

## 13. DIRECTOR'S REPORT



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6 June 2002

**The Shareholders,  
PLUS Expressways Berhad**

Dear Sir/Madam

On behalf of the Directors of PLUS Expressways Berhad ("PLUS Expressways"), I report after due inquiry that during the period from 31 March 2002 (being the date to which the last audited accounts of PLUS Expressways and its subsidiary company ("PLUS Expressways Group") have been made up) to 6 June 2002, (being a date not earlier than 14 days before the issue of this Prospectus):

- (a) the business of PLUS Expressways Group has, in the opinion of the Directors, been satisfactorily maintained;
- (b) in the opinion of the Directors, no circumstances have arisen subsequent to the last audited accounts of PLUS Expressways Group which have adversely affected the trading or value of the assets of PLUS Expressways Group;
- (c) the current assets of PLUS Expressways Group appear in the books at value which are believed to be realisable in the ordinary course of business;
- (d) there are no contingent liabilities by reason of any guarantee or indemnities given by PLUS Expressways Group; and
- (e) save as disclosed in the Accountants' Report and the pro forma consolidated balance sheet in this Prospectus, there have been no changes in published reserves nor any unusual factors affecting the profit of PLUS Expressways Group since the last audited accounts of PLUS Expressways Group.

Yours faithfully

**For and on behalf of the Board of Directors  
of PLUS Expressways Berhad**

A handwritten signature in black ink, appearing to read "Abdul Wahid Bin Omar", with a horizontal line underneath.

**ABDUL WAHID BIN OMAR**  
Executive Vice Chairman

## 14. TRAFFIC CONSULTANT'S REPORT

### Halcrow Consultants Sdn Bhd

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The Directors  
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16th Floor, Menara 1, Faber Towers  
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58100 Kuala Lumpur

31 May, 2002

Our ref CNLABK000/3105  
Your ref

Dear Sirs

### Traffic Study for PLUS

Halcrow Consultants Sdn Bhd ("Halcrow") was commissioned by PLUS in November 2001 to carry out a comprehensive review and update of the traffic and revenue forecast for the Expressways. As a result, a study report entitled "The North South Expressway, Comprehensive Review and Update of Demand Forecasts, January 2002" was produced by Halcrow in relation to the traffic and revenue forecast for the period 2001 to 2030.

This letter has been prepared by Halcrow for the purpose of PLUS Expressways Bhd's listing on the Kuala Lumpur Stock Exchange and for inclusion in PLUS Expressways Bhd's Prospectus in this respect. It contains a summary of the study report. Within this letter, the assumptions and results are presented for the first five years of the 30-year forecast only.

### 1. Introduction

Our update of traffic forecasts for PLUS are in respect of the Expressways which comprise:

- the North-South Expressway, a 797-kilometre expressway extending from the border of Thailand in the north to the border of Singapore in the south;
- the New Klang Valley Expressway, a 35-kilometre expressway running between Kuala Lumpur and the North Klang industrial and urban area; and
- a 16-kilometre section of Federal Highway Route 2 connecting the industrial and urban areas of Subang and Klang.

