

METRO DEVELOPMENT IN GREECE

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PRESENTATION STRUCTURE

- The Company and its Institutional Set-Up
- Current State of Development and Future Projects
 - Athens Metro
 - Thessaloniki Metro
- Project Management
- Socio-Economic Impact



ATTIKO METRO S.A. (AM)

The Company and its Institutional Set-up



ATTIKO METRO S.A. (AM) LEGAL FRAMEWORK

- Attiko Metro was established in July 1991 as a legal entity under private law in the form of an S.A. (Law 1955).
- The Greek State is the sole shareholder of Attiko Metro.
- Attiko Metro is supervised by the Ministry of Environment, Physical Planning and Public Works (YPEHODE).
- Purpose of Attiko Metro, as provided by the law, is to supervise design, construction, operation, exploitation and development of the Metro Network in Attica.
- Law 1955/91 ratified the first Construction Agreement for Lines 2 and 3 (Base Project).



ATTIKO METRO S.A. LEGAL FRAMEWORK

- Building permits necessary to perform works are granted through decision by the Minister.
- Attiko Metro Operating Company (AMEL) was established in 1998 as a subsidiary of Attiko Metro for the operation, maintenance and business exploitation of the new Metro lines and their extensions. The operation activities of AMEL are subject to coordination with the other transport modes of Athens under the responsibility of the Ministry of Transport.
- Operation & Maintenance staff of Attiko Metro transferred to Attiko Metro Operating Company in 1999.
- In December 2003 Attiko Metro was assigned the responsibility for the Thessaloniki Metro and the purpose of Attiko Metro was extended to Thessaloniki Region.
- In 2002 the construction of Parking Facilities and Transfer Stations serving the Metro lines was assigned to Attiko Metro.



ATTIKO METRO S.A. THE COMPANY'S OBJECTIVES

- Efficient implementation of Metro Projects in Athens and Thessaloniki through:
 - Sound planning and design of the Metro system parameters
 - Implementation of state-of-the-art international construction, safety and operation standards
 - Organization and systematic *in situ* supervision in all project phases.
- Securing the public interest by means of:
 - Strict adherence to all contractual obligations of the Contractors (scope, cost, time schedule of the project)
 - Full adherence to Greek and European Legislation in all planning, design, tendering and project construction phases
 - Securing the necessary conditions for high level competition and equal opportunities for all bidders.



ATTIKO METRO S.A. ORGANIZATION

- Attiko Metro currently employs 425 persons of which 70% are Engineers and other professionals.
- In-house Technical Consultants (international firms) assist Attiko Metro in the design and supervision of the projects.
- The Company's structure is flexible in order to adjust to the needs and complexity of the projects.
- For the implementation of the projects Attiko Metro currently consists of:
 - 4 Project Management Dpt.
 - Planning and design studies Dpt.
 - Quality Dpt.
 - Safety Dpt.
 - Contracts (also costing and scheduling) Dpt.



ATTIKO METRO S.A.

EFFICIENCY – FACTS & FIGURES FOR THE LAST 3 YEARS

- Efficient administration processing of more than 30,000 documents/letters and 15,000 drawings
- Translation of more than 20,000 pages for the tender documents of Attiko Metro
- Worksite visits for more than 1,000 Engineers and other professionals or students
- Training programs for almost 90% of Attiko Metro personnel
- Almost 4,500 citizen requests have been addressed (through responding letters or by e-mail).



ATTIKO METRO S.A. EFFICIENCY – FACTS & FIGURES FOR THE LAST 3 YEARS

- 84 Press Releases regarding Attiko Metro projects
- 20,000 articles in the Press and 650 TV reportage for Athens and Thessaloniki Metro
- More than 520 worksite inspections for Quality and Safety performed for Attiko Metro Projects (30 inspections from the Ministry of Employment)
- More than 80 design or other studies have been assigned to consulting firms (38), or have been carried out by ATTIKO METRO Planning and Design Studies Dpt.
- More than 220 requests for building permits near Metro projects have been reviewed.



