
Preliminary Findings of the Research on Operation of Toll Roads, Bridges and Tunnels in Selected Places

1. Background

1.1 The Panel on Transport of the Legislative Council, at its meeting on 27 May 2005, requested the Research and Library Services Division to conduct a research on the operation of toll roads, bridges and tunnels in selected places. Members suggested that a case study of toll transport facilities in Shanghai should be included in the research. Although attempts have been made to gather relevant data on the Xu Pu Bridge in Shanghai through the related government department and former owner of the bridge as well as secondary sources, only limited information has been collected. Therefore, this research does not cover Shanghai. The following transport facilities are studied:

- (a) The 91 Express Lanes of the State of California (California) of the United States (US);
- (b) The Dulles Greenway of the State of Virginia (Virginia) of the US;
- (c) The new and old Severn Bridges of the United Kingdom (UK);
- (d) The A1(M) between Alconbury and Peterborough of the UK; and
- (e) The Eastern Distributor of the State of New South Wales (NSW) of Australia.

2. Executive summary

Model of financing and its relationship with user-paid tolls

2.1 Apart from the old Severn Bridge of the UK the construction of which was funded by public money, all the toll facilities studied were financed and built by private consortia. While the 91 Express Lanes of California of the US, the Dulles Greenway of Virginia of the US, the Second Severn Crossing of the UK and the Eastern Distributor of Sydney of Australia have adopted the Build-Operate-Transfer (BOT) model or its variants, including the Build-Transfer-Operate or the Build-Own-Operate-Transfer model, the A1(M) motorway of the UK is a Design, Build, Finance and Operate (DBFO) project.

2.2 Under the DBFO contract of the A1(M), the role of the private operator is similar to its counterparts in BOT projects. However, the private operator in this case receives payments from the government in the form of shadow tolls instead of charging users directly. The 91 Express Lanes, purchased from the private operator by a state agency, is not being operated as a freeway but a toll road. The purpose of toll collection is not for profit-making but for improving both the toll road and the nearby freeway and maximizing the free flow of traffic.

Comparison of publicly-financed and privately-financed options

2.3 Except for the 91 Express Lanes, all the public authorities concerned compared the costs of privately financing the development of the selected transport facility studied with the publicly-financed option before deciding on the model of development. Three of the four comparisons showed that a traditional publicly-funded facility would have a lower cost of capital. However, the public authorities of those places still opted for the privately-financed model for various reasons.

2.4 Although the evaluation of options for the A1(M) showed that the privately-financed option would bring a saving of £50 million (HK\$713 million), the National Audit Office did not agree with the assessment. The National Audit Office opined that the result was sensitive to small changes in the discount rate, and therefore, this kind of quantified comparison could be no more than guides to the exercise of judgement.

Flexible duration of concession

2.5 Two of the concessions studied, namely the A1(M) and the Eastern Distributor, are of fixed duration, whilst the remaining three are of variable length. The concession of both the 91 Express Lanes and the Dulles Greenway will end earlier if their debts are repaid earlier than expected. On the other hand, the Severn bridges employ a flexible concession term to cope with the uncertain risks affecting the revenue of the private operator, for instance, uncertain traffic volumes. The concession ends when the cumulative target revenue has been reached; whereas the concession will be extended if the target cannot be achieved within the projected date.

Toll policy

2.6 Either a toll policy is adopted by or a related statute is enacted for three of the transport facilities studied, namely the 91 Express Lanes, the Dulles Greenway and the A1(M), which ensures that the private operator will receive no more than a reasonable return or that some public objectives are achieved, such as managing traffic volumes and encouraging the private operator to adopt measures enhancing safety and avoiding closure of lanes.

Toll rates and toll adjustment mechanism

2.7 The 91 Express Lanes and the Dulles Greenway are the only two toll facilities studied which have a public consultation process before any toll adjustment is made. The Dulles Greenway is the only toll road studied that needs approval of the public regulator for the adjustment of its toll ceilings. Within the approved toll ceilings, the private operator is free to adjust the toll rates on its own.

