

## High Performance Public Transport

# A must for Very Large Events

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### World growth of large and very large events, in particular in sports and the Olympics

Recent research by EPFL-Lausanne and INRETS-Paris<sup>1</sup> outlined the strong growth of large events in many domains: music, culture, religion, commercial fairs, salons, international and world exhibits and especially large and very large sporting events. In 1999 alone, 77 World championships and 102 other

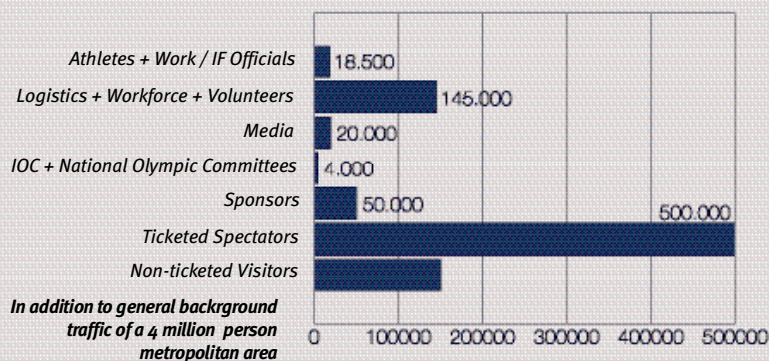
major championships were recorded in the 15 EU countries. The British-based Sportcal.com website announces each year 25,000 sports events and establishes a register for the next ten years. In such cases, public transport should play a major role in the development of these events.

What is a large and very large event? Although no precise definition is available, the Large Event (LE) magnitude is

associated with the host-city size. Indeed a 25,000 spectator event in a town with a population of 10,000 to 30,000 is a Large Event, as much as a 100,000 to 250,000 spectator multiple event in a metropolis of over one million people. A "Very Large Event" (VLE) generates crowds of more than 250,000 spectators a day or 5 to 10 million ticketed spectators in a Games or Championship period of 2 to 3 weeks.

The Summer Olympic Games are by far the World's largest sporting event with 28 sports, 300 events, often more than 15 main competition sites, a dozen non-competition activity centres like a huge 24 hour/day operating Media Centre. The event growth, during the last two decades, is spectacular. The Summer Olympics generated-traffic is estimated at about 20 million individual trips in 17 days with tremendous traffic concentrations in time and space. Only large cities and metropolises with very strong transport systems and in particular highly performing public transport systems can cope with these world publicised events.

### Indicators of peak daily transport demand



### Growth of Summer Olympic Games from 1980 to 2004 (\* estimated)

	Moscow 1980	Barcelona 1992	Sydney 2000	Athens 2004
Interval (years)	-	+12	+8	+4
Number of countries	145	172	199	200
Sports (number)	21	25	28	28
Events (number)	203	257	300	300
Women Events (number)	50	86	120	120
Athletes + Officials (no.)	8,300	17,000	18,400	18,000*
Accredited Media (no.)	8,000	12,000	19,800	22,000*
Tickets Sold (million)	5.3	3.8	8.0	5.5*
Total TV Rights (million US\$)	90	635	1330	?

### Large event transport development process: from bidding to event delivery and legacy

In most Very Large Event organisations, a "franchiser" attributes the event organisation to a Host Country (sometimes two) or a Host City which is the "franchisee". This process implies candidature submission, bid evaluations and a choice. For the Olympics the selection process takes 2 years and Games preparation 7 years. The procedure started in 2003 for the 2012 Olympic Summer Games.

Quality and capacity of existing and planned transport infrastructures and

services as well as reliable travel times, are considered as one of most crucial points in the Host City selection process.

Transport plays a central role in interlinking eight major domains of event organisation. Event global programming, spatial distribution and capacity of venues, diversified client groups are necessary to establish appropriate transport plans and dedicated reliable mobility services.

Transport is very dependant on public sector facilities and services. Strong partnership between the Host City public authorities, administrative and operative functions and the responsible Event Organising Committee is fundamental. Partnership schemes vary tremendously, however, according to host city institutions and local or national politics.

For most Large Events and all Very Large Events a centralised transport and traffic CCCC (Command, Control, Communication Centre) is mandatory. The role of the Traffic Police and Security forces is of utmost importance. Without them, no large event can be successfully organised.

## Outstanding transport and mobility management features of the Sydney 2000, Athens 2004 and Beijing 2008 Olympic Games

Since urban transport systems cannot be adjusted for "short duration large event traffic demands", innovative mobility management schemes are required. Considerable experience in large event management shows that dense and heavily concentrated large event traffic flows are best handled by mass transit.

**Sydney 2000.** These Games were a very successful example in this regard because they were the first Olympic Games ever to rely on 100% spectator accessibility by public transport. This means that almost all Olympic venues and events depended on close to 100% accessibility by public transport (there were some walk-in and bike-in trips) for the last part of the journey to the event.

