

Procurement of Wildlife Measures in Road Schemes Construction and Operation



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Profile

- Associate company of  specialising in research projects and specialist consulting
- Areas of Expertise
 - Structural Health Monitoring (SHM)
 - Weigh-In-Motion (WIM)
 - Traffic Load Modelling for Bridges
 - Risk Based Asset Management
 - **Road Ecology - Assessment & Mitigation**



Boyne Structural Assessment



NL WIM: 165t on 12 axles

The Conference of European Road Directors (CEDR) funded 4 projects in recent years under the 2013 Call: Roads and Wildlife.

- **Harmony** (www.harmony-project.net)
- **SafeRoad** (<http://www.saferoad-cedr.org>)
- **SafeBatPaths** (<http://bios.au.dk/om-instituttet/organisation/faunaoekologi/projekter/safe-bat-paths/>)

and

- **ECOROAD**

Harmony Project Investigations

Main Objective: How to deliver transport projects in a sustainable manner without compromising the natural habitat.

Perspectives:

- Planning: EIS/AA etc.
- Construction: Procurement Options
- Handover: Fitness for Purpose?
- Operations and Maintenance.

Advice on procuring and managing wildlife mitigation measures for the **design &** construction of **national road** projects.

Harmony Topics

Ecological Assessment

- Environmental Impact Assessment
- Appropriate Assessment

Project Appraisal

Contract Procurement

Follow up and **Key** Performance Indicators (KPIs)

Maintenance: Road verges & Mitigation measures

Today's
Presentation

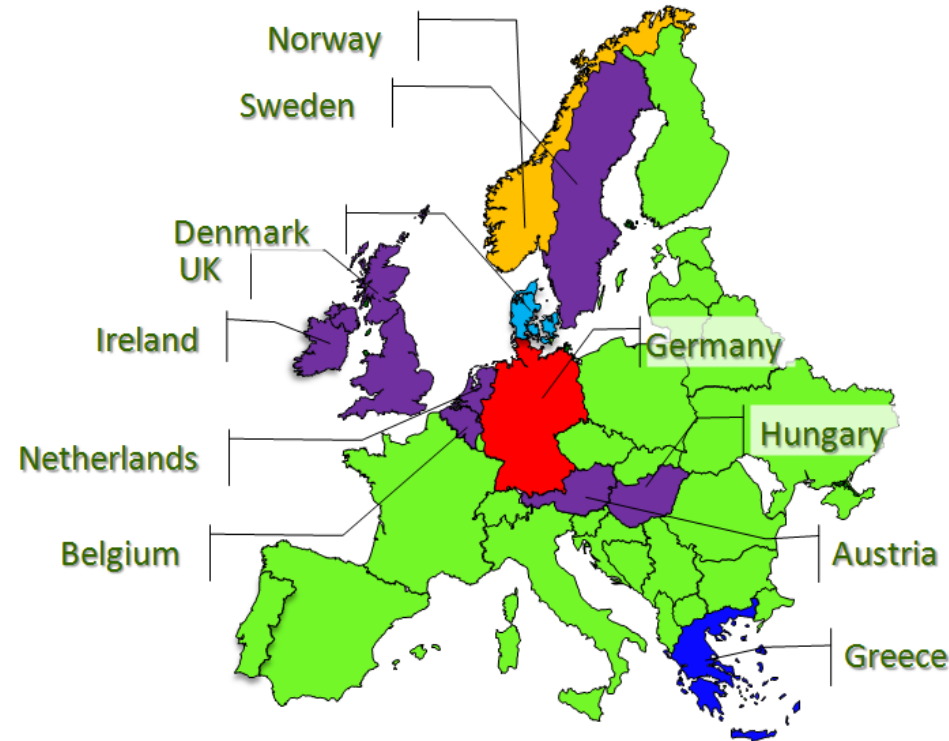
Harmony Geographic Scope

7 main countries had all aspects examined:

- Austria,
- Belgium,
- Hungary,
- Ireland,
- Netherlands,
- Sweden,
- UK.

4 further countries had some but not all aspects examined:

- Denmark,
- Norway,
- Germany,
- Greece.



