SEARCH CORPORATION

PLANNERS • ENGINEERS • CONSULTANTS



SEARCH CORPORATION



Eng. Michael M. STANCIU, P.E., MSc.
- President -

GENERAL PRESENTATION

SEARCH CORPORATION is one of the leading engineering companies in Romania providing services of planning, design, consulting and management of road and air transport infrastructure.

SEARCH CORPORATION was set up in 1991 and has ever since been committed to its mission of providing its customers with the most professional, technically and financially innovative and efficient services.

The core idea in the development of SEARCH CORPORATION was to create a strong professional organization operating at international standards and competitive costs.

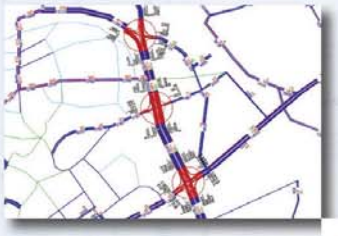
The vision of SEARCH CORPORATION is to consolidate its leading position in transport infrastructure engineering in Romania and expand worldwide.

At SEARCH CORPORATION **our policy** is customer-oriented and aimed not only at meeting but also anticipating their needs. We focus on **the benefit of the project**.

Our company's development policy is based on the Romanian road network development strategy. SEARCH CORPORATION has contributed in the preparation of the national strategy for road network development, alongside with the Ministry of Transportation, the Romanian National Company of Motorways and National Roads, and the local authorities.

Expertise

- Since the beginning, SEARCH CORPORATION has been a part in **the Program for the Rehabilitation of Romania's National Roads**, and for this purpose, to date, it designed over 2000 km of national roads in all the regions of the country and over 600 km of motorways and expressways.
  Understanding the development of road infrastructure as an essential means of economic growth, SEARCH CORPORATION has supported and provided technical assistance to **The Ministry of Transportation** and to **The National Company of Motorways and National Roads** in the drafting of a consistent **Motorway Program in Romania**.





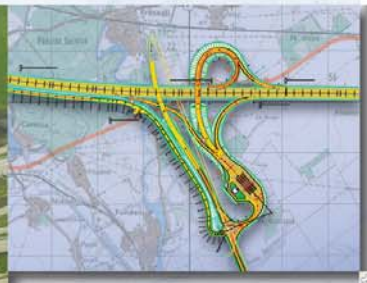
- During its two decades of existence, SEARCH CORPORATION has become a strong and reliable resource for the Romanian road administrators in the planning, design and construction management of road infrastructure works.

  Our areas of expertise include:

  Road and Motorway Design
  Expropriations
  Environmental Impact Studies
  Field studies:
  - topographic studies
  - geo-studies
  - lab analyses







Traffic Relations Diagram in Avram Iancu St. - Calea Turzii junction

Bucuresti - Constanta Motorway (Fundulea interchange)



Arad - East Bypass



Pavement Management
Hydrotechnical Studies
Bridge Design
Engineering Economics
Traffic Management
- transport planning
- traffic design
- geographic information system (GIS)
- intelligent transport systems (ITS)
- traffic data collection

Airports and Airport Infrastructure Design
Urban Planning
Civil and Industrial Buildings Design
Technical Assistance pursuant to Law 10/1995
Construction Supervision

National & International Membership



Bucuresti - Constanta Motorway (Fundulea interchange)

DN1 - Predeal - Brasov



DN1 - Posada





Bucuresti - Constanta Motorway



Bucuresti - Pitesti Motorway



Bucuresti - Constanta Motorway (Fundulea interchange)



Bridge passing the Danube at Gogosu

SEARCH CORPORATION is a member of the following professional organizations:

- International Road Federation (**IRF**) – member of the Executive Committee
- Romanian Accreditation Association (**RENAR**)
- Romanian Association for Standardization (**ASRO**)
- Global Road Safety Partnership (**GRSP**)
- FWD User's Group
- European Cooperation in the Field and Technical Research (**COST**)
- Romanian Association of General Contractors (**ARACO**)
- Romanian Association of Consultant Engineers (**ARIC**), a **FIDIC** member
- Romanian Airports Association (**AAR**)
- Romanian Professional Association of Roads and Bridges (**APDP**)

Partnerships

For the major projects performed until now, SEARCH CORPORATION has developed strong **partnerships** with the following international companies:

- Bechtel, USA (Transilvania Motorway: Brasov - Targu Mures Motorway Sector, 160 km)
- Strabag (Rehabilitation of Station Square and of a number of selected streets in Sibiu)
- Parsons Group International, USA (Bucuresti - Fundulea Motorway, 26 km)
- Parsons Brinckerhoff, USA (Rehabilitation of DN2, Sabaoani - Suceava - Siret, 150 km)
- Wilbert Smith, USA (Deva - Orastie Bypass, 36 km)
- Louis Berger, USA (First Road Rehabilitation Program, 300 km)
- Halcrow, United Kingdom (Pitesti Ring Road, 47 km and DN6, Craiova - Drobeta Turnu Severin)
- Atkins, United Kingdom (Rehabilitation of DN6 Drobeta Turnu Severin-Lugoj, 180 km)
- Scott Wilson, United Kingdom (Medias Bypass, 16 km)
- Kocks, Germany (Fundulea - Lehliu Motorway 33 km, PMS in Macedonia)
- Spea Ingegneria SpA, Italy (Second Road Rehabilitation Program, 130 km)
- CPC, Japan (Timisoara Ring Road - 16 km and Craiova Ring Road - 14 km)

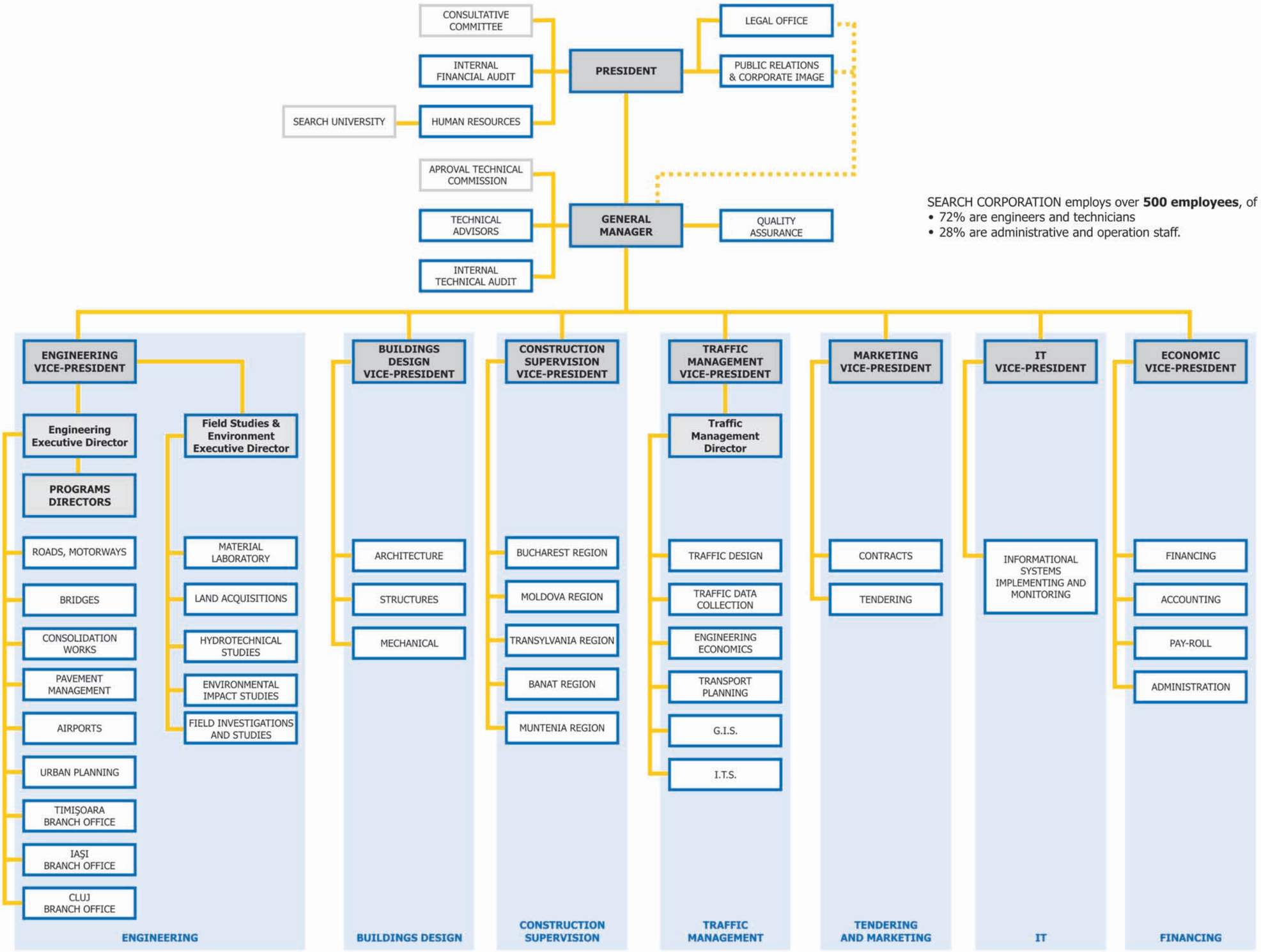
Quality Assurance

SEARCH CORPORATION's **Quality System** is the underlying operating principle of our company management and complies with ISO 9001-2000 Standard.

Our Quality Management System was certified by **LLOYD'S REGISTER QUALITY ASSURANCE** of London in 1998. This quality system confirmed our system's compliance with the highest international standards. As a result, SEARCH CORPORATION was granted the highest national quality award - the „**Excellence Award**" by the J.M. JURAN Romanian Quality Award Foundation, handed in by the President of Romania.



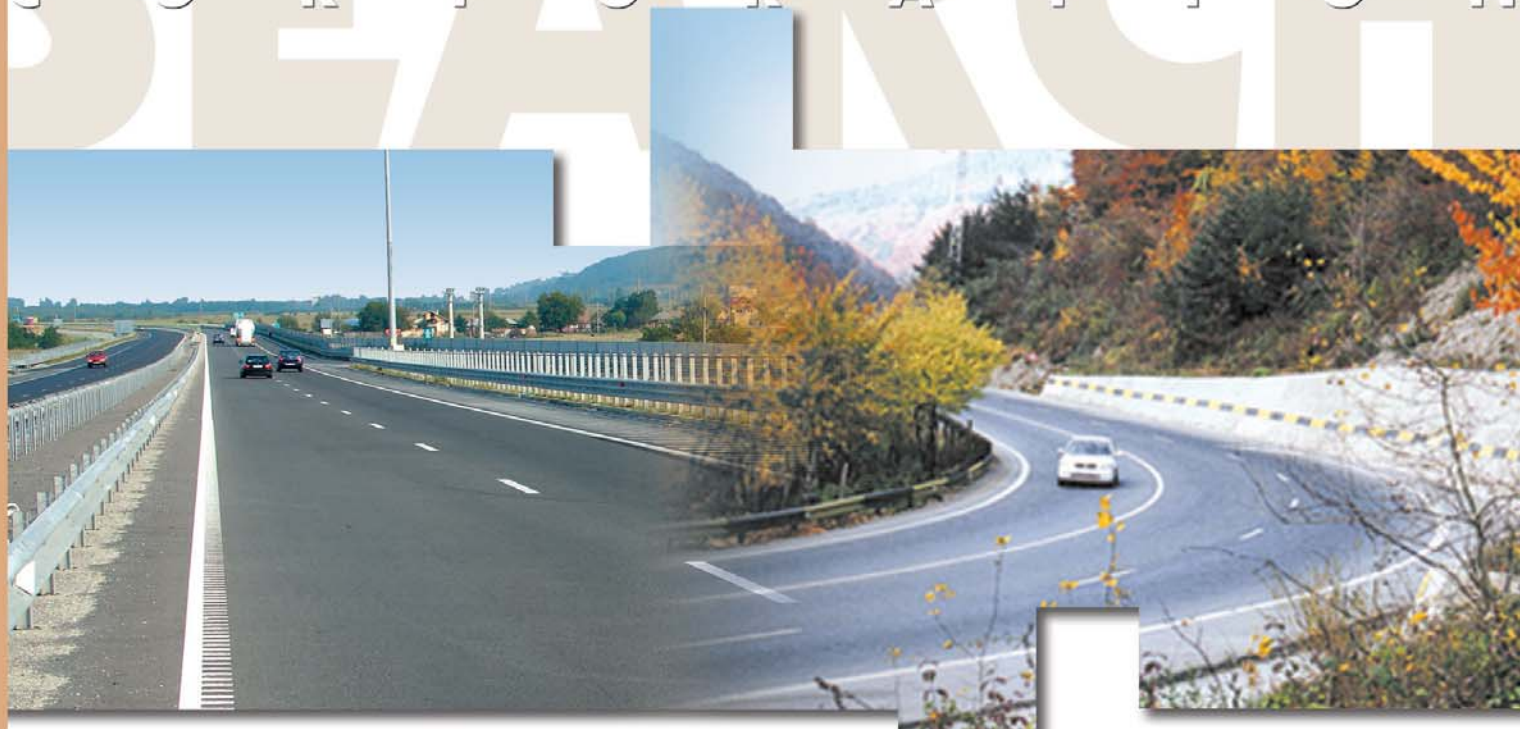
SEARCH CORPORATION ORGANIZATION CHART



SEARCH CORPORATION employs over **500 employees**, of whom:

- 72% are engineers and technicians
- 28% are administrative and operation staff.

SEARCH CORPORATION







ROADS AND MOTORWAYS

Project Management

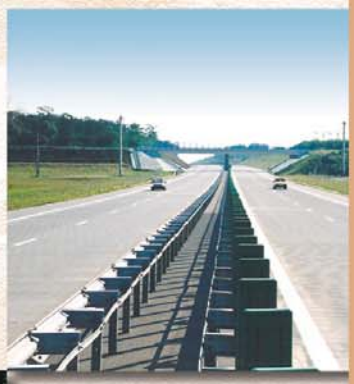


DN1 - Posada

- SEARCH CORPORATION's Division of Road and Motorway Design includes the following units:
  - road and motorway design
  - soil consolidation design
  - cost estimate
  - technical assistance



Bucuresti - Constanta Motorway
(Bucuresti - Fundulea sector)



DN1 - Comarnic - Sinaia

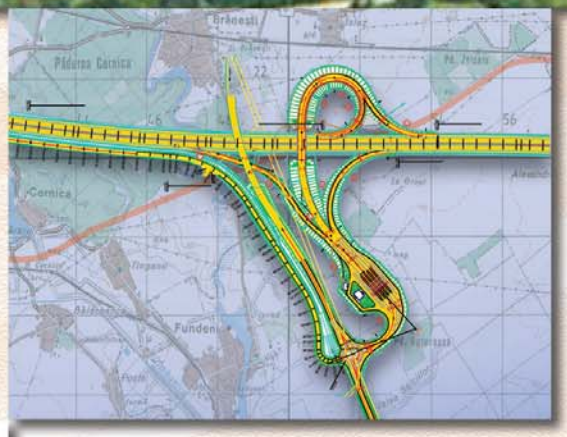


- **The design process** for a project is based on an integrated set of computer software (ProjectWise, MX, Microstation) designed for the planning, coordination and control of all stages of the project.
  Close cooperation with the local authorities is fundamental to our project management.
  The outcome: high-tech and quality projects, highly optimized technical and economical solutions, created within the contract time limits and with competitive costs.

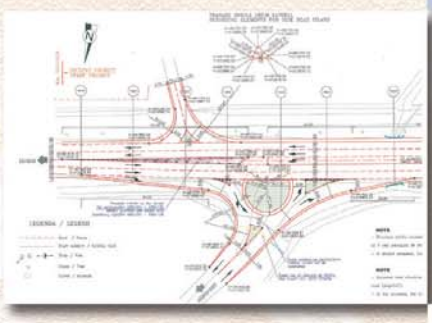


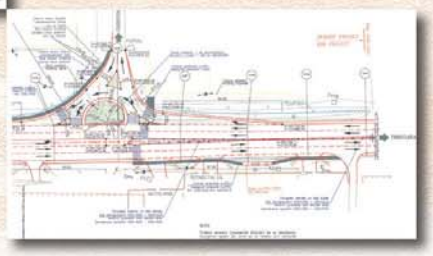
Bucuresti - Constanta Motorway
(Fundulea interchange)

PROFESSIONAL SERVICES



Bucuresti - Constanta Motorway
(Fundulea interchange)





DN1 - Otopeni

- SEARCH CORPORATION's Road and Motorway Design Division performs the following types of services:

  - pre-feasibility studies
  - feasibility studies
  - technical projects
  - detailed designs
  - technical assistance
  - technical expertise projects

Bucuresti - Constanta Motorway



DN1





Professional Services



DN1
Predeal - Timisul de Sus

Below is a concise overview of the Road and Motorway Division achievements until the present time:

DN1
Predeal - Timisul de Sus



- **Motorways and Expressways design**:
  - pre-feasibility studies for 130 km of motorways
  - feasibility studies for 650 km of motorways
  - all stages of the project for 120 km of motorways
  - feasibility studies for 216 km of expressways



DN1 - Predeal - Timisul de Sus



Bucuresti - Pitesti Motorway

- **Design of national, county and local roads**:
  - all stages of project for the rehabilitation and construction of 2000 km of national roads, covering the entire range of difficulty of the relief features
  - technical assistance for all projects throughout the construction period
  - all stages of the project for a significant number of kilometers of county and municipal roads

SEARCH

C O R P O R A T I O N







BRIDGES

PHILOSOPHY OF DESIGN



Bridge crossing
the Danube at Gogosu

- SEARCH CORPORATION's Bridge Division is one of the most dynamic of all our divisions. This dynamism is generated by a harmonious combination between the extensively experienced engineers in bridge design, well-established and acknowledged on the domestic and international market, and the enthusiastic young engineers, who are passionate about their profession.
  Creativity, quality and efficiency are fundamental to the spirit of the team working in this division.

- Our experts grant special attention to **the architectural features of bridges.** They take great interest in the application of **the most recent and efficient solutions and technologies**, and in the use of cutting-edge construction materials.



Overpass crossing the
Craiova ring-road





The general aim is to combine aesthetics and mathematical precision and to offer clients technically feasible and economically efficient solutions. Most of the times, the outcome of these works are genuine works of art.

The projects of this division are prepared by using structural analysis and structure simulation programs (LUSAS) and expert software for detailed design.

TYPES OF WORKS

Bridge over "Valea Rea" - Cornu







Overpass crossing the Craiova ring-road



Overpass crossing the DN1 at Otopeni



- Our engineers are able to design a full range of works including **new bridges, overpasses, viaducts and pedestrian bridges**:

  - cable-stayed or suspended bridge structures
  - Langer and Nielsen arches
  - steel structures
  - composite sections
  - continuous girders of prestressed concrete and steel
  - simply supported steel and concrete girders

  as well as **rehabilitation works of existing bridges**.

Types of Works



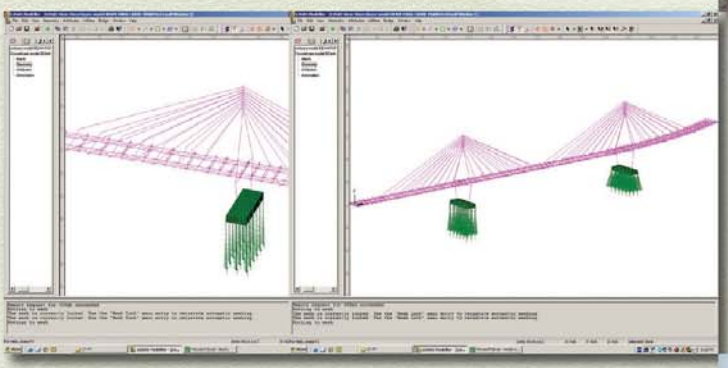
Overpass crossing the Bucuresti - Pitesti Motorway

- To meet customer satisfaction the Bridge Division of SEARCH CORPORATION provides the following services:
  - site studies and solution studies for (new) complex bridge projects
  - pre-feasibility studies for new bridge projects
  - feasibility studies and cost optimization for new bridges or rehabilitation of existing ones
  - technical expertise for existing bridge projects
  - construction details and technical specifications
  - construction technologies for highly complex bridges
  - relevant standards and guidelines



Overpass crossing the Craiova ring-road

Overpass crossing the Bucuresti - Pitesti Motorway



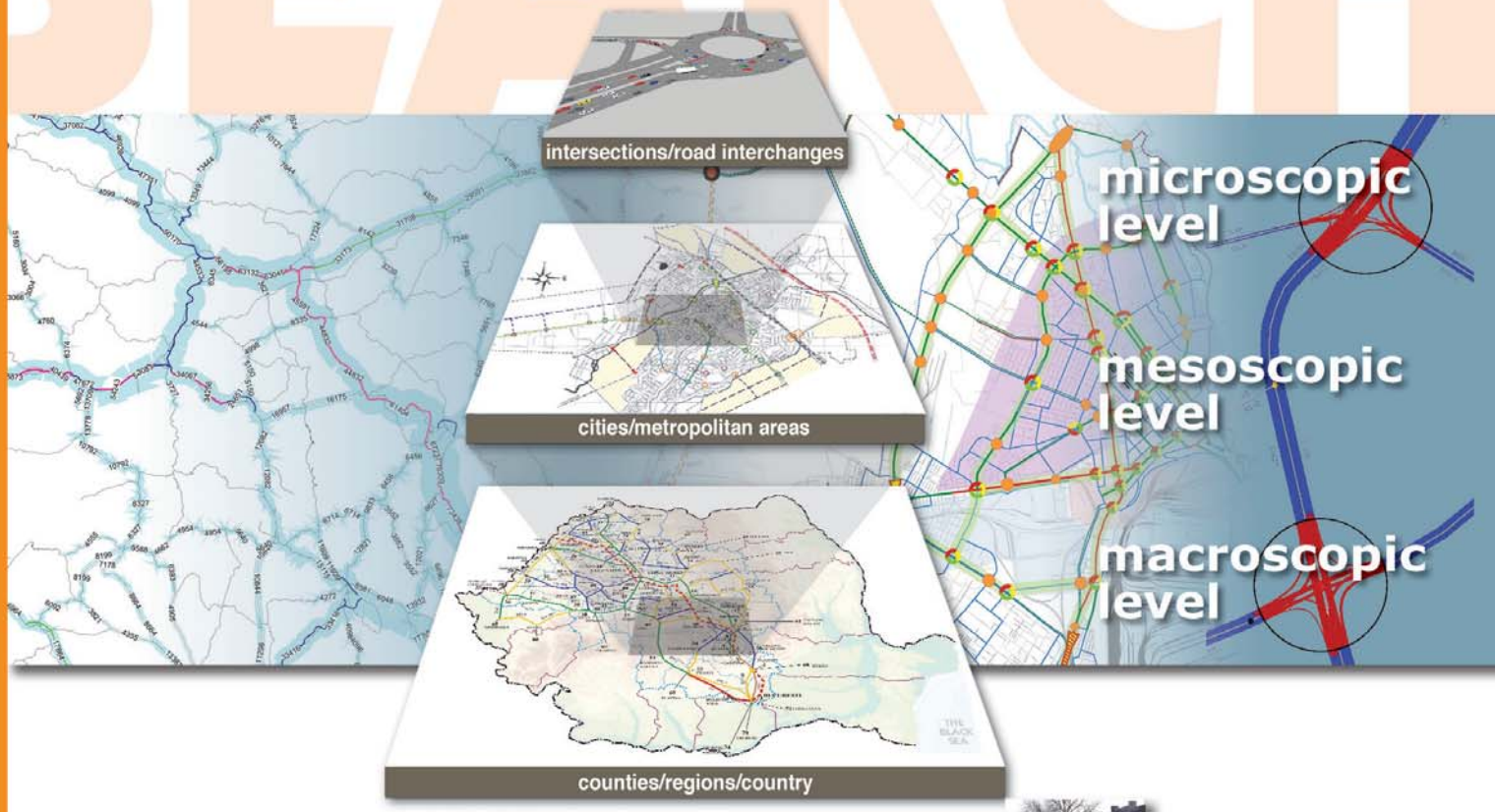
Special modelling - Bridge over the Danube - Black Sea Canal

