



OLYMPIA ODOS HYBRID DISTANCE BASED TOLLING SYSTEM. EMPOWERING REGIONAL MOBILITY THROUGH INNOVATION IN TOLLING

Konstantinos Papandreou
CEO,
Olympia Odos Operation S.A.
kpapandreou@olympiaoperation.gr
+30 22960 95400

Hosted by



Contents

A. Brief Description of

- i. Olympia Odos Motorway
- ii. Tolling Regime
- iii. ETC / Hybrid Distance Based System (DBS) –Video

B. Impact of Hybrid Distance Based System on traffic

- i. Methodology
- ii. Macroscopic Data Comparison
- iii. Analysis per Charging Zone
- iv. Impact of Hybrid - Summary

C. Next Steps

D. Conclusions



The Olympia Odos Project



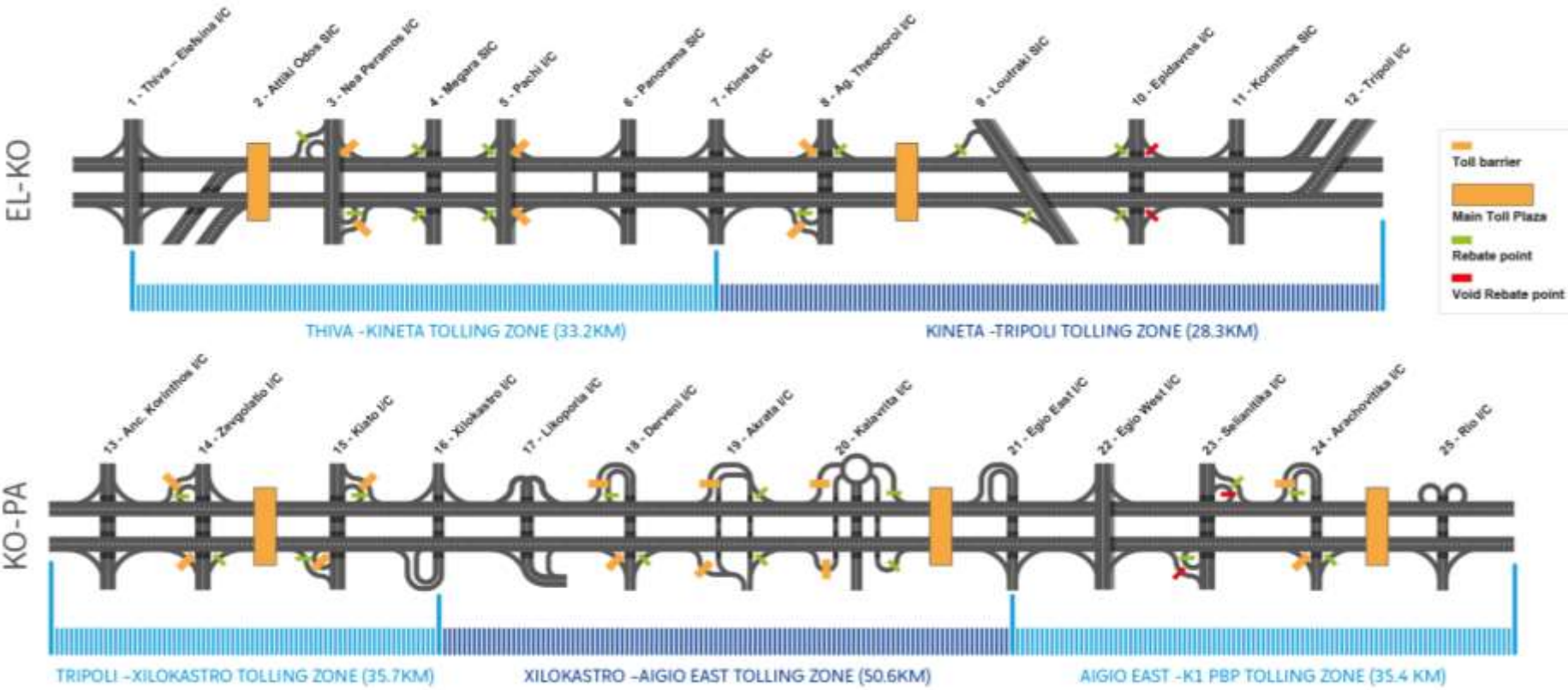
Section	Elefsina korinthos – Patra (existing Motoway)	Patra – Pyrgos (under Construction)
Length (km)	202	75
Interchanges	29	8
Over/Under passes and Bridges	322	27
Tunnels (Branches)	18 (29)	-
Tunnels Length (km)	25,6	-
Culverts	369	150
MSS	6	2
Technical Bases/TMC	4/2	1
AADT per direction	20.000	2.500
Mainline/Ramp Toll Plazas	5/18	2/4
Hybrid System Gantries	30	12

