LegCo Bills Committee on Mass Transit Railway Bill

Thursday, 6 January 2000

Briefing Note on Regulatory Issues within the Privatization of MTRC

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Mass Transit Railway Corporation (MTRC) requested the Railway Technology Strategy Centre (RTSC) within Imperial College, University of London, to research regulatory issues pertinent to privatization. RTSC, headed by Professor Tony Ridley, is recognized as a centre of excellence serving the railway industry on strategic, economic and policy issues, with almost 20 years of active research experience in metro railway benchmarking. RTSC is currently managing a major metro railway benchmarking programme involving 16 of the world's most important metro railways.

Professor Ridley has a distinguished career in the Metro Railway industry. He has managed the start-up of Metro railways in Newcastle-Upon-Tyne in the UK and in Hong Kong. He was managing director and chairman of London Underground in the UK for 7 years. More recently, he has lectured at Imperial College, most recently as Head of the Department of Civil and Environmental Engineering. During all of these years, his career has centred upon improved performance of Metro railways. During the last seven years he has served as the chairman of the Railway Technology Strategy Centre (RTSC) at Imperial College.

In evaluating regulation of metro railways, it is important to consider what regulation is trying to achieve. For metro railways, typical, sound objectives are high safety levels and certain social objectives. For any objective, regulation should complement the metro railway and encourage good management. Regulation cannot compensate for poor management. It is observed that when regulation attempts to compensate for poor management, it can often make performance worse.

RTSC carried out a series of statistical analyses between the level of regulation applied and the overall performance of metro railways. Analysis was based on benchmarking data from 16 major metro systems in Asia, Europe and America. Research findings provide useful insight into management for privatization of MTRC and for regulatory issues.

RTSC found that metro railways subject to the highest level of overall regulation generally have the worst business performance and vice versa. Correlation between operations regulation and train operations reliability found that metro railways subject to the highest level of operations regulation have the worst performance, whereas those subject to lowest levels of operations regulation have the best performance.

RTSC's findings based on a wide range of analyses and research highlighted

- The best mode of regulation sets an effective policy framework, encourages competent, pro-active and accountable management, and reviews management's progress every 12 months.

- The most successful metro railways are those that have strong management teams, complemented by constructive competition within the market, coupled with a light level of regulation.

- Service regulation including time-tabling and performance levels is best done by the operator of metro services on a routine and comprehensive basis.

- The right level of regulation allows companies to be responsive to the market and to be capable of reacting promptly.

- Micro-regulation cannot compensate for incompetent management and can actually contribute to deteriorating performance.

- MTRC is one of the most competently conceived and managed systems in the world according to the results of comprehensive benchmarking comparison of performance among 16 of the world's largest metro systems.

From experience in New York, Philadelphia and Sydney in the 1970's and 1980's, government interference in metro railway operations had led to inappropriate service patterns, excessive cost and deteriorating service quality. Over regulation had removed from metro railway management their fundamental responsibilities of accountability for effective service management and asset replacement planning. In all cases, performance improved remarkably when new management with improved competencies took over and government provided policy guidance in place of over regulation.

It is evident that government interference through operations regulation in a frequent manner runs the risk of getting government involved with detailed operational issues they are less experienced in, and removing metro railway management from their accountable roles of managing most effective service delivery.

Benchmarking analyses over the past five years show that MTRC is one of the best metro railways in the world in terms of business performance, service levels, operations reliability and safety record. It is one of the most competently conceived and managed systems. Consistently, Hong Kong is also found to have provided a correctly regulated environment for effective railway operation. MTRC and Hong Kong's current mechanisms are working well and should continue to do so to the greatest benefit of society. RTSC is convinced that in the future under light levels of regulation as in the past, MTRC will continue to be a superior metro railway with performance envied by other major metros in the world.

A Presentation to LegCo, Hong Kong on

Regulatory Issues within the Privatisation of MTRC

6 January 2000

Prepared by the

Railway Technology Strategy Centre

at Imperial College, London

a special research initiative completed December 1999

Introduction to Imperial College:

2.1 This research was carried out on behalf of MTRC by a research unit of Imperial College, University of London, United Kingdom,

2.2 The Railway Technology Strategy Centre (RTSC) at Imperial College is a centre of excellence serving the railway industry on strategic, technology, economic and policy issues - currently managing Benchmarking of 16 metro systems,

2.3 Professor Tony Ridley is Emeritus Professor at Imperial College, and until October 1999 was Head of the Department of Civil and Environmental Engineering,

2.4 RTSC has been involved in a Metro railway benchmarking programme for the past five years. The programme now involves 16 of the world's most important Metro railways. In fact, our involvement with Metro benchmarking goes back almost 20 years.

