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## Towards area-oriented approaches in infrastructure planning

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## Appendix 1: Cases

| Case                               | Infrastructure type | Stakeholder(s) infrastructure                    | Stakeholders other land uses (governments)                                       | Functional scope  | Geographical scope (infra-structure length) | Total investment (estimates)        | Chapter |
|------------------------------------|---------------------|--|--|---|---|-------------------------------------|---------|
| <b>A2 Maastricht</b>               | National highway    | Rijkswaterstaat                                  | Province of Limburg, Maastricht Municipality, Meerssen Municipality              | Road infrastructure, housing, recreation                      | ±3 km                                       | € 850 million                       | 3       |
| <b>Eindhoven Ring Road</b>         | National highway    | Ministry of Transport, Province of North Brabant | SRE (cooperation of 21 municipalities in Eindhoven region)                       | Road infrastructure, rural area, urban land uses              | ±15 - 30 km (north east corridor)           | € 600 million (north east corridor) | 3       |
| <b>Utrecht Ring Road</b>           | National highway    | Rijkswaterstaat                                  | Province of Utrecht, municipalities in the Utrecht region                        | Road infrastructure, urban landscaping                        | ±15 km                                      | € 1100 million                      | 4       |
| <b>Room for the River Nijmegen</b> | Waterway            | Rijkswaterstaat                                  | Nijmegen Municipality  | Waterway, road infrastructure, landscaping, housing, business | ±2 km                                       | > € 350 million                     | 4       |
| <b>'t Harde (N309)</b>             | Provincial road     | Province of Gelderland                           | 't Harde Municipality  | Road infrastructure, urban liveability                        | ±2 km                                       | € 27 million (initial budget)       | 5       |
| <b>A1-Zone</b>                     | National highway    | Rijkswaterstaat                                  | Provinces of Gelderland and Overijssel, municipalities                           | Road infrastructure, spatial quality, economic vitality       | ±70 km                                      | € 421 million                       | 5       |
| <b>A9 Badhoevedorp</b>             | National highway    | Rijkswaterstaat                                  | Haarlemmermeer Municipality  | Road infrastructure, urban revitalization                     | ±5 km                                       | € 320 million                       | 6       |
| <b>A59-corridor development</b>    | National highway    | Rijkswaterstaat                                  | Province of North Brabant, municipalities of 's-Hertogenbosch, Heusden, Waalwijk | Road infrastructure, flood protection, green areas            | ±20 km                                      | € 100 million                       | 6       |
| <b>Greenportlane Venlo</b>         | Provincial road     | Province of Limburg                              | DGCV (cooperation of four municipalities)  | Road infrastructure, business, landscaping                    | ±5 km                                       | € 90 million                        | 6       |



