed to obtain sufficient information from the potential user to enable Solent Transport and SYSTRA to assess any applications to fully assess any application. The form should be completed by a senior member of the potential user's project team (preferably the modelling leader or project manager) and returned to TfSH@hants.gov.uk.

4.5.3 The applicant will need to be able to provide the following information during the discussion so that the form can be completed:

- the aims, objectives and scope of their project and what they plan to use the model outputs for;
- a detailed specification of any required changes to the model assumptions and the schemes to be included;
- details of the final deliverables from the Solent Transport consultants;
- the timescales for the application, both the desired completion date and the latest acceptable completion date; and
- an acknowledgement that the terms and conditions are agreed to and that upon provision of the final deliverable a satisfaction form will be completed.

4.5.4 It is vital that the user provides as much detail as possible to allow the Solent Transport and SYSTRA to consider fully whether the SRTM is suitable for the specific application. The information provided in the request form provides the basis for quotations of likely timescales and costs. The information provided also forms the basis of the prioritisation of different applications.

4.5.5 The standard turnaround, from formal commissioning to reporting on the model outputs, for a package of model runs is 8 weeks but is dependent on the complexity of the study and existing committed workloads. The expected timescale will be communicated as part of the fee quote for the model runs.

4.5.6 It is important that as much detail as possible is provided with the scheme brief regarding scheme detail. This includes:

- Development quantum by land use type (B1, C3 etc.)
- Site access arrangements (preferably drawings)
- Highway, PT, Active mode mitigation proposals (preferably drawings) as appropriate

4.5.7 Lack of appropriate scheme detail may lead to delays in the modelling process whilst assumptions are confirmed. Changes to scheme details once modelling has commenced may result in additional fees being requested to cover abortive/ additional work.

4.5.8 Requests for a series of model runs can be segmented into a number of packages, where the selection of later packages can be dependent on the outcomes of earlier work. It is essential for programming purposes that this is fully specified as far as possible at this stage, and the information will also feed into the payment plan. Payment for later packages can be deferred until earlier packages are complete.

4.5.9 Upon receipt of the request form:

- the request will be reviewed by Solent Transport and passed to SYSTRA;
- potential risks in the application, along with a proposed solution, will be identified and communicated to the applicant;
- the applicant will be provided with feedback and additional information will be requested if required; and
- if the application is approved by Solent Transport, SYSTRA's response will include confirmation of the main deliverables, timescales, and the cost of the required support or advice. Work will be carried out on a fixed fee basis, and as described in Section 10 of this document.

4.5.10 The Request for Use Form is included in the appendix to this document, and is also available from TfSH@hants.gov.uk .

4.6 Successful Application

4.6.1 Once the application process has been completed, and assuming it has been successful, the application will be progressed to the agreed timescales. Each application will be assigned a Project Manager by the Solent Transport modelling consultants, who will be able to provide support on the application and will keep the user regularly informed as to the progress of the project.

4.6.2 The required outputs will be made available to the applicant upon the completion of the work. If there are a number of deliverables then these will be released at pre-agreed stages throughout the application.

4.6.3 Any issues or problems which are encountered during the application, be they technical or contractual, will be communicated to the user by the Solent Transport project manager as soon as they arise.

5. MODEL OUTPUT TIMESCALES

5.1 Introduction

5.1.1 During the commissioning process the applicant will be advised of the anticipated timescales for delivery of model outputs. Timescales will depend on current workload and size and complexity of the commission but standard timescales are provided in the sections below to help with programming. Typically, multiple commissions can be delivered in parallel but in certain circumstances Solent Transport may prioritise one commission over another, for example in order to meet funding bid deadlines.

5.2 Indicative Timescales

5.2.1 Table 1 summarises the indicative timescales for outputs from the SRTM. Timescales commence from the point when Solent Transport are in receipt of a Purchase Order (or equivalent) for the commission and when the SRTM Consultant has the necessary information to proceed with coding the scheme(s) in to the model. Please note that the specification of model runs in advance of the above to enable fees to be prepared can itself take considerable time to complete and should be factored in to the wider programme for project delivery.

