

Association
mondiale
de la Route



World Road
Association

PIARC

**INTERNATIONAL SEMINAR
ON INTELLIGENT
TRANSPORT SYSTEMS (ITS)
IN ROAD NETWORK OPERATIONS**

Opening Address

The Honorable Minister of Works,
Malaysia

Y.B. Dato' Seri S. Samy Vellu

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INTERNATIONAL SEMINAR ON INTELLIGENT TRANSPORT SYSTEMS (ITS) IN ROAD NETWORK OPERATIONS

Organised by :

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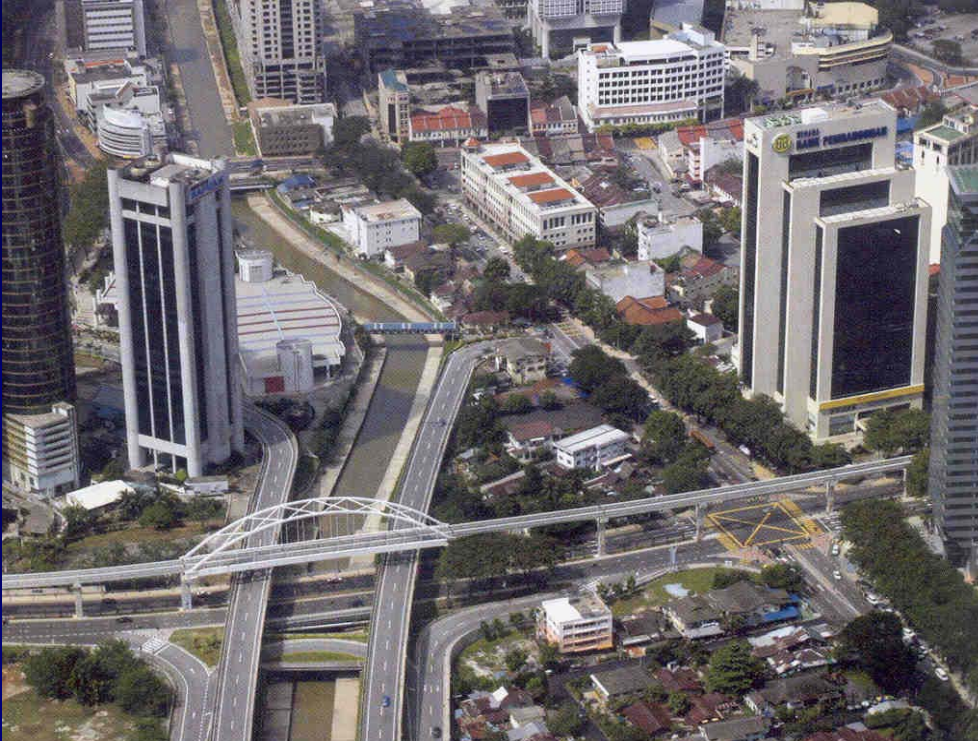