Damaged Mammal Ledge



No connectivity for Mammal Ledge (Photograph: E. Finnerty)



Poorly Maintained Fauna underpasses



Fencing Problems



Screen to keep reptiles from road is less effective due to vegetation
(Photograph: Sergé Bogaerts)



(b)

Ineffective Reptile Screen



Harmony – Procedures for the Design
of Roads in **Harmony** with Wildlife



A mammal ledge below the water level
(Photograph: E. Finnerty)

Fauna Tunnel or Culvert?



(a)



(b)

Flooded mammal culverts (Photograph: E. Finnerty)

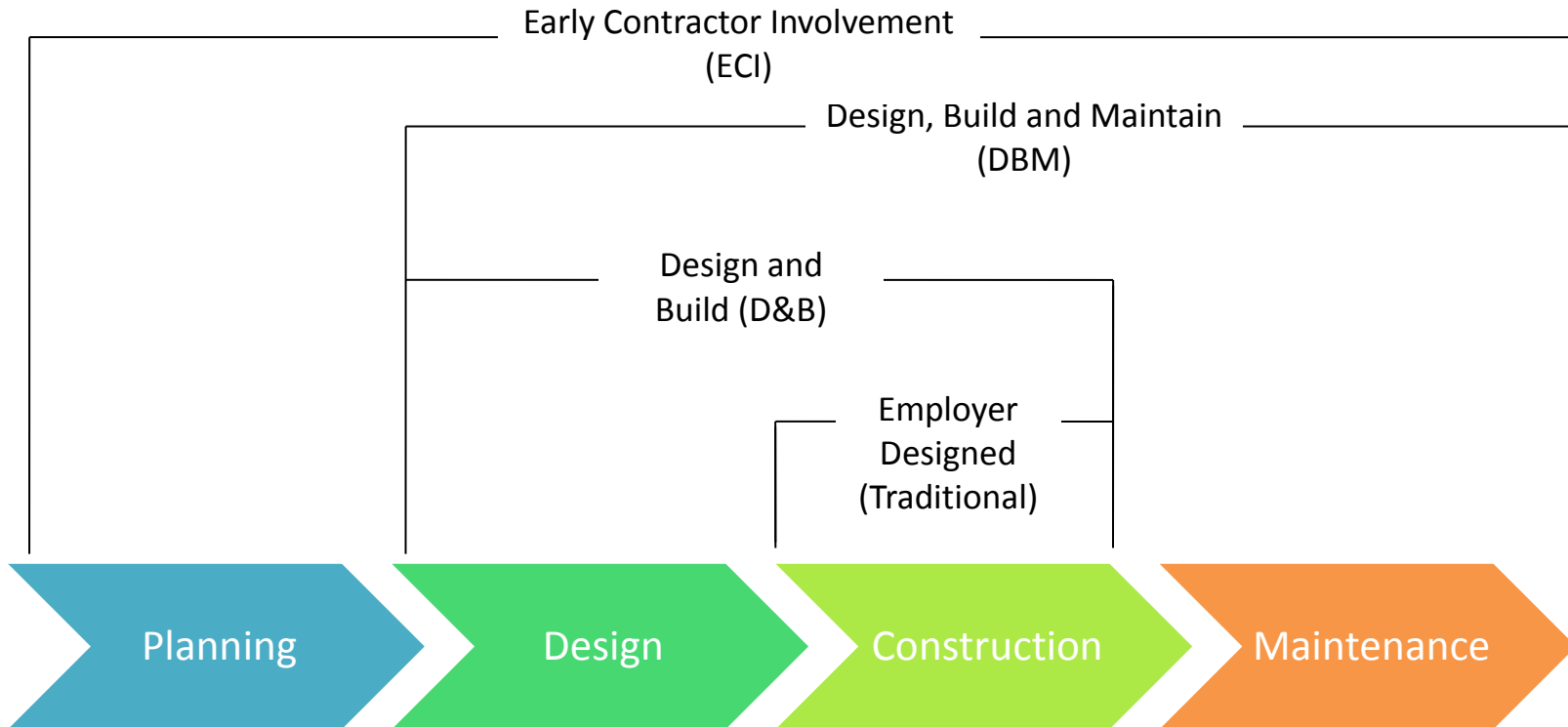
The Chain from Planning to Construction to Operation

- Problems due to Gaps in the Process
- Lack of Continuous Ecological Expertise
- No Clear Ownership of Wildlife Issues
- Low Value Works receive Little Care!
- New Roads better than old but still fall short
- Poor Legacy