Table 1. Standard SRTM Commission Delivery Timescales

COMMISSION TYPE	MODEL OUTPUT STANDARD DELIVERY TIMESCALE (FROM RECEIPT OF PO AND SCHEME INFORMATION)
Outputs from existing scenarios (e.g. Base or Standard Reference Case)	2 weeks
Bespoke model runs	8+ weeks

6. MODEL RUN AND ASSOCIATED FEES

6.1 Introduction

6.1.1 This section outlines the fees associated with application of the SRTM. It is designed to assist potential applicants identify a budget cost of their application prior to a formal costing being provided.

6.2 Differential Charge Rates

6.2.1 In order to reflect the financial contributions to original model development by the applicant, differential charge rates will be applied as shown in Table 2. The differential charge rate is in the form of an uplift on the SRTM Consultant's fee rate (Note - the underlying fees for the SRTM Consultant do not vary by applicant). All fees include a ring fenced contribution, which is used to keep the Model up-to-date and to cover administration costs incurred by Solent Transport.

6.2.2 Note that the uplift for Private Sector clients has been reduced from 154.2% to be in-line with Public Sector rates (84.8%). The reduction will be reviewed periodically by Solent Transport.

Table 2. Model Fee Uplift

	SOLENT TRANSPORT AUTHORITIES (HCC, IOWC, PCC, SCC)	OTHER PUBLIC SECTOR	PRIVATE SECTOR
Uplift applied to SRTM Consultant Fees	29%	85%	85%

6.3 SRTM Fee Structure

6.3.1 Table 3 summarises the indicative fee structure for application of the SRTM. Each application of the model will require components from **A, B and C** of the fee structure (example fees are shown in Table 4 and Table 5). The fees shown are simply illustrative estimates of what a user can expect to pay for the types of tests listed. The actual cost will depend on the exact nature and complexity of the application being undertaken. For example, simple infrastructure change may be straight forward to code in the model, but detailed extensive changes would potentially cost considerably more than the costs in Table 3.

6.3.2 Combinations of tests can also be run using the model, for example it would be possible to undertake a full Land Use and Transport Interaction run for a number of different years, with infrastructure and / or policy changes in certain years. It is not possible to cost every combination of tests within this User Guide and in this case an initial consultation with the SRTM team would be required to get an idea of potential costs. It is also likely that

economies of scale would be achievable if for example a significant series of tests covering all five model years were to be commissioned.

6.3.3 In addition to variations in the type of test there is also scope for variation in the amount of analysis undertaken and indeed the extent of model results extracted. The estimates in Table 3 assume a reasonable set of "standard" model outputs with potential simple follow-up queries. However, it may be necessary to augment the data extracted with a series of more detailed results acquired by drilling into the model detail using any number of analysis techniques. Standard model outputs and examples of additional more advanced model outputs are described in Chapter 7.

Table 3. SRTM Approximate Cost Estimates (inc Administration Costs exc VAT)

Model Component	Component Breakdown	Solent Transport Authorities	Public Sector	Private Sector
		29.4% markup	84.8% markup	154.2% markup
A	**Test Years (2019, 2026, 2031, 2036, 2041)**			
	1 Year	£4,410	£6,280	£6,280
	2 Years	£5,730	£8,200	£8,200
	3 Years	£7,070	£10,110	£10,110
	4 Years	£8,400	£12,010	£12,010
	5 Years	£9,740	£13,910	£13,910
B	**Transport Networks (Highway and PT)**			
	No Network Changes (Reference Case Network)	£0	£0	£0
	With Network Changes	£4,260	£6,090	£6,090
C	**Land Use**			
	No Landuse Changes (Reference Case Landuse)	£0	£0	£0
	Data Processing	£1,340	£1,910	£1,910
	Policy Files	£2,670	£3,810	£3,810
	New Zone(s)	£5,800	£8,290	£8,290
D	**Economic Assessment**			
	TUBA (TEE, AMCB, Public Account Tables)	£6,440	£9,200	£9,200

Notes:
1. Each model run must contain components A, B & C
2. All fees are based on a 'standard' sized scheme and adjustments can be made based on scheme complexity
3. Solent Transport Authorities are: HCC, IoWC, PCC, SCC

6.3.4 It may be possible to run other types of test with the SRTM, which are not included in the table above. This would require discussion at the initial consultation stage and then, as with the combination tests, these would be costed up on a case by case basis.