- expert technical assistance
- monitoring the behavior of structures over time of the works of art
- design of temporary structures
- assessment of the bearing capacity of existing bridge works
- bridge maintenance programs (BMS) customized for specific geographical regions



Pedestrian bridge over DN1

SEARCH CORPORATION

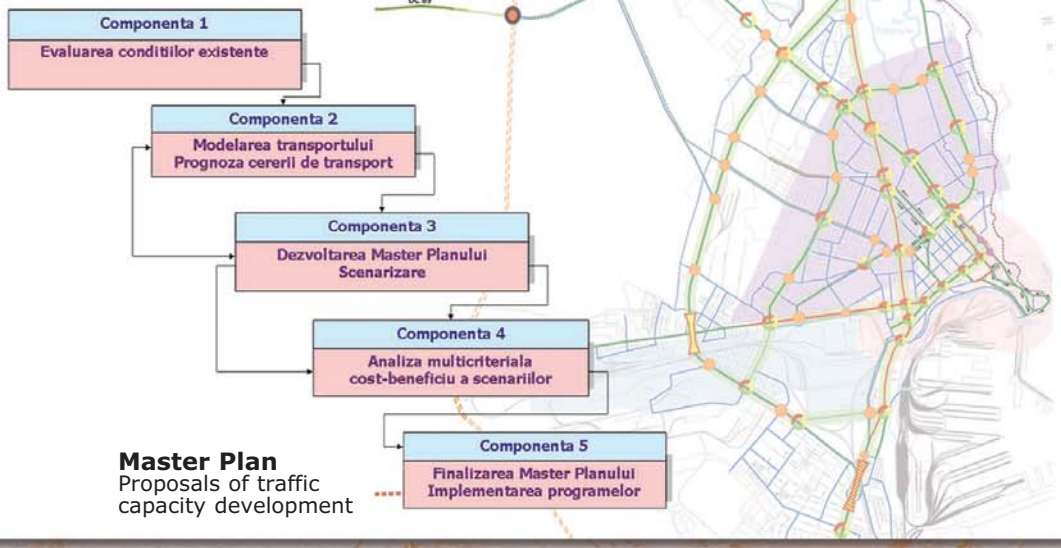






TRANSPORT PLANNING

TRAFFIC STUDIES



Master Plan
Proposals of traffic capacity development



The increased mobility and the desire to reduce congestion, accidents and environment pollution call for a minute planning and development of transport networks. For these purposes, **traffic studies** are the ground for a coherent planning and development of national, regional and urban transport networks.
Each category of traffic studies supplies various elements such as:

- elements of **transport master plans or transport infrastructure development strategies**:
  - analyses of the transport demand and trends
  - prioritization and portfolios of investment projects, modernization/rehabilitation works and short, average and long-term maintenance works
- elements of **feasibility studies**:
  - current and perspective traffic flow estimation for various periods of time, including investment opportunity analysis and evaluation of project impact over the environment (noxious factors, noise, etc.)
  - estimation of the number of traffic lanes and level of service
  - traffic calculation for pavement design
- elements of **general traffic studies**:
  - analysis of the status quo and traffic projections
  - estimation of intersections capacity and general intersection design
  - proposals for traffic optimization measures; step-by-step implementation of solutions
  - projects primary ranking
- elements of **studies for urban planning documents**:
  - harmonizing transport network development with actual and future urban characteristics
  - assessment of impact of new developments over the existing transport network, and proposals of traffic optimization measures to connect new networks to existing ones
- elements of **public transport**:
  - identification of public transport dysfunctions
  - solutions to optimize public transport system
  - alternative solutions to enhance public transport, etc.



Traffic Management Plan



Pedestrian Crossing Design

THE TEAM
The Transport Planning Division is a multi-disciplinary team, where specialists who received graduate and post-graduate degrees in Romania or abroad (USA) work in the following areas:

- transport engineering
- road, bridge and railroad construction
- civil construction
- mathematics, statistics
- economic engineering analysis

This Division's staff benefits from training abroad and is able to professionally provide any type of traffic study.

PHILOSOPHY OF WORKS
In our traffic studies we grant special attention to data collection:

- social and economic data
- traffic census (determined manually or automatically, by dedicated equipment)
- origin - destination (O/D) surveys
- mobility estimations, etc.

These data are computer-processed and analyzed function of the complexity of the study.
Traffic macro- and micro-simulation dedicated software allow for well-substantiated results/solutions and for a prompting and friendly graphic presentation.

Types of Works

Master Plan
- Identification and prioritization of investment projects
- Devising a transport plan in keeping with the forecast of transport demand

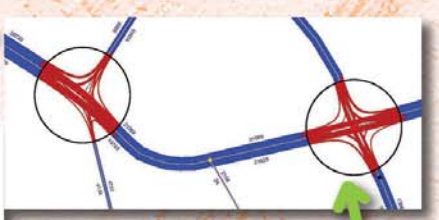
Street/road network management
- Traffic organization plans
- Qualification and classification of street/road network

Studies on traffic safety
- Studies on traffic safety in linear towns and arterial roads
- Solutions for the reduction of accident risk

- Traffic organization plans in residential areas, traffic decongestion

General traffic studies
- Planning of transport network development
- Traffic studies required in development plans of national, county, urban and zonal level
- Traffic studies required by feasibility studies
- Studies required in commodities transportation, Logistic plans
- Detailed traffic studies for central, residential areas, and traffic axes
- Microsimulation of traffic in intersections and/or traffic axes

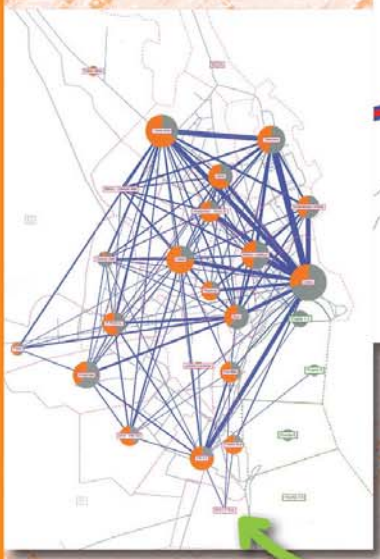
Details of junction flows



Traffic flows
Macrosimulation



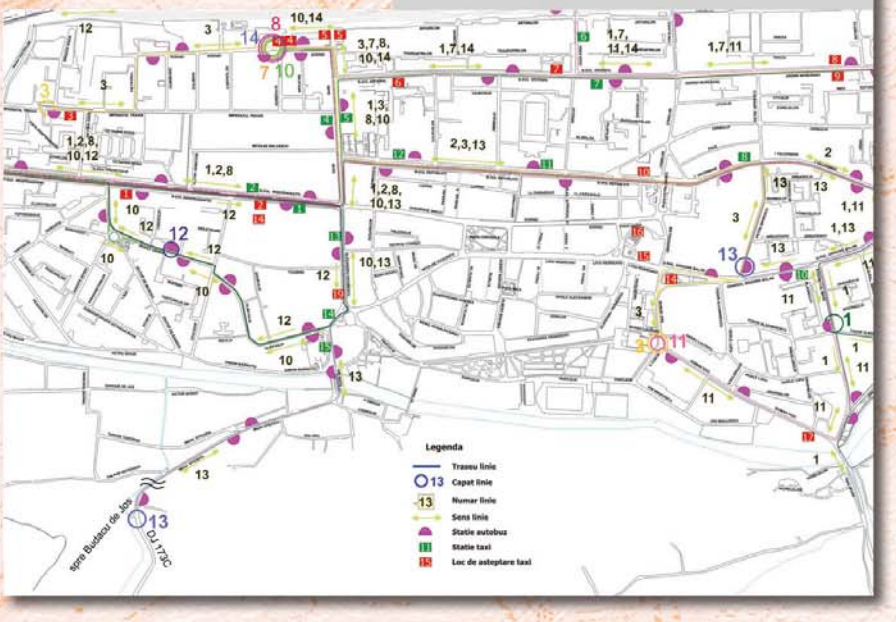
Desire lines.
Poles of interest



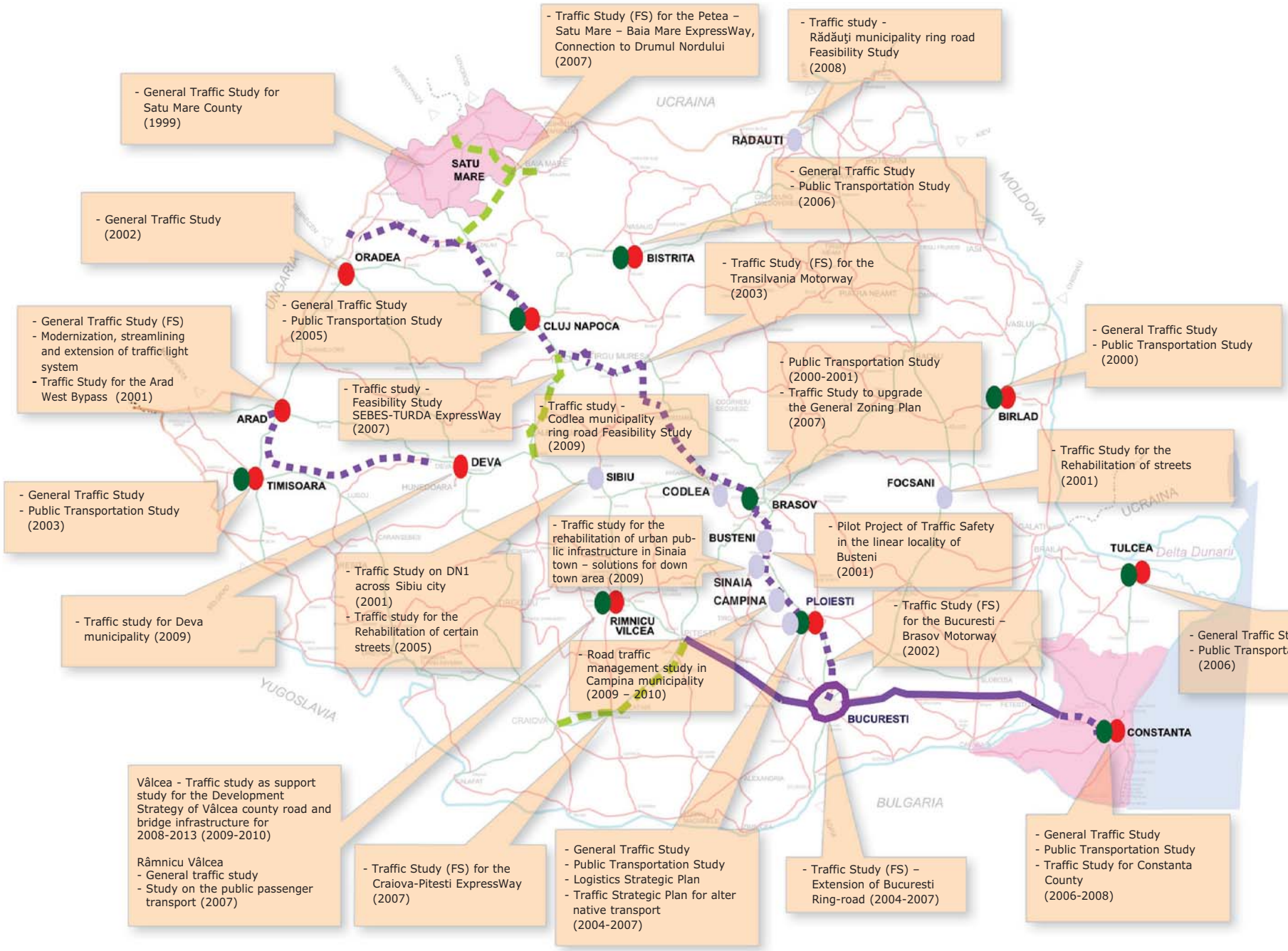
Microsimulation in junctions



Studies on public transport
- Assessment of status quo public transport systems
- Simulation of passenger flows on existing routes
- Optimization of public transport routes
- Prioritization of public transport system development
- Forecast of transport demand
- Operation systems and concepts
- Analysis/simulation of price policy



Public Transport Lines Plan


- Traffic Study (FS) for the Petea – Satu Mare – Baia Mare ExpressWay, Connection to Drumul Nordului (2007)
- Traffic study - Rădăuţi municipality ring road Feasibility Study (2008)
- General Traffic Study for Satu Mare County (1999)
SATU MARE
RADAUTI
- General Traffic Study - Public Transportation Study (2006)
- General Traffic Study (2002)
ORADEA
BISTRITA
- Traffic Study (FS) for the Transilvania Motorway (2003)
- General Traffic Study - Public Transportation Study (2005)
CLUJ NAPOCA
- General Traffic Study (FS) - Modernization, streamlining and extension of traffic light system - Traffic Study for the Arad West Bypass (2001)
- Public Transportation Study (2000-2001) - Traffic Study to upgrade the General Zoning Plan (2007)
- General Traffic Study - Public Transportation Study (2000)
BIRLAD
- Traffic study - Feasibility Study SEBES-TURDA ExpressWay (2007)
- Traffic study - Codlea municipality ring road Feasibility Study (2009)
ARAD
DEVA
- Traffic Study for the Rehabilitation of streets (2001)
TIMISOARA
SIBIU
CODLEA
FOCSANI
BRASOV
- General Traffic Study - Public Transportation Study (2003)
- Traffic study for the rehabilitation of urban public infrastructure in Sinaia town – solutions for down town area (2009)
BUSTENI
- Pilot Project of Traffic Safety in the linear locality of Busteni (2001)
TULCEA
- Traffic Study on DN1 across Sibiu city (2001) - Traffic study for the Rehabilitation of certain streets (2005)
SINAIA
CAMPINA
PLOIESTI
- Traffic study for Deva municipality (2009)
RIMNICU VILCEA
- Traffic Study (FS) for the Bucuresti – Brasov Motorway (2002)
- General Traffic Study - Public Transportation Study (2006)
- Road traffic management study in Campina municipality (2009 – 2010)
BUCURESTI
CONSTANTA
Vâlcea - Traffic study as support study for the Development Strategy of Vâlcea county road and bridge infrastructure for 2008-2013 (2009-2010)
Râmnicu Vâlcea - General traffic study - Study on the public passenger transport (2007)
- Traffic Study (FS) for the Craiova-Pitesti ExpressWay (2007)
- General Traffic Study - Public Transportation Study - Logistics Strategic Plan - Traffic Strategic Plan for alter native transport (2004-2007)
- Traffic Study (FS) – Extension of Bucuresti Ring-road (2004-2007)
- General Traffic Study - Public Transportation Study - Traffic Study for Constanta County (2006-2008)
UCRAINA
MOLDOVA
UNGARIA
YUGOSLAVIA
BULGARIA
Delta Dunarii
PORTFOLIO

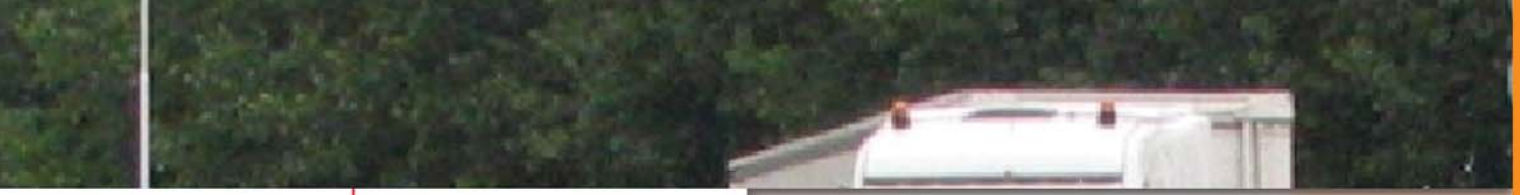
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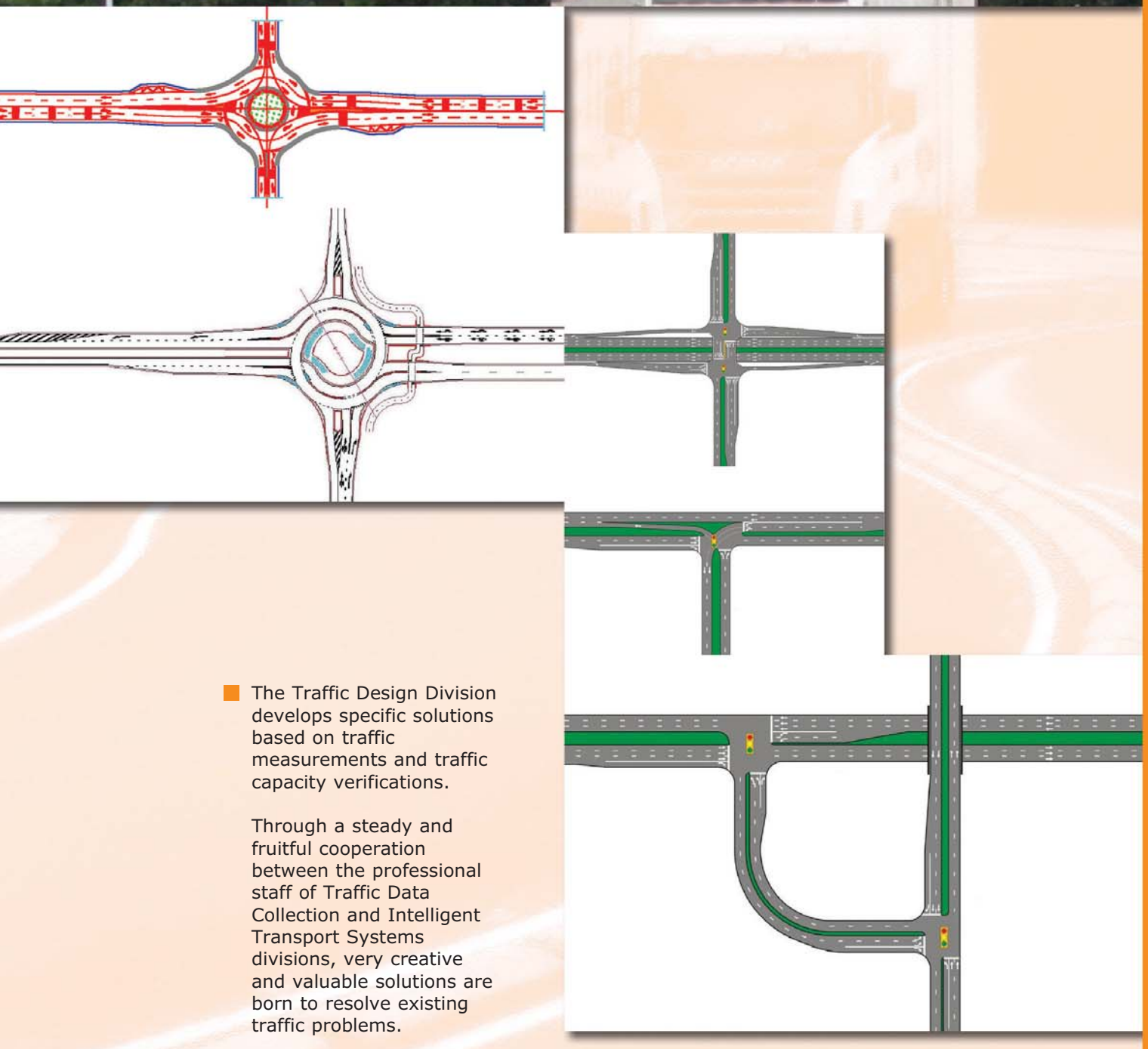
C O R P O R A T I O N



TRAFFIC DESIGN

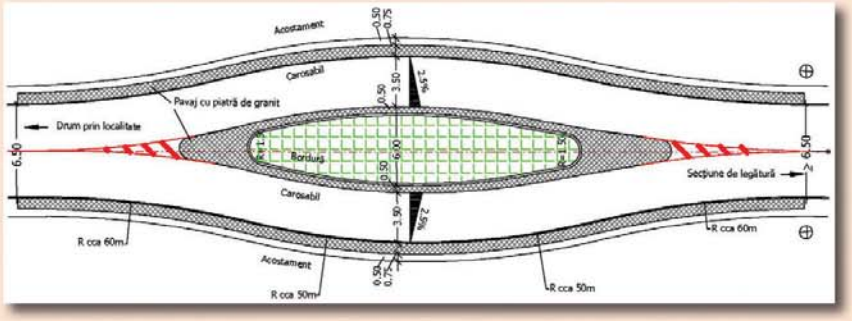
the way to move on
SEARCH CORPORATION





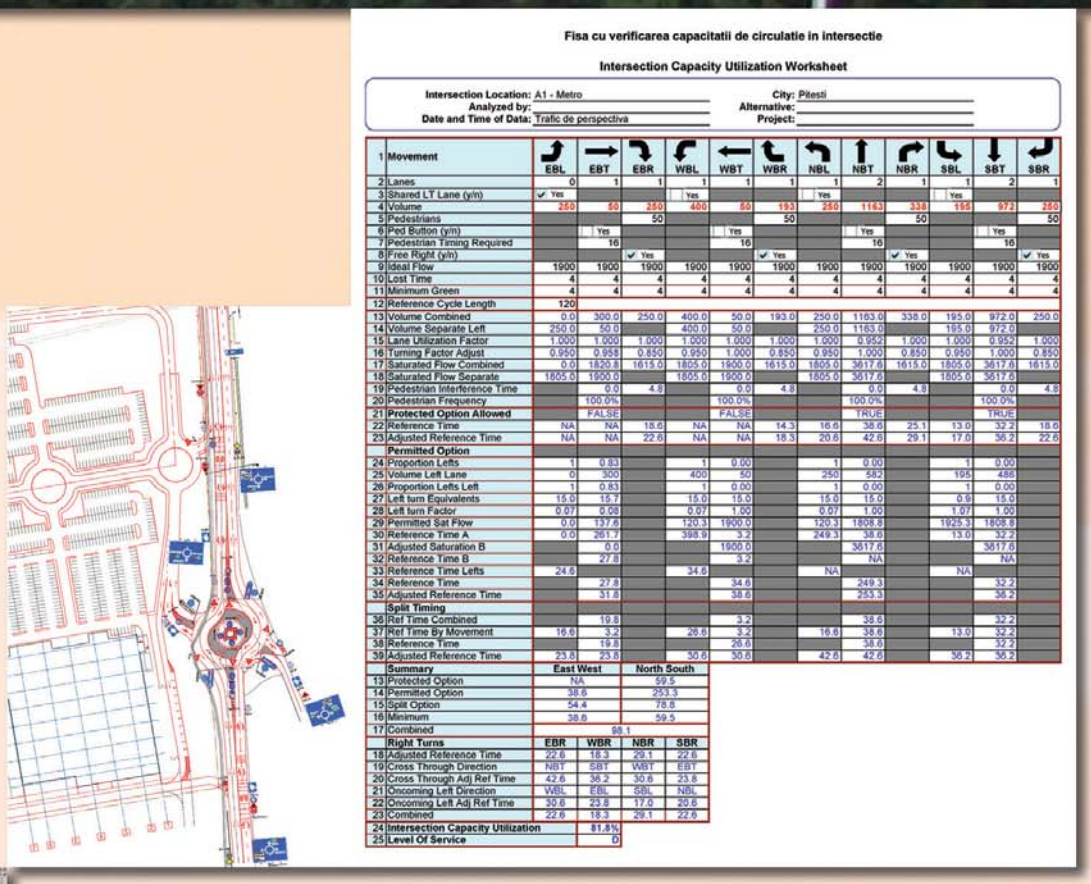
- The Traffic Design Division develops specific solutions based on traffic measurements and traffic capacity verifications.

