

Athens 2004 Olympics: The Importance of a Freeway for the Access to an Olympic Size Event

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ABSTRACT

The scope of this paper is to present the challenges involved, as far as transportation infrastructure, operations and management are concerned, in enabling the successful deployment of a worldwide event, such as the Olympic Games.

It also describes the preparations undertaken by Attica Tollway Operations Authority prior to the Olympic Games. The important role of the Attica Tollway for the overall success of the Athens 2004 Olympic transportation services is also presented. Attica Tollway Operations Authority faced many challenges in having to manage the freeway traffic for an event of unprecedented proportions.

1. Description of Attica Tollway

Attica Tollway constitutes the Athens ring road, which extends over 70 km and allows for quicker access to areas which, until recently, were either unapproachable or that yielded greater travel times. Attica Tollway is a road axis that connects 30 municipalities of the Attica basin and meets the transportation needs of millions of people, on an annual basis.

Attica Tollway is one of the biggest peripheral ring roads in Europe. It is an urban motorway, with 3 traffic lanes and an emergency lane in either direction. Along the majority of its length and in the centre, it has a specially constructed traffic island, reserved for the operation of the suburban railway. Attica Tollway constitutes a unique infrastructure project, since it is essentially a closed toll motorway within a metropolitan capital, where the problem of traffic congestion is really acute.

Attica Tollway forms the link which connects the PATHE road axis (Patra – Athens – Thessaloniki - Evzoni), since it links the Athens – Lamia National Road with the Athens – Corinth National Road, by-passing the centre of Athens. Being a closed motorway, it has full control of its access points and consists of three sections, which are vertical to one another:

- The Elefsina – Stavros – Spata A/P motorway (ESSM), extending along approximately 51 km,
- The Imittos Western Peripheral Motorway (IWPM), extending along approximately 14 km, and

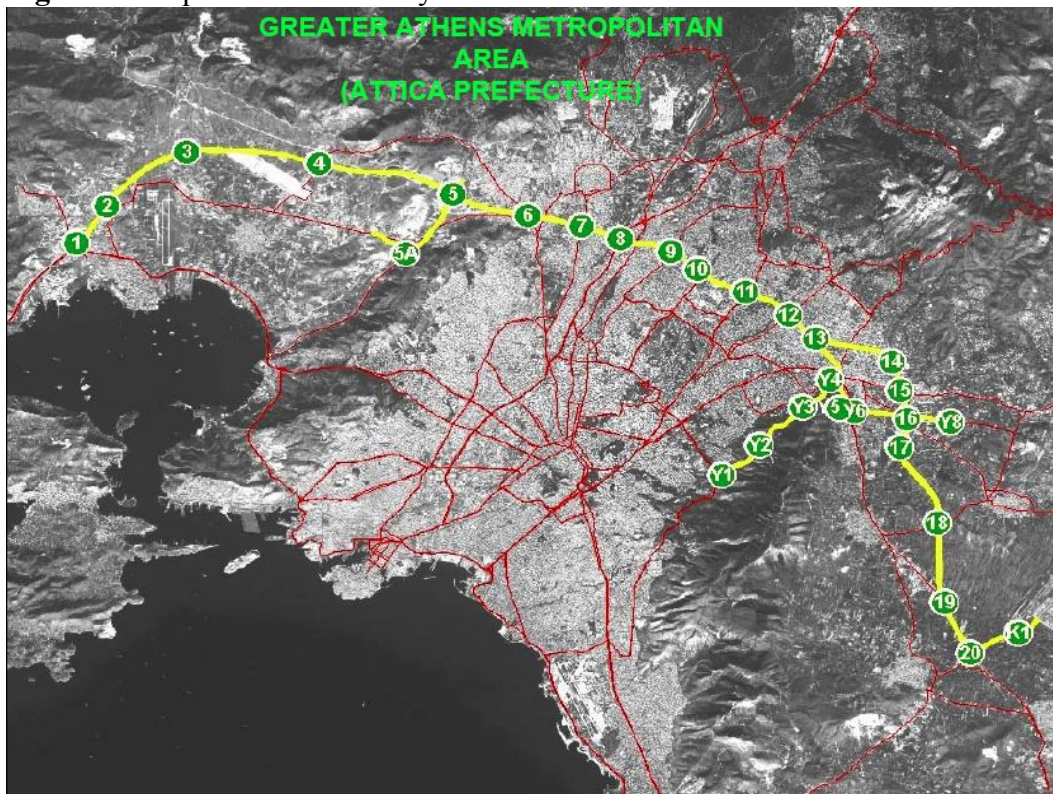
- The Egaleo Western Peripheral Motorway (EWPM) extending along approximately 5 km