6.3.5 Fees, and the rates that underpin them, are subject to an annual review in August of each year.

6.4 Fee Examples

6.4.1 To aid interpretation of Table 3, two fee examples are provided below

Example 1

Private sector applicant for a SRTM commission to test a 1500 unit residential development. The development quantum is not within the SRTM Reference Case scenario. Scenario 1 includes an unmitigated network, Scenario 2 includes for highway mitigation. Model outputs for 2031 only.

Table 4. Model Fee Example 1

MODEL COMPONENT	SCENARIO 1 WITHOUT MITIGATION		SCENARIO 2 WITH MITIGATION		TOTAL
A	1 year (2031)	£6,280	1 year (2031)	£6,280	£12,560
B	No network changes	£0	With network changes	£6,090	£6,090
C	Land use Policy File changes	£5,720 (£1,910+£3810)	Land use Policy File changes	£0*	£5,720
Total		**£12,000**		**£12,370**	**£24,370**

* land use policy update accounted for in Scenario 1

Example 2

Solent Transport Authority applicant for a SRTM commission to test bus priority measures as part of a scheme funding bid. TUBA economic assessment required as part of commission. No changes to Reference Case landuse. Model outputs for 2026, 2031 and 2041.

Table 5. Model Fee Example 2

MODEL COMPONENT	LINK ROAD SCENARIO		TOTAL
A	3 year (2026,31,41)	£7,070	**£7,070**
B	With network changes	£4,260	**£4,260**
C	No Land use changes	£0	**£0**
D	TUBA economics	£6,440	**£6,440**
Total		**£17,770**	**£17,770**

6.5 Fee Quote and Invoicing Schedule

6.5.1 All fees, client invoicing details and the corresponding scope of work necessary to produce the agreed deliverables will be clearly defined and agreed at the outset of the contract. On appointment of a commission, we will issue a **commissioning pro-forma** setting out the current scope (referring to external documents/email as appropriate), stating commissioning and delivery dates, deliverables, fees and invoicing details to ensure all parties are clear on expectations.

6.5.2 As the submission of the formal request must be accompanied by payment it is essential that the initial costing process is as accurate as possible. It should be noted that payment for SRTM commissions is not subject to third party approval/ sign-off of deliverables. Delay of payment may result in rescheduling of model applications and production of deliverables.

6.5.3 The estimated fees shown in Table 3 are applicable at the date shown on the cover page of this User Guide and are subject to annual review. Users are encouraged to confirm the currency of this document through the contacts identified in Chapter 2.

6.5.4 It should be noted that all the potential costs quoted do not include VAT, which would be charged at the prevailing rate.

7. MODEL OUTPUTS

7.1 Introduction

7.1.1 A wide range of outputs can be reported from the SRTM either directly from the model or through wider analysis/ interpretation. Outputs can be prepared in a range of formats including highway/ PT network graphics and data presented in spreadsheet, database and GiS formats. This Chapter summarises the typical outputs that can be provided but we advise discussing with the modelling consultant the specific outputs that are required.

7.2 Model Outputs

7.2.1 Associated with each model are a set of standard model outputs (Headline Stats) in spreadsheet format. These are produced as part of every model run and in form part of the model QA/checking process used by the modelling consultant and are typically compared against a Reference Case or Do-Minimum scenario to confirm model responses are reasonable. These outputs are shown in the Model Outputs List below and in Appendix E, the model output IDs are HY4, PT3 and MD1 (highlighted in blue).

7.2.2 In addition more advanced model outputs can be provided which require a level of analysis to prepare. These are listed in tables below and examples for the majority of the outputs are provided in Appendix E.