**14. TRAFFIC CONSULTANT'S REPORT**

The Directors, Projek Lebuhraya Utara-Selatan Berhad

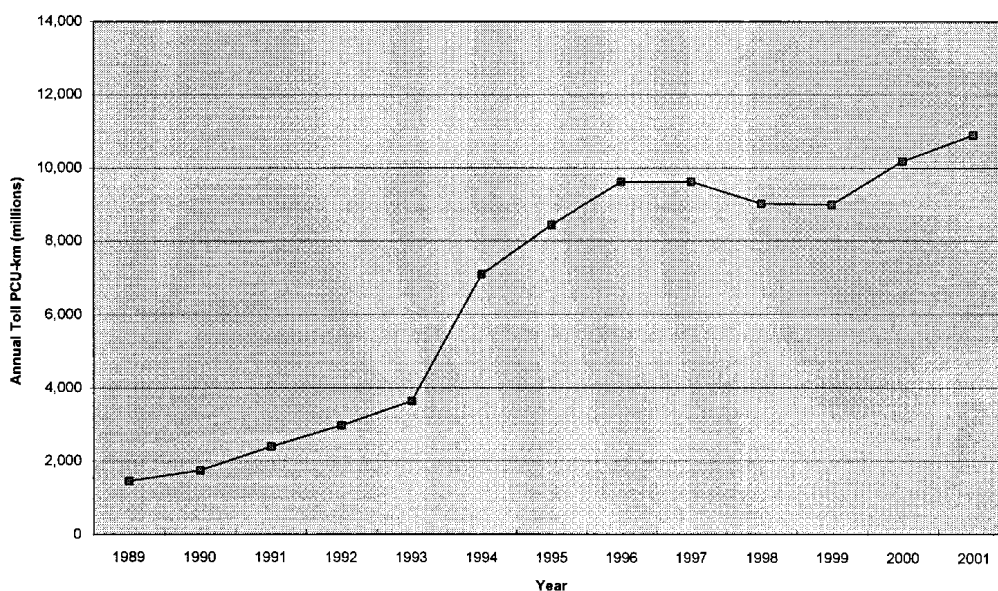
**2. Historical Review**

As part of the study, a comprehensive review of historical and current traffic levels on the Expressways since the first full year of operation, 1989, was carried out based on information supplied by PLUS. The information was compiled and reviewed independently by Halcrow and was considered fit to be utilised. Since the Expressways have been in full operation from 1994, this review has provided the foundation for the forecasting procedure.

*Overall National Trends*

The figure and table below illustrate the increase in total traffic on the Expressways since opening in 1989. Overall traffic growth is defined by a single Toll PCU-km value for each year. This is equivalent to the annual toll revenue divided by the toll rate for Class 1 vehicles (per kilometre) for that particular year.

*Historical Annual Toll PCU-km on the Expressways*



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
<b>Annual Toll PCU-km</b>													
Millions	1,458	1,748	2,392	2,977	3,639	7,090	8,438	9,535	9,619	9,015	9,090	10,258	10,877
Increase / (decrease) per annum		19.9%	36.8%	24.4%	22.3%	94.8%	19.0%	13.0%	0.9%	(6.3%)	0.8%	12.8%	6.0%

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**14. TRAFFIC CONSULTANT'S REPORT**

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The Directors, Projek Lebuhraya Utara-Selatan Berhad

With the exception of 1998, the level of use of the Expressways has grown for each year. Growth was greatest between 1989 - 1994 due to the effects of additional sections being completed and becoming operational, in addition to the effects of general traffic growth.

The reduction in traffic in 1998 can be attributed to the economic downturn in 1997/1998. Traffic growth in 2000 was 12.8% and was 6% in 2001.

The following additional elements were also analysed as part of the historical study:

- *The relationship between traffic growth and socio-economic factors, such as Gross Domestic Product (GDP), population, employment and vehicle ownership.* In particular, a close historical correlation between GDP growth and growth in historical traffic levels was derived which has been used within the forecasting procedure;
- *Traffic growth on a regional basis.* This was carried out to understand how individual regions historically have contributed towards overall traffic growth on the Expressways. Extrapolation of these regional trends is incorporated within the forecasting procedure;
- *Variation in vehicle (toll) class proportions.* Data since the opening of the Expressways was analysed and is incorporated within the forecasting procedure;
- *The current pattern of demand (origin/destination of trips).* This is directly reflected in the forecasting procedure through the use of full origin-destination trip matrices within the forecasts;
- *Traffic levels by section of the Expressways.* This was analysed to identify the relative traffic level along the Expressways and in particular the busiest sections. Provision for sectional highway capacity is included within the forecasts;
- *Trip length distribution by vehicle class.* Origin/destination matrices were employed to ensure that trip length distribution was incorporated within the forecasting procedure;
- *The historical impact of toll increases on the Expressways.* The historical relationships between traffic levels and toll rates have been examined to determine elasticities of demand to toll rate increase, which have been incorporated into the forecasting procedure. Historically, the Expressways traffic has been relatively insensitive to toll rate increases;
- *The impact of the construction of other competing road schemes.* Generally it was found that, owing to the length of the Expressways, competing road schemes have had limited impact on overall Expressway traffic - though the localised impact may be more significant. It was concluded that to have a significant impact, new road schemes must compete with the Expressways over a significant proportion of their length; and
- *The impact of new interchanges on the Expressways.* The impact of the interchanges analysed on overall Expressway traffic was found to be insignificant though generally the interchanges had a significant impact on local travel patterns.

