

System for road pavement management

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System for road pavement management

-  Grontmij is a multidisciplinary consulting and engineering firm
- operating in the fields of construction, infrastructure and the environment
- 8,000 employees
- one of the top 3 largest international design firms in Europe
- offices in 19 countries among which the Netherlands, Germany, Belgium, United Kingdom, Denmark, Sweden and Hungary



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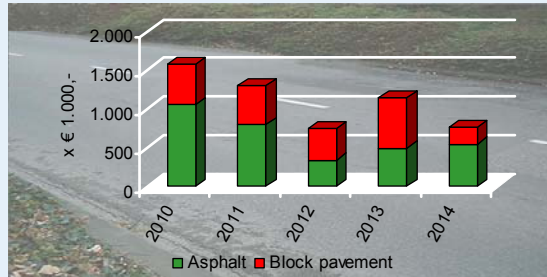


System for road pavement management

Main purpose:

Determining long-term maintenance planning and budgets at road network level

Example of output:



future maintenance budgets

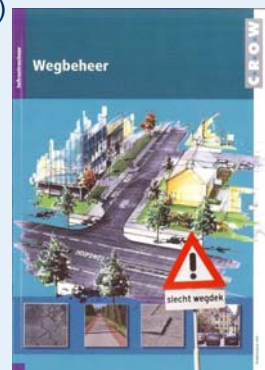


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System for road pavement management

- Used by 90% of the road authorities at provincial and municipal levels in the Netherlands (more than 400 users)
- Developed by CROW (the national Information and Technology centre for transport and infrastructure in the Netherlands)
- Developed in 1985 and evaluated and updated in 2003-2004

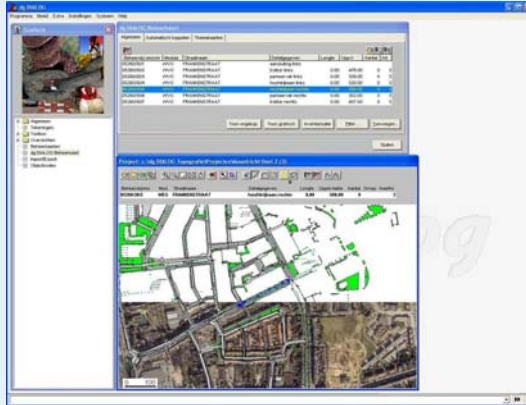


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System for road pavement management

- Grontmij has implemented the system in dg DIALOG, an application with a graphical interface for the management of public space



System for road pavement management

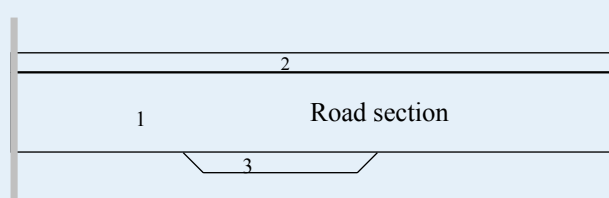
Process:

- Inventory of the road network: division into road sections
- Visual condition survey: registration of distress types
- Planning: calculation of
 - year of maintenance
 - measures of maintenance
- Budgets required
- Presentation of results

Inventory of the road network

Data structure

- Road
- Road section
- Subsection



Subsection 1 = carriageway

Subsection 2 = footpath

Subsection 3 = parking bay



Example of road section



Inventory and visual condition survey

Collection of inventory data

- Maps are used to define road sections and calculate lengths and areas
- Other necessary data (e.g. type of pavement) are collected locally with the aid of a (pen) computer

Collection of distress data

- Measurements (mainly for motorways)
- Visual condition survey (yearly)
 - quick and cheap method for data collecting
 - especially suitable for municipal road networks
 - production: 10 – 20 km within built-up area / day
20 – 40 km outside of built-up area / day



Visual condition survey



Examples of distress types



Planning

- For each road section: calculation of
 - year of maintenance
 - measure of maintenance
- For the entire road network: calculation of
 - budgets required