The major technical characteristics of the motorway can be summarized as follows:

Table 1: Major Technical Characteristics of Attica Tollway

<i>Project features</i>	<i>Value</i>
Total length	70 km.
Service / side roads network	150 km
Interchanges	29
Roadway bridges / Overpasses	100
Roadway bridges / Underpasses	25
Railroad bridges	38
Stream bridges	21
Pedestrian Overpasses	12
Tunnels / Cut & Cover Sections	56
Total length of Tunnels and Cut & Cover Sections	15.36 km
Flood protection works	66.7 km
Customer Service Centres	9
Toll Stations	39
Total number of toll lanes	195
Electronic toll lanes	54
Mixed toll lanes with toll collectors	139

Figure 1: Map of Attica Tollway



Attica Tollway has been constructed on a concession basis and constitutes the largest co-financed road project in Greece and one of the largest in Europe. It was opened to the traffic in sections. The first section opened in March 2001 and the project was completed in August 2004. Attica Tollway became the backbone of the road network for the 2004 Olympic Games in Athens that took place on August 13 to 29, 2004 and involved 11,099 athletes from 201 countries.

Entry to Attica Tollway is achieved via toll plazas located at the extremities of the freeway and at each on-ramp. Drivers pay a toll only once, upon entry (open tolling system,) and the toll is the same at all entry points for each of six vehicle classes. The flat toll fare encourages long trips. The 2.8 euro toll price (in 2011), for passenger cars and pick-up trucks, makes short trips relatively expensive. In this way, the tolling scheme serves as a disincentive for short trips. Not only does this impede the generation of traffic congestion on the freeway due to high on- and off-ramp volumes, but it also reduces congestion in the region by absorbing a large percentage of through-traffic. This operational requirement, which emphasized a high regional mobility (and penalized accessibility via short trips), remained unchanged from the initial designs by the Ministry of Public Works in the 1960s.

Attica Tollway Operations Authority (or Attikes Diadromes S.A.) is the operating company of Attica Tollway and is in charge of traffic management, road maintenance, and toll collection. Attica Tollway Operations Authority operates from a modern Traffic Management Center (TMC), on a 24-hour basis, and coordinates all actions necessary to locate and deal with any kind of incident. There is quick and efficient intervention at all times and road assistance, a service offered to all in need by trained personnel, is also available and free of charge (Halkias, 2005).