## 14. TRAFFIC CONSULTANT'S REPORT

The Directors, Projek Lebuhraya Utara-Selatan Berhad

### 3. Forecasting Methodology Overview

A forecasting methodology consistent with previous forecasts for the Expressways was employed.

The historical analysis carried out indicated that, owing to the length and catchment area of the Expressways, overall traffic levels are relatively insensitive to localised impacts and that background traffic growth (GDP related) is the key driver of demand for the Expressways. Regression analysis was used, separately for light (classes 1 and 4) and heavy vehicles (classes 2 and 3) to derive relationships between the level of traffic and GDP. Fixed growth rates were assumed for Class 5 (Buses). A forecasting methodology using these relationships was applied, following the sequence below:

- (i) Base Year (2001) data as collected and supplied by PLUS was compiled and reviewed independently by Halcrow and was considered fit to be utilised. A forecasting model was developed using the Origin-Destination matrices as at the Base Year.
- (ii) Using GDP forecasts, defined in Section 4, overall national traffic demand was projected forwards.
- (iii) Based upon the analysis of historical regional traffic, growth trends were extrapolated and used to distribute overall national growth trends on a regional basis.
- (iv) The assumed impact of other factors, such as toll rate increases, new interchanges along the Expressways, land development, competing routes and alternative means of transport was considered.
- (v) Traffic demand was capped by the Expressways' capacity limits ( though it is forecast that the daily capacity limits will not be reached on any sections of the Expressways within the five years beginning 2002).

### 4. Key Forecasting Assumptions

The key study assumptions are defined below.

#### *Assumed GDP Growth for Base Forecast*

The table below presents the assumed base GDP forecasts, for the first five years of the forecast.

#### *Assumed GDP Growth Rates, Base Forecast*

Period	Base Case Annual Growth Rate	Source
2002	3.00%	Government Forecast, Dec 2001
2003	4.50%	Consultant's Estimate – Assumed rate is 60% of Government's 8 <sup>th</sup> Malaysian Plan Rate
2004 - 2006	5.00%	Consultant's Estimate – Assumed rate is two-thirds of Government's 8 <sup>th</sup> Malaysian Plan Rate

## 14. TRAFFIC CONSULTANT'S REPORT

The Directors, Projek Lebuhraya Utara-Selatan Berhad

### *Toll Rate Increments*

The toll rates (sen/km) as approved and announced by the Government are as follows:

A 10% increase in tolls from 2001 toll rates (11.24 sen /km for Class One vehicles) commencing from 1<sup>st</sup> January 2002 followed by 10% increases every three years.

### *Assumed Future Toll Rates, Base Forecast*

	Class 1	Class 2	Class 3	Class 4	Class 5
2001	11.24	16.85	22.47	5.62	8.43
2002 - 2004	12.36	18.54	24.72	6.18	9.27
2005 - 2007	13.60	20.39	27.19	6.80	10.20

The above toll rate increments are those assumed over the first five years of the base forecast.

### *Demand / Toll Rate Elasticity*

Regression analysis of historical data provided an estimate of the impact of toll rate increases on the Expressways. The implied elasticities were calculated as:

Class 1 & 4 vehicles                    -0.10;

Class 2 & 3 vehicles                   -0.20; and

Class 5                                        0

For example, an elasticity of -0.10 means that a 10% increase in tolls rates would lead to a 1% fall in demand.

