

# Technical Note – Haddington Parking Management Financial Model



Stantec UK Limited

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Prepared by:  
Joshua Lee, Joshua Simmonds

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332611186

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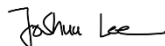
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Prepared by:

Joshua Lee



Reviewed by:

Joshua Simmonds



Approved by:

Graham Bell




# 1 Introduction

East Lothian Council commissioned Stantec to develop a financial model to assess the income and cost implications of proposed parking orders in North Berwick. This model was developed in 2024 using the Flexible, Appropriate, Structured, and Transparent (FAST) financial modelling standard. FAST is a set of guidelines and best practices used in financial modelling and data analysis.

The FAST standard is designed to produce models that are both easy to create and simple to understand, enhancing their reliability and usability. The model for North Berwick was developed with the intention of being easily adaptable to assess parking measures in other towns. As such, the existing North Berwick model has been updated and used to assess the income and cost implications of the Preferred Parking Management Proposals for Haddington. This technical note outlines how the income and cost implications of those proposals have been estimated.

# 2 Model Updates

Since the development of the financial model for North Berwick, several minor updates / improvements to the model have been undertaken as follows:

## **Addition of detailed utilisation rates by location**

The model was refined to add the ability to define specific utilisation rates for each off-street car park or on-street parking charge group. This was done based on a review of the proposed measures in other East Lothian towns, as it was determined that the proposed measures meant that parking utilisation was likely to vary significantly by location or charging regime.

In the previous model version, a single seasonal utilisation rate was applied to all parking locations and charging regimes. In the updated version, utilisation rates for each location were added based on survey data. As parking surveys are not conducted over the course of a year, these utilisation rates are then factored by the seasonal utilisation rates that were already included in the previous version of the model. This creates a location-specific utilisation rate that is also adjusted for seasonality.

## **Update to redistribution of some resident vehicles**

An update was made to the approach used to redistribute residents' vehicles to other areas. The approach is applied in situations where the model estimates that the number of residents' vehicles will exceed the number of available spaces for them. This means that residents vehicles are 'redistributed' to nearby areas with available spaces to ensure all residents vehicles are accounted for in the model.

The previous version of the model divided the total number of 'excess' residents' vehicles from zones with a lack of capacity evenly into other areas with spare parking spaces. This was done regardless of the number of spare spaces available in the receiving area. Although this issue was not present in the modelling for North Berwick, this approach could lead to a situation where redistributed residents vehicles cause another area to exceed parking supply.

To prevent this issue from occurring, the approach was updated so that the total number of 'excess' residents' vehicles are redistributed based on the proportion of available surplus parking spaces

available in other areas. This makes areas with the most additional spaces receive the most redistributed vehicles, and vice-versa.

### Resident vehicle occupancy

A change was made to resident vehicle calculation that may have led to the number of residents vehicles being overestimated where there was on-street parking in combined chargeable spaces during the hours of operation. This would only have affected a small number of situations where the number of residents vehicles was less than the number of dedicated permit parking spaces available for them.

### Addition of toggles for healthcare permits

As specific permits for healthcare workers are not being introduced in Haddington, the financial model now includes a toggle that can turn on or off the calculation of healthcare permit income and impacts on parking utilisation.

## 3 Financial Model Inputs

The following section describes how the updated financial model has been used to estimate income and cost impacts of the Preferred Parking Management Proposals for Haddington. The structure of the financial model is shown in Appendix A and Appendix B for on street and off-street locations, respectively.

### 3.1 Revenue assumptions

**Table 3-1** outlines the key assumptions used in the calculation of parking revenue in the Haddington financial model. Where possible, assumptions have been based on survey or census data. In other cases, professional judgement has been used to determine the most suitable values for forecasting.

**Table 3-1: Key revenue assumptions**

Revenue Source	Revenue Factor	Data Source or Assumption
Parking Charges	Number of spaces	<p>Sections of street where parking would be permitted were mapped and length of kerbs measured using GIS software. The number of available spaces was estimated by dividing the relevant kerb length by 6 metres for parallel parking spaces and 2.75 metres for bay parking spaces. Virtual review on Google StreetView was performed to check the estimations were close to the observed number of spaces.</p> <p><u>East Lothian Council Staff Parking:</u> The proposed measures for ELC staff parking include John Muir House (West) being staff-only from Monday to Friday. John Muir House (East) and Tesco Long-Stay will be open to staff permit holders Monday to Saturday. John Muir House (West) will be open for public parking on weekends and will have parking charges applied on Saturday.</p> <p>To reflect the impact of staff parking on public parking spaces, the following estimates have been included:</p>

