

## **Chapter 28**

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**Department of Transport**

**Barrier Free Tolling on the M50**



## Barrier Free Tolling on the M50

28.1 Ten tolling schemes operate across the national primary network. Most of these schemes operate as part of Public Private Partnership arrangements. In the case of the M50, which is a motorway around the west side of Dublin, the State decided to buy out the rights of a private company National Toll Roads (NTR) while retaining tolls on the motorway.

28.2 Up to July 2008 a barrier type tolling system with partial electronic toll collection (ETC) was in place and toll income was shared between the State and the private partner. Since then all revenue accrues to the State and is retained by the National Roads Authority (NRA). From 30 August 2008 a full barrier free tolling system was installed.

### Chapter Focus

This chapter reports the results of a review of the commissioning of the facilities and the first year of operation of the project (August 2008 – July 2009). In addition, it examined

- the comparative financial performance over the previous year and the challenges in maximising toll revenue
- how operations are monitored.

### Commissioning of Tolling Facilities

28.3 The move to full barrier free tolling involved engaging with a toll operator to build and maintain tolling facilities and operate those facilities on behalf of the State. In developing and moving to a barrier free tolling system, the operator was required to design, build and operate the system to ensure that all toll transactions were captured and that vehicles were correctly charged. A performance testing plan was agreed in August 2007. The purpose of this plan was to ensure the system was working as intended and was secure. There were different elements to the testing plan including

- testing that the system could handle the load/volume of vehicles and transactions
- running tests to ensure the financial element of each transaction was completed by payment or otherwise
- testing that components of the systems were communicating with each other and between the operator, the Information Exchange Agency<sup>215</sup>, the Vehicle Registration Unit of the Department of Environment, Heritage and Local Government and the banks
- user type testing – testing how the system (registration, website and payment) would interact with the user.

28.4 A committee was established to make decisions following testing and to determine whether the tests had met the contractual requirements. When the NRA was satisfied that the operator had met the requirements of the contract, and passed the performance tests, it was to issue a provisional operating permit.

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<sup>215</sup> This is a clearing house for tolls.

28.5 The NRA engaged the services of an independent reviewer (the tolling reviewer). The tolling reviewer's role during the commission and testing phase centred around working with the operator to develop test plans to ensure that the system was capturing and processing journeys correctly and agreeing performance targets and outputs for the operator. Subsequently, its role has moved to one of monitoring the performance of the system and auditing reports generated by it.

28.6 Where performance deficiencies were identified during testing they were prioritised in terms of impact. The barrier free tolling would not be implemented until any issues impacting on revenue collection or on customers' experience were resolved. Although the operator's system did not pass all of the performance tests there were no major deficiencies and the NRA decided to proceed with the operation of barrier free tolling from 30 August 2008. Work continued to correct minor deficiencies in the system.

28.7 The NRA stated that repeating the performance tests would have delayed the system going live and affected the run-in time to the launch of barrier free tolling. The provisional operating permit was issued with effect from 1 January 2009.

## **Comparative Financial Performance**

28.8 In the first year of operation, there were 32.8 million toll journeys on the M50, an increase of 3.8% on the previous year (August 2007 – July 2008). The NRA attributes this increase to the completion of part of the M50 road works<sup>216</sup> and the introduction of the barrier free tolling. It estimated that traffic volumes on the M50 at the West Link were suppressed in the period 2006-2008 by reason of road works being carried out to upgrade the motorway. The extent of the suppression was estimated at between 4% and 11%.

28.9 Figure 139 compares the total journeys and the cash collected in respect of tolls on a like-for-like basis for the twelve month periods before and after the buy-out.

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<sup>216</sup>

It is anticipated that the works will be finalised in 2010.

