



REPUBLIC  OF CYPRUS

MINISTRY OF COMMUNICATIONS AND WORKS
PUBLIC WORKS DEPARTMENT



THE CONSTRUCTION OF THE LEFKOSIA (NICOSIA) SOUTH ORBITAL MOTORWAY

Euro Asian Transport Links Project
Joint Workshop on Financing Transport Infrastructure
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The Republic of Cyprus



- ➔ **Island country** in the Eastern Mediterranean Sea with a population of 850,000 and a total area of 9,251 km².
- ➔ Situated at the **cross-roads of three Continents**: Europe, Asia and Africa.
- ➔ Located to the east of Greece, south of Turkey, west of Syria and Lebanon, northwest of Israel, and north of Egypt (Suez Canal).
- ➔ **Member State** of the European Union since 2004 and the Eurozone Area since 2008.
- ➔ International passenger and freight transport **exclusively** by air and sea.

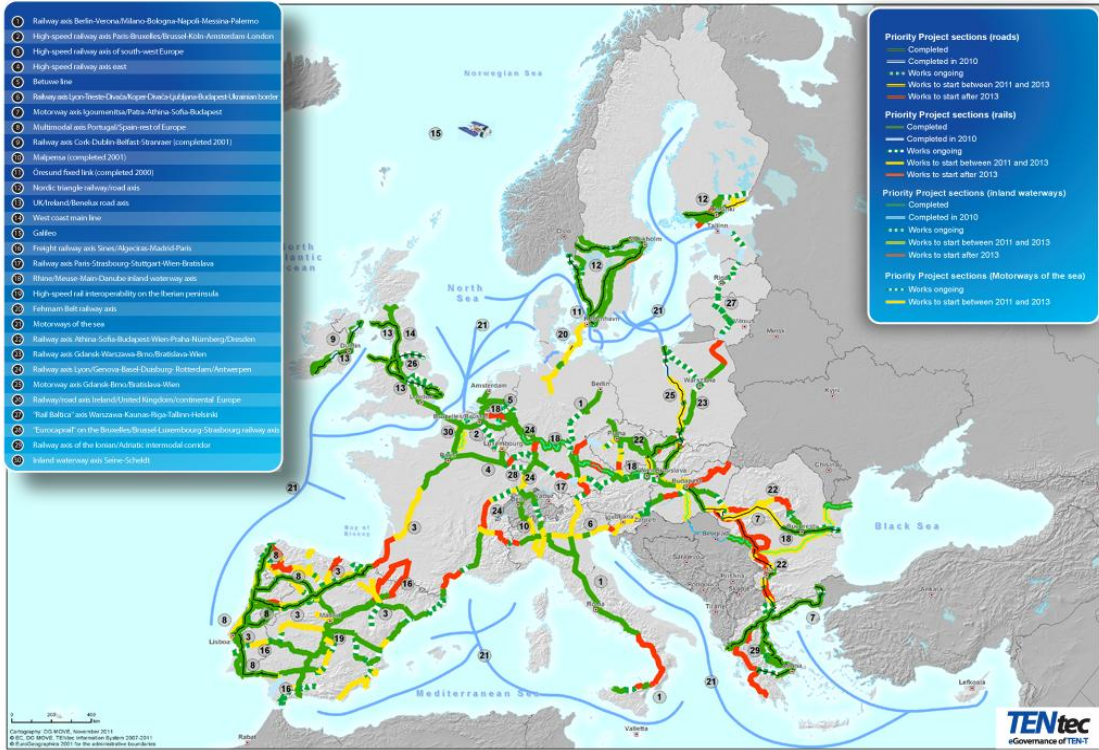
- ➔ The non feasibility of establishing and operating a railway network imposes **full reliance on road transport**, a fact which dictates the construction of a modern, safe and efficient road network.





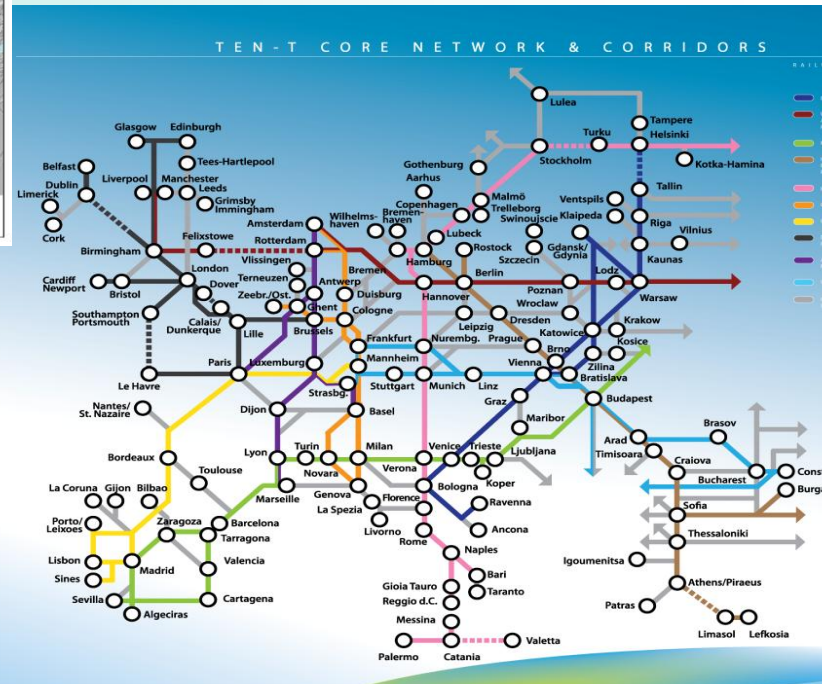
Trans-European Transport Network (TEN-T)

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➔ The new **TEN-T** Guidelines Regulation and the Connecting Europe Facility (CEF) Regulation will set out as from 2014, an operational instrument to implement the Core Network in the form of **Core Network Corridors**.