Table 6. Model Outputs List

HY	Road Traffic Model (RTM)
1	Link based data plots (such as flow/delay/capacity etc) including difference plots
2	Node based data plots (such as delay difference scatter plots)
3	Global statistics by Local Authority area within the SRTM area
4	Road Traffic Model (RTM) Headline Stats
5	Journey Time Assessment between start and finish locations
6	Plot of travel time bands from a zone
7	Cordon Model / Cut outs for inputs to other models
8	Junction details (turning counts etc)
9	Select Link on Flows/Delays etc
10	Sectored Demand (showing distribution)
11	AADT Data include 24H flows, HGV% split, average speeds etc
12	Vehicle Hour trends
13	Heat Maps for time or cost model data (such as journey times)

PT	Public Transport Model (PTM)
1	Link based data plots (such as flow/frequency/delay etc)
2	Node based data plots (such as node loading usage)
3	Public Transport Model (PTM) Headline Stats
4	Boarding and alighting volumes for new routes (information for existing bus routes is considered commercially sensitive and can therefore only be reported in an aggregated or indexed format)
5	Passenger distances/hours/speed by area
6	Heat Maps for time or cost model data (such as journey times)
7	Loading profile by new route
8	PTR route characteristics
9	Abstraction of revenue

PR	Park and Ride Model
1	Usage of each park and ride site

GM	Gateway Demand Model (GDM)
1	Usage of each port by user class and purpose

MD	Main Demand Model (MDM)
1	Main Demand Model (MDM) Headline Stats
2	Mode share by zone
3	Trips & Trip Rates to / from Sectors
4	Mode Shift Redistribution by sector
5	Generalised Cost or Time to/from zone plots (Isochrones)
6	Change in demand GIS Histograms
7	Origins and Destination by Zone / Mode

LU	Local Economic Impact Model (LEIM)
1	Households and population by zone
2	Employment by zone
3	Households by Area
4	Population by area
5	Employment by area
6	Employment Forecast Projections with and without development
7	Residential Development by zone
8	Net Gain of Non-Residential Floorspace Planning Inputs GIS
9	Built floorspace by zone (residential, office, warehousing, retail etc)
10	Areas that may grow or decline (change in dwellings)
11	The impact of changes in HouseHolds/Population/Jobs upon an area
12	Residential and Employment inputs upon an area

EH	Emissions Assessment Tool (+ Health Benefit Analysis)
1	Regional Emissions data by emission type
2	Zone based Emissions data by emission type
3	Emissions by link or subset of links
4	Analysis of time lost due to congestion
5	Health Benefits Analysis (HEAT) + Emissions Summary (EAT)

EC	Economic Appraisal Tool
1	Transport User Benefit Appraisal (TUBA) [HY/PT/Active appraisal)
2	Additional TUBA detail (Sector2Sector etc)
3	TUBA warning checks
4	Benefit Distribution Map
5	COBA-lt accident analysis
6	QUADRO Construction and Maintenance

UA	Other Outputs Unassigned
1	Sectoring System

8. DEVELOPMENT PLANNING USES

8.1 The SRTM Model and development planning

8.1.1 The SRTM can be applied to inform the evidence base for the development and assessment of a range of development planning scenarios. This can include full representation of the new development or, more simply, providing base or future year reference case data for use in other tools.

8.2 When could the SRTM be used in a development planning context?

8.2.1 The SRTM would be appropriate to assist in the following development or event planning tasks:

- Trip generation and assignment (with and without development)
- Forecasting and testing future land use changes, such as adding in new developments (residential and non-residential), to test the interaction between the new development trip generation and the transport network
- Undertaking assessment and comparison of the impacts of planning policies such as changes to the development location or density;
- Appraisal of highway, public transport, and active mode (walking/cycling) schemes (including Park and Ride);
- Quantifying the impact of re-routing or trip distribution changes (including mode shift)
- Assessment of construction management plans including temporary network changes
- Event planning with temporary high levels of demand to a single area and/ or local traffic management

8.2.2 The following outputs can be generated by the SRTM:

- OD matrices for input into micro-simulation models or other junction/ small network models;
- Distribution of traffic to/from selected zones of interest;
- Select link analysis;
- Mode split and potential mode shift;
- Environmental analysis, including projection of link based transport emissions and Annual Average Daily Traffic (AADT) split by vehicle type for input to Air Quality models;
- Accessibility analysis;
- Economic, financial and cost-benefit analysis of schemes.

