

Presentation to the

Panel on Transport

Legislative Council

Deep Bay Link and Route #10

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A. THE BIRTH OF ROUTE #10

In the mid 80's, Hong Kong Government announced the decision to shelf the building of the new airport because:

- The new airport would be too expensive,
- The consultant's report finds that Kai Tak Airport will not be saturated until 2005.

These assumptions were obviously erroneous because:

- (i) Although the modern-day airports are expensive, it is vital for any economy. For example, Singapore, which has half the population of Hong Kong, saw fit to complete Changi Airport by 1982. The financial burden, on a per capita basis, must be double on Singaporeans than on Hong Kong citizens. In a private conversation, Premier Li told the writer that "if the Changi Airport is not built, Singapore's premier position will simply be lost in the region".
- (ii) The consultant was definitely wrong. Imagine if Hong Kong is still operating at Kat Tak today! Remember the chaos after every typhoon?

My reactions to the Government statement, then, was quite simple:-

- Hong Kong must build a new airport.
- We must find a cheaper alternative.

In 1985, the writer commenced a study and submitted to the Hong Kong Government in 1986 a combined Port and Airport Development Scheme (Plate 1), which would give Hong Kong a new airport as well as much needed port development. If Government is not prepared to spend the money, private sector will. The combined port and airport package would be cheaper than if ports and an airport are to be developed separately.

Since this idea did not originate from the Government, one can imagine that it will be rejected. It was rejected.

In 1989, Hong Kong Government did commission a consultancy, called **PADS** (Port and Airport Development Strategy) and the approved plan was as shown in Plate 2.

Although the airport was built to Chek Lap Kok (CLK Ap), several features of my proposal were incorporated into PADS, for example:

- A1.) The central route through the New Territories to Lok Ma Chau became Route #3.
- A2.) Container Berths #10 to #13 were sited on the Port Island (Plate 3).
- A3.) Tsing Lung Bridge and Green Island Link became Route #10, which is to serve the terminals as well as a second link to Lantau.
- A4.) Tsing Lung Bridge is substituted by Ting Kau Bridge, making the strategic mistake of only one access to CLK Ap.

In 1998 Government decided to build Disney Land on Penny’s Bay. As a result, Container Terminals #10 to #13 are to be relocated and that the Green Island Link will not be built.

B. EXTENSION OF ROUTE #10

Recently, when Shenzhen wanted the Deep Bay Crossing, Route #10 was extended northward to include:

Section		Type	Length	Cost Million (mm)
Deep Bay Link		Road	5.5 km	\$7,700mm
Route # 10	North Section	Toll Plaza & Lam Tei Tunnel	4.7 km	
	North Section	Roads & Sham Tseng Tunnel	8.0 km	\$14,200mm
	South Section	Roads Tai Lam Tunnel Tsing Lung Bridge	6.4 km	
TOTALS			24.6 km	\$21,900mm

The prime function of Route #10 is supposedly to enhance cross border vehicles from Deep Bay to reach Chek Lap Kok Airport (CLK Ap) and Kwai Chung Terminals, and to relieve congestion on Route #2. However, Tsing Lung Bridge is no longer needed for these functions, **except as a second link to CLK Ap.**

Historical Cross Border Traffic is as shown in Plate No.4. The volume of the cross border traffic remains below 35, 000 vehicle per day. With the completion of Deep Bay Crossing, the combined Lok Ma Chau & Deep Bay Cross Border traffic, come 2007, will still be less that 55, 000 unless there is a vehicle cross-border policy change.

C. WHY THE OBJECTIONS TO ROUTE #10?

As a private citizen and the Chairman of the Port & Maritime Board, I always welcome the addition of road capacity so as to enhance the flow of goods and people to and from the border (Sha Tau Kok, Man Kam To, Lo Wu, Lok Ma Chau and Deep Bay) to our berths as Kwai Chung and CLK Ap. However, at the instance of spending \$22, 000mm on Route #10, I must raise my objections and they are based on the following grounds:

C.1) TSING LUNG BRIDGE IS NOT AN EFFECTIVE SOLUTION

The over one million Tuen Mun and Yuen Long inhabitants will forever have to make a round-about way to get to CLK Ap.