Athens

Services

- 37 Interchanges/Exits
- 5 Technical bases
- 7 Frontal Toll Stations
- 16 Motorists Service Stations
- 2+1 Traffic Management Centers
- 35 W.C.-parkings
- 5 Customer Service Centers
- 42 Hybrid gates

Olympia Odos Toll Regime & ETC Hybrid Configuration



- 5 toll charging zones
- 1 Mainline Toll Plaza / zone
- 9 pairs of ramp plazas (avoid by-pass of mainline plazas)

- ❑ Too costly to implement fully closed tolling scheme with conventional plazas
- ❑ Impossible to implement Free Flow ETC - non existence of enforcement legal framework
- ✓ **Combination of existing plazas with ETC Gantries= "Hybrid" toll system**

With pre-existing open (zone based) toll regime

- Relatively Unfair charging, for local users who do not travel the full length of each charging zone

With Hybrid

- 30 ETC gantries in 13 interchanges at selected entry/exit ramps (ETC antennas, License Plate Cameras, Vehicle Detection & Classification System, Overview Video cameras, Gantry controller, Power & Comm equipment)
- User pays the full toll amount with OBU at conventional Toll Plaza
- When OBU detected by gantry the system automatically calculates the amount for the distance not traveled
- Amount is returned to customer ETC account as a rebate - distance based charging achieved

Olympia Pass Hybrid Video



Impact of Hybrid- Methodology

❑ Comparison of Data between 2 periods

- Initial operation of 2021: 7 months period (Jun-Dec) without Covid travel restrictions
- Mature operation of 2022: 7 months period (Jun-Dec)

❑ Examination of

- Traffic data at on/off ramps where Hybrid System Gantries were installed vs. total motorway traffic
- Olympia Pass Traffic data at ramps where Hybrid System Gantries were installed vs. total O-pass traffic
- Before & After O-pass usage frequency & ETC penetration

❑ Analysis per Charging Zone

- **Transactions from the toll stations**
- **Traffic passages from gantries of the hybrid system**
- **Origin/ Destination data**
- **Transponder usage data** (frequency, origin-destination, etc).....



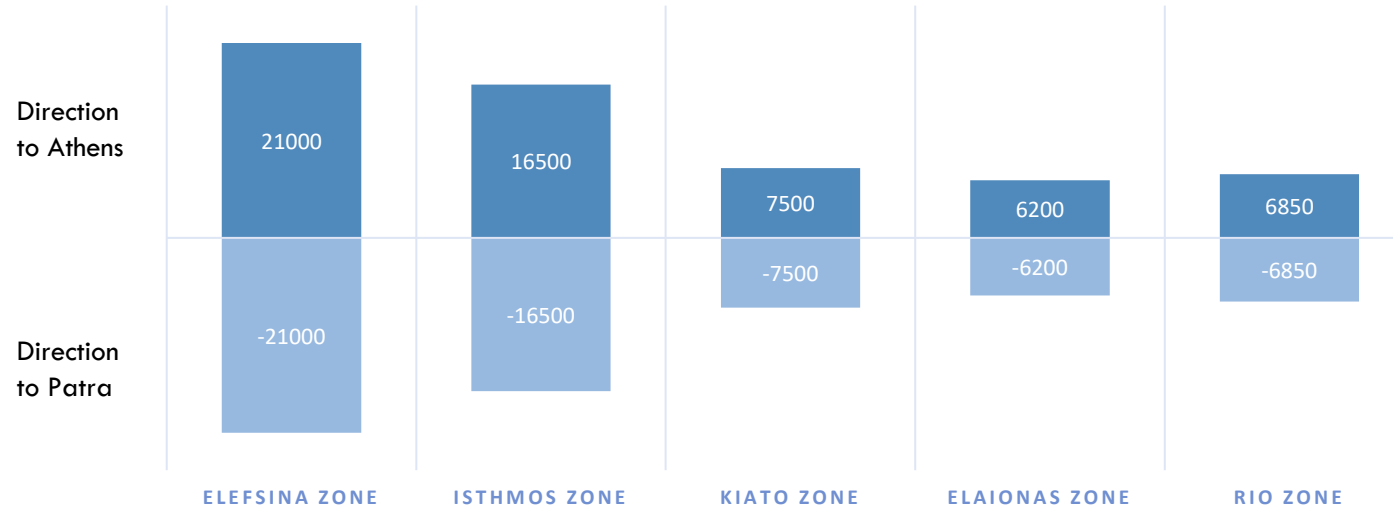
Impact of Hybrid - Macroscopic Data Comparison