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Revenue Source	Revenue Factor	Data Source or Assumption
		<ul style="list-style-type: none"> <li>The total desk capacity of John Muir House has been provided by ELC. The number of ELC staff members driving to work on weekdays has been estimated using an approximate office occupancy rate and the proportion of people driving to work into this data zone in the 2011 Scottish Census. Estimates for staff parking on Saturday have been made using a much lower office occupancy rate.</li> <li>The estimated number of staff driving to John Muir House has been subtracted from the number of parking spaces at John Muir House West, John Muir House East, and Tesco Long-Stay Carpark, with John Muir House West being the first choice for staff parking before spreading out to the other car parks once full. This provides the estimate of the number of available parking spaces for the public, once ELC staff vehicles have been accounted for.</li> </ul>
	Average stay duration per user	Based on professional interpretation of parking surveys conducted in April 2025 and October 2025, as well as the likely impact of new parking measures on stay durations.
	Seasonal parking utilisation rate	Based on parking spot-check surveys conducted in Cupar from January 2022 to October 2023.
	Utilisation rate by charging zone or carpark	Based on the median occupancy from off-street and on-street parking surveys conducted in April 2025 and October 2025.  The median occupancies observed were adjusted downwards by 15% for use in the financial model. This is to reflect uncertainty and account for any potential optimism bias in the parking model assumptions.
	Displaced parking adjustment factor	A factor set to reduce parking demand based on parking displaced to other areas without charges because of the parking measures. Set to 95%.
	Mode shift adjustment factor	A factor set to reduce parking demand that would be displaced to other modes because of the parking measures. Set to 95%.
	Parking charge regimes and operational hours	Based on high level management proposals as of the end of November 2025. <ul style="list-style-type: none"> <li>Tesco Long Stay Car Park is proposed to have charges applicable all day. To represent demand is likely to be concentrated during the day, the model has assumed operational hours of 12 hours per day. Monday to Saturday.</li> <li>John Muir House (West) Car Park is only open to public parking on Saturday. Operational hours have been proportionally adjusted to represent that charges only applicable at 8:30am to 18:00pm on Saturdays.</li> </ul> All other parking locations have charges apply from 08:30am to 18:00pm, Monday to Saturday.
Resident Permits	Number of resident vehicles in charging zones	Estimated using data from the 2011 Scottish Census.
	Estimated private off-street spaces by charging zone	Estimated by 2011 Census Output Area for each charging zone. Estimates based on desktop assessment using Google Maps and Google StreetView.
	Percentage of households with driveways and do not purchase permits	Set at 80%. Based on a professional judgement that parking measures will increase the utilisation of private driveways.

Revenue Source	Revenue Factor	Data Source or Assumption
	Adjustment for non-purchase of resident permits	Set at 97.5%. Assumes that 2.5% of residents with vehicles that need to park on the street do not purchase a permit.
	Occupancy of resident permit spaces during operational hours	Estimated by 2011 Census Journey to Work data. Calculated based on mode share of residents driving to work in each charging zones. This is factored to include non-commuting trips.
Enforcement Charges	Parking infringement rates for over-staying and non-payment	Set at 2% of all users. Based on professional judgement and more conservative estimation of potential infringements to be expected.
	Enforcement Levels	Set at 5% of all infringements. Based on professional judgement on the number of parking infringements that would be issued Penalty Charge Notices.
	Income Per PCN	Set at £50, which is the 50% discount rate for early payment of a PCN.

### 3.2 Approach to modelling of permit revenue

There were several key differences between the North Berwick parking proposals and those for Haddington. These differences necessitated a slightly different approach to the calculation of permit impacts and revenue, which are outlined below.

#### Differences in permit scheme introduction

The North Berwick model included the provision to calculate the impact of holiday let permits, household visitor permits, and healthcare worker permits. Haddington currently has no proposals to include these types of parking permits. The relevant inputs and toggles for these permits have been set to zero so they have no impact on any forecasting performed in the model. However, the functionality to include these permits is retained within the model.