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Rising Car Ownership



Use of ITS



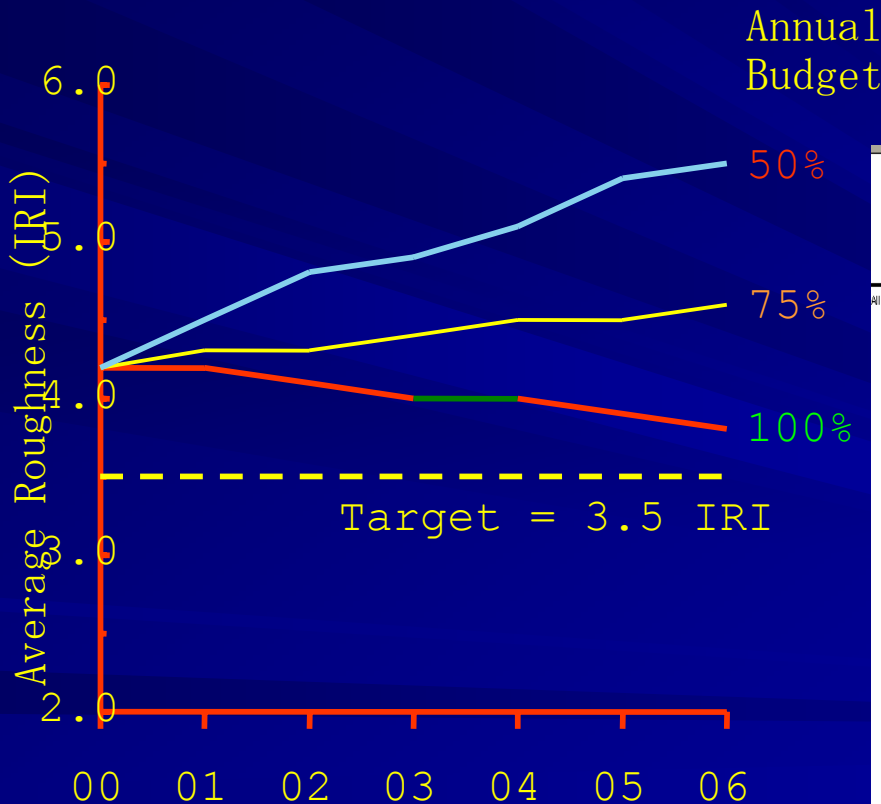
Fulfilling National Objectives

- **Developed nation by 2020**
- **Capital intensive sophisticated technology**
- **Continue to improve economic foundation:**
 - *Quantity and quality of human resources*
 - *Development of indigenous R & D*
 - *Adequate supply of modern infrastructure*



Optimizing user costs and cost of maintenance

Protocol Roads



HDM-4 Work Programme Unconstrained by Year

Study Name: Johor
Run Date: 25-05-2004

All costs are expressed in: Malaysian Ringgit (millions)

Year	Section	Road Class	Length (km)	AADT	Surface Class	Work Description	NPV/CAP	Financial Costs	Cum. Costs
2004	0086 : 9:00 - 19:00 ; 1	Primary (Road)	7.0	19161	Bituminous	Mil/4R Rep. 80 @ 4.5 IRI	63.316	1.249	1.249
2004	0090 : 9:00 - 19:00 ; 1	Primary (Road)	5.0	38130	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	55.114	0.972	2.221
2004	0090 : 6:00 - 10:99 ; 1	Primary (Road)	5.0	46241	Bituminous	Mil/4R Rep. 40 @ 10 ACA	52.028	0.799	3.020
2004	0090 : 24:00 - 28:99 ; 1	Primary (Road)	3.0	51405	Bituminous	Mil/4R Rep. 80 @ 35 ACA	44.239	0.810	3.830
2004	0090 : 62:00 - 62:99 ; 1	Primary (Road)	1.0	38130	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	38.288	0.108	3.738
2004	0090 : 4:00 - 5:00 ; 3	Primary (Road)	10	24821	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	19.180	0.294	4.000
2004	0090 : 54:18 - 57:99 ; 2	Primary (Road)	40	19065	Bituminous	Mil/4R Rep. 40 @ 3.5 IRI	15.212	0.886	4.886
2004	0090 : 73:00 - 75:99 ; 1	Primary (Road)	3.0	4970	Bituminous	Mil/4R Rep. 40 @ 35 ACA	5.037	0.804	5.690
2004	0090 : 78:00 - 79:99 ; 1	Primary (Road)	40	4970	Bituminous	Mil/4R Rep. 40 @ 25 ACA	2.854	0.526	6.026
2004	0090 : 80:00 - 83:99 ; 1	Primary (Road)	40	4968	Bituminous	Mil/4R Rep. 80 @ 35 ACA	2.012	0.713	6.739
2004	0090 : 70:00 - 72:99 ; 1	Primary (Road)	3.0	4970	Bituminous	Mil/4R Rep. 40 @ 25 ACA	1.988	0.361	7.100