## Appendix 2: Interviews

| Overview of interviewed persons |  |   |          |
|---------------------------------|--|---|----------|
| 1                               | Project manager                                | Rijkswaterstaat, South Holland              | 13-04-10 |
| 2                               | Project manager                                | Rijkswaterstaat, South Holland              | 13-04-10 |
| 3                               | Project manager                                | Rijkswaterstaat, South Holland              | 13-04-10 |
| 4                               | Project manager                                | Rijkswaterstaat, South Holland              | 13-04-10 |
| 5                               | Project manager                                | Rijkswaterstaat, North Brabant              | 15-04-10 |
| 6                               | Project manager                                | Rijkswaterstaat, Oost Nederland             | 20-04-10 |
| 7                               | Project manager                                | Rijkswaterstaat, South Holland              | 20-04-10 |
| 8                               | Project manager                                | Rijkswaterstaat, North Holland              | 01-06-10 |
| 9                               | Project manager                                | Overijssel Province                         | 22-03-11 |
| 10                              | Project manager                                | Gelderland Province                         | 22-03-11 |
| 11                              | Programme coordinator                          | South Holland Province                      | 28-03-11 |
| 12                              | Programme manager                              | North Brabant Province                      | 29-03-11 |
| 13                              | Project manager                                | North Brabant Province                      | 29-03-11 |
| 14                              | Project manager                                | North Brabant Province                      | 29-03-11 |
| 15                              | Consultant/project manager                     | Infranavigator                              | 29-04-11 |
| 16                              | Contract manager                               | RWS Limburg/ A2 Maastricht                  | 20-05-11 |
| 17                              | Programme manager                              | North Brabant Province                      | 01-06-11 |
| 18                              | Project manager                                | Bohemen BV                                  | 01-06-11 |
| 19                              | Policy advisor                                 | Ministry Infrastructure and the Environment | 16-06-11 |
| 20                              | Consultant environmental assessment            | WSP Group, Sweden                           | 11-11-11 |
| 21                              | Consultant infrastructure planning             | Transurb Technirail, Belgium                | 24-11-11 |
| 22                              | Policy advisor                                 | Rijkswaterstaat, DI                         | 28-11-11 |
| 23                              | Professor of Environmental Assessment          | University of Liverpool, England            | 09-01-12 |
| 24                              | Landscape architect                            | Orange Edge, Germany                        | 10-01-12 |
| 25                              | Landscape architect                            | Orange Edge, Germany                        | 10-01-12 |
| 26                              | Coordinator West Swedish Initiative            | STA, Sweden                                 | 17-01-12 |
| 27                              | Head of Sustainability, Equality and Diversity | Highways Agency, England                    | 04-04-12 |
| 28                              | Sustainability advisor                         | Highways Agency, England                    | 04-04-12 |
| 29                              | Contract manager                               | Rijkswaterstaat, DI                         | 13-04-12 |
| 30                              | Director of environment                        | STA, Sweden                                 | 24-04-12 |
| 31                              | Head of strategy                               | Ministry Infrastructure and the Environment | 29-10-12 |
| 32                              | Team leader EIA-centre                         | Rijkswaterstaat, SDG                        | 29-10-12 |
| 33                              | Policy advisor                                 | RVOB  | 20-11-12 |
| 34                              | Policy advisor                                 | RVOB  | 20-11-12 |
| 35                              | Project manager                                | DCGV  | 08-01-13 |
| 36                              | Project manager                                | DCGV  | 08-01-13 |
| 37                              | Programme manager                              | North Brabant Province                      | 08-01-13 |
| 38                              | Project manager                                | Rijkswaterstaat, North Holland              | 15-01-13 |

Towards area-oriented approaches in infrastructure planning

|    |                                    |   |          |
|----|------------------------------------|---|----------|
| 39 | Project manager                    | Limburg Province                                      | 28-03-13 |
| 40 | Project manager                    | Haarlemmermeer Municipality                           | 03-04-13 |
| 41 | Project manager                    | Heusden Municipality                                  | 01-05-13 |
| 42 | Project manager                    | DCGV / Van den Biggelaar Groep                        | 07-05-13 |
| 43 | Project manager                    | Ministry Infrastructure and the Environment           | 16-05-13 |
| 44 | Project manager                    | Rijkswaterstaat South                                 | 23-05-13 |
| 45 | Consultant/landscape architect     | TEMAH   | 23-10-13 |
| 46 | Policy advisor                     | Ministry Infrastructure and the Environment           | 06-11-13 |
| 47 | Policy advisor                     | Ministry Infrastructure and the Environment           | 06-11-13 |
| 48 | Researcher                         | PBL   | 06-11-13 |
| 49 | Policy advisor                     | Utrecht Province                                      | 09-12-13 |
| 50 | Policy advisor                     | Utrecht Province                                      | 09-12-13 |
| 51 | Architect                          | Venhoeven CS / Voormalig Rijksadviseur infrastructuur | 15-01-14 |
| 52 | Architect                          | Voormalig Rijksadviseur infrastructuur                | 15-01-14 |
| 53 | Consultant/landscape architect     | WING  | 16-01-14 |
| 54 | Programme manager                  | Deltaprogramma  | 04-02-14 |
| 55 | Policy officer/landscape architect | Rijkswaterstaat, GPO                                  | 04-02-14 |
| 56 | Programme coordinator              | Rijkswaterstaat, Ruimte voor de rivier                | 10-02-14 |
| 57 | Policy officer/landscape architect | Rijkswaterstaat WVL                                   | 14-02-14 |
| 58 | Consultant/landscape architect     | LOCUS   | 10-03-14 |
| 59 | Landscape architect                | Nijmegen Municipality                                 | 12-03-14 |
| 60 | Project manager                    | Gelderland Province                                   | 28-05-14 |
| 61 | Policy advisor                     | Rijkswaterstaat, WVL                                  | 04-06-14 |
| 62 | Policy advisor                     | Rijkswaterstaat, WVL                                  | 06-06-14 |
| 63 | Policy advisor                     | Rijkswaterstaat, DI                                   | 18-06-14 |
| 64 | Consultant/landscape architect     | TEMAH   | 19-06-14 |
| 65 | Landscape architect                | Utrecht Municipality                                  | 29-09-14 |
| 66 | Project manager                    | Rijkswaterstaat, Midden Nederland                     | 10-10-14 |
| 67 | Project manager                    | Ruimte voor de Waal                                   | 13-10-14 |
| 68 | Project manager                    | Gemeente Nijmegen                                     | 13-10-14 |

