Market approach

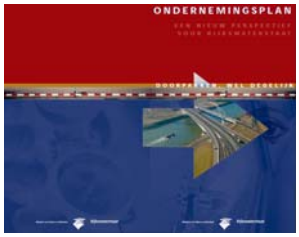
Contents

- history
- types of functional contracts in the Netherlands
  - performance contracts
  - engineering and construct (E&C) contracts
  - design and construct (D&C) contracts
  - design, build, finance and maintain (DBFM) contracts

History

Starting point:
RWS Business Plan 2004

- focus on
  - network management
  - end user
  - efficiency (more with less)
- key elements in achieving these goals
  - more professional own organisation
  - much larger role for private sector



History

Larger role for private sector:

- "Private sector unless" – principle for construction, maintenance and management of infrastructure
- RWS will
  - safeguard the interest of society
  - maintain its operational offensive strength
  - remains accountable and approachable for public and society
- Traffic management, incident and calamity management etc remain primary tasks of RWS

History

Realisation of the larger role for private sector:

- innovative procurement of infrastructure realisation and maintenance
- RWS will
  - concentrate on the 'what' question of design and realisation of infrastructural work
  - based upon price and quality
- Private sector will have increased freedom to use its knowledge, experience and creativity in the 'how' question of design and realisation of infrastructural works

Types of functional contracts

From simple to complex

- *Performance contracts* for routine maintenance (grass mowing, cleaning of traffic signs, emptying garbage containers at service areas etc) (no design component)
- *Engineering & Construct contracts* for maintenance of wearing courses of pavements (limited design component)
- *Design & Construct contracts*; contractor has a design responsibility (new design, widening, strengthening); usually with 7 to 10 years of warranty
- *DBFM – contracts*; contractor is not only responsible for the design but also for the maintenance of his work for 20 to 30 years

Types of functional contracts - performance

Performance contracts for routine maintenance

- usually for complete road districts
- simple jobs that do not require design activities
- usually functional requirements ('traffic noise screens must be clean'; 'water must run off freely'; 'grass must not be higher than 0.20 m')
- however these requirements are not always SMART and can lead to discussion
- several requirements have been downgraded to lower level requirements for this reason

Road districts

Types of functional contracts – E&C

Engineering & Construct contracts for maintenance of wearing courses of pavements (limited design component)

- road owner decides upon basic design, i.e. the type of maintenance treatment (e.g. inlay in right hand lane, wearing course replacement over total width; sealing treatment; porous asphalt overlay, …)
- contractor does further engineering, like selection of aggregates, binder, filler, mix design, planning and organisation of the work, selection of traffic systems, …
- usually a 7 or 5 years warranty
- this can conflict with routine maintenance by another contractor

Types of functional contracts – E&C - continued

In Engineering & Construct contracts, performance is assessed

- After construction
  - by contractor
- During guarantee / maintenance period
  - usually as a part of routine PMS monitoring by RWS
- At end of guarantee / maintenance period
  - jointly by contractor and client, usually organised by contractor

Performance assesment after construction

property	assessment method	criteria
Transversal slope	geodetical survey	according to: • design (D&C) • specifications (E&C)
Longitudinal evenness	Viagraph	C5 - value < 3%
Skid resistance	86% slip trailer	≥ 0.40
Brake deceleration	Instrumented test vehicle	≥ 5.2m/s^2
• Δh over seams • Δh at pavement edges	• straight edge • straight edge	• Δh < 5mm • Δh < 70mm
layer thickesses	cores	according to: • design (D&C) • specifications (E&C)
noise • single layer PA • twin layer PA • thin wearing courses and thin inlays	• void content & layer thickness • permeability test (Becker aparatus) • verification of composition, compaction and layer thickness	• ≥ 20% & ≥50mm • drainage time ≤ 20sec • according to product specifications
raveling	visual inspection	no raveling
cracking	visual inspection	no cracking

Longitudinal evenness

Skid resistance

Breaking deceleration

Performance assesment during warranty period

property	assessment method	criteria
Skid resistance	86% slip trailer	> 0.38
Transversal evenness	ARAN laser rut depth measurement	rut depth < 18 mm
Longitudinal evenness	ARAN IRI - measurement (D&C)	IRI - value < 3m/km
Transversal slope	Aran slope measurement (D&C)	no unifiorm criteria
Raveling	visual inspection	• < 20% stone loss/m² • < 25m/100m with 11-20% stone loss/m² • no loss of deeper stones
Cracking	visual inspection	• crack width < 21mm • Δh over crack < 11mm • less than 7 transversal cracks per 100m • less than 30m longitudinal cracks per 100m • connected cracks may not contain loose elements
Combined damage	visual inpection	moderate raveling + cracking may not have great extent

Performance assesment during warranty period

Automatic Road Analyser (ARAN)

