

*The following is the text of a report prepared for the purpose of incorporation in this prospectus, received from Parsons Brinckerhoff (Asia) Limited, the Company's traffic consultant, in connection with the "traffic and revenue study for the Sui-Yue Expressway (Hunan Section)".*



**Parsons  
Brinckerhoff  
(Asia) Ltd.**

7/F One Kowloon  
1 Wang Yuen Street  
Kowloon Bay, Hong Kong  
Tel: (852) 2579 8899  
Fax: (852) 2856 9902  
Email: info.hk@pbworld.com

December 11, 2009

The Directors  
Huayu Expressway Group Limited  
Unit No. 1802 on 18/F of West Tower  
Shun Tak Centre  
Nos. 168-200  
Connaught Road Central  
Hong Kong

Dear Sirs,

**TRAFFIC AND TOLL REVENUE STUDY FOR SUI-YUE EXPRESSWAY  
(HUNAN SECTION)  
EXECUTIVE SUMMARY**

Parsons Brinckerhoff Asia (hereinafter referred to as "PBA" or the "Consultant") is commissioned by Huayu Expressway Group Limited (also referred to as "Company") to conduct a traffic and revenue study (the "Study") for the Hunan section of Suizhou-Yueyang Expressway in the People's Republic of China (hereinafter referred to as the "Sui-Yue Expressway (Hunan Section)" or the "Project"). The purpose of this study is to forecast the average daily traffic and annual toll revenues for the Project throughout the concession period for valuation purposes. This report summarizes the results and findings based on the technical analyses conducted. We confirm that the future traffic and revenue of Sui-Yue Expressway (Hunan Section) is projected in an independent and professional manner.

In conducting the Study, we have based our analyses on site investigation, interviews with local authorities, toll road operators, reviews of available traffic data, feasibility reports and other relevant information. In utilizing the given information from the Company, we have sought confirmation from the management of the toll roads that no material factors have been omitted. We concluded that sufficient and reliable information has been provided for conclusive review and comprehensive analysis.

The results of our analysis are presented in the "Traffic and Revenue Study for Suizhou-Yueyang Expressway (Hunan Section), China". A brief summary of our study approaches and findings are presented below:

## 1 INTRODUCTION

Suizhou-Yueyang Expressway (隨州至岳陽高速公路) is a 361 km expressway running from Suizhou (隨州) in Hubei Province to Yueyang (岳陽) in Hunan Province in the People's Republic of China, comprising the Hubei section in Hubei Province, the Jing-Yue River Highway Bridge (荊岳長江公路大橋) and the Hunan section in Hunan Province. The north and middle sections within Hubei Province are already in use. The Project is the section of Suizhou-Yueyang Expressway located within Hunan Province; it starts at the Jing-Yue Yangtze River Highway Bridge which is under construction, intersects with National Highway 107 in Yunxi District (雲溪區), and passes through the Yueyang Economic Development Zone (岳陽經濟開發區), then ends at the Kunshan (昆山) interchange which connects the Yueyang line (岳陽聯絡線). The total length of the Project is 24.08km; there are four toll stations, namely Daorenji main line (道仁磯主綫), Daorenji toll gate (道仁磯匝道), Yunxi toll gate (云溪匝道) and Kunshan toll gate (昆山匝道). The Project is a full access-controlled expressway, with dual-3 lanes and a maximum design speed of 120km per hour. Construction work on this Project is currently underway, and the Project is planned to be completed in late 2011.

Description and key technical elements of the subject toll road have been summarized in Table 1.1.

Table 1.1 General Description and Summary of Key Technical Elements

Origin	Daorenji
Destination	Kunshan
Highway Classification	Expressway
Access Control	Control Access
Configuration	6 lanes
Design Speed	120 km/hr
Length	24.08 km
No. of Toll Stations	Four: Daorenji Main line, Daorenji toll gate, Yunxi toll gate and Kunshan toll gate.
Daily Cross Sectional Capacity	110,000 vehicles per day (vpd)

## 2 OBJECTIVE AND SERVICE SCOPE

The objective of the study is to forecast the future travel demand and revenue potential of Sui-Yue Expressway (Hunan Section).

The scope of work comprises information collection, on-site traffic surveys, traffic analysis, future traffic projections and toll revenue forecasts. Major activities involve:

- Review of available planning and feasibility studies related to the subject facility,
- Collection of socio-economic information of the study area,

- Collection of historical traffic and toll rate information of other roads in the study corridor,
- Formulation of traffic forecasting methodology,
- Analyzing possible impacts from nearby developments and roads, and
- Preparation of traffic forecasts for the toll facility, preparation of toll revenue projections in accordance with the traffic forecasts.