Kilometer (km) From / To		CLK Airport		Kwai Chung Port
		Passenger	Cargo	
Tuen Mu	Via TM-CLK Tunnel	8.7	10.7	N.A.
	Via Route 2 & Tsing Lung	24.5	22.5	N.A.
Lok Ma Chau	Via TM-CLK Tunnel	31.0	33.0	N.A.
	Via Route 3 & Tai Lam	42.0	40.0	30.0
Deep Bay	Via TM-CLK Tunnel	22.0	24.0	N.A.
	Via Route 3 & Tai Lam	44.0	42.0	31.0
	Via Route 10	32.0	30.0	27.0

Tsing Lung Bridge traffic will add to North Lantau Expressway Traffic. As a matter of fact, Mr. Ng told the writer that this bureau is already planning a new coastal road parallel to the North Lantau Expressway to cater for that.

C.2) ARE THE TRAFFIC PROJECTIONS ACCURATE ENOUGH?

THIRD COMPREHENSIVE TRANSPORT STUDY (CTS-3)

Government officials base their decision as to when and where to build roads and bridges strictly in accordance with the consultant's reports, CTS-3 of October 1999, very much similar to a country folk acting in accordance with a soothsayer's (預言家) prediction.

From CTS-3, here are the projections made in 1999.

Annual Average Daily Traffic (AADT)	Actual Flow	CTS-3 Flow Forecast			
		Technical Report: Appendices – Volume 1 Published October 1999			
		Reference Case	High Demand		
	2000 Year	2001 Page III B-1	2006 Page III B-5	2011 Page III B-11	2016 Page III B-21
Route 1 Tolo Highway	119,980	123,786	139,045	115,988	130,226
Route 2 Tuen Mun	96,760	128,985	140,238	132,208	130,165
Route 3 Tai Lam	44,760	81,330	90,873	86,039	90,212
Ting Kau Bridge	73,010	107,910	103,518	96,000	85,458
Lantau Link	37,350	82,935	95,870	123,711	115,116
Western Harbour Crossing	42,797	82,514	123,295	116,601	109,465
Route 10	-	-	47,265	71,474	886,625
Shing Mun Road	53,750	53,434	51,468	53,122	54,932

By the year 2000, just one year down the road, many of these projections are already wrong by a wide margin. Can we still trust these same projections all the way to year 2016?

After the opening of West Rail, will road traffic still grow at the same rate as previously predicted?

C.3) LET US MAXIMIZE THE USE OF EXISTING FACILITY (Plate 5)

The utilization of the three main trunk routes in year 2000 were:-

Trunk	Name	Annunal Average Daily Traffic (AADT) 2000
Route #1	Tolo Highway	119,980
Route #2	Tuen Mun Highway	96,760
Route #3 (Tai Lam Tunnel)	Tai Lam Tunnel	44,760
Total Actual Flow		261,500
Combined Capacity	3 x 180,000	540,000

The very low utilization of Route #3 is no doubt due to a skewed toll structure:

Tunnel	Toll (HK\$)
Tai Lam Tunnel	\$22 - \$40
Shing Mun Tunnel	\$5 Across the Board
Lion Rock Tunnel	\$8 Across the Board

An anomaly is created so that the most direct Route # 3 has the least traffic.

If we can divert Routes #1 and #2 traffic into #3, we can save, or at least delay the building of Route #10 for a long long time (Plate 5).

Since Hong Kong is facing a tough period already, shouldn't we weigh carefully before spending a large sum of tax payer's money in a hurry? We should try to reap maximum economic benefits before we spend that extra dollar.

C.4) HARZARDS TO AVIATION

Presently, there is still litigation between China Chem and the Government as to why China Chem's 100 storey Tower was not permitted because of possible hazards to aviation in Tsuen Wan. How can Government justify in letting another department to build two tall bridge towers directly underneath the flight path, very much closer to the runway? (Plate 8) My guess is that the Tsing Lung Bridge towers must be low towers, meaning more expensive main cables and anchorages blocks.

C.5) TSING LUNG BRIDGE IS NOT A SATISFACTORY SECOND LINK TO CLK Ap.