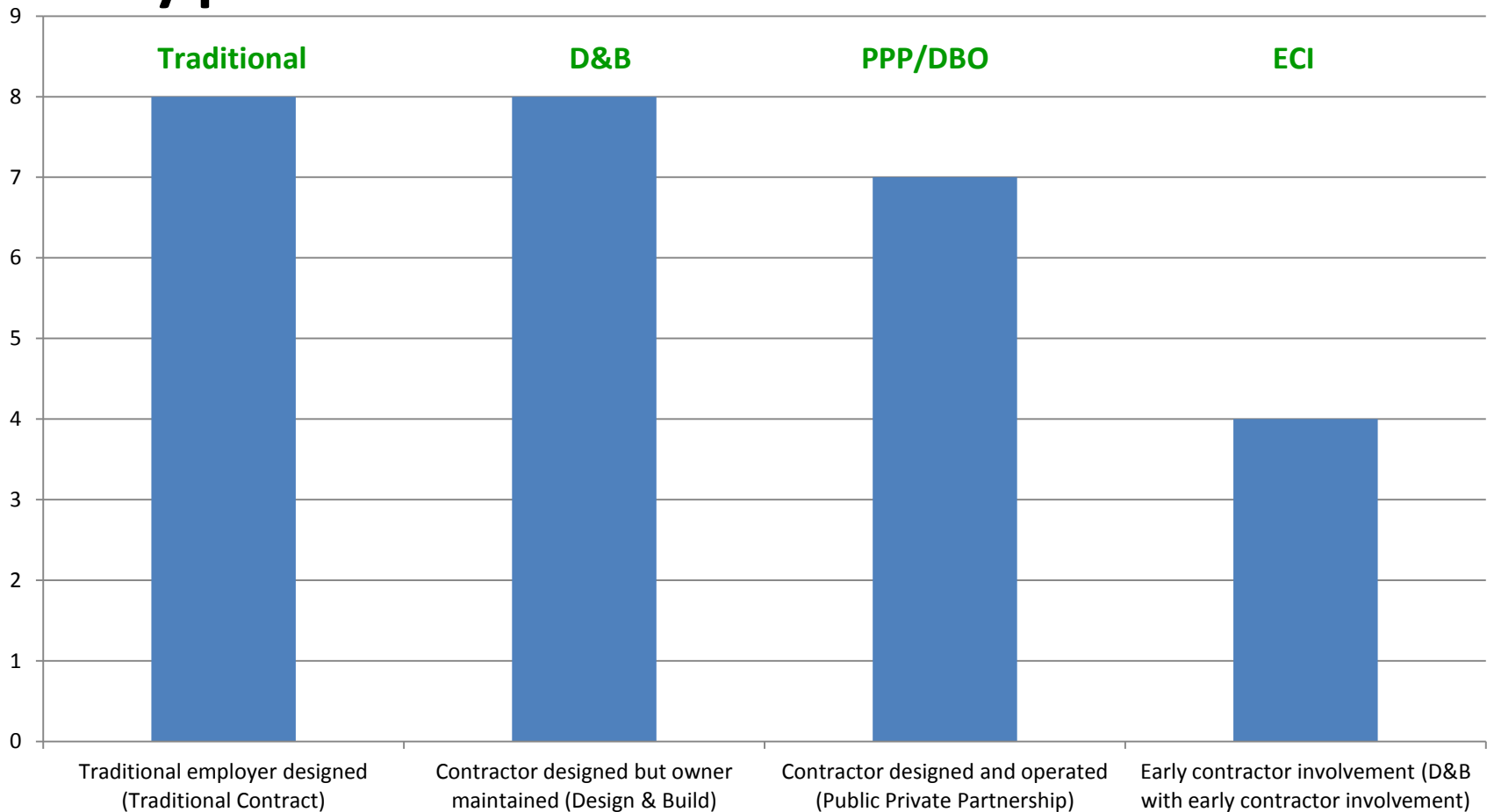
Contracting Types

Four contracting strategies:

<i>Contract Type/Name</i>	Body responsible for project stage			
	<i>Planning</i>	<i>Design</i>	<i>Construction</i>	<i>Maintenance</i>
Traditional	Employer	Employer	Contractor	Employer
Design and Build (D&B)	Employer	Contractor	Contractor	Employer
Design, Build and Maintain (DBM)	Employer	Contractor	Contractor	Contractor
Early Contactor Involvement (ECI)	Contractor	Contractor	Contractor	Contractor/Employer