2.8 The 91 Express Lanes is the only transport facility among the facilities studied that uses traffic volumes as the basis for adjusting rush hour toll rates. The toll rates for particular hour, day and direction will go up if the traffic volume has consistently exceeded a specified percentage of the maximum optimal capacity which may lead to congestion. Similarly, the toll rates will be reduced when the traffic volume falls below the specified level on a consistent basis.

2.9 Apart from the Dulles Greenway, all the transport facilities studied have their toll adjustments made on the basis of, or partly on the basis of inflation or a combination of indexes which include inflation. However, only the Severn bridges may have their tolls cut in accordance with deflation.

2.10 The transport facilities studied charge different tolls according to the type of vehicles, and two of them, the 91 Express Lanes and the Dulles Greenway, charge higher rates for rush hours so as to manage traffic demand. The 91 Express Lanes also gives discounts to carpools of three or more persons and allows them to ride free during Non-super Peak hours.

2.11 Except for the average toll of the 91 Express Lanes, the tolls charged by the transport facilities studied have been raised at various rates since they opened to traffic. Owing to the free rides and discounts for carpools, the average toll of the 91 Express Lanes has decreased from US\$2.59 (HK\$20.20) prior to the public agency's purchase to US\$2.50 (HK\$19.50). Although the average toll rate of the 91 Express Lanes has decreased, the tolls for particular rush hours have increased substantially.

Financial performance and financial reporting

2.12 Both the 91 Express Lanes and the A1(M) have been making profits, whilst the Severn bridges had operating profits but suffered a loss after scheduled and voluntary repayment of debts and tax in both 2003 and 2004. The Dulles Greenway has been losing about US\$25 million (HK\$195 million) each year since it opened to traffic in 1995. In recent years, its revenues have covered operating costs, but not interest and principal payments. The financial performance of the Eastern Distributor is not available.

2.13 The Severn bridges are the only transport facilities that are required to submit their audited annual accounts to the legislature. The other toll facilities are only required to submit their audited accounts to their regulator, or the related government department or advisory committee.

Dispute resolving and re-negotiation mechanism

2.14 Both the Eastern Distributor and the A1(M) specify the scope of possible changes to be made under the contract, and the mechanism to re-negotiate. The other three transport facilities studied allow re-negotiation of certain contract terms, but details of the re-negotiation mechanism are not available.

2.15 All selected transport facilities, except for the Dulles Greenway, have a dispute-resolving mechanism in their concession or contract. Disputes may be referred to independent arbitration if they cannot be resolved through negotiation.

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Basic information					
Location of the toll road /bridge/tunnel	It connects Riverside and San Bernardino Counties with Orange and Los Angeles Counties in California.	It connects Washington Dulles International Airport with the developing western outskirts of the Washington D.C. metropolitan area.	It crosses the River Severn between south-west England and south Wales of the United Kingdom (UK).	It is part of the existing A1 motorway (between Alconbury and Petersborough) which links London and Newcastle.	It links the Sydney Central Business District and Sydney Harbour crossings with the southern suburbs and Sydney Airport.
Length and number of lanes	<ul style="list-style-type: none"> • 16.1 km • Four-lane 	<ul style="list-style-type: none"> • 22.5 km • Partly four-lane and partly six-lane 	Old Severn Bridge: <ul style="list-style-type: none"> • 1.59 km and four-lane Second Severn Crossing: <ul style="list-style-type: none"> • 5.13 km and six-lane 	<ul style="list-style-type: none"> • 21 km • More than half is dual four-lane, with the remainder largely dual three-lane. 	<ul style="list-style-type: none"> • Six km, including two tunnels • Dual three-lane
Toll road operator	Before 3 January 2003: <ul style="list-style-type: none"> • Private consortium: California Private Transportation Company (CPTC) Since 3 January 2003: <ul style="list-style-type: none"> • State agency: Orange County Transportation Authority (OCTA) 	Private consortium: Toll Road Investors Partnership II (TRIP II)	From September 1966 to 25 April 1992: <ul style="list-style-type: none"> • Avon County Council operated on behalf of the UK government From 26 April 1992: <ul style="list-style-type: none"> • Private consortium: Severn River Crossing plc (SRC) 	Private consortium: Road Management Services (Peterborough) Ltd (RMS)	Private consortium: Airport Motorway Limited (AML)
Date of opening to traffic	27 December 1995	29 September 1995	Old Severn Bridge: <ul style="list-style-type: none"> • 8 September 1966 Second Severn Crossing: <ul style="list-style-type: none"> • 5 June 1996 	31 October 1998	First stage: <ul style="list-style-type: none"> • 18 December 1999 Second stage: <ul style="list-style-type: none"> • 24 July 2000