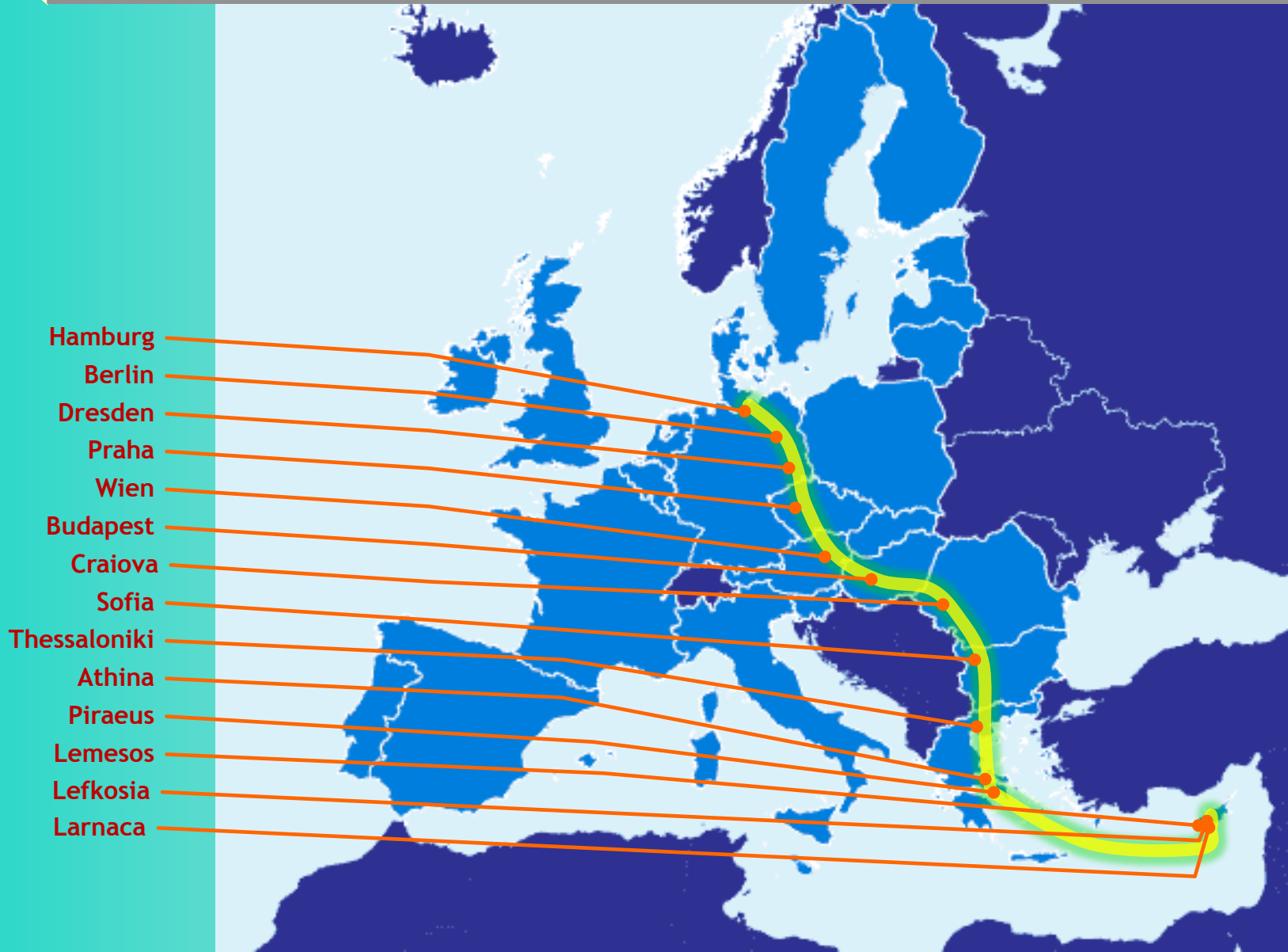
- ➔ 10 Core Network Corridors have been set up to replace the 30 existing TEN-T Priority Projects.
- ➔ The necessary identified infrastructure projects of these Core Network Corridors should be developed in such a way as to eliminate bottlenecks, bridge the missing links and alleviate any cross-border problems.





4th Core TEN-T Corridor - Orient/East-Med

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Corridor Countries:

- Germany
- Czech Republic
- Slovakia
- Austria
- Hungary
- Romania
- Bulgaria
- Greece
- Cyprus





Aim of this Project

To connect the Lefkosia – Lemesos A1 Motorway (4th Core TEN-T Corridor), which is the **main access from the ports and airports**, to the Industrial areas in the suburbs of Lefkosia, bypassing the City Centre and residential areas.





Current Situation

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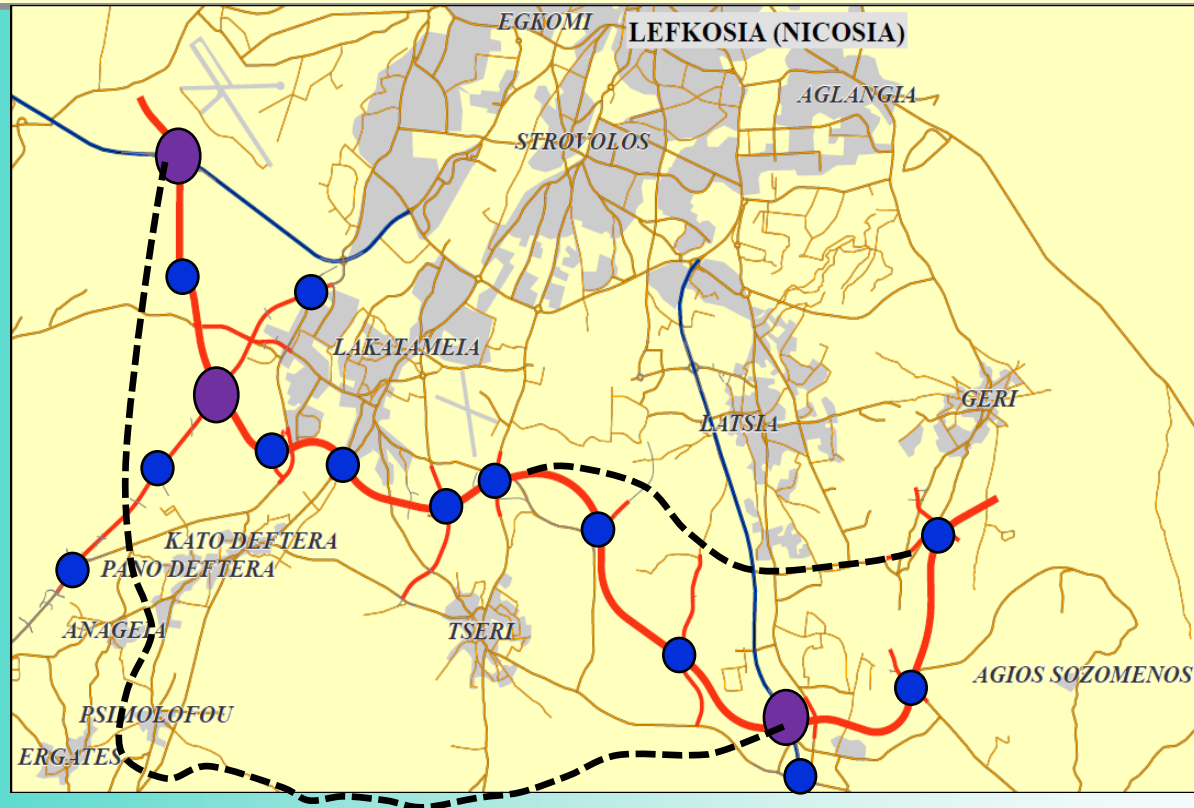


At present, access from/to the **ports and airports** from/to the industrial areas in the suburbs of Lefkosia along the TEN-T network suffers from delays and safety problems, as vehicles (mainly H.G.Vs) need to **enter the city of Lefkosia to access the industrial areas and to travel from east to west.**





