Title: 'Free-Flow' Road User Charging at the Dartford-Thurrock River Crossing **IA No:** DfT00157 **Lead department or agency:** Highways Agency **Other departments or agencies:** None	**Impact Assessment (IA)** **Date:** 17/06/13 **Stage:** Final **Source of intervention:** Domestic **Type of measure:** Secondary legislation **Contact for enquiries**: Beth Jackson, Highways Agency, Bedford, 01234 796176

Summary: Intervention and Options

RPC Opinion: RPC Opinion Status

Cost of Preferred (or more likely) Option				
Total Net Present Value	**Business Net Present Value**	**Net cost to business per year** (EANCB on 2009 prices)	**In scope of One-In, Two-Out?**	**Measure qualifies as**
£1,628.8m	£1,085.8m	N/A	No	Out of Scope

What is the problem under consideration? Why is government intervention necessary?

The Dartford-Thurrock River Crossing (the crossing) is a key part of the strategic road network, forming a link in the M25 motorway between Essex and Kent. A road user charge has been collected at the crossing since 2003 as a way of managing the high demand for its use. However, there is still considerable congestion at the crossing due to high levels of use relative to capacity, with over 50 million vehicles using it each year. This congestion reduces the efficiency of movement of people and goods to the detriment of business productivity and the economic and social activities of individuals. The congestion is compounded during the charging hours due to the need for drivers to stop and pay the road user charge at barriers on the south side of the Thames. The crossing is Government owned, operated and maintained, so only Government can intervene to mitigate the negative impacts caused by congestion at the crossing.

What are the policy objectives and the intended effects?

The Government's objective is to improve traffic flow at the crossing through the introduction of a 'free-flow' charging arrangement. 'Free-flow' charging would reduce congestion whilst continuing to maintain an effective road user charging scheme to manage demand for use of the crossing. The policy objective is to support delivery of a 'free-flow' road user charging operation in both directions at the crossing, which would reduce journey times and the variability in journey times whilst maintaining revenues that enable the Department for Transport (DfT) to continue to prioritise development and funding of improvements in the short, medium and longer term. There will be a number of secondary social and environmental effects which have been quantified and considered as part of the DfT appraisal process.

What policy options have been considered, including any alternatives to regulation? Please justify preferred option (further details in Evidence Base)

The following policy options have been considered in addition to the 'Do Nothing' option.
Option 1 (preferred): 'Free-flow' charging with a new charging scheme order to introduce enforcement measures. Three sub options were considered within this option, to allow only pre-payment of the road user charge; only post-payment of the road user charge; or both pre and post-payment of the road user charge.
Option 2: 'Free-flow' charging without a new charging scheme order.
Option 3: 'Free-flow' without a road user charge ('open-road').
Introduction of 'free-flow' charging would not require new legislation per se. However, it would not be possible to ensure continued collection of the road user charge and maintain the current revenue from the crossing under a barrier-free, 'free-flow' operation without new statutory powers to enforce against non-payment. The preferred intervention is therefore Option 1, with both pre and post-payment allowed.

Will the policy be reviewed? It will be reviewed. **If applicable, set review date:** 10/2019

Does implementation go beyond minimum EU requirements?			N/A		
Are any of these organisations in scope? If Micros not exempted set out reason in Evidence Base.	**Micro** Yes	**< 20** Yes	**Small** Yes	**Medium** Yes	**Large** Yes
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** 0	**Non-traded:** +0.2	

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible SELECT SIGNATORY: Stephen Hammond Date: 19/06/13

Summary: Analysis & Evidence

Policy Option 1

Description: 'Free-flow' charging with a new charging scheme order to introduce a post-payment period in addition to pre-payment, and enforcement measures.

FULL ECONOMIC ASSESSMENT

Price Base Year 2011	PV Base Year 2013	Time Period Years 25	Net Benefit (Present Value (PV)) (£m)		
			Low: N/A	**High:** N/A	**Best Estimate:** £1,628.8m

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	N/A	1	N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	£76.8m		£26.0m	**£509.1m**

Description and scale of key monetised costs by 'main affected groups'

Breakdown of Best Estimate 'Total Costs' in 2011 market prices, discounted to 2013 Present Value Year.
Government (Public Accounts): Installation, Maintenance, Operation and Renewal: £395.7m
Government (Public Accounts): Charge Enforcement: £27.1m
Road Users (Economy): User Charges (from increased traffic flow): £74.8m
Road Users (Economy): Incorrectly Issued PCNs: £4.2m
Public (Environment): Increase in Greenhouse Gas Emissions: £7.3m

Other key non-monetised costs by 'main affected groups'

None

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	N/A	0	N/A	**N/A**
High	N/A		N/A	**N/A**
Best Estimate	£0.0m		£129.0m	**£2,137.9m**

Description and scale of key monetised benefits by 'main affected groups'

Breakdown of Best Estimate 'Total Benefit' in 2011 market prices, discounted to 2013 Present Value Year.
Road Users (Economy): Improvement in Transport Economic Efficiency: £1,842.7m
Road Users (Economy): Improvement in Journey Time Reliability: £42.8m
Road Users (Society): Decrease in Accidents: £4.2m
Government (Public Accounts): Additional Indirect Tax Revenue: £72.7m
Government (Public Accounts): Increase in Charge Revenue: £175.5m

Other key non-monetised benefits by 'main affected groups'

Public (Environment): Slight Beneficial impact on Townscape.

Key assumptions/sensitivities/risks — **Discount rate (%)** 3.5%

The majority of the benefits are based upon the outputs of a traffic model: in particular, the differences between model outputs for the without and with scheme scenarios in the opening year and future years. The estimated benefits are therefore dependent upon the accuracy of the models and future traffic forecasts. To help ensure robustness, traffic models and forecasts have been prepared to follow the DfT's transport appraisal guidance, WebTAG (Web Based Transport Analysis Guidance, http://www.dft.gov.uk/webtag/). WebTAG reflects the principles of the HM Treasury document entitled *Appraisal and Evaluation in Central Government*. WebTAG has evolved over several years to take account of changing requirements and knowledge and is supported by a substantial body of research.

BUSINESS ASSESSMENT (Option 1)

Direct impact on business (Equivalent Annual) £m:			In scope of OITO?	Measure qualifies as
Costs: N/A	**Benefits:** N/A	**Net:** N/A	No	Out of Scope

Evidence Base

Contents

Annexes

1. Problem under Consideration and Rationale for Government Intervention

Introduction

1.1 The Dartford-Thurrock Crossing (the crossing) is a key part of the strategic road network. The crossing spans the River Thames between Dartford and Thurrock, approximately 16 miles east of central London, and forms a trunk road link (the A282 Trunk Road) in the M25 London orbital motorway. The crossing comprises two two-lane tunnels carrying northbound (anticlockwise) traffic under the River Thames and a four-lane cable-stayed bridge, the Queen Elizabeth II Bridge, carrying southbound (clockwise) traffic over the river.

1.2 The crossing is a vital regional and national transport link, forming a gateway to the major ports on the Kent and Essex coast. The *Dartford River Crossing Study into Capacity Requirement* which was published by DfT in 2009[1] (hereafter known as the '2009 DfT Study'), provided a comprehensive analysis of the crossing and noted that 22-32 per cent of trips using the crossing were for business purposes[2]. The 2009 DfT Study pointed to the importance of the crossing, particularly for strategic movements of people and goods.

1.3 A road user charging scheme exists to manage demand for use of the crossing. Road users are required to pay a charge to use the crossing between 06:00 and 22:00 hours, seven days a week. Charges vary by vehicle class and are collected at barriers in a plaza area on the south side of the crossing. In-vehicle electronic tags ('DART-Tags') allow account holders and local Thurrock and Dartford residents to use the crossing at discounted rates. The operation of the M25 and the crossing is managed under a Design, Build, Finance and Operate ('DBFO') contract, which expires in 2039.

Capacity and congestion

1.4 Daily two-way traffic levels average about 141,000 vehicles per day compared to an original design capacity of 135,000 vehicles per day and levels in excess of 160,000 vehicles per day occur at least once a week. The 2009 DfT Study predicted a 38 per cent increase in traffic volumes by 2031 indicating that the current congestion will become progressively worse over time. The requirement for drivers to stop and pay charges at the barriers, combined with the high volume of traffic using the crossing results in congestion and delays occurring for many hours each day.

1.5 The current congestion at the crossing reduces the efficiency of movement of people and goods to the detriment of business productivity and the economic and social activities of individuals. Some form of intervention is required to alleviate the current congestion and to prevent it from worsening in the future due to anticipated traffic growth in the coming years. The intervention to mitigate the negative impacts caused by congestion at the crossing needs to be undertaken by Government because the crossing is Government owned, operated and maintained.

1.6 The Department for Transport has made clear that providing improvements to the performance of the crossing is a priority in view of its role in the movement of goods and people, and its contribution to the economy. DfT stated in the consultation on *Revised Charges at the Dartford-Thurrock River Crossing (30 June 2011)*[3] (hereafter known as 'DfT's Revised Charges Consultation') the short, medium and long term measures it intends to prioritise to achieve this objective. In May 2012 the Department published its consultation response, which confirmed the Government's intentions to introduce a two step increase in charges at Dartford which would result in a short term decrease in traffic flow and increased revenue which would allow the Department to continue to prioritise investment in the following areas:

- Short term measures that included suspension of charges to allow free use of the crossing at times of severe congestion;
- The medium term measure to introduce 'free-flow' charging; and
- Long term measures that include a review of options for additional crossing capacity.

[1] http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/about/strategy/capacityrequirements/dartfordrivercrossing/

[2] Defined as trips for work purposes in the course of a normal business day excluding commuting trips.

[3] *Revised Charges at the Dartford-Thurrock River Crossing (30 June 2011)* - http://www.dft.gov.uk/consultations/dft-2011-08/

2. Background and Focus of this Impact Assessment

Selection of 'free-flow' charging in both directions as the preferred scheme option

2.1 In 2011 the Highways Agency examined the options for DfT's medium term solution to introduce 'free-flow' charging at Dartford. Ten scheme options which included a range of charging configurations and supporting road layouts were considered. Annex 1: Options for Implementing Free-Flow Charging provides a detailed summary of all scheme options considered, including the preferred option. In June 2011 the then Secretary of State agreed that 'free-flow' charging in both directions should be progressed as the preferred scheme option for managing congestion at the crossing in the medium term as it provides the most balanced combination of operational efficiency, economic benefit and whole life cost, realising the full potential of improving traffic flow to reduce congestion and delays both north and southbound. The policy options considered here are therefore based on the assumption that a 'free-flow' operation will be introduced in both directions.

2.2 Introduction of 'free-flow' charging in both directions would see significant changes to the current operation, and would require capital investment to reconfigure the roadside infrastructure and to provide new back-office detection, charging and enforcement management services for the crossing. 'Free-flow' charging in both directions would improve traffic flow and reduce congestion and delays by removing the current requirement for drivers to stop at the barriers to pay the road user charge at booths within a plaza environment. The booths and barriers would be removed, but the road user charge would still be payable in both directions. Road users would pay the charge remotely, and would have access to a variety of payment channels supported by new technology, in line with the Government's 'Digital by Default' strategy. Payment channels could include accounts and payment by website, telephone, SMS, smart phone app, post and at retail outlets.

2.3 Policy intervention is deemed necessary so that a new charging scheme order can be introduced to support the introduction of 'free-flow' charging in both directions at the crossing. The new order would introduce measures to ensure that payment of the road user charge continues under a 'free-flow' charging operation. Compliance with the road user charging scheme under a 'free-flow' operation is vital so that demand (and therefore congestion) continues to be managed, and so that revenues under the existing (barriered) charging operation are maintained. The proposed new charging scheme order would therefore allow for enforcement of the road user charge, which is considered necessary for reasons explained in paragraphs 5.34 – 5.42. Although drivers would be encouraged to pay the road user charge in advance of their use of the crossing, the proposed changes in legislation would also provide opportunity to post-pay at the same rate up to midnight on the day following the day of use of the crossing. Introduction of an option to post-pay following use of the crossing requires further legislative changes, which would be addressed by the new charging scheme order. Such an arrangement of both pre and post-pay is similar to other schemes from around the world which allow post-payment periods. The London Congestion Charging scheme, for example, allows a minimum six hours for post–payment (from the end of charging at 18:00 hours to midnight on the same day), and the M50 Dublin scheme allows payment to be made up to 8:00pm the following day.

Focus of this Impact Assessment

2.4 This Impact Assessment considers the new charging scheme order that would replace *The A282 Trunk Road (Dartford-Thurrock Charging Scheme) Order 2012*,for the purposes of introducing a credible 'free-flow' charging operation in both directions at the crossing. The preferred 'free-flow' charging scheme option would be best supported by additional statutory powers which can only be obtained through new secondary legislation introduced under the existing primary legislation - the *Transport Act 2000*[4] - to allow for the introduction of:

- Enforcement of the road user charge in cases of non-compliance at the crossing;
- Introduction of a discretionary post-pay period; and
- Requirements on how penalty charge values are to be communicated to road users.

[4] *Transport Act 2000* http://www.legislation.gov.uk/ukpga/2000/38/contents

2.5 Introduction of enforcement powers would require new enabling enforcement regulations as a separate Statutory Instrument which would specify the maximum penalty charge levels permissible at a scheme level. Such regulations would also be introduced under provisions in the *Transport Act 2000.* The requirement for including the above provisions is considered in greater detail in Section 5 of this impact assessment.

2.6 The preferred option of 'free-flow' charging in both directions with a new charging scheme order to introduce enforcement measures and a discretionary post-payment period best meets the policy objective and is considered in detail within this Impact Assessment. However, other options were considered in the initial stages but were discounted on grounds of feasibility – consideration of these options is discussed in Section 5.

2.7 By looking at the economic costs and benefits of a 'free-flow' charging scheme compared to the existing situation, this impact assessment examines the need for a new charging scheme order so that a credible 'free-flow' charging operation may be implemented at the Dartford Crossing. This would ensure the policy objectives are met by improving flow whilst maintaining an effective road user charging scheme which manages demand for use of the crossing, and maintaining the forecast cumulative cash flow estimated to 2039 if the existing (barriered) charging arrangement continued.

2.8 Whilst the proposed enabling enforcement regulations would not make a legislative requirement on the Highways Agency to state the value of penalty charges within the new charging scheme order, the penalty charge values for the preferred option are provided in order to highlight that it is proposed to set penalty charges for Dartford lower than the maximums that would be permitted under the new enforcement regulations. This is to balance the objectives of maintaining the overall financial position of the existing charging scheme and proportionality with penalty charges payable for other civil traffic offences outside of the London area. A consideration of different penalty charge levels is presented in Annex 3 – Penalty Charge Analysis.

3. Policy Objective

3.1 The policy objective is to support the Department's medium term measure of introducing a 'free-flow' charging operation at the Dartford Crossing, which would:

- Improve traffic flow and reduce congestion at the crossing, and
- Continue to collect road user charges so that the scheme maintains the cumulative cash flows estimated to 2039 if the existing charging arrangement continued.

3.2 An improvement in traffic flow at the crossing would result in a reduction in the cost of congestion to business and individuals, which would in turn promote economic activity and improve social wellbeing.

3.3 Retaining the road user charges at the rates set in DfT's *Revising the Charges at the Dartford-Thurrock River Crossing: Consultation Response*[5] would preserve the revenue realised under the existing charging operation. This revenue would continue to be passed to Government and would allow the Department to continue to prioritise development and funding of proposals, particularly for the provision of additional crossing capacity in the Lower Thames.

[5] Consultation outcome - Dartford-Thurrock river crossing charges consultation - https://www.gov.uk/government/consultations/dartford-thurrock-river-crossing-charges-consultation

4. Consultation

4.1 The Highways Agency published on 5 November 2012 detailed proposals for introducing post-payment and enforcement measures for 'free-flow' charging at the Dartford-Thurrock River Crossing[6]. The consultation ran for a period of twelve weeks, as required by legislation[7], and closed on 28 January 2013.

4.2 The Highways Agency's consultation was based on the assumption that a 'free-flow' charging arrangement would be implemented in both directions at the Dartford Crossing, based on Government commitments (see paragraph 2.1 above). The requirement to pay at booths and barriers would be removed, and changes would be made to the road layout to accommodate a 'free-flow' charging arrangement at the crossing. New technology and new IT infrastructure would be used to support the new charging arrangement.

4.3 In developing the proposals, the Highways Agency took account of the outcomes of the Department for Transport's 2011 consultation on revising the charges at the crossing, so did not reconsider options regarding removal of or further changes to crossing charges. No changes were proposed to the levels of discounts offered to account holders and local residents. Nor were there proposals to amend the arrangements for vehicle classification. Exemptions would also continue under the same rules as per the 2012 Order[8].

4.4 The Highways Agency's consultation therefore focussed only on proposals to introduce a new charging scheme order which would draw on proposed new enforcement regulations (*The Road User Charging Scheme (Enforcement) (England) Regulations* – which have been consulted on separately by DfT[9]). At consultation stage it was proposed that the new order would include provisions that would enable:

- Introduction of a discretionary post-pay period and a further surcharged post-pay period;
- Enforcement of the road user charge in cases of non-compliance with the new payment terms; and
- Requirements on how penalty charge values are to be communicated to road users.