**Interviews conducted by master student Peter van der Ven**

|    |                 |   |          |
|----|-----------------|---|----------|
| 69 | Project manager | Overijssel Province                         | 11-07-12 |
| 70 | Policy officer  | Rijkswaterstaat, Oost Nederland             | 24-07-12 |
| 71 | Policy officer  | Ministry Infrastructure and the Environment | 02-08-12 |
| 72 | Project manager | Enschede Municipality                       | 05-09-12 |
| 73 | Policy officer  | Twente Region                               | 05-09-12 |

## Appendix 3: Interview formats

This appendix provides an overview of the interview guides that were used in the case studies in chapter 3 to 6. In these chapters, experts, project managers and policy officers were interviewed to obtain detailed insights into the cases, as well as into more general, underlying processes. These interviews were conducted as semi-structured interviews. The interviews started with a list of themes to be discussed and a number of open questions for each topic – the interview guide. The interview took place as a conversation between interviewer and interviewee. The interviewer continued on the responses of the interviewee and made sure that all topics and discussion prompts from the interview guide were discussed.

The interview guides show the discussion themes and main questions for the interview. For each chapter, the interview guides were prepared on the basis of the conceptual model, after a literature studies had been carried out. During the interview, the interviewees were asked additional questions to substantiate the statements that were made (how?), to give further background information (why?) and to provide concrete examples.

### Chapter 3 – The application of area-oriented strategies in the Netherlands

|  |   |
|--|---|
| <p>Kunt u de achtergrond van het project schetsen? Wat wordt er beoogd met dit project?</p> <p><i>Thema's: doelen, infrastructureel, verdere ruimtelijke doelen</i></p>  | <p>Please outline the backgrounds of the project. What is the main purpose of the project?</p> <p><i>Themes: infrastructural objectives, further spatial objectives</i></p>   |
| <p>Wat houdt het project in? Hoe omschrijft u de ingrepen waar het project om draait?</p> <p><i>Thema's: geplande ingrepen, scope (ruimtelijk/functioneel), betrokken ruimtelijke sectoren, afbakening plangebied, fase, tijdsplanning, gemaakte afwegingen, wanneer keuze(n) gemaakt, verdeling verantwoordelijkheden, invloed Elverding/Sneller en Beter</i></p> | <p>Please describe what the project entails.</p> <p><i>Themes: planned interventions, functional scope, spatial scope, planning, underlying considerations, decision moments, distribution of responsibilities, influence of 'faster and better' committee findings and programme</i></p> |
| <p>Op welke manier speelt duurzaamheid een rol binnen dit project?</p> <p><i>Thema's: planinhoudelijk en/of procesmatig, praktische uitwerking, verhouding "people, planet, profit"</i></p>  | <p>In what way is sustainability a theme within the project?</p> <p><i>Themes: content-related and/or process-related, practical implementation, balance between 'people, planet, profit'</i></p>   |
| <p>Welke ruimtelijke sectoren/thema's zijn er naast infrastructuur betrokken bij dit project?</p> <p><i>Thema's: redenen, mogelijkheden voor synergie (financiële meerwaarde/meerwaarde anderszins), afstemming</i></p>  | <p>What spatial sectors/themes are involved in addition to infrastructure?</p> <p><i>Themes: motivation for integration, possibilities for synergy (financial, otherwise), coordination</i></p>   |

In hoeverre is er aandacht voor het concept ruimtelijke kwaliteit? Welke rol speelt het concept ruimtelijke kwaliteit?

*Thema's: uitwerking, achtergrond, reden, ervaringen, inhoudelijk, proces, interactie*

In hoeverre zijn er andere partijen betrokken bij dit project?

