

Grupo Elsamex



**PUBLIC PRIVATE PARTNERSHIP
ROAD MAINTENANCE CONTRACTS IN SPAIN
Past, Present and Future**

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Tajikistan**

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SPAIN and TAJIKISTAN



	SPAIN	TAJIKISTAN
AREA	505,370 sq km	143,100 sq km
Land	498,980 sq km	141,510 sq km
Water	6,390 sq km	2,590 sq km
LAND BOUNDARIES	Total: 1,917.8 km Border countries: Andorra 63.7 km, France 623 km, Gibraltar 1.2 km, Portugal 1,214 km, Morocco (Ceuta) 6.3 km, Morocco (Melilla) 9.6 km	Total: 3,651 km Border countries: Afghanistan 1,206 km, China 414 km, Kyrgyzstan 870 km, Uzbekistan 1,161 km
POPULATION	40,525,002 (July 2009 est.)	7,349,145 (July 2009 est.)
POPULATION DENSITY	91.4	51.3
ROADWAYS	Total 681,224 km Paved 681,224 km	27,767 km (2000) N/A



SPANISH ROAD NETWORK

Year	Total	State Roads		Regional Roads		Local Roads	
		High Traffic Roads	Low Traffic Roads	High Traffic Roads	Low Traffic Roads	High Traffic Roads	Low Traffic Roads
1992	158.324	5.443	15.862	1.316	70.245	229	65.229
1993	159.630	5.714	15.862	1.456	70.626	234	65.738
1994 (1)	162.196	6.002	16.534	1.489	71.076	257	66.838
1995	162.617	6.274	16.652	1.572	70.981	287	66.851
1996	162.100	6.534	16.597	1.667	70.499	299	66.504
1997	162.795	6.919	16.478	1.821	70.623	323	66.631
1998	163.273	7.423	16.419	1.664	68.910	562	68.295
1999	163.769	7.657	16.467	2.032	69.048	617	67.948
2000	163.557	7.656	16.449	2.088	68.749	699	67.916
2001	163.799	8.082	16.376	2.362	68.492	708	67.779
2002	164.139	8.368	16.273	2.245	67.214	793	69.246
2003	164.584	8.794	16.063	2.361	67.909	854	68.603
2004	165.152	9.164	15.991	2.407	68.094	873	68.623
2005	165.646	9.465	15.950	2.746	68.009	945	68.531
2006	166.339	10.081	15.723	2.812	68.183	979	68.561

2009 163.577 24.105 70.8137 68.515



2009 Municipality 489.698 km



HISTORY OF ROAD MAINTENANCE IN SPAIN

1st phase: Road Administration Direct Management

- Own personnel
- Own machinery
- Own purchasing department
- Own engineering department

- Subcontracting major rehabilitation operations to private companies

Problems:

- Productivity ⇒ high number of personnel ⇒ big structure
- Machinery maintenance
- Low specialization

- Old personnel

HISTORY OF ROAD MAINTENANCE IN SPAIN

2nd phase: Road Administration Direct Management

- Own reduced personnel
- Own reduced machinery
- Own purchasing department

**RUTINE
MAINTENANCE**

- Subcontracting of specific activities to specialized private companies (horizontal marks, vertical signs, barriers, etc.)

PERIODIC MAINTENANCE

- Subcontracting of major rehabilitation operations to private companies

HISTORY OF ROAD MAINTENANCE IN SPAIN

3rd phase: Externalization of Road Maintenance

- Reduced personnel ⇒ only controllers
- No own machinery
- No own purchasing department
- Reduced engineering department ⇒ only controllers

COMPREHENSIVE MAINTENANCE CONTRACT (Global Service)

Services Companies Specialized on Maintenance

- Road network divided in portions (100-200 lane-km)
- Routine and Periodic Maintenance of each contract Managed by a Private Company controlled by Road Authority
- Private Company responsible for the Road Service and related activities.