Surcharged post pay period

4.5 The Highways Agency proposed that two periods for post-payment be introduced to provide further opportunities for compliance with the new free-flow charging regime before road users would become subject to the proposed new enforcement measures. The following post-payment provisions were proposed:

- Payment up to 23:59:59 hours on the day of use of the crossing would be charged at the normal road user charge rate; and
- Payment from 00:00:00 up to 23:59:59 hours on the day following the day of use of the crossing would be charged at the surcharged rate (road user charge plus 20 per cent).

Enforcement measures and proposed penalty charge levels

4.6 The enforcement provisions in the new order would draw on the proposed new enabling enforcement regulations. Enforcement at the crossing would be by means of penalty charges, leading to debt registration or immobilisation, removal, storage and disposal of 'persistent' non-compliant vehicles. The Highways Agency proposed that the penalty charge levels for use at Dartford be below the maximum rates specified in the proposed new enabling enforcement regulations.

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[6] Dartford Charging Scheme Order Consultation - http://www.highways.gov.uk/consultations/dartford-charging-scheme-order-consultation/

[7] *The Trunk Road Charging Schemes (Bridges and Tunnels) (England) Procedure Regulations 2001-* http://www.legislation.gov.uk/uksi/2001/2303/contents/made

[8] *The A282 Trunk Road (Dartford-Thurrock Charging Scheme) Order 2012* - http://www.legislation.gov.uk/uksi/2012/2387/made

[9] https://www.gov.uk/government/consultations/road-user-charging-scheme-regulations

4.7 The Highways Agency proposed that the original road user charge would be payable in addition to the penalty charge at each level. This was in order to avoid a disproportionate penalty in relation to the original charge for different classes of vehicle.

How proposed penalty charge levels will be communicated

4.8 The new charging scheme order would not specify the proposed penalty charge values for use at the crossing but would specify the way in which the penalty charge values must be communicated to users. It was proposed that publication on the crossing website would become the statutory requirement, although this information may be made available by other additional means.

Consultation questions

4.9 Consultees were asked to respond to eight questions about:

- The proposal to introduce post-pay periods that would allow road users to pay the Dartford Crossing road user charge following use of the crossing and prior to being subject to enforcement;
- The proposal to introduce provisions to enforce the road user charge at the Dartford Crossing upon the introduction of a 'free-flow' charging arrangement;
- Whether the levels of penalty charge should be lower than the maximum permissible under the proposed new enforcement regulations;
- The proposal to set the same penalty charge rate for all vehicles;
- The proposal that the original road user charge would be payable in addition to the penalty charge at each level;
- The proposal to include a statutory requirement to publish the penalty charge rates on a public website;
- The draft new charging scheme order;
- The assessment of the impacts of the proposals, particularly on small firms and protected equality groups.

Response to the consultation

4.10 The Highways Agency received 99 responses to its consultation. Responses were received from a number of statutory consultees and from a range of organisations and members of the public. The responses to the consultation have been taken into account, especially in determining the Agency's preferred option.

4.11 A significant number of respondents commented that the charging regime should be removed entirely given that the debts associated with the construction of the QEII Bridge at the crossing had been repaid, and that it was the charging mechanism itself that was the root cause of delays at the crossing. However, these matters had been recently considered by the Department in their May 2012 response to the 2011 consultation on revising the charges at the crossing, and were therefore out of scope of consideration in the Agency's consultation.

4.12 The focus of the Agency's consultation was the proposed new charging scheme order which would introduce post-payment periods and enforcement measures for 'free-flow' charging at the crossing. However, respondents took the opportunity to comment on the overall Dartford scheme proposals. In addition to stated objections to the collection of the charge, some respondents raised operational queries or suggestions which were also not a matter for the consultation. However, these comments have been considered, and some have been used to inform other areas of the project.

4.13 The majority of respondents agreed with the proposed statutory requirement to publish the penalty charge rates on a public website, although several respondents suggested that the penalty charge rates should be published by other additional means, No changes are proposed in this area with regards to the statutory requirement for publication, though the Agency may still choose to make the information available by other additional means.

4.14 Consultation question 4 asked respondents whether they agreed with the proposal to set the same penalty charge for all vehicles. The Agency received 81 responses on this question from

the total 99 respondents, of which 37 disagreed with the proposal. A number of those who disagreed stated that they felt that the penalty charge should vary by vehicle class and that, therefore, the original road user charge should not be payable. The proposal that the original road user charge would be payable in addition to the penalty charge at each level was the subject of consultation question 5. Forty respondents agreed and forty disagreed with this proposal. However, this point was considered prior to the consultation and the conclusion was that it is thought appropriate that all crossing users are treated equally for the same 'offence' of non-compliance but are differentiated by the inclusion of the original road user charge being payable as part of the penalty charge. This approach has a proportionate impact based on the different crossing tariffs. Given this rationale and the fact that the consultation responses showed a balance between those agreeing and disagreeing with the proposed approach, no changes are proposed in this area.

4.15 Although the majority of respondents agreed with the proposal to introduce periods for payment following use of the crossing, many respondents commented that a longer period without a surcharge should be permitted. The two hour minimum (from the end of the charging period at 22:00 hours to 23:59:59 hours) was not considered long enough. Respondents made a number of suggestions regarding how long crossing users should be given to pay without a surcharge, and these ranged from payment within twelve hours of use of the crossing, to payment within seven days. However, the most common suggestions were either twenty-four hours following use, or up to midnight on the day following the day of use.

4.16 The preferred option maintains a post-pay period that would allow road users to pay the Dartford Crossing road user charge following use of the crossing and prior to becoming subject to enforcement, but details for this have been amended in response to views expressed by consultation respondents.

4.17 A discretionary period for post-payment until midnight next-day would be similar to other similar schemes where a longer period to post-pay without a surcharge exists before enforcement measures are introduced. The pre-consultation proposed minimum window of two hours is considerably shorter than the period available in the London Congestion Charging scheme, which provides a minimum six hours for post–payment (from the end of charging at 18:00 to midnight on the same day). Other schemes from around the world allow a post-payment period of at least twenty-four hours.

4.18 Having a fixed post-payment period end point, as opposed to allowing users twenty-four hours following use of the crossing to pay the charge, is considered much less complex to administer, simplifies the communication of the charge operation (particularly where payment is made through retail and telephone channels), and results in lower forecast costs for system design and operation.

4.19 Extending the discretionary period in this way reduces the need for the surcharged period 'buffer' between pre-payment and enforcement which was originally proposed to provide those who were accidentally non-compliant with an opportunity to pay before being subject to a penalty charge.

4.20 The inclusion of a further surcharged period following the proposed extended standard rate discretionary post-payment period would likely create operational difficulties and expense. It would be significantly more complex to build a system robust enough to identify whether a user is paying within the discretionary or surcharged post-payment period, in order to ensure that they pay the correct charge.

4.21 Following assessment of consultation responses it is proposed to extend the discretionary period for post-payment of the crossing charge at the standard rate until midnight on the day after the day of use, and to remove the surcharge period. The revised preferred option therefore proposes only one post-pay period, which would allow payment of the Dartford road user charge up to 23:59:59 hours on the day following the day of use of the crossing, and which would be charged at the normal road user charge rate.

5. Description of Options

Do Nothing Baseline ie Existing Situation

5.1 The Do Nothing option assumes the continuation of the current road user charging operation, with no changes to charging scheme details such as charge period, exemptions, discounts for DART-Tag and local resident account holders and methods of payment, and no change to the road layout; so the charging plaza, booths and barriers are retained. However, for the purposes of this IA, the road user charges are assumed to be the higher of the two increased rates announced by DfT in their document *Revising the Charges at the Dartford-Thurrock River Crossing: Consultation Response*[10]*.* These rates are shown in Table 1 below.

Table 1- Assumed Charge Rates

Proposed Day Charge (06:00:01 – 22:00:00 hours)	
Year	**2014-15**
Motorbikes	Free
Cash charge	
Cars	£2.50
2 Axle Goods	£3.00
Multi Axle Goods	£6.00
DART-Tag charge	
Resident	£0.20
Cars	£1.67
2 Axle Goods	£2.63
Multi-Axle Goods	£5.19

Option 1 (Preferred): 'Free-flow' charging in both directions, with a new charging scheme order to introduce enforcement measures

5.2 The preferred scheme option is 'free-flow' charging in both directions which involves infrastructure works including removal of the booths, new roadside technology and new back office systems. 'Free-flow' charging would remove the congestion and delays associated with drivers stopping to pay the charge at charging booths, whilst maintaining the road user charge. The result would be improved traffic flow and a reduction in congestion. Journey times would be reduced and less variable, thereby making journey times shorter and more predictable or 'reliable'.

5.3 In order to meet both the congestion and revenue related policy objectives, the preferred policy option would introduce a new charging scheme order which would maintain the road user charge at the crossing and would draw on new enabling enforcement regulations to ensure continued collection of the road user charges under a 'free-flow' charging operation.

New enabling regulations for enforcement powers

5.4 New enabling enforcement regulations have been drafted by DfT in accordance with section 173 of *The Transport Act 2000*, to cover the civil enforcement of road user charging schemes.

5.5 The enforcement regulations would include provision to impose penalty charges within maximum permissible values, which may be payable in addition to the original road user charge. The regulations would also permit the examination of vehicles and equipment and the immobilisation, removal, storage and disposal of vehicles. Provisions will also cover arrangements for pursuing debt through the courts and for adjudication.

5.6 For vehicles where registered keeper details are known, and where the registered keeper address is in England or Wales, outstanding penalty charges would be registered as debts and pursued through the Traffic Enforcement Centre[11]. Where registered keeper details are unknown,

[10] Consultation outcome - Dartford-Thurrock river crossing charges consultation - https://www.gov.uk/government/consultations/dartford-thurrock-river-crossing-charges-consultation

[11] http://www.justice.gov.uk/courts/northampton-bulk-centre/traffic-enforcement-centre

or where the registered keeper lives outside the jurisdiction of the courts in England and Wales, the enforcement regulations would provide for alternative means of pursuing penalty charge debts. These would include provision for the immobilisation and/or removal, storage and subsequent disposal of non-compliant vehicles where there are three or more outstanding penalty charge payments.

5.7 The new enforcement regulations would be purely 'enabling'; they would have no impact until a scheme specific charging authority draws upon the provisions through a charging scheme order. This impact assessment assesses the impact of a new charging scheme order for the Dartford Crossing, including impacts that are expected to result from drawing upon the enabling enforcement regulations.

5.8 DfT consulted on the proposed new regulations at the same time as the Agency's consultation on the new Dartford charging scheme order. Consultation response documents, detailing the outcome of each consultation, will be published during summer 2013.

Enforcement measures under a 'free-flow' charging operation at Dartford

5.9 In addition to introducing measures intended to maximise compliance to ensure that the road user charges continue to be paid following introduction of 'free-flow' charging at Dartford (see paragraphs 5.24 – 5.29 5.28below), it would also be necessary to take enforcement action in relation to cases of non-payment. It is proposed to do this through the application of penalty charges. The non-payment of penalty charges would then be subject to debt registration and recovery, or may lead to immobilisation, removal, storage or disposal of vehicles.

5.10 The penalty charge value for enforcement of the road user charge at the Dartford Crossing would be the higher level 'Band 2' value set out in *The Civil Enforcement of Parking Contraventions (Guidelines on Levels of Charges) (England) Order 2007*[12] (No. 3487), namely £70. The penalty charge would be reduced to £35 if paid within fourteen days and increased to £105 if paid after a charge certificate has been served.

5.11 The original road user charge would be payable in addition to the penalty charge. The road user charge has been included to ensure that a single penalty charge level for all vehicle types does not disproportionately penalise those who pay a lower road user charge. For example, with a penalty charge of £70, and without the original road user charge being payable, car users who should pay a £2.50 road user charge would effectively pay a penalty charge of £70 - £2.50 = £67.50, whilst multi axle goods vehicle users who should pay a road user charge of £6.00 would effectively pay a penalty charge of £70 - £6.00 = £64.00.

5.12 The £70 penalty charge value proposed for use at Dartford is less than the maximum permissible under the draft DfT enforcement regulations referred to in paragraphs 5.4 – 5.8 above, and has been set at a level which is between the maximum permissible and the level calculated to be needed to ensure that cumulative cash flow estimated to 2039 would be at least the same as if the existing charging arrangement continued.

5.13 Annex 3: Penalty Charge Analysis provides details of how the proposed level of penalty charge has been calculated on this basis.

5.14 The detection of non-paying vehicles would be through automatic number plate recognition (ANPR) technology which would involve the use of ANPR cameras positioned over each traffic lane on gantries. The cameras would identify the registration details of all vehicles using the crossing which would then be cross-checked against payment records.

5.15 The following three sub-options regarding requirements for pre or post-payment of the road user charge were considered within this preferred policy option:

- Pre-payment only;
- Post-payment only; or
- Both pre and post-payment of the road user charge.

[12] *The Civil Enforcement of Parking Contraventions (Guidelines on Levels of Charges) (England) Order 2007* - http://www.legislation.gov.uk/uksi/2007/3487/contents/made

Pre-payment only

5.16 No other 'free-flow' charging schemes are known to operate a pre-pay only policy for casual users, and so there is no comparable scheme. Similar 'free-flow' road user charging schemes all operate post-pay periods in addition to pre-payment, though the duration of these periods vary by scheme. This approach is more flexible than requiring only pre-payment for use of the crossing.

5.17 Evidence and experience from the M50 Dublin and London Congestion Charging schemes demonstrate that a high proportion of scheme users pay after they have incurred the charge, and hence post-pay periods, combined with a variety of payment channels, help deliver compliance through maximising the opportunities to pay when users naturally choose to pay.

5.18 A requirement for only pre-payment of the road user charge would not enable the user to choose the payment method most convenient for them and users would have no opportunity following their use of the crossing to comply with the requirements of the scheme, before they then become subject to enforcement. This would result in enforcement against those who are unintentionally non-compliant (ie those who are unaware of the requirement in advance of using the crossing, or simply forget to pre-pay before using the crossing).

5.19 Advice on behavioural aspects of a pre-pay only scheme indicates that a significant proportion of road users would not pay in advance before commencing their journey. Under a 'free-flow' charging operation opportunity to pay would exist at many motorway service areas and retail outlets around and on approach to the M25, but it is expected that the majority of users would leave paying until they reach Dartford and Thurrock. Further pressure would then be placed on local roads in the area as traffic diverts to pay the charge. There would also be a higher risk of people attempting to pay by phone whilst driving.

5.20 For the reasons stated above, offering only pre-payment for casual users was not considered a feasible option for 'free-flow' charging in both directions at Dartford, and no detailed analysis of this sub-option is considered in this impact assessment.

Post-payment only

5.21 Consideration was also given to introducing 'free-flow' charging with post-payment provision only. However, as with pre-payment only, there is no known road user charge scheme that requires post-payment only without provision for pre-payment.

5.22 Allowing post-payment only would restrict the opportunities for scheme users to pay, and as with pre-payment only, this may cause local overloading of retail facilities, is likely to reduce compliance, and would therefore increase the numbers of users subject to enforcement.

5.23 For the reasons stated above, offering only post-payment for casual users was not considered a feasible option for 'free-flow' charging in both directions at Dartford, and no detailed analysis of this sub-option is considered in this impact assessment.

Pre-payment and post-payment

5.24 To encourage compliance and minimise the inconvenience to road users, a number of mechanisms for pre and post-payment would be likely to be introduced (see paragraph 2.2). An extended discretionary period for post payment of the Dartford road user charge up to 23:59:59 hours on the day following the day of use of the crossing, and which would be charged at the normal road user charge rate would enable users who did not pre-pay to reach either their home or another point where payment could be made safely and conveniently and without additional charge following their use of the crossing. A post-payment option also significantly increases payment location options. Road signage and a targeted public information campaign would also help to maximise compliance with the road user charging scheme under the new charging operation.

5.25 Drivers would be encouraged to pay the road user charge in advance of their use of the crossing (pre-payment) but the road user charge would be the same as that which would apply in the absence of 'free-flow' charging (ie with the booths and barriers retained) whether it was pre-paid before the crossing is made, or post-paid by midnight on the day after use.

5.26 In common with other similar schemes (eg the London Congestion Charge) the new 'free-flow' charging operation would include opportunity to pay the road user charge following use of the crossing. The post-payment period, up to 23:59:59 hours on the day following the day of use of the crossing, would allow users to pay before they became subject to formal enforcement measures.

5.27 Allowing post-payment recognises that not all users would be aware of the charge and that for some who are, pre-payment may not always be convenient.

5.28 The inclusion of a post-pay period could positively influence the public's acceptance and compliance with a 'free'-flow' road user charging scheme. Advice obtained by the Highways Agency supports this position, and experience from the M50 Dublin and London Congestion Charging schemes demonstrates that the ability to post-pay through a variety of payment channels helps deliver compliance through opportunity to pay, and reduces operational costs.

5.29 Following assessment of consultation responses it is proposed to extend the discretionary period for post-payment of the crossing charge at the standard rate until midnight on the day after the day of use, and to remove the proposal to include a further surcharged period.