CURRENT STATE OF DEVELOPMENT & FUTURE PROJECTS





LINE 1 - ISAP

- ✓ 26 km long
- ✓ 24 stations
- ✓ 3.1 km of underground line
- ✓ In operation since 1869
- ✓ 450,000 passengers/day







AT	TIKO METRO) S.A.	ATHENS METRO BASE PROJECT	
•	Attiko	o Metro	o established in 1991 and works started in 1992	
•	Lump) sum t	turnkey project (2.032 mil €)	
•	Cons	tructing	g Consortium of 23 companies (9 French, 9 German, 5 Greek)	
•	Proje	ct Man	nagement & Supervision by Attiko Metro assisted by Consultant (Bechtel)	
•	Fund	ing by	European Union (50%), European Investment Bank (40%), Greek State	(10%)
•	Start	of ope	eration in year 2000 (one station in year 2003)	





ATHENS METRO EXTENSIONS PHASE A (2004)

			Line Length (Km)	Stations	Project Cost (mil. €)	Funding
EXT	ENSIO	NS PHASE A (2004)	29.2	5	611	
Line	2	Sepolia – Ag.Antonios	1.4	1	106	C SF
Line	2	Dafni – Ag.Dimitrios	1.2	1	118	C SF
Line	3	Ethniki Amyna – Plakentia	5.9	2	335	C SF
Line	3	Plakentia – New Airport*	20.7	1	52	C SF
			* Suburban Rail	way Infrastructure		



EXTENSIONS PHASE A (2004)

- Extensions aimed to be ready for the Olympics
- 8.5 Km of Metro line extensions and 4 stations
- Additional station at the new Airport of Athens shared with Commuter Rail
- Additional depot (stabling facilities) near Plakentias station
- 21 additional trains (seven dual voltage air-conditioned trains running on both Metro and Suburban Rail lines)
- Coordination of multiple contractors by Attiko Metro
- Construction duration 4 years
- Funding similar to Base Project





Line Length (Km) Stations Cost (mil. €) Line 3 Monastiraki-Egaleo 4.3 3 400		
Line 3 Monastiraki-Egaleo 4.3 3 400	Project Completion	Funding
	2007	C SF – RAPUD



ATHENS METRO PROJECTS IN OPERATION

- 650,000 passengers / day (average number of passengers in the network in 2007)
- 51,1 km of network in total
- 31 stations in total (27 stations + 4 used in common with the Suburban Railway)

INDICATIVE TRIP DURATION:

- HALANDRI-SYNTAGMA: 15 min
- EGALEO-SYNTAGMA: 7 min
- Airport-SYNTAGMA: 37 min
- Airport-Piraeus: <60 min (one transfer)

TRANSFER:

- Line 2 Line 3: 1 station (SYNTAGMA)
- Line 1 Lines 2,3: 3 stations (MONASTIRAKI, OMONIA, ATTIKI)
- SUBURBAN RAILWAY Lines 2,3: 1 station (DOUKISSIS PLAKENTIAS)



ATTIKO METRO S.A.

EXTENSIONS PHASE B (2008-9) under construction

			Line Length (Km)	Stations	Cost (mil. €)	Project Completion	Funding
PF	ROJE	CTS	8.5	10	833		
Lir	ne 2	Ag.Dimitrios-Elliniko	5.5	4	400	2009	Cohesion Fund
Lir	ne 2	Ag.Antonios-Anthoupoli	1.5	2	125	2009	c SF - Rapud
Lir	ne 3	Egaleo-Haidari	1.5	1	121	2009	c SF - Rapud
Lir	ne 3	Stations Holargos, Nomismatokopeio, Ag.Paraskevi		3	87	2008-2009	C SF – RAPUD
Lir	ne 3	Eleonas Depot			100	2009	C SF – RAPUD



EXTENSIONS UNDER CONSTRUCTION

Ag. Dimitrios – Elliniko

- Tendering :
- Signing of the Contract :
- Commencement of construction works :
- Anticipated commissioning (based on the time schedule) :