  Through a steady and fruitful cooperation between the professional staff of Traffic Data Collection and Intelligent Transport Systems divisions, very creative and valuable solutions are born to resolve existing traffic problems.



Improvement measures for the traffic flow between intersections

PROJECTS, STUDIES AND ANALYSES



Fisa cu verificarea capacitatii de circulatie in intersectie

Intersection Capacity Utilization Worksheet

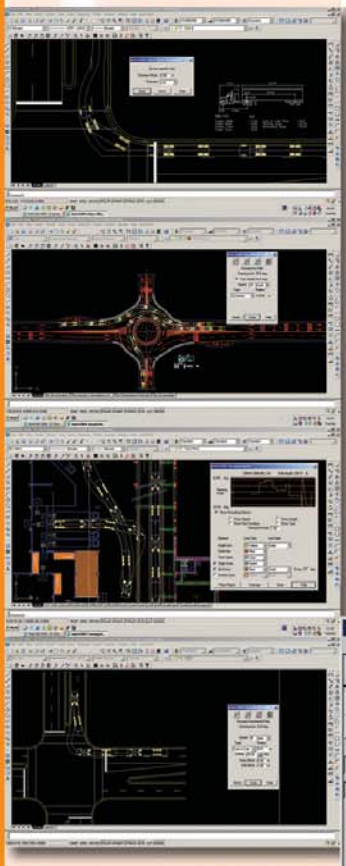
Intersection Location: A1 - Metro
Analyzed by:
Date and Time of Data: Trafic de perspectiva
City: Pitesti
Alternative:
Project:

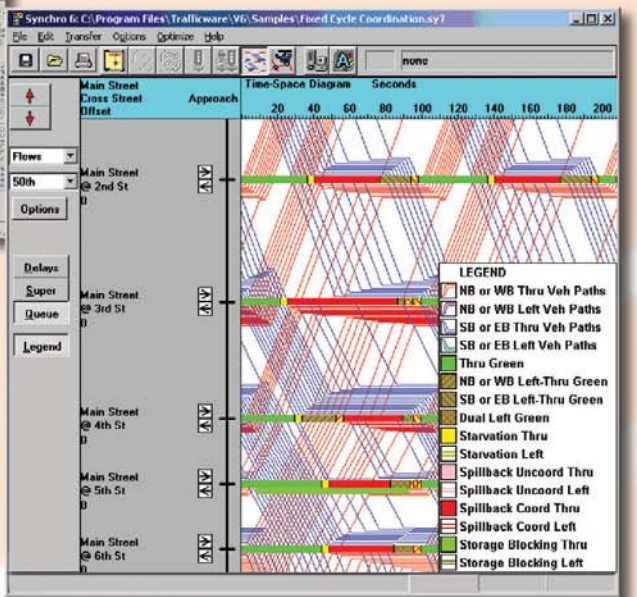
	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
2	Lanes	0	1	1	1	1	1	1	2	1	1	2	1
3	Shared LT Lane (y/n)	✓ Yes			Yes			Yes			Yes		
4	Volume	250	50	250	400	50	193	250	1163	338	195	972	250
5	Pedestrians			50			50			50			50
6	Ped Button (y/n)		Yes			Yes			Yes			Yes	
7	Pedestrian Timing Required		16			16			16			16	
8	Free Right (y/n)			✓ Yes			✓ Yes			✓ Yes			✓ Yes
9	Ideal Flow	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
10	Lost Time	4	4	4	4	4	4	4	4	4	4	4	4
11	Minimum Green	4	4	4	4	4	4	4	4	4	4	4	4
12	Reference Cycle Length	120											
13	Volume Combined	0.0	300.0	250.0	400.0	50.0	193.0	250.0	1163.0	338.0	195.0	972.0	250.0
14	Volume Separate Left	250.0	50.0		400.0	50.0		250.0	1163.0		195.0	972.0	
15	Lane Utilization Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	0.952	1.000
16	Turning Factor Adjust	0.950	0.958	0.850	0.950	1.000	0.850	0.950	1.000	0.850	0.950	1.000	0.850
17	Saturated Flow Combined	0.0	1820.8	1615.0	1805.0	1900.0	1615.0	1805.0	3617.6	1615.0	1805.0	3617.6	1615.0
18	Saturated Flow Separate	1805.0	1900.0		1805.0	1900.0		1805.0	3617.6		1805.0	3617.6	
19	Pedestrian Interference Time		0.0	4.8		0.0	4.8		0.0	4.8		0.0	4.8
20	Pedestrian Frequency		100.0%			100.0%			100.0%			100.0%	
21	Protected Option Allowed		FALSE			FALSE			TRUE			TRUE	
22	Reference Time	NA	NA	18.6	NA	NA	14.3	16.6	38.6	25.1	13.0	32.2	18.6
23	Adjusted Reference Time	NA	NA	22.6	NA	NA	18.3	20.6	42.6	29.1	17.0	36.2	22.6
	Permitted Option												
24	Proportion Lefts	1	0.83		1	0.00		1	0.00		1	0.00	
25	Volume Left Lane	0	300		400	50		250	582		195	486	
26	Proportion Lefts Left	1	0.83		1	0.00		1	0.00		1	0.00	
27	Left turn Equivalents	15.0	15.7		15.0	15.0		15.0	15.0		0.9	15.0	
28	Left turn Factor	0.07	0.08		0.07	1.00		0.07	1.00		1.07	1.00	
29	Permitted Sat Flow	0.0	137.6		120.3	1900.0		120.3	1808.8		1925.3	1808.8	
30	Reference Time A	0.0	261.7		398.9	3.2		249.3	38.6		13.0	32.2	
31	Adjusted Saturation B		0.0			1900.0			3617.6			3617.6	
32	Reference Time B		27.8			3.2			NA			NA	
33	Reference Time Lefts	24.6			34.6			NA			NA		
34	Reference Time		27.8			34.6			249.3			32.2	
35	Adjusted Reference Time		31.8			38.6			253.3			36.2	
	Split Timing												
36	Ref Time Combined		19.8			3.2			38.6			32.2	
37	Ref Time By Movement	18.6	3.2		26.8	3.2		16.6	38.6		13.0	32.2	
38	Reference Time		19.8			26.6			38.6			32.2	
39	Adjusted Reference Time	23.8	23.8		30.6	30.6		42.6	42.6		36.2	36.2	

	Summary	East West	North South
13	Protected Option	NA	59.5
14	Permitted Option	38.6	253.3
15	Split Option	54.4	78.8
16	Minimum	38.6	59.5
17	Combined	88.1	

	Right Turns	EBR	WBR	NBR	SBR
18	Adjusted Reference Time	22.6	18.3	29.1	22.6
19	Cross Through Direction	NBT	SBT	WBT	EBT
20	Cross Through Adj Ref Time	42.6	38.2	30.6	23.8
21	Oncoming Left Direction	WBL	EBL	SBL	NBL
22	Oncoming Left Adj Ref Time	30.6	23.8	17.0	20.6
23	Combined	22.6	18.3	29.1	22.6
24	Intersection Capacity Utilization		81.8%		
25	Level Of Service		D		

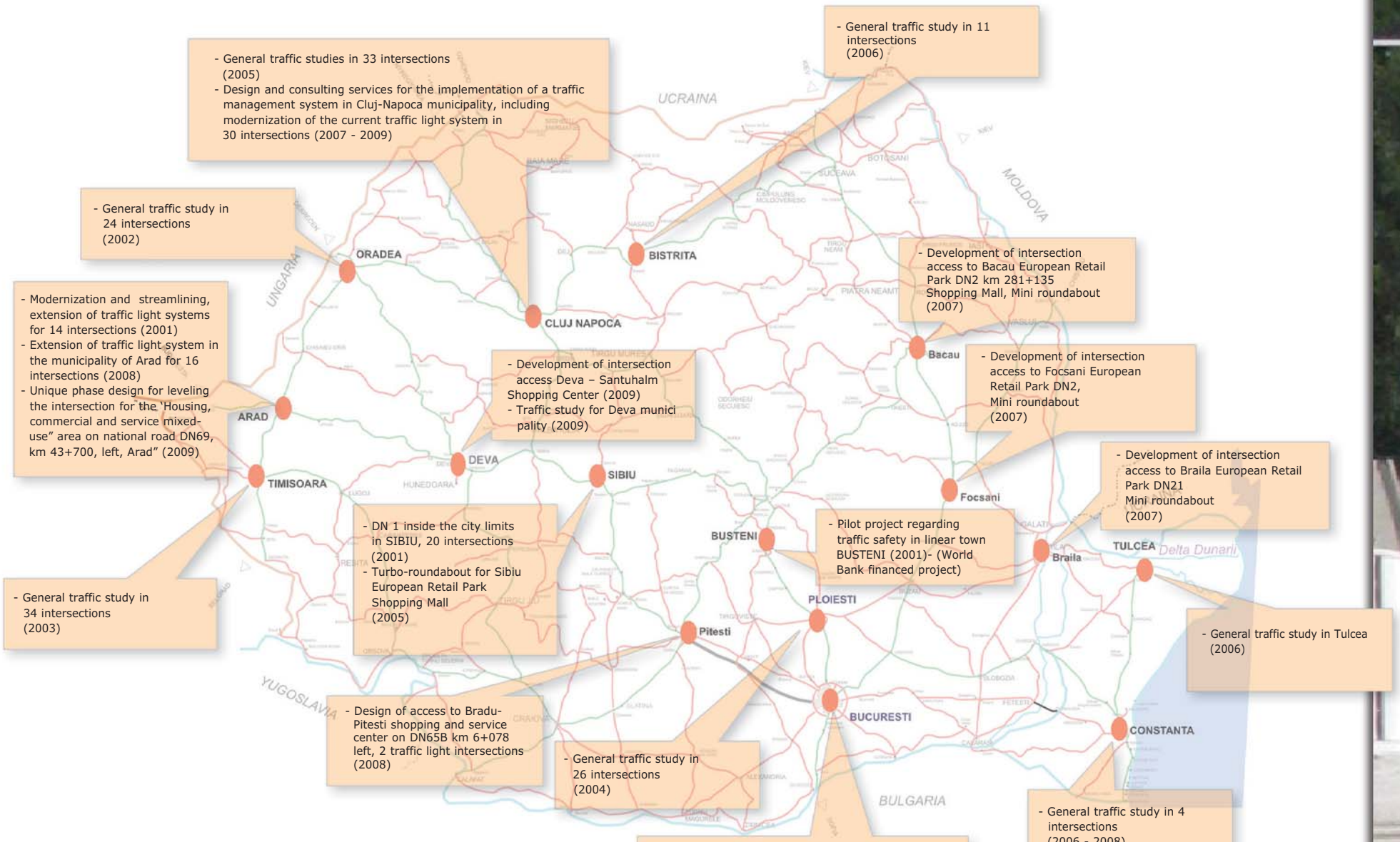
Capacity analysis for intersections





- Traffic development projects outside towns:
  - Mini-roundabouts
  - Turbo-roundabouts
- Traffic development designs in urban areas:
  - Traffic control in intersections
  - Major traffic axes and/or street networks
  - Traffic squares
  - Non-conventional intersections

- Solutions to ease traffic in intersections
- Projects and studies regarding access solutions to shopping malls, government buildings, parking platforms
- Capacity analysis of intersections
- Analysis of synchronization of traffic axes to improve traffic flow
- Microsimulation of traffic flow using expert software
- Analysis and simulation of vehicle movements and footprint (even for exceptional sizes) on various routes



Research projects:
- National architecture of the intelligent transport systems - **NARITS** (2005)
- Urban mobility increase management and ways for durable solution implementation, meant to satisfy the perspective social and economic requirements in road traffic - **MOB-URBIS** (2006)

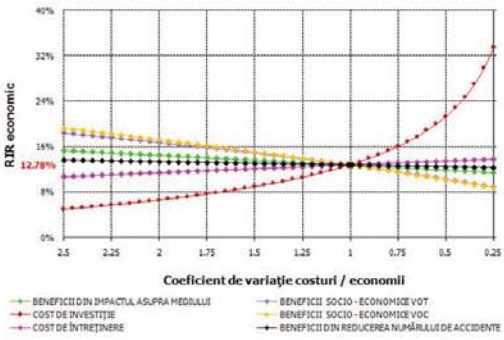
SEARCH

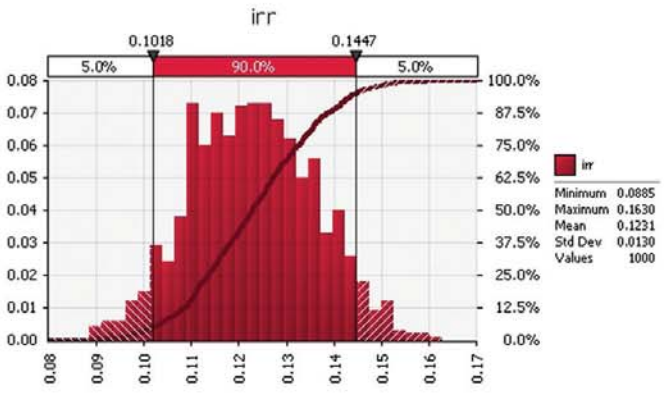
C O R P O R A T I O N





ENGINEERING ECONOMICS





the way to move on
SEARCH CORPORATION

The aim of the economic studies developed by SEARCH CORPORATION for the road infrastructure projects is **to provide an economic assessment for the feasibility of the technical solutions**. These studies evaluate the economic and financial performance of a given investment project, and mainly result in generating the required technical and economic indicators.
These indicators are the foundation for the recommendation of the opportunity and necessity of any investment.

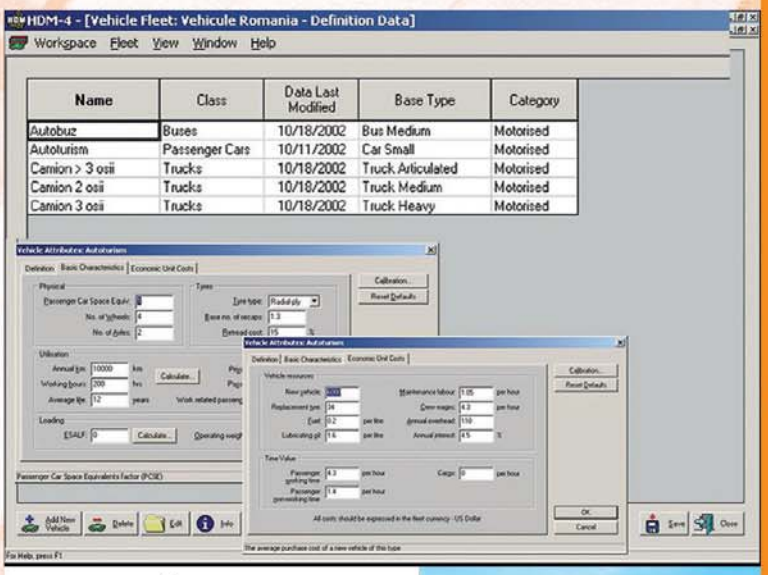
The Engineering Economics division employs highly qualified experts able to prepare various types of economic studies:

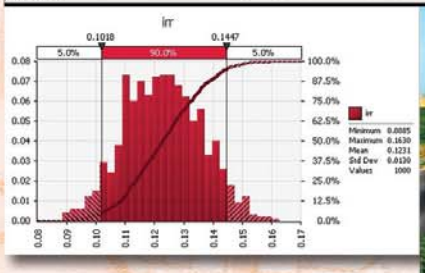
- **Cost-Benefit analysis**, including the sensitivity and risk analysis for all types of infrastructure projects
- **Economic analyses** and **projects ranking for Transportation Master Plans**
- **Files preparation** for the request of project financing by Operational Programs implemented in Romania to use the Structural Instruments
- **Project management** from the perspective of structural instruments financed projects implementation.

The methodology used for **the Cost-Benefit Analysis** is in accordance with:

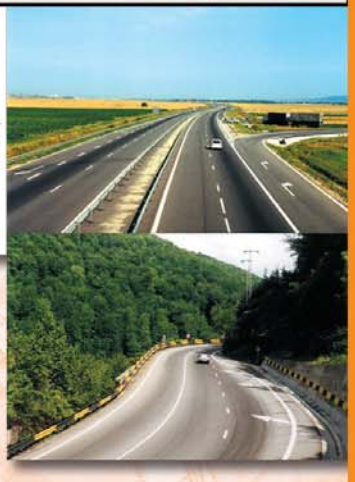
- the "Guide to Cost-Benefit Analysis of Investment Projects" - issued by the EC in June, 2008
- the Appraisal and Ranking Projects Method for transportation sector within the General Master Plan of Romania
- the National Guide to Cost-Benefit Analysis of Structural Funds financed projects-issued by ACIS in 2008
- the Romanian legislation in force

Economic efficiency analysis for the Bucuresti - Brasov Motorway. Determination of the fleet of vehicles using HDM4

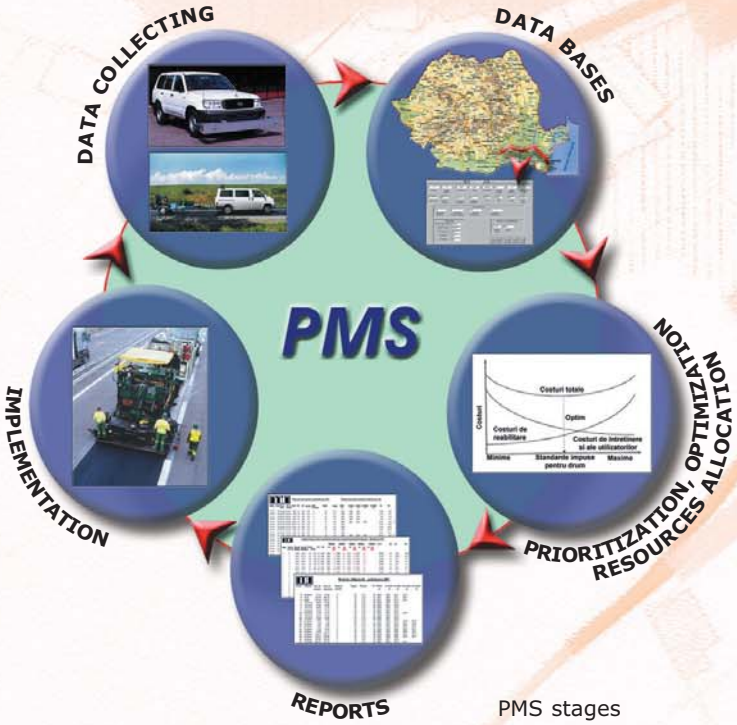




Internal Rate of Return



DN1



PMS stages

The determined financial and economic indicators are **the Internal Rate of Return** of the project, **the Net Present Value** and **the Benefit-Cost Ratio**. These indicators allow to asses the economic and financial performance of a project, the ranking of the different alternatives and the planning out of investments.

Project Risk and **Sensitivity Analysis**
The project sensitivity analysis identifies the critical variables of a project.
The risk analysis estimates the probability distribution of the economic and financial performance project indicators variations.

Resource planning and **optimization in the management of road network**, by means of the PMS system:

- Modelling of pavement behavior
- Determination of maintenance strategies
- Ranking of interventions and optimization of fund allocation

SEARCH CORPORATION

Cost-Benefit Analysis For Investment Projects

Bucuresti - Constanta Motorway





Toll station

- **The Cost-Benefit Analysis** for obtaining Non-refundable European funds for projects financed by the Operational Programs implemented in Romania.
  Motorways, expressways and national roads:
  - Cost-Benefit analysis for investment projects
  - Studies and analyses for motorways toll strategies
  - Choosing the optimal position for toll points, depending on the selected toll system

Logistic strategical plan at the level of Ploiesti. Projects staging



- **Transportation Master Plan**
  - Develop short, medium and long term programs for investment projects provided in the Transportation Master Plan, by means of multi-criteria analysis, including factors such as cost-benefit analysis, investment stages, and budget constraints.