### 3.3 Approach to Modelling of John Muir House Car Park

The proposed parking measures for Haddington have provision for parking at John Muir House, which are the main offices for East Lothian Council. The proposed measures specify that the John Muir House Car Park be only open to council staff with parking permits only on Monday to Friday. On Saturday, the car park will be open for both 'pay-and-display' parking by the public and parking by council permit holders.

The original version of the financial model did not have a method for calculating the impact of staff parking permits on public parking availability. It also did not have the native ability to separate calculations by each day of the week. To overcome this, the John Muir House Car Park has been coded as two car parks, with one representing parking on Monday to Friday, and another representing public parking on Saturday. Charging operational hours and the number of spaces have been adjusted proportionally to represent council staff parking by the relevant day of week.

### 3.4 Cost assumptions

Capital and operating costs associated with the delivery of the required infrastructure and personnel to enforce the proposed parking measures have been estimated. The capital and operating cost estimates are based on current costs for NSL supplying Decriminalised parking enforcement in East Lothian.

#### Capital cost assumptions

The capital costs are based on the following items and assumptions shown in **Table 3-2**. In the financial model, a 23% adjustment has been applied to all capital costs to reflect potential risks. This is based on guidance outlined in the DfT's TAG unit A1-2. The unit suggests an optimism bias adjustment must take an 'outside view' where the uplift amount is based on statistical modelling of similar projects such as using reference class forecasting (RCF). Our assumption uses the P(Mean) value at Outline Business Case stage for Road projects from the DfT's Optimism Bias workbook.

**Table 3-2: Capital Cost Assumptions**

Capital Cost	Unit Cost (£)	Number of Units (If Applicable)
Parking Charge Machines	4,100	40
Works associated with parking charge machines	5,000	40
Cost of signs and road markings per kilometre of kerb	550 per km	1.55 km
Adaption of existing resident scheme	15,000	-
ANPR Cameras	15,000	-
Office fit out, furnishings, and telephone connections	5,250	-
IT Equipment (PCs and Printers)	1,675	-
IT Equipment (HCCT Printers, cameras, and phones)	1,722	-
Resident Scheme system operational and upgrade	3,000	-
Publicity around new parking orders	2,000	-
Training Costs	This is already included in the current costs for NSL supplying Decriminalised Parking Enforcement in East Lothian so there will be no additional costs	

#### Operating cost assumptions

The operating costs are based on the following items and assumptions in **Table 3-3**. In the financial model, a 23% adjustment has been applied to all operational costs to reflect potential risks, reflecting the same approach taken for the capital costs.

**Table 3-3: Operational Cost Assumptions**

Capital Cost	Unit Cost Per Annum (£)	Number of Units (If Applicable)
Parking attendants	25,960	3
Consumables (fuel, office supplies, replacement uniforms etc.)	10,357	-
Parking Attendant Uniforms	500	3
Small van leases	£200 per Parking Manager is already included in the current costs for NSL supplying Decriminalised Parking Enforcement in East Lothian so there will be no additional costs.	

Capital Cost	Unit Cost Per Annum (£)	Number of Units (If Applicable)
Notice processing software (SiDem)		
Client account manager		
Enforcement manager		
Operations support manager		These are already included in the current costs for NSL supplying Decriminalised Parking Enforcement in East Lothian so there will be no additional costs.
Business intelligence analyst		
IT officer		
Training Officer		
Admin Assistant		
Senior Area Officer Grade 10	£65,826	To be split equally across the five towns in East Lothian where parking measures are proposed.
Area Officer Grade 8	£50,572	
Back-office processing	13,183	-
Adjudication Service	868	-
Unexecuted Bailiff Actions	1,120	-
DVLA correspondence and owner tracing	180	-

### 3.5 Scenario tested

The model has been used to test a 'core' scenario of parking charges in Haddington. These are based on the interpretation of the Preferred Parking Management Proposals for Haddington as of late November 2025. Assumptions on utilisation rates and average parking durations used in the financial model were interpreted from on street and off-street parking surveys conducted in April 2025 and October 2025. Further sensitivity and scenario testing has not been carried out at this stage.

## 4 Financial model outputs

### Income

Table 4-1 outlines the forecast annual income for the Preferred Parking Management Proposals for Haddington.