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Basic information (cont'd)					
Is Build-Operate-Transfer or one of its variants adopted as the model of development and funding?	<ul style="list-style-type: none"> • Yes, it is a Build-Transfer-Operate (BTO) project. • The private consortium financed and built the infrastructure facility. It transferred the facility to the government after the completion of construction rather than at the end of the franchise agreement. The private consortium then leases it from the government and operates it. 	<ul style="list-style-type: none"> • Yes, it is a Build-Operate-Transfer (BOT) project. • The private consortium financed and built the infrastructure facility, and operates it. The facility will be transferred to the government at the expiry of the certificate of authority (the certificate of authority is an order made by the State Corporation Commission (SCC), which authorizes the private consortium to operate the Dulles Greenway). 	<ul style="list-style-type: none"> • Partly BOT • The whole concession consists of two parts. The Second Severn Crossing on its own is a BOT project. It was built and financed by SRC which operates it. The facility will be transferred to the government at the end of the concession. However, the old Severn Bridge is not a BOT project. It was financed by public funding, but is now operated by SRC. 	<ul style="list-style-type: none"> • No, the Design, Build, Finance and Operate (DBFO) model is adopted. • It is similar to the BOT concept. However, DBFO is not a concession as the operating company cannot charge users. 	<ul style="list-style-type: none"> • Yes, it is a Build-Own-Operate-Transfer (BOOT) project. • The private consortium financed and built the infrastructure facility. The private consortium owns it under a lease arrangement, operates the facility and will transfer the facility to the New South Wales (NSW) government at the end of the concession.

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Basic information (cont'd)					
Is there any clause in the concession/contract prohibiting the building of a competing freeway or improvements made to the nearby freeway?	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> • Yes, there was a non-compete clause prohibiting capacity enhancing improvements from being made to the Riverside Freeway before 2030. <p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> • No, the non-compete clause has been eliminated. 	No	Pending information	No	No, but the Roads and Traffic Authority of New South Wales (RTA) promises to consult with AML before carrying out any changes to the NSW road system that can materially alter the status of the Eastern Distributor as " <i>the principal north-south road corridor for the eastern area of Sydney</i> ". If AML considers that the development will adversely affect its ability to repay its debt, or on its revenues, RTA or the Minister for Roads must re-negotiate the contract with AML.

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Period of concession					
Is the term of the concession/contract fixed or flexible?	<ul style="list-style-type: none"> • Flexible • After OCTA purchased CPTC's interests in the franchise agreement, OCTA has the right to operate the 91 Express Lanes for the remaining term of the franchise, but the franchise may end earlier if all debts are repaid and all investments are recouped. 	<ul style="list-style-type: none"> • Flexible • The regulator, SCC, may modify the termination date of the certificate of authority to take into account any refinancing, <i>"where the refinancing or modification is in the public interest, or any refinancing for the purpose of expansion, or early termination of the original permanent financing"</i>. 	<ul style="list-style-type: none"> • Flexible • The legislation provides that the concession period runs for a maximum of 30 years, but the actual duration depends on when the concessionaire has reached its revenue target stated in its bid. 	<ul style="list-style-type: none"> • Fixed 	<ul style="list-style-type: none"> • Fixed • Nonetheless, the operating term may change if the state government has done something which adversely affects AML's ability to repay their debts and/or the level or timing of the project's revenue.
Length of the concession/contract (date of commencement of the concession /contract)	35 years (from December 1995)	<ul style="list-style-type: none"> • Around 66 years (from 1990) • The term of the certificate of authority has been extended from 2036 to 2056 after refinancing. The concession may expire earlier if the debt is repaid earlier, or it may expire at no later than 2066 if the debt is paid off after the scheduled date. 	<ul style="list-style-type: none"> • Around 24 years (from April 1992) • After the UK government decided that the concessionaire would bear the VAT charged on tolls without raising the toll rates, the term of the concession has been extended from 2014 to early 2016. 	30 years (from April 1996)	48 years (from July 2000)