2. Attica Tollway: the main route for accessing the Olympic Venues

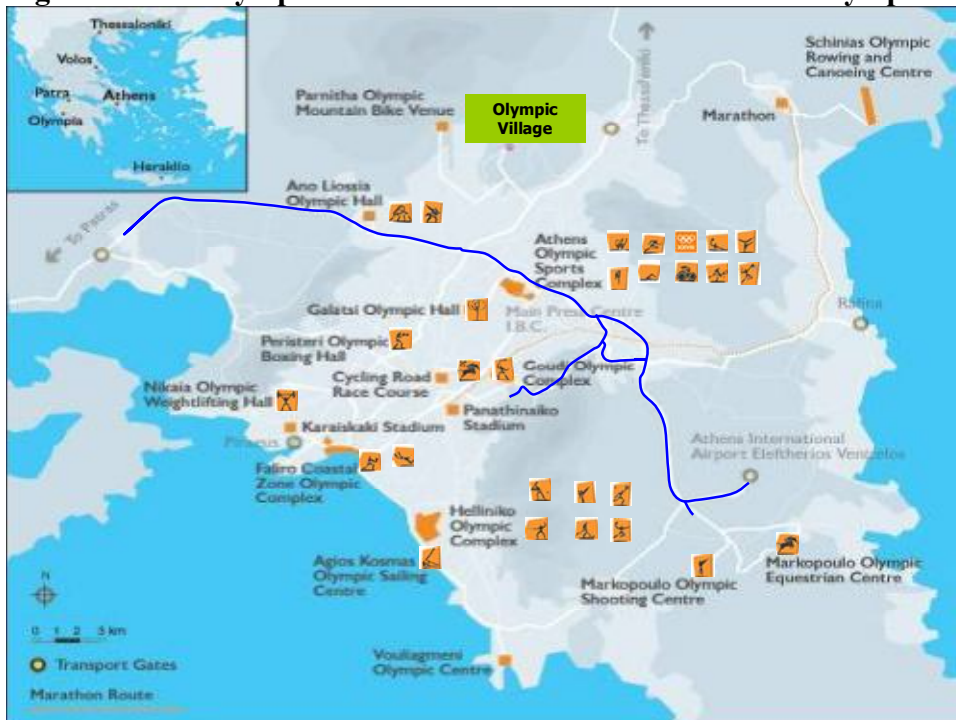
The Athens Summer Olympic Games took place in the greater Metropolitan Area of the Greek capital in August 13 to 29, 2004 and they were the first Summer Olympic Games in the post-“9/11 terrorist attack” era. Security was an issue of paramount significance; it was a primary challenge for the organizers and a major headache for the international community.

The Athens Games broke many records, since Athens hosted the largest number of athletes ever, from 201 participating countries (more than in any other sport event until then and only one less than the Beijing Olympic Games). Forty one competition venues and the Olympic Village were within the greater Athens area and an additional four competition venues were located in different cities. About four million Olympic vehicles were journeying during the Games, while 3.6 million tickets were distributed (Papadimitriou, 2008).

Attica Tollway, by ensuring free-flow operating conditions, constitutes the “traffic-moving” alternative around the extensive metropolitan area of the Greek capital and, during the Olympics, formed the backbone of the entire road network of Athens, a role that it continues to play until today. As seen in Figure 2 below,

Attica Tollway connected all the major Olympic Venues, by providing direct access.

Figure 2: The Olympic Road Network for the Athens 2004 Olympic Games



About 200,000 people were accredited, of which 75,000 were members of the official Olympic Family (ATHOC, 2005). All of these activities and extensive transportation needs presented a major concern for the operational units of Attica Tollway Operations Authority.

The country's central responsibility and control of Olympic Transportation was assigned to the Athens Traffic Operations and Control Center. The Olympic Traffic Management Plan was based on the creation of an Olympic Road Network (ORN), where specially authorized vehicles (fleet, athletes and team officials, technical officials, media, sponsors, members of International and National Olympic Committees and International Federations, etc.), all exclusively marked by tags placed on the windshields, would have priority in traveling on restricted "Olympic Lanes" in the selected city and peripheral roads of the ORN.

Attica Tollway was the most critical part of the ORN, but the only road not implementing the reserved dedicated "Olympic Lane" scheme. Instead, all lanes were to be open to all vehicles. Furthermore, the plan required that Athens Olympic Committee (ATHOC) member vehicles were to travel primarily through the Attica Tollway, in order to move faster and safer, making Attica Tollway the main transporter for the Olympic Family.

Hence, it was Attica Tollway Operations Authority's role to proactively plan the management of the freeway traffic, in order to achieve the required high standard of service and to ensure the quick and safe access to the Olympic sports venues.

In addition, another transportation strategy was to persuade spectators, volunteers and workforce to use public transport and abstain from using private vehicles in order to enhance the effective operation of the road network. The overall plan was proven to be successful in reducing traffic demand, as the 320,000 average daily spectators and the 80,000 average daily workers and volunteers mostly used public transport (Papadimitriou, 2006).

3. The planning process for the Olympic Games

Attica Tollway traffic management preparations started over a year before the Games. Attica Tollway Operations Authority set in place a proactive traffic management plan, along with cooperation and negotiations with public service authorities, ministries, and other entities, such as the Ministry of Foreign Affairs, for managing the safe and timely passage of VIPs and Heads of States.