**Table 4-1: Forecast Income from Parking Measures in Haddington**

Parking Location	Income Source	Core Scenario	
		Annual Income, £	10yr Modelled Income, £
On Street	Parking	20,000	199,000
	Enforcement Income	55,000	548,000
	Permit Income	12,000	116,000
	<b>Total</b>	<b>87,000</b>	<b>863,000</b>
Off-Street	Parking	106,000	1,061,000
	Enforcement Income	12,000	117,000
	<b>Total</b>	<b>118,000</b>	<b>1,178,000</b>
Combined Total (On Street + Off Street)	Parking	126,000	1,261,000
	Enforcement Income	66,000	665,000
	Permit Income	12,000	116,000
	<b>Combined Total</b>	<b>204,000</b>	<b>2,041,000</b>

Values rounded to nearest thousand

Notably, the estimated income from on-street parking is low, with enforcement income being higher than income generated from on-street parking charges. This is because the financial model has conservatively assumed that all vehicles parking within the short-stay parking zone in the town centre will leave within the 30-minute free parking period. Therefore, no parking charge income is estimated from the town centre streets of High Street, Market Street, Court Street and Newton Port. Only income from enforcement of these streets was estimated. It is acknowledged that there would be a portion of users who choose to pay for parking for longer than 30-minutes. However, the model has used these assumptions as this provides a much more conservative estimate of parking revenue from on-street parking.

Additionally, the calculation of resident vehicle parking showed that most of the medium-stay parking bays surrounding the town centre would be occupied by resident permit holders. This has reduced the number of available parking spaces for public parking estimated in the model and thereby reduced the estimated parking charge revenue for on-street parking.

## Costs

**Table 4-2** shows the expected capital and annual operating costs of the Preferred Parking Management Proposals for Haddington.

**Table 4-2: Forecast Capital and Annual Operating Costs for Parking Measures in Haddington**

Cost Type	Cost Type (Breakdown)	Core Scenario		
		Year 1 Capital Costs	Annual Operational Costs	10yr Total Modelled Costs
Capital Cost	Excluding Risk	303,000	-	303,000
	<b>Including Risk</b>	<b>372,000</b>	<b>-</b>	<b>372,000</b>
Annual Operating Costs	Excluding Risk	-	133,000	1,326,000
	<b>Including Risk</b>	<b>-</b>	<b>163,000</b>	<b>1,631,000</b>
Totals	Excluding Risk	303,000	133,000	1,629,000
	<b>Including Risk</b>	<b>372,000</b>	<b>163,000</b>	<b>2,003,000</b>