The establishment of a regulation regime should always consider:

3.1 What the regulation is trying to achieve -- for railways, safety regime and social service issues are typical baseline requirements,

3.2 How the regulation will complement good management -- regulation can never compensate for poor management,

3.3 Moreover, when regulation attempts to compensate for poor management it can often make performance worse, moreover

3.4 This is particularly true for the core functions within a metro.

Service management and monitoring is the core function of metros and includes:

4.1 Level of service planning,

4.2 Service timetabling,

4.3 Vehicle and staff assignment,

4.4 Operations management,

4.5 Monitoring and adjustment of service performance.

Each of these core functions occur frequently, require accountable, qualified staff, but do need input from others:

5.1 Level of service requires input from the Regulator and the public,

5.2 Service scheduling benefits from feedback from the passenger and the Regulator,

5.3 Operations management can benefit from Regulator and public input on the quality of service provided - perhaps every 12 months through a performance review and market surveys,

5.4 Service monitoring and adjustment including timetables and performance levels must be performed continually by the metro and can be summarised to support the 12 month reviews cited above.

Operations regulation that attempts to be involved more frequently

and in detail runs the risk of:

6.1 Getting government involved with detailed operational issues they are not experienced in,

6.2 Removes from metro management their accountable roles in their principal function,

6.3 Can often keep regulators from establishing effective regulation policy, and

6.4 Does not compensate for poor management and may contribute to deteriorating management performance.

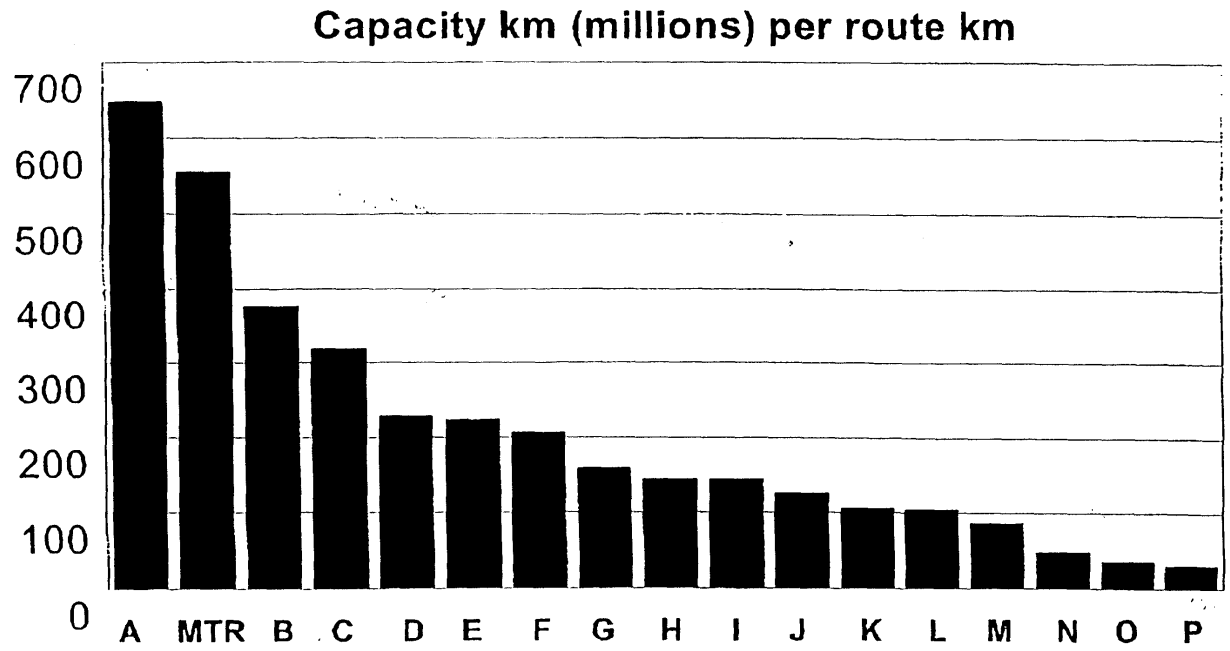
Background to the research:

7.1 Since 1995, Imperial College has managed a benchmarking study of urban railway performance across the world,

7.2 This study now includes 16 systems in three continents: four in Asia, three in the Americas and nine in Europe,

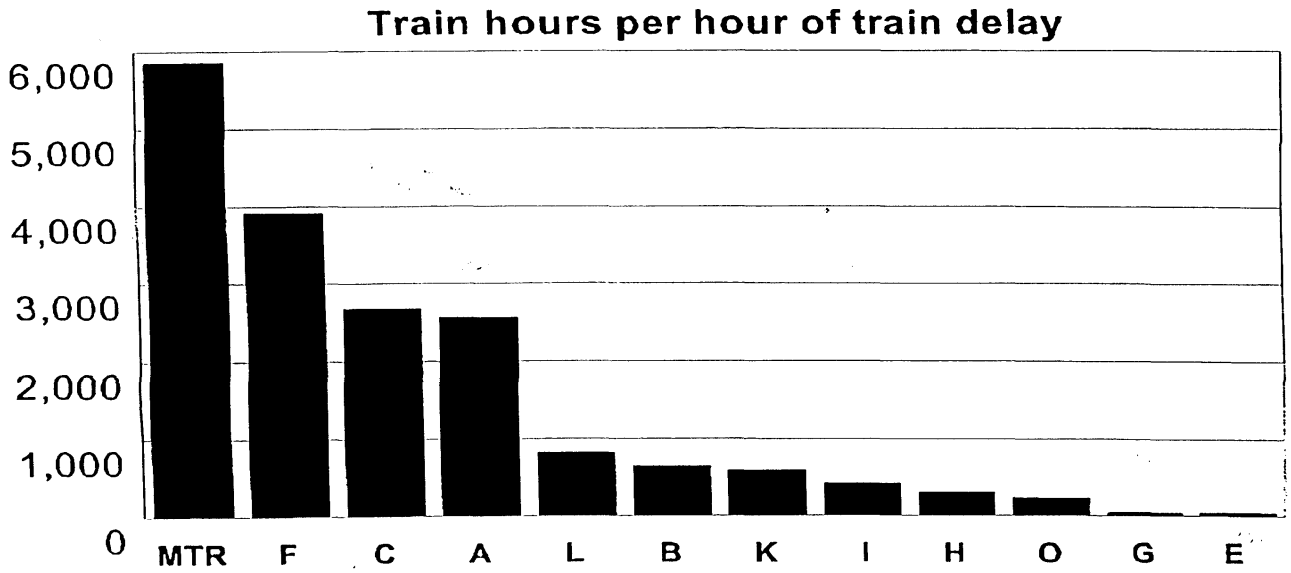
7.3 These benchmarking comparisons have consistently provided significant evidence that MTRC is one of the best managed large metro systems in the world.

This benchmarking plot of train service provided per route km demonstrates that MTRC provides the second most intensive level of service:



Source: CoMET Benchmarking

Moreover, in terms of this reliability measure, MTRC provides the best performance of all Metro operators in our benchmarking programme:



Source: CoMET Benchmarking

A Specific analysis of level of government regulation of service management and other functions was performed over the 16 Metro systems:

10.1 Some systems are almost totally internally regulated, others almost entirely regulated by government,

10.2 The survey results show a wide pattern of regulation,

10.3 Significantly, only two of the 16 systems have service management controlled by the government -- New York and Madrid,

10.4 The specific results of the survey are shown on the next slide ...

This indicates the different levels of regulation - both overall and operational - of the 16 Metro railways:

