Practical experience with application of alternative tender procedures in connection with maintenance of regional and local road networks

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Transportation
Contents of this presentation

- Introduction to Output- and Performance based Road Maintenance Contracts
- Standing of completed projects
- Brief introduction to how projects can be performed
- Conclusions and recommendations
Introduction

• Tendencies
  – Increasing traffic load and less human and financial means
  – Traditional way of maintaining turns out to be insufficient in more and more cases
Introduction

• Examples of how it has been possible
  • To improve and future-orient the service level of existing road network
    – Using less funds and resources
  • Through the application of alternative tendering and outsourcing procedures
Introduction

• Also a brief description of
  • The historical background through 10+ years in Denmark
  • Difference between tenders for a road network and for one specific road section
  • Example of actual successes (savings)
  • Introduction of the methods to other European countries
Standing of projects

- **Denmark**
  - Selected sections on regional roads (1998-)
    - Stated requirement for a new asphalt surface (15 years) but at the contractor’s free choice
  - Road networks (2001-)
    - New asphalt not necessary but free use of method and technology
    - It’s up to the contractor to choose technology as long as he keeps the functional condition better than asked for

Overview “Road Network” as per 2004
Standing of projects

• Denmark (continued)
  – Example of objects included
    • Road surface, drainage, kerbs, footpaths, verges, ditches, excavations in the road
    • Safety conditions (e.g. potholes) – min. hours
  – Model now improved (2007) to optimized use of
    • a Functional contract for rural roads (15 years) and
    • a Partnering contract model (4-5 years) for urban areas
    • and use of the road authorities own resources
Standing of projects

- Germany
- Bundesland Nordrhein-Westfalen (NRW), a pilot project for 11,000 km Landesstrassen (2006-)
  - Method used similar to the one used in Denmark
  - Plus, how to secure that only big company can bid for such projects out of financial reasons
  - Tender procedure expected later this year (2008)
Standing of projects

- Germany (continued)
  - Kreis Lippe
  - Tendering procedure pending for approx. 430 km Kreisstrassen
Standing of projects

• Romania
  • Brasov County (60 km) Project ongoing
  • Based on performance indicators developed as a part of our planning work
  • Tender based on the World Bank Sample Bidding Documents
Introduction to performance of projects

• Phase 1- Data and information
  – Collecting geometry, traffic and condition data (important to minimize risks for the bidding contractors)
Introduction to performance of projects

• Phase 2 – Aim for the service level
  – Decide the minimum service level (functional conditions) for the entire road network. Often divided into different road classes with different service levels
• The RoSy® Asset Management system www.RoSy.eu has been used as a tool for this and subsequent processes
Introduction to performance of projects

- Phase 2 – Aim for the service level

![Diagram showing costs related to road condition and project performance]

- A. Agency Cost
- B. User Cost
- C. Loss of Value of Road Capital
- D. Total Transport Costs

Costs vs. Road condition graph showing:
- Low to High road conditions
- Costs A+B+C increasing with road condition
Introduction to performance of projects

• Phase 3 – Analysis and decision
  – Calculation of the cost that the road authority will have if he is to maintain the service level in the traditional way
    • Is the chosen service level too high so that funds will not be available?
    • Forecasting of price estimates from the contractors (for keeping same level)
  – Any change of service level/s?
  – Tender
Introduction to performance of projects

• Phase 4 – evaluation, results, contracting

<table>
<thead>
<tr>
<th>OPRC Tender</th>
<th>Known results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comparison of financial expectations (from RoSy) and considered tenders</strong></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>RoSy calculations</th>
<th>Municipality</th>
<th>Mørøe</th>
<th>Holbæk</th>
<th>Præstø</th>
<th>Fladså</th>
<th>Odsherred</th>
<th>All</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>16 years</td>
<td>15 years</td>
<td>14 years</td>
<td>15 years</td>
<td>15 years</td>
<td>All</td>
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<tr>
<td>Annual investment needs</td>
<td>DKKm per year</td>
<td>6,714</td>
<td>3,041</td>
<td>3,832</td>
<td>5,234</td>
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<tr>
<td>Value of return</td>
<td>DKKm per year</td>
<td>0,133</td>
<td>0,370</td>
<td>0,079</td>
<td>0,184</td>
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<tr>
<td>Total</td>
<td>DKKm per year</td>
<td>4,200</td>
<td>6,847</td>
<td>3,411</td>
<td>3,711</td>
<td>5,418</td>
<td>23,587</td>
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<tr>
<td>Number of km</td>
<td>km</td>
<td>265</td>
<td>250</td>
<td>145</td>
<td>155</td>
<td>216</td>
<td>1031</td>
</tr>
<tr>
<td>Total per 100 km (for comparison)</td>
<td>DKKm/year/100 km</td>
<td>1,585</td>
<td>2,739</td>
<td>2,352</td>
<td>2,394</td>
<td>2,508</td>
<td>2,288</td>
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<tr>
<td><strong>Considered tenders</strong></td>
<td>Lowest bid</td>
<td>(NCC)</td>
<td>(Colas)</td>
<td>(Munck)</td>
<td>(Munck)</td>
<td>(Colas)</td>
<td></td>
</tr>
<tr>
<td>Total (incl. few extra services)</td>
<td>DKKm per year</td>
<td>4,226</td>
<td>7,600</td>
<td>3,183</td>
<td>2,191</td>
<td>3,529</td>
<td>20,729</td>
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<td>Number of km</td>
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<td>DKKm/year/100 km</td>
<td>1,595</td>
<td>3,040</td>
<td>2,195</td>
<td>1,414</td>
<td>1,634</td>
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<tr>
<td>Deviation (RoSy - Tender)</td>
<td>DKKm per year</td>
<td>-0,010</td>
<td>-0,301</td>
<td>0,157</td>
<td>0,981</td>
<td>0,876</td>
<td>0,277</td>
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<tr>
<td>Do. In percentage</td>
<td></td>
<td>-6,0%</td>
<td>11,0%</td>
<td>6,7%</td>
<td>41,0%</td>
<td>34,9%</td>
<td>12,1%</td>
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</table>
Conclusions and recommendations

• It has been proven that it is possible to get more for less
• Through alternative tendering. But also through an optimized use of different tendering methods for a given road network.
• The largest challenges when using ”alternatives” often seem to be in one’s own organisation
• The legislation using ”alternatives” has not been a limiting factor
• The method means many years without direct influence on the service level.
• A must is therefore to describe the service level using performance indicators which are unique and cannot be misunderstood or manipulated with
• Forecasting of results before tender procedure to avoid wasting money on a project which cannot be performed
• Reduction of the risks lowers the prices of the bidding contractors
Thank you for your attention