February 2005 March 2006 May 2006 End 2009

Ag. Antonios – Peristeri - Anthoupoli

- Tendering :
- Signing of the Contract :
- Commencement of construction works :
- Anticipated commissioning (based on the time schedule) :

November 2004 June 2006 September 2006 End 2009



EXTENSIONS UNDER CONSTRUCTION

Egaleo – Haidari

- Tendering :
- Signing of the Contract :
- Commencement of construction works :
- Anticipated commissioning (based on the time schedule) :

October 2004 February 2006 November 2006 End 2009

Stations: Holargos, Nomismatokopio, Ag. Paraskevi

- Tendering :
- Signing of the Contract :
- Commencement of construction works :
- Anticipated commissioning (based on the time schedule) :

January 2005 March 2007 April 2007 2008-2009 (gradual operation)



EXTENSIONS UNDER CONSTRUCTION

- 150,000 additional passengers / day in the network (800,000 total daily ridership)
- Extensions of both Metro Lines
- + 8.5 km \Rightarrow 59.6 km of network in total
- + 10 stations \Rightarrow 41 stations in total

INDICATIVE DURATION OF TRIPS:

- NOMISMATOKOPIO-SYNTAGMA: 10 min
- ANTHOUPOLI-SYNTAGMA: 11 min
- ELLINIKO-SYNTAGMA: 14 min
- HAIDARI-SYNTAGMA: 8 min



ATHENS METRO EXTENSIONS UNDER CONSTRUCTION



ELLINIKO Station



PERISTERI Station



HOLARGOS Station

ATTIKO METRO S.A.

NEW EXTENSIONS (under tendering process)





NEW EXTENSIONS (under tendering process)

- Haidari Piraeus: 160,000 additional passengers / day
- + 7.5 km \Rightarrow 67.1 km of network in total
- + 6 stations \Rightarrow 47 stations in total

The first phase of the Tender has been completed, while all candidates who had expressed interest were pre-qualified. The second phase of the Tender (submission of financial offers) shall commence in June 2008. It is anticipated that the Tender will be completed at the end of 2008 (on condition that no objections, appeals, etc. are filed by the bidding technical companies), while the construction of this extension of Athens Metro Line 3 will commence right afterwards.





FUTURE EXTENSIONS – LINE 4

- Line 4: over 400,000 additional passengers / day
- Provide transportation service to densely populated areas of the city (Galatsi, Kypseli, Pangrati, Kaissariani, Zografou, areas adjacent to Kifissias Avenue, etc.).
- Provide transportation services to many important facilities: Hospitals (Paidon, Laiko), University Foundations (University Campus, Technical University Campus, University & Technical University in the city center) and Courts.
- 3 new correspondence services with the existing Metro lines (Line 3 : KATEHAKI, EVANGELISMOS & Line 2: PANEPISTIMIO) and one new correspondence with ISAP line (MAROUSSI Station).
- + 20.9 km \Rightarrow 88 km of network in total
- + 20 stations \Rightarrow 67 stations in total



LINE 4 - FUNDING

- Line 4: Funding the Project through the securitization of Attiki Odos future toll revenues is under consideration
- Advantages of funding scheme:
 - "Polluter pays principle" "Dirty car" pays for "green Metro" as revenues raised from Attiki Odos are used to fund capital expenditure of Metro Line 4
 - Readily available funding
 - Value for money for the State
 - No burden on public deficit.





COMPREHENSIVE TABLE (Project Details)

	Metro Underground Lines (km)	Metro Stations
Base Project (March 2004)	17.6	20
Olympic Games Extensions (2004)	8.5	4
Extension to Egaleo	4.3	3
In operation until the present date	30.4	27
Currently under Construction	8.5	10
Under the Tendering process	7.5	6
Metro Line to the Airport	20.7	4
Line 1 – ISAP	26	24
ATHENS METRO – GRAND TOTAL	93.1	71