Structural Funds 2007/2013

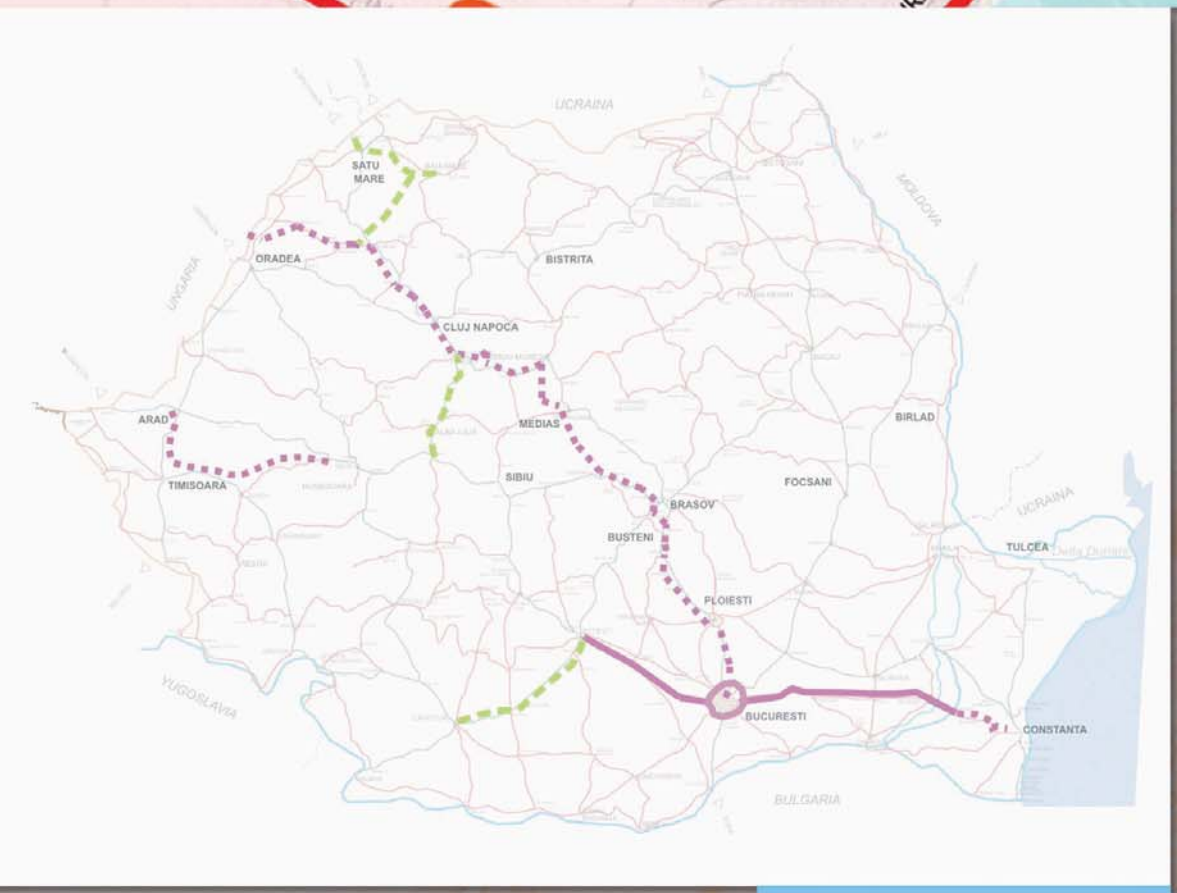
- **Other investment projects**: Cost-Benefit analysis for different investment projects:
  - Airports
  - Bridges
  - Underground parking areas



Overhead crossing at D-na Ghica



Underground parking





Bucuresti - Constanta Motorway

Motorways and Expressways financed by the Government of Romania or co-financed by the Government and International Financial Institutes:

- Feasibility study for Brasov - Oradea motorway (415 km)
- Feasibility study and financial analysis for Bucuresti - Brasov motorway (173 km)
- Feasibility study for Bucuresti South Ring Road Motorway (46 km)
- Feasibility study for the modernization and introduction of a toll system for the Bucuresti-Pitesti motorway (96 km)
- Feasibility study for Deva - Nadlac motorway, Timisoara - Nadlac segment (100 km)
- Feasibility study for expressways:
  - Petea - Satu Mare - Baia Mare (82 km)
  - Craiova - Pitesti (121 km)
  - Sebes - Turda (73 km)
  - Expressway connecting Transilvania Motorway to Petea-Satu-Mare-Baia Mare expressway (19 km)

Bypasses:

- Feasibility study for Sibiu bypass – 2009 (17 km)
- Feasibility study for Brasov bypass– 2009 (24 km)
- Feasibility study for Bacau bypass – 2009 (31 km)
- Extension to 4 lanes of Bucuresti South bypass (32 km)
- Modernization of Bucuresti bypass, A1-DN7 segment (11 km)

Airports:

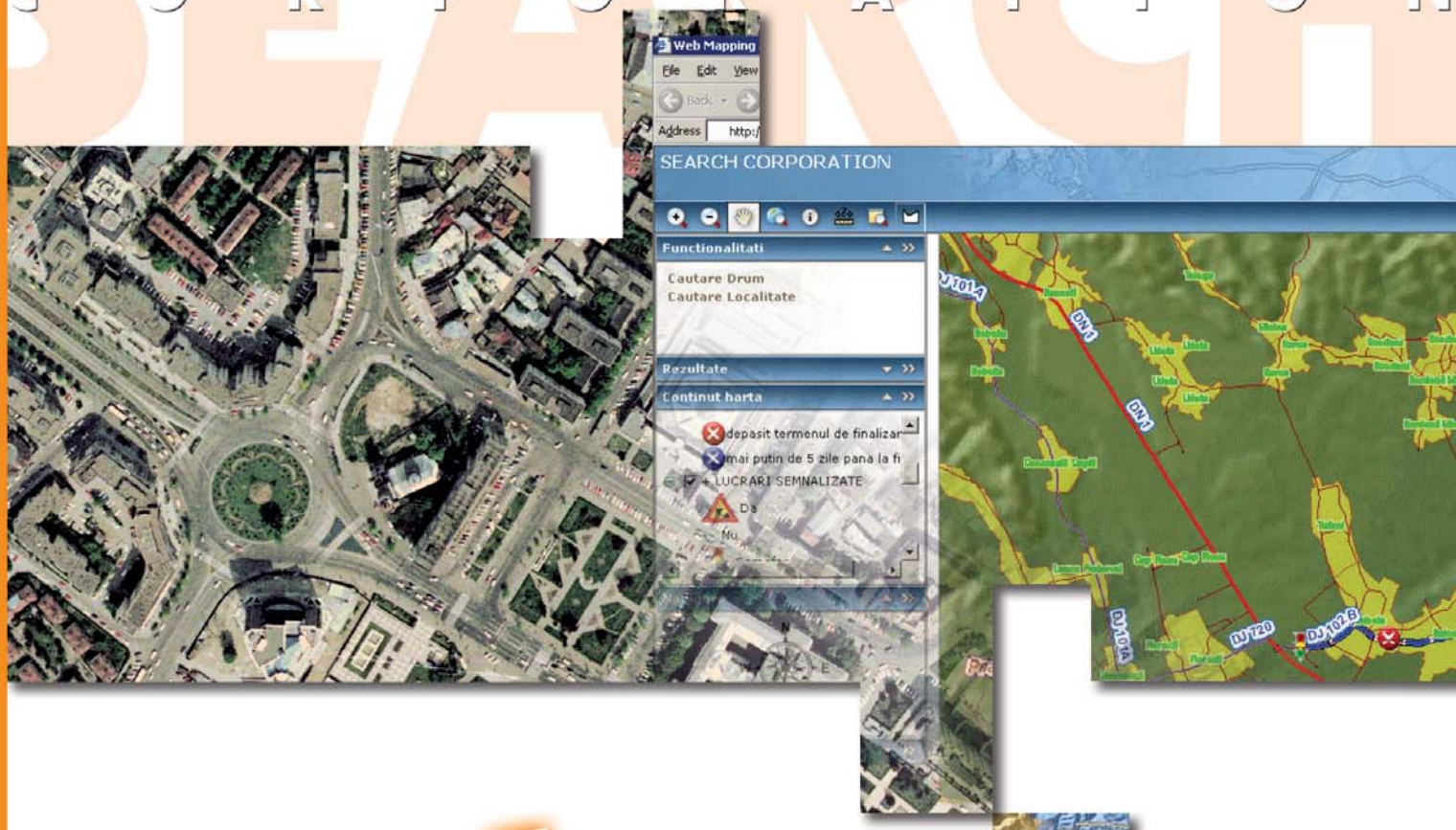
- Cost-Benefit analysis for the extension and modernization of runways, taxiways and aprons of Oradea airport

Other feasibility studies financed by EU, EIB, EBRD, IBRD and Romanian Government for:

- Rehabilitation of DN 24, km 0+000 - 51+000, Contract 502, (51 km)
- Rehabilitation of DN 2, km 263+000 - 302+000, Contract 505, (39 km)
- Rehabilitation of DN 2, km 302+000 - 341+900, Contract 506, (39 km)
- Rehabilitation of DN 12, Chichis-Miercurea Ciuc, (80,7 km)
- Rehabilitation of DN 2B, Braila - Sendreni (38,6km)
- Rehabilitation of DN 72, Gaesti – Ploiesti (72 km)
- Rehabilitation of DN 67B, Scoarta – Pitesti (188 km)
- Rehabilitation of DN 29, Suceava – Botosani (39 km)

SEARCH

C O R P O R A T I O N





GEOGRAPHIC INFORMATION SYSTEM

Multi-criteria Analysis Using Digital Field Modelling - Alignment Calculation

Geographic Information System is a whole of hardware/software for acquisition, storing, analysis, management and publishing spatial data.

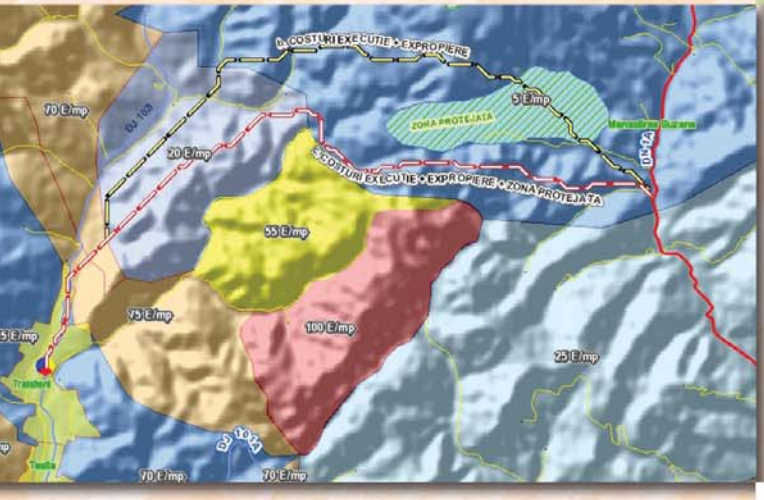
Our **GIS Division** is equipped with specialized hardware and software. Its staff has extensive experience in national and worldwide projects of GIS analysis and development of GIS solutions.

SEARCH CORPORATION uses the following software programs:

- **ArcGIS Desktop - ArcEditor Concurrent Use**. Software used for the generation, management and analysis of spatial data structures
- **ArcGIS Desktop - ArcView.** Software used for the generation, management and analysis of spatial data structures
- **ArcSDE (EDN)**. Engine used in enterprise administration of spatial data
- **ArcIMS (EDN)**. Software used for the development of Web-GIS solutions
- **ArcGIS Server Enterprise Edition (EDN)**. Software used for the development of Web GIS services using .NET, AJAX, Microsoft Silverlight, Adobe Flex etc.
- **ArcGIS Image Server (EDN)**. Software used in the enterprise administration of photograms and satellite imagery
- **Microsoft Visual Studio 2005, SQL Server Express Edition**. Software used for the development of applications, for data storage and enterprise administration

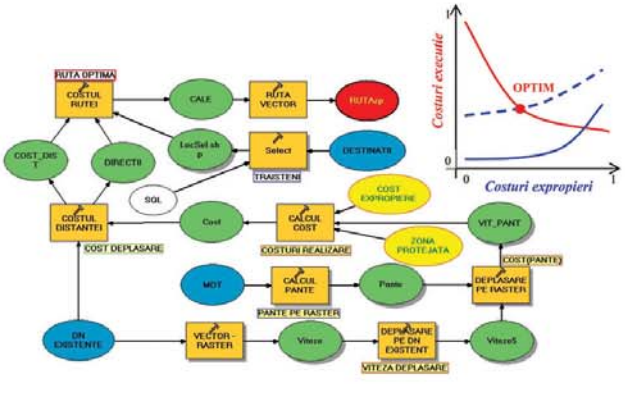
Detection of **optimum alignment** for a connecting road between a town (Traisteni, Prahova) and an existing road (DN1A).
The standard used for this calculation is **the minimum cost** for the proposed road platform.





The connecting road alignment may depend on other criteria as well (protected areas, operating costs, expropriations, etc).
The calculation in the picture to the left takes into account **the required expropriation costs in a protected area scenario**.

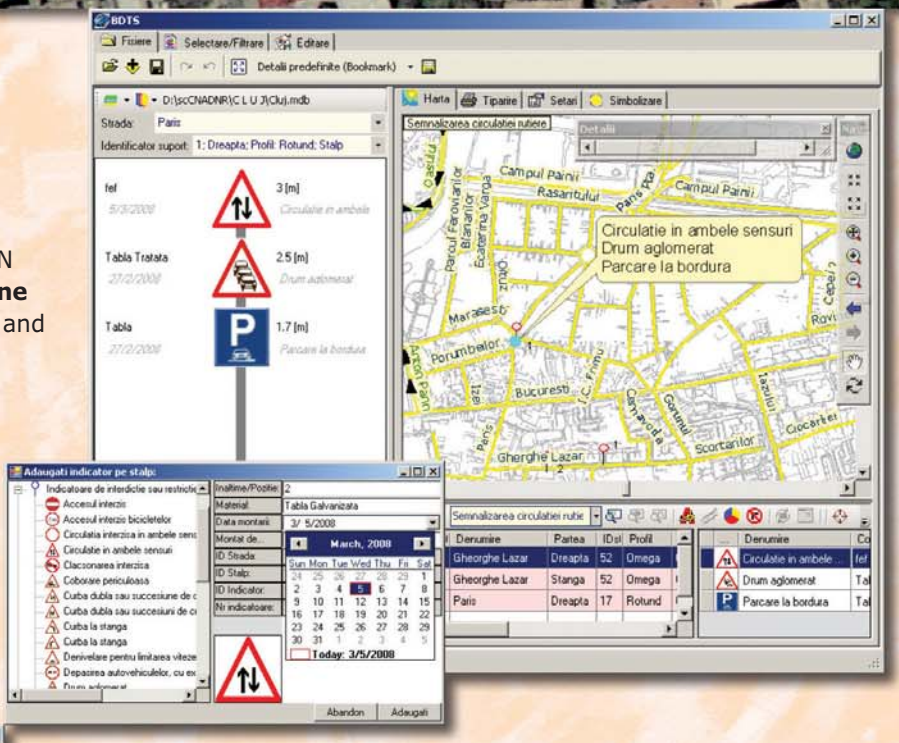
For the purposes of such evaluation, SEARCH CORPORATION developed a calculation model, the synoptic scheme of which is represented in the graph to the right.
For the weighted average calculation, we raised the expropriation cost curve.

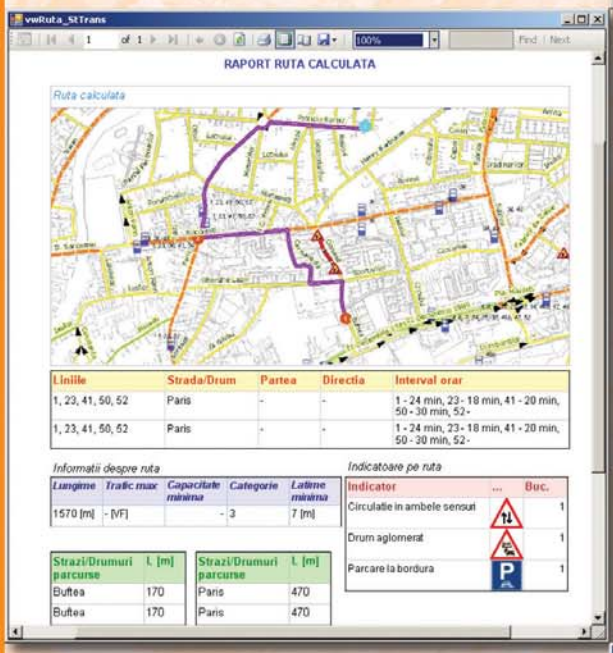


SEARCH CORPORATION

Multi-criteria Analysis Using Geometric Networks - Alignment Calculation

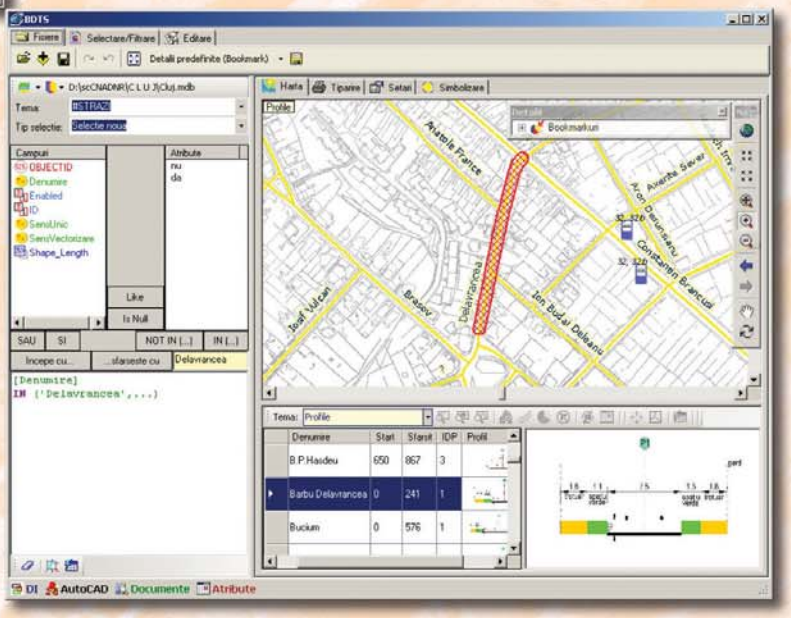
- SEARCH CORPORATION creates **GIS standalone applications** for road and street network data management and monitoring.





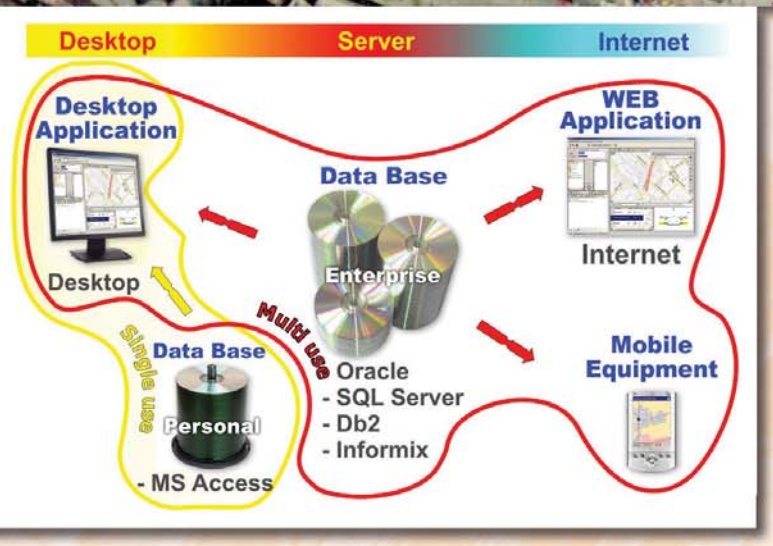
- SEARCH CORPORATION develops tools for the calculation of alignments based on the following criteria:
  1. minimum distance
  2. moving direction of one-way streets
  3. other factors likely to influence traffic conditions, such as pavement work

- Information on the pavement or traffic conditions may be stored and managed in the spatial data base. These data and relevant GIS tools may be used as support for decisions in the administration of road and street networks.

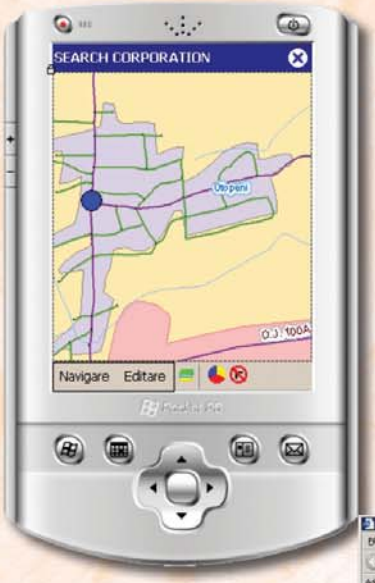


GIS Web Application for tracking fleet vehicles

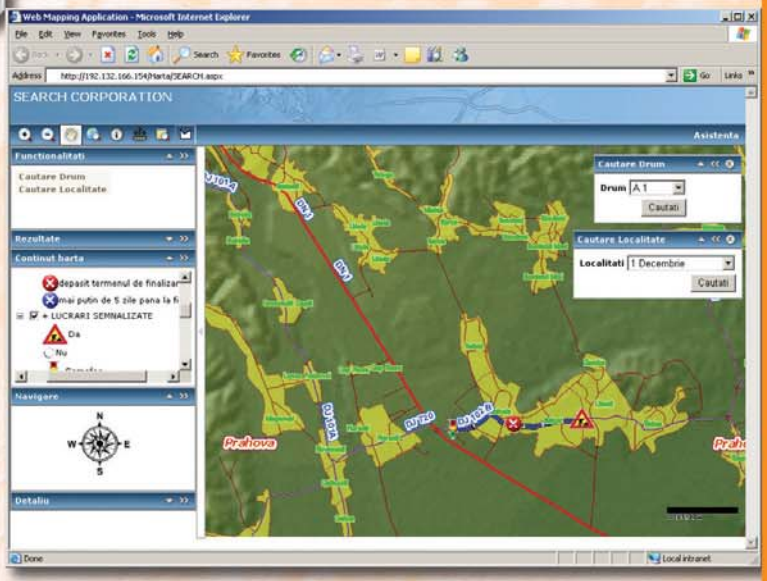
GIS Enterprise Solutions



- SEARCH CORPORATION uses the most up-to-date existing technology (**.NET, technology for the storage and management of spatial data, enterprise data base, distributed database**) for the development of GIS solutions used in the administration of road and street networks.



