

# Technical Note – Dunbar Parking Management Financial Model



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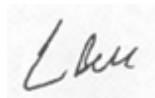
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# 1 Introduction

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 Dunbar. 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 carpark 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 Dunbar, the previous financial model was updated to include 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 Dunbar. 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 Dunbar 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**

<b>Revenue Source</b>	<b>Revenue Factor</b>	<b>Data Source or Assumption</b>
Parking Charges	Number of spaces	<u>On-Street Spaces</u> 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 six metres for parallel parking spaces and 2.75 metres for bay parking spaces. Virtual review on Google StreetView were performed to check the estimations were close to the observed number of spaces.
		<u>Off-Street Carparks:</u> The number of spaces was determined through a virtual audit on Google StreetView.
	Average stay duration per user	Based on professional interpretation of parking surveys conducted in December 2021 and 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 December 2021.

Revenue Source	Revenue Factor	Data Source or Assumption
		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 the parking model assumptions.
		Utilisation for daytime parking at the Leisure Centre carpark is further reduced by an additional 37.5%. This is because Leisure Centre users will benefit from free parking for 90-mins. This reduction reflects that no revenue will be generated from the portion of carpark users who use the leisure facilities and will not be paying for their parking. This proportion is based on parking beat surveys, which showed that around 42 percent of this carpark's users parking for within 90-minutes.
		Utilisation for overnight parking at the Leisure Centre carpark has been set to 0%, meaning no users are expected to use this carpark overnight. This is based on a professional judgement that uptake on the overnight parking offer will likely be very low.
	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 to and operational hours	Based on high level management proposals as of the end of November 2025. Daytime parking charges are generally to be applied between 08:30am and 18:00pm on Monday to Sunday. Overnight parking at the Leisure Centre carpark will be applied 19:00pm to 07:00am on Monday to Sunday.
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 Dunbar. 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. Dunbar has no proposals to include these types of parking permits. The relevant inputs 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.

In addition, there is no proposal for introducing a resident permit scheme in Dunbar, Therefore, the inputs for the calculation of resident permits impacts have been set to zero for Dunbar, but the functionality in the model is retained.

### 3.3 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	20
Works associated with parking charge machines	5,000	20
Cost of signs and road markings per kilometre of kerb	550 per km	0.5 km
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	-
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 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: Operating Cost Assumptions**

Operating 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	

## Dunbar Parking Management Financial Model Technical Note

Operating Cost	Unit Cost Per Annum (£)	Number of Units (If Applicable)
	Parking Enforcement in East Lothian so there will be no additional costs.	
Notice processing software (SiDem)		
Client account manager		
Enforcement manager		
Operations support manager		
Business intelligence analyst		
IT officer		
Training Officer		
Admin Assistant		
Senior Area Officer Grade 10	£65,826	To be split equally across the 5 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	120	-

### 3.4 Scenario tested

The model has been used to test a 'core' scenario of parking charges in Dunbar. These are based on the interpretation of the Preferred Parking Management Proposals for Dunbar 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 December 2021. Further sensitivity and scenario testing has not been carried out at this stage.

## 4 Financial model outputs

### Income

Table 4-1 outlines the expected annual income for the Preferred Parking Management Proposals for Dunbar. By reviewing the model outputs, the following observations have been noted:

- Most of the parking charge revenue is expected to come from the off-street parking locations. This is because we have estimated that drivers using the short-stay parking on the High Street will park within the free 45-minute period and not need to pay for parking. This means parking revenue from on-street locations will be lower as no revenue has been forecasted from the short-stay on-street locations.
- Revenue from parking enforcement is expected to be higher from on-street parking locations and off-street parking. In the model, the number of infringement notices expected is based on a percentage of forecast users of a particular parking area. Therefore, due to the higher turnover of users expected in the short-stay High Street area, the model forecasts there will be more infringement notices issued in this area.

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

Parking Location	Income Source	Core Scenario	
		Annual Income, £	10yr Modelled Income, £
On Street	Parking	38,000	380,000
	Enforcement Income	30,000	296,000
	<b>Total</b>	<b>68,000</b>	<b>676,000</b>
Off-Street	Parking	117,000	1,171,000
	Enforcement Income	9,000	85,000
	<b>Total</b>	<b>126,000</b>	<b>1,257,000</b>
Combined Total (On Street + Off Street)	Parking	155,000	1,551,000
	Enforcement Income	38,000	381,000
	<b>Combined Total</b>	<b>193,000</b>	<b>1,932,000</b>