### *New Expressway Interchanges*

The table below defines the new interchanges assumed to open within the next five years, and their assumed opening year. Only those interchanges required by the Concession Agreement and those currently under construction or completed but not yet opened (as of the date of the forecast) have been assumed:

### *Assumed New Interchanges, Base Forecast*

Location	Assumed Opening Year
Nilai, Negeri Sembilan	2002
Kota Damansara, Klang Valley	2002
Kota Sarang Semut, Kedah	2004

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## 14. TRAFFIC CONSULTANT'S REPORT

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The Directors, Projek Lebuhraya Utara-Selatan Berhad

Within the forecasts, only localised re-routing of existing trips is assumed as a direct impact of the new interchanges.

### *Land Developments*

Additional trips due to land development are generally assumed to be contained within background traffic growth. Allowance for specific land development at the Expressway interchanges has been included only where development is ongoing in status. In the base case such provision is only included for Kota Damansara Interchange.

### *Other Road Schemes*

There are numerous road schemes planned or under construction around the PLUS corridor (as of the date of the forecast) and include:

- West Coast Expressway
- Kajang-Seremban Highway
- Kajang Ring Road
- Butterworth Outer Ring Road
- Assam Jawa Templer Park
- The Dedicated Highway
- The Guthrie Corridor
- South Klang Valley Expressway
- North-East Highway, Kuala Lumpur

Experience suggests that it is not realistic to assume that all of these road schemes will be implemented. Many of the above road schemes may not have a significant impact on overall Expressway traffic levels since they would only compete with the Expressways over short distances. The West Coast Expressway is the single scheme most likely to have significant impact, because it would compete over a significant length of the Expressway.

It is assumed within the forecasts to 2030 that the West Coast Expressway and the Kajang-Seremban Highway are implemented. However, it is assumed that these two roads will not be operational within the next five years and their potential impact on Expressway traffic is therefore not reflected within this 5-year summary.

### *Express Rail Link (ERL)*

The first ERL services connecting central Kuala Lumpur to the Kuala Lumpur International Airport in Sepang commenced operations in April 2002. The KLIA Express and KLIA Transit services are both assumed to have their first full year of operation in 2003, under the base case scenario.

It has been assumed that these services will attract approximately 10% of Class 1 and Class 4 vehicle trips between KLIA and Kuala Lumpur / Putrajaya.

## 14. TRAFFIC CONSULTANT'S REPORT

The Directors, Projek Lebuhraya Utara-Selatan Berhad

### *KLIA / Subang Airport*

Transfer of remaining domestic flights from Subang Airport to KLIA is assumed to occur by the start of 2003 in line with the full operation of ERL.

### *Rail Line Double Tracking*

There are proposals for the double tracking of the rail-line from Johor Bahru to the Thailand border. The first section of this works, between Ipoh and Rawang is currently in progress and the impact of full operation of new services is assumed from 2006. Implementation of the remaining sections has yet to be commenced and completion is assumed beyond 2006. In addition, there are proposals for a high-speed rail link between Singapore and Kuala Lumpur, assumed to be implemented in parallel to the double tracking.

It is considered that, even in full operation, these new services will have only a very small impact on Expressway traffic. A reduction in Expressway traffic of 2.5% has been assumed from 2006 on competing routes.

### *Highway Capacity*

Based on our professional judgement and comparable capacities on other expressways, we have assumed a capacity of 2,200 PCU/hour per lane for dual-two lane sections of the Expressways and 2,300 PCU/hour per lane for dual-three lane sections. Using the above rates, daily capacities were derived for each section of the Expressways and applied in the traffic forecast.

## 5. The Forecasts

### *Base Forecast*

A summary of the base forecast is presented in the table below. The figure of Toll PCU-km is equivalent to the annual toll revenue divided by the toll rate for Class 1 vehicles (per kilometre) for that particular year.

### *The Base Forecast*

	2001*	2002+	2003	2004	2005+	2006
Annual Toll PCU-km (millions)	10,877	11,196	12,030	12,787	13,385	14,149
% Increase (decrease)	6.0%	2.9%	7.4%	6.3%	4.7%	5.7%

\* Actual

+ Toll rate increases

In 2001 traffic increased by 6.0% from 2000 levels. In 2002 (when a 10% increment in tolls is assumed) traffic increases by approximately 2.9%. Over the 5-year period between 2002 and 2006 traffic is forecast to increase by an average of approximately 5.4% per annum.