In brief, the Sydney Olympic Transport Plan had five outstanding features:

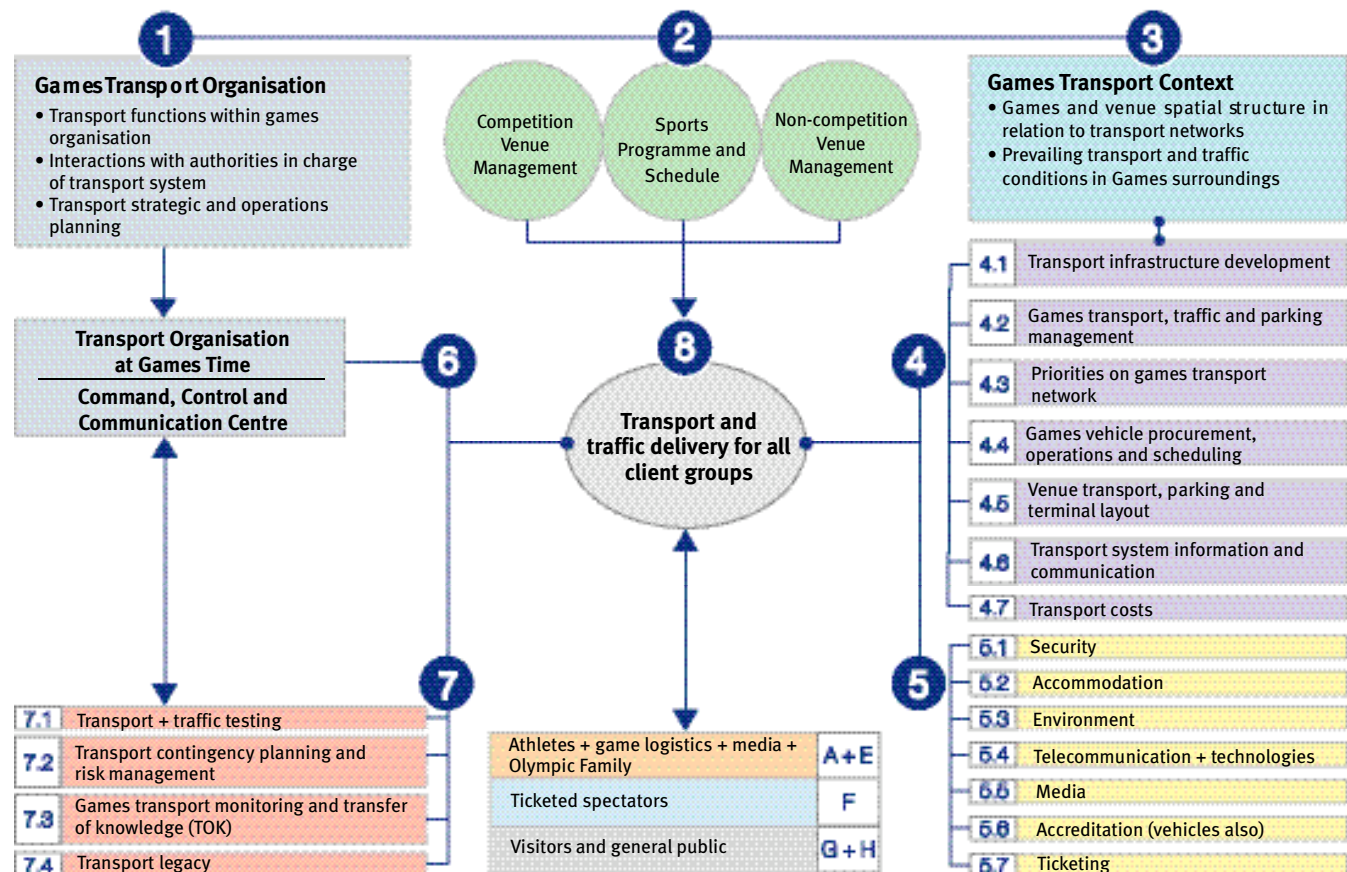
- Provision for 100% Olympic venue accessibility by public transport using rail access, 13

supplementary Olympic bus lines, shuttle services from rail stations and Olympic reserved lanes on key routes;

- Free use of Olympic public transport by ticketed spectators,
- A strict spectator-parking ban around all venue perimeters and more than 25,000 free peripheral park and ride temporary spaces along the Olympic bus lines,
- An extensive Travel Demand Management (TDM) programme to reduce vehicular traffic by about 20% through such initiatives like tele-working, staggered working hours, employee holiday incentives, school holiday extensions, Central Business District (CBD) 24 hour on-street parking ban, night only deliveries, or free downtown bus loop,
- An effective transport and traffic communication strategy to diffuse all appropriate Olympic transport and travel information on-line with the media and Internet.

