Shatin to Central Link

5 August 2009
Your Views On:

1. Are you satisfied that there is overriding need for SCL?

2. There is no reasonable ‘no reclamation’ option.

3. Which of the two IMT alignment corridors (easterly or westerly) is the better option?

4. Should the extent of protection work in CWB be increased to avoid repeated temporary reclamation in CBTS?

5. What additional work should MTRCL and Government undertake to maximize the integration of the construction work in CBTS to achieve minimum reclamation?
History of Shatin to Central Link (SCL)

- Railway Development Strategy 2000 (RDS-2000) confirmed the policy objective of railways to form the backbone of the public transport system.

- Recommended in RDS-2000 for priority implementation with a target completion in 2011.

- MTRCL & KCRC were invited to submit proposals to Government for its implementation in 2001.

- KCRC was awarded the project in 2002 – design carried out but affected in 2004 because of impending merger.

- One of the 10 priority projects in 2007-2008 Policy Address.

- Government invited MTRCL to continue with SCL planning and design in March 2008.

- Government entrusted to MTRCL SCL design and site investigation works with Government funding.

Source: LegCo Paper No. CB(1)1036/07-08(03) on 27 March 2008
East West & North South Corridor

Estimated Journey Time:

Wu Kai Sha – Tuen Mun: 69 mins
Lo Wu – Admiralty: 50 mins
Wu Kai Sha – Admiralty: 36 mins
Hung Hom – Admiralty: 5 mins
## Current Programme for SCL

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>End 2009</td>
<td>Shatin to Central Link Gazettal</td>
</tr>
<tr>
<td>End 2010</td>
<td>Commencement of Construction</td>
</tr>
<tr>
<td>2015</td>
<td>Completion of Tai Wai to Hung Hom Section</td>
</tr>
<tr>
<td>2019</td>
<td>Completion of Hung Hom to Admiralty Section</td>
</tr>
</tbody>
</table>

## Public Consultation Programme for SCL

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>July / September 2009</td>
<td>District Consultation</td>
</tr>
<tr>
<td>August / September 2009</td>
<td>Public Forums</td>
</tr>
<tr>
<td>September 2009</td>
<td>Complete SCL Scheme supported by Cogent and Convincing Materials Report</td>
</tr>
</tbody>
</table>
Why are We Here Today?

• Shatin to Central Link (SCL) needs to cross the harbour

• Cross Harbour Section may require reclamation

• The need for Compliance with Protection of Harbour Ordinance (PHO):
  - Presumption against reclamation
  - Overriding public need
    (as per Court of Final Appeal Judgment) to rebut presumption

• Overriding Public Need
  - Economic, environmental and social needs of the community
  - Compelling
  - Present
  - Must have no reasonable alternative
The Overriding Public Needs for SCL
To Relieve Congestion on Existing Rail Lines

SCL will redistribute railway passenger flow to relieve congestion within existing railway lines, some of which will be over desirable capacity in near future.
Cross Harbour Section – Overriding Public Needs

To Support Cross Boundary Integration

SCL has immense significance to support HK’s growing cross-boundary economic activities & social integration with Mainland China.
Cross Harbour Section – Overriding Public Needs

To Relieve Congestion of Cross Harbour Tunnel

SCL will be safe, reliable and environmentally-friendly.

SCL will reduce road-based traffic and alleviate traffic at the Cross Harbour Tunnel.
To Relieve Traffic Congestion in Hong Kong

SCL will create the opportunity to relieve traffic congestion in Kowloon and on Hong Kong Island by providing an alternative transport choice.
To Mitigate Deterioration of Road-side Air Quality

SCL is a sustainable solution to mitigate deterioration of road-side air quality on HK Island and Kowloon.
Benefits to the Community at Large
**Social & Economic Benefits**

- Employment opportunities during SCL construction – 11,000 jobs created
- Enhanced employment opportunities in areas along alignment – commercial / tourism related
- Passenger time savings worth HK$4.1 billion/year
- To catalyze rejuvenation of old urban districts
To Minimize Protracted Disruption to the Community

SCL will have to interface with Central Wanchai Bypass and other major planned projects along north shore of Hong Kong Island.