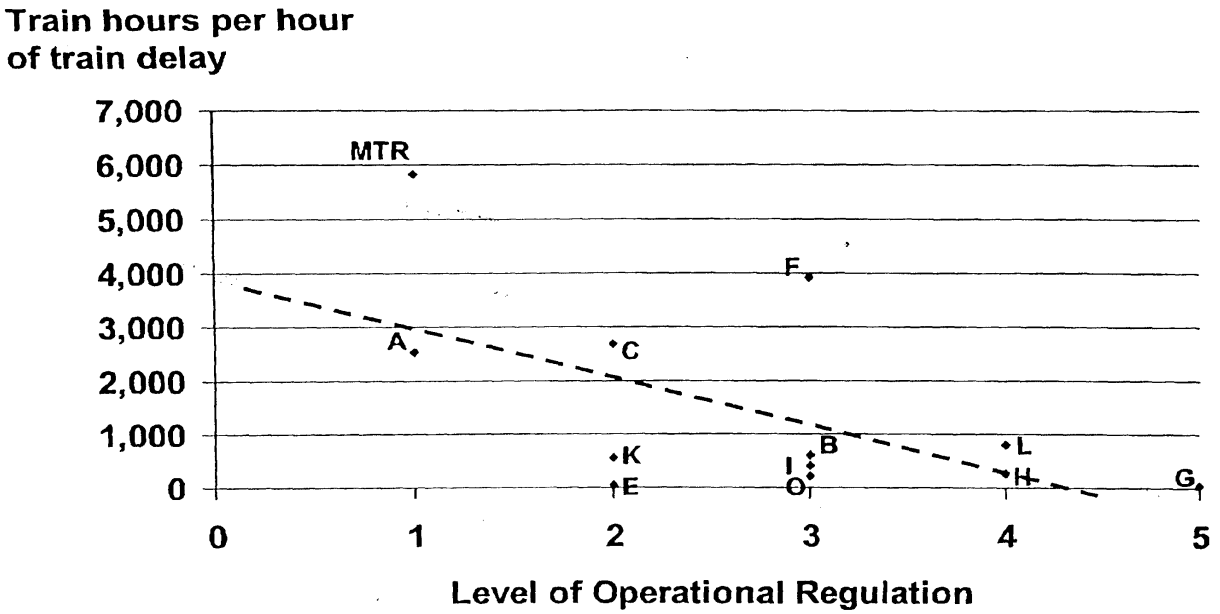
Metro:	MTR	A	B	C	D	E	F	G	H
Level of Operational regulation (1-5)	1	1	3	2	2	2	3	5	4
Overall Level of regulation (1-10)	1	1	8	7	3.5	5.5	2	8	7

Metro:	I	J	K	L	M	N	O	P
Level of Operational regulation (1-5)	3	4	2	4	2	2	3	3
Overall Level of regulation (1-10)	4	8.5	8.5	7	6	3.5	5.5	6

11.1 We conclude that in most cities it is recognised that managers close to the operation are most appropriate for determining service levels, hours and patterns of service,

11.2 Moreover, when we correlated the regulation levels against measures of Metro success, some significant patterns emerged ...

Graph of Train Hours per Hour of Train Delay (Service Quality) against Operational Regulation Level:



Examples of poor service performance that was detrimentally affected by over regulation and micro-level regulation are:

13.1 New York's NYCT in the 1970's where government interference in operations lead to inappropriate service patterns, excessive cost and deteriorating quality,

13.2 Sydney's SRA through the 1980's that over regulated service levels while quality and safety dropped to unacceptable levels,

13.3 Philadelphia's SEPTA system that over regulated service performance to the point that management could not perform their fundamental roles of service management and asset replacement,

13.4 In each of the three cases performance improved dramatically when new management took over, improved management competence and activity, and asked government to provide clearer policy guidance and to review performance against that policy on an annual basis -- in each case the process worked extremely well.