Alternative Routes

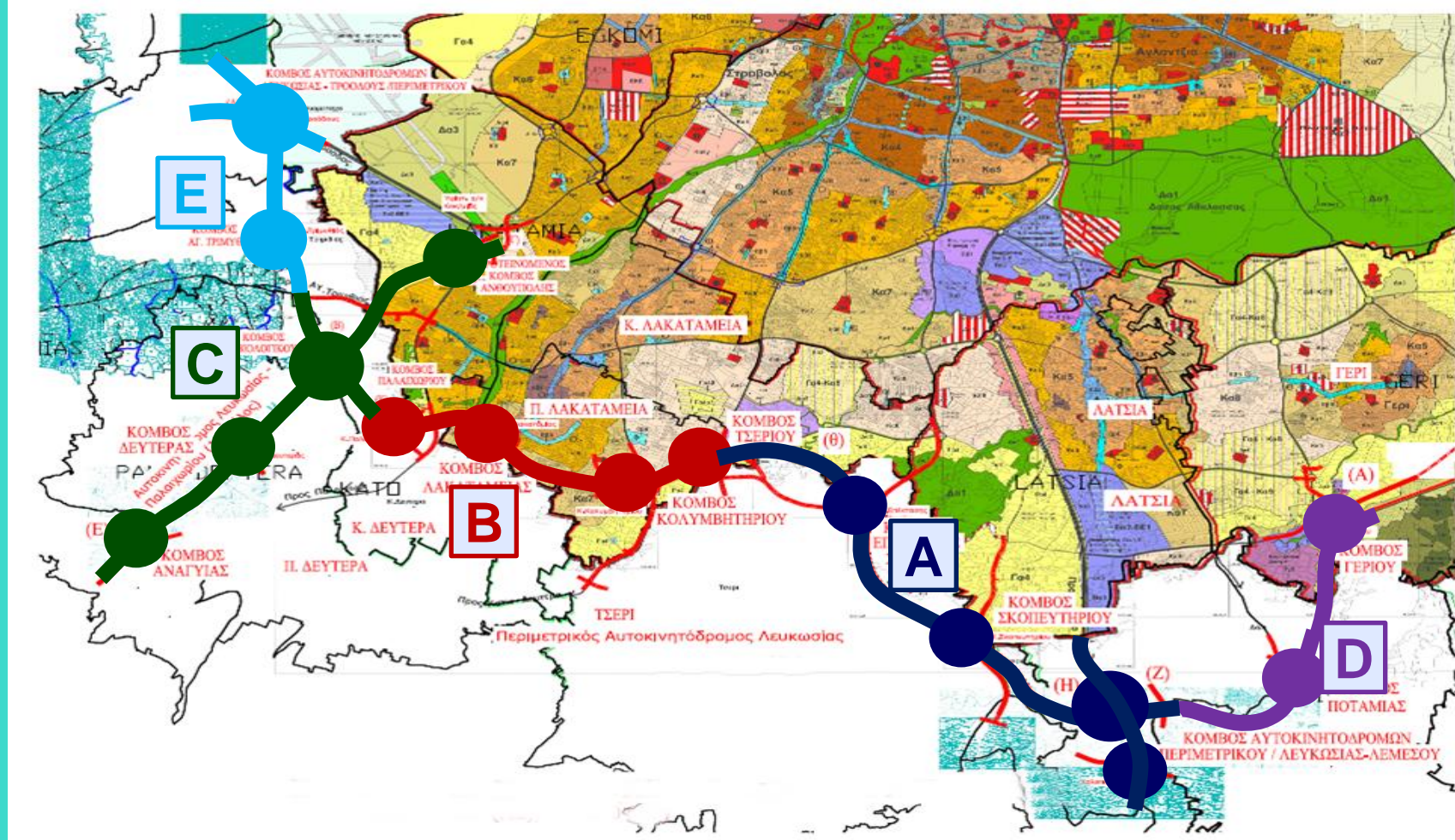


- ➔ For the selection of the alignment, three alternatives were evaluated through a combined Techno-economical Assessment Study and an Environmental Impact Assessment Study which included also a Traffic Model Study and a Preliminary Geometrical Design.
- ➔ A comprehensive dialogue was developed with the local authorities and public consultation procedures took place including public hearings.





The New Road Alignment and the city of Lefkosia



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➔ The Detailed Design Study is co-financed (50%) by the European Union (TEN-T funds).



Co-financed by the European Union Trans-European Transport Network (TEN-T)





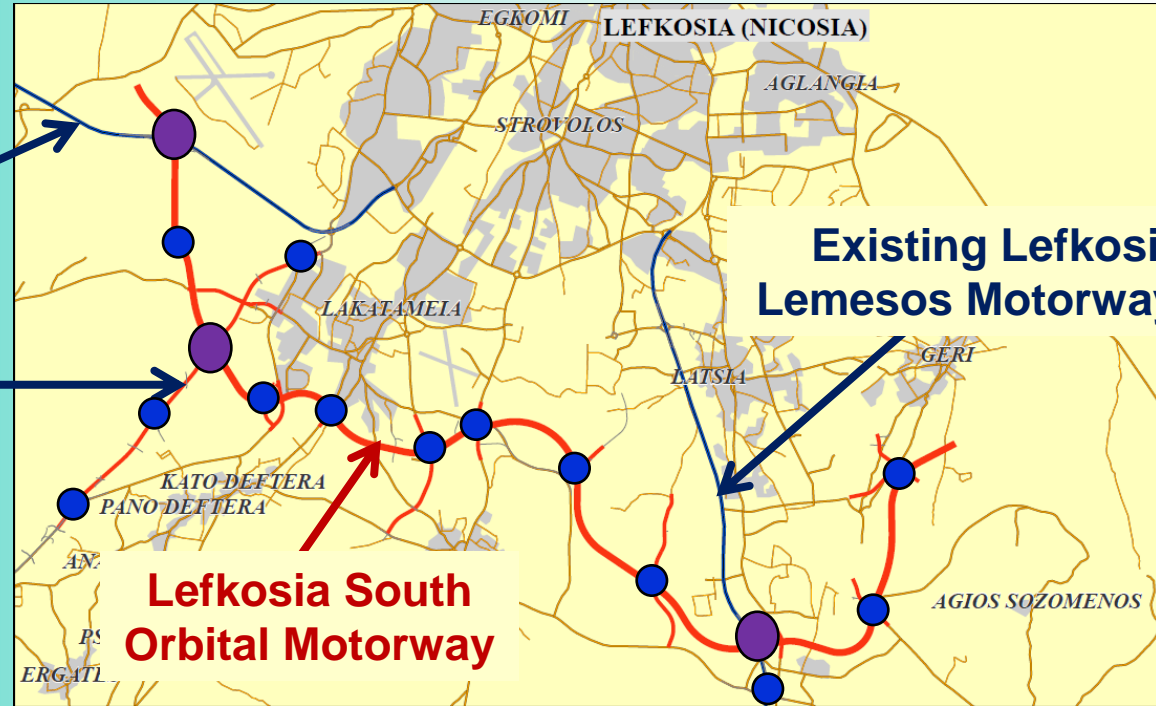
Description of the Proposed Road Network