- ❑ Total Traffic at all Toll plazas was slightly decreased by -1, 7%
- ❑ While Total Traffic at Exit/ Entrances where gantries installed was increased by 4,0%
- ❑ O-pass Traffic at all Toll Plazas increased by 8,8%
- ❑ O-pass Traffic at Exit/ Entrances where gantries installed increased by 26%
- ❑ The above shows clearly that some local trips have been shifted from local roads to the motorway, thanks to the benefits of the Hybrid System (reduced tolls for short distance journeys)
- ❑ At the same time, ETC penetration increased from 40% to 47%, compared to other payment methods (manual toll collection and automatic payment machines) mainly due to the wider acceptance of hybrid O-pass
- ❑ A significant increase (by 21%) of O-pass frequency of use for more than 20 transactions per month has been observed
- ❑ Local mobility (commuting and short distance travel) which mainly benefits from the Hybrid System was greatly facilitated, especially near the big cities
- ❑ While the local road network was significantly relieved



Impact of Hybrid - Analysis per Charging Zone

AADT per Direction



New Traffic	6%	1%	4%	3%	5%
Number of daily transactions	2.520	330	600	372	685

- ❑ 4.507 trips are benefitted daily, representing a 3,6% increase of total daily traffic at toll plazas
- ❑ However, pre-existing 0-pass users benefiting from hybrid toll discounts cause -4.6% Loss of revenue overall
- ❑ The total (blended) revenue loss (loss+ gains) is approx. -1,1%.

	ELEFSINA ZONE	ISTHMOS ZONE	KIATO ZONE	ELEONAS ZONE	RIO ZONE	TOTAL
Gain	5,8%	0,7%	3,5%	2,7%	4,9%	3,6%
Loss	-8,7%	-2,5%	-2,2%	-3,0%	-0,6%	-4,6%
Blended	-3,9%	-1,8%	0,6%	0,0%	4,4%	-1,1%

Impact of Hybrid - Summary

- ❑ Restores the injustices and provides a fairer tolling regime
- ❑ Attracts short-distance trips from the local network
- ❑ Attracts mainly commuters
- ❑ Improves local mobility
- ❑ Contributes at the increase of ETC payment methods
- ❑ Contributes to the reduction of traffic at the local network
- ❑ Contributes at the increase of road safety
- ❑ Opportunities for additional users/revenues that may even counterbalance the losses from lower tolls paid by pre-existing users



Future- next Steps

➤ Attracting new customers

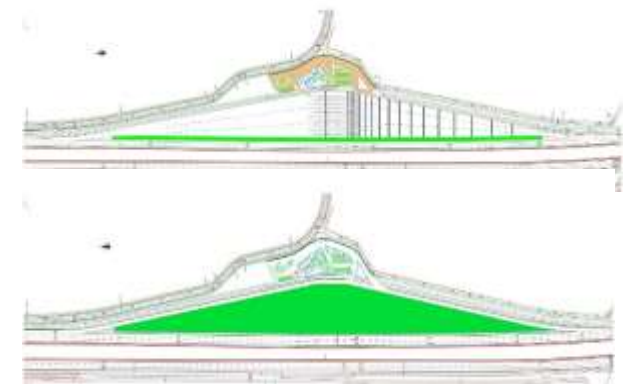
- ✓ The first findings are really quite impressive and encouraging about the penetration of the hybrid system in the local communities, but there is still great room for attracting new customers & further increasing the use of the motorway versus the local network (with more systematic campaigns towards the local communities) and such a way even to counterbalance any revenue losses due to pre-existing users who take advantage of the hybrid discounts.

➤ Expand to Patras-Pyrgos 75km section - under construction

12 gantries in 4 I/C's

➤ Hybrid can pave the way towards Free Flow ETC (political commitment required)

- ✓ Ph. 1: Hybrid Toll System (Aggressive ETC promotion to drastically increase penetration, Preparation of legal framework for free flow operation, enforcement & guarantee of lost revenue from violations)
- ✓ Ph. 2: Free flow for ETC users only (promotion of ETC continues, incentives for OBU holders Dedicated free flow lanes in existing toll plazas, Enforcement mechanism in operation)
- ✓ Ph. 3: Free flow ETC for all (ETC gantries in all Ramps and Mainline, OBU's for the vast majority of vehicles (nominal rates), Video Tolling for occasional users (with higher rates), Conventional toll plazas to be demolished)



Conclusion - Hybrid System Benefits

- It is the first distance based tolling system in Greece
- Is the most cost effective and fast track way to implement distance-based charging in motorways with existing conventional zone based open toll system, where free flow tolling is not yet a viable option
- Answers to the social demand for distance-based charging
- Makes ETC more attractive
- Larger urban areas benefit most
- An on going well designed and executed marketing campaign is paramount
- The first important step towards Free Flow, distance based Tolling
- It maximizes the utility of the motorway from a social point of view as well as from a financial point of view



THANK YOU



Only with
the OLYMPIA
PASS
transponder

Contact:

Konstantinos Papandreou

kpapandreou@olympiaoperation.gr

+30 22960 95400

Hosted by