SPECIALIZED SERVICE COMPANIES NOT CONSTRUCTION COMPANIES

HISTORY OF ROAD MAINTENANCE IN SPAIN

1986 ⇒ 1st Comprehensive Maintenance Contract (Pilot Project)

Road: Madrid Ring Motorway (M30)
Length: 32,5 km
Period: 2 years

1988 ⇒ 4 Pilot Contracts

Road	Length	Period
M30	33 km	4 year
N-2	65 km	4 year
N-6	40 km	4 year
N-4	65 km	4 year

 **ELSAMEX**

Today ⇒ more than 150 Contracts on National Roads (entire network!)

ELSAMEX: 13 contracts

HISTORY OF ROAD MAINTENANCE IN SPAIN

ELSAMEX MAINTENANCE CENTRE IN TOLEDO (SPAIN)



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

Bidding and Awarding Procedures

Bidding

- Tender opened to Private Companies registered to Government Official list of Services Categories
- Previous experiences required for registration and bidding
- Bidding and Performance Bonds

Awarding Criteria

- Based on Technical and Economical Offers
- Technical offer 50%. Total score shared among:
 - Staff Organization
 - Machinery
 - Road section knowledge
 - Working schedule
 - Proposed improvements to tender requests
- Economical proposal 50%.
 - Discount on estimated budget

MAXIMUM SCORE NOT NECESSARELY TO THE LOWEST BIDDER

COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

Contract Structure

Activities divided in 3 main groups:

GROUP 1:

- Telecommunication Service
- Surveillance:
 - Intervention in case of accidents
 - Routine maintenance ⇒ Serviceability
 - Routine maintenance ⇒ Safety
- Winter serviceability
- Routine maintenance of
 - Electrical and water supply, communication and other systems
 - Lighting
 - Tunnel ventilation and control systems
 - Temporary, warning and information signs
 - Other elements of the road section and of the maintenance centre
- Inventory (data base) and management system
- Working scheduling and coordination with local Authorities and Police
- Road Exploitation support with accidents studies (black point), safety studies, improving proposals
- Others

Monthly fixed amounts + material

COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 1



OFFICES

STORE

EQUIPMENTS



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

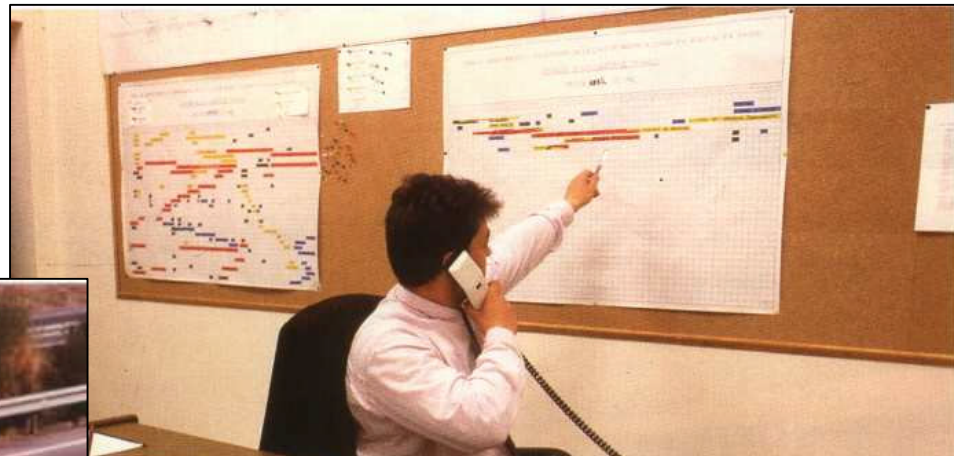
GROUP 1



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 1

Road Service



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 1

Assistance in case of accident



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 1

WINTER SERVICES



LIGHTING



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

Contract Structure

GROUP 2

- Barriers (guardrails)
- Cleaning
- Vegetation control
- Road horizontal marks
- Road vertical signs, kilometeric posts, guidance posts, ect.
- Potholes patching
- Cracks sealing
- Maintenance of embankment slopes
- Drainage control and cleaning (collectors, ditches, culverts, etc.)
- Concrete and still structures maintenance
- Bridges expansion joints
- Plantation (green areas)
- Etc.