2004	0090 : 94:00 - 96:99 ; 1	Primary (Road)	3.0	4968	Bituminous	40 mm Overlay @ 3 IRI (VL)	1.815	0.277	7.377
2004	0090 : 97:00 - 100:99 ; 1	Primary (Road)	40	4968	Bituminous	Mil/4R Rep. 40 @ 25 ACA	1.509	0.937	7.974
2004	0090 : 84:00 - 86:99 ; 1	Primary (Road)	3.0	4968	Bituminous	Mil/4R Rep. 80 @ 35 ACA	1.235	0.620	8.494
2004	0090 : 124:00 - 125:99 ; 1	Primary (Road)	3.0	1289	Bituminous	40 mm Overlay @ 3 IRI (VL)	0.886	0.219	8.713
2005	0090 : 94:00 - 96:99 ; 1	Primary (Road)	3.0	38835	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	55.114	0.912	9.685
2005	0017 : 13:00 - 23:99 ; 2	Primary (Road)	11.0	52253	Bituminous	Mil/4R Rep. 40 @ 15 ACA	47.770	1.448	11.128
2005	0017 : 28:00 - 28:99 ; 3	Primary (Road)	1.0	30422	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	45.028	0.133	11.261
2005	0090 : 27:00 - 28:99 ; 1	Primary (Road)	2.0	53831	Bituminous	Mil/4R Rep. 80 @ 35 ACA	38.882	0.415	11.676
2005	0090 : 11:00 - 19:99 ; 1	Primary (Road)	9.0	54988	Bituminous	Mil/4R Rep. 80 @ 25 ACA	35.827	1.982	13.659
2005	0090 : 68:00 - 68:99 ; 3	Primary (Road)	1.0	19498	Bituminous	Mil/4R Rep. 80 @ 35 ACA	28.481	0.167	13.826
2005	0090 : 20:00 - 23:99 ; 1	Primary (Road)	4.0	53831	Bituminous	Mil/4R Rep. 80 @ 35 ACA	26.238	0.887	14.723
2005	0093 : 12:00 - 20:10 ; 3	Primary (Road)	8.0	76728	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	21.262	2.055	16.778
2005	0023 : 38:00 - 39:99 ; 1	Primary (Road)	2.0	15979	Bituminous	Mil/4R Rep. 80 @ 35 ACA	20.137	0.320	17.097
2005	0090 : 4:00 - 5:00 ; 3	Primary (Road)	1.0	25140	Bituminous	Mil/4R Rep. 40 @ 2.5 IRI	19.180	0.294	17.391
2005	0023 : 59:00 - 81:99 ; 1	Primary (Road)	3.0	9424	Bituminous	Mil/4R Rep. 80 @ 35 ACA	7.738	0.548	17.939
2005	0023 : 27:00 - 27:99 ; 1	Primary (Road)	1.0	15979	Bituminous	Mil/4R Rep. 80 @ 35 ACA	4.738	0.191	18.100
2005	0090 : 78:00 - 79:99 ; 1	Primary (Road)	3.0	51405	Bituminous	Mil/4R Rep. 80 @ 35 ACA	2.901	0.364	18.464