### 3 TRAFFIC FORECASTING METHODOLOGY

The study was built upon the technical analysis and findings from previous studies of similar nature conducted by the Consultant in China. Relevant information collected and accumulated from other projects had also been incorporated in this study. The methodology used for these traffic forecasts was synthesized from conventional methods which are widely adopted by toll road studies and have been applied to similar toll roads in China. The traffic forecasting methodology for this study is made up of three technical stages:

#### 1. Data Inventory and Review

The key objective for this technical stage is to collect and organize the existing available information for the use of the next stage of work. Typical information to be inventoried includes historical network data, toll traffic and revenue data, socio-economic data and previous analyses and reports.

#### 2. Definition of Technical Approach

The goal is to develop the most appropriate technical methodology for the study. The determination of types of method depends on the availability and the quality of the data as well as the overall project programme.

#### 3. Travel Demand Forecast

By synthesizing the information and findings from the previous stage, the existing traffic pattern is defined at this stage. With appropriate key traffic variables, the future travel demand and analyses are derived. These variables comprise:

- Economic indicators and growth of travel demand,
- Physical conditions of the road and its carrying capacity,

- Vehicle classifications and mixture for each segment,
- Origin and destination for each class of vehicles.

To offer a better picture of the various possible outcomes in the future, the traffic forecasts are presented under two scenarios: optimistic and conservative cases.

#### 4 KEY ASSUMPTIONS

The general assumptions defined in the Study are as follows:

- Travel demand is closely related to economic activities and land uses, and the official Gross Domestic Product (“GDP”) in the 11th Five-Year Plan of the study area including Yueyang, Changsha, Zhuzhou (株洲), Xiangtan (湘潭), Hunan, Hubei as well as China as a whole have been referenced for future forecasts.
- The base year traffic of Sui-Yue Expressway (Hunan Section) is assumed to be comprised of traffic diverted from existing expressways and roads within the same general corridor, including the Jing-Gang-Ao Expressway, Jingdong Expressway, the vehicular ferry at Daorenji (道仁磯), and the Dongtinghu Bridge (洞庭湖大橋).
- Future expressways that will have an impact on the traffic volumes of Sui-Yue Expressway (Hunan Section) are:
  - Sui-Yue Expressway (Hubei Section) — the Hubei section of Suizhou-Yueyang Expressway is already complete and operational between Suizhou and Qianjiang (潛江), the remaining segment between Qianjiang and the Yangtze River, including the Jing-Yue Yangtze River Highway Bridge, is under construction and scheduled to open in October 2010 prior to the opening of Sui-Yue Expressway (Hunan Section).
  - Yueyang-Changsha-Hengyang Expressway (岳長高速公路) — this expressway parallels the Jing-Gang-Ao Expressway and connects directly into Sui-Yue Expressway.
  - Hangzhou-Ruili State Expressway (杭州至瑞麗國家高速公路, a.k.a. Hangrui Expressway) — this expressway is one of the national trunk expressways that connects Hangzhou of Zhejiang province with Ruili of Yunnan province.

## 5 SUMMARY OF TRAFFIC PROJECTIONS

The traffic forecast for Sui-Yue Expressway (Hunan Section) is carried out for the period of 2012 to 2038. Projected daily traffic on Sui-Yue Expressway (Hunan Section) is summarized in Table 5.1 and 5.2 under the Optimistic and Conservative scenarios respectively.

Table 5.1 Average Daily Traffic — Optimistic Scenario

Year	Class 1	Class 2	Class 3	Class 4	Class 5	Non-toll	Total
2012	4313	2064	2292	2082	1528	614	12892
2013	4721	2241	2544	2314	1704	676	14202
2014	5174	2454	2793	2542	1873	742	15578
2015	5670	2688	3066	2792	2060	814	17089
2020	8206	3880	4469	4079	3019	1183	24836
2025	10881	5137	5951	5440	4034	1572	33016
2030	14439	6806	7928	7258	5392	2091	43915
2035	17498	8242	9625	8817	6556	2537	53275
2036	18183	8564	10006	9167	6818	2637	55375
2037	18896	8898	10402	9531	7089	2741	57558
2038	19637	9246	10814	9909	7372	2849	59827