TRANSFER STATIONS & PARKING FACILITIES FOR PRIVATE VEHICLES

EXISTING PARKING FACILITIES FOR PRIVATE VEHICLES & TRANSFER STATIONS TO/FROM BUS LINES

1. SYNGROU-FIX Transfer Station

- An underground car park area consisting of 6 levels, with a total capacity of 642 parking spaces
- OASA bus transfer station, which shall be the terminus for 1 bus line, while 15 other bus lines and 2 tramway lines shall pass through the transfer station.
- Shops

2. KATEHAKI Transfer Station

- An open-air car park area with a total capacity of 240 parking spaces
- OASA bus transfer station, where there are 5 bus line terminuses, while there are 10 bus lines passing through the transfer station

3. ETHNIKI AMYNA Transfer Station

- An open-air car park area with a total capacity of 300 parking spaces
- OASA bus transfer station, which shall be the terminus for 8 bus lines, while 12 other bus lines shall pass through the transfer station.

4. DOUKISSIS PLAKENTIAS Transfer Station

- Two (2) surface parking facilities with a capacity of 270 and 360 parking spaces, respectively.
- OASA bus transfer station, which shall be the terminus for 10 bus lines, while 5 other bus lines shall pass through the transfer station.

5. HALANDRI Transfer Station

- Surface car park area with a total capacity of 280 parking spaces

- OASA bus transfer station, which shall be the terminus for 3 bus lines and 2 trolley lines, while 1 more bus lines shall pass through the transfer station

6. DAFNI & AGHIOS DIMITRIOS / ALEXANDROS PANAGOULIS Transfer Station

Each one of these stations includes only one OASA Bus Transfer Station; in particular:

- DAFNI Transfer Station: terminus for 10 bus lines, while 7 more bus lines shall pass through this station

- AGHIOS DIMITRIOS / ALEXANDROS PANAGOULIS Transfer Station: terminus for 1 bus line, while 16 more bus lines shall pass through this station

TRANSFER STATIONS & PARKING FACILITIES FOR PRIVATE VEHICLES

UNDER CONSTRUCTION – 1.295 parking spaces

- HAIDARI Station : 380 parking spaces, Transfer Station
- NOMISMATOKOPIO Station : 630 parking spaces, Transfer Station
- KERAMIKOS Station : 285 parking spaces

NEW PARKING FACILITIES UNDER CONSIDERATION OR DESIGN – 7.430 parking spaces

- ETHNIKI AMYNA Station
- HALANDRI Station

ATTIKO METRO S.A.

- DOUKISSIS PLAKENTIAS Station
- ELEONAS Station 1
- AG. PARASKEVI Station
- HALANDRI Station
- ANTHOUPOLI Station
- ILIOUPOLI Station
- ALIMOS Station
- EGALEO Station
- ELEONAS Station 2
- HAIDARI Station
- ELLINIKO Station
- ARGYROUPOLI Station




ATHENS METRO METRO DEVELOPMENT STUDY

- Attiko Metro is currently updating the Metro Development Study, i.e. the Transportation Planning Study for Attica taking into consideration all the transport systems in the region.
- The Metro Development Study will examine alternative projects and programs and it will propose the Athens Transport Infrastructure Plan for the Attica Transportation System up to the year 2030.
- The Metro Development Study will justify and propose the new Metro lines required in the Athens metropolitan area.







A MODERN PROJECT IN THESSALONIKI

System Design & Functional Characteristics

- 13 center-platform modern Stations
 - Distance between Stations: 500-600 m.
 - Center platform length: 60 m.
- 9.6 km of the Line (with two-single track tunnels)
- 18 state-of-the-art fully automated, air-conditioned and driverless trains, with central control of the operation of all trains (presence of a well-trained attendant on-board).
- Designed transportation capacity: 18,000 passengers/hour/direction.
- Depot of an area of 50,000 square meters in the area of Pylaia (Votsi).
- Expected daily ridership: 250,000 passengers.



A MODERN PROJECT IN THESSALONIKI

System Design & Functional Characteristics

- PSN user-friendly system.
- Platform Screen Doors System in each Station, to operation "in coordination" with the Rolling Stock", through the Signaling System.
- Display of archaeological finds in central stations of the network.