Tsing Lung Bridge, at 1,418m main span, will be a major suspension bridge of world class proportion:

World's Major Bridges

Bridge	Country	Main Span (M)
Akashi (明石)	Japan	1,991
Tsing Lung Bridge (青龍)	Hong Kong	1,418
Humber	United Kingdom	1,410
Tsing Ma Bridge (青馬)	Hong Kong	1,377
Verrazano Narrows	USA	1,298
Golden Gate	USA	1,280
Mackinac	USA	1,158
South Bisan Seto (南備讃瀬戸)	Japan	1,100
North Bisan Seto (北備讃瀬戸)	Japan	990
OO Naru (大鳴門)	Japan	876

As such, there will not be much change left from HK\$8,000mm. This is based on the observation that the cost of Tsing Ma Bridge, with the claims settlement, was secretive and never revealed to the public. We can only guess. Certainly it is not the “official” \$7,000mm.

The disadvantages of Tsing Lung Bridge are:

- It will force the Tuen Mun residents to do a circuitous route to CLK Ap.
- During typhoon, it too will have to be shut down like Tsing Ma Bridge, especially it has only a single deck.
- It is toll free. Government can never recoup its investment from users.

Therefore, it is only a fair weather alternative route to CLK Ap.

Some argue that Hong Kong should spend public money to stimulate the economy. Japan did just that by building these series of major bridge in the 90's. Unfortunately these bridges never help their economy.

Big economies like USA and Japan can perhaps afford several mjoy bridges. Should Hong Kong rival these economies by building the Tsing Ma (青馬), Tsing Lung (青龍) and Stonecuter (昂船洲) bridges in a hurry? Is this the way to solve Hong Kong's economic problems? After all, Hong Kong does not involve in the

design nor supply any of these bridge components.

C.6) THE ECONOMICS OF ROUTE #10 IS FLAWED:

Tai Lam Tunnel was constructed by the private sector at a cost of about \$7,000mm. At an AADT flow of 44,550, the operator still faces a deficit in meeting operating and interest expenses, let alone the capital repayment or profits. How can our Government ever hope to recover its investment of \$22,000mm, if it is operated on a tolled basis, with a free Route #2 running along side and with similar \$5 - \$8 toll's like the ones on Route #1.

The financial analysis is:

	Tai Lam Tunnel	Route #10	
Capitall Cost	(\$7,000mm)		(\$22,000mm)
Daily Flow AADT	44,500		44,500 (a generous assumption)
Toll	Rates		Rate : at \$8?
Tai Lam Tunnel	\$22- \$40		-
	-	Deep Bay Link	\$8.00
	-	Lam Tei Tunnel	\$8.00
	-	Shum Tseng Tunnel	\$8.00
	-	Tsing Lung Bridge	FREE
Daily Toll Income	1,390,000		1,068,000
Daily Operation & Maintenance Cost	(317,000)		4 x (317,000) =(1,268,000)
Daily Interest @6%	(1,150,685)		(3,616,438)
Total Cost Per Day	(1,467,685)		(4,884,438)
Net Outgoing for The Day	(77,685)		(3,816,438)

C.7) NO RELIEF TO HONG KONG FOR THE NEXT 7 YEARS

During construction of Route #10, no relief is in sight to lessen traffic on Routes #1& #2. SME do not receive benefits. The public and the SME are mere side line spectators.

C.8) GOVERNMENT MAY FACE POSSIBLE LITIGATON FROM ROUTE #3 OPERTAORS FOR BREACH OF BOT CONTRACT

A copy of the advertisement for Route #3 B.O.T. scheme is reproduced for ease of reference. The operators have already declared about possible litigation for compensation, should a parallel road be built prematurely.

D. DO WE HAVE A BETTER SOLUTION THAN ROUTE #10?

The answer is definite **YES**. I strongly urge the Hong Kong Government to reconsider an alternative solution. However, since any proposal is not :-

- originated by the Bureaucrats, **OR**
- a recommendation from the appointed consultants,

I do not put much hope in this being ever adopted. However, as a civil engineer for some 43 years, and with a wealth of experience in designing and building 300km of toll roads and bridges in the Pearl River Delta (more mileage than all the super highways in Hong Kong combined), I stick my neck out, just as I did 15 years ago in 1986 and now putting forward some cost effective solutions for your consideration.

D.1.) IMMEDIATE MEASURE : LOWER THE TOLL AT TAI LAM TUNNEL

This will give incentive for the public and the truckers to use the whole Route #3, siphoning traffic off Routes #1 and #2. Perhaps the new toll rate should be at \$10 across the board. The truckers, who are one of the main stays of our logistic business, will particularly benefit from this toll. Round trip fare is only \$20 instead of \$80.

However, Tai Lam Tunnel operators will cry “foul!” Therefore Government will have to make suitable compensation. Let’s look at the economics.