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Existing Lefkosia – Deneia Motorway (A9)

Lefkosia – Palehori Motorway (first phase of the included in the design)

Existing Lefkosia – Lemesos Motorway (A1)



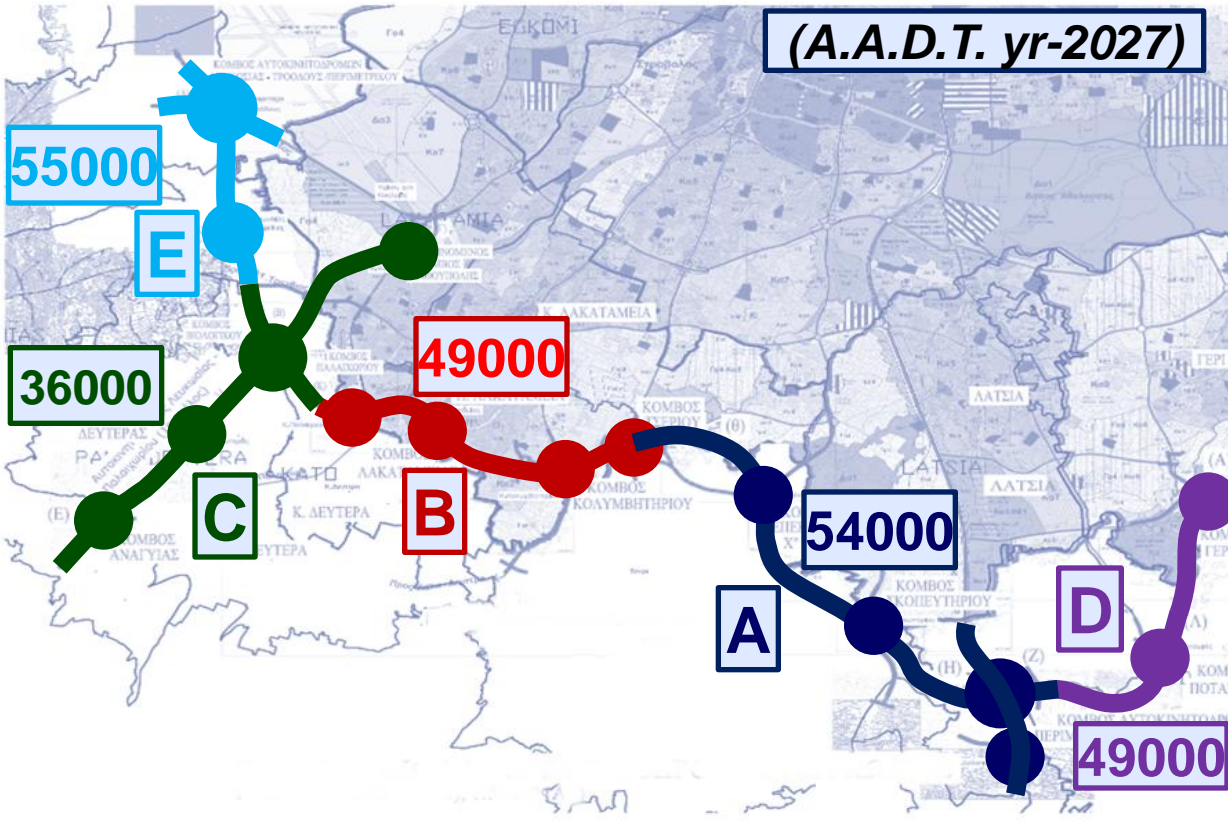
- ➔ Connects the Lefkosia - Lemesos (A1) Motorway to the south and east, to the Lefkosia – Deneia (A9) Motorway and to the proposed Lefkosia – Palehori Motorway to the west.
- ➔ Connects the main and secondary roads that radiate from the center of Lefkosia to the Motorway system (TEN-T network) through a series of 16 proposed grade-separated junctions.





Five Geographically Separated Design Phases

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- ➔ **Design Phase A:**
- 8 km motorways,
 - ~10 km secondary roads,
 - 4 grade sep. junctions, including a cloverleaf interchange,
 - tunnel 660 m..

- ➔ **Design Phase B:**
- 5,7 km motorways,
 - ~4,5 km secondary, 3,2km secondary road above a cut and cover section,
 - 4 grade sep. junctions.

- ➔ **Design Phase C :**
- 7 km motorways,
 - ~4 km secondary,
 - 4 grade sep. junctions including a cloverleaf interchange with side roads.

- ➔ **Design Phase E:**
- 2,5 km motorways,
 - ~2,5 km secondary,
 - 2 grade sep. junctions, including a cloverleaf interchange.

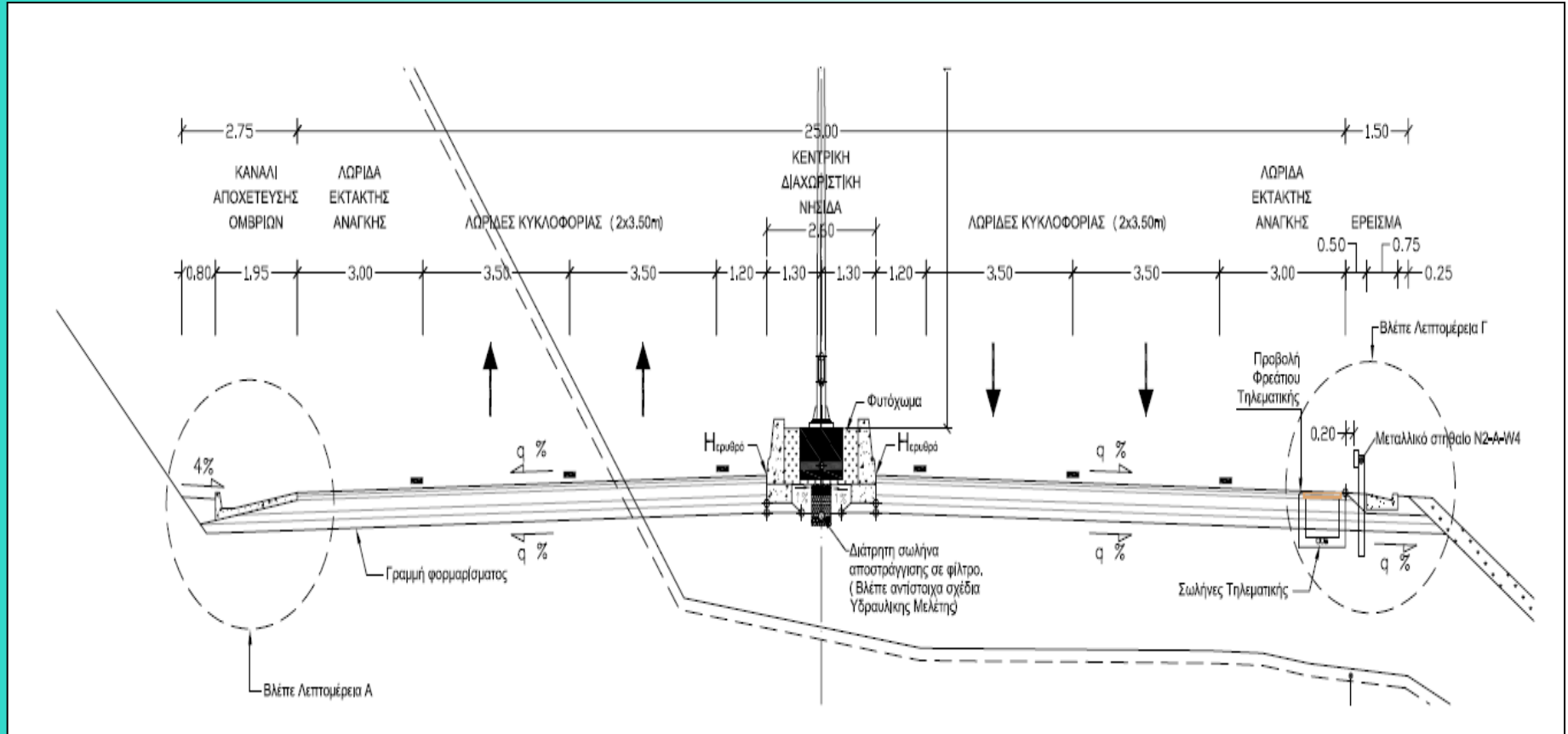
- ➔ **Design Phase D:**
- 5 km motorways,
 - ~ 4 km secondary road network,
 - 2 grade sep. junctions.