**Figure 139 M50 Traffic and Toll Revenue**

	Number of Journeys	Toll Revenue €m
<b>Post buy-out (August 2008-July 2009)</b>		
Cash and ETC <sup>a</sup>	2,703,616	6.3
Barrier Free Tolling	<u>30,107,150</u>	<u>70.3</u>
<b>Outturn<sup>b</sup></b>	<b>32,810,766</b>	<b>76.6</b>
<b>Pre buy-out (August 2007-July 2008)</b>		
Barrier Tolling <sup>c</sup>	31,595,781	79.5
Less VAT		14.0
<b>Comparative Outturn</b>	<b>31,595,781</b>	<b>65.5</b>

Notes:

- a Before 30 August 2008 a cash and partial ETC system was in place. Cash collected at toll booths amounted to €3.7 million and ETC revenue amounted to €2.6 million.
- b No VAT applies.
- c The revenue does not include compensation of €3.2 million paid to National Toll Roads in lieu of increases of HGV tariffs.

28.10 Revenue increased by 17% to €77 million over the corresponding period before the buy-out when measured on a like-for-like basis. In the first month after the buy-out tolls were collected at toll booths and through a partial ETC system and thereafter through barrier free tolling. Upon implementation of the barrier free tolling system the toll fee structure changed with alternative charges in respect of the various payment means available to users<sup>217</sup>.

28.11 The revised financial arrangements also provided for late payment penalties. A further €10 million was collected in the first twelve months by way of penalties. Account management fees of €1.2 million were also collected from users with electronic tags<sup>218</sup>.

28.12 The audit sought to reconcile the cash collected for the first eleven months of the barrier free tolling operation with that estimated to be due on the basis of journeys. Overall the income collectable aligned with the traffic throughput. The outturn is set out in Figure 140.

<sup>217</sup> The average toll tariff in the pre buy out period was €2.51 and €2.76 in the post buy out period.

<sup>218</sup> Users can opt for journeys to be detected by means of an electronic tag which is a small device mounted on the windscreen of the vehicle.

**Figure 140 Revenue for First Eleven Months of Toll Operation**

	Number of Journeys	Estimated Revenue €m
Actual number of journeys	30,107,150	
Exempt journeys <sup>a</sup>	<u>(484,363)</u>	
	29,622,787	
Transactions lost due to technical issues <sup>b</sup>	<u>(273,185)</u>	
<b>Journeys potentially recoverable</b>	<b>29,349,602</b>	<b>81.0</b>
Waived/deferred <sup>c</sup>		<u>(2.9)</u>
<b>Toll Revenue Due</b>		<b>78.1</b>
Revenue collected <sup>d</sup>		(70.3)
Amounts outstanding - likely to be collected <sup>e</sup>		(2.5)
<b>Amounts outstanding</b>		<b>5.3</b>

## Notes:

- a These include journeys by motorbikes and vehicles exempted under the Bye-Laws including specially adapted vehicles for disabled persons, ambulances, Garda vehicles, fire brigades and goods vehicles registered by SOuth Dublin and Fingal County Council.
- b A total of 702,185 journeys were lost due to technical issues – 269,000 of these were recoverable from the operator and a further 160,000 were subsequently paid by toll users.
- c This primarily relates to users who are initially charged tolls at the higher toll rates but were subsequently transferred to the lower rates under the registered payment options.
- d This excludes penalty amounts and account management fees collected.
- e This represents current amounts due from the operator and toll users.

28.13 Figure 141 provides a breakdown of the unpaid tolls at the end of July 2009 where collection is doubtful.

**Figure 141 Unpaid Toll – Doubtful Debts at July 2009**

	€m
Registered user accounts with insufficient funds	0.7
Foreign vehicles <sup>a</sup>	2.2
Toll charges for enforcement <sup>b</sup>	2.0
Estimated non-recovery of toll charges currently being processed <sup>c</sup>	0.4
<b>Total</b>	<b>5.3</b>

## Notes:

- a The majority of these are Northern Ireland vehicles for which keeper details were not available from the Northern Irish Authorities. A Memorandum of Understanding between the two jurisdictions was signed in 2010 to address this issue.
- b This represents over 700,000 cases for enforcement.
- c This was derived using a recovery rate based on data for first 11 months of operation.