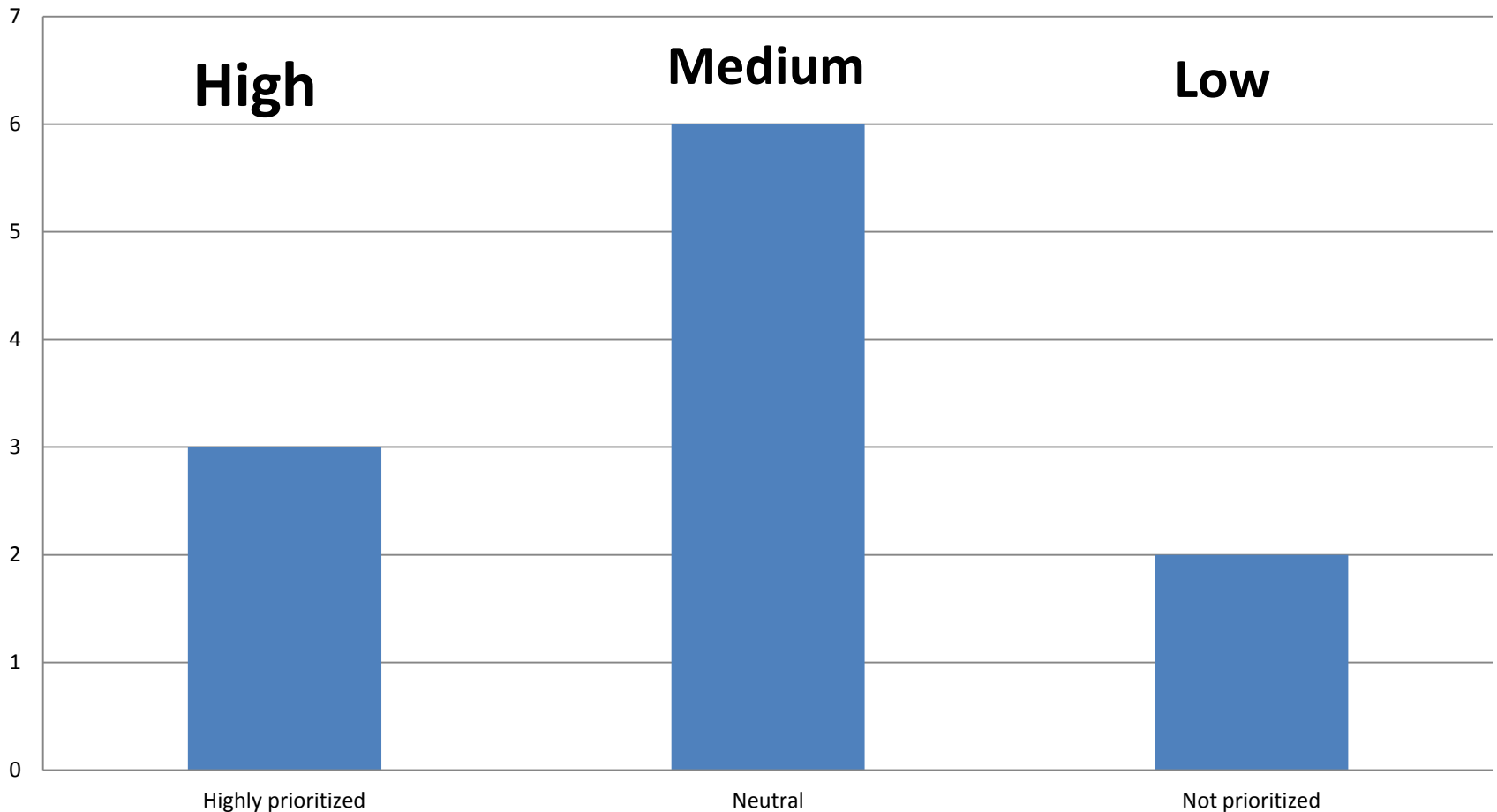
Types of Construction Contracts



How to improve Construction Procurement Process for Better Wildlife Outcomes

- Better assess contractors capability and track record for wildlife measures
- Include contractors at an early stage
- Select contractor on quality over price
- Establish and include environmental performance criteria

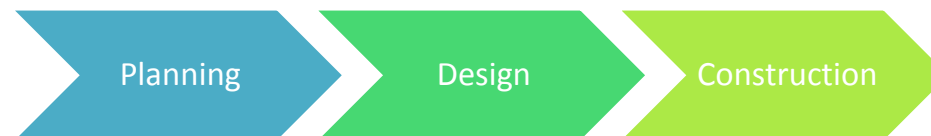
What status do follow-up activities have?