Source: Highways Department
Constraints of Cross Harbour Section
### Cross Harbour Section – Summary of Constraints

1. **Hung Hom Interchange Station**  
   (horizontal & vertical constraints)
2. **Cross Harbour Tunnel (CHT)**
3. **Central Wanchai Bypass (CWB)**
4. **Causeway Bay Typhoon Shelter (CBTS)**
5. **Typical Vertical Constraints**
6. **Operational Requirements**
7. **Hung Hom Bypass & Fender Piles**
8. **Seawall**
9. **Freight Pier**
10. **Fairway**
11. **Buoy**
12. **Gas Main**
13. **Breakwater**
14. **CHT Portal & Existing Seawall**
15. **Buildings & Infrastructure Projects**
Central Alignment –
Constrained by Central Wanchai Bypass (CWB)
‘No Reclamation’ Options
‘No Reclamation’ Options – Cross Harbour Bridge

**Characteristics**
- Bridge piers in the harbour are regarded as reclamation
- Bridge deck should be high enough to allow passage of vessels
- Require extensive approaches at both ends. Approach ramps would extend almost to Admiralty Station.

**Implications**
- Require extensive land resumption for bridge piers and foundations
- Massive approach ramps would cut off harbourfront
- Interchanges not practical
- Visual impact of Victoria Harbour

**NOT A REASONABLE OPTION**
‘No Reclamation’ Options – Tunnel in Mixed Ground Under the Harbour

**Diameter Dictated by:**
- structure gauge
- ventilation

**Vertical Alignment:**
- minimum ground cover to maintain ground stability
- desirable cover: 2 diameters
- geological conditions

can only be constructed by tunnel boring machine (TBM)

Minimum 1~2 diameter of tunnel

approx. 10m diameter

air duct
‘No Reclamation’ Options – Bored Tunnel in Mixed Ground Under the Harbour

Due to vertical alignment constraints, tunnels have to pass through mixed ground, i.e. through soft and rock strata.

**Implications:**
- requires frequent (daily) intervention for maintenance & repair of cutterhead due to serious wearing in mixed ground
- interventions require work under pressure to maintain face stability

**Problems:**
- required to work under pressure > 50 bar for up to 1,800 m
‘No Reclamation’ Options – Bored Tunnel in Mixed Ground Under the Harbour

**Problems:**
- Factories and Industrial Undertakings Ordinance (Cap.59M) allows working up to maximum pressure of 50 bar
- All bored tunnel options will require regular intervention for maintenance and repair work in excess of 50 bar

**Conclusions:**
- Risk to health, life and project too high to be acceptable

**NOT A REASONABLE OPTION**
‘No Reclamation’ Options – Tunnel Deep in Rock

**Characteristics:**
Alignment will be significantly lowered

**Implications:**
- East Rail would need to be depressed from north of Mong Kok East Station
- Interchange at Hung Hom and Exhibition Station either not practical or inconvenient
- Cannot provide required level of service

**NOT A REASONABLE OPTION**

![Diagram showing tunnel deep in rock with depths and station locations]
Other Options
Cross Harbour Section – Other Options

Other Options:
- Immersed Tube Tunnel
- Cut & Cover Tunnel
- Combination of the above

Previous cross harbour tunnels have been constructed by Immersed Tube Tunnel with Cut & Cover sections at each landfall.

Proven method

Immersed Tube Tunnel - Installation of Pre-cast Units into Trench in Seabed

(1) Trench dredging

(2) Lower immersed tube units

(3) Backfilling
Cross Harbour Section – Alignment Options for Immersed Tube Tunnel

Easterly Alignment
- Option 1A
- Option 1B
- Option 1C
- Option 1D

Westerly Alignment
- Option 2

Note: Options of Easterly Alignment overlap within
SCL partly below CWB
SCL above CWB
SCL cross over CWB
Cross Harbour Section – Alignment Options for Immersed Tube Tunnel

<table>
<thead>
<tr>
<th>Option</th>
<th>Permanent Reclamation</th>
<th>Construction Complexity &amp; Risk</th>
<th>Additional Temporary Reclamation</th>
<th>Duration of Works in CBTS</th>
<th>Disturbance</th>
<th>Alignment</th>
<th>Cross Platform Interchange at Exhibition Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1A</td>
<td>Nil</td>
<td>High</td>
<td>0.6 ha</td>
<td>+ 3 years</td>
<td>prolonged occupation of moorings</td>
<td>longer</td>
<td>Not OK</td>
</tr>
<tr>
<td>Option 1B</td>
<td>to be determined</td>
<td>Medium</td>
<td>2 ha</td>
<td>Delay to CWB</td>
<td>Delay to CWB</td>
<td>Not OK</td>
<td>OK</td>
</tr>
<tr>
<td>Option 1C</td>
<td>Nil</td>
<td>Medium</td>
<td>2 ha</td>
<td></td>
<td></td>
<td>Not OK</td>
<td>OK</td>
</tr>
<tr>
<td>Option 1D</td>
<td>additional 0.7 ha for CWB</td>
<td>Medium</td>
<td>0.6 ha</td>
<td>+ 1.5 years</td>
<td>limited mooring affected</td>
<td>shortest</td>
<td>OK</td>
</tr>
<tr>
<td>Option 2</td>
<td>Nil</td>
<td>Low</td>
<td>2.2 ha</td>
<td></td>
<td></td>
<td></td>
<td>OK</td>
</tr>
</tbody>
</table>
Cross Harbour Section – Construction Sequence for Westerly Alignment