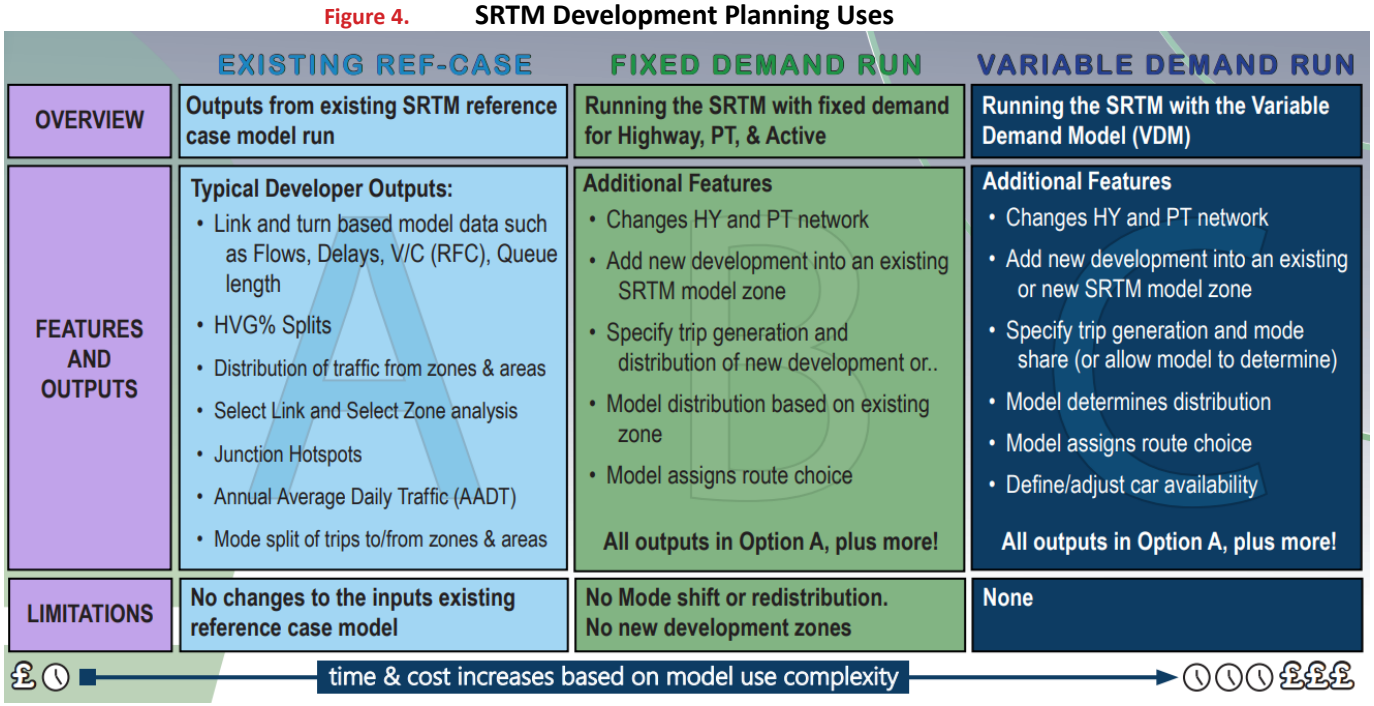
8.2.3 An expanded list of SRTM model outputs with examples can be found in Appendix E (with a list provide in Table 6 in Chapter 7). Other outputs not listed can be produced and in such instances we recommend a discussion with the SRTM modelling Consultants to understand what could be provided.

8.3 How to use the SRTM

8.3.1 There are three levels of use for the SRTM when involved in development planning. These levels are listed below with further details provided in Figure 4:

A. Use of existing reference case
B. Fixed demand assignment only model runs
C. Full SRTM model run

Figure 4. **SRTM Development Planning Uses**



8.3.2 The timescale and costs associated to the SRTM increase in line with the different levels of use. For guidance only, we have listed below the typical scale of development we would recommend of each of the three levels of use (where necessary the actual level used and outputs required should be agreed by the developer and planning authority):

A. Existing Reference Case – smaller developments (i.e. less than 100 dwellings)
B. Fixed Demand Model Run (assignment only) – medium developments (i.e. up to 750 dwellings)
C. Full Demand Model Run - (variable model) – large developments (i.e. greater than 750 dwellings)

8.3.3 In general, due to the model coverage, zone size, and network detail, land use and transport models are typically focused towards investigating the effects of significant policy changes and/or larger developments/interventions, rather than individual, more minor, changes to the transport system. The primary focus of the SRTM is on local links of a more strategic nature in addition to the Strategic Road Network (SRN).