## 14. TRAFFIC CONSULTANT'S REPORT

The Directors, Projek Lebuhraya Utara-Selatan Berhad

### 6. Sensitivity Testing

The purpose of this testing is to determine the sensitivity of overall demand and revenue levels to changes in the key base case forecast assumptions. Within the next five years, two main factors are likely to affect overall traffic levels:

- Future economic (GDP growth); and
- Impact of toll increases (toll elasticity).

#### *Sensitivity to GDP*

Two alternative GDP forecasts have been assessed within the sensitivity testing, as defined below:

#### *Assumed GDP Growth Variations*

Period	Annual Growth Rate		
	Base Case	High Case	Low Case
2002	3.00%	4.00%	2.00%
2003	4.50%	7.50%	2.00%
2004 - 2005	5.00%	7.50%	3.00%
2006	5.00%	6.50%	2.50%

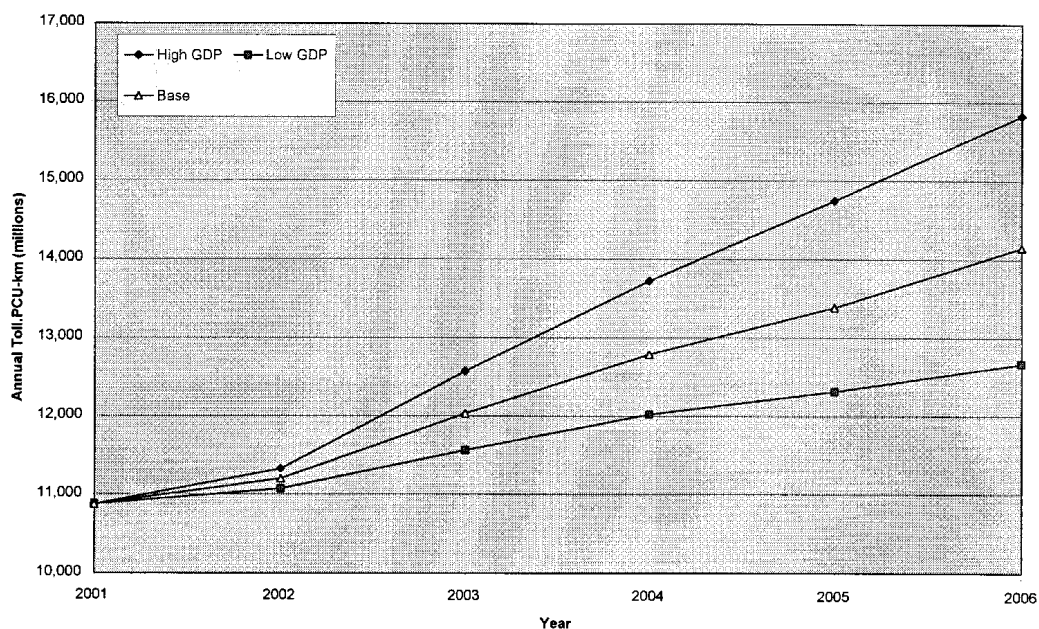
The High Case scenario GDP rate corresponds to the forecasts in the Government's 8<sup>th</sup> Malaysia Plan for the period between 2003 and 2005.

#### *GDP Sensitivity Tests, Forecast Toll PCU-km (millions)*

	2001	2002	2003	2004	2005	2006
<b>Annual Toll PCU-km (millions)</b>						
Base	10,877	11,196	12,030	12,787	13,385	14,149
High GDP	10,877	11,324	12,571	13,723	14,746	15,828
Low GDP	10,877	11,069	11,563	12,022	12,313	12,667
<b>Percentage of Base</b>						
Base	100%	100%	100%	100%	100%	100%
High GDP	100%	101%	105%	107%	110%	112%
Low GDP	100%	99%	96%	94%	92%	90%

## 14. TRAFFIC CONSULTANT'S REPORT

The Directors, Projek Lebuhraya Utara-Selatan Berhad



Future GDP growth will have a significant effect on future Expressway traffic. If the GDP rates forecast in the Government's 8<sup>th</sup> Malaysia Plan are achieved then traffic will be approximately 10% greater than under the base case scenarios by 2005. Under the low GDP growth case traffic falls by the order of 8% (compared to the base case) by 2005.