A MODERN PROJECT IN THESSALONIKI

- Ensuring the construction through the appropriate new specifications, so that the Thessaloniki Metro be a contemporary, modern, state-of-the-art means of transport
- The Thessaloniki Metro is technologically superior than the Athens Metro
- Selection of the "cover and cut" method for the construction of the Stations, in view of limiting any disturbance caused to pedestrians and vehicular traffic in the streets of Thessaloniki





A MODERN PROJECT IN THESSALONIKI

- Thessaloniki is the only European city with a population over 1 million, that did not possess any fixed-track means of transport until the present date.
- METRO: The most important transportation project ever constructed in the city of Thessaloniki and the largest public project under construction in Greece!
- The Ministry of PEHODE and ATTIKO METRO S.A. proceed at an intensive pace to the construction of this complex project and keep on preparing designs concerning the extensions of the network, so that a comprehensive Metro network be developed able to serve as many areas as possible in the city of Thessaloniki.
- The funding for the Thessaloniki Metro construction has been secured by the European Investment Bank (loan with favorable terms amounting to 550 million €) and by the 3rd CSF (250 million €).



NEW TENDERING OF THE PROJECT

- The scope of the tender that commenced in summer 2004 and was completed in 2005
 was the Design, Construction and Commissioning of the Metro. The Contract includes all
 Civil Works, Railway and Electromechanical Systems, the Depot, the Supply of the Rolling
 Stock, the Commissioning and Maintenance of the Project for a three-year period.
- ✓ The budget of the project amounts to 1.052 billion \in .
- The duration of the construction of Thessaloniki Metro until its completion is defined at 6.5 years as of the Contract signing (April 2006).



STATIONS DESIGN – Perspective Drawing of a Typical Station

ATTIKO METRO S.A.







EXTENSIONS OF THE PROJECT

- ✓ The extension of the Line north-west bound and south-east bound has already been considered necessary.
- Having considered the possibility for the extension of the Line, Attiko Metro confirmed the technical feasibility for the development of a branch to the North-west (Stavroupoli) from Democratias Station and to the South-east (Kalamaria) after Patrikiou Station.
- Attiko Metro has included into the Base Project the minimum necessary infrastructure required, so that, in the future, the possibility to develop Metro branches without interrupting the operation of its basic line, may exist.



EXTENSIONS OF THE PROJECT

Phase A of the Thessaloniki Metro Extensions Program shall include the construction of two (2) extensions, namely:

- North-west bound to Stavroupoli : 5 km. of the line with 5 new stations
- South-east bound to Kalamaria : 5 km. of the line with 5 new stations.

Topography surveys and Geotechnical investigations are currently on going for the two extensions and the design studies are expected to start right afterwards.

For the Extension towards Kalamaria, a funding amounting to 400 mil. EURO from the 4th CSF is expected.







PROJECT PREPARATION

- Early and sound preparation is an essential parameter for the successful implementation of projects.
- Preparation includes:
 - Careful and reliable planning well in advance, in order to identify, evaluate and finally select the most beneficial projects in respect of a well-coordinated Transportation Plan
 - Project Preliminary Design
 - Feasibility and Environmental Impact Studies based on the results of the aforementioned Planning and Preliminary Design Studies
 - General Final Design Studies and Technical Specifications
 - Tender Documents usually based on the General Final Design.



ADHERENCE TO GREEK & EUROPEAN LEGISLATION

Successful and positive outcome in mandatory controls/checking performed by 17 National and European independent bodies:

European Authorities

- 1. European Commission DG for Internal Market & Services
- 2. European Commission DG REGIO
- 3. European Court of Auditors
- 4. EIB
- 5. OLAF

Greek Authorities

- 6. Greek Parliament
- 7. Greek Civil Courts
- 8. Council of State
- 9. Court of Auditors
- 10. Managing Authorities of Operational Programs
- 11. Ministry of Economy General Secretariat of Investments & Development
- 12. State Committee of Fiscal Control
- 13. Revenue Office and Social Security Authorities
- 14. The Greek Ombudsman
- 15. Chartered Auditors
- 16. Independent Consultant of Infrastructural Quality Control
- 17. Independent Control Authority for Community Funds Management