Table 5.2 Average Daily Traffic — Conservative Scenario

Year	Class 1	Class 2	Class 3	Class 4	Class 5	Non-toll	Total
2012	4042	1935	2144	1947	1428	575	12071
2013	4361	2071	2346	2133	1570	624	13105
2014	4674	2219	2518	2291	1687	669	14058
2015	5010	2377	2703	2460	1812	718	15081
2020	6633	3141	3596	3278	2421	954	20024
2025	8203	3880	4464	4073	3014	1182	24815
2030	10150	4795	5541	5063	3751	1465	30764
2035	12000	5664	6565	6003	4452	1734	36419
2036	12409	5856	6792	6211	4607	1794	37669
2037	12832	6055	7026	6426	4768	1855	38963
2038	13270	6261	7269	6649	4934	1919	40301

Class 1 Passenger Vehicle less than or equal to 7 seats/Goods Vehicle less than or equal to 2 tons

Class 2 Passenger Vehicle 8-19 seats/Goods Vehicle 2-5 tons

Class 3 Passenger Vehicle 20-39 seats/Goods Vehicle 5-10 tons

Class 4 Passenger Vehicle > 40 seats/Goods Vehicle 10-15 tons & 20 ft container truck

Class 5 Goods Vehicle > 15 tons & 40 ft container truck

Non-Toll Toll-exempted vehicles

## 6 TOLL RATE

The assumed toll rates of the Sui-Yue Expressway (Hunan Section) are based on current toll rates of expressways in Hunan province. A toll rate increase of 15% every 5 years is assumed in this study beginning in year 2017, an average increase of 2.8% each year which is much lower than the average inflation rate of over 5% in the PRC for the past 20 years. Assumed toll rate by vehicle classification is presented below:

		Year					
		2012	2017	2022	2027	2032	2037
		<i>RMB/Km</i>					
Class 1	Passenger Vehicle less than or equal to 7 seats	0.5	0.6	0.7	0.8	0.9	1.0
	Goods Vehicle less than or equal to 2 tons	0.3	0.3	0.4	0.5	0.5	0.6
Class 2	Passenger Vehicle 8-19 seats	0.9	1.0	1.2	1.4	1.6	1.8
	Goods Vehicle 2-5 tons	0.5	0.6	0.7	0.8	0.9	1.0
Class 3	Passenger Vehicle 20-39 seats	1.3	1.5	1.7	2.0	2.3	2.6
	Goods Vehicle 5-10 tons	1.0	1.2	1.3	1.5	1.7	2.0
Class 4	Passenger Vehicle > 40 seats	1.6	1.8	2.1	2.4	2.8	3.2
	Goods Vehicle 10-15 tons & 20 ft container truck	1.6	1.8	2.1	2.4	2.8	3.2
Class 5	Goods Vehicle > 15 tons & 40 ft container truck	2.6	3.0	3.4	4.0	4.5	5.2

## 7 SUMMARY OF FUTURE TOLL REVENUE ESTIMATIONS

The future daily toll revenue is calculated by applying the aforementioned toll structures to the average daily traffic for each vehicle class. Annualization factor has been used for the conversion from daily toll revenue to annual revenue. An annualization factor of 365 is used to calculate annual revenue in this study.

Summaries of the toll revenue estimations of Sui-Yue Expressway (Hunan Section) are presented in Table 7.1 under two scenarios.

Table 7.1 Annual Revenue (in million RMB)

<b>Year</b>	<b>Optimistic</b>	<b>Conservative</b>
2012	118.98	111.31
2013	127.70	117.76
2014	140.17	126.39
2015	153.88	135.67
2020	257.93	207.58
2025	395.01	296.27
2030	605.21	422.98
2035	844.99	576.33
2036	878.43	596.22
2037	1050.17	709.33
2038	1091.74	733.81

## 8 CONCLUSION

The Consultant concluded that the traffic forecasts and toll revenue projections developed from the above methodology and on the above assumptions are in line with common professional practice and meet the objectives of the agreed scope of works with Huayu Expressway Group Limited.

Yours Sincerely

**PARSONS BRINCKERHOFF (ASIA) LIMITED**

Annie Lai

*Project Manager*

Annie Lai is a member of the Chartered Institute of Logistics and Transport in Hong Kong, Institute of Highway & Transportation and Institute of Transportation Engineers. She has over 15 years experience in development of travel demand model including regional demand models and corridor analysis, toll road feasibility studies.