AsiaRail2004 / Hong Kong : Rail developments for Beijing 2008 Olympic Games and Shanghai 2010 World Expo

Philippe H. Bovy
Hon. Professor of Transportation
Swiss Federal Institute of Technology
International Olympic Committee - IOC Transport Expert

www.mobility-bovy.ch

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Mega-events around the World

- World Soccer Cup Paris 1998
- World Expo Lisbon 1998
- Sydney Olympics Games 2000
- Athens Olympic Games 2004
- Beijing Olympic Games 2008
- Shanghai World Expo 2010
- Candidate Cities for 2012 Olympics: London, Madrid, Moscow, New York, Paris

What transport challenge?

- These events are the biggest in the World
- from 4 to 10 million spectators in 16 days
- from 10 to 75 million visitors in 5 to 6 months
- Outstanding challenge in term of high capacity/reliability transport delivery
**What role for rail transport?**

- Very high peak capacity systems
- Strong transport reliability and security requirements
- High activity dense events = no parking availability = high performance transport systems with low land consumption
- Rail transport systems tend to be the only performing solution to meet very high mega-event passenger demands

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**Mega-events and rail development in 5 points:**

- 1. Mega-events key transport issues
- 2. No spectator parking at most mega-events
- 3. Mega-events and high capacity rail transport
- 4. Planned mega-event rail developments in China
- 5. Mega-events transport planning / legacy
1. Mega-events key transport issues

- Mega-events generate extraordinary high spatial and time concentrations of “new” traffic superimposed on “usual” metropolitan traffic
- Mega-events
  - 1-3 days, F1 Grand Prix Shanghai
  - 2-3 weeks, Olympic, Asiatic, Commonwealth Games, Football World Cup
  - 4-6 months, World and other Expos

Olympic attendance / traffic size

- Summer Olympics are the World biggest two week event with 4 to 10 million spectators
- Sydney 2000 had 8 million spectators, daily peak Olympic spectator traffic of 500’000 and accredited VIP, support and logistics staff of 200’000 generating 1,5 million “additional” daily trips
- Athens 2004 had 4 mio spectators, 235’000 accredited VIP, support and logistic staff
Expo attendance / traffic size

- Osaka 1970 Expo had 64 million visitors, 77 participating countries on a 330 ha site
- Lisbon 1998 Expo had 10 million visitors (16 planned), 146 participating countries on a 60 ha site
- Hanover 2000 Expo had 18 million visitors (40 millions planned), 198 participating countries
- Shanghai 2010 Expo is planning 75 million visitors on a 550 ha City centre site

Mega-event key issues

- Mega-event total traffic generation of 200'000 to 600'000 incoming spectator trips/day
- Concentrated in time and space, these transport volumes far exceed the capacity potential of even the best road public transport system
- Only “high capacity rail systems” can meet successfully this transport challenge
Mega-event new “rail”…

- Lisbon Expo had a new metro line and a new suburban rail station
- Sydney 2000 Olympic Park had a new high capacity suburban rail station linked to a new loop line
- Athens 2004 had an upgraded high capacity metro station - 3 metro line extensions - a new suburban line and a new light rail line

Mega-event new “rail”…

- Beijing 2008 will have 5 new metro lines, two serving the Olympic Green
- Shanghai 2010 will built 3 new metro lines serving the future Pudong Expo site
- All 2012 Olympic candidate cities plan to serve their Olympic hub with strong “reinforced” rail transport systems
2. No spectator parking at most mega-events

- Most major mega event generators (Stadium of more than 75’000 capacity) tend towards “Very limited or No CAR access policy” for spectators, workforce and support staff.

- Since 1998 this policy is applied at the Grand Stade de France in Paris.

Very limited car access policy

- Sydney 2000 and Athens 2004 Summer Olympics had “highly restricted car access” policies for spectators, large event workforce and volunteers.

- Beijing 2008 and Shanghai 2010 are in the process of adopting the same policy.

- This policy applies to the largest number of mega-event users: all spectators, sponsor guests (whenever possible), most of workforce and support staff (volunteers).
…mega event accessibility

- Lack of strong car access restrictions would lead to un-manageable traffic congestion and paralysis of both FOH and BOH access.

- **FOH - Front of House** = public/spectator mega-event access side.