*Thema's: publiek-publieke samenwerking, publiek-private samenwerking, rolverdeling (share-/stakeholder -> financieel/non-financieel belang), trekkende partij, verdeling risico's, machtsverhoudingen, reden*

Is er sprake van een specifieke aanpak t.b.v. de betrokkenheid van andere partijen/interactie tussen partijen?

*Thema's: inbreng, interactie, governance, openheid, participatie, samenwerking, publieke partijen, private partijen, gemeenschap, partnerschap (typologie van samenwerking), beoogde doelen, verwachtingen vooraf, ervaringen tot nog toe,*

Worden er (ter versterking) specifieke instrumenten gekoppeld aan wat eerder besproken is, bijvoorbeeld ter stimulering of ter regulering?

*Thema's: regelgeving, stimulering, wortel of stok, financieel, verdienmodellen, doelen, ervaringen*

Hoe zijn de algemene ervaringen met de werkwijze van dit project tot nu toe in het algemeen?

*Thema's: achtergrond keuze, gemaakte afwegingen, ervaringen tot nog toe, sterke punten, zwakke punten, valkuilen, verbeterpunten*

Kunt u uw project positioneren in een schema aan de hand van de criteria verbreding inhoudelijke doelen en betrokken actoren?

To what extent is the concept spatial quality a factor within the project? What is the role of the concept spatial quality?

*Themes: background, motivation, experiences, implementation, content, process, interaction*

To what extent are other stakeholders involved in the project?

*Themes: public-public cooperation, public-private cooperation, role (stake-/shareholder -> non-financial/financial stake), coordination, distribution of risks, power relations, motivations*

Do you have a specific strategy regarding cooperation and the interaction with other stakeholders?

*Themes: role, interaction, governance, transparency, cooperation, public stakeholders, private stakeholders, community, partnership, goals, expectations, experiences*

Do you use any specific planning instruments or mechanisms to stimulate integration and/cooperation?

*Themes: legislation and procedures, carrot and stick, business cases, goals, experiences*

What are your experiences with the planning approach in this project so far?

*Themes: planning approach, underlying considerations, experiences, strengths, weaknesses, pitfalls, points of improvement*

Please position your project in a scheme by means of the criteria functional scope and involvement of actors.

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## Chapter 4 – Creating value

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### The potential role of a design approach

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Wat is uw inschatting van het belang van verbinden van opgaven m.b.t. infrastructuur en andere ruimtelijke functies?

Welke kansen bestaan er om de synergie en ruimtelijke kwaliteit op het raakvlak van snelwegen en andere ruimtelijke functies in een gebied versterken?

What is your view on the need for integration of road infrastructure and other land uses?

What opportunities do you see for enhancing the synergies and spatial quality at the infrastructure-land use interface in an area?

Wat zijn barrières die het vinden van integrale, afgestemde visies in de weg staan?

In hoeverre speelt het hebben van verschillende frames daarbij een rol? Om overeenstemming over probleem en oplossing te bereiken, hoe ver zou het herzien van handelingsperspectieven moeten gaan?

Er wordt veel aandacht aan ontwerpen geschonken momenteel. Wat uw idee hierbij? Wat is volgens u ontwerp op raakvlak infrastructuur en ruimte? Onderscheid ontwerp/ontwerpen/ontwerper?

Op welke manier komen door middel van ruimtelijk ontwerp nieuwe visies tot stand op het raakvlak van infrastructuur en ruimte? Voorbeelden?

Worden er door middel van een ontwerpbenadering meer stakeholders betrokken in plaats alleen de verplichte actoren? Welke stakeholders zijn betrokken/zouden betrokken moeten zijn bij ruimtelijk ontwerp? En waarom? Voorbeelden?

Op welke manier draagt ruimtelijk ontwerp bij aan het vergroten van de capaciteit voor gezamenlijke leren? Voorbeelden?

Welke aanbevelingen over dit soort ontwerpprocessen zou u doen?

Wat vindt u goede voorbeelden uit de praktijk waar meerwaarde van ontwerp naar voren komt? Of juist gemist wordt?

What are barriers for developing a coordinated integral vision?

To what extent is the presence of diverging referential frames a barrier? To what extent should these frames be revised in order to come to agreement?

Much attention is being paid to spatial design in infrastructure planning? What is your view? How do you design at the infrastructure-land use interface? Please distinguish between design, desiging and the designer?

How does a design approach help to create new visions at the infrastructure-land use interface? Examples?