28.14 The NRA has stated that its policy is to pursue doubtful debts through the enforcement process and, in particular, it will pursue amounts due in respect of Northern Ireland vehicles as it now has gained access to the relevant details for the first time.

28.15 The financial impact of the decision to move to barrier free tolling and to buy out the contract with NTR to the end of the first twelve months of operation is set out in Figure 142.

**Figure 142 Financial Impact of Barrier Free Tolling to end July 2009**

	€m	€m
<b>Revenue</b>		
Cash and ETC		6.3
Barrier Free Tolling	78.1	
Less: Unpaid tolls – doubtful debts	<u>(5.3)</u>	<u>72.8</u>
<b>Gross revenue from tolling</b>		<b>79.1</b>
Penalties and Account Management fees		<u>11.2</u>
		<b>90.3</b>
<b>Costs</b>		
Toll operations	20.0	
Enforcement	3.4	
Tolling reviewer	<u>2.1</u>	<u>25.5</u>
<b>Surplus on current tolling activities</b>		<b>64.8</b>
<b>Less: Deemed application for M50 buy-out</b>		<b>(51.3)</b>
<b>Less: Establishment costs<sup>a</sup></b>		
Construction costs	11.5	
Tolling reviewer	<u>4.8</u>	<b>(16.3)</b>
<b>Estimated Net Cost of tolling up to end July 2009</b>		<b>(2.8)</b>

Note:

- a These were the non-recurring costs incurred in constructing and commissioning the barrier free tolling system.

28.16 In the twelve months preceding the buy-out income of approximately €2 million was received by the State from NTR. Over €90 million of toll and related revenue has been received in the twelve months since the buy-out resulting in an increase in revenue of €68 million.

28.17 The State has contracted to pay NTR an annual sum for the buy-out indexed in line with movements in the Consumer Price Index for the period August 2008 to March 2020<sup>219</sup>. The base amount was €50 million which applied for the first five months and was indexed thereafter. For the first twelve months of operation the buy-out sum was €51.3 million.

<sup>219</sup> At the time of the buy-out agreement the State also assumed immediate responsibility for VAT of around €122 million and a projected liability of around €18 million over the course of the buy-out term.

## Conclusion – Financial Impact of Barrier Free Tolling

The decision to move to barrier free tolling involved buying out the existing contract with National Toll Roads (NTR). Under agreements with the State, NTR had exclusive rights to operate and toll the bridge section of the M50 motorway until 2020.

The buy-out cost €51 million in the initial twelve months of operation. Costs of approximately €42 million were incurred by the NRA to the end of the period in respect of the commissioning and operation of the barrier free tolling system. The buy-out gave rise to an increase in revenue to the State in the first twelve months in the region of €68 million.

When comparing the revenue received in the pre buy-out period with that collected in the post buy-out period the revenue collected increased by 17%. The increase in revenue was mainly due to the increase in traffic volumes and an increase in the toll tariff.

Following the first eleven months of operation, the collection of over €5 million due to the tolling operator was doubtful as a result of e-flow accounts having insufficient funds, non-payment by foreign vehicles and toll charges outstanding at enforcement.

## Operational Performance Monitoring

28.18 Within a period of twelve months from the commencement of barrier free tolling, the operator was required by the contract to demonstrate that the system was functioning satisfactorily. When the NRA was satisfied that the operator met the terms of the contract, it was to issue a final operating permit.

28.19 A key element in satisfying the contract terms involved achieving a Correct Handling Rate (CHR) of at least 91% over three consecutive months.