- **BOH - Back of House** = service, support and logistical mega-event access side.
3. Mega-events high capacity rail transport

- Mega events generate peak traffic demands of 50’000 to world record high 200’000 pers/hour
- Only very high performance urban rail transport systems can deliver such capacities
- Light rail (10’000 p/h/dir) and medium capacity subway (25’000) help but are often not sufficient for mega-events

Paris: 3 metro lines for the Grand Stadium “of France”

- The “Grand Stade de France” at the outskirt of Paris CBD has a seating capacity of 85’000
- Two RER (Regional Express Network) lines, 1 standard metro line, 5 bus lines serve this Stadium
- Controlled maximum 4000 parking spaces with pre-booked ticket only
Grand Stade de France

Grand Stade de France
**Sydney new high capacity Olympic Park rail station**

- Sydney Olympic Park located 14km West of Sydney CBD
- Connection to the main 4 track Western Sydney trunk line
- One-way 2km side loop to Olympic Park station
- Station with three large platforms (separated train entries and exits) allowing for 45,000 passengers/hour/direction
.. Marathon race arrival in this Stadium on August 29th 2004...
Athens robust new rail system

- For the 2004 Olympic Games, Athens rail network has doubled + full renovation of Metro line 1
- 3 Athens metro extensions including a linkage to Athens new Airport
- new 32 km Suburban rail line part of the future Regional express rail system
- new light rail system of 2 lines / 24 km
4. Planned mega-event rail developments in China

- Beijing currently “small” 2 line subway will more than triple for the 2008 Games
- Of 5 new lines two, Olympic line / line 10, and new North South line 5, will serve Beijing Olympic Green, 2008 Games hub
- A new rail link -- technology not yet decided -- to connect with Beijing Capital Airport terminal 3 under construction (doubling of airport capacity)
The Transport and Venue Map for the XXIX Olympic Games
BEIJING SCHEMATIC RAIL SYSTEM DEVELOPMENTS

LEGEND

Existing lines
- Lines 1 and 2 49 km
- LRT (new 2003) 49 km
  Total: 98 km

Extensions
- Line 1 (Ba Tong) 19 km

New lines
- Lines 4, 5, 6e, 8, 10, 13 and Olympic line 137 km
  Total: 156 km

RAIL SYSTEM 2008 251 km

BEIJING METROPOLITAN RAIL EXTENSION BY 2008. *155%

Metropolitan Population: 13-16 millions

NOT TO SCALE
Beijing Olympic transport

- Without a vastly extended subway network, Olympic Games could not be held in Beijing
- To supplement the 250 km subway system a network of more than 100km of “Olympic reserved bus lanes” for logistical traffic service is planned
Shanghai and EXPO 2010

- Shanghai, most populous and busiest City of China, will host the biggest long duration mega-event ever
- Estimated EXPO 2010 attendance of 75 million visitors, more than 97% from China
- EXPO site 5 km up stream of Shanghai Bund on a 5,5 sq km site along the HuangPu River mostly on the Pudong side
...huge transport challenge

- Heavily congested central road system, low bus transport speeds and capacities
- Expo 2010 to rely almost entirely on subway accessibility
- The 3 new subway lines will be tremendously overloaded during EXPO 2010
- Need for supplementary capacities: rail station on Pudong side? waterway? high capacity busways?
5. Mega-event transport planning and legacy

- Mega-event planning generally starts 7 to 10 years prior to the event - competitive “bid phase”
- The chosen successful mega-event Host City has about 5 to 7 years to deliver the “promised” infrastructure
- Time is short for “heavy” transport systems especially when complex tunneling is required
...mega-event planning, operations + delivery

- Mega-event system integration in a dynamic growing metropolitan environment is an outstanding organizational and financial challenge
- Transport, technology and security are three mega-events most critical domains
- Transport is most visible and exposed to strong scrutiny and criticism
...accelerated transport development

- New or renovated transport systems delivery 6 months to 1 year prior to Olympic Games for full “testing” and customer acceptance
- Mega-events of continental or world scale are major catalysts for urban and transport development
- Athens Olympic Games compacted 25 years of transport development in 6 years

...mega-events impulse

- In Beijing, 13 billion US$ environmental improvements are implemented
- >20 billion US$ transport investments (public + private) : airport capacity doubling, 5 metro line extension, 300 km expressway, ITS traffic management extension
- Major environment and transport developments triggered by the 2008 Olympics will be a strong legacy for China capital City
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