Typical Cross Section of the Motorway

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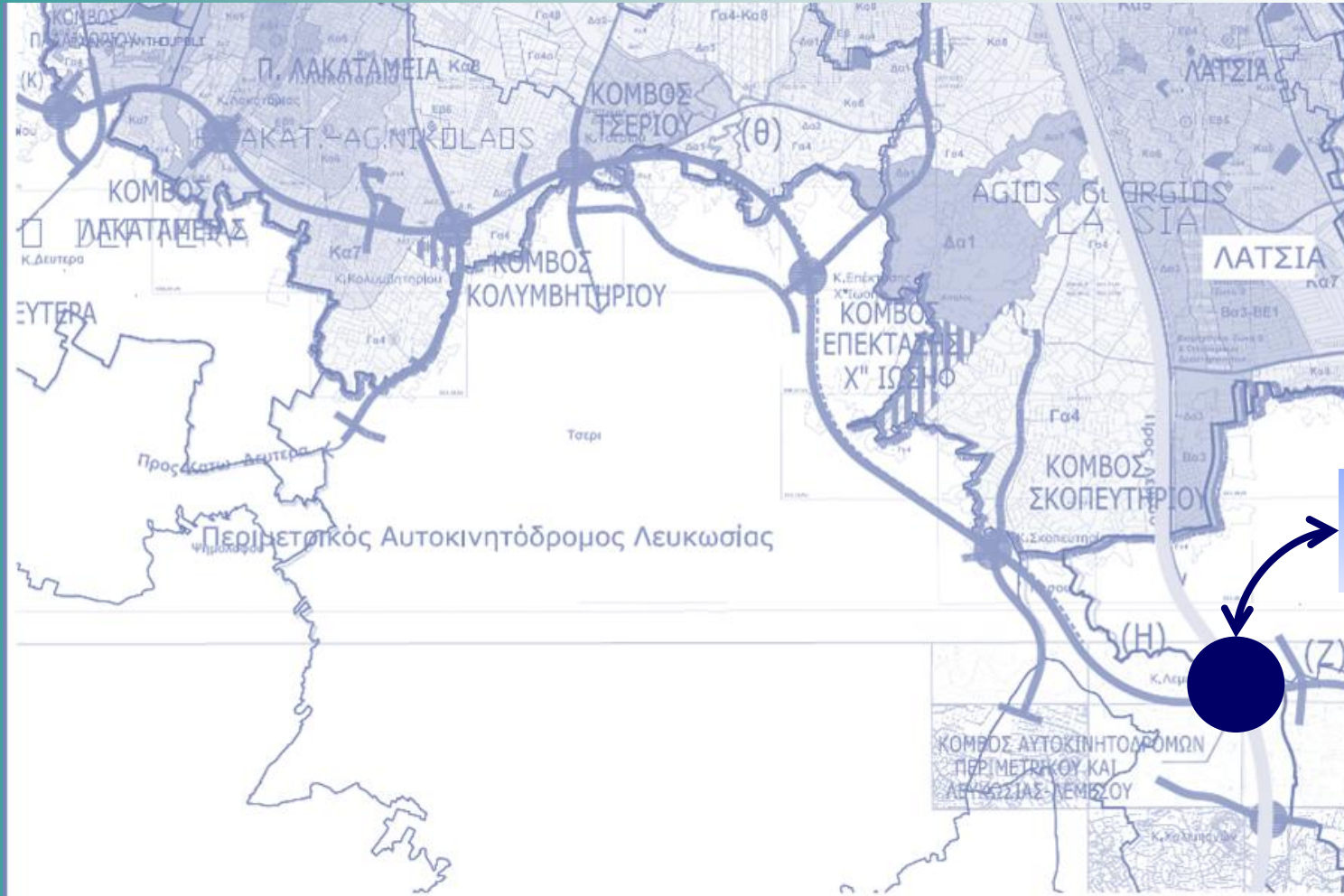
Typical Section of the Motorway: Two 3,5m-wide lanes per direction, 3m-wide shoulder, 1,20m-wide hard strip and a 2,6m-wide central island.





Key Features – “Lemesos Junction”

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“Lemesos Junction”