Values rounded to nearest thousand

## Costs

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

**Table 4-2: Forecast Capital and Annual Operating Costs from Parking Measures in Dunbar**

Cost Type	Cost Type (Breakdown)	Core Scenario		
		Year 1 Capital Costs, £	Annual Operating Costs, £	10yr Total Modelled Costs, £
Capital Cost	Excluding Risk	160,000	-	160,000
	<b>Including Risk</b>	<b>196,000</b>	<b>-</b>	<b>196,000</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>
Total	Excluding Risk	-	-	1,486,000
	<b>Including Risk</b>	<b>-</b>	<b>-</b>	<b>1,827,000</b>

Values rounded to nearest thousand

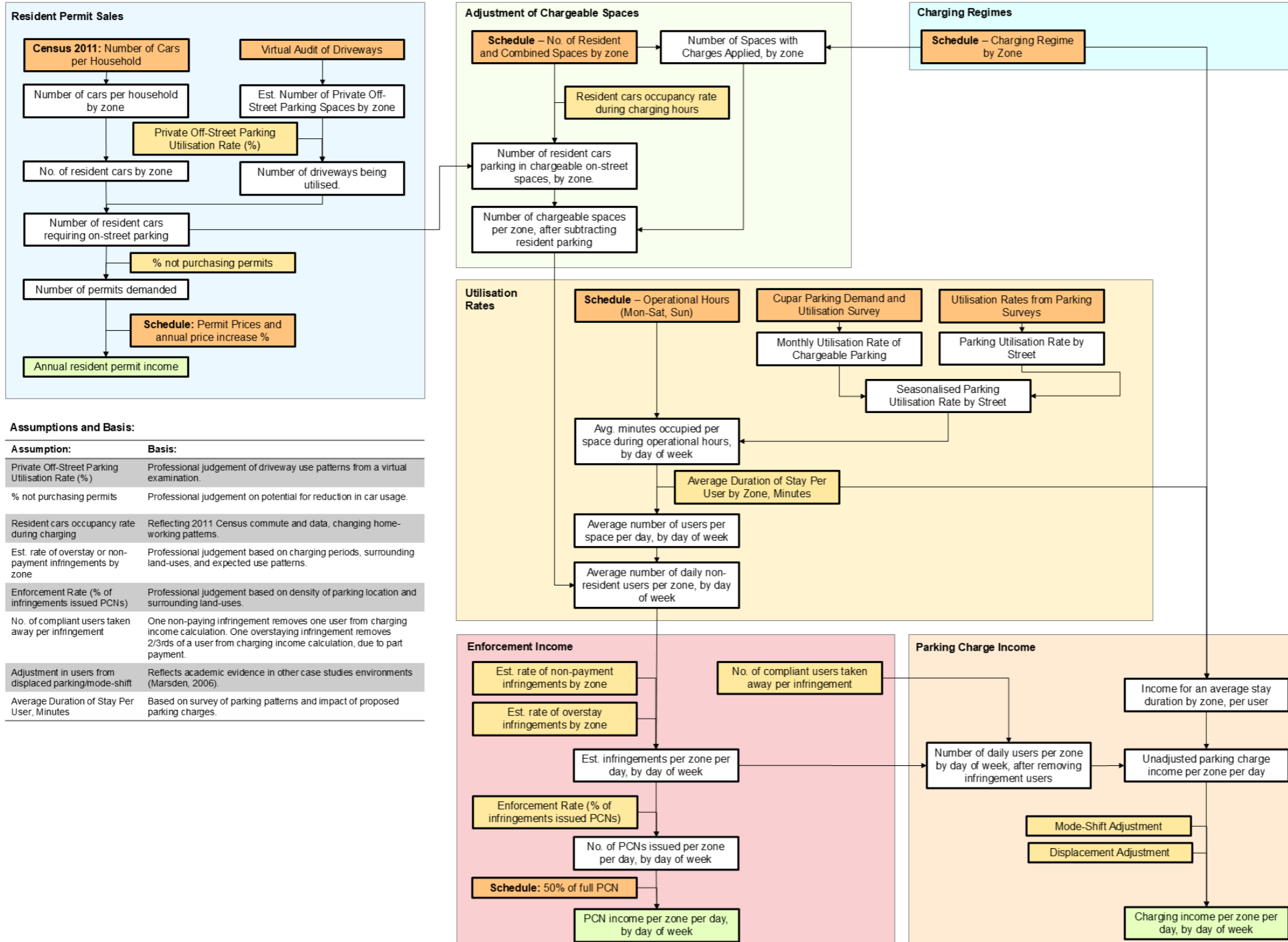
## Financial model outputs summary

For the 10-year modelled period, the financial model forecasts the income collected from the parking management measures will exceed both the initial capital costs and annual operational costs. 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 on a broader level that the management income will likely exceed costs (capital and operating), with surplus revenue over the 10-year period of approximately **£10,000 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.