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Cost and financing					
Construction cost	Around US\$130 million (HK\$1.0 billion)	US\$350 million (HK\$2.7 billion)	Old Severn Bridge: <ul style="list-style-type: none"> £8 million (HK\$114.2 million) Second Severn Crossing: <ul style="list-style-type: none"> £330 million (HK\$4.7 billion) 	Around £128 million (HK\$1.8 billion)	<ul style="list-style-type: none"> Around AUS\$700 million (HK\$4.0 billion) Apart from the construction cost, AML has to pay concession fees to RTA.
Did the government compare the costs of privately financing and publicly financing the road/bridge/tunnel before choosing the former option?	No	<ul style="list-style-type: none"> Yes, the staff of SCC made a comparison for SCC's consideration. The comparison showed that the publicly-financed option would be cheaper, but SCC chose the privately-financed option as the transport facility did not have a high priority for public spending, given that the purpose was to aid the development of the area, rather than to relieve congestion. 	<ul style="list-style-type: none"> Yes The UK government admitted that the privately-financed option was more expensive, but this extra cost was outweighed by the advantage of placing the risk of cost overrun entirely on the private sector. 	<ul style="list-style-type: none"> Yes The Highways Agency's assessment indicated that at a discount rate of 8%, it would be £50 million (HK\$713 million) cheaper to have the road built and operated by the private consortium RMS. 	<ul style="list-style-type: none"> Yes RTA's comparison indicated that a government-funded toll road would provide a marginally higher return than the private proposal, but the government did not pursue the publicly-funded alternative as it did not wish to raise debt or take on traffic volume risk and interest rate risk.

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Cost and financing (cont'd)					
Financing of the project	<p>When CPTC financed the building of the 91 Express Lanes:</p> <ul style="list-style-type: none"> CPTC issued taxable bonds of US\$135 million (HK\$1.1 billion) at a rate of 7.63%. OCTA provided a subordinated loan of US\$7 million (HK\$54.6 million). <p>When OCTA purchased the 91 Express Lanes:</p> <ul style="list-style-type: none"> OCTA financed the purchase by borrowing US\$83.64 million (HK\$652.4 million) from other OCTA funds at an annually adjustable interest rate representing OCTA's rate of return on short-term investments, i.e. 2.48% on 30 June 2004. In late 2003, OCTA issued around US\$200 million (HK\$1.6 billion) of tax-exempt bonds to refinance its debt. 	<p>Financed by equity and debt. It refinanced in 1998 and 2001. As at 30 June 2005, the total debt amounted to US\$856.2 million (HK\$6.7 billion) and the average interest rate was 6.45%.</p>	<p>Old Severn Bridge:</p> <ul style="list-style-type: none"> The construction cost was financed solely by public funding. The maintenance cost of £126 million (HK\$1.8 billion) was paid by public money at first, but SRC has assumed the responsibility of £122 million (HK\$1.7 billion) of the cost. SRC financed £60 million (HK\$856.2 million) of the cost by a 6% Indexed Linked Debt. <p>Second Severn Crossing:</p> <ul style="list-style-type: none"> SRC financed the cost by bank loans and index-linked debenture stock. 	<p>Funding has been provided via a bond issue and a loan from the European Investment Bank.</p>	<p>AML issued over AUS\$500 million (HK\$2.9 billion) of tax-free bonds to fund the development.</p>