#### *Sensitivity of Toll Elasticity*

The base case assumed toll elasticities are based on the historical impact of toll increases on the Expressways. The following two tests have been carried out:

- Increase Base Toll Elasticity by 30% (to -0.13 for Class 1);
- Reduce Base Toll Elasticity by 30% (to -0.07 for Class 1);

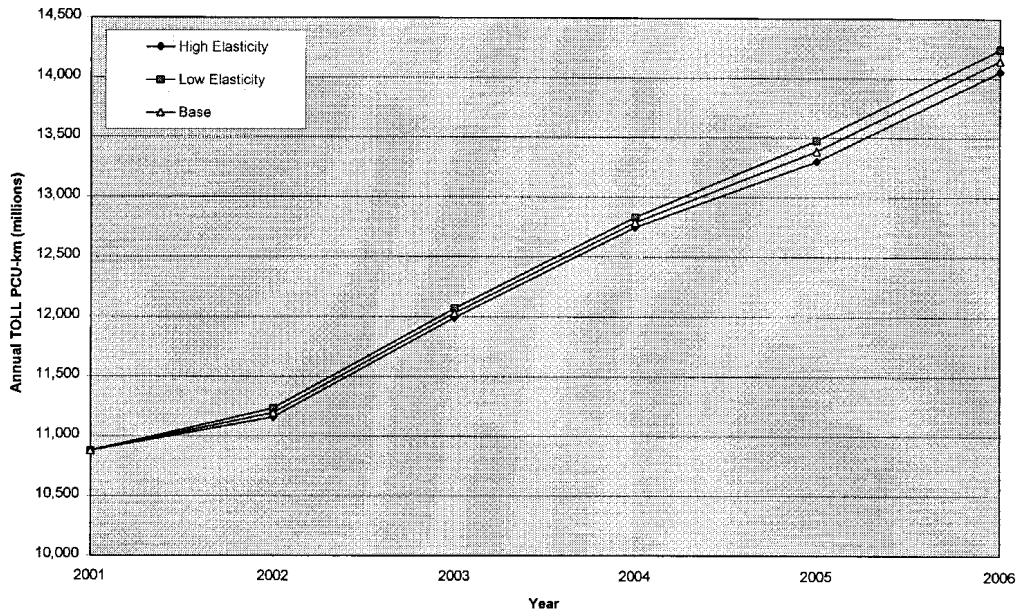
The forecast traffic results are presented in the table and figure below.

#### *Toll Elasticity Sensitivity Tests, Forecast Toll PCU-km (millions)*

	2001	2002	2003	2004	2005	2006
<b>Annual Toll PCU-km (millions)</b>						
Base	10,877	11,196	12,030	12,787	13,385	14,149
High Elasticity	10,877	11,160	11,991	12,745	13,298	14,057
Low Elasticity	10,877	11,233	12,070	12,829	13,473	14,242
<b>Percentage of Base</b>						
Base	100%	100%	100%	100%	100%	100%
High Elasticity	100%	100%	100%	100%	99%	99%
Low Elasticity	100%	100%	100%	100%	101%	101%

14. TRAFFIC CONSULTANT'S REPORT

The Directors, Projek Lebuhraya Utara-Selatan Berhad



Overall traffic is relatively insensitive to the toll elasticity assumption with the high and low case varying by only  $\pm 1\%$  compared to the base case.

7. Conclusion

The traffic forecasts presented in this summary have been produced using accepted analytical procedures and appropriate data sources. They represent our best estimate of future traffic levels, but as with any forecasts, they are not guaranteed.

Yours faithfully  
 HALCROW CONSULTANTS SDN BHD

*RA GUESS*

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