By all accounts, Sydney 2000 Olympic transport performed extraordinarily well. Traffic was smooth in convivial conditions.

Figure 1: Transport System and Strategies for Large Sports Events





# LARGE EVENTS



Photo: Celeste Finez

The TMB bus line in Barcelona which serves Montjuïc and the Olympic Stadium from Plaza Espanya

Globally, 80% of spectator and workforce traffic loads were taken by rail and about 20% by 13 special Olympic bus routes. To run an adequate operation it is essential that specific needs of the most significant client groups be identified – 8 in the Olympic case – to deliver distinct transport operation and traffic management schemes varying day by day.

**Athens 2004.** Athens, with its high urban density, is required to apply the same transport policies which were successful in Sydney, in addition to a

substantial amount of road, motorway and rail system upgrading and very extensive new infrastructure developments. For the first time in Attica Region rail transport history, the new system will not remain purely radial but will be largely interconnected.

A policy of all ticketed spectators and accredited workforce to use public transport for free during the Olympic ticket validation day will be applied in Athens. Rail, mostly the three Metro lines, two new Light rail lines and a new Suburban link with the new Athens International Airport will be boosted to offer the maximum possible capacity to accommodate all spectator and workforce mobility needs. Current development of 50 km of reserved bus lanes will be pushed to 150 km of strictly enforced Olympic bus lanes during the Games.

**Beijing 2008.** Far ranging rail transport projects are also currently being developed in Beijing for the 2008 Games. Construction is quite intense to expand the currently undersized subway system from 45 km to more than 250 km for the 2008. Renovation of the internal urban ring roads and building of the new 5th and 6th toll Motorway Rings (305 km) and a much stronger urban rail system should help relieve the pressure and congestion of very fast growing

road traffic in Beijing (+250,000 cars/year) and declining bicycle ridership.

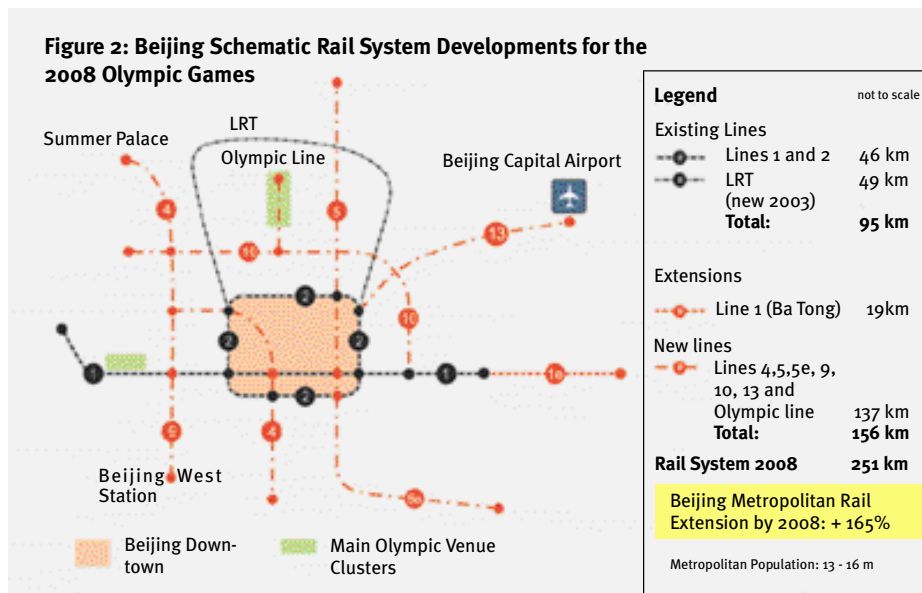
## Key role of high performance public transport systems such as metros, suburban and light rail systems.

Large and Very Large Events mostly take place in cities which are already overloaded with road traffic and burdened with parking and goods delivery problems. Almost all recent experiences show that large event traffic can only be handled by very strong and performing reinforced public transport systems incorporating permanent or temporary networks of reserved bus lanes.

For Very Large Events (VLE), high capacity city or metropolitan rail systems such as subways, suburban rail and light rail systems are compulsory. High capacity rail stations serving main sport venues such as a large stadium should not be too close to these sport venues to avoid over concentration of crush crowds. A 500 to 1000m distance between rail stations and competition venues entrances is desirable. Crowd management studies are imperative, especially for highly peaked departing crowds. (See article, page 28) Rail station platform loading controls are a must. Due to very heavy traffic loads, ticket controls are almost impossible and/or too costly. More and more often, the public transport fare is included in the event ticket.