## Correct Handling Rate

The Free-flow Electronic Toll Collection system processes customer information in order to charge M50 toll users. The CHR is a measure of performance of the system and reflects the percentage of toll events<sup>220</sup> that have been correctly identified and processed using a number of indicators

- tolling events processed by the system to those manually counted on a video auditing system
- correctly recognised user identifications (vehicle class and registration status), discounting those who deliberately try to escape the tolling system
- correct calculation and processing of the toll having regard to the payment means of user
- correct processing for collection and enforcement where tolls have not been paid.

<sup>220</sup> A toll event is the passing of a vehicle through toll point (whether a toll is payable or an exemption from the toll applies).

28.20 The CHR calculation method was provisionally agreed<sup>221</sup> in June 2009 and the independent reviewer validated the data for the fourth quarter of 2009. This work was completed through sample testing and checking chains of information from the roadside equipment through to the billing and payment systems.

28.21 It was originally anticipated that the final operating permit would be issued in August 2009 upon achievement of the CHR target and when any outstanding issues had been resolved. The operator did not achieve the target CHR rate until the fourth quarter<sup>222</sup> of 2009. The final operating permit was issued with effect from January 2010. However, at this time a full disaster recovery plan had not been completed and the payment card industry standard had not been achieved. The disaster recovery plan has since been approved and the tolling operator has been validated as being compliant with the payment card industry standard.

28.22 Under the contract CHR targets increase from 91% in the first year of operation to 95% by the fourth year. The operator is eligible for a performance bonus where the relevant CHR target has been achieved or exceeded. The bonus arrangements are structured to incentivise the operator with higher payment rates in the first two years of operations. Where the CHR targets are not met, the operator incurs a deduction in payments<sup>223</sup>.

### ***Ongoing Reporting Requirements***

28.23 As part of the contract, the operator is required to submit daily, weekly and monthly reports to the NRA to allow it to monitor both the toll activity and its performance.

28.24 The main management tools the NRA has at its disposal are monthly reports covering traffic volumes, revenue, operations and customer service, and monthly meetings with the independent reviewer and operator. Any issues that arise from the reports are put on the agenda for discussion at a monthly meeting with the operator.

28.25 The tolling reviewer employed by the NRA has carried out a review of the key monthly reports (i.e. traffic and revenue) and has recently submitted a preliminary report to the NRA which has validated traffic and revenue information in the reports.

### **Conclusion – Ongoing Reporting Requirements**

The contractual mechanism has increasing performance targets rising from 91% to 95% by year four corresponding with reductions in bonus payments which is in line with expectations of operational improvements over time and the need to incentivise the operator more in the early years of the contract.

The CHR, the methodology for measuring the operator's performance in capturing all transactions, was not provisionally agreed until June 2009. The final operating permit was issued in January 2010 following achievement of a CHR of 92% for the final quarter of 2009.

<sup>221</sup> This was finalised July 2010.

<sup>222</sup> At that stage a rate of 92.1% was achieved.

<sup>223</sup> A tolerance of up to 5% of the CHR target is applied in determining whether a deduction is made.

### ***Department Monitoring***

28.26 The Accounting Officer outlined the following arrangements in relation to effectiveness monitoring.

- As part of the annual budgetary process, the Department of Transport is provided with the NRA's projections of revenue and cost in respect of its tolling operations.
- The primary formal reporting mechanism is by way of the annual accounts and reports on the operation of the M50 barrier free tolling.

28.27 A quarterly National Roads Monitoring Group meeting between the NRA and the Department provides, and is used as, a forum for monitoring the M50 tolling project on an ongoing basis.

### **Conclusion**

The operational surplus on M50 tolling activities for the initial twelve months of operation was approximately €65 million, which includes €1 million received in penalties and account management fees.

Toll revenue increased by 17% on a like-for-like basis over the corresponding period due to an increase in traffic volumes and an increase in the toll tariff.

Overall, after taking account of M50 buy-out and establishment costs the net cost of tolling operations up to the end of the first twelve months was €3 million.