Maintenance Contract

 Maintenance

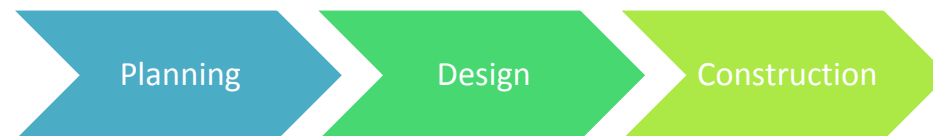
- Existing Roads more important than new ones at Eco-System level
- Wildlife measures maintenance requires higher priority
- Condition Assessment - Asset Management approach
- Retrofit measures may be needed – May be fairly large scale works: Examples from Netherlands



Maintenance Contract (2)

Maintenance

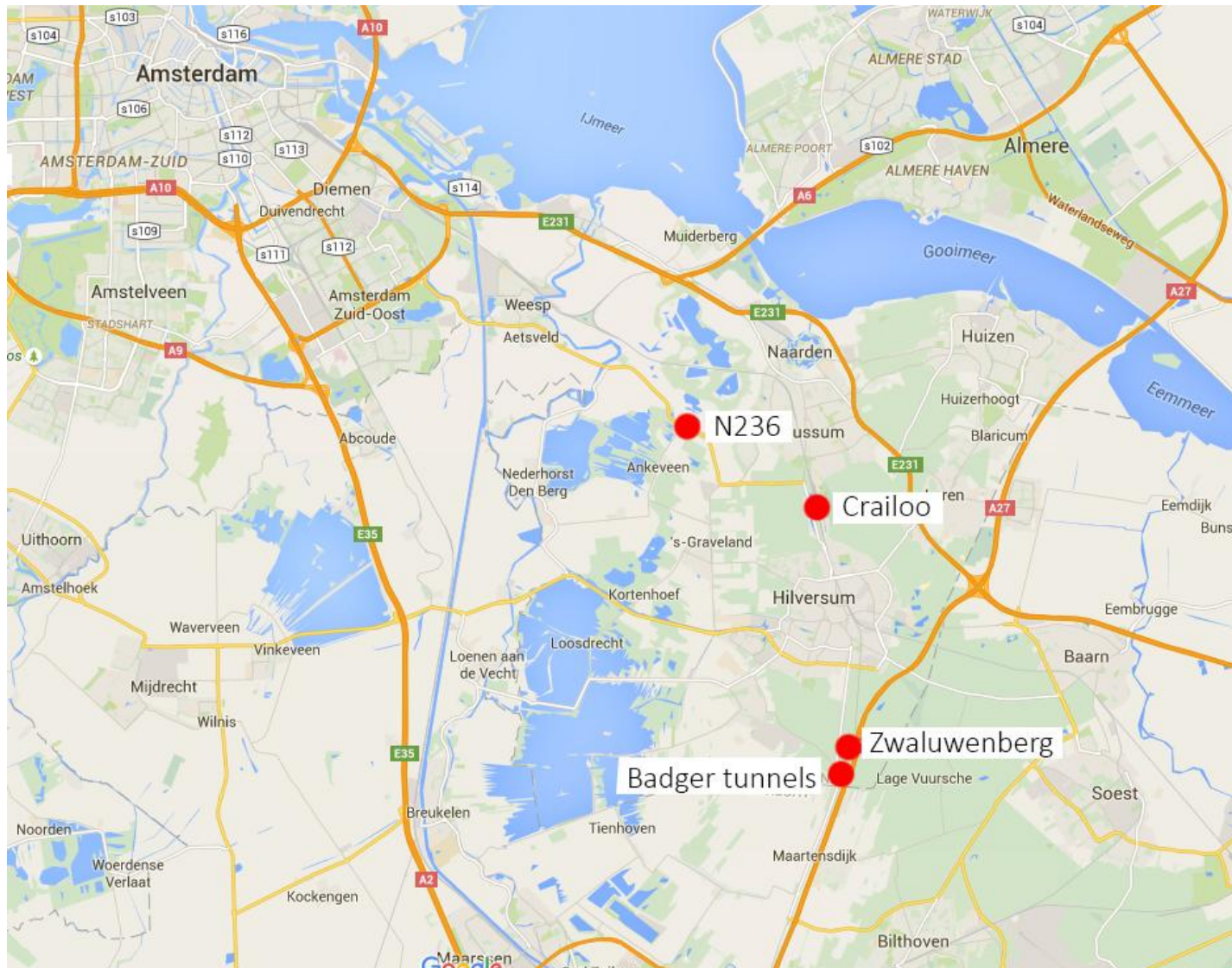
- Contracting Authority provides ecological supervision
- Network Management provides cumulative ecological outcomes.
- Higher financial value for ecological management tasks = incentive to be effective.