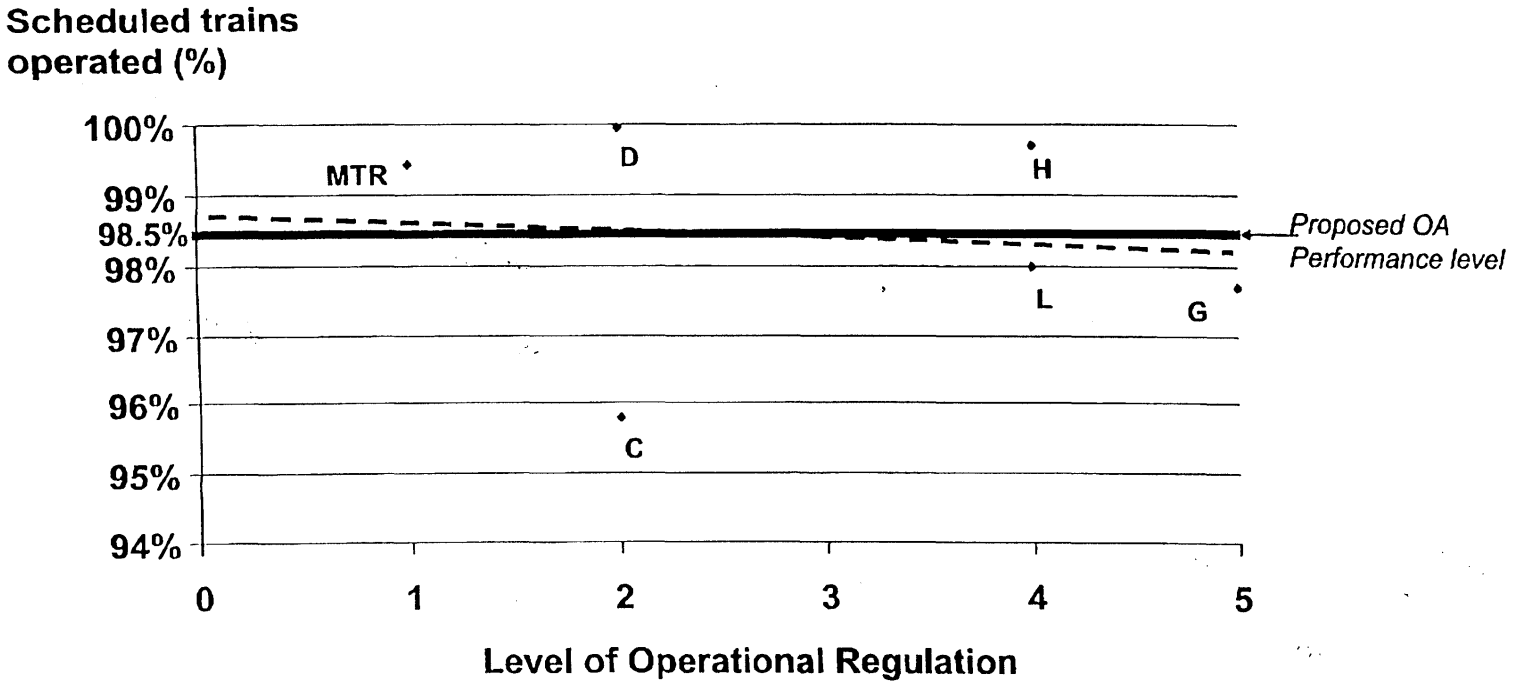
MTR Operating Agreement Performance definitions:

14.1 Train Service Delivery - Percentage of trains run compared to the number of trains scheduled,

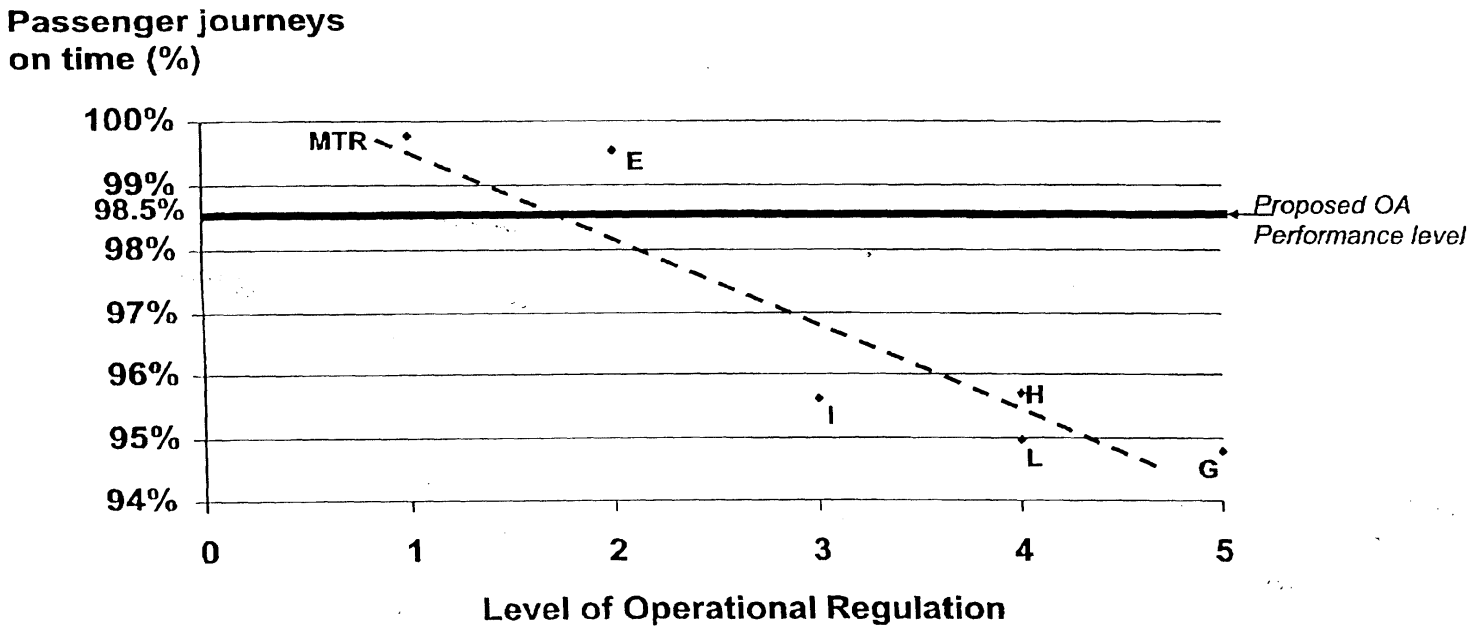
14.2 Passenger Journeys On Time - Percentage of passengers who complete their journey without experiencing a delay of 5 minutes or more,