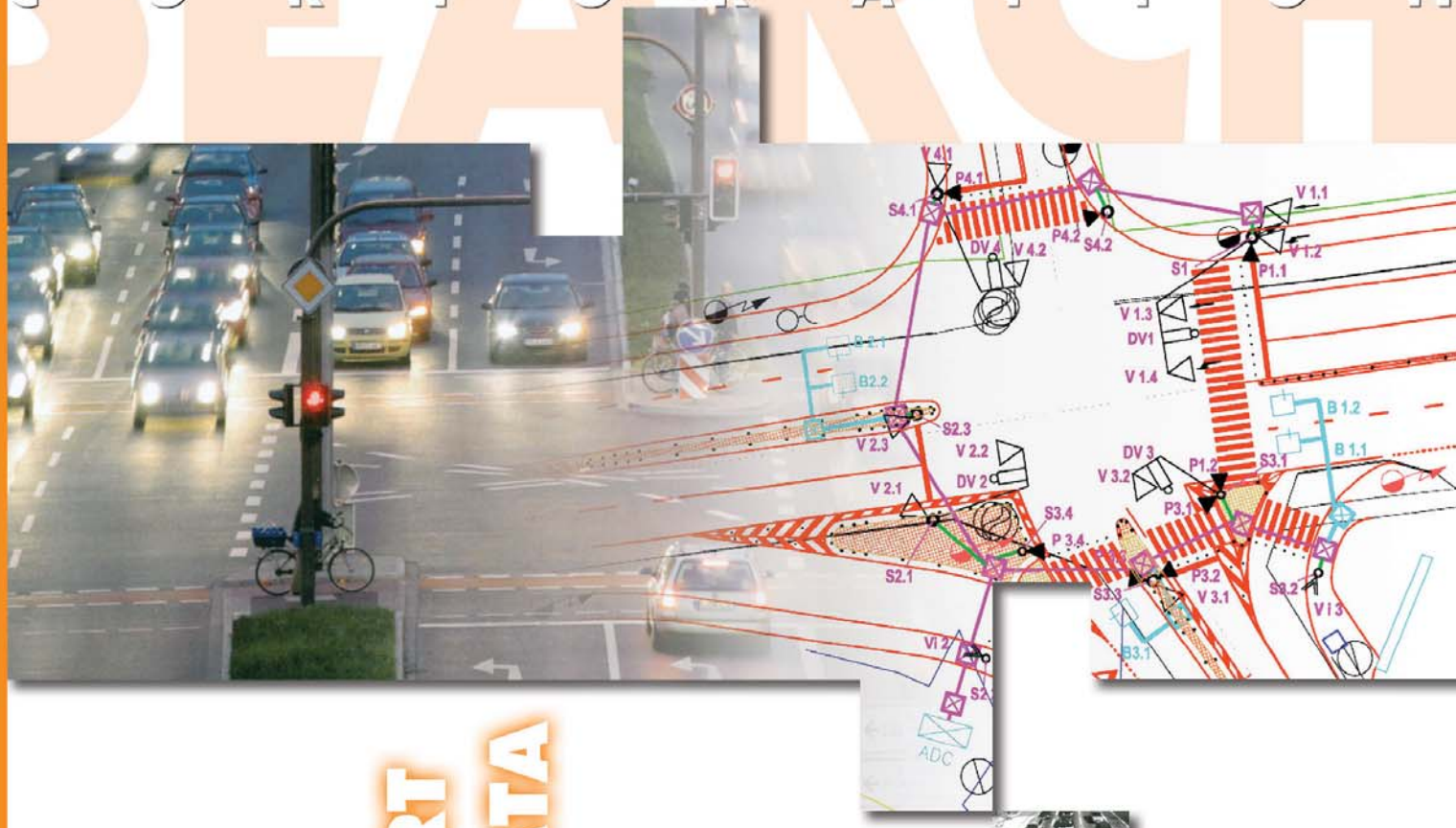
- The GIS solutions produced by SEARCH CORPORATION may include **mobile equipment** for the updating of spatial data base on-site.



- Using the server technology and the various functions provided by the enterprise data base, spatial information may be posted online. SEARCH CORPORATION also develops **Web-GIS solutions** allowing for **real-time update of online spatial data**.
Online GIS applications are the pre-requisite of inter-operability among various agencies and organizations having jurisdiction over the roads and streets.

SEARCH

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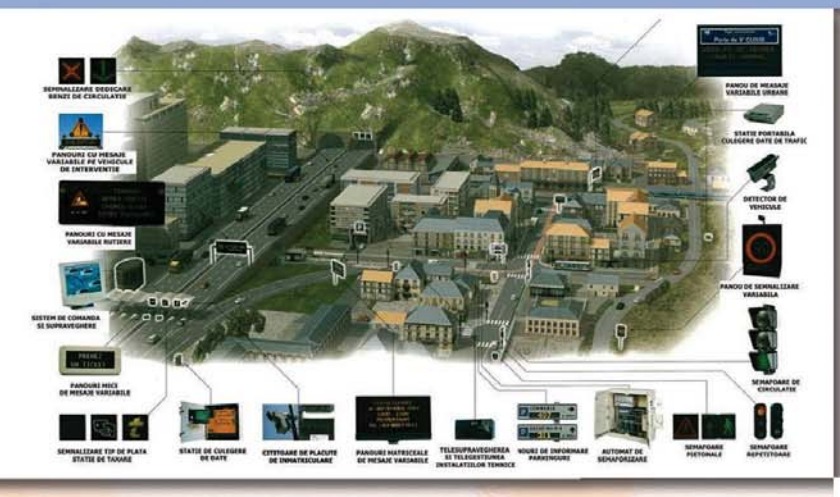






INTELLIGENT TRANSPORT SYSTEMS & TRAFFIC DATA COLLECTION

Intelligent Transport Systems

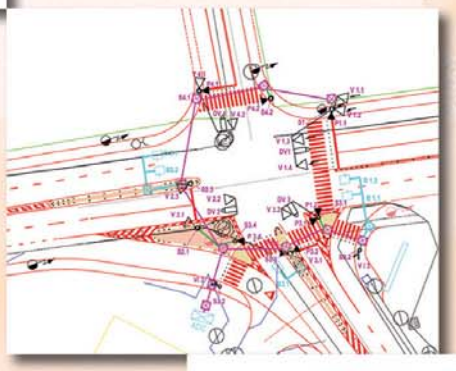


SEARCH CORPORATION is **a founding member of Romania's Intelligent Transport Systems**. Our company helps pioneering ITS and TDC solutions for both urban and inter-urban road projects.

We perform collection and processing of traffic data in town street intersections and arteries and intercity national roads.
For these purposes, we use **state-of-the-art technology**, and **extensively experienced staff**.

1. Urban

a) **Solutions and projects** regarding:
- Implementing traffic light systems in intersections of main arterials
- Central Traffic Management Systems
- Public Transport Management Systems
- Design intersections with vehicle detectors
- Underground and above ground parking garages
- Equipment for parking systems
- Information systems for drivers, pedestrians and passengers in bus stops and public transport systems







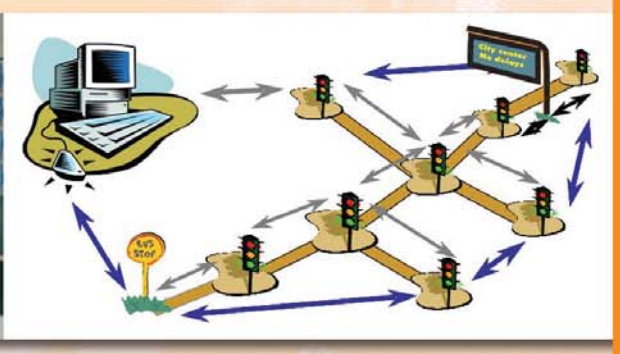
b) **Operation services** after implementation of urban traffic optimization systems.



2. Intercity

Solutions and projects regarding:
- Equipment for outside roads, expressways and motorways
- Variable message signs
- Traffic and environment detectors
- Speed enforcement
- Video surveillance
- Toll equipment and systems
- Central Management Systems of roads and motorways

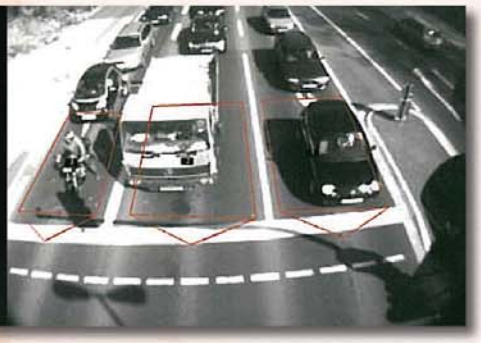




TRAFFIC DATA COLLECTION

- Data collection, fundamentally linked to the analysis and creation of optimal solutions for traffic management, is made by the **Traffic Data Collection Division**, by use of mobile equipment such as:
  - Manual traffic counters and classifiers
  - Automatic traffic counters and classifiers using advanced technology:
    - Video detection
    - Radar detectors
    - Magnetic sensors
    - Inductive sensors

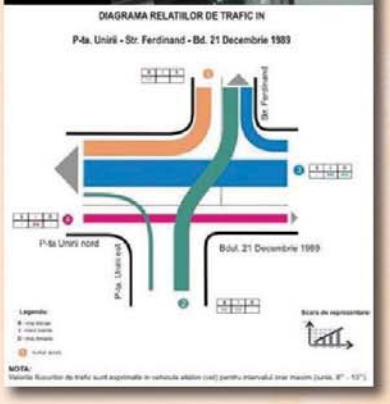






- Determined parameters:
  - Directional volume-flows
  - Vehicle classification based on speed and length





1. Urban:
- Data collection is made:
  - in intersections
  - in sections, in significant road sections in the urban network

2. Intercity:
- Data collection is made:
  - in sections, in significant traffic points in the road network, or motorway
  - in national road and motorway junctions

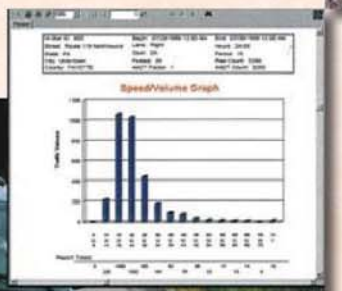
Traffic Data Collection

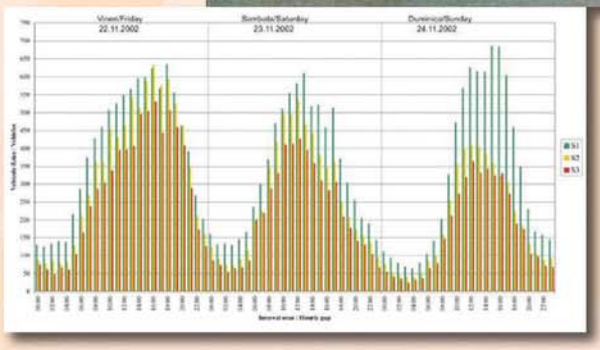
- In sections, on arterials, streets or outside roads, we use radar technology or inductive detection.













SEARCH

C O R P O R A T I O N







AIRPORTS

Equipment and Investigation Method

Our **Airport and Airport Infrastructure Division** has seen an increasing development in the recent years, while SEARCH CORPORATION became a market leader in this field in 2008.



BW 300 CEDIMA Core Drill

SEARCH CORPORATION has state of the art equipment and investigation methods to analyze the physical properties of the entire structures for runways, taxiways and aprons, using drill cores and falling weight **Dynatest 8081-HWD deflectometer** (heavier loading deflectometer).

The assessment of degradation and the measurement of runway structures, taxiways and aprons are based on the latest calculation methods and computer software.





Cores



Runways

TYPES OF WORKS

This division's projects are devised by mixed teams from Romania and the world.
Our aim is **to combine the international know-how with local resources** and **develop a top-quality expertise**:

- Technical expertise on the movement surface condition
- Technical expertise in determining the bearing capacity by using the ACN/PCN method for:
  - runways
  - taxiways
  - aprons
- Feasibility, technical and detailed design projects for the improvement and modernization of airport infrastructures
- Technical specifications on the maintenance and rehabilitation of airport infrastructures.

PORTFOLIO



Cores extraction
- joints investigation

Bucuresti "Henri Coanda" International Airport
- Establishing the bearing capacity of runways, taxiways and aprons using the ACN/PCN method

Iasi International Airport
- Rehabilitation and modernization project, including the following stages:
  - pre-feasibility study
  - feasibility study
  - technical project
  - preparation of the bid documents for construction

Constanta "Mihail Kogalniceanu" International Airport
- Study to asses the runway physical and mechanical properties
- Emergency runway and apron repair

Boboc Military Aerodrome
- Geotechnical studies and technical improvement solutions
- Testing of the bearing capacity of taxiways and aprons, using the ACN/PCN method
- Technical expertise on the movement surface condition
- Technical expertise and assessment of Real Bearing Capacity, using the ACN/PCN method







Fetesti - Borcea Military Aerodrome
- Technical expertise and testing of the runway bearing capacity, using the ACN/PCN method
- Feasibility study and preparation of "TBCE" fiches for 7 projects to be implemented on this aerodrome

Oradea Airport
- Project to increase the bearing capacity and extend and loading/unloading platform, including:
  - feasibility study
  - technical project
  - preparation of bid documents for construction

Timisoara "Traian Vuia" International Airport
- Study on the runway physical and mechanical properties using the ACN/PCN method.

Bacau Airport
- technical project
- preparation of technical documents to obtain the building permit
- preparation of bid documents for construction
- Regular repairs for the airport taxiways
- Technical project for the rehabilitation of the airport runway, taxiway and apron

Baia Mare Airport
- Runway bearing capacity check, using the ACN/PCN method.

Tulcea "Delta Dunarii" Airport
- Measurement and investigation to assess the Real Bearing Capacity, using the ACN/PCN method

Satu Mare Airport
- Technical expertise and assessment of Real Bearing Capacity, using the ACN/PCN method

Targu-Mures Airport
- Technical expertise and design of technical solution for the rehabilitation of runway

Bucuresti Baneasa "Aurel Vlaicu" International Airport
- Study to asses the runway physical and mechanical properties

CERTIFICATIONS

SEARCH CORPORATION is authorized by **the Romanian Civil Aeronautical Authority** to perform civil aviation activities, such as listed below:



- nondestructive measurements and assessments to establish the physical properties, lifecycle and bearing capacity of airport runways
- design of modernization/ improvement, repair and rehabilitation works for airport movement surfaces
- pre-feasibility studies for works of modernization/ improvement of airport runways
- engineering and technical consulting services for topographical measurements including WGS 84
- specialist advice for repair and rehabilitation of airport runway structures





Dynatest 8081-F.W.D.
Heavy Weight Deflectometer



- design, consulting and technical assistance for new facilities, as well as repair, maintenance and consolidation techniques for civil and industrial buildings specific to civil aviation
- appraisal services and pre-approvals of documents, supervision and technical assistance for civil and industrial buildings for civil aviation
- preparation of technical specification, tender documents, enforcement guidelines and standards in civil aviation
- design of technical solutions, products and processes for the construction or rehabilitation of airport movement surfaces and civil and industrial buildings
- performance of technical expertise on airport runway behavior over time, and of civil and industrial buildings for civil aviation
- impact and environment balance studies in airport zones

SEARCH CORPORATION



PAVEMENT DESIGN

SEARCH CORPORATION provides decision-makers from the relevant agencies a complex set of instruments, allowing for:

- the support of all technical and economic decisions for the rehabilitation and maintenance of roads, streets, airport take-off and landing runways, etc.
- the preparation of Pavement Rehabilitation and Maintenance Programs, funded by the Government of Romania and International Financial Institutes





EQUIPMENT

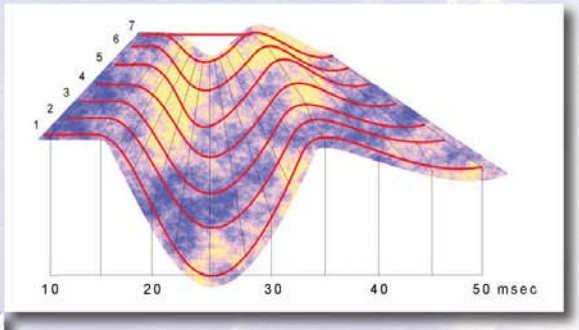
For the technical expertise of existing roads SEARCH CORPORATION's Pavement Design Division uses nondestructive testing technology and modern equipment, such as:

- **Falling Weight Dynatest 8000 FWD deflectometers** and **Heavy Weight Dynatest 8081 HWD deflectometers**, dedicated to the testing of flexible, semi-rigid and rigid pavement, and airport runways, taxiways and aprons
- **KOR IT coring machine** for the assessment of pavement layer thickness
- **BUMP INTEGRATOR** to determine the surface conditions of a roadway (International Roughness Index)

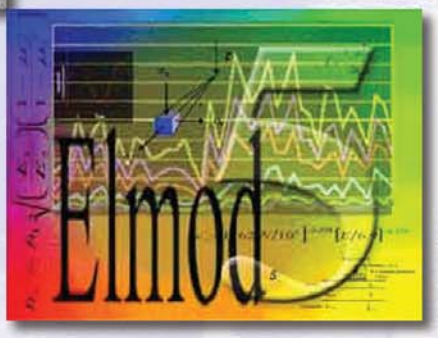
By means of this equipment, we are able to achieve a competitive in-situ testing system, and collect **real time data** regarding **roads**, **streets** and **airport infrastructure**.

Data are processed using a set of programs enabling the assessment of maintenance and rehabilitation measures, which are then defined in programs of monitoring, coordination and prioritization of the construction.

TYPES OF WORKS







SOFTWARE

- Pavement analysis system using the **1989ELMOD 5.0** macro program from Denmark.
- **CALDEROM 2000** software created by SEARCH CORPORATION, which is a part of the Standards used in Romania for bituminous pavement design for the reinforcement of flexible, semi-rigid and new rigid pavement systems.

As of 1999 the experts of our division are **members of the European Cooperation in the Field and Technical Research** (C.O.S.T.) and of **FWD Users Group for Europe**.

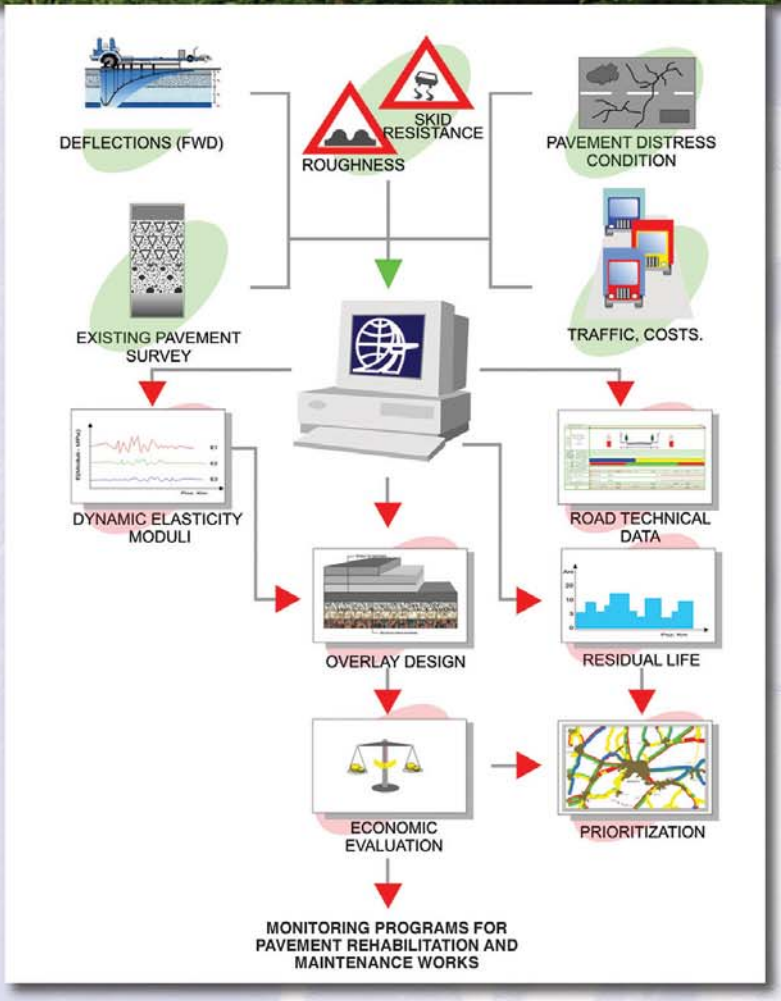
NONDESTRUCTIVE INVESTIGATIONS

- Technical assessment on pavement condition
- Investigation of the bearing capacity and determination of ACN/PCN for runways, taxiways and airport aprons
- Determination of the bearing capacity and develop the solution for rehabilitation of road projects

OTHER TYPES OF WORKS

- Pavement design for new motorways and expressways works
- Development of different standards used in Romania for the design of pavement structures for different types of roadways.

PORTFOLIO



Pavement Engineering services chart

The outcome of the testing operations performed by the Pavement Design Division provides the local administrations with **a reliable and coherent data base**, allowing them to analyze and establish future road rehabilitation and maintenance programs.

PORTFOLIO:

1. Assessment of the bearing capacity and surface conditions for the entire European national road network in Romania and for a significant part of the county and communal road networks
2. Assessment of the bearing capacity for more than 50% of the Republic of Moldavia's and Macedonia's national road networks
3. Development of a measuring system and monitoring the behavior of roadway structure over time for street networks as part of the multi annual maintenance programs in Bucuresti and other municipalities: Arad, Brasov, Baia-Mare, Cluj-Napoca, Ploiesti, Piatra-Neamt, Sibiu etc.)
4. Technical expertise for pavement evaluation for a significant part of national roads and street networks in Romania
5. Assessment of the bearing capacity and determination of ACN/PCN for runways in the following airports: Henri Coanda, Aurel Vlaicu, Ianca, Arad, Sibiu, Targu Mures, Constanta (Mihail Kogalniceanu), Timisoara, Satu Mare, Tulcea, Iasi, Baia Mare, Fetesti, Bacau
6. Pavement design for the following projects:
   - Bucuresti - Constanta motorway (Bucuresti - Fundulea segment)
   - Bucuresti - Brasov motorway
   - Brasov - Tg. Mures motorway
   - bypasses for the municipalities of Bucuresti, Pitesti, Timisoara, Lugoj, Sibiu, Bals, Radauti, Bacau
   - expressways: Craiova - Pitesti, Sebes - Turda, Petea - Satu Mare - Baia Mare and the expressway connecting Transilvania Motorway to Petea-Satu Mare-Baia Mare expressway
7. National technical regulations and specifications development:
   - Standard specifications for design of bituminous layers to increase bearing capacity of flexible and semi-rigid pavements (Technical Specifications AND 550-1998)
   - Standard specifications for design of flexible and semi-rigid pavement (Technical Specification PD177 - 2001)
   - Development of the method of converting physical vehicles into standard vehicles for the pavement design
   - Standard specifications for the weak concrete layers in roadway structures (Technical Specifications NP 111 - 2002)

SEARCH

CORPORATION







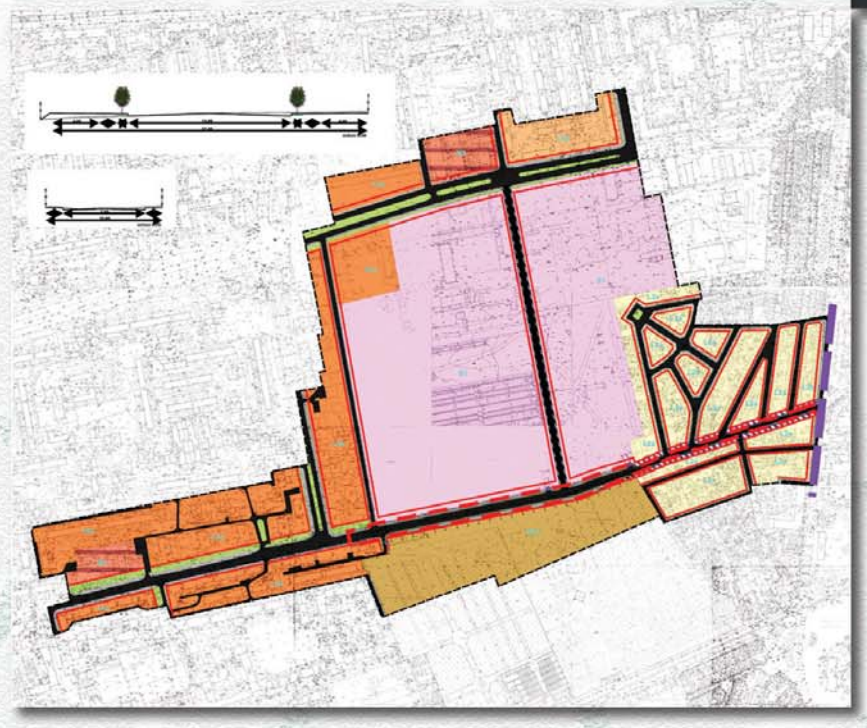
URBAN PLANNING

URBAN PLANNING AND STUDIES

- The staff of SEARCH CORPORATION's Urban Planning Division is made up of graduates of the Urban Planning and Architecture School of "Ion Mincu" University of Bucharest, and members of the Romanian Registrar of Urban Designers.