Regarding the passage through the Attica Tollway tolls, Attica Tollway Operations Authority decided to divert all Olympic family vehicles through reserved ETC lanes. ETC lanes normally exclude buses, but especially for the Games, an agreement was reached with ATHOC to allow buses to pass through ETC lanes throughout the period of the Games and this ended up being an important measure. Still, the challenge remained in cases such as before and after the Opening and Closing ceremonies, when a large concentration (~500) of Olympic Family vehicles had to pass through a single toll station in order to move between the Olympic Stadium and the Olympic Village (Halkias, 2008).

To maintain the required travel times, Attica Tollway Operations Authority organized a “convoy” formation passage in restricted time schedules, allowing vehicles to pass without any disturbances, while at the same time a team was standing-by, ready to act in cases of need. Overall, ETC prepaid temporary accounts were issued for 6,000 vehicles, of which 2,000 were buses.

An Olympic-size event requires adequate and well-trained staff. In order to comply with traffic level of service requirements, AD recruited and trained, well in advance, an additional 200 employees, in order to reinforce the readiness of the approximately 850 regular traffic operations employees. Of these, 120 people were recruited to support the toll stations, 30 people were employed as vehicle patrols for incident management and 50 as “ETC lane officers” helping and controlling passage of ATHOC buses and Olympic Family vehicles.

An extensive crisis management plan was established by Attica Tollway Operations Authority. All management team members participated in crisis management training courses, learning how to respond to several unexpected occurrences, such as terrorism assault, incidents that could cause possible freeway closure etc. Key element of the effective crisis management was the close cooperation with Traffic Police and Fire Brigade officials. An important outcome of the crisis management preparations was the detailed traffic diversion plans that were prepared in case of total closure of the tollway. (Papadimitriou, 2006)

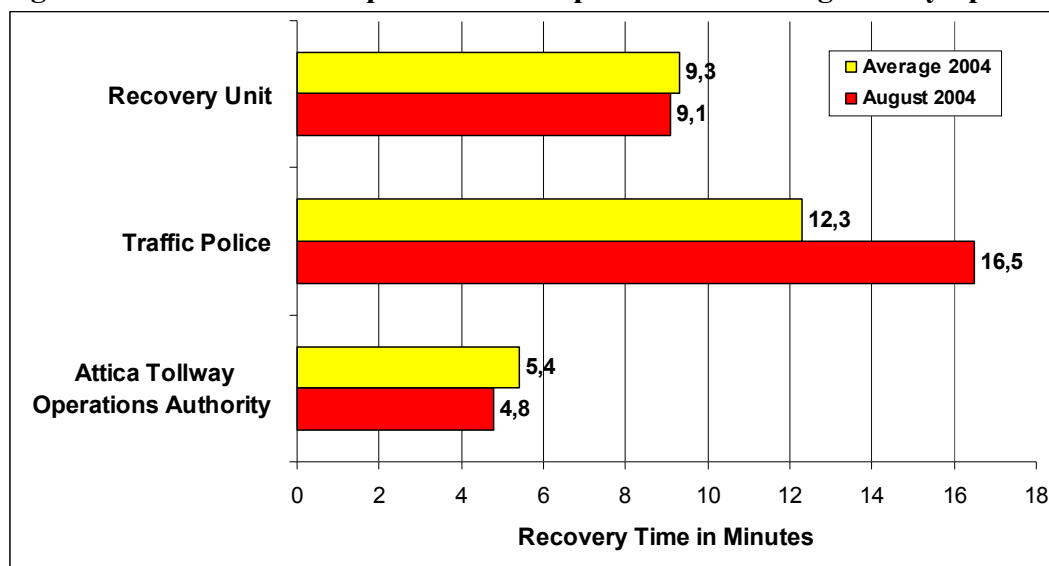
Finally, custom Olympics signage was introduced along the freeway to assist drivers in finding their way to the Olympic venues. Maps of the freeway, indicating all Olympic venues, were prepared in English and distributed from all toll stations and Customer Service Centers.

4. Assessment of the effort

The extensive and sophisticated preparations and the strict use of the procedures resulted in the smooth and safe operation of the motorway throughout the Olympics, while no serious incidents or crises occurred during the 2004 Olympic Games. To keep matters under control, a Management Team meeting was taking place on a daily basis, focusing on the status of real vs. anticipated traffic conditions and setting up priorities for the next day.