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll policy and adjustment mechanism					
Does the road/bridge/tunnel charge tolls directly on users?	Yes	Yes	Yes	No, the private operator, RMS, receives payments directly from the Highways Agency in the form of "shadow tolls".	Yes
Toll policy	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> The legislation provided that the toll revenues be applied to the payment of the capital costs and operating costs, the reimbursement to the state for the costs of maintenance and police services, and a reasonable return on investment to the private entity. 	<p>The Virginia Highway Corporation Act of 1988 provides that SCC should approve the toll rates if <i>"they appear reasonable to the user in relation to the benefit obtained, not likely to materially discourage use of the roadway and provide the operator no more than a reasonable rate of return as determined by the Commission"</i>.</p>	<p>When the government operated the old Severn Bridge before 1992:</p> <ul style="list-style-type: none"> Tolls were levied on a scale which <i>"would be sufficient, but not more than sufficient"</i> for the reimbursement with interests of all expenses in providing maintenance and administration of the Severn Bridge and for making a provision for the maintenance after the toll period. <p>Since SRC has operated both Severn bridges:</p> <ul style="list-style-type: none"> The Severn Bridges Act 1992 (1992 Act) does not specify a toll policy, but provides that toll adjustments should be made based upon the changes in the retail price index since 1989. 	<ul style="list-style-type: none"> The Highways Agency pays shadow tolls to RMS primarily based on road usage, plus bonus payments for safety enhancements and charges for lane closures. The purpose of the shadow toll payment mechanism as a whole is to foster the development of the private sector road-operating industry in the UK. 	Pending information

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll policy and adjustment mechanism (cont'd)					
Toll policy (cont'd)	<p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> • The goals of the toll policy are as follows: <ul style="list-style-type: none"> "(a) <i>Provide a safe, reliable, predictable commute for customers;</i> (b) <i>Optimize vehicle throughput at free flow speeds;</i> (c) <i>Pay debt service and maintain debt service coverage;</i> (d) <i>Increase average vehicle occupancy;</i> (e) <i>Balance capacity and demand to serve customers who pay tolls as well as carpoolers with three or more persons who are offered discounted tolls;</i> (f) <i>Generate sufficient revenue to sustain the financial viability of the 91 Express Lanes;</i> (g) <i>Ensure all bond covenants are met; and</i> (h) <i>Repay OCTA's internal borrowing and provide net revenues for the Riverside Freeway and the 91 Express Lanes improvements."</i> 				

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll policy and adjustment mechanism (cont'd)					
Is there any public consultation before toll adjustment?	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> • No <p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> • Yes. The State Route 91 Advisory Committee may review any changes to the toll structure and it will place an item on the agenda for due public comment and consideration of the advisory committee. OCTA is not required to obtain the approval of the State Route 91 Advisory Committee before it decides to change the toll rates. 	<ul style="list-style-type: none"> • Yes, SCC orders the toll road operator to give notice of the application of toll adjustment to the interested parties and the public. Any interested person or government agency may comment and/or request for a public hearing with SCC. • Staff of SCC reviews opinions from the public before making recommendations to SCC. 	<p>When the government operated the old Severn Bridge before 1992:</p> <ul style="list-style-type: none"> • Yes, the Minister for Public Transport was required to publish the proposed order on the adjustment of toll rates in at least one local newspaper and in the London Gazette. Any person might write to the Minister to object to the adjustment within six weeks. • If the objection came from either of the county councils in which the old Severn Bridge was located, from any other local authority in England or Wales or from any interest-related organization specified in the 1965 Act, a local inquiry had to be held. In other cases, the Minister might decide whether one would be held. <p>After SRC operates both Severn bridges:</p> <ul style="list-style-type: none"> • No 	Not applicable	No

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll policy and adjustment mechanism (cont'd)					
The toll adjustment mechanism	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> CPTC was free to set the toll rates, as long as the resulting return was within the maximum rate of return set out in the franchise, i.e. 17%. <p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> Once the hourly traffic volumes are consistently too heavy in six of 12 consecutive weeks, the tolls for those high demand Super Peak hours will be increased by US\$1.00 (HK\$7.80) if the average vehicle volume has reached 97% of the maximum optimal capacity or more, or by US\$0.75 (HK\$5.85) if the average vehicle volume is between 94.1% and 97% of the maximum optimal capacity. Non-Super Peak tolls and Super Peak tolls not adjusted for the previous 12 months are adjusted annually based on the Inflation Factor, a weighted combination of indexes measuring labour cost and inflation. 	<p>TRIP II initiates the adjustments of toll ceilings and applies for the approval of SCC. Within that ceiling, TRIP II is free to adjust the toll rates on its own.</p>	<p>When the government operated the old Severn Bridge before 1992:</p> <ul style="list-style-type: none"> After considering all concerns on the proposed toll adjustment, the Minister for Public Transport might make an order, with or without any modification to the original proposed order. The order had to be approved by a resolution of the House of Commons to become effective. <p>Since SRC operates both Severn bridges:</p> <ul style="list-style-type: none"> The toll rates have been fixed by the 1992 Act in 1989 prices. The annual adjustment based on inflation is automatic. The Transport Secretary may make an order for the adjustment to become effective. 	<p>Shadow toll payments are adjusted annually in accordance with an indexation formula. Retail Price Indexes are used as part of the indexation formula, but details of the formula are not available.</p>	<p>Toll adjustments are made automatically either on the basis of quarterly movements in both the consumer price index (37.5% weighting) and the average weekly earnings (62.5% weighting), or for a 1% increase per quarter, whichever is greater.</p>

