

ΕΓΝΑΤΙΑ ΟΔΟΣ Α.Ε. OPERATION – EXPLOITATION – MAINTENANCE DIVISION

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«ROUTINE MAINTENANCE MANAGEMENT SYSTEM  
(RMMS) OF THE EGNATIA MOTORWAY»

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## EGNATIA ODOS AE

- State-owned company
- Commissioned to construct, maintain and operate the Egnatia Motorway
- Part of the Trans-European Road Network
- Starts at the port of Igoumenitsa (Ionian sea, West) and  
Ends at Kipoi (Greek-Turkish border, East) – 680 km long, currently 350 km open to traffic
- Outsourcing of the routine maintenance works

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## RMMS

An integrated information system comprising computerized procedures used by motorway organizations for the effective management of the routine maintenance of motorways

Structure

```

    graph LR
      Managers["•Network Manager  
•Maintenance Manager  
•Structures Manager  
•Document Manager"]
      DB["DATA BASE  
(Oracle 8.1.5)"]
      SDM["Spatial Data Manager  
(GIS – ArcView 3.2a)"]
      Managers <--> DB
      DB <--> SDM
  
```

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## RMMS Modules

1. The Motorway Network
2. The Motorway Inventory
3. Inspections/Patrols and Defects
4. Reports
5. Budgets, Contracts and Contractors
6. Work Orders and Treatment

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## The Motorway Network

Linear Referencing System (LRS)

- Maintenance Section
- Maintenance Link
- Maintenance Group

} 13-digit code

Item & Defect identification based on:  
Section,  
Chainage,  
Cross Sectional Position (XSP)

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## Road Sections Form

## The Motorway Inventory for Routine Maintenance

- Inventory surveys (video or/and on foot) are based on the LRS
- Point and Linear items
- Nine (9) categories of road items
  - Carriageways & Verges
  - Central Reserves & Sidewalks
  - Drainage
  - Embankments & Cuttings
  - Grassed Areas & Trees
  - Safety Equipment
  - Road Markings & Traffic Signs
  - Electromechanical Equipment
  - Structures

## Inventory Input Details: Verge

- Item Code: ER
- Start Chainage: ( $\pm 1$  m)
- End Chainage: ( $\pm 1$  m)
- Kerb:
  - Yes
  - No
- Surface:
  - Gravel
  - Grass
  - Asphalt
  99. Other (comments)
- Width: ( $\pm 0.1$  m)
- Comments:

## Inventory Items Form

## Inspections & Patrols

- Safety Inspections (once a week)
- Safety Patrols (six days a week)
- Detailed Inspections (once or twice a year)
- Unique Identification: Inspection ID

## Defects

- Category 1: require prompt attention because they represent an immediate or imminent hazard
- Category 2: all other defects
- Unique Identification: Defect ID

## Reports

- In-house reports for Inventory, Defects & Work Orders

Ροδ. Τμήμα	Αρχ. Σειρά	Τέλ. Σειρά	Περιγραφή	Κατάσταση	Τύπος	Παρατηρήσεις
1	43	43	Κατασκευασμένο ασφαλτικό έργο	ΕΠΙΧΕΙΡΗΣΙΑΚΟ	12	Ασφαλτικό έργο
2	91	91	Κατασκευασμένο ασφαλτικό έργο	ΕΠΙΧΕΙΡΗΣΙΑΚΟ	1	Ασφαλτικό έργο

Figure 7. Analytical Inventory form

## Budgets, Contracts & Contractors

- Create, maintain & review budget data

The screenshot shows a 'Budgets' application window with the following fields:

- Local/DoT: Agency A2 ΕΤΝΑΤΙΑ ΟΔΩΣ
- Group Name: (empty)
- Job Site: Εργασίες 2.5.5. χωρίς προμήτρητες
- Item Code: 10 89 89 Επισκευές συντήρησης οδών (δίκτυο σε εργασία)
- Financial Year: 2004 01-JAN-04 - 31-DEC-04
- Table with columns: Budget, Committed, Actual, Balance. Values: 100,000.00, 00, 00, 100,000.00
- Comments: TEST BUDGET
- Cost Code: (empty)

## Work Orders & Treatments

- Prepare and issue work orders (w.o.)
- Unique identification and link between w.o. and their associated defects and inspections

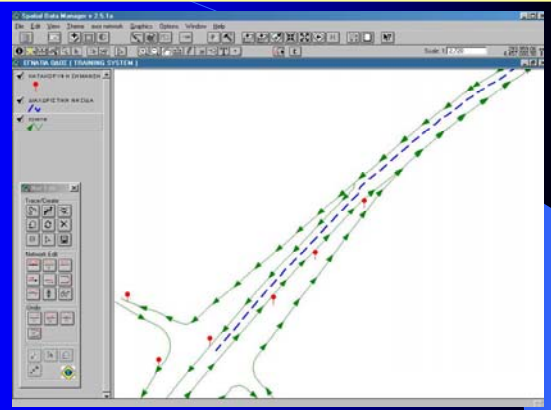
The screenshot shows a 'Work Orders & Treatments' application window with the following fields:

- Work Order: 1735504/14 Seven 1
- Item Payment: (empty)
- Fixed Type: 3744 Fixed Id: A2\_39\_30 Estimate Type: ES
- Contract: 1735606 AF ANGIPEAE-KH104 (004-2006)
- Contractor: 25-THEM ΕΠΕΜΕΛΟΓΟΜΗΤΑΕ Contractor Score: (empty)
- Originator: D15 System Administrator Cost Centre: 20000
- Authorized By: D15 System Administrator Job Number: (empty)
- Rechargeable: (empty) Cost Recharged: (empty) Remarks: (empty)
- Date Received: 23-JAN-2004
- Target Complete: 23-JAN-2004
- Date Instructed: 23-JAN-2004 Sub Total: 100.00 Actuals: 100.00
- Last Printed: 23-JAN-2004 Estimating Sum: -18.50 -18.50
- Date Completed: 23-JAN-2004 11:34 Total Cost: 89.50 Labour Units: 89.50

Item Code	Item Name	Unit	Estimated Quantity	Estimated Cost	Actual Quantity	Actual Cost
113.2	ΠΡΟΦΟΡΗ ΑΠΟΚΑΤΑΛΥΣΗ ΟΔΩ	Π.Ο.	5.00	100.00	5.00	100.00

## Geographical Information System (GIS)

- Spatial Data Manager (SDM): a map-based interface of RMMS
- Functionality:
  - Full graphic editing of the motorway network held in Network Manager
  - Graphic display of all associated network data
  - Spatial query tools
  - Spatial navigation of the RMMS database
  - Spatial processing tools (e.g. buffer, within/without, nearest, etc)
  - Map production tools



## Conclusions

- First time in Greece
- Effective management and supervision of the motorway routine maintenance projects
- ...next step: application of the Document Manager and Structures Manager

Thank You