New charging scheme order

5.30 Whilst 'free-flow' charging could be implemented technically without legislative change, it would not be possible to implement the enforcement or post-payment aspects of the proposed new charging operation without such changes. In effect therefore, the successful implementation of the 'free-flow' charging operation would require legislative change in the form of a replacement charging scheme order, under the *Transport Act 2000*. The new order would revoke and replace *The A282 Trunk Road (Dartford-Thurrock Crossing Charging Scheme) Order 2012,* and would make provision for the following:

- Enforcement of the road user charge in cases of non-payment;
- Introduction of a discretionary post-pay period; and
- Requirements on how penalty charge values are to be communicated to road users.

5.31 Inclusion of a discretionary post-pay period is permissible under Section 171 of the *Transport Act 2000*, but the introduction of enforcement powers will require new enabling enforcement regulations as a separate Statutory Instrument (see paragraphs 5.4 – 5.8 above). Such regulations would also be introduced under provisions in the *Transport Act 2000*.

Other options considered

Option 2: 'Free-flow' without a new charging scheme order

5.32 The option for implementing 'free-flow' charging, with all associated changes to infrastructure, but without introducing a new charging scheme order to replace *The A282 Trunk Road (Dartford-Thurrock Charging Scheme) Order 2012* was also considered. Introduction of 'free-flow' charging under the existing order would not allow a discretionary post-pay period, nor enforcement measures.

5.33 Enforcement measures are deemed necessary for a credible 'free-flow' charging scheme at Dartford for reasons explained in paragraphs 5.34 – 5.42 below.

The case for enforcement measures

5.34 All known comparable barrier-free road user charging schemes commenced operations with both the legislative and infrastructure powers for an effective enforcement system in place. In the absence of a non-enforced road user charging scheme against which to benchmark, it is not possible to predict the level to which compliance would drop without both physical barriers and enforcement powers. However, it is clear that zero compliance would equate to the absence of a road user charge, which would lead to an increase in traffic volumes and a significant reduction in revenue from the road user charge. This is demonstrated in the final Impact Assessment that was published alongside DfT's document *Revising the Charges at the Dartford-Thurrock River Crossing: Consultation Response*[13]*.*

5.35 The comparable schemes (London Congestion Charge, Dublin M50, Stockholm Congestion Charge and Norway Autopass) have had successful compliance rates of 93 per cent to 98 per cent for domestic users when launched, in part due to the effective use of enforcement provisions including the use of penalty charges to encourage compliance. In most cases, post-payment

[13]Consultation outcome - Dartford-Thurrock river crossing charges consultation - https://www.gov.uk/government/consultations/dartford-thurrock-river-crossing-charges-consultation

periods (either discretionary, or surcharged, or both) have also been used as a way of maximising compliance prior to enforcement.

5.36 One of the challenges of moving to a 'free-flow' charging scheme is gaining a high level of payment compliance when, after removal of the booths and barriers, there is nothing physically to stop a vehicle using the crossing without payment of the road user charge.

5.37 Without provision to enforce there would be little to ensure that road users comply with the requirements of the charging scheme. Without physical barriers or the application of enforcement powers, users would become aware that there is no enforcement for non-payment of the charges and compliance rates are predicted to reduce rapidly. Analysis demonstrates that as compliance rates drop, traffic volumes would increase as road users who would have been deterred from using the crossing because of the road user charge become non-paying, non-compliant users. There would be an associated reduction in the benefits of having a road user charge in place, as traffic volumes would ultimately rise, leaving all users worse off in terms of journey time and journey time reliability.

5.38 If road user charge compliance drops, there would be an increase in congestion as well as a reduction in road user charge revenue. Consequently the 'free-flow' charging operation would be likely to fall into disrepute, by neither managing congestion nor continuing to collect road user charges in order to maintain the cumulative cash flows forecast under the existing charging arrangement.

5.39 Enforcement against non-payers encourages users to be compliant, and acts as a mechanism for increasing awareness of the requirements of the scheme.

5.40 The proposed new charging scheme order would allow enforcement of the road user charge by means of penalty charges, leading to debt recovery through the courts, or to immobilisation, removal, storage and disposal of 'persistent' non-compliant vehicles.

5.41 To ensure that a road user charging scheme remains credible under a 'free-flow' operation, enforcement provisions are deemed necessary. The existing Dartford charging scheme order would therefore need to be revoked and a new order introduced to allow for these provisions in order to best support introduction of 'free-flow' charging at Dartford.

5.42 'Free-flow' charging at Dartford without a new charging scheme order would not meet the policy objectives on the basis that it would result in significantly reduced road user charge revenue and increased traffic volumes leading to congestion. Therefore no detailed analysis of this option is considered in this impact assessment.

Option 3: 'Free-flow' without road user charge ('open-road')

5.43 The option of an 'open-road' arrangement, with carriageway realignment to provide four open traffic lanes north and southbound, and with plaza and barrier removal as per 'free-flow' options, but without any road user charge was also considered. However, as demonstrated in the final Impact Assessment which was published alongside DfT's document *Revising the Charges at the Dartford-Thurrock River Crossing: Consultation Response*[14], a scheme with no road user charge would increase traffic volumes and would result in no revenue from the crossing to help fund the Department's transport proposals. Therefore this option has been discounted as it would not meet the policy objectives of reducing congestion and requiring the scheme to maintain the cumulative cash flows at the same level as that which would be received from the existing charging arrangements if they continued operating to 2039 as part of the DBFO contract.

Summary

5.44 To meet the policy objectives, road user charges must continue to be collected following removal of the booths and barriers in order for demand to be managed, and so that revenues are maintained. This essentially leaves 'free-flow' charging with a new charging scheme order to introduce enforcement measures as the only option which can meet the policy objectives. Therefore, Option 1 is the preferred policy option.

[14] Consultation outcome - Dartford-Thurrock river crossing charges consultation - https://www.gov.uk/government/consultations/dartford-thurrock-river-crossing-charges-consultation

6. Details of Costs and Benefits for Option 1 (Preferred)

Do Nothing Baseline ie Existing Situation

6.1 The 'Do-Nothing' situation represents the baseline against which the proposed scheme is assessed.

Policy Option 1 (Preferred): 'Free-flow' charging with a new charging scheme order to introduce enforcement measures

Physical and operational changes required for 'free-flow' charging

6.2 Introduction of 'free-flow' charging in both directions would comprise the following changes for which the Highways Agency would incur both set-up and operating investment costs:

- Infrastructure works – gantry erection, carriageway realignment providing four open traffic lanes northbound and southbound, plaza and barrier removal and new traffic control measures to ensure continued safety and integrity of the tunnels;
- Roadside technology – automatic number plate recognition (ANPR) and in-vehicle tag and beacon equipment and communications infrastructure to detect and record vehicles using the crossing; and
- Back office operations – IT systems, enforcement and customer services to administer the new methods of charging. Further details are provided in Annex 2: Back Office Functions.

Assessment Methodology

6.3 The impacts of a 'free-flow' charging operation, including costs and monetised benefits, have been appraised using DfT's WebTAG (Web-based Transport Analysis Guidance) which is based upon HM Treasury Green Book principles. WebTAG identifies a wide range of possible impacts that transport schemes can have and prescribes detailed methodologies for quantifying these impacts and monetising them wherever possible. The range of impacts which must be considered come under the three main headings of Economy, Environment and Society, which are then subdivided into sub-impacts such as Journey Times, Reliability, Noise, Air Quality, Landscape, Greenhouse Gas Emissions and Accidents etc. Scheme promoters are required to assess all these impacts using the prescribed methodologies.

6.4 Because WebTAG relates to transport schemes generally, there is a second tier of more detailed appraisal guidance which relates specifically to trunk road schemes and which is contained within DfT's / the HA's *Design Manual for Roads and Bridges* (DMRB)[15]. In particular, Volumes 11 to 14 of the DMRB contain supplementary appraisal guidance on a number of issues including traffic model building, the assessment of accident impacts and environmental assessment.

6.5 The cornerstone of the appraisal process for road schemes is a traffic model. The model is a computer based representation of the physical characteristics of the road network, the behaviour of traffic using the network and the origins and destinations of that traffic. The model is built and calibrated to represent the road network (the 'supply') and the traffic 'demand' upon it at the current time 'the base year'.

6.6 Using the behavioural relationships between supply and demand contained within the model, it is possible to alter the network to represent a new road scheme, or change the traffic demand (to represent traffic growth), and identify how traffic flows and speeds change as a result. This provides the information necessary to identify changes in journey times, journey time reliability, vehicle operating costs, tax revenues and accidents across the network in any modelled future year. The information is also used to assess certain environmental impacts, namely greenhouse gases, air quality and noise.

Sensitivity tests

6.7 There is some uncertainty in relation to forecasts of future traffic levels when modelling future years. These forecasts are made at a national level through DfT's National Transport Model and are based upon certain assumptions regarding household growth, income growth, changes in fuel

[15] Design Manual for Roads and Bridges www.dft.gov.uk/ha/standards/dmrb/

price and how these affect the level of car ownership and usage. Changing these core assumptions can affect the level of future year benefits and it is a requirement of WebTAG that different scenarios of future traffic growth are modelled, in addition to the most likely or 'Core Scenario'. These scenarios are termed the Highest and Lowest Benefits Scenarios and represent the highest and lowest levels of future traffic growth which might reasonably be expected to occur, though such outcomes are considered less likely than the Core Scenario. It is correct to infer from this that the greater the level of future traffic demand, the greater are the benefits of the proposed scheme (this applies to all road schemes). In addition, the future level of benefits is affected by future changes to the transport network or 'supply'. In particular, future provision of roadspace elsewhere in the road network can affect the level of traffic demand on the scheme section and thus the number of users who benefit from improved journey times.

6.8 Although alternative traffic growth scenarios have been modelled, this work was undertaken at an early stage on the assumption that discounts on charge rates would not be available to holders of pre-payment accounts. It was subsequently decided that discounts would indeed be available (as they are at present) and these discounts have been included within the modelling work. However, the magnitude of difference in the alternative forecasts compared to the Core Scenario was relatively small and would not significantly alter the WebTAG Benefit Cost Ratio (BCR) or Value for Money (VfM) category of the scheme. In particular, DfT allocates all schemes with a WebTAG BCR of 2 or more into the High or Very High VfM category. The scheme currently has a WebTAG BCR of 4.2, which makes it inconceivable that alternative forecasts would have a BCR which is anything other than High VfM. For this reason, the time and cost of producing alternative forecasts was considered unjustified and the forecasts were not prepared. As a result, 'High' and 'Low' estimates of the benefits are not provided in the summary sheet for the proposed 'free-flow' charging scheme.

6.9 With regards to the costs of implementing and operating the scheme, WebTAG does not require the production of Highest and Lowest Cost Scenarios as part of the economic assessment. A single 'Best Estimate' is used which for the road layout and on-road infrastructure includes a risk allowance based upon a quantified risk assessment, and for other costs such as back-office operating costs and IT infrastructure includes optimism bias in accordance with HMT Green Book guidance. The estimate, the risk assessment and the optimism bias are refined as the scheme progresses towards implementation and design work allows more accurate quantification of the risks and costs. At the end of each scheme stage, the net present value and benefit cost ratio of the scheme are recalculated on the basis of the latest scheme costs before a decision is made by the Highways Investment Board to proceed to the next stage. High and Low estimates of the costs are also not therefore provided in the summary sheet for the proposed 'free-flow' charging scheme.

6.10 High and low traffic growth scenarios will be modelled by the Highways Agency following the procurement of the detection, charging and enforcement management services provider to confirm the VfM conclusion.

Appraisal Period

6.11 The Treasury Green Book requires that the appraisal period over which the costs and benefits should be assessed should extend to the useful life of the assets. In the case of the proposed scheme, there is little in the way of new physical assets and most of what there is will require renewal at variable intervals of just a few years; only the new gantries have a relatively long life of 30 years. Therefore, since the cost of asset renewal must be included in the cost benefit analysis, the duration of the appraisal period is of less significance than usual to the BCR and NPV. However, on the basis that the 'free-flow' charging scheme is likely to continue to operate along similar lines at least until the M25 DBFO contract expires in 2039, 2039 has been set as the horizon year. With a programmed opening year of 2014, this gives a 25 year appraisal period. This is also consistent with the appraisal period used in the business case analysis.

Monetised Costs (Core Scenario forecast – 'Best Estimate')[16]

6.12 WebTAG and the DMRB require that the costs and benefits of transport projects are valued at 2010 prices and discounted to 2010. However, for the purpose of the impact assessment these have been converted to 2011 Prices (using the HM Treasury GDP deflator factors) and discounted to a present value year of 2013.

6.13 The scheme has the following types of financial costs incurred by Government.

- TRANSITION: Cost of Installation;
- RECURRING: Cost of Operation;
- RECURRING: Cost of Maintenance;
- RECURRING: Cost of Renewals;
- RECURRING: Cost of Enforcement;

6.14 And the following types of financial costs incurred by the road user:

- RECURRING: Road User Charges;
- RECURRING: Cost of Incorrectly Issued Penalty Charge Notices.

6.15 In terms of non-financial costs, the scheme has been appraised against a range of potential impacts as set out in WebTAG. As mentioned above, the impacts which must be considered come under the three main headings of Economy, Environment and Society which are each then subdivided into a number of sub-impacts. A number of these sub-impacts can be monetised.

6.16 The proposed scheme has the following negative monetised impacts, or non-financial costs.

- RECURRING: Cost to Climate Change through an increase in greenhouse gas emissions;

6.17 Each of the monetised costs is described in detail in the subsequent paragraphs. All monetised values quoted relate to the Core Scenario forecast and are the 'Best Estimate'.

TRANSITION: Installation Costs

6.18 The capital cost of installation is **£76.8m** (2011 Constant Market Prices – Undiscounted). The cost of installation for 'free-flow' charging is broken down into two parts:

- The cost of changes to the road layout and the on-road infrastructure; and
- The cost of establishing the 'back office' to administer payment of the road user charge.

6.19 The cost of changes to the road layout and the on-road infrastructure are derived through a standardised cost estimation process designed and undertaken by the Highways Agency. The designer supplies details of the scheme to the Highways Agency Commercial Team who apply standard rates and return the cost estimate to the designers. This estimation process is refined as the scheme preparation process proceeds. The costs include:

- Remaining expenditure on the scheme design and preparation of tender documents;
- Costs of the Highways Agency's agent supervising the construction;
- Materials and labour for constructing the scheme; and
- Claims under Part 1 of the *Land Compensation Act 1973*[17] payable to homeowners adversely affected by the scheme.

6.20 The disbenefit, or cost, of delays and disruption to traffic during construction are taken into consideration for most transport schemes. However, in this case the on road infrastructure installation would be carried out overnight and at weekends when traffic flows are low compared to the weekday daytime. The delays and disruption to traffic during installation would be minimal and the disbenefits to transport economic efficiency would be negligible. It is considered disproportionate to carry out the analysis for the disbenefit during construction and they are therefore not included in this impact assessment.

[16] WebTAG only regards expenditure such as construction, maintenance and operating costs as 'costs'. Any adverse impacts of a scheme are instead considered as disbenefits and, where monetised, are dealt with as negative values on the benefits side of the equation. However, for purposes of the IA, disbenefits are treated as costs along with the scheme investment and running costs.

[17] *Land Compensation Act 1973* - http://www.legislation.gov.uk/ukpga/1973/26/contents

6.21 The cost of establishing the 'back office' includes IT systems for charging operations under 'free-flow', and has been based on expected traffic volumes and the application of a number of documented assumptions. These assumptions have been informed by the design of the scheme and existing schemes, particularly the London Congestion Charge and the Dublin M50 scheme, as well as costs associated with existing operations. The key back office functions that the IT system would support include; account registration and management, customer enquiries and complaints, tag management, vehicle detection, compliance engine, payment processing, financial reconciliation, management information, contract management and service management.

6.22 Optimism bias was applied using the Green Book Optimism Bias calculator. Optimism bias of 56 per cent was applied to the IT and detection technology costs.

RECURRING: Operating Costs

6.23 The additional average annual operating cost is **£13.3m** over 25 years (2011 Constant Market Prices – Undiscounted).

6.24 The additional operating costs for the on-road infrastructure under 'free-flow' charging have been calculated by deducting the current operating costs from the estimated future operating costs. Unit rates from the existing M25 DBFO contract have been used to calculate both the current and estimated future operating costs. The cost of operation also includes the following:

- Back office handling fees (merchant acquirer costs) for road user charge revenue collected and IT operating costs for business operations;
- Charging operations costs such as DVLA database costs, escalating complaints, project implementation costs and Highways Agency staff costs for the management of the customer services such as technical and commercial support and stakeholder liaison; and
- Costs relating to the cessation of existing operations under the DBFO contract for the crossing.

6.25 Back office operating costs for charging operations (people costs and any other costs such as handling fees / merchant acquirer costs and IT operating costs for revenue collection) have been estimated from expected number of transactions, with optimism bias of 9 per cent applied for operating costs using the Green Book Optimism Bias calculator.