The Alert on-Duty Program, that was in place for the month of August, established the permanent presence of a Traffic Police Officer in the TMC and, thus, a permanent link of communication between Attica Tollway Operations Authority and the Traffic Police. This cooperation resulted in an average reduction of 4 minutes to the Traffic Police response time during the Olympic Games (Figure).

Figure 3. Reduction of Response Units response times during the Olympics.



The management of traffic, the coordination between all involved agencies, the coordinated implementation of Olympic action plans and the management of non-scheduled incidents affecting traffic, demonstrated excellence, as there were no serious consequences from traffic incidents.

Moreover, a certain reduction of accidents was recorded during the period of the Olympic Games. The number of fatal accidents in August was zero and the number of accidents with light injuries was four, i.e., the minimum value of every other month of the year 2004.

The passage of buses from ETC lanes relieved the manual lanes from queuing, thus accelerating and securing accredited fleet movement from the toll stations. Specifically, the ETC passage of the ATHOC vehicles, in line with the decision not to implement the height restriction in ETC lanes and the effective management of “convoy” traffic for the ceremonies, allowed about 15,000 Olympic vehicles to pass quickly through the ETC lanes during the Games, increasing the average percentage of ETC transactions for that period to 45% compared to the 25% level before the Games (Papadimitriou, 2006).

CONCLUSIONS

The 2004 Olympics presented a once-in-a-lifetime opportunity for the city of Athens to upgrade its road and public transport network and to develop an urban operations environment that would ensure coordinated actions between all involved stakeholders. The main purpose, in terms of road transportation, was to facilitate the access to Olympic Venues and Attica Tollway played a crucial role in this strategy.

The challenge of hosting a large and significant event, such as the 2004 Summer Olympic Games, was immense for the entire country and for the operation company of the Attica Tollway, in particular. The sheer size of the event placed a huge load on the planning and preparation stages, as there was no tolerance for deficiencies.

The internal evaluation of the entire Olympic Games Traffic Program was vital for Attica Tollway Operations Authority and for the city of Athens at large. Negotiations, cooperation and daily meetings with other involved agencies and authorities resulted in managing certain incidents faster and more efficiently, and the AD personnel felt more confident sharing responsibility.

The added value gained by this planning process manifests itself in the form of procedures that have remained and continue to be followed long after the Olympics, e.g., the procedures implemented for the passage of the VIPs, while the presence of the Traffic Police at the Attica Tollway TMC is now permanent.

Most important, however, is the learning process that took place for both managers and employees of Attica Tollway Operations Authority, who won a “gold medal” for handling such an intensive and prolonged situation successfully. To live the experience of such an event and to gain this unique knowledge becomes a powerful asset for any organization.

Moreover, it is valuable know-how for the transport engineering community and a significant gain for the country at large. The experience gained can serve as a basis for the understanding of the issues regarding the preparation, management, and operation of Olympic Games urban transportation.

In conclusion, despite the many challenges presented, both on a technical and an organizational level, Attica Tollway Operations Authority, with the aid and

support of external and special entities, succeeded in overcoming the difficulties of hosting such a major global event.

REFERENCES

1. Halkias, B., Papandreou K., Kopelias P., Prevedouros P. and Skabardonis, A. (2005). "Attica Tollway Management in the Athens 2004 Olympic Games." *Proceedings 12th World Congress on Intelligent Transportation Systems*, San Francisco, CD-ROM.
2. Papadimitriou F., Halkias B., Papandreou K., Kopelias P., Prevedouros P. "Athens 2004 Olympics: The Importance of a Freeway for an Olympic Size Event", T & DI, ASCE, Beijing, April 24-26, 2008
3. ATHOC – Athens Olympic Organizing Committee (2005) "Official report of the Games of the XXVIII Olympiad", *Games Services – Transport*.
4. Papadimitriou, F., Thibaut, F., (2006). "Managing Operations for Large Scale Events: The Case of the Attica Tollway during the 2004 Olympic Games." *Proceedings 1st International Symposium on Freeway & Tollway Operations*, Athens Greece, CD-ROM.