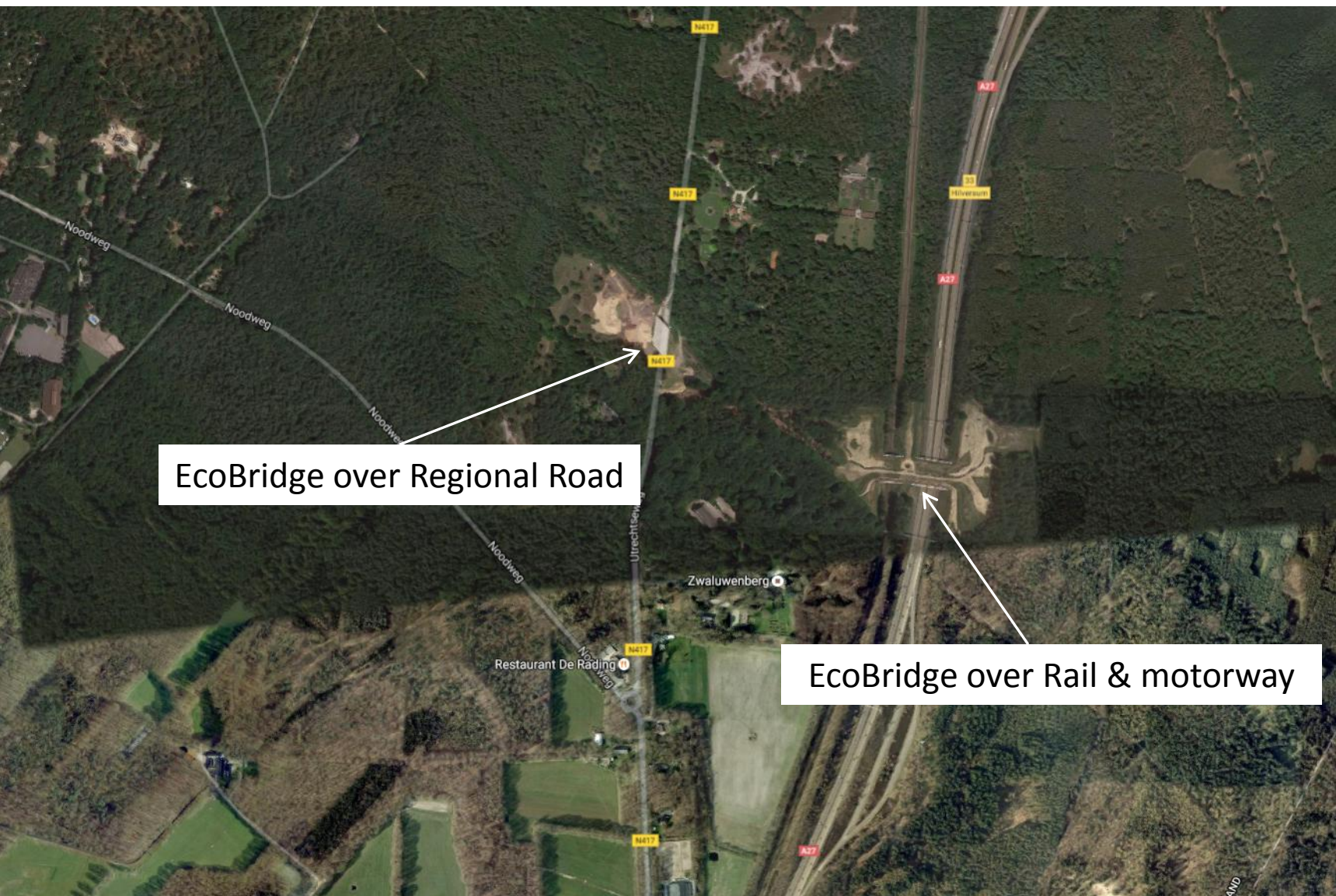
Retrofit Examples – Hilversum, Netherlands