RECURRING: Maintenance Costs

6.26 The additional average annual maintenance costs of **£0.9m** over 25 years (2011 Constant Market Prices – Undiscounted) have been calculated as part of the standardised cost estimation process using unit rates from the existing M25 DBFO contract. The costs include maintenance of the carriageway, gantries, signs and road markings, drainage and lighting.

6.27 As is the case with the installation works, on-road maintenance works would be carried out overnight and at weekends, when traffic flows are low compared to weekday daytime, as currently done under the existing M25 DBFO contract. Consequently, the costs from delays and disruption to traffic during maintenance are not included in this impact assessment for the reasons stated in paragraph 6.20.

RECURRING: Renewal Costs

6.28 The average annual renewal costs of **£5.1m** over 25 years (2011 Constant Market Prices – Undiscounted) includes the following:

- Renewal of the roadside infrastructure;
- Renewal of the detection technology; and
- Renewal of IT systems required for charging operations.

RECURRING: Enforcement Costs

6.29 The average annual enforcement cost of **£1.6m** over 25 years (2011 Constant Market Prices – Undiscounted) includes the following:

- Installation and renewal of enforcement IT Systems. These fixed costs for enforcement represent the infrastructure required to be in place to issue PCNs, regardless of how many PCNs are issued;

- Maintenance of enforcement IT systems; and
- Highways Agency staff for the management of enforcement processes such as management information; image services and representations and appeals.

6.30 Evidence from similar schemes (see paragraph 5.35) shows that it would be unrealistic to assume 100 per cent compliance and that enforcement operations would be necessary for a free-flow charging scheme to remain credible, so fixed set-up costs of a penalty charge operation are included. However, as per WebTAG guidance, no penalty charge costs or revenues in relation to non-compliance are included in the economic assessment because these are volume related costs which depend on the level of non-compliance. It is also intended that the cost of generating PCNs and processing penalty charge related payments would be covered by the revenue received. Please see Annex 3: Penalty Charge Analysis for details of how the proposed level of penalty charges has been calculated.

RECURRING: Climate Change Costs

6.31 The average annual cost of the climate change disbenefit is **£0.4m** over 25 years (2011 Constant Market Prices – Undiscounted). The cost arises as a result of an increase in non-traded carbon emissions from traffic on the road network. The increases are the result of additional traffic generated by the scheme, the generated traffic being the demand response to the reduced travel costs arising from the scheme.

6.32 The information to calculate the disbenefit is extracted from the traffic model in the form of matrices of trip numbers, travel times and distances between every origin and destination. Matrices are extracted for the with and without scheme scenarios and for different time periods, vehicle types and trip purposes in the various future modelled years. The matrices are then input to a DfT computer program called TUBA[18] (Transport User Benefit Appraisal) which calculates the total volume of fuel burned by different types of vehicles on the road network in the with and without scheme scenarios. The volume of fuel burnt is then converted into carbon emissions and monetised to give the with and without scheme carbon costs. The cost to users of the fuel burnt is included in the Vehicle Operating Costs (TEE) entry in Table 4. The difference in carbon costs over 25 years is the carbon emissions impact of the scheme. Values of non-traded carbon for all future years and fuel types can be found in section 3.3.5 of DfT's WebTag guidance[19].

RECURRING: Road User Charge Costs

6.33 The average annual road user charge cost of **£4.5m** over 25 years (2011 Constant Market Prices – Undiscounted) represents the charges that would be paid by additional users of the crossing. The increase in users is the result of the additional traffic generated by the scheme at the crossing, the additional traffic being the demand response to the reduced travel costs arising from the scheme at this location. In other words, the modelling indicates that the reduced delays at the crossing would attract a small amount of extra traffic and this traffic would be subject to the crossing charges.

6.34 Revenues are related to the numbers of people who use the crossing, since user charges represent money transfers from users to operators which become revenues from the operator's point of view. However, this does not mean that the effect of changes in the total amount of charges paid by users of the crossing is the same to transport users and to the operator. In fact, for transport users, the economic effect of a change in total amount of charges paid is the resultant change in their consumer surplus. For those who do not change their behaviour, the change in consumer surplus is the same as the change in money paid, but for those who do change their behaviour, this is not the case. For operators, however, the economic benefit of an increase in charge revenues is simply the change in revenue received. Therefore, the values for user charges and for revenues in the cost and benefit analysis for each policy option are not equal in size (see paragraphs 6.33 and 6.61).

6.35 The crossing charges are not increasing as a result of changes proposed in this impact assessment (see paragraph 5.1) so the changes in road user charge costs and the associated change in charge revenue (see paragraph 6.61) are a result of behavioural change expected to occur upon introduction of 'free-flow' charging, resulting in additional charged crossings.

[18] Further information on TUBA – https://www.gov.uk/transport-appraisal-and-modelling-tools#tuba

[19] DfT WebTAG guidance - http://www.dft.gov.uk/webtag/documents/expert/unit3.3.5.php

RECURRING: Cost of Incorrectly Issued PCNs

6.36 The average annual cost of **£0.2m** over 25 years (2011 Constant Market Price – Undiscounted) represents the cost to users of dealing with PCNs which have been incorrectly issued. This cost comprises of the following elements:

- Cost to business users: £0.1m
- Cost to non-business users: £0.1m

6.37 Enforcement costs necessary to issue PCNs up to the estimated volume of non-compliance are excluded as transport modelling and economic appraisal are always undertaken on the basis that all transport users will comply with the regulations. The enforcement aspects of the regulations will mostly fall on those who use the crossing and do not pay the charge and therefore receive a PCN. However, evidence from other similar schemes has shown there is likely to be a small cost to compliant users that are wrongly issued PCNs.

6.38 The cost to users of dealing with incorrectly issued PCNs has been calculated based on the following assumptions:

- Six per cent of PCNs issued at the estimated volume of non-compliance are issued incorrectly;
- Nineteen per cent of incorrectly issued PCNs are issued to business users;
- It would take fifteen minutes for a user to complete the response form in order to submit a representation against a PCN;
- The WebTAG value for working time, used to calculate the cost to business users, is £34.12 per hour in 2010 prices, inflated to £35.04 per hour in 2011 prices and the WebTAG value for non-working time, used to calculate the cost to non-business users, is £5.71 per hour in 2010 prices, inflated to £5.86 in 2011 prices. These are both provided in section 3.5.6 of DfT's WebTAG guidance[20].

6.39 More detail on these assumptions is provided in Section 8.

Non-Monetised Costs

6.40 No non-monetised costs have been identified for the scheme.

Monetised Benefits (Core Scenario forecast – 'Best Estimate')

6.41 The proposed scheme has been appraised against a range of potential impacts as set out in WebTAG. As mentioned earlier, the impacts which must be considered come under the three main headings of Economy, Environment and Society which are each then divided into a number of sub-impacts. A number of the non-financial sub-impacts can be monetised.

6.42 The proposed scheme has the following positive monetised impacts, or benefits. With the exception of Indirect Tax Revenues, all of the monetised benefits are non-financial (social) benefits rather than financial benefits.

- RECURRING: Benefits to Transport Economic Efficiency through a net reduction in journey times and vehicle operating costs;
- RECURRING: Benefits to Journey Time Reliability through a reduction in day to day journey time variability;
- RECURRING: Benefits to Road Safety through a reduction in Accidents;
- RECURRING: Benefits from an increase in Indirect Tax Revenue;
- RECURRING: Benefits from an increase in Road User Charge Revenue.

6.43 A reduction in accidents on the charge plaza leads to the following additional benefits:

- RECURRING: A reduction in incident related journey time variability as a result of fewer accidents;
- RECURRING: A reduction in delay as a result of reducing the time spent queuing at an accident site.

[20] DfT WebTAG guidance - http://www.dft.gov.uk/webtag/documents/expert/unit3.5.6.php

6.44 The monetised benefits are described in detail within the paragraphs below. All monetised values quoted relate to the Core Scenario forecast and are the Best Estimate:

RECURRING: Transport Economic Efficiency Benefit

6.45 The average annual transport economic efficiency benefit is **£111.1m** over 25 years (2011 Constant Market Prices – Undiscounted). This benefit comprises the following elements:

- Reduction in Journey Times: £108.5m
- Reduction in Vehicle Operating Costs: £2.6m

6.46 The scheme results in a reduction in journey time at the crossing as a result of removing the requirement for drivers to stop and pay the road user charge. This reduction in journey time also allows additional traffic to reassign to the crossing from other slower routes to reduce the journey time of this traffic. This in turn reduces journey times on other routes on the network.

6.47 The reductions in vehicle operating costs are the sum of changes in both the fuel and non-fuel related costs of all vehicle trips on the network. For example, fuel costs per vehicle would reduce at the crossing because drivers are no longer required to stop, but total fuel costs at the crossing and on the approach roads may have increased because of additional traffic diverting to the crossing. However, because more traffic now uses the crossing, this would reduce congestion on other routes, thereby allowing traffic on these routes to take a more direct route, or to operate closer to the optimum speed for fuel efficiency.

6.48 The information required to calculate the transport economic efficiency benefits is extracted from the traffic model in the same manner described in paragraph 6.32. The TUBA computer program calculates the total journey times, vehicle operating costs, user charges, carbon emissions, fares and tax revenues in each year of the 25 year appraisal period. All the components are monetised within TUBA and the with scheme costs are subtracted from the without scheme costs to determine the benefit or disbenefit.

6.49 WebTAG values of time and vehicle operating costs depend upon the vehicle type, trip purpose of the occupants, the number of occupants and the time of travel. The value of time also increases over time in line with GDP growth. The value of time for the average vehicle in 2013 at 2010 market prices is £14.09 per hour. More details can be found in section 3.5.6 of DfT's WebTAG guidance[21].

RECURRING: Journey Time Reliability Benefit

6.50 The average annual journey time reliability benefit is **£2.6m** over 25 years (2011 Constant Market Prices – Undiscounted). This benefit comprises of the following elements:

- Reductions in journey time variability: £2.4m
- Reductions in incident related delay: £0.2m

6.51 The reductions in journey time variability arise as a result of making journey times through the plaza and its approaches more uniform (day to day variability) and reducing accidents (incident related variability). In particular, congestion, flow breakdown and accidents generate significant variability in journey times which makes them less predictable or 'reliable'. The reductions in incident related delay arise from reducing the number of accidents on the plaza and its approaches.

6.52 The information required to calculate the benefits is extracted from the traffic model in the form of the numbers of trips per day using the scheme section, the length of these trips and which routes are used. The information is extracted for various future modelled years for both the with and without scheme scenarios. It is then entered into a DfT computer program called Incident Cost Benefit Analysis (INCA) which calculates the change in standard deviation of the average journey time for each route at different times of the day. The calculations are undertaken for both the with and without scheme scenarios and repeated for each year of the 25 year appraisal period. A monetary valuation is attached to the changes in standard deviation which are then multiplied by the number of vehicles on each route. A reduction in standard deviation (or 'variability') is a benefit and an increase is a disbenefit.

[21] DfT WebTAG guidance - http://www.dft.gov.uk/webtag/documents/expert/unit3.5.6.php

6.53 The WebTAG value for the standard deviation of journey time in minutes is equal to 80 per cent of the WebTAG values of time. The value of time per vehicle is as per paragraph 6.49. More details on calculating journey time reliability can be found in section 3.5.7 of DfT's WebTAG guidance[22].

6.54 INCA is also used to calculate the reductions in incident related delay (see paragraph 6.55 below for detail on estimation of incident reduction). INCA does this by using the traffic flow inputs and traffic capacity of the carriageways to calculate the total queuing delay generated by accidents in both the with and without scheme scenarios.

RECURRING: Road Safety Benefit

6.55 The average annual road safety benefit is **£0.3m** over 25 years (2011 Constant Market Prices – Undiscounted). The benefit arises as a result of an expected reduction in the number of accidents with the proposed scheme compared to the existing situation. The majority of the accident reductions occur in the plaza area as a result of removing the existing charging booths and barriers. This would remove much of the current lane changing and stop-start traffic on the approach to and departure from the booths which are the primary cause of accidents under the existing charging scheme. In addition, there are also expected to be accident reductions on other routes as a result of traffic reassigning from these routes to the crossing due to the reduced congestion (accident rates for modern purpose built roads are lower than for most other road types).

6.56 The information required to calculate the accident impact is extracted from the traffic model in the form of the physical characteristics of the road network in the model area and the daily traffic flows on links and junctions. The information is extracted for various future modelled years for both the with and without scheme cases. In addition, the numbers of existing accidents at links and junctions within the network are obtained from police records. All the data is then entered into a DfT computer program called Cost Benefit Analysis (COBA) which calculates an accident rate for each link and junction and hence produces the number of accidents in the whole network for the with and without scheme cases in each year of the 25 year appraisal period. COBA attaches a monetary valuation to accidents and sums the total accident costs for each network. The difference in accident costs between the with and without scheme scenarios is the accident benefit of the scheme. In this case, COBA has predicted a decrease in accident costs across the network as a whole, including on the scheme section itself.

6.57 WebTAG values of accidents vary by severity of the accident. For example, the value associated with a fatal accident is almost ten times that of an accident with severely injured casualties. By comparison, the value of 'damage only' accidents with no casualties is low. The value of accidents also varies by road and type of junction. Most of the accident benefits under 'free-flow' would be from a reduction in damage only accidents as a result of removing the existing charging booths and barriers. More details of accident values and how they are calculated can be found in section 3.4.1 of DfT's WebTAG guidance[23].

RECURRING: Indirect Tax Revenue Benefit

6.58 The average annual increase in indirect tax revenue of **£4.4m** over 25 years (2011 Constant Market Prices – Undiscounted) arises as a result of changes in the volume, speed and distance travelled on the road network by vehicles. These changes would affect the fuel and non-fuel related running costs of vehicles, which would in turn affect the tax revenue received by the government. In the case of the proposed scheme, fuel costs per vehicle would reduce at the crossing because drivers are no longer required to stop. However, because the reduction in congestion attracts traffic to the crossing and this would primarily relate to longer trips, there is an increase in the total distance travelled on the network. The net effect of these changes is an increase in the volume of fuel burned and this results in an increase in fuel duty and VAT. Although a cost to road users, the additional revenue received is a benefit since it can be used by government to the benefit of wider society.

6.59 Changes in tax revenues are an output of the TUBA program which is described above under the Transport Economic Efficiency benefit. In particular, TUBA calculates the total volume of fuel (petrol and diesel) used by business and non-business users in the road network in the with and without scheme scenarios for each year of the 25 year appraisal period (using information from

[22] DfT WebTAG guidance - http://www.dft.gov.uk/webtag/documents/expert/unit3.5.7.php

[23] DfT WebTAG guidance - http://www.dft.gov.uk/webtag/documents/expert/unit3.4.1.php

the traffic model on trip numbers, travel times and distances). The difference in the volume of fuel used then allows the difference in fuel duty and VAT between the with and without scheme scenarios to be calculated.

6.60 The charges for using the crossing are not subject to VAT. As such, the additional charge revenue received from additional traffic using the crossing would not increase tax revenues.

RECURRING: Charge Revenue Benefit

6.61 The average annual increase in charge revenue of **£10.6m** over 25 years (2011 Constant Market Prices – Undiscounted) represents the revenue received from charges that would be paid by additional users of the crossing. The increase in users is the result of the additional traffic generated by the scheme at the crossing, the additional traffic being the demand response to the reduced travel costs arising from the scheme at this location. In other words, the modelling indicates that the reduced delays at the crossing would attract a small amount of extra traffic and this traffic would have to pay the crossing charges.

6.62 The additional charge revenue received is also considered as a monetised cost to drivers and is reported as such in the section above dealing with the monetised costs of the proposed scheme. The charge revenue benefit of £11.3m received by government is however considerably higher than the £4.8m cost of charges to drivers. The reason for this is explained in paragraphs 6.33 to 6.35.

Non-Monetised Benefits

6.63 A number of the sub-impacts required to be assessed under WebTAG cannot be monetised and are assessed using a seven point qualitative assessment score which ranges from large beneficial through neutral to large adverse. Those with a slight, moderate or large adverse score can be regarded as non-financial costs, whilst those with a slight, moderate or large beneficial score can be regarded as non-financial benefits.

6.64 The scheme has a slight beneficial impact upon townscape. In particular, existing areas of carriageway within the plaza area on the south side of the crossing would be replaced by grass and planting.

7. Rationale for Level of Analysis

7.1 The impacts are complex and so a detailed Level 5 Analysis has been undertaken to inform consultation. A Level 5 Analysis is the most detailed level of analysis identified in the IA Toolkit document and involves quantifying and, where possible, monetising the costs and benefits of the proposal. In the case of the proposed scheme, the analysis has been undertaken in accordance with the full requirements of WebTAG. In particular, all the potential impacts identified in WebTAG have been quantified and all of these have been assessed using the methodologies prescribed therein.

8. Risks and Assumptions

Implementation and Operating Costs

8.1 A quantified risk assessment has been undertaken in relation to risks affecting the costs of installing the road infrastructure and a risk allowance of £1.1m is included in the scheme estimate (at outturn prices). The scheme estimate and risk assessment will be refined as the scheme design progresses and more information becomes available.