	Present Toll	New Toll
Toll Rate	\$20 - \$40	\$10
Flow AADT	44,500	70,000 (increased due to lower toll)
Toll Income Per Day	\$1,390,000	\$700,000
Government Compensation Per Day	-	(\$690,000)

By “buying” into the capacity of Route #3, very much similar to the Education Department “buying seats” (買位) from privately run schools, it is still cheaper than to spend the (\$3,816,438) per day. The amount of compensation will vary downward when the new toll income increases upward. In other words, this compensation at some point in time will stop; depending on the increased flow. Perhaps the Transport Bureau should also use this compensation approach to improve on the uneven flow among the three cross harbour tunnels and between Lion Rock Tunnel and Tate’s Cairn Tunnel, thereby save building Route #9 (\$20,400mm).

D.2). INTERIM MEASURE

(i) INITIATE THE TUEN MUN EAST BYPASS-CLK Ap TUNNEL INSTEAD OF ROUTE #10. (Plates 6, 7, 8 &9)

What Hong Kong really needs is a “Bridge-Tunnel” linking CLK Ap and TUEN MUN (Plate 10), as envisaged in the Comprehensive Transport Study 3 (CTS-3) dated October 1999. (See table below for details).

This way Hong Kong will get a 24 hour, secured all weather alternative route to CLK Ap. And the one million Tuen Mun and Yuen Long residents will forever benefit from a more direct link (Plate 8).

In my discussions with Mr. Nicholas Ng, he said that he is not objecting to the CLK Ap – Tuen Mun Link. But, because of resources, and because of the higher costs, he is of the opinion that Tsing Lung Bridge should take priority over CLK Ap-TUEN MUN LINK.

I respectfully beg to differ with Mr. Ng on the order of priority and costs. Apart from benefiting the Tuen Mun Valley residents and our cross border trade, it is a very effective insurance policy on our \$170,000mm CLK Ap investment.

If the Tuen Mun Link is led a BOT contract (excluding the Tuen Mun East By-Pass which must be toll free), Government spends only items ABCG = \$2,217.6mm

Cost Summary of Tuen Mun Bypass – CLK Ap Tunnel

HK\$

	Works	Length (km)	Area sq.m.	\$/sq.m. Rate	Million mm
A	Ngau Hom Shek-> Tin Ying Road	2.6	83,200	3,000	249.6
*B	Widening of Tin Ying Road & Hung Tin Road (extra 12m)	3.4	40,800	4,000	163.2
C	Tuen Mun East Bypass	3.9	124,800	10,000	1,248.0
	Interchanges	Lump Sum			300.0
D	Link from Tuen Mun Highway to Man- made Island	3.2	102,400	18,000	1,843.2
	Interchanges	Lump Sum			300.0
E	Tunnel for Deep Water Navigation Channel	1.5	48,000	70,000	3,360.0
	North & South Islands	Lump Sum			300.0
F	Trestle Bridge	2.3	73,600	15,000	1,104.0
G	Road on Reclaimed Land	2.9	92,800	6,000	556.8
Total Length		19.8	Total Cost		9,424.8

*see Plate 11

(ii) INITIATE TO BUILD THE GUANGDONG-HONG KONG-MACAUBRIDGE (GHM Br)

This bridge will open up the west bank of the Pearl River Delta to Hong Kong (Plate 12). The only cost to Hong Kong Government: a 9.0km link from CLK Ap to north of Tai O plus an Immigration Complex. Even this section can be on a BOT basis.

The 29km bridge proper, costing about HK\$15,000mm, is sited within Guangdong waters and it is clearly a BOT proposition.

But the Transport Bureau official stance, acting strictly from the “good book” written by the consultants is :-**“this bridge is a long term objective and will only need to be considered by the year 2020”**.

Perhaps some people can only get 20 – 20 vision by the year 2020.

If Hong Kong saw fit to spend \$170,000mm in building CLK Ap core projects, (and CLK Ap is indeed leading the world in air-cargo handling), simple logic says that we should spend some extra money to TRIPLE its access to its customers. With BOT, this amount is so pitifully small. And yet the bureaucrats will only act in accordance with consultants’ reports.

Till we meet again in the year 2020, MR. BUREAUCRAT.