Does a design approach stimulate the involvement of actors in addition to the regularly involved actors? What stakeholders should be involved in a design approach? Why? Examples?

How does a design approach enlarge the capacity for collective learning? Examples?

What recommendations would you do with respect to this kind of design processes?

What projects do you consider good examples from planning practice that show the advantages of a design approach? Or projects that illustrate the disadvantages of the lack of a design approach?

### **The effect of a design approach in projects**

Invulling ruimtelijk ontwerp/ ontwerpbenadering in dit project. Welke sporen bevat de ontwerpbenadering in dit project?

Procesaanpak mbt ontwerp. Specifiek mbt kwaliteitsteam? Voorgeschiedenis? Wanneer ingesteld? Concrete aanleiding? Op welke manier betrokken? Welke rol gespeeld? Doelstelling van kwaliteitsteam?

The role of spatial design in this project. What focus does the design approach in this project have?

Concerning the design process. What is the role of the quality team? Why was it installed? When? A concrete motive? How is the team involved in the project? What is the goal of the team?



Inhoud ontwerp. Welke opgaven speelden er hier? Op welke manier zou dat in eerste instantie opgelost worden? Wat is er veranderd door inbreng ontwerpbenadering?

Invloeden van ontwerpbenadering. Welke invloed hebben de veranderingen gehad?

- Tijd: sneller/minder vertraging?
- Geld: goedkoper/extra budget beschikbaar?
- Kwaliteit: hogere tevredenheid stakeholders/betere afstemming ruimtelijke functies → duurzamer?
- Aanpassing handelingsperspectieven

Wat is er in het proces veranderd door de oprichting van een kwaliteitsteam?

- In hoeverre is ontwerp (kwaliteitsteam) behulpzaam om projecten beheersbaar te houden?

Op welke manier gebeurt dat dan? Hoe werkt die invloed van een ontwerp benadering?

- Articuleren nieuwe visies met appel op gebiedskwaliteit?
- Betrekken relevante stakeholders?
- Vergroten leervermogen?

Concerning the content of design. What were the main challenges in this project? How was this initially going to be addressed? What has changed due to the design approach?

Influences of the design approach. What influences did the changes in the design and the process have?

- Time: faster/less delay?
- Money: cheaper/more funding available?
- Quality: higher stakeholder satisfaction? Better integration of land uses? More sustainable?
- Adjustment of referential frames?

What has changed in the planning process due to the installation of the quality team?

- To what extent has the quality team been helpful for the manageability of the project?

How does that work? What characteristics of a design approach enhance this influence?

- Articulation of a new vision for the quality of an area?
- Involvement of relevant stakeholders?
- Enhancing the capacity for learning?

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## Chapter 5 – Assessing value

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### General experiences with Sustainability Check

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Welke kennisbehoefte heb je in dit soort projecten?

- Van netwerkgericht naar gebiedsgericht?
- Formaal noodzakelijk/informeel benodigd

• Waarom behoefte aan kennis?

Doorvragen indien nodig: Inhoudelijke of procesmatige behoefte?

- Kennis voor wat? Doorvragen indien nodig: Planvorming of besluitvorming?
- Hoe kom je aan die kennis? Gebruik van instrumenten (DSS)?

Waarom heeft RWS OW ontwikkeld?

- Initiele doelstelling RWS

What knowledge is needed in integrated projects?

- Difference between network focus and area-oriented focus?
- Formal/informal need?
- Why? Is the need content or process-related?
- Knowledge for what purpose? Plan- or decision-making?
- How is this knowledge obtained? Use of instruments/decision support systems?

Why has RWS developed the instrument Sustainability Check?

- Initial objective?