8.2 Optimism Bias has been applied to the installation costs related to establishment of back office IT systems and also to operating costs. The rate used was 56 per cent for IT systems and 9 per cent for operating costs, in line with the Treasury Green Book.

Scheme Delivery

8.3 The proposed 'free-flow' scheme would operate in a similar manner to the London Congestion Charge scheme and would use similar ANPR technology. On this basis, it is assumed that there is no risk of not being able to deliver the scheme in the form outlined within the IA.

8.4 In relation to the risk of 'teething difficulties', the HA is proposing to have a period of system proving in advance of 'free-flow' charging go-live to ensure that the new systems are performing satisfactorily. 'Readiness for service' testing will also be performed to ensure the service provider's people and processes are operating satisfactorily. In order to inform and drive public acceptance of the new charging operation at Dartford, the HA is developing a public information campaign strategy based upon experience from the introduction of the London scheme and experience from the Dublin M50 and Stockholm road user charging schemes.

Modelling Costs and Benefits

8.5 As noted in paragraph 6.2, the introduction of 'free-flow' charging would comprise a number of changes for which the Highways Agency would incur both set-up and operating investment costs. The scheme includes back office operations and roadside technology to collect and enforce the road user charge and these are being procured by the Agency with contract signature with a service provider currently planned for autumn 2013. Infrastructure works include removal of the barriers which in turn necessitates new traffic control measures to ensure continued safety and integrity of the tunnels by detecting and stopping over-sized and hazardous goods vehicles. The design of the traffic control measures to meet the safety requirement on the northbound crossing is continuing, but details were not sufficiently advanced to model benefits accordingly for the purposes of the Regulatory Impact Assessment in the timescales required for delivery of the new legislation. Both the scheme costs and benefits will therefore be updated following the outcome of the procurement and with the projected impacts of the new traffic control measures in a Full Business Case (FBC) in autumn 2013, and these will inform the Post Implementation Review (see Annex 6). An 'enactment' stage IA will be completed in October 2013 if the new Order comes into force as planned and if the FBC identifies significant changes to the costs and benefits presented in this final stage IA. However, it is not anticipated that these final FBC updates will impact on the conclusion of this Impact Assessment, given the strongly positive NPV demonstrated. Also, the 'back-up' scheme option that retained the existing booths and barriers northbound purely for traffic management purposes (which was appraised in June 2011, and is detailed in Annex 1) reduced the projected scheme benefits by only 20%, and it is expected that the final traffic control measures will bring more benefits to northbound traffic than the back-up option would have, so will have a much smaller adverse impact on the overall benefits.

8.6 The charge revenue which features as both a cost and benefit is based upon the assumption that charges will be increased above their current level in line with the higher of the two increased rates announced by DfT in their document *Revising the Charges at the Dartford-Thurrock River Crossing: Consultation Response*[24]*,* as detailed in paragraph 5.1 above. It also assumed that the road user charge will increase in line with RPI for the remainder of the assessment period.

8.7 Currently at the Dartford Crossing, 33 per cent of crossings are made by DART-Tag account holders. It has been assumed that the introduction of a 'free-flow' charging operation would increase the percentage to 50 per cent of crossings made by account holders. This assumption is

[24] Consultation outcome - Dartford-Thurrock river crossing charges consultation - https://www.gov.uk/government/consultations/dartford-thurrock-river-crossing-charges-consultation

based on an analysis of the frequency of crossings by individual users and on the key assumption that frequent users would be more likely to take up accounts than casual users. This recognises that an account removes the risk of forgetting to pay the charge (a significant source of non-compliance for the London Congestion Charging scheme) and that the introduction of plate recognition accounts (using ANPR) in addition to the existing accounts at Dartford would increase account take-up. The assumed level of account take up for Dartford is lower than that of the London Congestion Charge (57 per cent of all visits made to the London congestion zone in September 2011 were made by an autopay or fleet account holder) and the M50 in Dublin (75 per cent of all crossings made by account holders). This is because a much larger proportion of commuter traffic is seen in London and Dublin, compared to that at the Dartford Crossing. The lower proportion of commuter traffic at Dartford means there is a lower proportion of frequent users, and therefore a lower demand for accounts. See Annex 4 – Account Holder Estimates for more detail.

8.8 The charge revenue received will also depend upon the payment or 'compliance' rate. The compliance rate is assumed to be 93 per cent for domestic users (based on TfL average – source: *Impacts Monitoring Report 2008*[25] and data from London Congestion Charge*)*. This value is consistent with the 94 per cent to 98 per cent compliance rates for domestic users seen across other 'free-flow' charging schemes (Dublin M50, Stockholm and Norway Autopass). The compliance rate for international users is assumed to be 86 per cent (based on House of Commons - *Transport committee sixth report*[26] advising that "foreign registered vehicles are currently twice as likely to avoid paying the London Congestion Charge as UK registered vehicles"). This gives a weighted average of 93 per cent as it is estimated that only 3 per cent of all vehicles using the crossing will be non-UK vehicles. Account holders are assumed to have compliance rates of 99 per cent because account holders who keep their account in credit will not be subject to enforcement measures.

8.9 With the exception of installation, operating, maintenance and enforcement costs, the magnitude of all the costs and benefits is dependent upon the accuracy of the traffic model and the future year forecasts of traffic demand. To help ensure robustness, the traffic models and forecasts have been prepared to follow the DfT's transport appraisal guidance, WebTAG (Web Based Transport Analysis Guidance). WebTAG reflects the principles of the HM Treasury document entitled Appraisal and Evaluation in Central Government. WebTAG has evolved over several years to take account of changing requirements and knowledge and is supported by a substantial body of research.

Calculating the cost to users of incorrectly issued PCNs

8.10 Ensuring that PCNs are not incorrectly issued to vehicle registered keepers is one of the major objectives of the Dartford 'free-flow' charging scheme, and will form an important key performance indicator (KPI) for the new back office service provider. The proposed KPI target is that no PCNs are incorrectly issued due to service provider error, with a threshold value of around 0.4 per cent. A number of design features of the proposed Dartford 'free-flow' system will minimise or prevent incorrectly issued PCNs due to incorrectly interpreted vehicle registration marks (VRMs). This includes:

- Reading both front and rear number plates makes it easier to identify errors by the automatic number plate recognition (ANPR) system;
- Attention to the service provider's proposed design of the 'compliance engine' that sorts vehicle records into payments and contravention candidates; and
- 100 per cent manual checking of PCNs prior to dispatch, checking the interpreted VRM, and the vehicle make and model and colour, against the DVLA record.

8.11 There are, however, reasons beyond the service provider's control why a PCN may be issued to a registered keeper when they are not liable to pay the penalty charge. This includes vehicles that have been stolen or cloned, and a vehicle that was sold before the offence, or was not bought until after the offence. In this respect, enforcement of the Dartford 'free-flow' charging scheme will be no different from many other forms of unattended enforcement such as parking

[25] *Impacts Monitoring, July 2008, -* http://www.tfl.gov.uk/assets/downloads/sixth-annual-impacts-monitoring-report-2008-07.pdf

[26] *House of Commons - Transport committee sixth report* - http://www.publications.parliament.uk/pa/cm200809/cmselect/cmtran/103/10306.htm

and bus lane enforcement. Experience from other similar schemes suggests that approximately six per cent of PCNs are cancelled overall.

8.12 To contest a PCN, it is only necessary for the registered keeper to send a representation in response to the PCN. A response form for this will be sent out with the PCN, along with a pre-addressed envelope. The form will ask the registered keeper to state the grounds on which the representation is being made, and will advise what evidence is required for each type of representation. This response form will be designed to take no more than a few minutes to complete.

8.13 The Highways Agency would consider the representation in accordance with the legislation, and a documented operating policy indicating the actions to take under specific circumstances. These policies are usually weighted in favour of giving the benefit of the doubt to the registered keeper. Where evidence is missing, the service provider will request the required evidence. Although there is no mechanism to reimburse a keeper for any costs associated with making a representation, the process is designed to be quick, and so any cost of time would be minimal.

8.14 In the unlikely event that a representation is rejected by the service provider, the vehicle keeper will have a right of appeal to an adjudicator. Although the adjudicator shall not normally award costs and expenses, the enabling enforcement regulations allow for the adjudicator to make such an order against a party if the adjudicator is of the opinion that the party has acted frivolously or vexatiously. Costs may be awarded against the charging authority (the Highways Agency) where the adjudicator considers that the disputed decision (the Agency's rejection of an earlier representation) was wholly unreasonable.

8.15 Businesses that hire out vehicles could also face costs due to correctly issued PCNs. In this situation, and under the terms of the new enabling enforcement regulations, the PCN would be served on the registered keeper, likely to be the hiring company. It is likely that the hirer of the vehicle will have signed a statement of liability as part of the terms of the hire contract which, under the terms of the new enforcement regulations, would allow the hiring company to transfer liability for the PCN to the hirer. In these cases there is likely to be an administrative cost for the hiring company to either make a representation providing the hirer details to the service provider, or to pay the PCN and then take payment from the hirer. Hiring companies already have the terms and conditions, and mechanisms, to do this for other traffic offences, and it is common practice for hiring companies to add an administration charge to the amount charged to the hirer in these situations (usually payment is taken from credit or debit card details that are required upon hire of the vehicle). By doing this, the hiring companies recoup their own admin costs directly from the hirer who has committed the offence.

8.16 Although experience from other similar schemes suggests that approximately six per cent of PCNs are cancelled overall, a higher proportion of business users compared to general users are expected to be account holders, and it is expected that fewer HGVs than cars are likely to be stolen or cloned, so it is considered likely that the number of Dartford PCNs wrongly issued to business will fall below the expected six per cent overall cancellation rate (see 8.11 above).

8.17 A minimum, maximum and most likely mid-range estimate of the cost to business is presented in section 9. The three values have been generated by varying the percentage of PCNs assumed to be issued in error to business users. The minimum is based on the 0.4 per cent threshold value of PCNs incorrectly issued due to service provider error (see paragraph 8.10 above) and the maximum is based on the overall six per cent cancellation rate experienced in similar schemes (see 8.11 above). The most likely estimate is based on a 3.2 per cent (mid point) PCN cancellation rate for business users. This equates to 19 per cent of all PCNs cancelled due to incorrect issue.

9. Direct Costs and Benefits to Business (One-In, Two-Out Approach)

9.1 The One-In, Two-Out (OITO) rule means that every new regulation that imposes a new financial burden on firms must be offset by reductions in red tape that will save double those costs. The implementation of the proposed 'free-flow' charging scheme requires secondary legislation in the form of an order which facilitates post-payment of road user charges and enforcement against the non-payment of charges.

9.2 The proposed scheme reduces congestion at the crossing and this attracts additional traffic to the crossing, some of which will be business users. Although these business users will have to pay a charge to use the crossing, they will only be doing so because the cost of the charge is outweighed by the benefit of the reduced congestion. There is nothing to stop business users from continuing with the same trip pattern and routing that they currently follow. The crossing charges that will be paid by business are, in reality, nothing more than a prediction of the travel choices that business users are likely to make.

9.3 In terms of direct benefits to business, the effect of the proposed scheme will be to increase business productivity by improving transport economic efficiency and journey time reliability. Whilst business users also benefit from the reduction in accidents associated with the scheme, these are considered as indirect benefits and by definition excluded from consideration here.

9.4 As described in Section 6, the computer program TUBA is used to calculate the monetised transport economic efficiency benefits of the proposed scheme. TUBA also calculates the benefits by different trip purposes: business users, commuting users and other users. These detailed TUBA results reveal that the proportion of the scheme benefits received by business users is 73 per cent.

9.5 The computer programs INCA and COBA are used to calculate the monetised journey time reliability and accident benefits respectively. Unfortunately, INCA and COBA do not disaggregate the journey time reliability and accident benefits between business and non-business users. However, a reasonably reliable estimate of the proportion of the benefits received by business users can be calculated by assuming a national average mix of vehicle types and trip purposes. It is estimated on this basis that 45 per cent of the reliability and accident benefits will accrue to business users.

The cost to business of incorrectly issued PCNs

9.6 Section 6 above presents the full scheme costs and benefits that are expected to result from the introduction of 'free-flow' charging at the Dartford Crossing. Paragraphs 6.36 – 6.39 detail the costs to all scheme users that might be considered to result directly from the regulatory aspect of the scheme only. This is the cost of dealing with incorrectly issued PCNs.

9.7 As discussed in Section 8, a minimum, maximum and most likely mid-range estimate of the cost to business of dealing with incorrectly issued PCNs have been generated by varying the percentage of PCNs issued incorrectly to business users.

9.8 The minimum average annual cost to business for making representations and / or appeals that lead to cancellation of Dartford PCNs, based on a 0.4 per cent cancellation rate, is likely to be approximately £16,062 per annum. The maximum average annual cost to business, based on a 6 per cent cancellation rate, is likely to be approximately £236,653 per annum. A more likely, mid-range estimate for the average annual cost to business for making successful representations and appeals against PCNs is approximately £138,865 per annum, based on a 3.2 per cent (mid point) PCN cancellation rate.

9.9 The cost estimates above have all been calculated based on the following assumptions:

- Only PCNs issued to UK registered keepers have been included.
- Business vehicles have been assumed to include all two-axle and multi-axle goods vehicles and five per cent of cars. This is because DfT's 2009 study[27] states that 22-32 per cent of trips at the Dartford Crossing for non-HGV traffic are for business purposes. Non-HGV traffic is assumed to include only two-axle goods vehicles and cars. Two-axle goods vehicles make up 20-27 per cent of non-HGV traffic and are all assumed to be business users. The remaining non-HGV business users are assumed to be cars, which equates to an average of

[27] http://webarchive.nationalarchives.gov.uk/+/http://www.dft.gov.uk/about/strategy/capacityrequirements/dartfordrivercrossing/

around five per cent of all cars. In addition, all multi-axle vehicles are assumed to be HGVs and also business users.

- It would take fifteen minutes for a user to complete the response form in order to submit a representation against a PCN.
- The WebTAG value for working time, used to calculate the cost to business users, is £34.12 per hour in 2010 prices, deflated to £33.20 in 2009 prices. This is provided in section 3.5.6 of DfT's WebTAG guidance.

9.10 The total Core Scenario forecast (Best Estimate) costs and benefits to business users over 25 years are shown in Table 2 below (in 2009 market prices, discounted to 2010 at 3.5 per cent per year). Also included is the equivalent annual net cost to business value (EANCB).

Table 2 – Summary of Direct Costs and Benefits to Business (2009 market prices, discounted to 2010)

Type of Cost	**Cost (£m) (PV)**	**Cost (£m) (EANCB)**	**Type of Benefit**	**Benefit (£m) (PV)**	**Benefit (£m) (EANCB)**
User Charges	70.2	4.7	Transport Econ. Efficiency	1,141.6	76.3
Incorrectly issued PCNs	2.1	0.1	Journey Time Reliability	16.5	1.1
			*Accidents**	*1.6*	*0.1*
Total	**72.3**	**4.8**	**Total**	**1,158.1**	**77.4**

* *Accident benefits are considered to be indirect (second round) benefits and are not included in the Business NPV on Page 1 of the IA.*

Business Net Present Value	**£1,085.8m**
Business EANCB	**-£72.6m**

9.11 Introduction of free-flow charging at the Dartford Crossing has both a regulatory and an investment (infrastructure) aspect. The Highways Agency considers that the benefits of the new charging arrangement are dependent on the ability to enforce the road user charge under barrier-free charging, so will be at least as attributable to the proposed new charging scheme order as they will be to the infrastructure investment.

9.12 The analysis summarised in Table 2 above shows the direct impact on business of the scheme as a whole. However, for OITO purposes, the share of the costs and benefits that result directly from the regulatory change only should be considered. It is very difficult to separate the regulatory change from the investment in infrastructure, because both elements are crucial in delivering the scheme and as explained above the scheme could not be delivered without either element.

9.13 Taking a very conservative view that all of the benefits of improving transport economic efficiency and journey time reliability flow from the investment in infrastructure would leave only the small cost to any compliant businesses that receive wrongly issued PCNs or PCNs that are correctly issued but which are cancelled following successful representation.

9.14 If considered separately from the overall scheme costs and benefits, the direct cost to compliant businesses from wrongly issued PCNs or PCNs that are correctly issued but which are cancelled following successful representation amounts to approximately £138,865 per annum.

9.15 However, the Regulatory Policy Committee has advised that where infrastructure spending decisions require a small regulatory delivery component, the regulatory measures should be classed as 'Out of Scope' of OITO.

10. Wider Impacts

10.1 Consideration has been given to the list of potential impacts set out on Pages 16-18 of the IA Toolkit. A number of these are relevant to transport schemes and are recognised as potential impacts of transport schemes in WebTAG. This includes the economic impact on consumers and businesses, safety, crime, greenhouse gases, air quality, landscape, water environment and noise. Where these impacts are relevant, they are discussed in Section 6 above.

10.2 A number of the potential impacts identified in the IA Toolkit are not covered under WebTAG. Some of these are not relevant to the proposed scheme, namely health, education, waste management and human rights. The remainder have some relevance and are identified in the following paragraphs together with an assessment of the impact of the scheme upon each.