Retrofit Examples – Hilversum, Netherlands



Habitat Connectivity – Zwaluwenberg



EcoBridge over Regional Road

EcoBridge over Rail & motorway

Habitat Connectivity – Zwaluwenberg



100 metre wide EcoBridge retrofitted over Rail & motorway outside Amsterdam

Habitat Connectivity– Zwaluwenberg



Ponds to create invertebrate habitat on the bridge



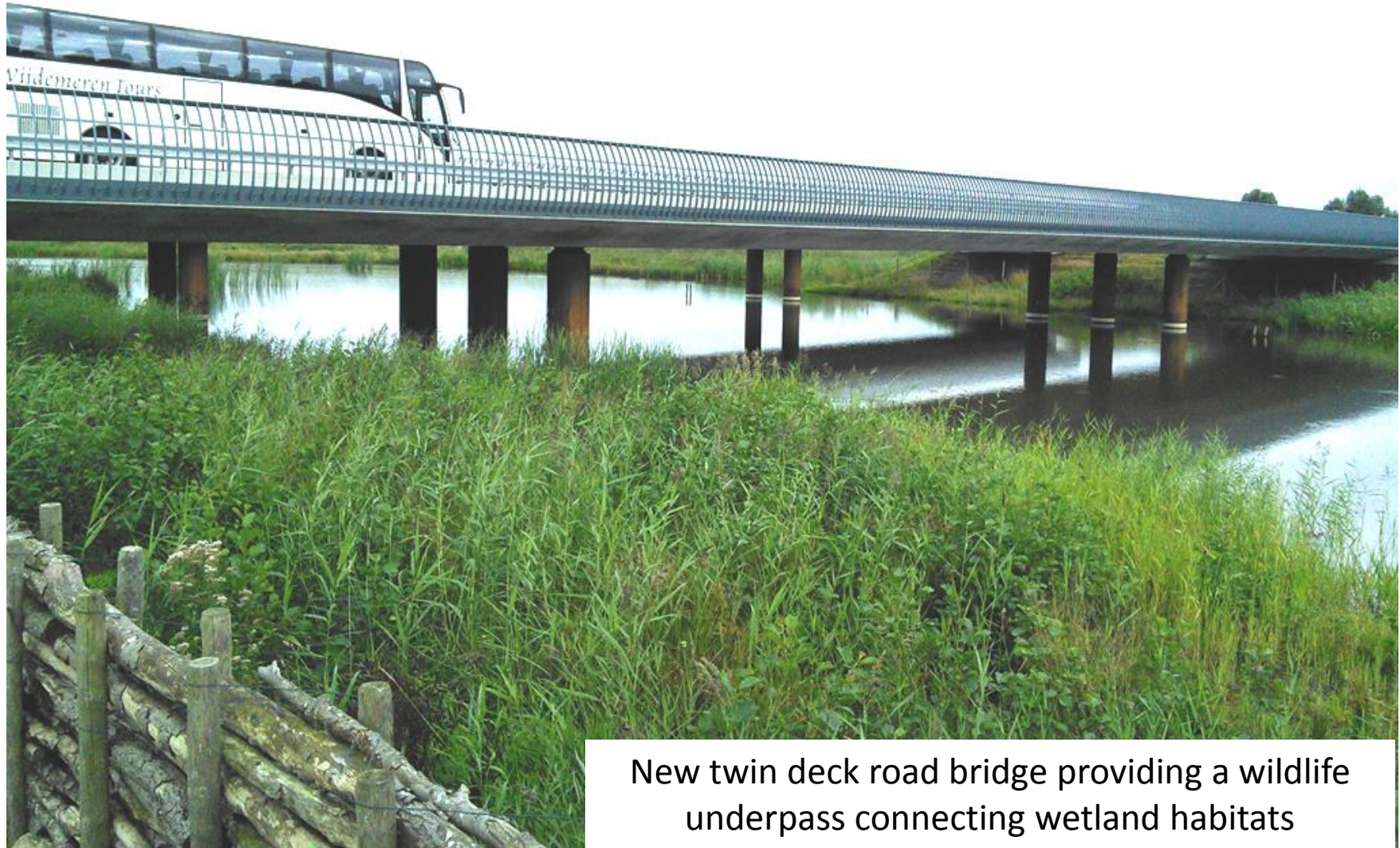
Tree stumps used to create invertebrate habitat on the bridge