PROJECT PREPARATION

PLANNING

- Attiko Metro has the capacity and experience for conducting Transportation Planning Studies for the Attica Region
- The first Planning Study (Metro Development Study) was carried out a decade ago (1995-1999) aiming to develop planning tools (models), Data-Bases and project priorities for medium and long-term planning (2001-2020)
- The Metro extensions already in operation, or under construction, or at the stage of procurement were selected and prepared based on the Metro Development Study
- Updating of the first Metro Development Study with new survey data is currently under preparation, aiming to plan for the period 2010-2030
- The objective for Attiko Metro is to "mature" the projects well in advance, even before securing financing for construction.



PROJECT PREPARATION

DESIGN

- Attiko Metro has the capacity and experience for conducting Metro design studies, although several studies are assigned through tenders to external consultants
- Preliminary or Conceptual design studies are usually carried out in-house in order to dictate the project basics (alignment, location of stations, sizing of infrastructure, quality and safety aspects, technologies for E/M systems, etc.)
- Experienced in-house consultants assist Attiko Metro personnel in the most critical design issues
- AM aims to tender the projects based on General Final Design, in order to compromise between detailed description-design and the time required for design studies
- The Detailed Final Design is conducted by the Contractors under the supervision of Attiko Metro.



PROCUREMENT

- Attiko Metro is aiming to full adherence to Greek and European Legislation in tendering the projects and to secure the necessary conditions for high level competition and equal opportunities for all bidders
- Attiko Metro's positions were justified or confirmed by Greek and European Authorities and Courts in all cases, for more than one hundred objections, appeals, interim measures, complaints made by bidders for the Athens extensions (Phase B) and Thessaloniki Metro projects
- Successful completion of the above tenders with a total budget of 1.7 bil. euros in less than 18 months.



- Athens Base Project Management Structure Characteristics:
 - Lumpsum Turnkey Project assigned to a large consortium of 23 companies
 - AM organization was oriented predominately towards supervising this Contract assisted by Management Consultant (Bechtel)
 - All coordination issues, responsibilities and risks mainly to the Contractor

Low flexibility, difficult coordination among the Contractor's individual companies, reduced efficiency, delays



- A' Phase of Extensions Projects Structuring:
 - Breakdown of each extension to several CW contracts
 - Various E/M contracts for all the extensions
 - Separate Rolling Stock contract

Overall faster implementation of projects, coordination of multiple contractors by Attiko Metro, responsibility and risks mainly to Attiko Metro, more workload for Attiko Metro.



- B' Phase of Extension Projects Structuring:
 - One main contract for each extension including CW and E/M installations (excluding certain systems such as signaling and Rolling Stock)

Optimum balance for: fast implementation, workload for Attiko Metro, responsibilities, risks and technical coordination of the projects.

- Thessaloniki Metro Base Project:
 - Lumpsum Turnkey Project assigned to a Consortium of 5 companies
 - Separate Management Dpt. in Attiko Metro premises in Thessaloniki and in-house Consultant for the Project
 - Design supervision mainly in Athens premises.





- High Level of Service
- Socio-economic Effectiveness
- Effectiveness in Changing Travel Behavior
- Travel Time Savings
- Positive Impacts to the Environment
- Positive Employment Effects
- Revealing the Cultural Heritage
- Upgrading the urban areas near Stations





HIGH LEVEL OF SERVICE

- The Athens Metro comes first in Europe in the Citizens Satisfaction Index (CSI)
- One of the highest indexes in Europe in "Trips Reliability and Precision"
- Cleanliness of Stations and Trains at high levels
- Security and Safety in all areas of the METRO system
- High Standards in the provision of services to the Metro users (service availability, reliability, speed)
- Permanent exhibitions for displaying significant archaeological finds in 9 especially configured mini-museums in the Stations of the METRO network
- 21 works of art of distinguished Greek artists in 16 Stations.