Employment

10.3 It is expected that the proposed scheme would result in a net increase of approximately 130 jobs compared to the existing situation. Table 3 provides a breakdown of the number and type of jobs affected.

10.4 It should be noted that the jobs would not necessarily continue to be located in Dartford. The location of the jobs would depend upon where the service provider locates the back-office centre. The procurement of the service provider is currently in process.

Table 3 – Changes in Employment Levels

Job Type	**Jobs**	
	Existing	**'Free-flow' charging**
Customer Services	30	200
Plaza / Booths	120	0
Video Account Image Checking	0	40
Post Room	0	2
Back Office Management (Call Centre, Commercial, Finance)	0	4
Support Functions (Customers Services, Q&A, Accounting, Training, Marketing)	0	13
Highways Agency Management Authority	0	20
Total	**150**	**279**

Note numbers are approximate. Current job numbers have been provided by the current DBFO operators. Operating model assumptions for 'free-flow' charging have been based on similar benchmark schemes operating penalty charge enforcement – specifically TfL's London Congestion Charging scheme.

Justice System

10.5 The Ministry of Justice (MoJ) has confirmed that it does not require a revised Justice Impact Test to be submitted following the consultation. The Justice Impact Test approved by MoJ prior to consultation is provided in Annex 5: Justice Impact Test. The JIT identified the key areas of possible impact on the Ministry of Justice (MoJ).

10.6 The JIT highlighted to MoJ that the need to enforce against the non-payment of charges at Dartford would require the provision of an adjudications service to deal with appeals against enforcement. Provision would also need to be made for the registration of unpaid penalty charges as a debt and the subsequent recovery of those debts. The Agency has confirmed with MoJ since the consultation closed that adjudications and debt registration activities will be funded directly by the Agency, so there is no cost or resource impact on the Civil Courts and Tribunals Service.

10.7 Although a matter for DfT's enabling enforcement regulations, for the purposes of the JIT it was assumed that Dartford adjudications would be dealt with by the Traffic Penalty Tribunal (TPT)[28] service.

10.8 TPT considers appeals against parking penalties issued by civil enforcement authorities in England (outside London) and Wales, and against bus lane penalties issued by civil enforcement authorities in England (outside London). TPT is an independent tribunal service of adjudicators who consider appeals by motorists and vehicle keepers who have been issued with a penalty charge notice (PCN). Since TPT currently deal only with parking and bus lane penalties, there may be an additional financial requirement on the Highways Agency to support TPT in recruiting and training adjudicators for the purposes of dealing with appeals related to the Dartford road user charging scheme, as well as a standard cost per case. DfT are leading discussions with MoJ and TPT regarding adjudications matters, and further details have yet to be confirmed.

10.9 With regards to debt registration and recovery, the JIT presented two options that were under consideration:

- Direct approach to county courts. Indications were that this option would cost the HA approximately £40 per debt. This would be for the court administrative costs for each case. The charges for bailiff services, if required, would be capped to a maximum of £100, thereby limiting the amount that could be added to the debt.
- Traffic Enforcement Centre. The Traffic Enforcement Centre (TEC) is a registration point for local authorities (LAs) that have de-criminalised on-street parking charges. Vehicle emission penalties, London Congestion Charging and bus lane encroachment penalties for London boroughs are also recovered through TEC.

10.10 It is intended that the enabling enforcement regulations, being introduced by the Department for Transport but which will be drawn upon in the Agency's proposed new Dartford charging scheme order will provide that road user charging penalty charges will be enforceable only through TEC.

Driver and Vehicle Licensing Agency (DVLA)

10.11 The 'free-flow' charging scheme will require information to be supplied by the DVLA in order to be able to operate successfully. In particular, the following information will be required for the purposes stated:

- Checking casual payments – it will be necessary to identify the type of vehicle to which a vehicle registration identified by the ANPR cameras or dedicated short range communications system (DSRC) (DART-Tag) relates. This information is required to ensure that the amount of each payment corresponds to the correct level of charge for the type of vehicle concerned.
- Enforcement – it will be necessary to identify the registered keeper details (name and address) of vehicles for which no payment is received. This information is required to allow the issue of a PCN to the registered keeper.

10.12 The DVLA may charge for the supply of the required information. The costs will be paid by the HA and are included within the cost benefit analysis as operating costs (see Section 6 above). The estimated annual cost is £750,000; this figure is based on the current TfL costs for the London Congestion Charge, Low Emission Zone (LEZ) and bus lanes schemes.

Health and Safety at Work

10.13 The 'free-flow' charging scheme would result in removal of the existing charge booths. As such, there would no longer be the risk of any safety-related incidents or accidents involving booth operators.

Equalities

10.14 As far as the general public is concerned, the change arising from the proposed 'free-flow' charging scheme is that the payment of charges for use of the crossing will be become off-road non-cash payments rather than on-road cash payments. It is not considered that this will cause drivers with protected characteristics any more difficulty than those without these characteristics

[28] http://www.trafficpenaltytribunal.gov.uk

due to the variety of payment channels that will be available. It should be noted that vehicles belonging to disabled drivers will continue to be eligible for exemption from the road user charge if the vehicle keeper is exempt from paying Vehicle Excise Tax on the grounds of disability.

10.15 It is recognised that not all drivers will have access to the internet as a means of paying the charge, or indeed a bank account. To minimise the effects on these groups, a wide mix of payment channels will be adopted, including payment on account and payment by telephone, post and at retail outlets. Clearly however, those without access to the banking system may experience more inconvenience than others as they would be required to visit one of the retail outlets in order to be able to make payment by cash.

11. Recommendation, Implementation and Review

Proposed Solution

11.1 The proposed solution involves introduction of a new charging scheme order to support 'free-flow' charging at the Dartford-Thurrock River Crossing. 'Free-flow' would see removal of the existing charging booths in favour of pre-payment, but the new charging scheme would allow post-payment in order to maximise compliance, and enforcement measures would ensure that revenues remained at the levels forecast to 2039 under the existing (barriered) operation. 'Free-flow' charging, with an enforced road user charge would remove the congestion and delays associated with drivers stopping to pay the charge at charging booths. The result would be a reduction in journey times and the variability of journey times, thereby making journey times shorter and more predictable or 'reliable'.

11.2 To ensure that the user charges are paid, it would be necessary to take enforcement action in relation to cases of non-payment. It is proposed to do this through the application of penalty charges at rates stated in paragraph 5.10 above. The non-payment of penalty charges would be subject to debt registration and recovery, or may lead to immobilisation, removal, storage and disposal of vehicles.

11.3 A summary of the costs and Core Scenario benefits ('Best Estimate' benefits) of the proposed scheme is provided in Table 4. The costs and benefits cover a 25 year appraisal period from the projected scheme opening year of 2014. In accordance with the Treasury Green Book, the discount rate is 3.5 per cent per year.

Table 4 – Summary of 25 year Costs and Benefits (2011 Market Prices, Discounted to 2013)

Type of Cost (A)	**Cost (£m)**	**Type of Benefit (B)**	**Benefit (£m)**
Installation	75.8	Journey Times (TEE)	1,799.8
Operation	221.1	Vehicle Operating Costs (TEE)	42.9
Maintenance	14.1	Accidents	4.2
Renewal	84.7	Incident Related Delay	2.5
Enforcement	27.1	Journey Time Variability	40.3
User Charges	74.8	Additional Tax Revenue	72.7
Incorrectly Issued PCNs	4.2	Additional Charge Revenue	175.5
Greenhouse Gases	7.3		
ALL (TOTAL A)	**509.1**	**ALL (TOTAL B)**	**2,137.9**

Net Present Value (B-A)	**1,628.8m**

Implementation Plan

11.4 Changes to the details of the charging scheme at the crossing are made through a legislative process, using secondary legislation (a Statutory Instrument) as required by *The Transport Act 2000*. Following the statutory consultation which ended in January 2013, and subject to the outcomes of the Government's processes for the development and implementation of secondary legislation (including relevant committee clearances), the HA will finalise the new charging scheme order and complete the necessary Parliamentary processes for the order to come into effect.

11.5 In addition, the HA is currently procuring services to implement the necessary operational and roadside infrastructure changes.

11.6 The proposed date for implementation of the ‘free-flow’ charging scheme is 2014.

Post Implementation Review (Evaluation)

11.7 The HA plans to review policy in terms of the new charging scheme order in 2019, after five years of operation of 'free-flow' charging at Dartford. However, interim reviews of the 'free-flow' operation will take place over the six months following technical and operational commencements to check assumptions regarding traffic flow, discounts, account take-up and compliance rates.

11.8 Post opening project evaluations (POPE) will take place after the first year of operation and after five years. The Post Implementation Review Plan (PER) is attached as Annex 6: Post Implementation Review (PIR) Plan.

Annex 1: Options for Implementing ‘Free-Flow’ Charging

A1.1. In June 2011 the then Secretary of State agreed that ‘free-flow’ charging in both directions should be progressed as the preferred scheme option for managing congestion at the Dartford Crossing in the medium term. ‘Free-flow’ charging in both directions was one of ten scheme options presented in the business case which considered a range of charging configurations and supporting road layouts, including options for both full and partial ’free-flow’. These options are shown in the table below.

Option	Description	Outcome	Comments
A	• No change from current situation.	× Discounted	The Base Case for the economic analysis.
B	• ‘Free-flow’ charging in both directions.	✓ **Preferred Option**	Minimal ‘interference’ with the flow of traffic, reducing the amount of delay on journeys and improving journey time reliability.
C	• ‘Free-flow’ charging in northbound direction (with the charge double that of options charging in both directions); • ‘Open Road’ (no charge or barriers) in southbound direction.	× Discounted	Potential impact on other routes due to northbound traffic diverting to avoid paying the double charge; Unfair double charge on infrequent users making one way journey; Requires similar investment levels to Option L2; and Evasion rates are likely to be higher than two way charging options because of the higher one way charge.
D	• ‘Free-flow’ charging in both directions; • Cash payment lanes for HGVs in both directions.	× Discounted	Possibility of traffic queues and delays, eroding the benefit from the introduction of ’free-flow’; Weaving on approach to and exit from the HGV only lanes; and A surcharge would be needed on the cash payments to incentivise users to move to the ’free-flow’ lanes.
E	• ‘Free-flow’ charging in both directions; • Booths & barriers retained northbound for traffic management on tunnel approach.	*Backup business case option if it is necessary to retain barriers for northbound tunnel safety*	Slightly reduced benefits to northbound users compared to Options L2 to L4 as they would need to slow down through the barrier area; and Modelling indicates that this option would provide 80 per cent of the benefits of full ’free-flow’ (option L2).
F	• ‘Free-flow’ charging in both directions; • Booths & barriers retained northbound for traffic management on tunnel approach; • Cash payment lanes for HGVs in both directions.	× Discounted	Weaving on approach to and exit from the HGV only lanes; Merge difficult at J1a on-slip; Departures from standard required for southbound diverge at J1a and for HGV lanes; Induced queuing as a result of HGV egress from cash / Tag lanes; and Complex and costly traffic signing for HGV only lanes.
G	• ‘Free-flow’ charging in northbound direction (charge double that of options charging in both directions); • Booths & barriers retained northbound for traffic management on tunnel approach; • Cash payment lanes for HGVs in northbound direction.	× Discounted	Potential impact on other routes due to northbound traffic diverting to avoid paying the double charge; Unfair double charge on infrequent users making one way journey; Requires similar investment levels to Option L2; and Evasion rates are likely to be higher than two way charging options because of the higher one way charge. Complex and costly traffic signing for HGV only lanes.
H	• Retain existing cash payment arrangements northbound (ie keep booths & barriers); • Northbound charge double that of options charging in both directions; • ‘Open road’ (no charge or barriers) southbound; • No charge southbound.	× Discounted	Potential impact on other routes due to northbound traffic diverting to avoid paying the double charge; No benefits to northbound vehicles; Loss of charge revenue due to northbound traffic diverting to avoid paying; and Local support for the scheme may be less as it may be perceived that traffic is being charged for leaving one county and entering another.

J	(Phase 1) • Retain existing cash payment arrangements northbound (ie keep booths & barriers); • Northbound charge double that of options charging in both directions; • 'Open road' (no charge or barriers) southbound (Phase 2) • Northbound booths and barriers removed. • 'Free-flow' implemented in both directions • Charging in both directions	× Discounted	Uncertainty in driver behaviour and traffic patterns which leads to revenue loss; Logistical issues around re-instating a southbound charge in Phase 2; and Potential that the public perceive proposal as unfair due to double charging for one-way trips, (similar to the M4 Severn crossing) and it may have a disproportionate effect on local residents.
K	A hybrid northbound only 'free-flow' lanes for pre-paid scheme users Segregated lanes for cash payment, certain vehicles directed to use cash lanes. • 'Open Road' (no charge or barriers) in southbound direction; • Charging northbound only, charge double that of options charging in both directions.	× Discounted	Would not realise the full potential of reducing delays and congestion; Risk of differential speeds on the approach to the charge areas resulting in more accidents; Higher estimated cost compared to full 'free-flow'; and Fewer benefits compared to full 'free-flow' option.

A1.2. All options were analysed against the scheme critical success factors:

- Journey Time;
- Journey Time Reliability;
- Safety & Operations;
- Revenue/financial success;

and scored against each factor. A weighting was then applied to each critical success factor to reflect the relative importance that the Highways Agency applied to each.

A1.3. The then Secretary of State agreed that Option B, 'free-flow' charging in both directions, should be progressed as it provides the most balanced combination of operational efficiency, economic benefit and whole life cost, realising the full potential of reducing delays and congestion both north and southbound whilst aligning with the scheme critical success factors.

A1.4. 'Free-flow' charging in both directions comprises:

- Infrastructure Works – gantry erection, carriageway realignment providing four open traffic lanes northbound and southbound, plaza and barrier removal and new traffic control measures to ensure continued safety and integrity of the tunnels;
- Roadside Technology – automatic number plate recognition (ANPR) and DART-Tag beacon equipment and communications infrastructure to detect and record vehicles using the crossing; and
- Back Office Operations – IT systems, enforcement and customer services to administer the new methods of charging.

Annex 2: Back Office Functions

A2.1. The Dartford 'free-flow' charging scheme will comprise the following back office service functions and these have been considered within the cost analysis considered in Section 6:

Account Application and Management

A2.2. This function will be responsible for back office processing of accounts, specifically:

- receipt and processing of applications for accounts;
- creation of scheme user accounts;
- updating of accounts; and
- administration of dedicated short range communications system (DSRC) tags, if used.

Payment Processing

A2.3. This function will be responsible for processing payments, specifically with regard to:

- payments relating to account applications;
- charge payments; and
- PCN payments.

Vehicle Passage Detection

A2.4. This function will detect vehicle registration marks (VRMs) at the Dartford Crossing.

Vehicle Identification

A2.5. This function will identify a crossing vehicle from the detected VRM.

Compliance

A2.6. This function will determine whether or not a scheme user has complied with the scheme by matching a valid payment to the identified vehicle.

Revenue Protection

A2.7. This function will be responsible for:

- the issuing of PCNs to non-compliant scheme users;
- the notification to scheme users of an increasing PCN charge based on the PCN timeline;
- the cancellation of PCNs;
- the tracking of all PCNs through the lifecycle;
- receipt and review of representations from scheme users;
- determination of whether a representation will be accepted;
- provision of evidence showing non-compliance as part of the representations and appeals processes; and
- the registration and recovery of debt owed by non-compliant scheme users.

Scheme User and General Public Communications

A2.8. This function will be responsible for the management of interactions with scheme users and the general public, specifically:

- receipt and responses to customer enquiries and complaints; and
- support to public information campaigns.

Financial Reconciliation and Reporting

A2.9. This function will be responsible for the transfer of monies received and reporting of the financial position to the Authority.

Management Information

A2.10. This function will be responsible for providing reports that will inform the management of the contract and monitoring of the on-going service.

Annex 3: Penalty Charge Analysis

A3.1. In order to estimate the impact of different penalty charge levels, the cumulative cash flows over the remainder of the life of the DBFO contract for different levels of penalty charge in a 'free-flow' charging scheme (ie the preferred IA option) are compared to those cash flows estimated to arise from the Base Case (ie the cumulative cash flows without 'free-flow' charging). This analysis has been used to assess the preferred penalty charge value to be proposed for 'free-flow' charging at Dartford, in order that a 'free-flow' charging operation maintains the cumulative cash flows estimated to 2039 if the existing (barriered) charging arrangement continued.

A3.2. A cumulative cash flow of £0 is equivalent to saying that the overall financial position (cumulative cash flow) of the Dartford 'free-flow' charging scheme would be the same as that estimated for the existing charging scheme without 'free-flow' charging (over the life of the DBFO contract to 2039).

A3.3. The financial analysis includes the costs of the volume related enforcement operations which are directly proportional to the number of enforcement transactions, in addition to the fixed enforcement costs considered in the economic analysis in this IA.

A3.4. Three levels of penalty charge have been considered and are summarised in the table below. The values quoted against each option represent the penalty charge, along with the reduced rate if the charge is paid within 14 days; and the increased rate if the charge is not paid until after a charge certificate has been served. Although a matter for the Department's enabling enforcement regulations, it is proposed that the original road user charge (RUC) would be added to the penalty charge.