14.3 Train Punctuality - Percentage of trains completing their journey without experiencing a delay of >2 minutes on the MTR or >5 minutes on Airport Express.

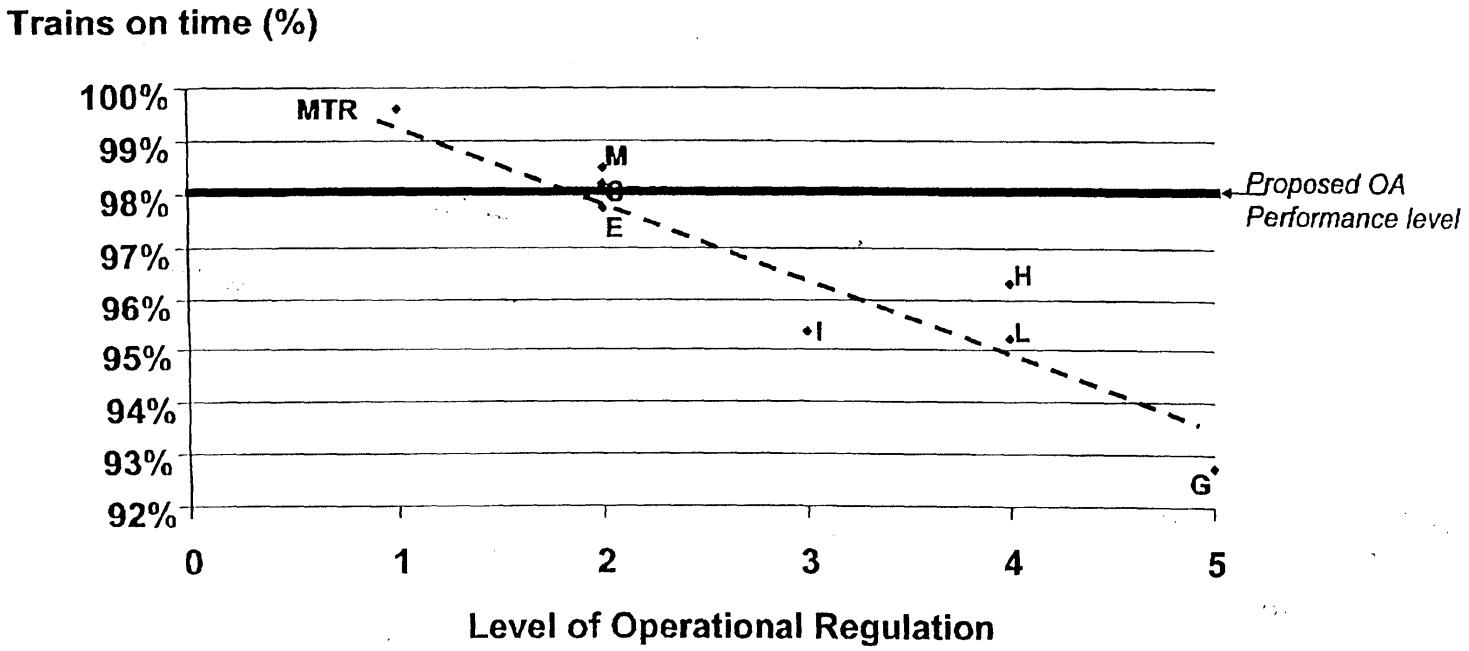
Graph of Train Service Delivery Performance Requirements against Operational Regulation Level:



Graph of Passenger Journeys On Time (CoMET 5 year average) Performance Requirements Against Operational Regulation Level:



Graph of Train Punctuality (CoMET 5 year average) Performance Requirements Against Operational Regulation Level:



The benchmarking work has shown the MTR to be a consistently good performer:

For the 3 performance requirements for train service, the level proposed i.e.