INVESTERINGSSCHEMA WEGEN EN STRATEN										
DIENSTJAAR: 2004							VOORZIEKING			
PRASPER: 2004							2004			
Nr.	Naam	Straatnaam	Wegnr.	Wegnr.	Soort	Soort	Opp.	Eenh.	Jaar's	
					soort	soort	(m ²)	prijs	vanaf	
								2004	af	
								aanvang		
10	Hr.	Kerkplein	10301	1	e	herstr	1332	74,79	102.812	1994
11	Hr.	Hooftstraat	10302	1	e	herstr	699	36,13	25.250	1997
12	Hr.	Hooftstraat	10302	2	e	herstr	1151	36,13	41.591	1997
13	Hr.	Hooftstraat	10302	3	e	herstr	1345	36,13	48.601	1997
14	Hr.	Pijperstraat	10312	1	e	herstr	79	36,13	2.856	1993
15	Hr.	Wijkstraat	10304	e	herstr	172	36,13	6.216	1975	
16	Hr.	Vaanstraat	10305	e	herstr	542	36,13	19.896	1995	
17	Hr.	Merkveld	10306	1	e	herstr	914	36,13	33.027	1992
18	Hr.	Merkveld (p.1)	10306	2	e	herstr	392	36,13	14.166	1992
19	Hr.	Wageningenstraat	10307	2	e	herstr	1103	36,13	39.899	1990
20	Hr.	Kleine Haven	10309	1	e	herstr	969	36,13	31.366	1990
21	Hr.	Grote Haven	10309	1	e	herstr	1512	36,13	54.636	1999
22	Hr.	Grote Haven (p.1)	10309	2	e	herstr	1009	36,13	38.626	1990
23	Hr.	Praaistraat	10310	e	herstr	493	36,13	17.453	1992	
24	Hr.	Luzweg (p.1, Lezeborgh)	10401	1	e	herstr	791	23,53	18.812	1990
25	Hr.	Luzweg	10401	2	e	herstr	1061	23,53	24.968	1994
26	Hr.	Luzweg	10401	3	e	herstr	423	23,53	9.963	1994
27	Hr.	Luzweg	10401	4	e	herstr	620	23,53	14.588	1994