(iii) LONG TERM SOLUTION

Please don't get me wrong: consultants are bright people who know their stuff. However, under the present system:

- Will the selection process guarantee to pick the best consultant for the job? The biggest name does not guarantee the best concepts or solutions.
- The concepts and the solutions are often limited to the concepts and solutions offered by the “anointed consultant.” The brightest and the most practical ideas are often excluded because very few avenues are available for these ideas to reach the decision makers until either it is too late, or after the event.
- Will the “anointed consultant” ever dare to recommend against the bureaucrats’ pre-conceived ideas?

On the West Rail project, KCRC has “ anointed consultants” to make specific designs and let the contractors bid on the execution. Fortunately, KCRC also allows contractors to submit alternative packages as long as they comply with the specifications. In several instances, savings of up to 30% were achieved on alternative designs. One wonders why not extend the system into more competitive bidding in planning, design and construction, perhaps even as a single source of responsibility? This way, and probably the only way, the best team can win. After all, the proof of the pudding is in the eating.

Therefore Hong Kong should seriously consider the introduction of competitive bidding on planning. Hong Kong should definitely encourage more “design and construct packages” as proposed recently by the Financial Secretary.

Therefore may I suggest:

- Get rid of the system of “anointed” consultants. “ Government by Consultation” is better than “Government by Consultants”.
- Get rid of the Bureaucrats who support the system of “Government by Consultants”.

E. BENEFITS TO HONG KONG

With the above arrangement, Hong Kong sees several benefits:-

- E1.) "Buying" into the capacity of Route #3 reaps instant benefits in relieving traffic on Route #1 & #2.
- E2.) The lowering of the toll for #3 Tai Lam Tunnel immediately helps the Small & Medium Enterprises (SME) – the trucker and public alike, particularly in these difficult times. And yet Government ends up paying only a fraction of Route #10's cost.
- E3.) This compensation is not a subsidy to big businesses, because Tai Lam Tunnel operators get no benefits. It is diminishing compensation, which will cease altogether once it reaches or exceeds a certain level.
- E4.) Save spending the bulk of \$22,000mm.
- E5.) The over one million Tuen Mun, Yuen Long residents and Deep Bay Crossing goods will have a direct route to CLK Ap.

F. EPILOGUE

I have had detailed discussions with my good friend Dr. Victor Fung, Chairman of the Airport Authority who unreservedly supports the TM-CLK Ap Tunnel.

These concepts and solutions have also been presented to Ms Sandra Lee, the Secretary for Economics who oversees the Port & Airport operations, Chief Secretary The Hon. Donald Tsang and Chief Executive, The Hon C.H. Tung. I understand that several internal meetings have been held and intensive discussions are still on-going.

Of course the top officials must be guided by the recommendations from the Transport Bureau. The taxpayers are paying them to do the job. I do not know what Transport Bureau recommendations are. I do not know what final decision are. Is the jury still out?

From these proceedings, it appears that the Transport Bureau is hell-bent (一意孤行) to go ahead with Route #10, particularly about the Tsing Lung Bridge. One argument I heard is that Hong Kong must spend money to stimulate the economy. Someone just wants to spend \$22,000mm in a hurry. Obviously, someone has never heard nor learnt about the Japanese experience.

I wish to take this opportunity to thank Dr. Victor Fung, Ms Sandra Lee, the Hon Donald Tsang and our Chief Executive for the time given me on those lengthy discussions of trying to find the best solutions for Hong Kong.

I also want to thank the panel in allocating me time to give this presentation. And I hope the public will understand my message. If not, please let me know the rationale. "Consultation", after all, is always better than "Confrontation".

Thank you.

DECLARATION OF INTEREST

The writer is the Chairman of Hopewell Holdings Limited which operates a network of toll roads and bridges in the Pearl River Delta. Smoothing cross border vehicle flow will probably benefit Hopewell Holdings Limited.

The building of the Guangdong-Hong Kong – Macau Bridge (GHM Br.) will siphon traffic off the eastern side of the Pearl River Delta. This may, probably to some extent, adversely affect Hopewell Holdings Limited toll income on the east side.

The above points have been declared, in writing, to the Chief Executive. It has also been declared that both Hopewell and myself only want to see the GHM Br. Built because Hong Kong needs it. Public participation on this project, be it Hong Kong, PRC or international entities, are welcome. As a matter of fact, a strong Japanese Consortium is willing to participate, invest and support both technically and financially in seeing its completion.

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