Table 1: Penalty charge value assumptions used in financial appraisal

Option	Penalty Charge Values	Description
Level A (mid-range penalty charge)	£70 (Reduced to £35 if paid within 14 days; Increased to £105 if paid after a charge certificate has been served) + road user charge incurred	The Level A value is a mid-range position based upon guidelines for local parking scheme contravention penalties outside London*. This is in the absence of any guidelines on setting penalty charges for road user charging schemes.
Level B (minimum cost recovery penalty charge)	£58 (Reduced to £29 if paid within 14 days; Increased to £87 if paid after a charge certificate has been served) + road user charge incurred	Level B sets the penalty charge value to the minimum amount required to achieve the financial objective, such that the total cumulative cash flows over the life of the project are the same with 'free-flow' as with the existing charging arrangements under the existing M25 DBFO contract to 2039.
Level C (maximum penalty charge permitted under enabling enforcement regulations)	£120 (Reduced to £60 if paid within 14 days; Increased to £180 if paid after a charge certificate has been served) + road user charge incurred	Level C is based on the maximum value that could be set under the proposed new enforcement regulations and matches the London Congestion Charge penalties.

*The proposed Preferred penalty charge value are the 'Band 2' values set out in The Civil Enforcement of Parking Contraventions (Guidelines on Levels of Charges) (England) Order 2007 (No. 3487).

A3.5. In the analysis that follows, the charge and enforcement revenues (arising from the penalty charges) are estimated for each of the penalty charge levels. The road user charge rates assumed for such analysis are the higher of the two increased rates announced by DfT in their document *Revising the Charges at the Dartford-Thurrock River Crossing: Consultation Response*[29]. (see Table 2 below).

[29] Consultation outcome - Dartford-Thurrock river crossing charges consultation - https://www.gov.uk/government/consultations/dartford-thurrock-river-crossing-charges-consultation

Table 2: Crossing charge assumptions used in financial appraisal

Dartford Crossing Vehicle Classification	Non account holder	Account holder
Cars	£2.50	£1.67
2 Axle Goods Vehicle	£3.00	£2.63
Multi-Axle Goods Vehicles	£6.00	£5.19

A3.6. The financial appraisal includes the original road user charge incurred in addition to the penalty charge values shown above. The road user charge has been included to ensure that a single penalty charge level for all vehicle types does not disproportionately penalise those who pay a lower road user charge. For example with a penalty charge of £70, and without the original road user charge being payable, car users who should pay a £2.50 road user charge would effectively pay a penalty charge of £70 - £2.50 = £67.50, whilst multi axle goods vehicle users who should pay a road user charge of £6.00 would effectively pay a penalty charge of £70 - £6.00 = £64.00.

A3.7. The key findings of the appraisal in terms of financial impact are presented in Table 3 below:

Table 3: Key findings from financial appraisal

Cumulative cash flows (nominal, incl. optimism bias and VAT)	Over life of scheme (to 2039)			
	Capex	Opex	Revenue*	Revenue position (Capex + Opex)
Level A (preferred)	-£ 300 m	-£ 1,429 m	£ 2,076 m	**£346 m**
Level B	-£ 300 m	-£ 1,420 m	£ 1,721 m	**£0**
Level C	-£ 300 m	-£ 1,465 m	£ 3,522 m	**£1,757 m**

* Revenue refers to the difference in revenue with 'free-flow' charging and that estimated to occur without 'free-flow' charging (Base Case), including any penalty charge revenue.

A3.8. Level A is the preferred level for the Dartford penalty charge following results of sensitivity tests (presented below), because cumulative cash flows estimated to 2039 under the current charging arrangement are likely to be maintained under a 'free-flow' charging operation if the penalty charge was at this value. The Level C value would also maintain the cumulative cash flows but is considered less proportionate compared to the penalty charges payable for other civil traffic offences outside the London area.

Penalty Charge Revenue Assumptions

A3.9. Table 4 shows the assumptions used in calculating that element of the revenues shown in Table 3 that relate to penalty charges. This is based upon the London Congestion Charging scheme, using data provided by TfL in October 2010.

Table 4: PCN revenue assumptions

For non UK users (making up about 3 per cent of the crossings)

Percentage of penalty charge worthy daily transactions from non UK vehicles for which a PCN is issued via a European debt recovery agency (EDRA)	31%
Percentage of EDRA issued PCNs which eventually get paid	40%

For UK users

Percentage of PCN worthy daily transactions from UK vehicles for which a PCN is issued	88%
Percentage of PCNs issued to UK non-account holders that lead to representation	20%
Percentage of PCNs issued to non-account holders leading to appeal	1%
Percentage of PCNs for which a charge certificate was issued	20%
Percentage of PCNs for which debt registration is issued	29%
Percentage of PCNs for which a warrant is eventually issued	20%
Percentage of PCNs cancelled	6%
Percentage of PCNs issued to UK non-account holders that eventually paid	70%

Sensitivity Analysis for PCN at Level A (Preferred)

A3.10. Sensitivity analysis was carried out on the penalty charge value of £70 (Level A) which is proposed under the preferred policy option, to test how changes to input parameters affected resilience to meeting the finance related policy objective – namely, that cumulative cash flows to 2039 under a 'free-flow' charging scheme with enforcement (as per the preferred policy option) should be at least equal to the cumulative cash flows forecast to occur in the policy 'Base Case' situation.

A3.11. Optimism bias was applied to the cost estimates following Green Book guidance. Optimism bias is applied to IT and detection technology capital expenditure at 56 per cent and to operating costs at 9 per cent. Therefore the majority of the optimism bias is applied to IT and detection technology capital expenditure, which are fixed costs. Estimates of variable costs are particularly uncertain, in terms of changes to volumes of processes and their impact on variable costs. To address this uncertainty, sensitivity analysis is carried out.

A3.12. Sensitivity analysis provides a better understanding of the uncertainty on variable costs and on revenue associated with four key variables – account take up; compliance levels; penalty charge recovery levels and traffic volumes.

A3.13. The sensitivity analysis is presented as the incremental impact on the cumulative cash flows to 2039 of changes to these variables against the outcome of Level A, which has a total cumulative cash flow to 2039 of £346m.

Sensitivity to the proportion of crossings carried out by account holders ('account take up')

A3.14. The financial objective of the scheme is sensitive to increases in the proportion of crossings that are carried out by account holders (referred to as 'account take-up') because:

- Account holders pay discounted charges (and hence the charge revenue decreases);
- Compliance is higher than it is for non-account holders because account holders who keep their account in credit would not be subject to enforcement measures (and hence penalty charge revenue decreases); and
- They are cheaper to service (given they pay less frequently and use more automated channels).

A3.15. Currently at the Dartford Crossing, 33 per cent of crossings are made by DART-Tag holders. It has been assumed that the introduction of 'free-flow' charging would lead to 50 per cent of crossings being made by account holders. This assumed increase in account take up is based on recognising that an account removes the risk of forgetting to pay the charge (a significant source of non-compliance on the London Congestion Charging Scheme) and that the introduction of number plate recognition accounts (using ANPR) would also increase the appetite for accounts by removing the need for an in-vehicle tag.

A3.16. The level of account take up of 50 per cent was based on an analysis of the frequency of crossings by individual users and an assumption that the most frequent users would be even more likely to take up accounts. For context, 57 per cent of visits to the London Congestion Charge zone in September 2011 were made by account (autopay or fleet) holders. In the M50 in Dublin, 75 per cent of all crossings are made by account holders. The potential impact is summarised in Table 5:

Table 5: Sensitivity to account take up

Proportion of crossings paid by account holders	Incremental impact on cumulative cash flows to 2039
Increase to 51 per cent (a 1 per cent increase from the assumed account take up value of 50 per cent)	-£51m (based on Level A penalty charge values)
Increase to 57 per cent (the level of London Congestion Charging AutoPay take up at September 2011 after introduction of AutoPay)	-£364m (based on Level A penalty charge values)
Increase to 56.7 per cent (increase such that the cumulative cashflows to 2039 is reduced to £0 when compared to scheme without 'free-flow')	-£346m (based on Level A penalty charge values)

A3.17. The scheme's financial objective is therefore highly sensitive to changes to account take up. This increase in the proportion of crossings carried out by account holders can arise in a number of ways, for example:

- An additional small number of very frequent users take up accounts which leads to a higher percentage of crossings by account holders; and
- A very large number of infrequent users take up accounts leading to an increase in the percentage of crossings by account holders.

A3.18. The financial impact of different percentage increases in account take up also depends on the vehicle mix. This is because each vehicle type uses the crossing with different frequencies, and vehicles are affected by the discount structure depending on their type.

Sensitivity to changes in compliance rates

A3.19. The charge revenue received would also depend upon the payment or 'compliance' rate. The compliance rate is assumed to be 93 per cent for domestic users (based on TfL average – source: Impacts Monitoring Report 2008 and data from London Congestion Charge). This value is consistent with the 94 per cent to 98 per cent compliance rates for domestic users seen across other 'free-flow' charging schemes (Dublin M50, Stockholm and Norway Autopass). The compliance rates for international users is assumed to be 86 per cent (based on House of Commons - Transport committee sixth report advising that "foreign Registered Vehicles are currently twice as likely to avoid paying the London Congestion Charge as UK registered vehicles"). This gives a weighted average of 93 per cent as it is estimated that only 3 per cent of all vehicles using the crossing would be non-UK vehicles. Account holders are assumed to have compliance rates of 99 per cent because account holders who keep their account in credit would not be subject to enforcement measures.

A3.20. Compliance rates drive the revenue received from penalty charges directly, and are therefore a key parameter. However, relatively small changes in compliance rates equate to very large changes in the behaviours of non-compliant users. For instance, improving compliance rates from 93 per cent to 94 per cent means the average UK non-account holding scheme user's number of PCNs per year drops from 0.9 to 0.8 (a reduction of 11 per cent). A 1 per cent increase in compliance levels (equivalent to Dublin at 94 per cent) would have an impact on cumulative cash flow of approximately -£205m over the 25 year assessment period.

Sensitivity to changes in penalty charge recovery levels

A3.21. The assumption on penalty charge recovery levels is based on the Transport for London (TfL) data from October 2010. TfL have penalty charge recovery rates of 70 per cent for UK vehicles. A 1 per cent decrease in recovery levels would result in a reduction in cumulative cash flows of approximately £29m over the assessment period (based on Level A penalty charge values).

Sensitivity to changes in traffic volumes

A3.22. Traffic volumes directly drive the variable costs and revenues for the back office and third parties, and are therefore a key parameter. Traffic volumes will be sensitive to general macro-economic

factors in addition to the specific introduction of 'free-flow'. For instance, a 1 per cent decrease in traffic volumes would result in a reduction in cumulative cash flows of approximately £8m over the assessment period (based on Level A penalty charge value).

Summary of sensitivity analysis

A3.23. Table 6 below illustrates the sensitivity of the financial position to changes to these key input parameters which are subject to uncertainty. In particular, the table gives an indication of the impact of a variance of plus or minus 1 per cent in each of the four parameters highlighted. These figures indicate the impact on cumulative cash flow to 2039 and show the vulnerability of the cumulative cash flows (based on penalty charge set at Level A) to changes in the underlying assumptions.

Table 6: Summary of sensitivity analysis for PCN at Level A

Factor	Assumption	Impact of 1% increase (£m)	Impact of 1% decrease
Account take up	50%	-51	+51
Compliance rate	93%	-205	+205
Penalty charge recovery	70%	+29	-29
Traffic volumes	-	+8	-8

A3.24. Table 6 shows that the sensitivity analysis on these four key parameters demonstrates that even a small change in compliance and account take up assumptions could result in either reduced cumulative cash flows for the scheme, putting the financial objective to maintain the cumulative cash flows estimated to 2039 (if the existing charging arrangement continued as part of the DBFO contract) at risk, or an increase in cumulative cash flows for the scheme.

A3.25. Clearly possible changes in these input parameters need to be considered when selecting the penalty charge level in order to ensure that there is sufficient penalty charge revenue to maintain the cumulative cash flows estimated to 2039 (if the existing charging arrangement continued as part of the DBFO contract) but also not so high that they are considered to be disproportionate.

Preferred option conclusion

A3.26. The penalty charge value recommended in Level A provides a level of robustness to variations in traffic volumes, compliance rates and account take up parameters which a penalty charge at Level B would not, but is lower than the Level C value (the maximum penalty charge level permissible under the draft enforcement regulations). A penalty charge at Level A is considered to be both fair and proportionate when compared to the penalty charge values used for the enforcement of other civil traffic offences outside the London area.

A3.27. The preferred option is therefore a penalty charge value at Level A: 'free-flow' with mid-range penalty charges values aligned to 'Band 2' parking penalties as set in the Civil Enforcement of Parking Contraventions (Guidelines on levels of charges) Order 2007.

Annex 4: Account Holder Estimates

A4.1. This annex explains the assumptions and methodology used to derive an estimate of the proportion of drivers who will be account holders.

A4.2. The starting point for the assessment was the current DART-Tag take up which is as follows, based on Connect+ data November 2010 to October 2011 (monthly report delivered to the HA):

Table 1: Summary of account take up estimates

Total # of crossings p.a. (transactions)	Overall	DART-Tag	Percentage tag
Exempt	928,021		
Cars (Residents)	1,594,123	1,594,123	**100%**
Cars (Non Residents)	30,080,573	6,621,727	**22%**
2 Axle Goods Vehicles	6,653,608	2,758,365	**41%**
Multi Axle Goods Vehicles	4,835,607	3,470,619	**71%**
Total 6a.m. To 10p.m.	44,091,932	14,444,834	**33%**

A4.3. The other key consideration is that users will incur penalty charges if they forget to pay for the charge – this provides a considerable additional incentive to take up accounts, as account holders who keep their account in credit will not be subject to enforcement measures. The central assumption is that the more frequently a user uses the crossing, the more likely they are to take up an account. On this basis, the HA used a week's worth of crossings data to understand frequency of travel and used the HA's customer survey to extrapolate where required:

Frequency of daily visits – non-resident UK cars	Percentage of customers
5 or more daily visits per week	0.7%
2 to 4 daily visit/ week	2.1%
one daily visit per week	4.3%
less than once a week, more than one daily visit per month	4.9%
One daily visit per month	9.8%
less than one daily visit per month	78.3%

Frequency of daily visits - UK two-axle goods vehicles	Percentage of customers
5 or more daily visits per week	0.7%
2 to 4 daily visit/ week	2.1%
one daily visit per week	4.3%
less than once a week, more than one daily visit per month	4.9%
One daily visit per month	9.8%
less than one daily visit per month	78.3%

Frequency of daily visits - UK multi-axle goods vehicles	Percentage of customers
5 or more daily visits per week	1.0%
2 to 4 daily visit/ week	3.1%
one daily visit per week	6.5%
less than once a week, more than one daily visit per month	7.3%
One daily visit per month	9.8%
less than one daily visit per month	72.3%

Frequency of daily visits – non-UK cars	Percentage of customers
5 or more daily visits per week	0%
2 to 4 daily visit/ week	0%
one daily visit per week	0%
less than once a week, more than one daily visit per month	1%
One daily visit per month	1%
less than one daily visit per month	99%

Frequency of daily visits – non-UK non-cars	Percentage of customers
5 or more daily visits per week	0%
2 to 4 daily visit/ week	0%
one daily visit per week	1%
less than once a week, more than one daily visit per month	2%
One daily visit per month	5%
less than one daily visit per month	92%

A4.4. Different assumptions of account take up for each of the frequency groups and for each type of vehicle type was then applied:

Applicable a/c take up for UK cars non-residents	Applicable a/c take up
5 or more daily visits per week	90%
2 to 4 daily visit/ week	85%
one daily visit per week	65%
less than once a week, more than one daily visit per month	40%
One daily visit per month	15%
less than one daily visit per month	2%

Applicable a/c take up UK two-axle goods vehicles	Applicable a/c take up
5 or more daily visits per week	85%
2 to 4 daily visit/ week	80%
one daily visit per week	60%
less than once a week, more than one daily visit per month	40%
One daily visit per month	15%
less than one daily visit per month	2%

Applicable a/c take up UK multi-axle goods vehicles	Applicable a/c take up
5 or more daily visits per week	99%
2 to 4 daily visit/ week	99%
one daily visit per week	99%
less than once a week, more than one daily visit per month	95%
One daily visit per month	50%
less than one daily visit per month	40%

Applicable a/c take up non-UK car	Applicable a/c take up
5 or more daily visits per week	85%
2 to 4 daily visit/ week	80%
one daily visit per week	60%
less than once a week, more than one daily visit per month	40%
One daily visit per month	15%
less than one daily visit per month	2%

Applicable a/c take up non-UK non-car	Applicable a/c take up
5 or more daily visits per week	85%
2 to 4 daily visit/ week	80%
one daily visit per week	60%
less than once a week, more than one daily visit per month	40%
One daily visit per month	15%
less than one daily visit per month	2%

A4.5. Using these assumptions, the estimated percentage of account holders was as follows:

Cars (Residents)	**100%**
Cars (Non Residents)	**45%**
2 Axle Goods Vehicles	**43%**
Multi-Axle Goods Vehicles	**70%**
All	**50%**

Annex 5: Justice Impact Test

Ministry of JUSTICE

Justice impact test form

Before you complete this form, please read the Justice Impact Guidance. It is available at: http://www.justice.gov.uk/guidance/justice-impact-test.htm.