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll policy and adjustment mechanism (cont'd)					
Is approval of public regulator or legislature required for toll adjustment?	When the 91 Express Lanes was operated by CPTC: • No As the 91 Express Lanes has been operated by OCTA since 2003: • No	Yes, approval of SCC is required for adjustment of toll ceilings.	When the government operated the old Severn Bridge before 1992: • Yes Since SRC operates both Severn bridges: • No	No	No
Is there any mechanism to reduce the toll rates or adjust the toll rates at a level less than what is permitted?	• Yes, six months after an increase in Super Peak tolls, the traffic volume of the most recent 12 consecutive weeks has to be reviewed. If the traffic volume for six of the 12 consecutive weeks is less than 80% of the maximum optimal capacity, the traffic volumes of all 12 weeks will be averaged. If the average traffic volume is less than 80% of the maximum optimal capacity, then the toll will be reduced by US\$0.50 (HK\$3.90). • For Non-Super Peak tolls, if the Inflation Factor turns out to be negative in a particular year, the toll rates will be frozen rather than reduced in that year.	Yes, SCC, upon application, complaint or its own initiative, and after investigation, may order any toll being charged by the operator be substituted.	• Yes, as the annual toll adjustment is based on the inflation rate, the toll rates will be adjusted downwards if there is deflation. • The Transport Secretary has the power to adjust the tolls at a rate less than that of inflation, but he can only do so with the concessionaire's consent. However, SRC is obliged to charge the maximum toll permitted under its financing agreements. • The Transport Secretary may also make an order to change the tolls specified in the 1992 Act, but the order requires approval of each House of Parliament.	Not applicable	Pending information

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll rates					
Current toll rates	<ul style="list-style-type: none"> Tolls are charged for both ways. Tolls range from US\$1.10 (HK\$8.58) to US\$3.90 (HK\$30.42) for a westbound trip and from US\$1.10 (HK\$8.58) to US\$7.75 (HK\$60.45) for an eastbound trip, based on the day of the week and time of the day. Commuters who travel in specified hours around midnight and those who drive in a carpool of three or more persons (for most hours of the day) may travel for free. It also has a holiday toll schedule, with lower rates being charged. 	<ul style="list-style-type: none"> Tolls are charged for both ways. Tolls range from US\$1.65 (HK\$12.87) to US\$2.40 (HK\$18.72) for cars, depending on the access point and the time of the day. Vehicles with three or more axles are charged twice as much. 	<ul style="list-style-type: none"> Tolls are charged for one direction only. The old Severn Bridge and the Second Severn Crossing share a common toll charging scheme. Tolls are £4.80 (HK\$68.50), £9.60 (HK\$136.99) and £14.3 (HK\$204.06) for the three categories of vehicles respectively. 	The actual shadow toll payment per vehicle per km is not available.	<ul style="list-style-type: none"> Tolls are charged for one direction only. The toll for Class A vehicles (cars and motor-cycles) is AUS\$4.50 (HK\$25.79). The toll for Class B vehicles (vehicles other than cars and motor cycles) is AUS\$8.50 (HK\$48.71). The toll rates include goods and services tax.