8.4 Who can apply for SRTM runs and output?

8.4.1 Any developer or consultant working on their behalf can apply to use the SRTM model. This can be done independently or at the recommendation of the local planning authority.

8.5 Development Planning Modelling Fees

8.5.1 The modelling fees are set out fully in Chapter 6. It includes an example for testing a new development site by a private developer.

8.5.2 Where a new development site is being tested in the model, a do minimum model run will be required where the site is allocated within an adopted local plan. In order to reduce the overall cost of modelling such sites, this do minimum run will be completed at cost rate. The mark-up will then only be applied to the do something model run and associated modelling outputs.

8.5.3 Where outputs from the reference case are sufficient to aid the client, the fee totals will generally be significantly lower than where a new model run is required.

8.5.4 Some high level cost examples (using developer rates) for outputs and model runs:

- Flow/Delay/VC plots for a model area for AM and PM peak periods of one reference case scenario, circa £1,500.
- Turning counts from 10 locations for AM and PM peak periods of one reference case scenario, circa £2,500.
- A fixed demand (assignment only) model run with some basic network changes, running the AM, IP, & PM model for one transport year, circa £8,000.
- A full (variable) demand model run with some development and network changes, running the AM, IP, & PM model for one transport year, circa £12,000.

9. TERMS OF USE

9.1 Licences

9.1.1 The Solent Transport Sub-Regional Transport Model (SRTM) outputs are provided with a general agreement that they will only be used for projects authorised by Solent Transport.

9.2 Intellectual Property Rights and Ownership

9.2.1 The intellectual property rights (and copyright) of the SRTM, associated data, procedures and model outputs remain with Hampshire County Council, on behalf of Solent Transport. The intellectual property rights of the software used to construct the model and to present the output (e.g. CUBE and SATURN) remain with the software developers.

9.2.2 It should be noted that Solent Transport retain intellectual property rights for any additional work carried out under applicant contracts. In particular any scenarios developed through applicant contracts may be taken forward and incorporated into reference cases for the SRTM.

9.2.3 Users are not permitted to copy any part of the model, data, procedures or outputs without prior agreement from Hampshire County Council on behalf of Solent Transport.

9.3 Restrictions

9.3.1 Hampshire County Council and SYSTRA shall not incur any liability under, or in connection with, the release of SRTM output, to the extent that any failure thereof has been caused by, or contributed to by, any force majeure event or circumstances beyond reasonable control of either SYSTRA or Hampshire County Council.

9.3.2 The provision of SRTM outputs are provided in good faith and the user accepts full responsibility to satisfy themselves of the accuracy, reliability and completeness of the information and no responsibility is accepted to any third party for the whole or any part of its content. No part of the contents nor any reference thereto may be included in any published document, circular or statement, nor published in any way without Hampshire County Council and SYSTRA's prior written agreement of the form and context of such text. Such agreement will not be unreasonably withheld.

9.3.3 Any documentation making use of SRTM outputs must reference SRTM and Solent Transport, and should be reviewed prior to publication by Solent Transport.

9.3.4 Hampshire County Council and SYSTRA will make all reasonable endeavours to provide the agreed deliverables within timescales agreeable to all parties on the condition that Hampshire County Council and SYSTRA have been provided with all necessary information to carry out the agreed tasks. Hampshire County Council and SYSTRA will not be liable for any costs, charges or losses sustained or incurred by the applicant that arise directly or indirectly from a delay in providing the agreed deliverables in the agreed timescales.

9.3.5 If Hampshire County Council, or that if its agents, subcontractors, consultants or employees is prevented or delayed by any act of omission of the applicant, its agents, subcontractors, consultants or employees, Hampshire County Council will not be liable for any costs, charges or losses sustained or incurred by the applicant that arise directly or indirectly from such prevention or delay.

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