Optimizing user costs and cost of maintenance

HDM-4

Optimum Economic-Based Intervention Standards

Roughness (IRI m/km)		Cracking (%)	AADT			
			Low <10,000	Medium 10 - 15,000	High 15 - 25,000	V High >25,000
< 2.5	OR	< 20	Nil	Nil	Nil	Nil
2.5 - 3.5	OR	> 20	Nil	MP40L40	MP40L40	MP40L40
3.5 - 4.5	OR	> 30	L40	MP40L40	MP40L40	MP40L40
4.5 - 5.5	OR	> 40	M40R40	M40R40	M40R80	M40R80
> 5.5	OR	> 50	M40R80	M40R80	M40R80	M40R80

Note : Does NOT apply when SNP < 5

Optimizing user costs and cost of maintenance

HDM-4 OUTPUT

H D M - 4

ROADWAY DEVELOPMENT & MANAGEMENT

Work Programme Unconstrained by Year

Study Name: Johor

Run Date: 25-05-2004

All costs are expressed in: Malaysian Ringgit (millions)

Year	Section	Road Class	Length (km)	AADT	Surface Class	Work Description	NPV/CAP	Financial Costs	Cum. Costs
2004	0095 : 9.00 - 16.00 ; 1	Primary (Road)	7.0	19161	Bituminous	Mill 40/Rep. 80 @ 4.5 IRI	63.316	1.249	1.249
	0050 : 54.00 - 59.00 ; 1	Primary (Road)	5.0	38130	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	55.114	0.972	2.221
	0050 : 6.00 - 10.99 ; 1	Primary (Road)	5.0	46241	Bituminous	Mill 40 Rep. 40 @ 10 ACA	52.028	0.799	3.020
	0050 : 24.00 - 26.99 ; 1	Primary (Road)	3.0	51405	Bituminous	Mill 40/Rep. 80 @ 35 ACA	44.236	0.610	3.630
	0050 : 62.00 - 62.99 ; 1	Primary (Road)	1.0	38130	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	39.296	0.106	3.736
	0050 : 4.00 - 5.00 ; 3	Primary (Road)	1.0	24621	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	19.180	0.264	4.000
	0050 : 54.18 - 57.99 ; 2	Primary (Road)	4.0	19065	Bituminous	Mill 40/Rep. 40 @ 3.5 IRI	15.212	0.896	4.896
	0050 : 73.00 - 75.99 ; 1	Primary (Road)	3.0	4570	Bituminous	Mill 40/Rep. 80 @ 35 ACA	5.037	0.604	5.500
	0050 : 78.00 - 79.99 ; 1	Primary (Road)	4.0	4570	Bituminous	Mill 40 Rep. 40 @ 25 ACA	2.854	0.526	6.026
	0050 : 80.00 - 83.99 ; 1	Primary (Road)	4.0	4068	Bituminous	Mill 40/Rep. 80 @ 35 ACA	2.012	0.713	6.739
	0050 : 70.00 - 72.99 ; 1	Primary (Road)	3.0	4570	Bituminous	Mill 40 Rep. 40 @ 25 ACA	1.988	0.361	7.100
	0050 : 94.00 - 96.99 ; 1	Primary (Road)	3.0	4068	Bituminous	40 mm Overlay @ 3 IRI (VL)	1.815	0.277	7.377
	0050 : 97.00 - 100.99 ; 1	Primary (Road)	4.0	4068	Bituminous	Mill 40 Rep. 40 @ 25 ACA	1.509	0.597	7.974
	0050 : 84.00 - 86.99 ; 1	Primary (Road)	3.0	4068	Bituminous	Mill 40/Rep. 80 @ 35 ACA	1.235	0.520	8.494
	0050 : 124.00 - 126.99 ; 1	Primary (Road)	3.0	1269	Bituminous	40 mm Overlay @ 3 IRI (VL)	0.996	0.219	8.713
2005	0050 : 54.00 - 59.00 ; 1	Primary (Road)	5.0	38935	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	55.114	0.972	9.685
	0017 : 13.00 - 23.99 ; 2	Primary (Road)	11.0	59253	Bituminous	Mill 40 Rep. 40 @ 15 ACA	47.770	1.443	11.128
	0017 : 28.00 - 28.99 ; 3	Primary (Road)	1.0	30442	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	45.025	0.133	11.261
	0050 : 27.00 - 28.99 ; 1	Primary (Road)	2.0	53631	Bituminous	Mill 40/Rep. 80 @ 35 ACA	36.992	0.415	11.676
	0050 : 11.00 - 19.99 ; 1	Primary (Road)	9.0	54468	Bituminous	Mill 40 Rep. 80 @ 25 ACA	35.827	1.982	13.659
	0050 : 58.00 - 58.99 ; 3	Primary (Road)	1.0	19468	Bituminous	Mill 40/Rep. 80 @ 35 ACA	28.431	0.167	13.826
	0050 : 20.00 - 23.99 ; 1	Primary (Road)	4.0	53631	Bituminous	Mill 40/Rep. 80 @ 35 ACA	26.236	0.897	14.723
	0003 : 12.00 - 20.10 ; 3	Primary (Road)	8.0	76726	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	21.262	2.055	16.778
	0023 : 38.00 - 39.99 ; 1	Primary (Road)	2.0	15979	Bituminous	Mill 40/Rep. 80 @ 35 ACA	20.137	0.320	17.097
	0050 : 4.00 - 5.00 ; 3	Primary (Road)	1.0	25140	Bituminous	Mill 40/Rep. 40 @ 2.5 IRI	19.180	0.264	17.361
	0023 : 59.00 - 61.99 ; 1	Primary (Road)	3.0	8424	Bituminous	Mill 40/Rep. 80 @ 35 ACA	7.738	0.548	17.909
	0023 : 27.00 - 27.99 ; 1	Primary (Road)	1.0	15979	Bituminous	Mill 40/Rep. 80 @ 35 ACA	4.738	0.191	18.100
	0023 : 30.00 - 31.00 ; 4	Primary (Road)	2.0	8721	Bituminous	Mill 40/Rep. 80 @ 35 ACA	3.261	0.261	18.361