Example: General Urban Plan of the Municipality of Zalau - Drawing, Urban Regulations



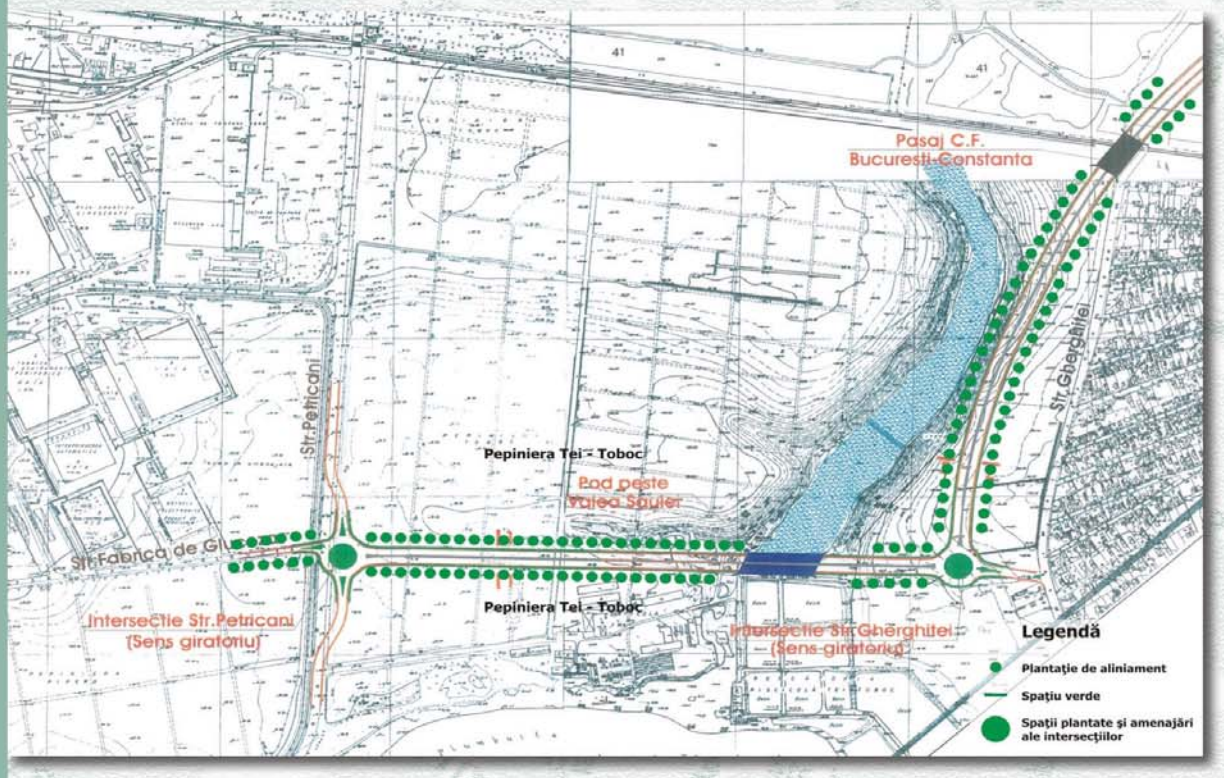


Zonal Urban Plan - Drawing, Urban Regulations - Penetration to the "1 Mai" Street

- **URBAN PLANNING**:
  - Zoning designs
  - Plot designs



Landscaping along
the Bucuresti - Brasov Motorway,
on the Bucuresti Municipality
District 2



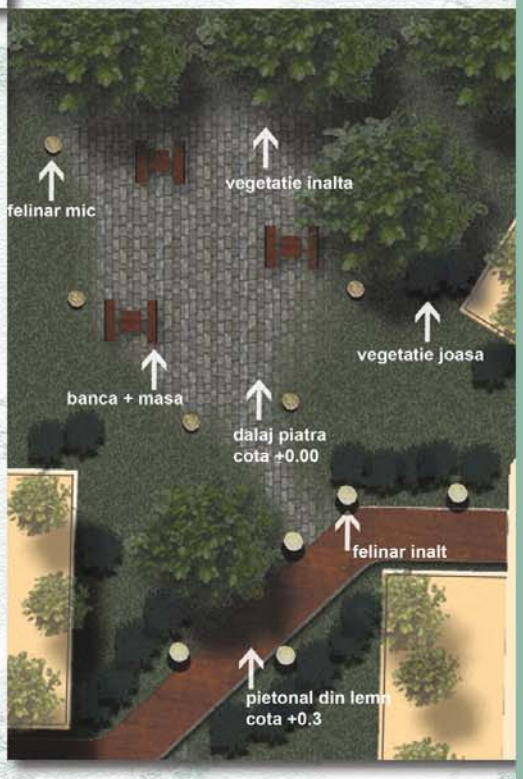
- **STUDIES**:
  - Landscaping for:
    - parks
    - gardens
    - squares
    - urban areas
    - urban alignments
  - Urban area revival
  - Strategies for the development of human settlements. In the light of S.W.O.T. analysis, which has identified the strengths and the weaknesses, the opportunities and the threats pertaining to the local and cultural background, the local economy, the population and labor force, the infrastructure and the environment - our company sets a diagnosis and forms a vision on how to develop the human settlement. An urban development policy for the component areas is also attained. The policy consists in identifying the values of the area, setting the principles, devising the objectives and actions, drawing up the intervention programs and projects, as well as the means of intervention.

URBAN PLANNING AND STUDIES

Zoning project



Urban area design



- SEARCH CORPORATION's Urban Planning Division prepared the **Zonal Urban Plans** for several streets and arterial roads, commercial areas, hospitals in Bucharest.

Currently, the Division is developing **a large scale project for the General Urban Plan of the City of Iasi** and is detailing three zoning regulations for the Downtown of this city.

SEARCH

CORPORATION







BUILDINGS DESIGN

GENERAL ACTIVITIES

The Buildings Design Department was established and initially developed to meet the company's own real estate needs.
In addition, SEARCH CORPORATION through this department is promoting new concepts and technologies on the Romanian relevant market.
The staff of this department is made up of experts with an ample urban view. They also give great importance to the details of the extensive and complex projects they develop.

The Buildings Design Department has three Sub-Departments:

- **Architecture Division**, made up of certified architects, members of the Romanian Architects' Trade Organization
- **Structures Division**, made up of professional engineers with wide experience in all categories of applied structures
- **Mechanical and Electrical Division**, made up of young engineers, very skillful in using the most up-to-date equipment
- **Cost estimate Unit**, made up of design sub-engineers and technicians

The Buildings Design Department provides specialist services for civil and industrial buildings and multifunctional interconnecting buildings projects. It is also able to design complex projects for all design stage and all specialist areas: architecture, structures and mechanical and electrical installations.

The team of Buildings Design Department is eager to become one of the most important in the Romanian civil and industrial building design, through its greatly elaborated projects, by use of 21st century architecture and engineering - new technical images and solutions, and technology of last generation. It also aims at diversifying the architecture curriculum (education, culture, health, transportation, administrative).





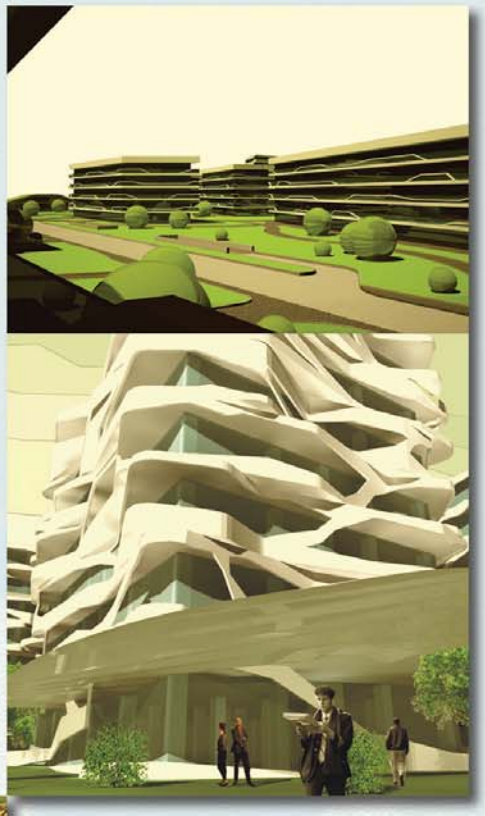




Crystal Tower Business Center - 20 floors office building

For the design of this unit, our experts have adopted technologies which are used for the first time in Romania and even in Central and Eastern Europe: **double skin curtain wall, BMS system, rooftop heliport**.
The project is designed for low and easy maintenance, as well as protection of the environment, features typical to green buildings.
Built surface: **23.000 sqm**
Location: **Bucuresti**
Total investment: **35.000.000 Euro**

PROJECTS



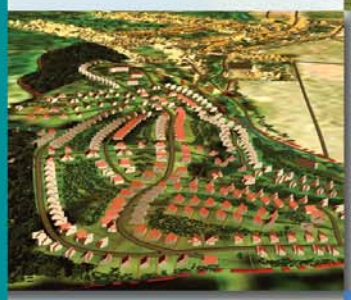
Buftea Residential Buildings - illustration.

The building complex is made up of:
- Sports Center (indoor swimming pool, ice skating rink, tennis court)
- Office space
- Commercial space
- Hotel
- Apartments
- Underground Garage space

Holiday Residential Buildings

Complex facilities made up of buildings, 4 apartments each, provided with "loisir" space, reception desk, waiting area, coffee place, bar, groundfloor movement space, technical space and semi-basement parking.

Location: **Neptun**
Surface: **6766 sqm**
Height regime: **8 floors**



Modernization and extension of Vulcan Commune, Brasov county

The project includes the modernization of Vulcan Commune infrastructure and its extension by 98 ha, 346 individual homes, commercial centers, medical clinic, school and entertainment area - motel, club and sports field.



Sydney 2000 - the biggest Olympic Sports Center, in Izvorani Village Neighborhood, Ilfov

Our team has designed the Olympic Arena Complex and coordinated the entire project of this sports facility, which includes: Olympic swimming pool, gymnastics hall, indoor tennis courts, athletic track, football and rugby stadium.

Total investment: **68.082.167 Euro**

PROJECTS

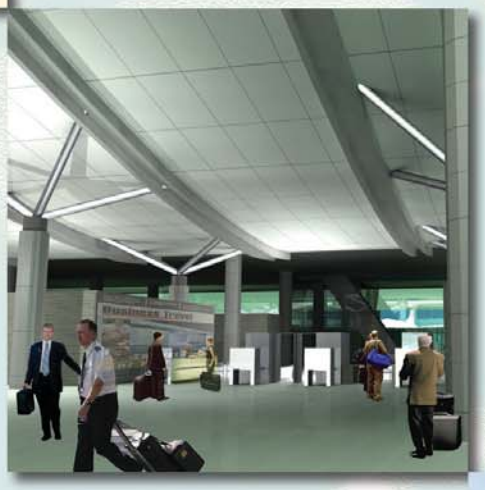


Modernization of Iasi International Airport - design of a 4 floors passenger terminal

As per the client's request, the project developed in two stages. Initially, the passenger terminal was designed for a capacity of 1 million passengers/year, likely to be extended in the future to 2 million passengers/year. The extension shall be made by adding two bays on each part.

Total investment:
65.242.294 Euro





Lia Manoliu National Stadium

- Technical expertise for the standing areas I and II (including administrative facilities), stadium floodlights, terraces, stadium access stairway, public rest rooms
- Expertise surveys for electrical installations
- Preparation of geotechnical study
- Probing and nondestructive testing of materials

Location: **Bucuresti**

SEARCH CORPORATION
branch office in
Timisoara



Multi level Parking

By this multi level parking the traffic flow in the area and along the boulevard is visibly improved, especially in the commercial sector where cars usually are parked in a haotic way.

Height regime: **GF+7F**
Capacity: **350 units**
Location: **Mamaia Resort**



SEARCH

C O R P O R A T I O N







FIELD INVESTIGATIONS AND STUDIES

GEOLOGY TEAM

Search Corporation's Field Studies Division is structured as shown below:
Geology Team:
Geological and geomorphological mappings, geophysical measurements, drilling and laboratory testing, preparation of geotechnical studies and technical support.
Drilling Team:
Geotechnical drilling, water well drilling, piezometric drilling, pumping and sand clearing used in drilling applications.
Lab Tests and Analyses:
A wide range of tests and analyses for geotechnical foundations which include tests on aggregate, concrete and asphalt mixtures.
Topographic Studies - topographic surveys, triangulations, obstruction studies for airport design

Our staff has extended higher education and post-university degrees in various areas, as needed for the complex disciplines of:
- geology
- drilling
- geodesy and topography
- construction of roads, bridges, railroads and airports

GENERAL ACTIVITIES:
The **Geology Team** performs a large number of works:
- detailed mapping of the existing conditions
- geological and geomorphological mappings
- preparation of landslide risk maps and evaluation of risks of landslide occurence
- field geotechnical evaluation (shallow underground, up to 100 m)
- geophysical evaluation (electrometry and seismometry)
- geotechnical studies
- technical support
- preparation of technical bids for the geotechnical studies required in the design tenders



Transilvania Motorway - Drillings



Drilling accessories

As of 2006, SEARCH CORPORATION's Geology Team became a member of **the Romanian Association of Engineering Geology** (ARGI). The same year, SEARCH CORPORATION became a member of **the International Association for Engineering Geology and Environment** (IAEG).



Vertical electrical soundings

The Geology Team has performed hundreds of geotechnical studies. These studies covered the following:

- bridges
- rehabilitation of roads
- consolidation of roads
- landslide works
- motorway construction
- new road construction
- buildings
- oil storage platforms
- assessment of quarries
- underground parking
- airports
- landslide hazard and risk assessment

DRILLING TEAM

GENERAL ACTIVITIES:

The Drilling Team performs **geotechnical drilling, water well drilling, piezometric drilling, environmental drilling, sand clearing, pumping and casting operations**. This team is equipped with 5 state-of-the-art Boart Longyear systems. These systems are capable to perform the following types of works:

- continuous coring
- screw conveyor drilling
- water drilling
- hydrogeological drilling
- deep foundation sampling
- special drilling for consolidation
- standard penetration testing (SPT)
- special drilling for hydrotechnical works (dams)

Drilling methods:

- direct circular hydraulic drilling - 250 m
- reverse circular hydraulic drilling - 200 m
- bottom hammer percussive drilling - 200 m

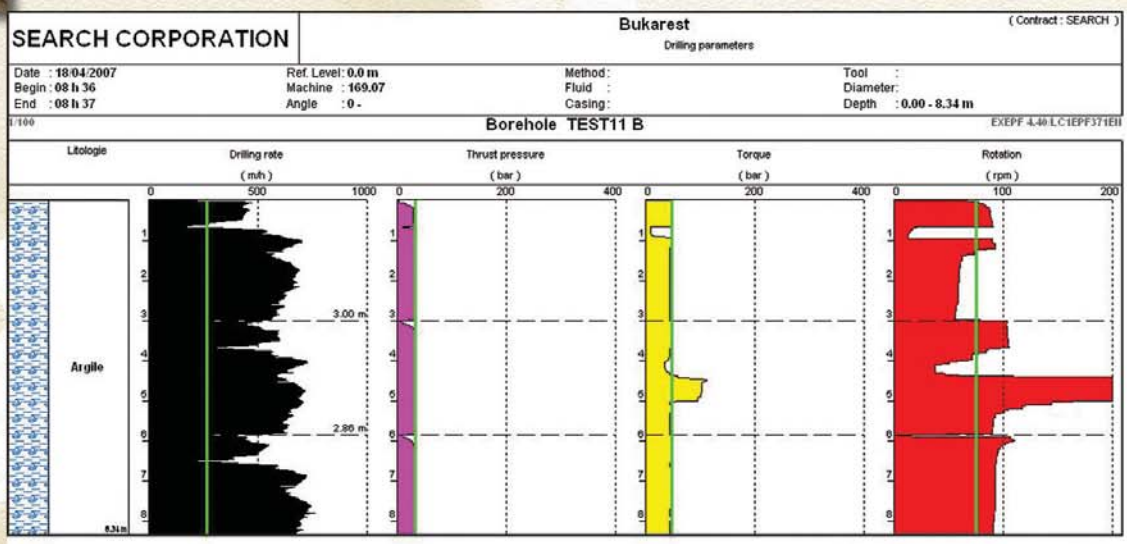


SHELLBY pipe drilling



Screw conveyor

Drilling operations are monitored by a **Data Logger system** which checks the drilling parameters at any given moment; at the end of the drilling, the system offers a diagram of the main parameters.



Drilling specific activities



LAB TESTS AND ANALYSES

GENERAL ACTIVITIES

Our laboratory performs tests and analyses in the following areas:

- geotechnical foundations
- road and railroad natural aggregates
- materials for concrete and mortars
- roads
- materials for roads
- concrete, reinforced concrete and pre compressed concrete

The Laboratory has been **authorized by the State Construction Inspectorate** (SCI) as **a level II Laboratory**. The entire staff is qualified and authorized. In addition, the Test Laboratory has **its own quality management system**, authorized by SCI and ISO.
The Laboratory owns a wide range of equipment, such as last generation geotechnical foundation instrumentation, controlled by automatic data take over and processing system (**tri-axial shear machine, direct shear machine, edometer, CBR press machine**).
The Test Lab is involved in all the geotechnical foundation projects developed by the Geology Team. Important construction companies use our laboratory as an independent source.

Topographic Studies Team

The Topo Team performs plan metric and level measurements for roads, bridges and airports, as required by the company's projects. Equally, the Topo Team georeferences and digitizes planes on various scales and prepares the files for pre-approvals and approvals by AACR (Romanian Civil Aviation Authority).

Significant projects:

- Execution of drillings for reverse pendulum mount systems at Vidraru hydro-electric dam, vertical drillings for monitoring of 35-40 m deep foundations, with an accuracy of 2 ‰
- Continuous core geological drilling in the Danube Delta - Studies of the Paleo-relief for Coastal System Group, Department of Geology and Geophysics, Woods Hole Oceanographic Institution
- Residential building complex in Bucuresti, 30-story buildings - full geotechnical study (drilling, lab analysis, report)
- Midia Oil Refinery - full geotechnical study regarding the extension of equipment
- Sibiu streets modernization - full geotechnical study (drilling, lab analyses, reports)
- Construction of Pitesti bypass motorway (technical assistance) - overseeing the construction activities, reports
- Rehabilitation of Bucuresti bypass motorway - full geotechnical study (drilling, lab analyses, reports)
- Construction of Satu Mare bypass, Iasi, Buzau, Pascani - geotechnical studies
- Brasov - Targu Mures Motorway - full geotechnical study (drilling, lab analysis, report)
- Bucuresti - Brasov Motorway - full geotechnical study (drilling, lab analysis, report)
- Rehabilitation of national roads - geotechnical studies, expert assessments, monitoring of execution
- Rehabilitation of county roads - geotechnical studies, expert assessments, monitoring of execution
- Underground parkings in Bucuresti - full geotechnical study (drilling, lab analyses, reports)
- Residential building complex in Stefanesti - geotechnical study, hydro-geological study, deep water well drilling operations
- Bridge over the Danube - Black Sea Canal - expert assessment and geotechnical study
- Expressways - full geotechnical studies (drilling, lab analysis, report)
- Brasov bypass - full geotechnical study (drilling, lab analyses, reports)
- Otopeni Airport - geotechnical study
- Iasi Airport - full geotechnical study (drilling, lab analyses, reports)
- Residential building complex in Bucuresti, 35-45 m deep drilling - full geotechnical study (drilling, lab analyses, reports)
- CET Brasov (thermal power station) - geotechnical drilling, piezometer mounting, water tests
- Ploiesti water well drilling - for water supply
- Drillings for Pantelimon town - water supply, heat pumps installation





Laboratory equipment



Topographic surveys

The Topo Team of SEARCH CORPORATION's Field Studies Division works with the following equipment:

- **LEICA Total Stations**: - 3 CTCR 302
  - TCR 805 POWER
  - TCR 802 POWER
- **GPS LEICA SR 530** - 2 units
- **LEICA electronic levels** - 2 units
- **GPS Navigator** - 3 units

SEARCH CORPORATION







ENVIRONMENTAL IMPACT STUDIES

Environmental Protection

SEARCH CORPORATION's Environmental Division includes the following units:

- **Environmental protection**
- **Permits and Approvals**

Holding graduate and post-graduate education degrees in various disciplines, our staff works in the following fields:

- environmental protection
- geography
- ecology
- geology
- construction of roads, bridges and railways
- civil constructions
- public hearings