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Toll rates (cont'd)					
Rate of toll adjustment	<ul style="list-style-type: none"> As carpools of three or more persons are allowed to ride free or at a discount, the average toll has decreased from US\$2.59 (HK\$20.20) prior to OCTA's purchase to US\$2.50 (HK\$19.50). The Super-Peak tolls have been adjusted seven times (US\$0.75 (HK\$5.85) each time) since January 2003, affecting one to four hours in a 24-hour period in general. The increase in the tolls charged between 4 p.m. and 5 p.m. on Thursdays has been most significant. It has increased by 63%. Non-Super Peak tolls were frozen from November 2001 to June 2004. From 1 July 2004 onwards, tolls have been adjusted based on the Inflation Factor. The Inflation Factor was 3.64% in 2004. 	<ul style="list-style-type: none"> The toll for cars has increased by 37% since the Dulles Greenway opened to traffic in 1995. Most of the adjustments involved an increase of US\$0.25 (HK\$1.96) in tolls. The tolls were slashed by half in 1996 when initial traffic fell short of the projected levels. 	Compared the current toll rates with those charged in 1992 when the private operator took over, the toll rates have increased by around 70% for all three categories of vehicles.	Not available	The toll rates for Class A and Class B vehicles have increased by 50% and 42% respectively since the opening of the Eastern Distributor in July 2000.

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Financial performance and financial reporting					
Does the toll road operator use the internal rate of return to evaluate its returns?	<p>CPTC:</p> <ul style="list-style-type: none"> The calculation of its rate of return was based on the net present value of the cash flows. <p>OCTA:</p> <ul style="list-style-type: none"> No, it does not apply any rate of return to measure its return of investment as it does not operate for profit-making purposes. 	No, it uses the rate of return on equity.	Yes	The Highways Agency assessed the bids by comparing the net present value of expected payments using an 8% discount rate.	Yes
Is there any cap on the rate of return to be achieved by the toll road operator?	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> Yes, the rate of return was capped at 17%. However, CPTC could earn up to six percentage points above its allowed rate of return ceiling if it met certain public objectives, for instance, reducing accident rates. <p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> No 	<ul style="list-style-type: none"> Yes, the approved rates of return on equity for years 1-5 is 30%; years 6-7 is 25%; years 8-11 is 20%; years 12-16 is 15% and the rate for the remaining term is 14%. On the other hand, unrealized earnings from early years will accumulate as liabilities for later repayment out of earnings. 	No	No, but the total annual toll payment received by RMS is capped to a level, which means when traffic volumes have grown to the level set for the top band, the Highways Agency pays no more tolls for the traffic volume above that level.	No

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Financial performance and financial reporting (cont'd)					
What are the actual rates of return achieved by the toll road operator?	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> • Not available. <p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> • Not applicable. Any funds available beyond operating requirements are utilized to improve the 91 Express Lanes and the Riverside Freeway. 	TRIP II has not achieved any positive rate of return yet as the project has not made any profit.	Not available	Not available	Not available
Financial performance of the toll road operator	<p>When the 91 Express Lanes was operated by CPTC:</p> <ul style="list-style-type: none"> • The operator reported profits by 1998. <p>As the 91 Express Lanes has been operated by OCTA since 2003:</p> <ul style="list-style-type: none"> • Current toll revenues are sufficient to cover operating expenses and debt service. Revenue rose 8.4% from US\$28.8 million (HK\$224.6 million) in 2003 to US\$31.2 million (HK\$243.4 million) in 2004. The revenue achieved in 2004 was record-breaking. 	<ul style="list-style-type: none"> • TRIP II has been losing about US\$25 million (HK\$195 million) a year since the Dulles Greenway opened in 1995. • In recent years, revenues have covered direct operating costs, but not interest and principal payments. It is predicted that the earliest time that the Dulles Greenway can actually make a profit will be at least five years from 2005. 	SRC made an operating profit of £35.5 million (HK\$506.6 million) in 2004, but recorded a loss of £3.0 million (HK\$42.8 million) after finance charges and tax. The loss was £3.5 million (HK\$50.0 million) in 2003.	<ul style="list-style-type: none"> • The turnover, i.e. the amount earned from the Highways Agency in the form of shadow tolls, for 2004 was £24.3 million (HK\$ 346.8 million) and that for 2003 was £24.1 million (HK\$ 343.9million). • The profit for 2004, after taxation, amounted to £2.7 million (HK\$38.5 million), whilst that for 2003 was £2.4 million (HK\$34.2 million). 	Pending information