- 98.5% for train service delivery
- 98.5% passenger journeys on time
- 98% for train punctuality

are amongst the best in the world.

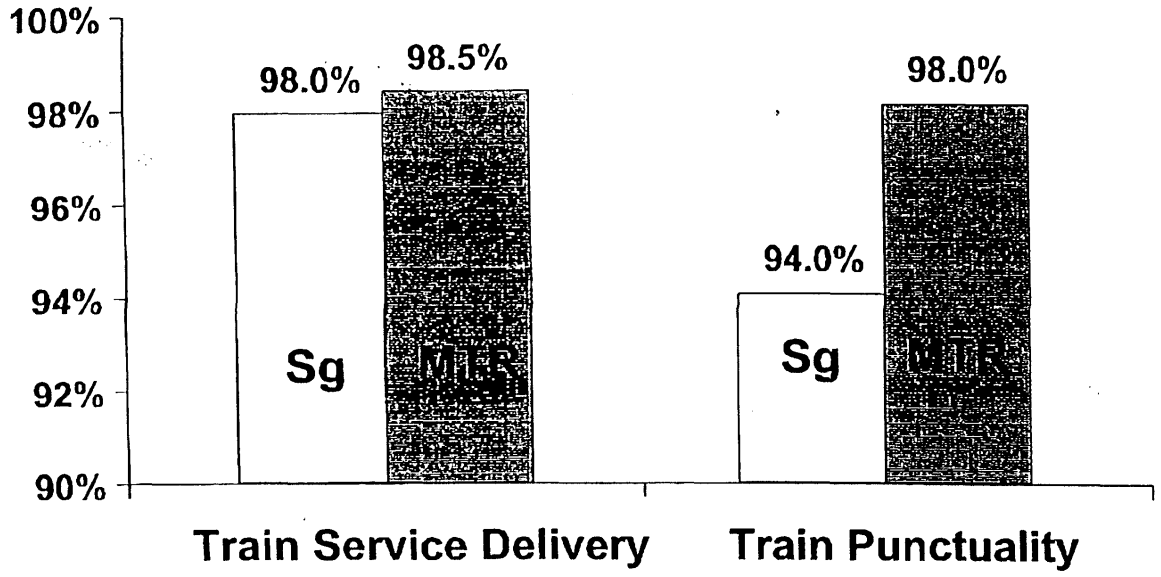
18.1 Some medium to high regulated metros perform well in some aspects,

18.2 Only MTR performs well in all areas of train service,

18.3 Two of the performance requirements are regulated in Singapore --the levels proposed for MTR regulation are good in comparison.

Regulation Level of Service Performance Requirement for Singapore & MTR:

- Singapore subject to new License and Operating Agreement (LOA) effective from April 1998.



In summary:

20.1 The most successful metros are metros that have strong management teams, complemented by constructive competition and a light level of regulation, on essential elements only,

20.2 Service regulation including timetabling and performance levels is best done by the operator of metro services on a routine and comprehensive basis,

20.3 The best type of regulation sets an effective policy framework, encourages competent, pro-active and accountable management, and reviews management's progress every 12 months,

20.4 The correct level of regulation allows companies to be responsive to the market and to be capable of changing quickly,

Summary, cont'd:

21.1 Micro-regulation cannot compensate for incompetent management and can actually contribute to deteriorating performance,

21.2 The operating agreement as structured demands **MTR** to deliver the highest levels of performance consistently,

21.3 By international standards MTRC has one of the most competently conceived and managed systems in the world, based on our comprehensive benchmarking comparisons of 16 of the world's largest metro systems.

Therefore, do not change a successful formula:

"if it's not broken, don't fix it" --

MTRC and Hong Kong's current mechanisms are working well and

should continue to do so in the future.