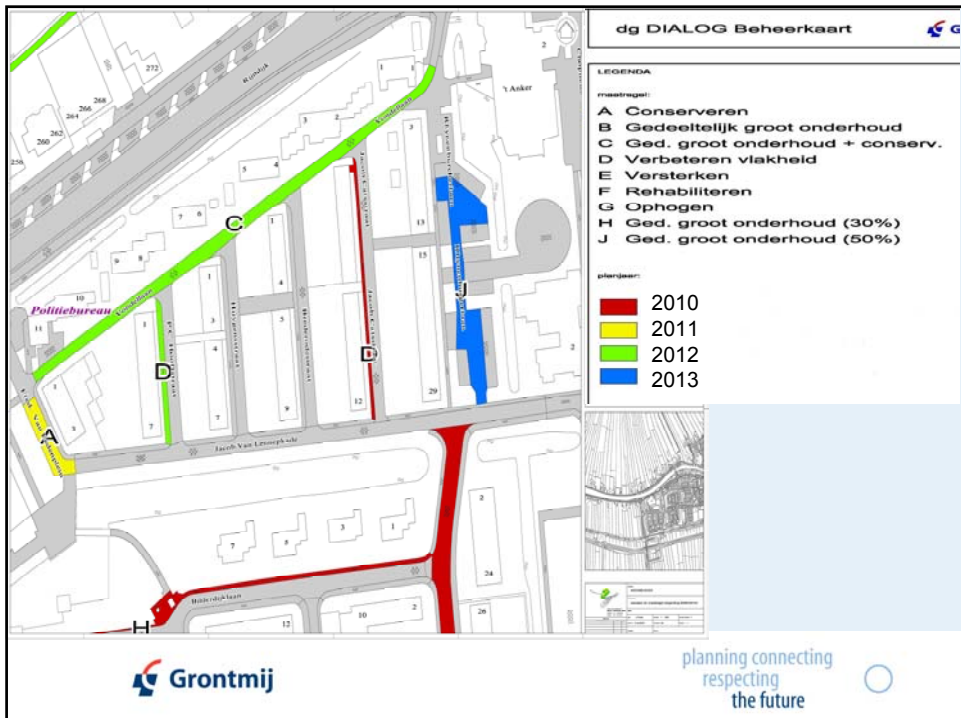


Presentation of results

- by use of maps
- graphical output

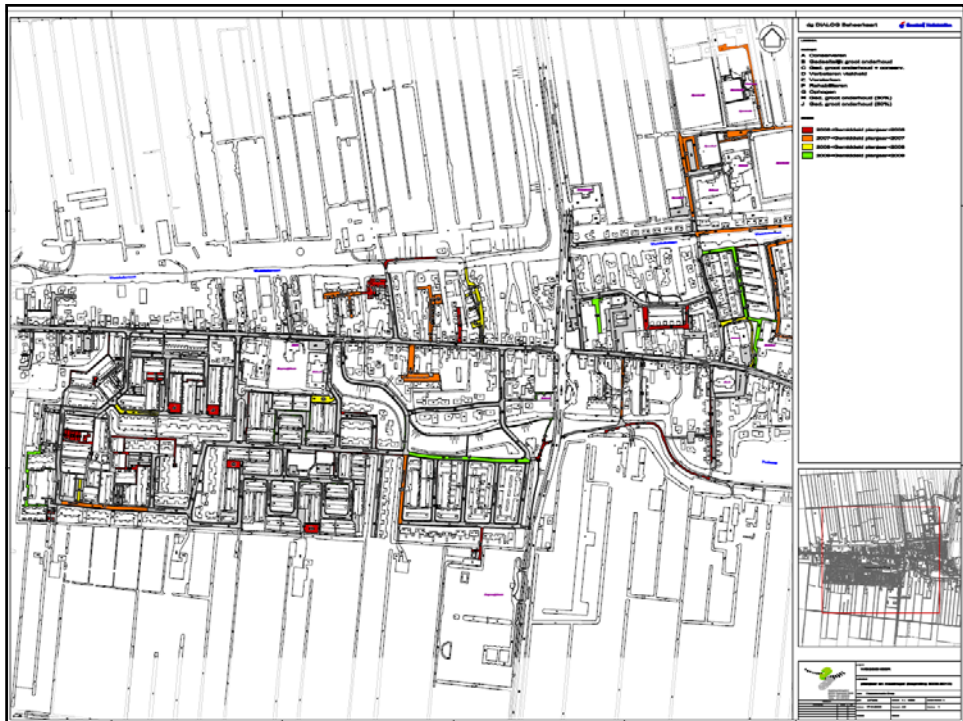


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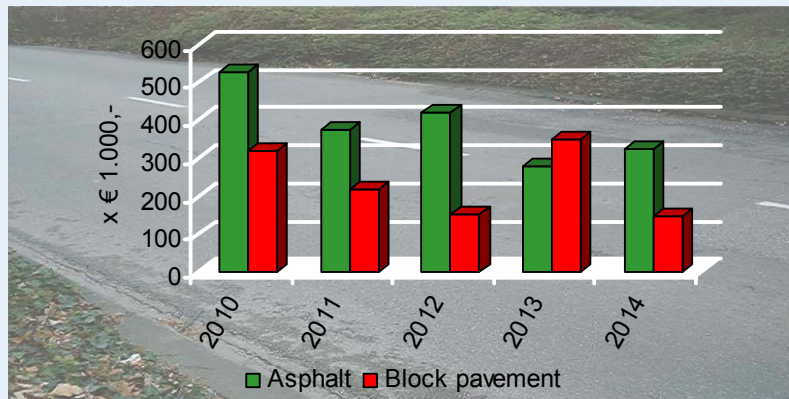


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Results maintenance planning



budgets required for the road network 2010 -2014

System for road pavement management

Advantages:

- application of a national standard
- time saving method of data collection
- efficient and quick analyses on a network level
- insight into budgets required
- demonstrating effect of shortage of budgets
- excellent tool for communication with non-technicians