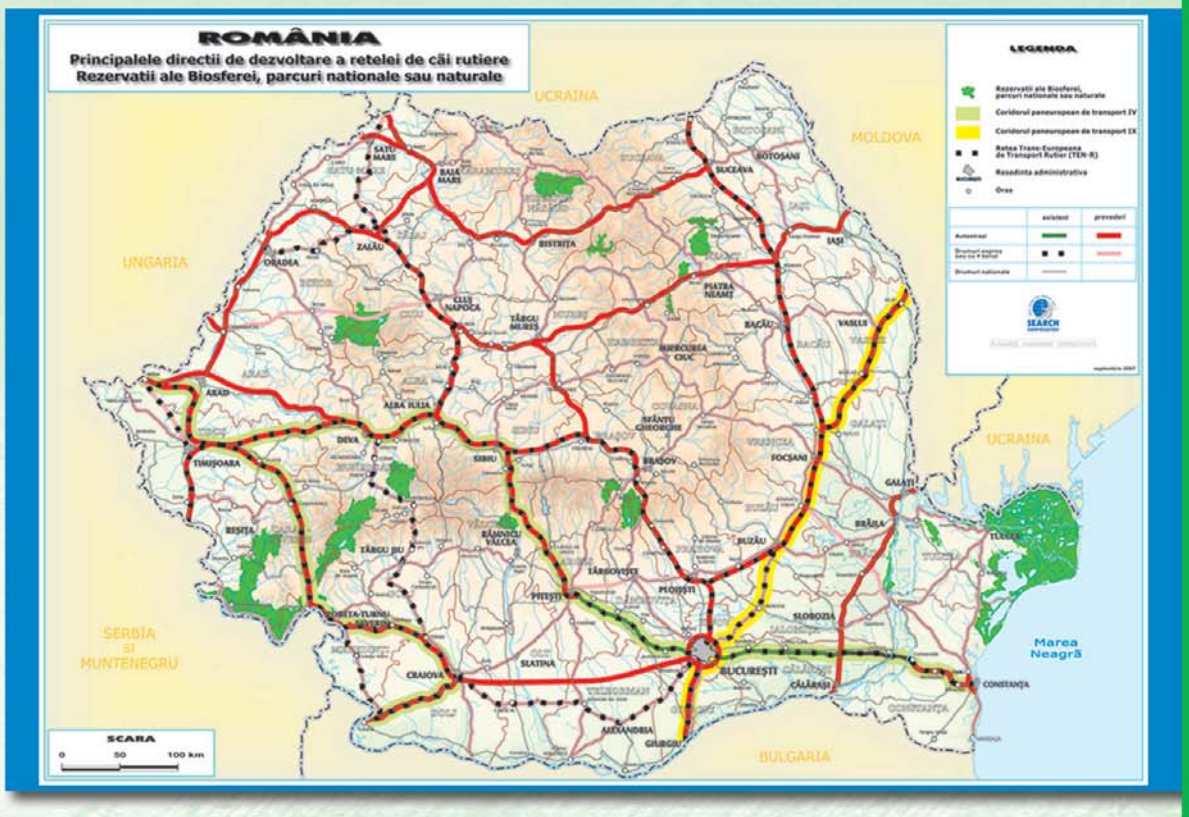
GENERAL BUSINESS

SEARCH CORPORATION was certified by the Ministry of Environment as the main evaluator of environmental impact in the areas below:

- **infrastructure projects**
- **mineral industry and construction materials**

The main activities of the Environmental Impact Studies Division are:

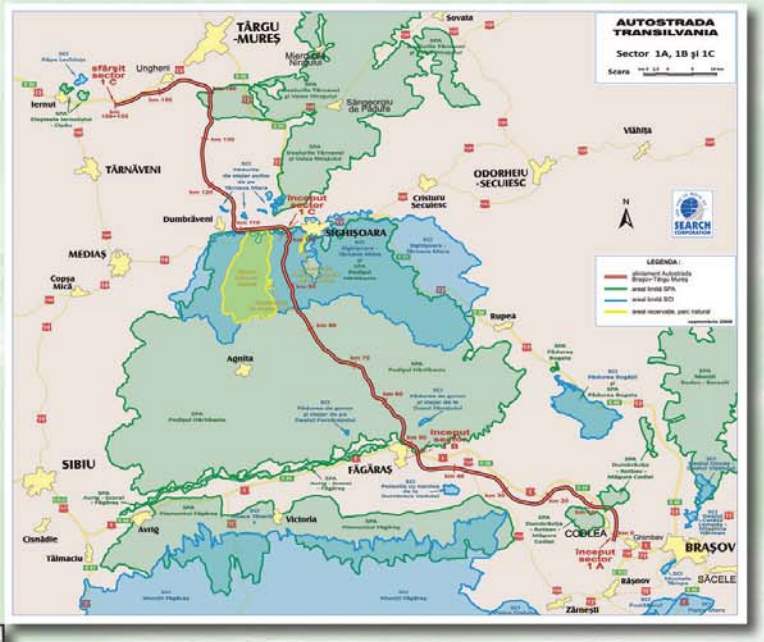
- Preparation of Environmental Impact Studies for:
  - sensitivity analysis of the environment where works will be located
  - mitigations measures for the effects of works over the physical, natural and human environment
  - risk assessment of accidental pollution and protection measures in case of pollution accidents
  - monitoring the quality of the environmental factors
  - enhancement of benefits and minimization/cutting-off of the adverse effects of the works
  - harmonious integration of the works within the environment
- Preparation of studies regarding water resources management
- GIS mapping regarding environmental protection (noise maps, air quality maps, etc.)



Protected natural areas overlapping with the NTAP (National Territory Arrangement Plan) - Section "Ways of communication" (reservations of the biosphere, national or natural parks)

MAJOR PROJECTS

- Designing sanitary engineering and environmental protection works
- Public consultation for the integration of the needs/options of the affected end-user population into the projects
- Preparation of the required documents necessary for obtaining the environmental permits required for the investments issued by the EPA
- Preparation of the required documents necessary to apply for external funding for infrastructure projects from the EU structural funds: ISPA, BEI, BERD, etc.



Transilvania Motorway, Brasov - Tg. Mures Section - emphasizing the protected natural areas



Satu Mare Bypass - air polution assessment



Bucureşti - Fundulea Motorway - noise barriers (Glina)

MAJOR PROJECTS:

- **Motorways**:
  - Bucuresti - Brasov Motorway
  - Transilvania Motorway, Brasov - Targu Mures segment
  - Bucuresti - Constanta Motorway, Bucuresti - Fundulea segment
  - Bucuresti - Focsani - Albita Motorway
- **Rehabilitation of National Roads**:
  - DN24, Crasna - Iasi, Km 105+700 - Km 197+040
  - DN18, Baia Mare - Iacobeni, Km 3+522 – Km 220+088
  - DN6, Craiova - Drobeta Turnu Severin
  - DN12, Chichis - Miercurea Ciuc
  - DN5, Bucuresti - Giurgiu
  - DN76, Deva - Oradea
- **Expressways**:
  - Satu Mare - Baia Mare expressway
  - Craiova - Pitesti expressway
  - Sebes - Turda expressway
- **Airports**:
  - Modernization of Iasi International Airport

- **Other works**:
  - "Water Resources Management" - Ministry of Environment
  - "Reduction of Pollution from Agricultural Business" - Ministry of Environment
  - "Feasibility Study regarding Protection against Floods" - DAI (Development Alternatives Inc.) - Ministry of Environment
  - "Identification of warning criteria to detect the occurrence of accidental threats in the monitoring stations across the Elbe River basin, and protection measures' - German Ministry of Environment
  - Office Building: "Crystal Tower Business Center"
  - Consolidation, treatment and organization of areas ancillary to Constanta seaport and C.N.A.P.M. Constanta S.A. ("Seaport Administration" National Company)

PERMITS AND APPROVALS

General Business

The work of this unit consists in getting permits and approvals as required by the law in force. The unit works closely with the central and local public administration agencies and other public bodies and constitutes a major link between them and the design engineers.



MINISTERUL MEDIULUI ŞI GOSPODĂRIRII APELOR

COMISIA DE ATESTARE A PERSOANELOR FIZICE ŞI JURIDICE CARE ELABOREAZĂ STUDII DE EVALUARE A IMPACTULUI ASUPRA MEDIULUI ŞI BILANŢURI DE MEDIU

CERTIFICAT DE ATESTARE

pentru elaborarea studiilor de evaluare a impactului asupra mediului

Cod numeric: **R-EIM-03-001/21.11.2006**

În conformitate cu prevederile Ordonanţei de Urgenţă a Guvernului nr. 195/2005 privind protecţia mediului, aprobată prin Legea nr. 265/2006, şi ale Ordinului Ministerului Mediului şi Gospodăririi Apelor nr. 97/2004 pentru modificarea şi completarea Ordinului Ministrului Agriculturii, Pădurilor, Apelor şi Mediului nr. 978/2005 privind Regulamentul de atestare a persoanelor fizice şi juridice care elaborează studii de evaluare a impactului asupra mediului şi bilanţuri de mediu

Se atestă: ***SEARCH CORPORATION S. R. L.***

cu sediul în: BUCUREŞTI, str. Căderea Bastiliei nr.65 sector 1, tel.: 021/3164022, fax: 021/3163271

ca Evaluator Principal pentru elaborarea studiilor de evaluare a impactului asupra mediului în următoarele domenii acordate de Comisia de Atestare conform procesului verbal nr. 9 din data de 21.11.2006.

5, 10, 12

Emis la data de: 21.11.2006 — Valabil până la data de: 21.11.2008 cu respectarea condiţiilor înscrise pe verso

PREŞEDINTELE COMISIEI DE ATESTARE

Attila KORODI

Secretar de Stat

Certificate for the preparation of the Environmental Impact Studies

Certificate for technical documentation in order to obtain the water management approvals



MINISTERUL MEDIULUI SI GOSPODARIRII APELOR

Comisia de certificare a unitatilor specializate in elaborarea de studii, proiecte, executie lucrari, consultanta in domeniul gospodaririi apelor si documentatii tehnice pentru obtinerea avizelor si autorizatiilor de gospodarire a apelor

CERTIFICAT

Cod numeric 165GAobde, Ordinul nr. 589/27 iunie 2005

In conformitate cu prevederile Legii apelor nr. 107/1996,modificata si completata prin Legea 310/2004 si ale Ordinului ministrului mediului si gospodaririi apelor nr.589/2005 pentru aprobarea Regulamentului privind organizarea activitatii de certificare a unitatilor specializate in elaborarea de studii, proiecte, executie lucrari, consultanta in domeniul gospodaririi apelor si documentatii tehnice pentru obtinerea avizelor si a autorizatiilor de gospodarire a apelor,

Se certifica **SEARCH CORPORATION SRL** codul fiscal **nr.R1597994** inregistrata in registrul comertului la nr. **J40/9356/1991** cu sediul in **Bucuresti** pentru efectuarea de: **studii de gospodarirea apelor, proiectare** in domeniile: **gospodarirea apelor, hidroedilitare, constructii hidrotehnice, regularizarea scurgerii pe versanti-corectare torenti, consultanta aferenta si documentatii tehnice pentru obtinerea avizelor si a autorizatiilor de gospodarirea apelor (a,b1,b2,b3,b5, d ptr.ab,e)** in baza cererii si dosarului nr 2852/15.08.2005
79236-ISA-15.08.2005

Emis la data de: **13.09.2005**

Valabil pana la data de 13.09.2008
cu respectarea conditiilor inscrise pe verso.

Presedintele Comisiei de certificare,
Secretar de Stat LUCIA ANA VARGA



ROMÂNIA
MINISTERUL TRANSPORTURILOR, CONSTRUCŢIILOR ŞI TURISMULUI
AUTORITATEA FEROVIARĂ ROMÂNĂ – AFER

AUTORIZAŢIE DE FURNIZOR FEROVIAR

Seria AF Nr. 3176

În conformitate cu prevederile Hotărârii Guvernului nr. 626/1998 şi în baza Raportului nr. 2161 din data de 09.10.2006 al comisiei de evaluare, se atestă că persoana juridică:

S.C. SEARCH CORPORATION S.R.L.

cu sediul în localitatea BUCUREŞTI, Sector 1, Str. CĂDEREA BASTILIEI, Nr. 65, înregistrată la Oficiul Naţional al Registrului Comerţului sub nr. J40/9356/1991, Cod Unic de înregistrare 1597994, are dreptul să furnizeze, în calitate de furnizor feroviar, următoarele categorii de produse şi/sau servicii feroviare critice:

- **Proiectare, consultanţă şi expertizare în domeniul infrastructurii feroviare;**
- **Studii topografice, geotehnice şi determinări georadar în domeniul feroviar,**

în condiţiile în care face dovada că deţine un certificat de omologare tehnică feroviară sau, după caz, un agrement tehnic feroviar pentru fiecare produs şi/sau serviciu feroviar critic furnizat.

Prezenta autorizaţie este valabilă până la data de 23.08.2010, în condiţiile vizării sale anuale.

Obligaţiile şi drepturile posesorului autorizaţiei sunt specificate pe verso.

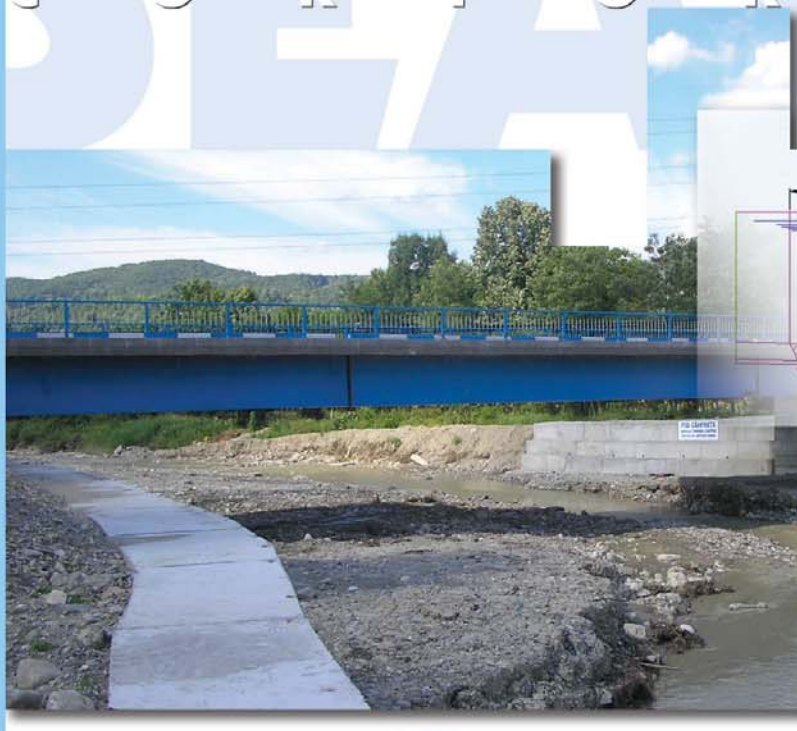
Data eliberării: 09 Octombrie 2006

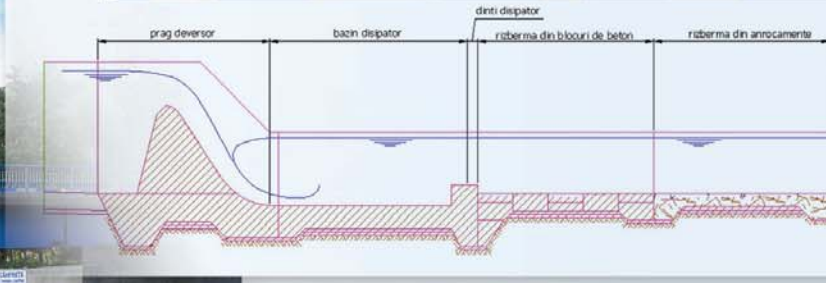
DIRECTOR GENERAL,
Vasile BELIBOU

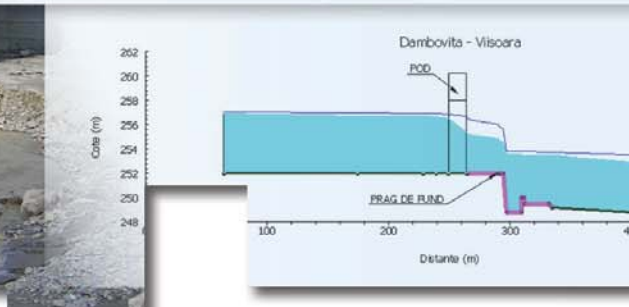
Railway Supplier License

SEARCH

C O R P O R A T I O N









HYDROTECHNICAL STUDIES

Types of Works



1

SEARCH COPORATION's Hydrotechnical Studies Division includes the design and overseeing of works for the protection of riverbanks, watercourses and water reservoirs as well as for roads, bridge infrastructures and design for the permanent or temporary watercourse relocation.
Our experts equally design works for the control, collection and removal of water from road surfaces or building enclosures, such as airports.

Cocorasteanu - Gradinita channel arrangement in the locality of Cornu:

1 2 Concrete channel in the built-up areas
3 Concrete channel

The Hydrotechnical Division develops the following **types of works**:

- File preparation for obtaining the water management permits and approvals (SEARCH CORPORATION is attested by the Ministry of Environment since 2008)
- Hydrotechnical works design for the water courses across or nearby the road infrastructure networks:
  - Slope protection with concrete revetments, concrete retaining walls or gabion walls
  - Bottom sills for riverbeds corrections, thalweg elevation and stabilization
  - Flood control, flow silt retaining weirs
- River beds rectification works design: corrections and recalibrations
- Riverbanks protection dams design
- Water flow diversionary dams design
- Technical expertise for existing hydrotechnical works

2





3

STUDIES AND CALCULATIONS

To establish the proper solutions for hydrotechnical works, this division performs the following:

- **Hydrological studies**, such as :
  - Design Tasks to obtain hydrological studies from the National Institute of Hydrology and Water Management (INHGA) or from the Water Authorities, regarding registered watercourses
  - Calculation of maximum flows for small hydrographic basins

- **Hydraulic calculations**, consisting in:
  - Calculation of flowing parameters (level, velocity, area, width at water level), both natural and planned, in keeping with the terms of the hydrographic basins planning framework
  - Calculation of maximum flows by rainfall frequency and runoff to determine the sizes of culverts, ditches and gutters
  - Calculation of free water surface curve, as required by the current flow standards and by the importance category of planned works. The calculation is necessary to set the road grade line along the watercourse or the bridge grade line across a given watercourse
  - Calculation of water stream speed, as required by the road and bridge infrastructure protection works
  - General and local scouring effects
  - Estimate calculation of super elevation (backwater upstream)

Pitesti By-Pass:

1 Protection of the road embankment with concrete fill mattress
2 Shore protection of the Golesti accumulation lake, with concrete fill mattress

2



1





1

Removal of the effects of natural calamities produced in 2005 on the Romanian national road network, objective 2, DN 7C, km 50+399÷50+452, left side, Oiesti - Arges County:

1 Concrete wall and concrete gutter
2 Concrete gutter

2



MAJOR PROJECTS

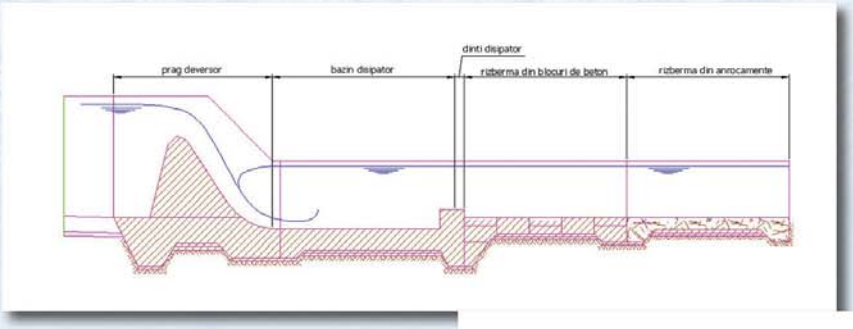
SEARCH CORPORATION has provided a wide range of hydrotechnical design works such us:

- Gabion walls
- Concrete ditches
- Retaining walls
- Concrete and gabion embedded bottom sills
- Slope protection with concrete slabs
- Silt retaining weirs
- Gabion directional/retaining walls
- Grass seeding slope protection
- Riverbed recalibration
- Retaining dam design
- Riverbed corrections
- Stepped discharger for riverbeds crossings
- Concrete-filled geocells slope protection
- Slope and concrete bottom sill consolidation
- Flood control weirs restoration

for the following projects:

- Bucuresti - Brasov Motorway (Feasibility Study phase)
- Brasov - Tg. Mures Motorway
- Rehabilitation of national road DN76 Deva - Oradea

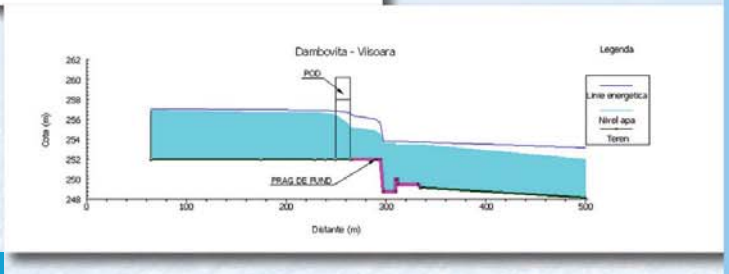
1



Rehabilitation of the DN72, Gaiesti - Ploiesti :

1 Bottom sill on the DN72, Km 20+422, on the Dambovita River in the locality of Viisoara - long section

2 Bottom sill on the DN72, Km 20+422, on the Dambovita River in the locality of Viisoara - long section



2

- Removal of the natural catastrophe effects in the year 2005 over the Romanian national roads (towns of Oesti, Valea Doftanei, Cornu, Brebina, Telega)
- Baia Mare - Satu Mare expressway
- Riverbed and bottom weir protection in Bistriţa - Nasaud county
- Craiova - Pitesti expressway
- Sebes - Turda expressway
- Rehabilitation of national road DN 72 Ploiesti - Gaiesti
- Rehabilitation of national road DN 18 Baia-Mare - Iacobeni
- Sibiu bypass route to motorway standards upgrading - section 2 and rehabilitation of DJ106B county road
- Brasov bypass
- Pitesti bypass

SEARCH CORPORATION







LAND ACQUISITIONS

CADASTRAL RECORDS



- The land expropriation process for the acquisition of the right way for road infrastructure projects plays **a crucial role in the project implementation phase**.
- The Land Acquisitions Division of SEARCH CORPORATION consists of geodesy and topography engineers and design technicians which performs the following types of works:
  - Identification of landowners and establishment of limits of the affected property