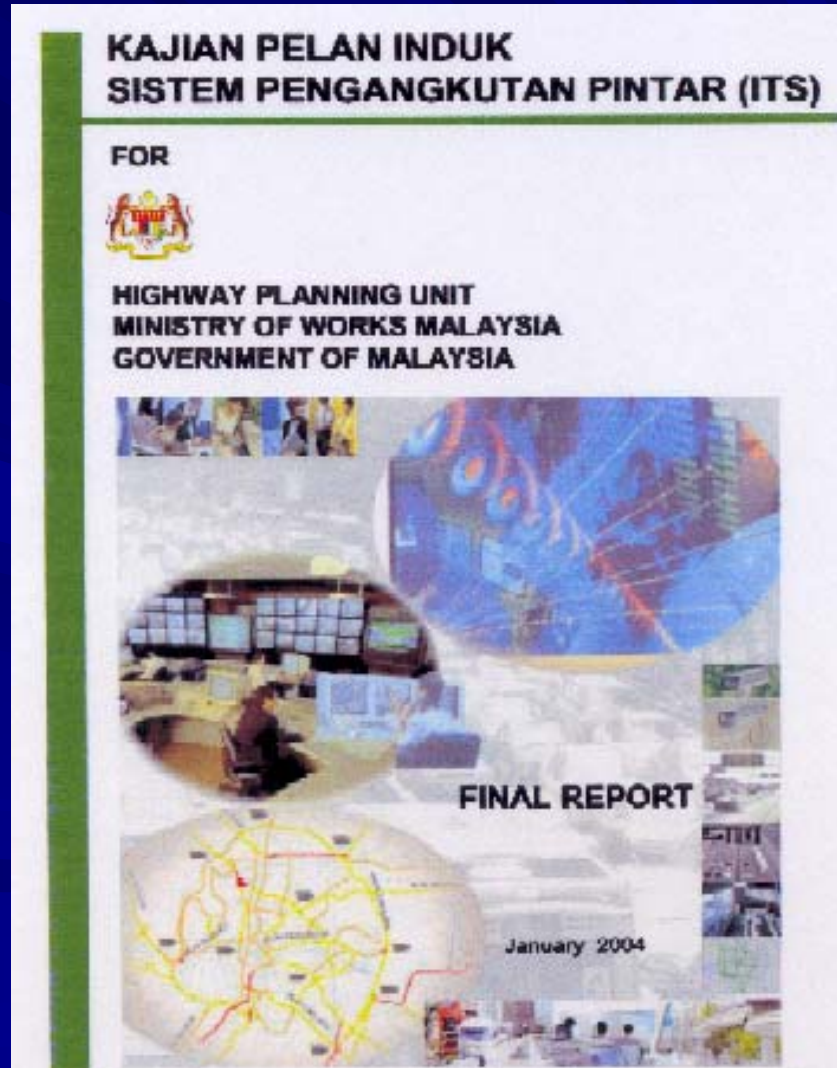
Roads upgrade and construction



ITS Strategic Plan

- **Produced by Road Engineering Association of Malaysia (REAM) in 1999**
- **Endorsed by Malaysian Government**
- **Overall strategy to maximize the benefits to users and provider**

ITS Masterplan Study for Malaysia



ITS Strategic Focus

- Identification of proposed ITS projects
- Identification of strategic ITS projects
- Designation of national ITS corridors
- Identification of priority areas for enhancement of ITS deployment

Kuala Lumpur City Hall Integrated Transport Information System (ITIS)

Transport Management Centre - the Hub of ITIS

The Transport Management Centre (TMC) is located in Bukit Jalil and is within easy access to various highways (such as the KL-Seremban, Bantaya and Shah Alam Expressways). This is the command centre of ITIS where all congestion information received through the vehicle detectors and/or the CCTV system is monitored and reported.

The TMC, as the focal point for all data collection and processing, is the hub and nerve centre for ITIS.



Call Centre

The Transport Management Centre houses its own call centre that provides information of incidents on roadways, events that may have an impact on traffic flows, and other general traffic information to the travelling public.

A key feature of the TMC is the Operations Centre. This is the command centre of the ITIS for which all congestion information received either through the vehicle detectors and/or CCTV system is monitored and reported. The Operations Centre is also responsible for reporting incidents and assisting field response teams in managing incidents. Furthermore, all messages broadcast to the electronic signboards are controlled from the Operations Centre.

The Operations Centre has been designed not only to provide a comfortable 24x7 operating ambience but also for future expansion and upward scalability of systems and staff.



Operations Centre



The Server Network Operations Centre houses the latest state-of-the-art equipment that gives the system the support to run a powerful suite of software as well as to receive data from over 1,000 roadside equipment every second.

Housed within the TMC is the Simulation / Joint Operations Centre (SJOC). The SJOC complements the Operations Centre as a physically separated but logically connected facility that serves both as an application testing and training area as well as a joint operations centre. In the former, the new applications can be tested, simulated and proofed against live data before releasing to the real life operating environment. In the latter, as a Joint Operations Centre, the same data and video feeds from the Operations Centre can be arbitrated to the SJOC without interfering with the normal operations of the traffic commanders in the Operations Centre.



Simulation & Joint Operations Centre

On-going research relating to transport management and road usage.



Emergency Operations Centre



Storage of traffic data.

Server Network Operations Centre

Malaysian ITS System Architecture

- **Development and adoption of critical standards**
- **Nationwide inter-operability and compatibility among ITS user-services**
- **Harmonizing with global ITS standardization activities**

Public Works Department ITS Project : Johor Bahru Inner Ring Road

- Installation of Variable Message Signs
- CCTV Surveillance Systems
- Interactive Traffic Monitoring Center



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MHA – Traffic Management Centre



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PLUS Expressways Berhad Regional Communication Centres



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First-Class Infrastructures



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Thank you