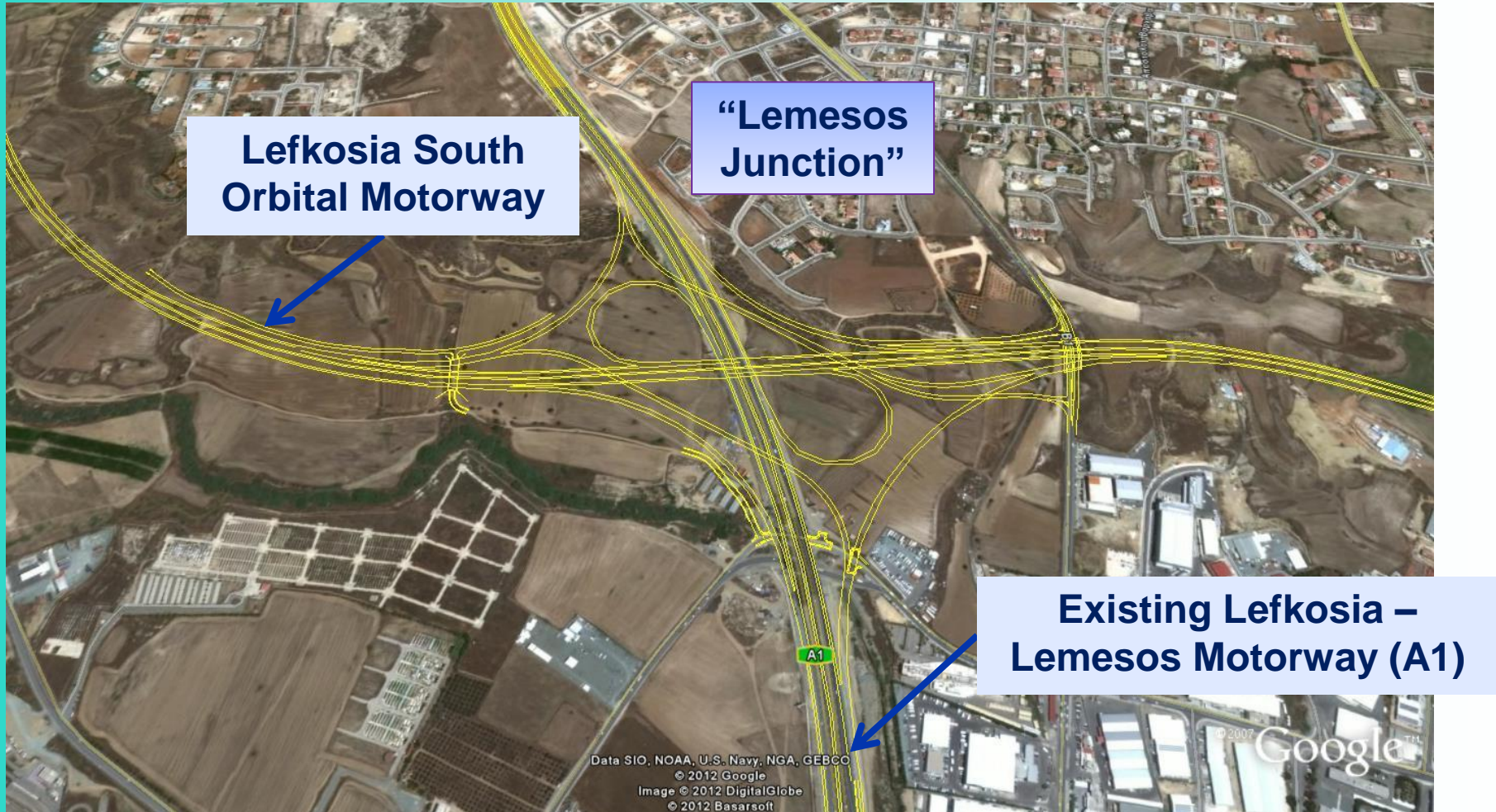
Cloverleaf interchange between the Lefkosia South Orbital Motorway and the existing Lefkosia - Lemesos Motorway (“Lemesos Junction”)





Key Features – “Lemesos Junction”

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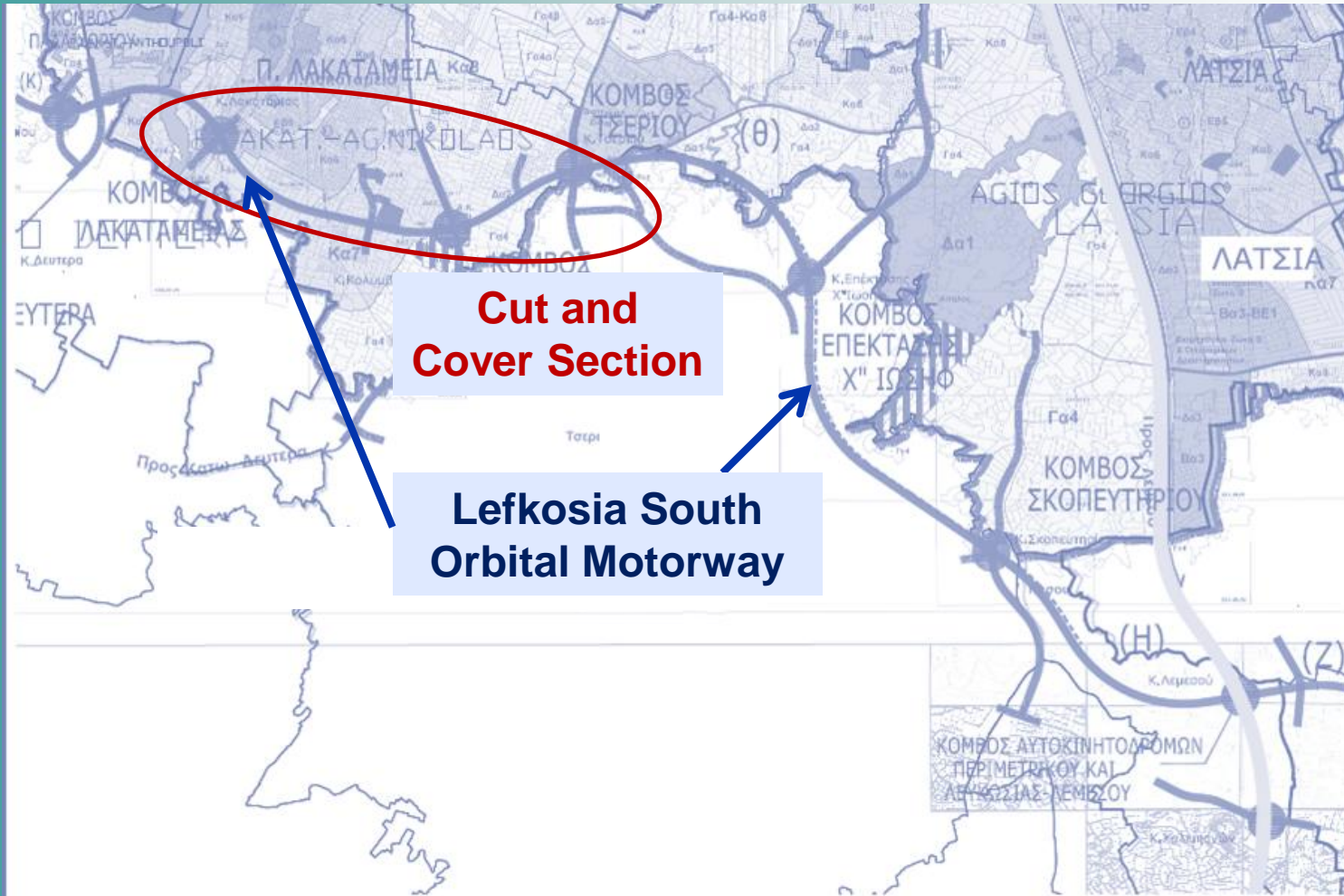


Cloverleaf Interchange between the Lefkosia South Orbital Motorway and the existing Lefkosia-Lemesos Motorway. *(Image from Google Earth)*