SOCIO-ECONOMIC EFFECTIVENESS

ATHENS	IRR	B/C
Base Project	11,1%	2,1
D. Plakentias Ext.	7,2%	1,16
Egaleo Ext.	8,1%	1,32
Peristeri Ext.	15%	1,80
Elliniko Ext.	9,1%	1,50
Haidari Ext.	12%	2,9

THESSALONIKI	IRR	B/C
Base Project	12,5%	2,7



EFFECTIVENESS IN CHANGING TRAVEL BEHAVIOUR

- Public Transport vs. Private Modes Share in Athens
 - 1973 : 65% 35%
 - 1996 : 42% 58%
 - 2006 : 46% 54%

The radical change in travel patterns observed in Athens during the last decade is attributed to the introduction of the new Metro lines

• The above shift to PT was achieved although car ownership increased substantially.



PRIVATE VEHICLES / 1,000 inhabitants





EFFECTIVENESS IN CHANGING TRAVEL BEHAVIOUR

- Results for the Athens Base Project indicate:
 - 70.000 less trips/day to-from the Central Athens area
 - 560.000 veh. Kms/day less inside the Central Athens area
 - 8% of ridership are car drivers (park-n-ride) or car occupants (including kiss-n-ride).

Thus, reducing traffic congestion in the city center.





SOCIO-ECONOMIC IMPACT TRAVEL TIME SAVINGS

Estimates from the feasibility studies (based on Transportation model results) indicate significant travel time savings to all users of the Transport System, especially Public Transport users:

e.g.:

Project

Haidari ext. (1,5 km) Elliniko ext. (5,5 km) Haidari-Piraeus (7,5 km) Thessaloniki (9,6 km)

Pass. Hours/year

340,000 1.5 mil. 3.3 mil. 16 mil. (+ 9 mil for car and ex-car users)



POSITIVE IMPACTS TO THE ENVIRONMENT

- Reduction in Kms traveled by private vehs results in energy savings, reduction of air pollutants and traffic accidents
- Before-after opening the Athens Metro Base Project, the emissions measured in Athens for the traffic related pollutants indicate:
 - CO : -7%
 - NO₂: -7%
 - Ozone (O₃) : -12%
 - Smoke (TSP) : -5%
- Estimates for the Thessaloniki Base Project indicate the following emission reductions:
 - CO : -830 tn/year
 - CO₂: -42,000 tn/year



POSITIVE EMPLOYMENT EFFECTS

Increase in job positions for the construction of the projects (construction period) and for the operation of the system (permanent Job Positions):

	Job positions/year	
	Construction	Operation
Athens Base Project	2.700	700
Athens Extensions (incl. under construction)	3.800	820
Haidari-Piraeus ext.	1.600	230
Thessaloniki Base Project	2.500	360



Joint Effort

Attiko Metro, Olympic Metro, Ministry of Culture

The biggest Excavation Project ever in Athens

- 70,000 sq.m. of archaeological investigations
- 30 centuries' antiquities found

All periods of the city of Athens history

From Neolithic period up to Modern era

Project additional Cost & Delay

- 75 mil Euro
- 2 years





Archaeological excavations at SYNTAGMA Station



Archaeological excavations at MONASTIRAKI Station





SYNTAGMA Station – Display of archaeological finds

"Amalias" Shaft – Display of archaeological finds







AKROPOLI Station – Platform Level



DAFNI Station - Stratigraphy
SOCIO-ECONOMIC IMPACT

UPGRADING THE URBAN AREAS NEAR STATIONS Accessibility – Pedestrians



ATTIKO METRO S.A.

KATEHAKI Station Calatrava Pedestrian Bridge



HALANDRI Station Pedestrian Bridge



SOCIO-ECONOMIC IMPACT

UPGRADING THE URBAN AREAS NEAR STATIONS Urban Design - Improvements



Kakari Square (Ag. Dimitrios)



Vouliagmenis Shaft (Ag. Dimitrios)