Main competition venues are very crucial challenges for transport. All spectator and logistical systems converge on these nodal areas that must always be clearly delimited by a security perimeter separating the public domain from the event domain as well as Front of House (FOH) spectator access from Back of House (BOH) logistical and vehicular access. The positioning of public transport access points in relation to venue egress and exit points (stadium or other large event complex) is of utmost importance as most of the safety and security problems are amplified by crowds.

**Figure 2: Beijing Schematic Rail System Developments for the 2008 Olympic Games**



## Transport for large and very large events: six policy and operative recommendations

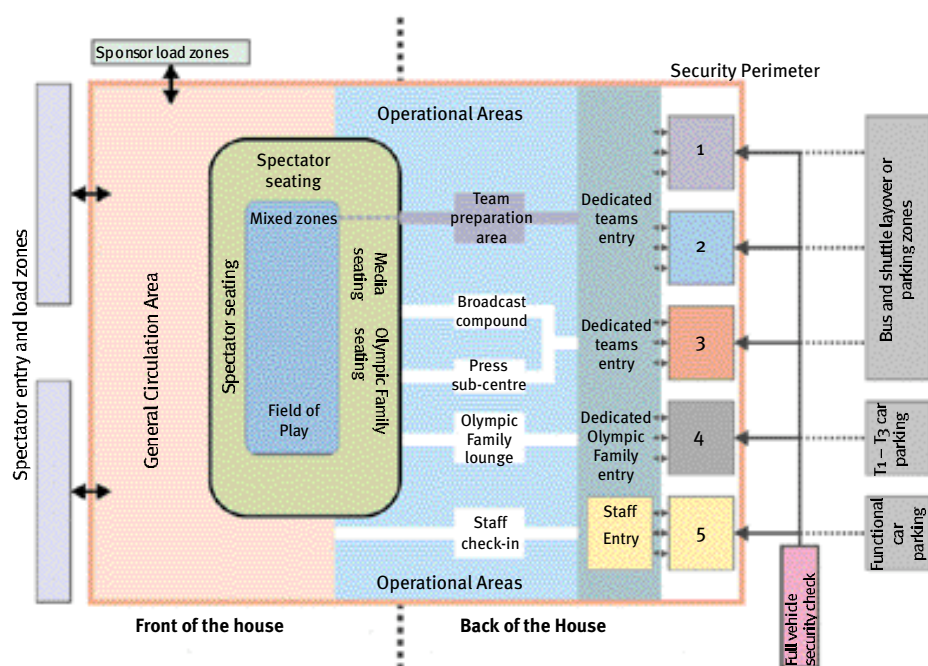
1. Large and Very Large Event transport and traffic policies should firmly rely on reinforced, strong and highly performing public transport services as they are the only one to be able to sustain very high traffic demands heavily concentrated in time and space.

2. For traffic operations, environmental considerations and client conviviality, most Large and Very Large Events develop rather drastic traffic schemes with total banning of spectator and workforce automobile access to competition or other highly attractive public venues. The event traffic success is dependent on enforcement of such firm policies.

3. Experience overwhelmingly shows that Very Large Event spectator and workforce crowds can only be handled by high performance rail services, in particular metros, suburban rail and light rail systems. Very large events play the role of "catalyst" for urban and metropolitan rail system improvements and new line developments which were often planned but not constructed. Since these new or upgraded public transport infrastructures generally serve very large traffic and activity centres, they are well used after the large event and contribute, as a substantial legacy, to more sustainable metropolitan mobility developments.

4. Transport and traffic management of Large Events require years of planning and competent operational design associating the Large Event Organiser with responsible governmental agencies, transport operators and the traffic police. Integration of all transport modes and security information, command, control and communication systems in one centre is necessary, even for a one to two week events. Integrated operational pre-event testing is essential for technology validation, operation and command procedure reviews and contingency plan developments.

Figure 5: Generic venue layout and transport accessibility and function



5. Integrated Large Event ticketing including public transport is a must. Use of public transport shall be part of the event ticket for "x" hours or the full day on most of the public transport system. Crowd management and controls, near and inside public transport areas serving main sport venue are essential for safety and security.

6. Metros, other main city rail operators as well as other public transport companies should take a pro-active role in Large and Very Large Event transport by creating their own ad hoc task force offering integrated public transport services for any Large Event Organizer interested in hosting an event in any given City or Metropolis. Large and Very Large Events is an important business potential and provides a favourable image of public transport where it is at its best: safe and efficient movement of large crowds of clients.

1 Institut national de recherche sur les transports et leur sécurité

and Lausanne. March 2003, 290 pages; [www.mobility-bovy.ch](http://www.mobility-bovy.ch). Also published at Editions de l'Aube (F), January 2004; [www.aube-editions.com](http://www.aube-editions.com).

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- 1 - Athletes and team officials load zones
- 2 - Technical officials and medical load zones
- 3 - Media load zones
- 4 - Olympic Family T1 - T3 load zones
- 5 - Staff load zones

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