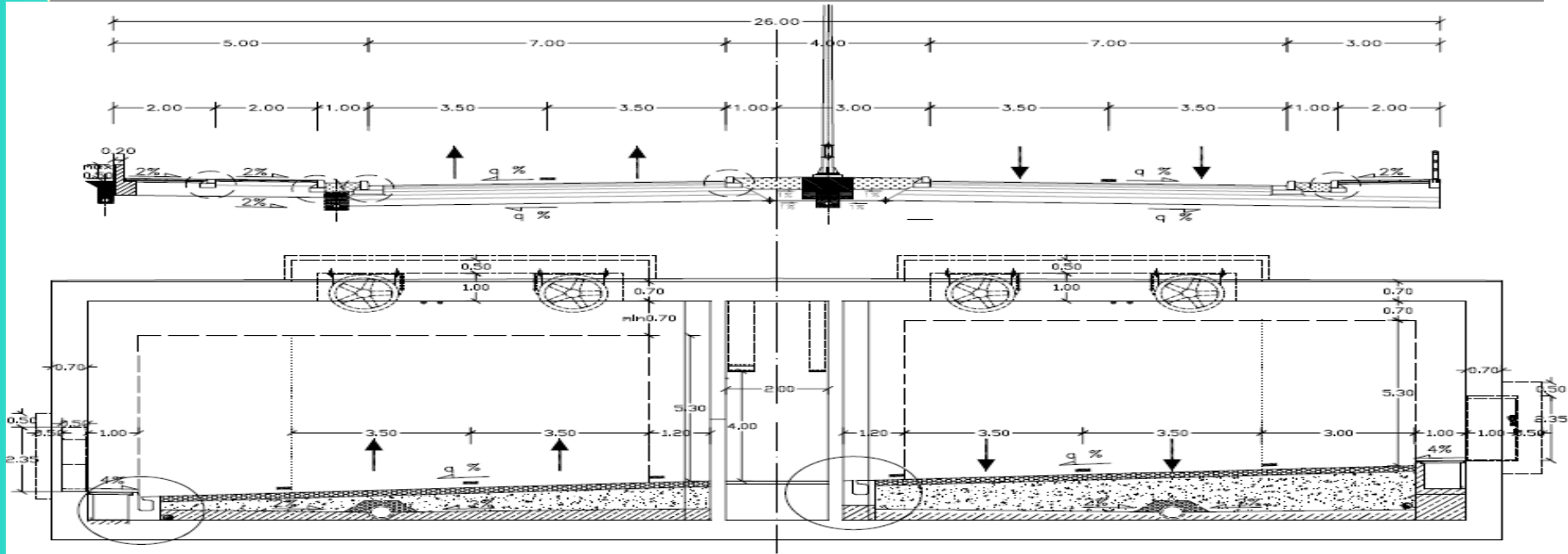


Key Features – Cut and Cover Section





Typical Cross Section at the Cut and Cover Section



Cut and Cover Section (3,2 km in length):

- Motorway maintaining its typical cross section (**two** 3,5m-wide lanes per direction, 3m-wide **shoulder**, 1,20m-wide **hard strip** and a 4m-wide **central island**), with an additional **raised sidewalk** of 1m nominal width.
- The secondary road on top has **two** lanes per direction, a **central island**, a 1m-wide **verge** & 2m-wide **sidewalks** on each side, and a 2m-wide **cycle track** on the north side.





Expected Benefits of this Project (1)

- ➔ **Enhances interconnections** between Member States, since the Orient/East-Med Core Network Corridor will become fully operational in the territory of Cyprus. The Lefkosia South Orbital Motorway is the only missing link of this Corridor in the territory of Cyprus.
- ➔ Is a **vital missing link** that will connect three Motorways (Lefkosia-Lemesos Motorway, Lefkosia- Deneia Motorway and Lefkosia- Palehori Motorway) in the island.
- ➔ Connects the international gates of Cyprus (**ports and airports**) with the main industrial and logistics centres.
- ➔ Acts as a **bypass for the city of Lefkosia**, capital of the island with a population of 250.000, by supporting the heavy-goods-vehicles' through-movements, contributing to the elimination of bottlenecks and traffic congestion within the urban area in accordance to Europe 2020.





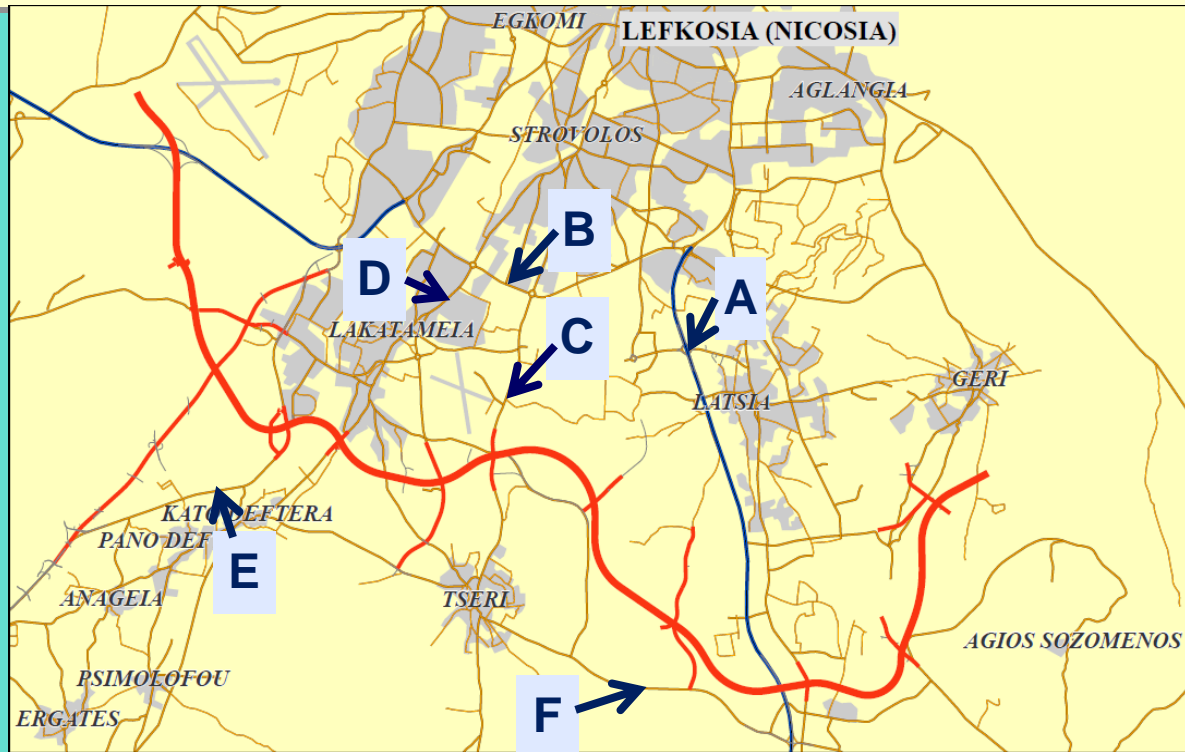
Expected Benefits of this Project (2)

- ➔ Allows for **better distribution** of the traffic load over the different entrance roads to and from Lefkosia and greatly improves the movements from **east to west** in the greater Lefkosia area.
- ➔ Offers **sustainability** of transport and significant improvements in the **environment**, by relieving the residential areas of air pollution, traffic noise and visual intrusion.
- ➔ **Reduces unnecessary movements** of vehicles, especially H.G.Vs, from/to the Lemesos Port to/from the Capital. It will eliminate the need for traffic to enter the city of Lefkosia, especially relieving the Lemesos – Lefkosia (A1) Motorway (~29%) which is the main entrance to the City. In the radial and tangential roads of the secondary network, which suffers from significant delays and congestion, a relief of 15-20% is expected.