Values rounded to nearest thousand

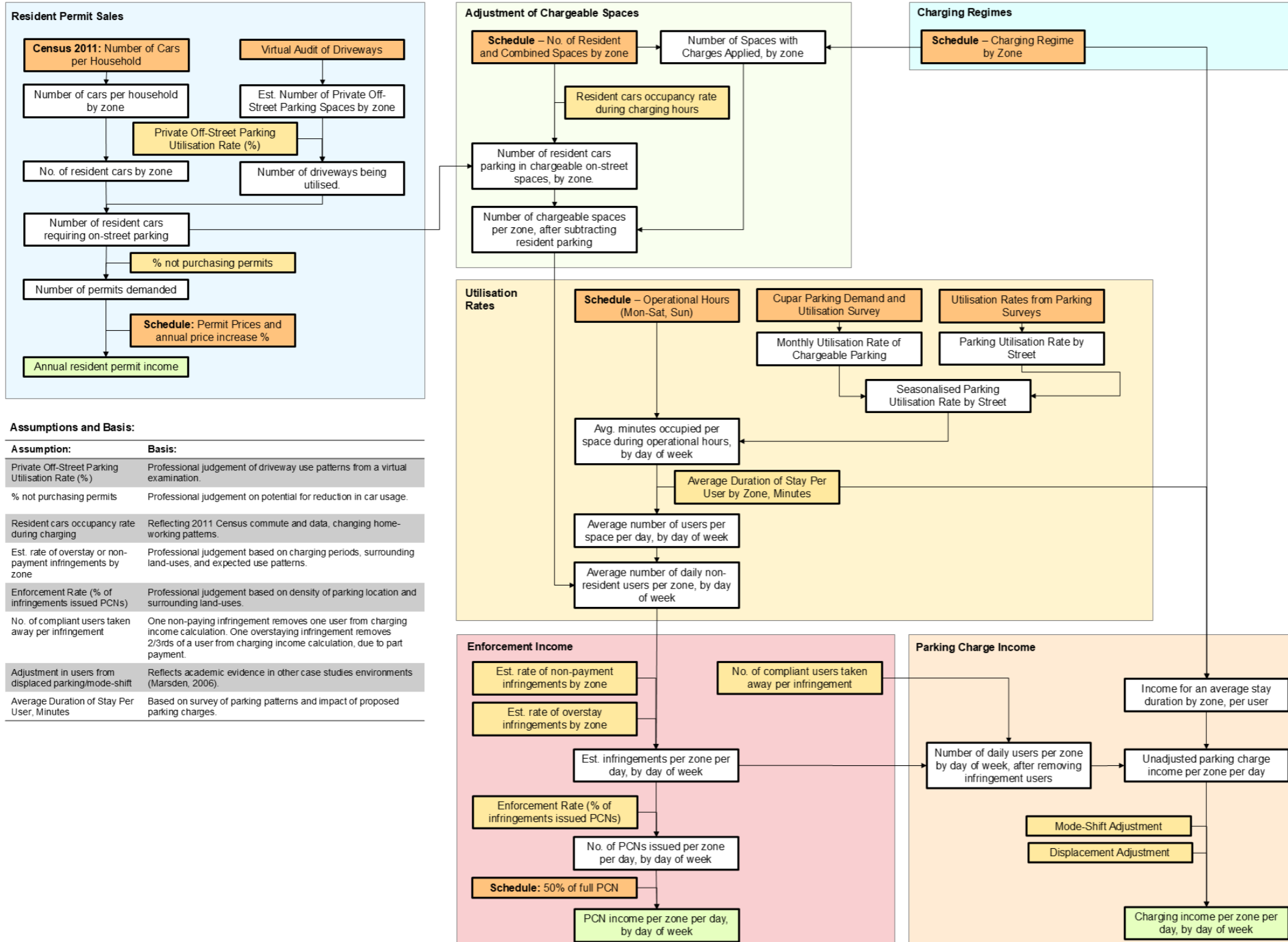
### Financial model outputs summary

For the 10-year modelled period, the financial model forecasts the income collected from the parking management measures will only marginally exceed both the initial capital costs and annual operational costs. Although the model shows forecasted outputs down to the nearest pound, the level of detail and assumptions used in the models means it is inappropriate to interpret these values as exact forecasts. However, the model is indicating that the management income will marginally exceed costs, with surplus revenue over the 10-year period of approximately **£4,000 per annum (including risk allowance)**.

# Appendix A – Income Calculation for On-Street Parking Locations

## Income Calculations (On-Street Locations)

Legend: Defined Input Assumption Intermediate Calculation Output Income Calculation



**Assumptions and Basis:**

Assumption:	Basis:
Private Off-Street Parking Utilisation Rate (%)	Professional judgement of driveway use patterns from a virtual examination.
% not purchasing permits	Professional judgement on potential for reduction in car usage.
Resident cars occupancy rate during charging	Reflecting 2011 Census commute and data, changing home-working patterns.
Est. rate of overstay or non-payment infringements by zone	Professional judgement based on charging periods, surrounding land-uses, and expected use patterns.
Enforcement Rate (% of infringements issued PCNs)	Professional judgement based on density of parking location and surrounding land-uses.
No. of compliant users taken away per infringement	One non-paying infringement removes one user from charging income calculation. One overstaying infringement removes 2/3rds of a user from charging income calculation, due to part payment.
Adjustment in users from displaced parking mode-shift	Reflects academic evidence in other case studies environments (Marsden, 2006).
Average Duration of Stay Per User, Minutes	Based on survey of parking patterns and impact of proposed parking charges.

## Appendix B – Income Calculation for Off-Street Parking Locations

### Income Calculations (Off-Street Carparks)

**Legend:** Defined Input Assumption Intermediate Calculation Output Income Calculation

**Assumptions and Basis:**

Assumption:	Basis:
Est. rate of overstay or non-payment infringements by zone	Professional judgement based on charging periods, surrounding land-uses, and expected use patterns.
Enforcement Rate (% of infringements issued PCNs)	Professional judgement based on density of parking location and surrounding land-uses.
No. of compliant users taken away per infringement	One non-paying infringement removes one user from charging income calculation. One overstaying infringement removes 2/3rds of a user from charging income calculation, due to part payment.
Adjustment in users from displaced parking/mode-shift	Reflects academic evidence in other case studies environments.
Average Duration of Stay Per User, Minutes	Based on survey of parking patterns and proposed charging periods.