Segregated bridleway providing community access to forestry

Wildlife underpass / Retrofitted Bridge (N236)



New twin deck road bridge providing a wildlife underpass connecting wetland habitats



New twin deck road bridge providing a wildlife underpass connecting wetland habitats

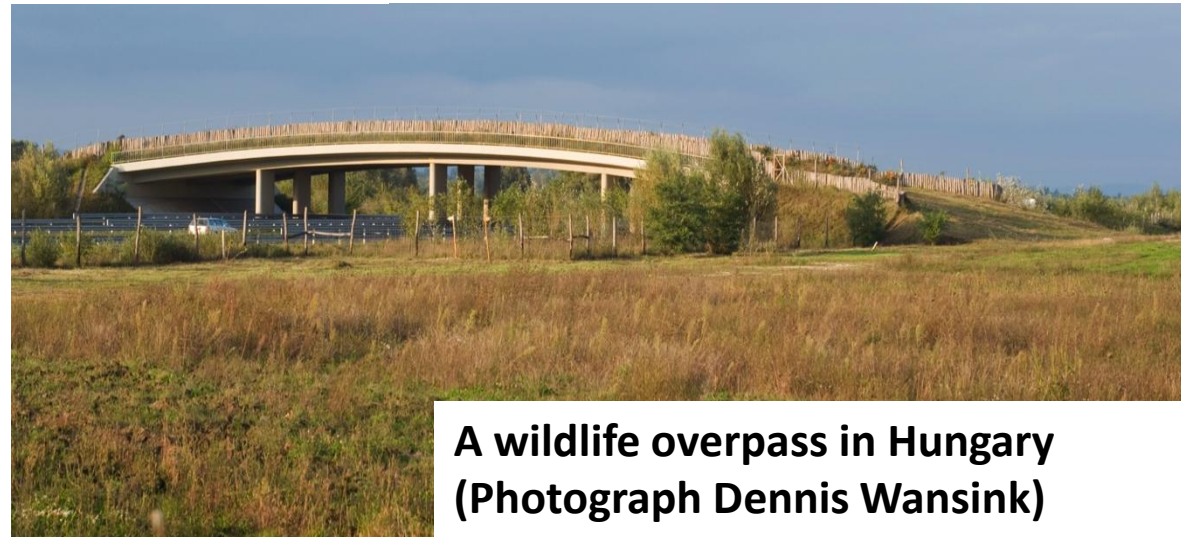
Other Examples of Good practice



A badger tunnel made of a drainage pipe used by Badgers to cross a highway in the Netherlands (Photograph Floris Brekelmans)



Multiple fence types for different species



A wildlife overpass in Hungary (Photograph Dennis Wansink)

1. **Road Authority needs ecological expertise and resources to advise & monitor contractor.**
2. **Quality Assessment in the procurement process should include ecological requirements.**
3. **Specialist ecologists need to be engaged by Contractors for Major Works and Maintenance Contracts.**
4. **The use of performance based specifications would lead to better ecological outcomes.**
5. **Follow-up surveys.**

Key Performance Indicators (KPIs)

- Base on the Environmental Impact Statement
- Should be Easy to measure and compare (challenge!)
- Baseline for each KPI – lack of data?

- KPIs can trigger incentives and penalties

Two possible indicators are:

- Road kill rates deviation from target above norms
- Usage rate of crossings related to targets (subjective?)

Considerable challenge to implement effectively

Conclusions

- Effective provisions for Wildlife Protections need long-term arrangements;
- Continuity is key to the process for successful outcomes;
- Appropriate Ecological Expertise throughout coupled with Engineering for effective implementation;
- Asset Management Approach is best;
- Roads can have Ecological Benefits too!



Procedures for the Design of Roads in **Harmony** with Wildlife

Website

www.harmony-project.net

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Bureau Waardenburg bv
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MTA
ÖKOLÓGIAI
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