Expected Benefits of this Project (3)



➤ Reduction in Traffic Flows:

- | | |
|--|----------------------------------|
| A. Lefkosia – Lemesos (A1) Motorway: | -19000 AADT (-29%) |
| B. Spirou Kiprianou Avenue: | -9000 AADT (- 15-20%) |
| C. Tseriou Avenue: | -3800 AADT (- 15-20%) |
| D. Makariou Avenue (Lakatamia area): | -4500 AADT (-14%) |
| E. Lefkosia - Palehori Road: | -5000 AADT (-30%) |
| F. Road Connecting Tseri & the Lefkosia – Lemesos M/way: | - 7000 AADT (-30%) ¹⁸ |





Expected Benefits of this Project (4)

- ➔ Improves the levels of **road safety** (eliminates rat running, removes H.G.V. traffic etc.) – Pan-European Goal for Road Safety.
- ➔ **Reduces travelling cost and time** within the traffic model area by up to 26% (2027) compared to the do-nothing scenario.
- ➔ Increases significantly the **capacity** of the road network and also improves speeds, offering substantial benefits in cohesion, **competitiveness** and the economy of the area.
- ➔ Improves **accessibility** and connectivity in the areas surrounding the greater Lefkosia region (population 400.000).





Expected Benefits of this Project (5)

- ➔ Establishes better **interconnections** within nine municipalities and tens of communities.
- ➔ The Lefkosia South Orbital Motorway will be supported by high technological and innovative safety and management traffic systems. These systems will enhance *further* the **safety** and the security as well as increase the **capacity** of the road network while at the same time providing accurate and timely travel information to the road users.





Social and Economic Impact of this Project

- *The completion of the project will attract the private sector to invest in the area, offering substantial benefits for regional and local development.*
- Apart from general economic benefits, due to the **improved mobility and safety** (increase in mean travelling speed, reduction in travel time, reduction in accidents and the associated costs) it will:
 - ▶ **attract people to live and work in the nearby areas due to the improved accessibility,**
 - ▶ **attract investments by creating new businesses in the nearby industrial areas and logistics centres,**
 - ▶ **create new jobs and increase the employment due to the attraction of investments. Significant increase in the employment is expected and during the construction of the Motorway.**





Techno-Economical Analysis

- ➔ The basic results of the **Techno-economical Assessment Study** are presented below (assessment period 2007-2027):
 - ▶ Net Present Value (NPV) - € 286,05 Mil. (5% rate of interest),
 - ▶ Internal Rate of Return (IRR) - 17%,
 - ▶ Present Value of Benefits/ Present Value of Costs - 1,39 (5% rate of interest),
 - ▶ First Year Benefit - € 28,55 Mil. (5% rate of interest).

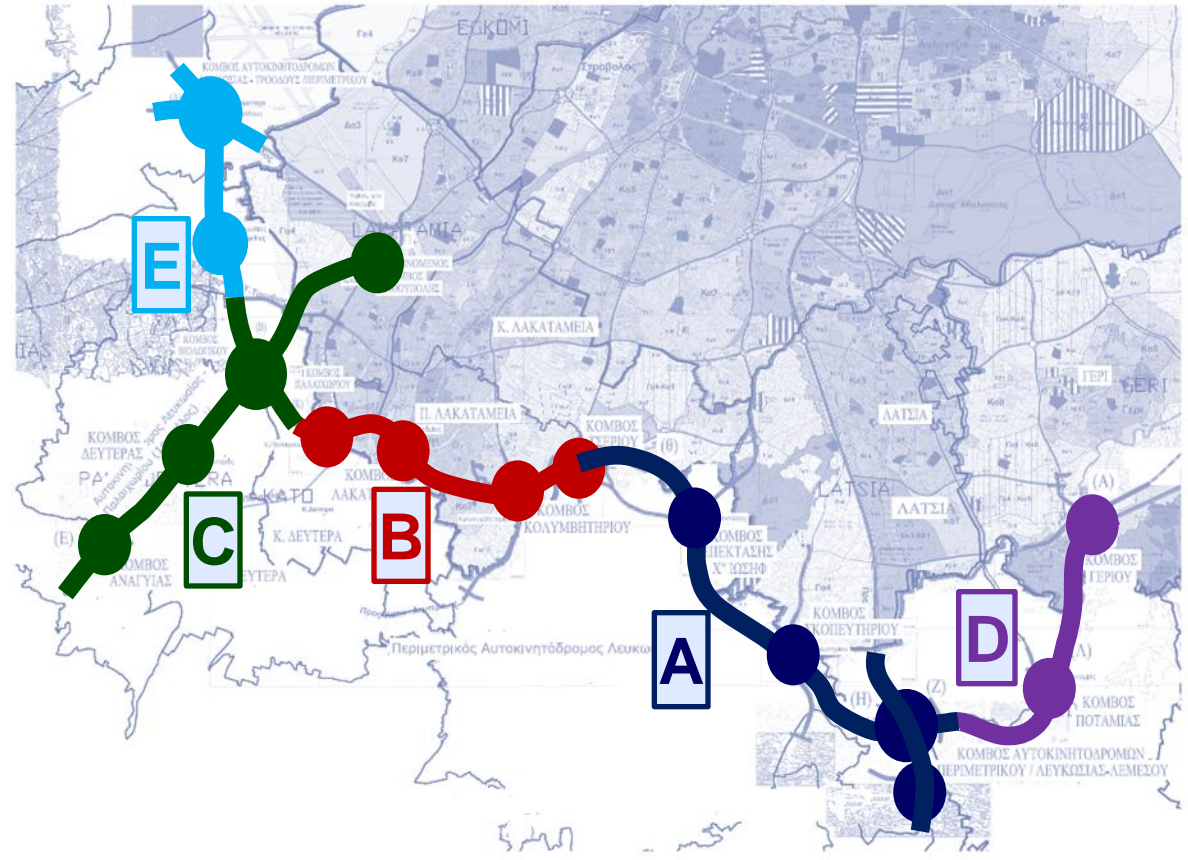




Estimated Construction Cost

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Design Phase	Construction Cost estimated at Design Phase (Mill. €)
A	80
B	130
C	90
D	35
E	55



- ➡ Construction in Phases planned to commence in 2015.
- ➡ Phases A and B are a priority.
- ➡ Co-financing by the European Union (€50 million - CEF).





Thank you for your attention...

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