Please answer as many questions as possible on this form before you contact Ministry of Justice (MoJ). If exact figures are not yet known, please provide your best estimates.

Forward the completed questionnaire, with any Impact Assessment, to MoJ's Financial Planning, Resources and Analysis Team at: justiceimpact@justice.gsi.gov.uk.

1. Your contact details

Name	Beth Jackson
Department / office / business area	Highways Agency - Major Projects - Dartford 'Free-Flow' Charging
Telephone number	+44 (0) 1234 796176
Email address	beth.jackson@highways.gsi.gov.uk
By when would you like a response?	by 27/02/12 if possible please.

2. General information

In brief, what is your proposal?

The Dartford-Thurrock River Crossing is a key part of the strategic road network. It has been identified as a poor performing link in the M25 London orbital motorway, and the Government has made clear that providing improvements is a priority in view of the importance of the Crossing for the movement of goods and people, and its contribution to the economy. As part of the Spending Review announcement in October 2010 the Government stated its commitment to introduce ‘Free-Flow’ charging at the Crossing as part of a strategic objective to manage congestion. In simplistic terms this would involve the removal of booths and barriers on the Crossing and would introduce new methods of payment, similar to the model used in the London Congestion Charging scheme.

Legislation currently makes no provision for enforcement of the road user charge in a ‘Free-Flow’ charging environment at Dartford, so new enabling enforcement regulations are being drafted by DfT and will be drawn on by the Highways Agency through a new charging scheme order for the Dartford Crossing. The enforcement regulations are being introduced under the Transport Act 2000, in exercise of powers conferred on both the Secretary of State for Transport, and the Lord Chancellor, and may be drawn on by other charging authorities in England who operate a road user charge under the Transport Act 2000. However, the regulations are merely enabling regulations and have no direct impact until a charging authority draws on them through a charging scheme order. This justice impact test is for the changes proposed in the new Dartford charging scheme order.

'Free-flow' charging would improve traffic flow, thereby reducing congestion and delays, and improving journey times and journey time reliability at the Crossing. The proposed ‘Free-Flow’ charging scheme comprises securing legislation, introducing new methods of paying the road user charge, removal of the booths and barriers, changes to the infrastructure and road layout, and the introduction of new technology. Vehicles using the Crossing will be detected and identified by new on-road equipment and details matched to payments made through an account or through new payment channels.

Two statutory instruments are needed to support a ‘Free-Flow’ charging operation at the Crossing:
1) new enabling enforcement regulations and
2) a new charging scheme order.

The new enabling enforcement regulations are currently being drafted by DfT to cover the civil enforcement of a road user charging scheme. The regulations include provision to impose penalty charges within maximum permitted values, where a road user fails to comply with the charging scheme payment requirements, as well as powers to enforce through immobilisation, removal, storage and disposal of vehicles where three or more penalty charges remain unpaid.

A new charging scheme order is currently being drafted for the Dartford Crossing. The new order will include provisions for enforcement of the Dartford road user charge, and will introduce a new post-pay surcharged period to encourage compliance under the new ‘Free-Flow’ charging scheme.

What is your proposal intended to achieve, over what geographical area (e.g. England, England and Wales) and in what timescale?

The proposal will support the introduction of a 'Free-Flow' charging scheme by allowing enforcement of the road user charge at the Dartford-Thurrock River Crossing in England. Introduction of 'Free-Flow' charging at Dartford would increase traffic flow at the Crossing, resulting in reduced journey times, and improved journey time reliability.

One of the challenges of the move to 'Free-Flow' charging at Dartford is gaining a high level of compliance when, after removal of the booths and barriers, there is nothing physically to stop a vehicle using the Crossing without payment of the road user charge. None of the barrier-free road user charging schemes that are known to exist world-wide commenced operations without first having in place both the legal and infrastructure powers for an effective enforcement system.

Without enforcement, compliance rates would begin to drop rapidly. As compliance rates worsened, traffic volumes would increase as road users who would otherwise have been deterred from using the Crossing because of the road user charge become non-paying, non-compliant users. The 'Free-Flow' charging scheme would fall in to disrepute as more users realised that there were no sanctions for non-compliance.

The proposed changes to the Dartford charging scheme order would allow enforcement of the road user charge at Dartford under the new enabling enforcement regulations. Enforcement would be by way of penalty charges, leading to immobilisation, removal, storage and disposal of vehicles - measures intended to further encourage road users to comply with the road user charge.

The enforcement regulations and the new charging scheme order need to be in place by July 2013. As the enforcement regulations are merely enabling, this justice impact test assesses only those impacts that may result from changes in the new Dartford charging scheme order.

What public commitments have been given and to whom?

Public [Ministerial] committments to implementing 'Free-Flow' charging at Dartford were made in the Comprehensive Spending Review announcement in October 2010, and appear in DfT's and in the Highways Agency's business plans. The introduction of legislation to support enforcement of a 'Free-Flow' charging operation at Dartford will be subject to public consultation. DfT's consultation on the new enforcement regulations and the Highways Agency's consultation on changes proposed in the new charging scheme order - specifically on the requirement for enforcement sanctions, the level of penalty charges to be set, and on the introduction of a surcharged post-pay period - are expected to occur simultaneously, and are planned to commence in August 2012.

What are the options under consideration?

The policy options under consideration include the introduction of new enforcement measures for use at Dartford, and the introduction of a surcharge rate for post-payment of the Dartford road user charge.

As detailed above, without enforcement measures the Dartford 'Free-Flow' charging scheme is likely to fall quickly in to disrepute. However, a number of factors have been considered in order to maximise compliance with the road user charge and to minimise the need to draw on these enforcement measures. These factors include:

1) Allowing for discretionary post-pay charging periods which allow road users to pay the road user charge following their use of the crossing prior to incurring a penalty charge. Post-payment on the day of use can be made at the normal road user charge rate, or payment on the day following the day of use can be made at a surcharged rate (road user charge plus twenty per cent).

2) A targeted road signage and Public Information campaign raising awareness of the scheme and payment details prior to 'go-live'; and

3) Consideration of a large number of payment options to provide users with a wide and convenient range of payment channels.

Further options that are relevant to this justice impact test are around the adjudication service that would be required to deal with appeals against any enforcement at Dartford, and the route for registering debt when penalty charges for non-payment of the Dartford road user charge remain unpaid.

How does the proposal change what happens now? Who will be affected and in what numbers?

Currently, there is no civil penalty for failure to pay the road user charge at the Dartford Crossing. However, compliance is mandatory due to physical barriers in place to stop vehicles, and any action that resulted in charge evasion under the current operation is likely to constitute a criminal offence as it would probably involve dangerous driving through the barrier and booth plaza.

Introducing enforcement measures under a 'Free-Flow' charging arrangement at Dartford will have an impact on the following:
1) Non compliant road users who will be subject to new enforcement measures, from penalty charges leading to immobilisation, removal, storage and disposal of vehicles for persistent non-compliance.
2) Debt recovery - either using the Traffic Enforcement Centre (TEC - see http://www.justice.gov.uk/guidance/courts-and-tribunals/courts/northampton-bulk-centre/traffic-enforcement-centre/index.htm) or County Courts;
3) Adjudication tribunal services - using an existing service such at the Traffic Penalty Tribunal (TPT - see http://www.trafficpenaltytribunal.gov.uk/site/index.php) or the Parking and Traffic Appeals Service (PATAS - see http://www.patas.gov.uk/), or other third-party service; identifying an existing MoJ tribunal service which could be used; or setting up a new tribunal service specifically for dealing with appeals against enforcement of the Dartford road user charge.

The Highways Agency is still in discussion with the Ministry of Justice over the options for debt recovery and adjudication processes. However, in order to provide a view of the potential impacts for the purposes of the regulatory impact assessment, it has been assumed that debt recovery will follow the TEC route and adjudication will be through TPT.

Using compliance rate information from comparable 'Free-Flow' road user charging schemes (London Congestion Charge, Dublin M50, Stockholm Congestion Charge and Norway Autopass) it is assumed that after one year of operation of 'Free-Flow' charging at Dartford, compliance rates for non account holders would be 94% for domestic users, and 81% for international users, giving a weighted average of 93%. Applying penalty charge, appeal, and debt registration rates experienced by TfL for their London Congestion Charging scheme to modelled traffic volumes for the Dartford 'Free-Flow' charging scheme, enforcement of the road user charge under a new 'Free-Flow' charging operation at Dartford is forecast to result in the following:
1) 1.3 million new penalty charge notices served to UK road users per year;
2) 190,000 new penalty charge notices served to international road users per year;
3) 390,000 new debt registrations per year; and
4) 14,000 new appeals going to adjudication per year.

3. Criminal Offences and Civil Penalties and Sanctions

Are you creating new civil sanctions, fixed penalties or civil orders with criminal sanctions or creating or amending criminal offences?

The new Dartford charging scheme order will draw on enforcement provisions that will allow civil sanctions for non-payment of the road user charge at the Dartford Crossing.

Please provide details of the relevant legislation (where appropriate) and confirm whether the creation or amendment of criminal offences and penalties has been agreed with MoJ.

1) New enforcement regulations - 'The Road User Charging (Enforcement) (England) Regulations' - have been drafted to cover the civil enforcement of road user charging schemes in England. The regulations include provision to impose penalty charges within maximum permitted values, together with the original road user charge applicable, where a vehicle fails to comply with the charging scheme payment requirements. The regulations are intended to be purely 'enabling'. They have no direct impact until a charging authority draws upon them by creating or revising a charging scheme order. The enforcement regulations are being introduced under powers conferrred to the Secretary of State for Transport and the Lord Chancellor within the Transport Act 2000, and a draft has been shared with MoJ Policy.

2) The new 'A282 Trunk Road (Dartford-Thurrock Crossing Charging Scheme) Order' is currently being drafted to cover a new 'Free-Flow' charging arrangement at the Dartford-Thurrock Crossing. The new order will draw on the new enforcement regulations and will make provision for:
i) Enforcement of the road user charge in cases of non-compliance at the Dartford Crossing;
ii) Introduction of a next day surcharged payment rate; and
iii) Provisions for how enforcement measures (including penalty charge notice levels) are to be communicated to road users.
The new charging scheme order will be shared with MoJ Policy at draft stage for consideration and comments.

Initial conversations have been held with the Tribunals Policy Team (Ross Sanger and Vijay Parkash), the Enforcement Reform - Tribunals, Courts and Enforcement Act team (Anne Marie Goddard and Greg Nanda), and the Civil Justice and Legal Services team (Michael Anima-Shaun) at MoJ.

4. Courts and/or Tribunals

Increasing Business for the Courts and Tribunals

Do you expect there to be an impact on HM Courts Service or on Tribunals Service (or both) through the creation of or an increase in applications/cases? Please provide an estimate.

There will be an impact on the Tribunals Service, although it is yet to be confirmed with MoJ whether appeals will be dealt with by TPT, PATAS, an exisiting MoJ Tribunal Service or whether a new adjudication service will need to be established. However, it is estimated that enforcing penalty charges on the proposed Dartford 'Free-Flow' charging scheme could result in approximately 14,000 tribunal cases per year (i.e. approximately 50-55 cases per working day based on 260 working days per year).

It is yet to be confirmed, in discussion with MoJ, whether Dartford enforcement debts will be registered and pursued through the TEC or County Court route, but it is estimated that enforcement of a new 'Free-Flow' charging operation at Dartford will result in approximately 390,000 debt registrations per year.

Would you expect fewer cases to come to HM Courts Service or Tribunals Service as a result of the proposal? Please provide an estimate of the number of cases.

The new Dartford charging scheme order introduces new provisions to enforce the Dartford road user charge, so it is likely that there will be an increase in cases for both the courts service (for registration and pursuing of debts) and tribunals services (for appeals against enforcement).

Appeal Rights

Does your proposal create a new right of appeal or route to judicial review? If so, how will these be handled (i.e. by the courts/tribunals)?

The enforcement regulations that will be drawn on for the purposes of enforcement of the road user charge under the new 'Free-Flow' charging operation at the Dartford Crossing require that such a route of appeal be avalailable. Road users may make representations directly to the Agency (as charge authority) but will then have a right of appeal to a third party tribunal service.

Do you expect to establish a new tribunal jurisdiction? If so, has this been discussed with Tribunal Service?

Separate discussions with MoJ and TPT are being held to determine the most suitable tribunal service that may be used for dealing with appeals associated with enforcement of the road user charge under a new 'Free-Flow' charging arrangement at the Dartford Crossing. It is proposed that either TPT or PATAS are used, but if these are deemed unsuitable or not available for use by Dartford, and if no other existing third party or MoJ Tribunal Service is available, then a new tribunal service will need to be created. Costs of setting up such a service and training new staff will need to be considered as these discussions progress.

Alternative Dispute Resolution

Has the use of alternative dispute resolution (ADR) procedures (including mediation) been considered? If not, why not?

No. We believe this is not relevant for the purposes of enforcement of a road user charge.

HMCS Enforcement

Will the proposal require enforcement mechanisms for civil debts, civil sanctions or criminal penalties?

Yes, the enforcement measures that would be introduced at Dartford through the proposed new charging scheme order will require mechanisms for registering and pursuing debts through either TEC or the County Courts (these options are currently being considered with MoJ).

Court and Tribunal Procedural Rules, Sentencing and Penalty Guidelines

Do you anticipate that Court and/or Tribunal procedural rules will have to be amended? If so, when is the likely date for the changes?

Yes, the existing procedures will need to be amended by the scheme 'go-live' date in 2014.

Will the proposals require sentencing and/or penalty guidelines to be amended?

It is intended that the penalty charges for Dartford 'Free-Flow' be aligned to existing penalty charge notice guidelines such as the 'Civil Enforcement of Parking Contraventions (Guidelines on levels of charges) Order 2007 (No. 3487)'. However, as this would be the first road user charging scheme in England to consider drawing on the new enforcement regulations under a 'Free-Flow' charging arrangement, wider amendments to other guidelines such as the Civil Procedure Rules (specifically Practice Directions 70.5 and / or 75) may be necessary.

Section Four – Legal Aid

Is your proposal likely to have an impact on the Legal Aid fund?

No impacts are expected.

If legal aid may be affected, will (i) criminal, or (ii) civil and family, or (iii) asylum legal aid be affected?

N/A.

If legal aid may be affected, would legal aid costs increase or be reduced (and by what margin)?

N/A.

Section Five – Prisons and Offender Management Services

Will the proposals result in an increase in the number of offenders being committed to custody (including on remand) or probation? If so, please provide an estimate.

No

Will the proposals result in an increase in the length of custodial sentences? If so, please provide details.

N/A

Will the proposals create a new custodial sentence? If so, please provide details.

No

What do you expect the impact of the proposals on probation services to be?

None.

Your completed questionnaire will be considered by MoJ to establish whether the proposals will have an impact on the aspects of the justice system for which MoJ has responsibility. If there are considered to be no impacts arising from your proposals, MoJ will agree this with you and you must record this in the Impact Assessment accompanying your proposals. However, if MoJ identifies a potential impact, MoJ will contact you to discuss and agree an estimate of costs including funding arrangements for the additional costs.

If you have any queries about this form, please e-mail justiceimpact@justice.gsi.gov.uk or telephone Peter Bake on 020 3334 4343.

Annex 6: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. If the policy is subject to a sunset clause, the review should be carried out sufficiently early that any renewal or amendment to legislation can be enacted before the expiry date. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below.

Basis of the review: [The basis of the review could be statutory (forming part of the legislation), i.e. a sunset clause or a duty to review , or there could be a political commitment to review (PIR)];

A review of the project performance will be undertaken in accordance with the Highways Agency's Interim Advice Note 39/01: Post Opening Project Evaluation (POPE) process. This involves a formal evaluation of the project one year and five years after opening.

Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]

The objectives of the POPE review are to evaluate whether the predicted outcomes were realised and to identify any lessons learned as part of a continual improvement process.

Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]

The approach to the review is as prescribed in the Highways Agency's POPE Methodology Handbook. It comprises:

- Before and after comparison of journey times and journey time reliability;
- Assessment against scheme objectives;
- Comparison of forecast against outturn traffic volumes;
- Comparison of forecast costs and benefits vs. outturn costs and benefits;
- Evaluation of the impacts as detailed in the Appraisal Summary Table

Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]

Existing situation without scheme.

Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives]

Accuracy of forecast in improvement of traffic volumes, accidents and incident reductions, journey time savings and journey time reliability and estimated costs vs. outturn costs.

Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection systematic collection of monitoring information for future policy review]

As prescribed in the Highways Agency's POPE Methodology Handbook. Existing arrangements for the collection of data relating to traffic flows, volumes, journey times and accidents will enable the systematic collection of monitoring information.

Reasons for not planning a review: [If there is no plan to do a PIR please provide reasons here]

Not Applicable.