|  |   |
|--|---|
| <ul style="list-style-type: none"> <li>• Doelstelling doorontwikkeling tweede fase?</li> </ul> <p>Hoe wordt de OW nu gebruikt?</p> <ul style="list-style-type: none"> <li>• Binnen pilots?</li> <li>• Buiten pilots?</li> <li>• Op eigen initiatief? Waarom?</li> </ul> <p>Wat wordt duidelijk uit ingevulde OW? (inhoud, intelligentie)</p> <ul style="list-style-type: none"> <li>• Duurzaamheid?/Samenhang?/ Synergie?</li> </ul> <p>Procesmatige effecten OW (creation of alternatives)</p> <ul style="list-style-type: none"> <li>• Wat doet het in planvorming?</li> <li>• Generatie van alternatieven?</li> <li>• Faciliteren gezamenlijk proces</li> </ul> <p>Ondersteuning besluitvorming (choice)</p> <ul style="list-style-type: none"> <li>• Wat voegt OW toe? Vergelijken en rangschikken?</li> </ul> <p>Samenhang met andere instrumenten?</p> <ul style="list-style-type: none"> <li>• Toevoeging op beschikbare inhoudelijke en procesmatige instrumenten?</li> </ul> <p>Recente toepassingen</p> <ul style="list-style-type: none"> <li>• Bevindingen inhoud en proces</li> </ul> | <ul style="list-style-type: none"> <li>• Objective of the second phase of development?</li> </ul> <p>How is the Sustainability Check used?</p> <ul style="list-style-type: none"> <li>• In pilot applications?</li> <li>• Outside pilot application?</li> <li>• Applications at own initiative? Motivations?</li> </ul> <p>What does use of the Sustainability Check teach with regard to content (intelligence)?</p> <ul style="list-style-type: none"> <li>• Sustainability?/Interrelatedness?/Synergies?</li> </ul> <p>What are the process-related effects of the Sustainability Check (creation of alternatives)?</p> <ul style="list-style-type: none"> <li>• Influence on plan-making?</li> <li>• Influence on generation of alternatives?</li> <li>• Facilitation of a joint process?</li> </ul> <p>How does the Sustainability Check support decision-making (choice)?</p> <ul style="list-style-type: none"> <li>• What the main addition of the instrument? Comparison and ranking?</li> </ul> <p>Coherence with other instruments?</p> <ul style="list-style-type: none"> <li>• What is main addition of the Sustainability Check, next to other instruments?</li> </ul> <p>Examples of recent application</p> <ul style="list-style-type: none"> <li>• Please discuss experiences from recent applications? With regard to content and process.</li> </ul> |
|--|---|

**Case studies**

|  |   |
|--|---|
| <p>Beschrijving van de opgave</p> <ul style="list-style-type: none"> <li>• Achtergrond? Hoe begonnen?</li> <li>• Uitgebreide scope, waar komt dat vandaan</li> <li>• Voor welke afwegingen staan men?</li> </ul> <p>Destijds vs nu, veranderd?</p> <ul style="list-style-type: none"> <li>• Verschillende bestuurlijke standpunten?</li> </ul> <p>Waarom gekozen voor toepassing OW?</p> | <p>Please explain the project.</p> <ul style="list-style-type: none"> <li>• Backgrounds? How did the project start?</li> <li>• Why was the scope of the project enlarged?</li> <li>• What are the main trade-offs? Did these issues change between the beginning of the project and now?</li> <li>• How do the points of view of the various stakeholders differ?</li> </ul> <p>Why was the instrument Sustainability Check used?</p> |
|--|---|