NODURI LA DRUM EXPRES

Nr. crt.	Noduri rutiere	Judet	Teritoriu	Total [mp]	Total [ha]	Categorie de folosinta/Natura de folosinta: AGRICOL – Arabil [mp]	[ha]	[%]	Pasune+Faneata [mp]	[ha]	[%]	Livada [mp]	[ha]	[%]	Vii [mp]	[ha]	[%]	NEAGRICOL – Drum [mp]	[ha]	[%]	Ape (rau,canal,stufaris) [mp]	[ha]	[%]	Cale Ferată [mp]	[ha]	[%]	Neproductiv [mp]	[ha]	[%]	CURTI CONSTRUCTII – Curti Constructii [mp]	[ha]	[%]	SILVIC – Pădure [mp]	[ha]	[%]
1	1. NOD DJ 194 KM 9+720	Satu Mare	mun. Satu Mare	265 367	26,54	192 905	19,29	72,7	35 131	3,51	13,2							27 608	2,76	10,4	9 723	0,97	3,7												
	TOTAL NOD DJ 194 KM 9+720			265 367	26,54	192 905	19,29	72,7	35 131	3,51	13,2							27 608	2,76	10,4	9 723	0,97	3,7												
2	2. NOD RUTIER DN 19A KM 12+985	Satu Mare	mun. Satu Mare	100 136	10,01	93 517	9,35	93,4										4 056	0,41	4,1				2 563	0,26	2,6									
			Botiz	114 563	11,46	95 125	9,51	83,0										15 330	1,53	13,4				4 109	0,41	3,6									
	TOTAL NOD RUTIER DN 19 KM 12+985			214 699	21,47	188 642	18,86	87,9										19 386	1,94	9,0				6 672	0,67	3,1									
	Total noduri mun. Satu Mare			*265 503*	*36,55*	*286 422*	*28,64*	*78,4*	*35 131*	*3,51*	*9,6*							*31 664*	*3,17*	*8,7*	*9 723*	*0,97*	*2,7*	*2 563*	*0,26*	*0,7*									
3	3. NOD RUTIER DN 1C-Seini KM 38+750	Maramures	Seini	182 373	18,24	172 292	17,23	94,5										4 197	0,42	2,3	1 459	0,15	0,8				4 425	0,44	2,4						
	TOTAL NOD RUTIER DN 1C-Seini KM 38+750			182 373	18,24	172 292	17,23	94,5										4 197	0,42	2,3	1 459	0,15	0,8				4 425	0,44	2,4						
4	4. NOD RUTIER DJ 193-Pomi KM 48+135	Satu Mare	Pomi	223 761	22,38	56 184	5,62	25,1	97 609	9,76	43,6	1 807	0,18	0,8	33 267	3,33	14,9	25 766	2,58	11,5	2 388	0,24	1,1										6 740	0,67	3,0
	TOTAL NOD RUTIER DJ 193-Pomi KM 48+135			223 761	22,38	56 184	5,62	25,1	97 609	9,76	43,6	1 807	0,18	0,8	33 267	3,33	14,9	25 766	2,58	11,5	2 388	0,24	1,1										6 740	0,67	3,0
	Total noduri rutiere la drumul expres judetul Satu Mare			703 998	70,38	437 731	43,77	62,2	132 740	13,27	18,9	1 807	0,18	0,3	33 267	3,33	4,7	72 759	7,28	10,3	12 111	1,21	1,7	6 672	0,67	0,9							6 740	0,67	1,0
	Total noduri rutiere la drumul expres judetul Maramures			182 373	18,24	172 292	17,23	94,5										4 197	0,42	2,3	1 459	0,15	0,8				4 425	0,44	2,4						
	Total general noduri rutiere la drumul expres			886 200	88,62	610 023	61,00	68,8	132 740	13,27	15,0	1 807	0,18	0,2	33 267	3,33	3,8	76 956	7,70	8,7	13 570	1,36	1,5	6 672	0,67	0,8	4 425	0,44	0,5				6 740	0,67	0,8
	NODURI CENTURA DE OCOLIRE SATU MARE																																		
5	1. NOD DN 19 KM 9+425	Satu Mare	mun. Satu Mare	17 703	1,77	9 527	0,95	53,8										8 176	0,82	46,2															
	TOTAL NOD DN 19			17 703	1,77	9 527	0,95	53,8										8 176	0,82	46,2															
6	2. NOD CF402 KM 6+150	Satu Mare	mun. Satu Mare	183 258	18,33	160 653	16,07	87,7	2 257	0,23	1,2	37	0,004	0,02	86	0,01	0,05	9 983	1,00	5,4	6 829	0,68	3,7	1 631	0,16	0,9	540	0,05	0,3	1 240	0,12	0,7			
	TOTAL NOD CF402			183 258	18,33	160 653	16,07	87,7	2 257	0,23	1,2	37	0,004	0,02	86	0,01	0,05	9 983	1,00	5,4	6 829	0,68	3,7	1 631	0,16	0,9	540	0,05	0,3	1 240	0,12	0,7			
	Total general noduri rutiere la centura de ocolire Satu Mare			200 961	20,10	170 181	17,02	84,7	2 257	0,23	1,1	37	0,004	0,02	86	0,01	0,04	18 159	1,82	9,0	6 829	0,68	3,4	1 631	0,16	0,8	540	0,05	0,3	1 240	0,12	0,6			
	NODURI LA DRUMURI DE LEGATURA																																		
7	1. NOD RUTIER "a" KM 24+265	Satu Mare	Medieşu Aurit	59 150	5,92	52 629	5,26	89,0	5 714	0,57	9,7							262	0,03	0,4	548	0,05	0,9												
	TOTAL NOD RUTIER "a"			59 150	5,92	52 629	5,26	89,0	5 714	0,57	9,7							262	0,03	0,4	548	0,05	0,9												
8	2. NOD RUTIER "c" KM 56+400	Maramures	Ardusat	56 190	5,62	35 489	3,55	63,2	19 036	1,90	33,9										62	0,01	0,1										1 602	0,16	2,9
	TOTAL NOD RUTIER "c"			56 190	5,62	35 489	3,55	63,2	19 036	1,90	33,9										62	0,01	0,1										1 602	0,16	2,9
	Total general noduri rutiere la drumuri de legatura			115 340	11,53	88 118	8,81	76,4	24 750	2,47	21,5							262	0,03	0,2	608	0,06	0,5										1 602	0,16	1,4
	Total general jud. Satu Mare			963 939	96,39	660 540	66,05	68,5	140 711	14,07	14,6	1 845	0,18	0,2	33 354	3,34	3,5	91 180	9,12	9,5	19 486	1,95	2,0	8 302	0,83	0,9	540	0,05	0,1	1 240	0,12	0,1	6 740	0,67	0,7
	Total general jud. Maramures			238 563	23,86	207 781	20,78	87,1	19 036	1,90	8,0							4 197	0,42	1,8	1 521	0,15	0,6				4 425	0,44	1,9				1 602	0,16	0,7
	Total general			1 202 502	120,25	868 322	86,83	72,2	159 747	15,97	13,3	1 845	0,18	0,2	33 354	3,34	2,8	95 377	9,54	7,9	21 007	2,10	1,7	8 302	0,83	0,7	4 965	0,50	0,4	1 240	0,12	0,1	8 343	0,83	0,7



- Preparation of expropriation documents and records:
  - **written records** - tabulation of landowners and owned land surfaces, as well as the land type
  - **drawing specification records** - layout plans based on cadastral surveys, lots, topographic surveying, etc.



- Our Land Acquisitions Division devises cadastral documents according to **the Law on Cadastre and Land Registration** and to **the Regulation regarding the content and preparation of cadastral records**, in view of the land registration with **the National Agency for Cadastre and Land Registration**:
  - Cadastral documents for the registration of the property right for a real estate not-registered in the Land Register
  - Cadastral documents for the registration of the split of a real estate property
  - Cadastral documents for the merging of two or more lots with common boundaries into one property

SPECIAL SERVICES

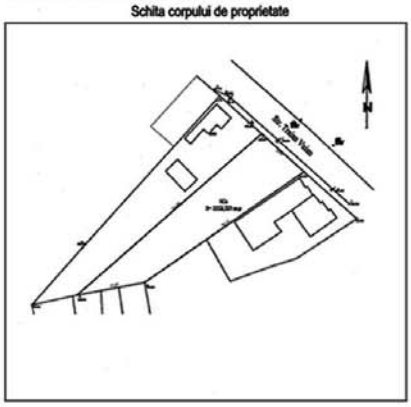
FISA CORPULUI DE PROPRIETATE

Judetul : Cluj
Unit. administrativ-teritoriala : Cluj-Napoca
Cod Siruta : 54975
Cod extravilan/intravilan: 2

str. Traian Vuia, nr. 124

Nomenclatura: L-34-48-C-b-3-II
Nr.sector cadastral: CF. NR. : 3616 ; NR.TOPO : 10/7/2
Nr.cadastral al corpului de proprietate: .....
Nr.carte funciara: .....

Schita corpului de proprietate



A. Date referitoare la teren

Nr.parcela	Categoria de folosinta	Cod grupa destinatie	Suprafata din masuratori (mp)	Clasa de calitate	Zona in cadrul localitatii	Mentiuni
1	2	3	4	5	6	7
1Cc	Curti-constructii	TDI	2322,523			
Total			2322,523			

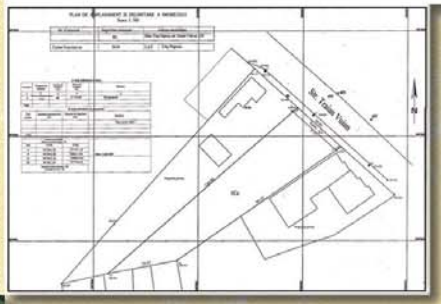
B. Date referitoare la constructii

Nr. corp cladire/ constructie	Denumire	Suprafata construita la sol (mp)	Cod grupa destinatie	Mentiuni
Total				

C. Date referitoare la proprietar

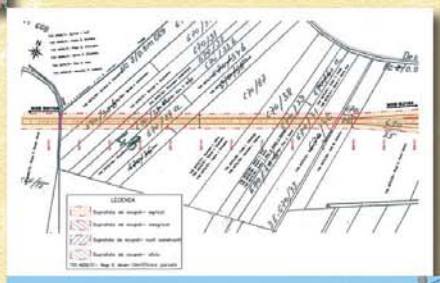
Nr. crt.	Nume/Denumire proprietar	Domiciliul/Sediul proprietar	Cod numeric personal/cod SIRUES	Tipul actului de proprietate, nr. si data inregistrarii/elberarii	Cod grupa proprietate	Suprafata in act (ha sau mp)		Modul de detinere Teren/constructie		Mentiuni
						Teren	Constructie	Exclusiv	Indiviziune	
1	2	3	4	5	6	7	8	9	10	11
1	Gergely Tamas	Cluj-Napoca Str. Cireilor, nr. 30, jud. Cluj	1770419120649	C.F. Nr. 3616, ELIBERATA LA 20.10. 2005	PF	2307			X	
2	Gergely Marioara		2500613120705							
3	Gergely Atila Gabor		1700122420863							
4										
5										

VERIFICAT :





- Assessment of the lands subject to expropriation and write the assessment report
- Assessment of the technical and economic documents related to preliminary measures for the construction of motorways and national roads
- Consulting, assistance and legal representation services related to the expropriation procedure
- Registration in the Land Register of the property right for the new owner of the expropriated real estate





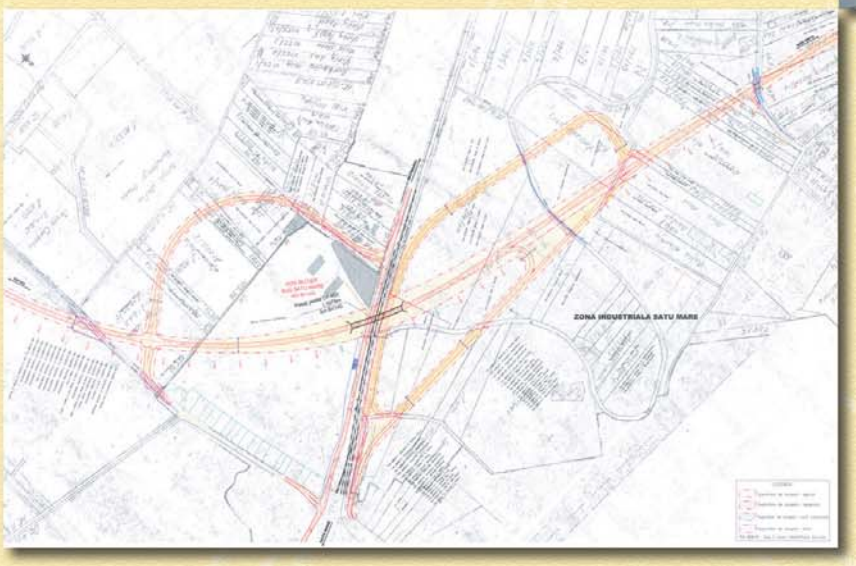
PORTFOLIO

Our division performed different expropriation works for the following projects:

- Bucuresti-Fundulea Motorway
- Connection Expressway to Drumul Nordului (North Road)
- Bascov Underpass
- Pitesti Ring Road
- Sibiu Bypass section 2 and rehabilitation of DJ106B county road
- Extension of Bucuresti South Ring Road to 4 lanes, between A2 (km 23+600) and A1 (km 55+520)
- Sebes-Turda Expressway
- Craiova-Pitesti Expressway
- Transilvania Motorway Section 1; Brasov-Tg. Mures subsection 1C9
- Transilvania Motoway Section 3 A3







SEARCH

C O R P O R A T I O N



CONSTRUCTION MANAGEMENT

General Presentation



Craiova Ring-road

- The Consulting services are defined as the **"assistance granted to the Beneficiary for the purposes of achieving the Project"**. The Consulting Department from SEARCH CORPORATION functions in Romania through its own regional units, reflecting Romania's eight regional structures established after the European Union accession:

  - **North-East**
  - **West**
  - **North-West**
  - **Center**
  - **South-East**
  - **South-Muntenia**
  - **Bucuresti-Ilfov**
  - **South-West Oltenia**





Cluj-Napoca Ring-road





- The Consultant acts on behalf of the Beneficiary and while it manages various aspects of the construction process both from a physical and financial standpoint, it is **the Beneficiary's eyes** on the construction site.
  The Consultant monitors and checks the constructor's activity, making sure that all works comply with the contracts, project specifications, bid specifications, quality standards and the applicable law.

Benefits of The Services We Grant



Bridge over the Moldova River

- The Consultant assists the Beneficiary in the following:
  1. **Procurement services**
     - prepares the bidding documents in view of the acquisition of construction works
     - attends the selection of constructors and drafts the assessment reports
     - assists the Beneficiary in negotiating and signing the contract with the winning bidder
  2. **Overseeing the execution of works in point of quality, quantity, time schedule and payments of interim and final certificates**
  3. **Post-execution services**
     - prepares the Construction's Technical Specifications
     - monitors the evolution of works throughout the liability period
     - prepares the maintenance instruction manuals

STRAIL railway crossing in Romana



- The Consulting Team's engineers and technicians are certified and authorized by the Government Regional Offices to oversee construction works. Consulting Contracts are **in compliance with FIDIC's international standards and conditions of contract**.

  The benefits of consulting services are fairly obvious: for example, the works of the Third Stage of the National Roads Rehabilitation, to which SEARCH CORPORATION provided consulting, **closed in due time, in observance with the required quality standards, and saved 8 per cent of the initial contract value (Euro 220 million)**.

Bridge over the Moldova River



Main Projects

In 1992 SEARCH CORPORATION signed the first Romanian Consulting services contract with the Romanian Government for Bucuresti-Fundulea Motorway.

As of 1993, SEARCH CORPORATION's consulting teams worked as the only Romanian sub consultant to all international Consultants for the National Road Rehabilitation Program, developed by the Romanian Government with domestic and international funding (IBRD, EIB, EBRD):









- **First Phase of the National Roads** Rehabilitation: 1056 km as Sub-Consultant
- **Second Phase of the National Roads** Rehabilitation: joint venture Partner
- **Third Phase of the National Roads** Rehabilitation: Principal Consultant

Following the involvement in the programs above, our company became **the founder of the Consultant Engineer Profession in Romania**.



SEARCH CORPORATION took part in adapting the FIDIC's conditions of contract for internationally funded projects.

Main Projects

The Construction Management Department of SEARCH CORPORATION is involved in the following main projects:

Project	No. of km	No. of Constr. Management	Duration	Value
First Stage National Road Rehabilitation Program	1056	170	5 years	278 mil. Euro
Second Stage National Road Rehabilitation Program	157	40	3 years	77 mil. Euro
Third Stage National Road Rehabilitation Program	334	145	53 months	202 mil. EURO
Bucuresti - Constanta Motorway (Bucuresti - Fundulea Section)	26.5	18	40 months	45 mil. euro
Administration and Maintenance of urban roads in the town of Bucuresti	149.3	14	60 months	120 mil. EURO
Rehabilitation of DN 2D, Focsani - Ojdula	95	22	24 months	Aprox. 100 mil. EURO
Cluj - Est Bypass	24,6	16	48 months	68 mil. EURO
Pitesti Bypass	15,5	22	36 months	67 mil. EURO
Works of infrastructure in the town of Bucuresti - Lot 2		34	48 months	Aprox. 32 mil. EURO
Iasi Bypass	27,2	12	30 months	Aprox. 20 mil. EURO
Adunatii Copaceni Bypass	4,2	8	18 months	Aprox. 10 mil. EURO
Urgent Reconstruction/Rehabilitation of the bridges and road sections affected by floods - 5 lots		20	16 months	Aprox. 7 mil. EURO
7 urban road package modernization in the town of Sibiu - contract dated 2008	2	6	22 months	Aprox. 1.2 mil. EURO
7 urban road package modernization in the town of Sibiu - contract dated 2005	21.7	23	62 months	Aprox 13.6 mil. Euro
Rehabilitation of DN6, Timisoara - Lugoj	52.2	10	58 months	32 mil. Euro
Construction of Timisoara Bypass - Km. 549+076 - Km. 6+430	15	8	58 months	17.5 mil Euro
Construction of Craiova Bypass - Km. 5+500 - Km. 223+100	13.8	9	48 months	18.8 mil Euro

Main Projects

Cluj-Napoca Ring-road



- Besides national roads rehabilitation, SEARCH CORPORATION's consulting teams undertook the supervision of **Bucuresti-Constanta motorway** execution works, on sector 1, Bucuresti–Fundulea (**length of 26.5 km, investment value of Euro 45 million**).



Cluj-Napoca Ring-road



- In August 2008, we began the supervision of the works for **Sibiu Bypass motorway**.





Pitesti Ring-road

- As a member of **ARIC (Romanian Association of Consulting Engineers)**, the Consulting Division is involved in :
  - the organization of training courses
  - the implementation of procurement procedures in line with the European Union practice
  - the translation of various documents prepared by FIDIC (International Federation of Consulting Engineers)

TIMISOARA BRANCH OFFICE

Timisoara Branch Office was set up to cover projects in the western part of Romania. It benefits of state-of-art equipment for design and construction supervision activities for road transport infrastructure projects.
The office works very closely with the School of Road and Bridge Engineers from the University of Timisoara. Several teachers are long term collaborators of our office, providing highly specialized expertise and using our office as training facility for the students.



Overpass superstructure - overview



Railway electrical lines crossing

C13 ramp retaining wall



Precast elements and reinforcement to the retaining wall





15 rafts and 14 link girders - constructed in 2002, on the section between km 51+640 and km 51+730

Major Clients:
- D.R.D.P. Timisoara (Regional Division for Roads and Bridges)
- Timis County Council
- Arad County Council
- Hunedoara County Council
- „Traian Vuia" Timisoara International Airport
- Timisoara Local Administration
- Arad Local Administration
- Oradea Local Administration
- Lugoj Local Administration
- Local town and commune administrations from Timis, Arad and Hunedoara counties

Representative contracts:
- Rehabilitation of DN 69 Timisoara - Arad, 50 km, execution details
- Rehabilitation of DN 59 Timisoara - Voiteg, 40 km, execution details
- Rehabilitation of DJ 691 Timisoara - Lipova, 42 km (Feasibility Study, Technical Project, Detailed Design)
- Tilisca subdivision development in Sibiu town, 5 km (Technical Project + Detailed Design)
- Modernization of county road DJ 664A, Lupeni - Straja entertainment area, 8,3 km (Technical Project + Detailed Design)
- Rehabilitation of 100 streets in Arad town, 60 km (Technical Project + Detailed Design)
- Rehabilitation of 89 streets in Oradea town, 30 km (Technical Project + Detailed Design)
- Consolidation of DN 66A, Campul lui Neag - Cerna, 19 km (Feasibility Study)
- Bypass road to Oravita town, 10 km (Feasibility Study)



Metallic parapet at km 53+775 - km 53+875, right + left and finished shoulders







1 row columns, P1 to P39 partly demolished

- Access road for „Traian Vuia" Timisoara International Airport, 10,5 km (Technical Project + Detailed Design)
- Construction Management for the overpass crossing DN 59 A km 4+150 to Timisoara

IASI BRANCH OFFICE

SEARCH CORPORATION Iasi Branch Office was set up on May 1, 1998, and it is a part of the company's development strategy for the Eastern side of the country for road infrastructure projects in particular.
This office has expert personnel in projects of road infrastructure able to achieve any type of road or motorway project.

Consolidation of the gabion wall at Cotnari



DN 28B Consolidation - km 36+100

DN 2L Rehabilitation





DN 2L Rehabilitation

The main types of services preformed are:

- 1998-2001 - pavement consolidations and modernization of over 150 km of national roads
- 2001-2004 - during the Third stage of the national roads rehabilitation - rehabilitation of DN 2 - design, consulting and technical assistance for works on roads, bridges and consolidations, soil consolidations for natural disasters
- 2004-2005 - during the Fifth stage of the national roads rehabilitation - technical project for the rehabilitation of DN 2 – Sabaoani - Siret (180 km) and projects for about 60 km of communal roads funded through SAPARD
- 2005-2006 - projects for almost 163 km county roads and rehabilitation of DN 2L (45 km) and street rehabilitation projects in Arad (35 km) and Sibiu (25 km)
- 2006-2008 - projects of access roads to Iasi International Airport, Petea - Satu Mare - Baia Mare expressway (45km), modernization and rehabilitation of DN 72 Gaiesti-Ploiesti (67km), rehabilitation of DN 29 Suceava-Botosani (32km), rehabilitation of Bacau bypass (30km) and rehabilitation of DN 24 Crasna - Iasi (81km)



Sibiu - Gusteritei Street



DN 29 Consolidation km 50+900 - 51+000



Sibiu - Garii Square

CONSTANTA BRANCH OFFICE

- SEARCH CORPORATION Constanta Branch Office was set up in February 2007, with its modern headquarters located downtown.



DJ223 - Costinesti





Road bridge at the access to the Danube - Black Sea Canal

Seaport Cliff



DN 39 junction - Costinesti

- The branch was set up after a series of design works contracted by SEARCH CORPORATION with the City Hall of Constanta and the Seaport Administration National Company of Constanta, namely:
  - Bridge river access to the Danube - Black Sea Canal
  - Planning and consolidation of Constanta port cliff
  - General study regarding traffic in Constanta city and metropolitan area



DJ 223 - Seimeni



DJ 226 - Pantelimon

- Constanta Branch is involved in projects of rehabilitation and modernization of county roads, about 150 km, and a project of alternative road that would connect Autostrada Soarelui with the seashore.
  The length of this alternative road is 37 km and helps release the congestion in the high touristic season on the Southern part of the Romania.
  At the same time it creates easy access for the transit traffic to Bulgaria, Turkey and Greece.

CLUJ-NAPOCA BRANCH OFFICE

As of 1994, SEARCH CORPORATION has played an active role in the Transilvania region, both in design and consulting services. This led to the setting up of the Cluj-Napoca Branch, at the outset of 2007.

The first contracts of national road rehabilitation in Transilvania bear our company's signature, as both, designer and consultant. The next stages of rehabilitation have strengthened and extended the activities of this branch.





Services performed:

I. CONSULTING Projects:
1. "Cluj - East Bypass" - 3 segments, 24,54 km total length
2. "Cluj-Napoca City Bypass in the North-East", 8,19 km total length



II. DESIGN Projects:
1. Reconstruction of Dambovitei street, Cluj-Napoca
2. Reconstruction of Cojocnei street, Cluj-Napoca
3. Reconstruction of Teleorman street, Cluj-Napoca
4. Reconstruction of Tarnavelor street, Cluj-Napoca
5. Baia Sprie - Cavnic - Barsana road

To rapidly cover any requests from our clients we work closely with young graduates from Cluj-Napoca Technical University, in training them as our company's future experts.







SEARCH CORPORATION

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