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Financial performance and financial reporting (cont'd)					
Is the toll road operator required to submit an annual audited financial statement to the legislature?	No, but OCTA has to submit the audit report to the State Route 91 Advisory Committee, and quarterly and annual audit reports to Caltrans.	No, but TRIP II has to file the financial statements for the quarter and for the fiscal year to date with SCC within 60 days of the end of the quarter and the end of the fiscal year respectively.	Yes, SRC has to prepare an annual audited statement and submit it to the Transport Secretary, who will lay the statement before Parliament.	No	No, but AML has to provide RTA with quarterly company-certified cash flow and profit and loss statements, an independently audited annual profit and loss statement and monthly traffic reports.
Dispute-resolving and re-negotiation mechanism					
Is there any mechanism in the concession/contract agreement to resolve disputes between the toll road operator and the government/regulator?	Yes, disputes may be referred to arbitration.	No, there is no dispute resolving mechanism provided in the law or the certificate of authority regarding disputes over toll rate levels or rate of return.	<ul style="list-style-type: none"> • Yes, the concession agreement provides that either party may refer a dispute to a Financial or Technical Panel acting as independent experts. • Any unanimous decision of the Panel is final and binding upon the parties; otherwise a decision of the Panel is binding only when the dispute has been settled or referred to arbitration. 	When initial negotiation fails to resolve a dispute between RMS and the Highways Agency, a senior official from either side will hold a meeting to try to resolve it. If the dispute is not resolved by the meeting, they will refer it to be adjudicated by an agreed independent expert and the dispute will be adjudicated within 40 days.	<ul style="list-style-type: none"> • Yes, some disputes are specified in the Project Deed, which may be referred by RTA or AML to a "mutually agreed, mutually appointed independent expert for final, binding determination". • Any other disputes may be referred by RTA or AML for mediation by the Australian Commercial Disputes Centre Limited in Sydney.

Appendix (cont'd)

Comparison of various attributes of the operation of toll roads, bridges and tunnels in selected places

	91 Express Lanes of California, the United States	Dulles Greenway of Virginia, the United States	Severn Bridges of the United Kingdom	A1(M) of the United Kingdom	Eastern Distributor of Sydney, Australia
Dispute-resolving and re-negotiation mechanism (cont'd)					
Is there a re-negotiation framework in the concession/contract agreement by which the toll road operator and the government can re-negotiate the concession/contract?	Yes, for instance, if the road is to be extended or more time is needed to repay debt, the franchise agreement may be re-negotiated.	<ul style="list-style-type: none"> • SCC may modify the date of termination of the certificate of authority to take into account any refinancing of TRIP II. • In the event of material and continuing default in the performance of the toll road operator's construction, or operation duties, or failure of the operator to comply with the terms of its agreement with the Virginia Department of Transportation, SCC may revoke the certificate of authority of the toll road after a hearing. 	<ul style="list-style-type: none"> • The concession agreement has provisions allowing some re-negotiations between the concessionaire and the Transport Secretary in certain circumstances. • The 1992 Act specifies the occurrence of certain particular circumstances under which the concession agreement authorizes changing the amount of the toll specified in the 1992 Act. 	<ul style="list-style-type: none"> • Yes, the scope of possible changes required by the Highways Agency is specified in the contract. Where such a change alters RMS' costs or the traffic flow on the road, the shadow tolls will be revised or a one-off compensation will be given to RMS. • There is a provision in the contract for the introduction of user-paid tolls. If that happens, the user-paid tolls will go to the government, who will continue to pay shadow tolls to RMS during the term of the contract. If traffic is diverted to alternative non-tolled roads, which may affect the road operator's income, the contract allows RMS to claim compensation. 	<ul style="list-style-type: none"> • Yes, the Project Deed expressly envisages a range of circumstances under which the project's contracts might need to be re-negotiated. • Under these circumstances, RTA or the Minister for Roads must enter into good faith negotiations with AML so as to enable AML to repay their debtors substantially and give the equity investors of AML the real after-tax internal rate of return they would have received had the event not occurred. • If the parties cannot agree on the action to be taken within 30 days of entering the negotiations, the matter may be referred for binding determination.