Legend
- Protection Works by CWB
- Proposed Extension of Protection Works by CWB
- completed tunnel
- tunnel construction
- extent of temporary reclamation
- tunnel structure

to be constructed together with CWB

to be completed after CWB construction
Initial Assessment of the Extent of Reclamation
1. Demolition & Reinstatement of CBTS Existing Breakwater

• temporary breakwater formed before removing existing breakwater for SCL tunnel construction
• breakwater reinstated prior to removal of temporary breakwater

<table>
<thead>
<tr>
<th>Reclamation</th>
<th>Use &amp; Enjoyment of Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakwater will be reinstated.</td>
<td>some moorings inside the CBTS will be affected</td>
</tr>
</tbody>
</table>

- existing breakwater removed after temporary breakwater constructed
2. SCL Tunnel in CBTS

- **Reclamation**
  - approximate 2.2 ha temporary reclamation

- **Use & Enjoyment of Harbour**
  - some moorings inside the CBTS will be affected

> existing breakwater removed after temporary breakwater constructed

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### 3. IMT Units Partly Above Existing Seabed

<table>
<thead>
<tr>
<th>Reclamation</th>
<th>Use &amp; Enjoyment of Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>raising seabed is not reclamation (even if it were, there is overriding public need)</td>
<td>temporary marine traffic diversion</td>
</tr>
<tr>
<td>fairway not affected</td>
<td></td>
</tr>
</tbody>
</table>

**Typical Cross Section above Seabed**

**Typical Cross Section at Deeper Section of IMT**
4. Reinstatement of Hung Hom Bypass Fender Piles

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<thead>
<tr>
<th>Reclamation</th>
<th>Use &amp; Enjoyment of Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fender piles will be reinstated.</td>
<td>no impact to use of the harbour by the public</td>
</tr>
</tbody>
</table>
5. Reinstatement of Existing Freight Pier

<table>
<thead>
<tr>
<th>Reclamation</th>
<th>Use &amp; Enjoyment of Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing freight pier will be reinstated.</td>
<td>no impact to use of the harbour by the public</td>
</tr>
</tbody>
</table>
6. Hung Hom Landfall – Cut & Cover Tunnel

<table>
<thead>
<tr>
<th>Reclamation</th>
<th>Use &amp; Enjoyment of Harbour</th>
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</thead>
<tbody>
<tr>
<td>approximate 1 ha temporary</td>
<td>no impact to use of the</td>
</tr>
<tr>
<td>reclamation</td>
<td>harbour by the public</td>
</tr>
</tbody>
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Use & Enjoyment of Harbour

Public use of the harbour

- Temporary working platform
- Cut & cover tunnel
- IMT to Hung Hom Station

Freight Pier

Bypass

CWT

CBTS
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5. What additional work should MTRCL and Government undertake to maximize the integration of the construction work in CBTS to achieve minimum reclamation?
# Next Step

## Public Consultation Programme

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 August 2009</td>
<td>Public Forum – New Territories</td>
<td>Auditorium, North District Town Hall, Sheung Shui</td>
</tr>
<tr>
<td>Monday, 8 – 9:30pm</td>
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<tr>
<td>29 August 2009</td>
<td>Public Forum – Kowloon</td>
<td>Covered Play Area, Henry G Leong Yaumatei Community Centre, Yaumatei</td>
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<tr>
<td>Saturday, 2 – 3:30pm</td>
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<tr>
<td>1 September 2009</td>
<td>Public Forum – Hong Kong</td>
<td>Hall, Duke of Windsor Social Service Building, Wanchai</td>
</tr>
<tr>
<td>Tuesday, 8 – 9:30pm</td>
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Thank You