- currently measures longitudinal evenness, transversal evenness, transversal slope
- also collects video images of the road and its surroundings
- automatic detection of ravelling is in advanced stage

Performance assesment during warranty period

(continued)

- skid resistance
- visual inspection (from PMS monitoring)

Types of functional contracts - E&C - continued

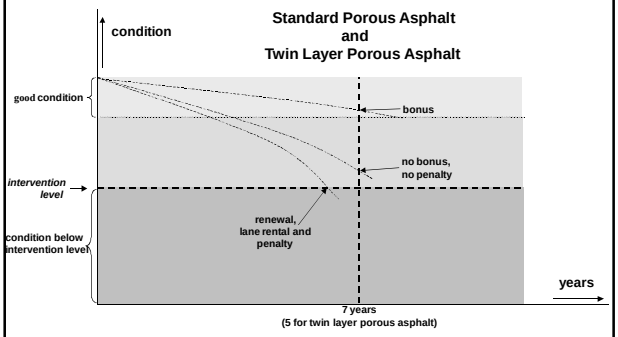
If performance does not meet requirements during guarantee / maintenance period (note: these requirements are RWS intervention criteria!), the contractor

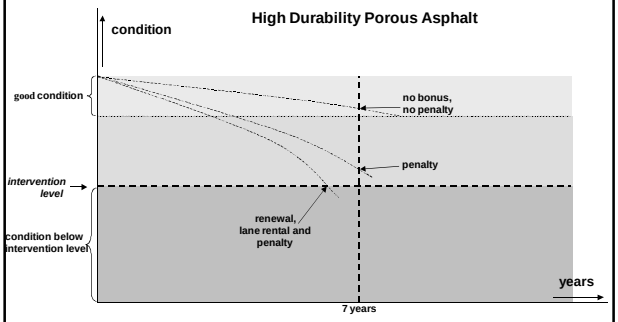
- has to replace the work by new work according to original requirements
- has to pay for extra traffic measures
- has to pay a penalty
- loses any rights concerning bonuses

Types of functional contracts - E&C - continued

At the end of the guarantee / maintenance period

- the performance is assessed to see if the contractor is entitled to a bonus or should pay a penalty
- basically the properties are similar to the properties during the guarantee / maintenance periods, but the criteria are higher





Types of functional contracts – D&C

Design & Construct contracts

- contractor has a design responsibility
- used for new design, reconstruction, road widening etc…
- usually with 7 to 10 years of warranty;
- wearing course performance is assessed the same way as for E&C - contracts
- for construction performance (bridges, structural pavement layers) the warranty period is insufficient; this is usually covered by a design verification

Types of functional contracts – DBFM

DBFM – contracts

- contractor has a design responsibility
- contractor is also responsible for the maintenance for 20 to 30 years
- this long M-period transfers a large parts of the risks to the contractor
- contractor is partly paid on the basis of availability (periodic "availability fee")
- contractor also receives payments for realisation of new, or improvement of existing, infrastructure objects (tunnels, bridges, roads)

Types of functional contracts – DBFM

Availability fee

- net availability fee
- = gross availability fee – availability correction – performance penalty
- gross availability is a periodic payment, adapted yearly based on an index figure
- where the contractor still uses existing infrastructure ("Transition Infrastructure"), only a part of the gross availability fee is paid for its maintenance

Types of functional contracts – DBFM

Availability fee correction

- availability correction is a correction for each 15 min that a lane is not available because
  - it does not meet the requirements
  - the contractor is working on it (unless this is because of circumstances on which he has no influence, like accidents)
- availability correction is higher in day time than in night time

Types of functional contracts – DBFM

Performance penalty

- = gross availability fee * [penalty points * 0,1% - bonus(%)]
- penalty points can be scored by a number of shortcomings, like
  - accidents due to (lack of) action by the contractor
  - causing dangerous situations
  - working without correct communication or authorisation
  - exceeding contractual repair times

  and are increased when shortcomings occur several times and / or last for a longer time
- bonus is paid if no penalty points are given in two consecutive periods

Types of functional contracts – DBFM

Payments for realisation of new, or improvement of existing infrastructure objects (tunnels, bridges, roads)

- the contract contains a list of new and existing infrastructure objects
- the contractor receives a payment after realisation of an object
- the object must meet output specifications which are in principle similar to output specifications of D&C – contracts but cover less aspects (only long term risks)

Types of functional contracts – DBFM

Tender in preparation

- Via15 (Arnhem-Nijmegen)
- A27 Hooipolder-Lunetten
- N18 Varseveld- Enschede

In tender stage

- Schiphol - Amsterdam – Almere
- N33 Assen - Zuidbroek

In realisation stage

- 2nd Coen tunnel / Westrandweg
- A12 Utrecht - Veenendaal
- A15 Maasvlakte - Vaanplein

In exploitation stage

- N31 Waldwei