|  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Welke behoeften waren er?</li><li>• Welke kennisbehoefte?</li></ul>  | <ul style="list-style-type: none"><li>• What needs were there?</li><li>• What knowledge needs?</li></ul>  |
| Invulling behoeften door OW? Inhoudelijk geslaagd?   | Were the needs met with regard to the content of planning?  |
| <ul style="list-style-type: none"><li>• In hoeverre behoeften vervuld door OW?</li><li>• Doorvragen indien nodig: belang multidimensionaal beeld? Kwalitatief beeld?</li></ul> | <ul style="list-style-type: none"><li>• How?</li><li>• To what extent? On what topics?</li></ul>  |
| Invulling behoeften door OW? Procesmatig geslaagd?   | Were the needs met with regard to the planning process?   |
| <ul style="list-style-type: none"><li>• Op welke manier is het proces gefaciliteerd?</li><li>• In hoeverre? Welke bijdrage heeft OW aan proces geleverd?</li></ul>             | <ul style="list-style-type: none"><li>• What has been the contribution of the instrument to the planning process?</li><li>• To what extent?</li></ul>                     |
| Wat wordt duidelijk uit ingevulde OW? (inhoud, intelligence)   | What does use of the Sustainability Check teach with regard to content (intelligence)?  |
| <ul style="list-style-type: none"><li>• Duurzaamheid?/Samenhang?/Synergie?</li></ul>   | <ul style="list-style-type: none"><li>• Sustainability?/Interrelatedness?/Synergies?</li></ul>  |
| Procesmatige effecten OW (creation of alternatives)  | What are the process-related effects of the Sustainability Check (creation of alternatives)?  |
| <ul style="list-style-type: none"><li>• Wat doet het in planvorming?</li><li>• Generatie van alternatieven?</li><li>• Faciliteren gezamenlijk proces</li></ul>                 | <ul style="list-style-type: none"><li>• Influence on plan-making?</li><li>• Influence on generation of alternatives?</li><li>• Facilitation of a joint process?</li></ul> |
| Ondersteuning besluitvorming (choice)  | How does the Sustainability Check support decision-making (choice)?   |
| <ul style="list-style-type: none"><li>• Wat voegt OW toe?</li><li>• Vergelijken en rangschikken?</li></ul>   | <ul style="list-style-type: none"><li>• What the main addition of the instrument? Comparison and ranking?</li></ul>   |
| Ondersteuning besluitvorming (choice)  | How does the Sustainability Check support decision-making (choice)?   |
| <ul style="list-style-type: none"><li>• Wat voegt OW toe? Vergelijken en rangschikken?</li></ul>   | <ul style="list-style-type: none"><li>• What is the main addition of the instrument? Comparison and ranking?</li></ul>  |
| Samenhang met andere instrumenten?   | Coherence with other instruments?   |
| <ul style="list-style-type: none"><li>• Toevoeging op beschikbare inhoudelijke en procesmatige instrumenten?</li></ul>   | <ul style="list-style-type: none"><li>• What is main addition of the Sustainability Check, next to other instruments?</li></ul>   |
| Zou u het instrument nogmaals gebruiken?   | Would you use the instrument again?   |
| <ul style="list-style-type: none"><li>• Waar wel/niet?</li><li>• Sterke/zwakke kanten?</li></ul>   | <ul style="list-style-type: none"><li>• Under what circumstances?</li><li>• What are strengths and weaknesses?</li></ul>  |

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**Social cost benefit analysis (SCBA)**


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Wanneer MKBA?

- Voorwaarden? Formeel, informeel?
- Op welk moment in planproces?
- Verandering van KBA naar MKBA? Rol van OEI?

Inschatting effecten Wat neem je mee? Wat maak je zichtbaar in MKBA voor RWS-projecten?

- Functionele scope MKBA?
- Ruimtelijke scope MKBA?

Bruikbaarheid van inzichtelijk gemaakte effecten

- Hoe worden effecten zichtbaar gemaakt?
- Monetarisering /PM-posten?

Wat is de focus van een MKBA? Wat is het belangrijkste effect van een MKBA?

- Toetsing van alternatieven vs generatie van alternatieven

In hoeverre is het mogelijk om ruimtelijke synergieën zichtbaar te maken in MKBA?

In hoeverre wordt door een MKBA interactie/discussie tussen verschillende disciplines gefaciliteerd?

- Welke aspecten van MKBA dragen hieraan bij?
- Welke aspecten belemmeren dit?

Hoe wordt MKBA gebruikt in besluitvorming?

- Welke inzichten biedt de uitkomst van een MKBA? Vergelijking/rangschikking MKBA als onderdeel van een groter DSS
- Welke rol speelt de informatie vanuit MKBA in besluitvorming?
- Eigen inschatting complementariteit OW geven
- Idee over afstemming met andere (typen) instrumenten?

When is SCBA applied?

- Conditions? Formal/informal application?
- At what moment in the planning process?
- Please explain the development of the SCBA-method?

What functional and spatial are used for assessing RWS-project proposals by means of SCBA?

Use of found effects.

- How are the effects of a project made visible?
- What is the role of monetization? What role do PM-posts have?

What is the focus of SCBA? What is the main influence of SCBA?

- Testing of alternatives or generation of alternatives?

To what extent does SCBA allow to assess and make visible spatial synergies?

To what extent does SCBA facilitate interaction and discussion between planning disciplines?

- What aspects of SCBA contribute to this capacity?
- What aspects of SCBA hamper this capacity?

How is SCBA used in decision-making?

- What insights do the outcomes of the analysis show? Comparison or ranking of alternatives?

SCBA as part of a wider decision support system.