Payment per job units + material

COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 2

REPARATION/ASSEMBLING OF GUARDRAILS



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 2

PATCHING



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 2

Drainages



Cracks Sealing



Joints



Culverts



Slopes



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 2

CLEANING



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 2

ROAD MARKS AND SIGNS



VEGETATION CONTROL



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

Contract Structure

GROUP 3 (7% of the budget)

- **Emergency works**
- **Rehabilitation operations**
- **Special operations**
- **Subcontracting to others contractors**
- **Any use of personnel and machinery not foreseen in the contract**

Payment per job units + material

COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

GROUP 3

REINFORCEMENT



MARKS CAMPAIGN



NEW DESIGN



COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

Authority Control Structure
(Administration Staff)

Contract Manager: Responsible of several contracts in a defined area

Engineer: He is working for only one contract and he assists the Contract Manager.

Surveyors: They are controlling the execution of the works, measurements, the presence of dedicated personnel and machinery.

COMPREHENSIVE ROAD MAINTENANCE CONTRACTS

PENALTIES

Not fulfilling with General Conditions

⇒ reduction up to 10% of contract value

Reduced Road Serviceability

⇒ reduction from 20% to 50% of the monthly payment

⇒ contract termination (performance bond)

Not fulfilling with Offer Proposal

⇒ reduction up to 10% of contract value

⇒ contract termination (performance bond)

Not fulfilling with Activity Timing and Schedule

⇒ reduction from 20% to 50% of the monthly payment

⇒ contract termination (performance bond)

FUTURE OF ROAD MAINTENANCE IN SPAIN

2007 ⇒ PPP for Roads Rehabilitation and Maintenance

10 contracts

"1st GENERATION ROADS REHABILITATION AND MAINTENANCE"

- **Private Entities rehabilitate (2 years) and maintain (17 years) specific sections of main National Roads**
- **Private Entities finance the rehabilitation works**
- **Administration pays monthly amount based on the traffic (fixed amount per each vehicle using the road)**



SHADOW TOLL

FUTURE OF ROAD MAINTENANCE IN SPAIN

"1st GENERATION ROADS REHABILITATION AND MAINTENANCE"

Introduction of Services Levels (1st time in Spain)

CONTROLLED ELEMENTS/ACTIVITIES	NUMBER OF INDICATORS
Pavement	11
Marks, Signs, Barriers, Lighting	6
Tunnels	9
Vegetation, Drainage, Embankment Slopes	6
Operational (Winter service, Accidents Interventions, etc.)	3
Road Safety	5
Bridges	1

FUTURE OF ROAD MAINTENANCE IN SPAIN

"1st GENERATION ROADS REHABILITATION AND MAINTENANCE"

Example of indicators

PAVEMENT	MARKS/SIGNS	ROAD SAFETY
Skid resistance	Retroflexion	Accidentality index
Macrotexture	Skid Resistance Test	Mortality
Longitudinal Regularity	Luminance	Intervention on Black Points
Bearing Capacity	Vertical signs	Improvement of the Accidentality index after one year
Roughness	Guidance Posts	
Cracking	Barriers	
Rutting		
Potholes		
Porous Cleaning		

FUTURE OF ROAD MAINTENANCE IN SPAIN

"1st GENERATION ROADS REHABILITATION AND MAINTENANCE"

Example of indicators

FUNCTIONAL	TUNNELS	OPERATIONAL
Speed of accident intervention	Bearing Capacity	Embankment Slopes
Carriageway occupation	Coating	Vegetation Control
Road serviceability	Lighting	Planting
Vigilance	Ventilation	Cleaning
	Fires	Winter Service
	Electrical Installation	
	Skid Resistance Test	
	Communication	
	Surveillance System	
	Emergency areas	

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¡THANK YOU VERY MUCH FOR YOUR ATTENTION!

**Dushanbe, November 2009
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