- What role does the information from SCBA have in decision-making?
  - What is your assessment of the complementarity of this role with the Sustainability Check?
  - What are ideas about the coherence of SCBA and other (types of) instruments?
-

## Chapter 6 – Exploiting value

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### Algemeen

- Welk belang heeft uw organisatie bij de realisatie van het project?
- Wat is de rol/taak van uw organisatie in de gebiedsontwikkeling?
- Iedere partij heeft zijn eigen belangen, in hoeverre hebben betrokken partijen elkaar nodig om hun doelen te bereiken?

### Samenwerking

- In hoeverre is er sprake van gedeelde ambities (interdependentie) bij de participerende organisaties?
- In hoeverre is men bewust van/begrip voor wederzijdse belangen van participerende organisaties?
- Hoe verloopt samenwerking op niveau van personen? In hoeverre spelen onderling vertrouwen/constructieve groepsdynamiek/verbindend leiderschap een rol?
- Is er sprake van een passende organisatiestructuur (institutioneel ontwerp) om co-creatie te faciliteren?
- In hoeverre zijn er procesafspraken gemaakt over een passend proces?

### Financiering en verevening

- Waar wordt binnen het project waarde gecreëerd?
- Hoe zit de financiële structuur van het project in elkaar?
- Is er sprake van verevening?
- Type verevening? Een duidelijk type of sprake van combinatie?
- In hoeverre is men tevreden met de gekozen aanpak m.b.t. verevening?
- Wat zijn hiervan de belangrijkste voordelen? En nadelen? Financieel, inhoudelijk of procesmatig?

### General

- What your organization's interest in the realization of this project?
- What is the role/task of your organization in this area development?
- Each stakeholder has its own interests. To what extent do the stakeholders need each other to achieve their own objectives?

### Cooperation

- To what extent do the participating organizations have interdependent ambitions?
- To what extent are mutual interests understood and respected among participating organizations?
- How does cooperation at the personal level take place? To what extent do factors such as trust, constructive group dynamics, connecting leadership play a role?
- To what extent does the organizational structure (institutional design) facilitate co-creation?
- To what extent have appointments been made about the planning process?

### Finances and value capture

- How does the project create value?
  - How is project organized financially?
  - Does to project apply value capture mechanisms?
  - Type of value capture mechanism? One clear type or a combination?
  - To what extent are the stakeholders satisfied with the chosen approach regarding cooperation?
  - What are the most important examples? And disadvantages? Financial, content-related or process-related?
-

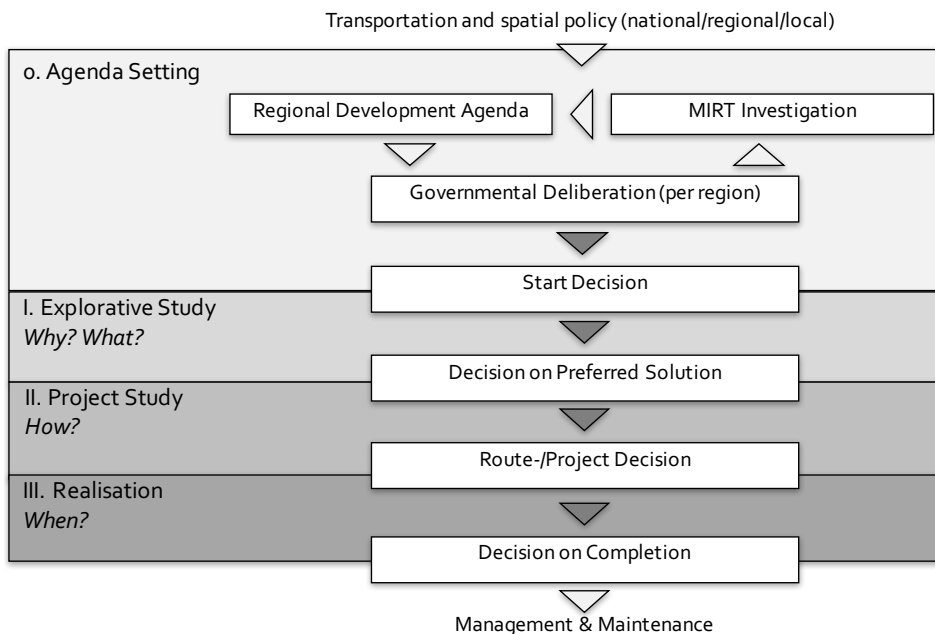
- In hoeverre faciliteert verevening de samenwerking binnen de gekozen aanpak (en de uitkomst van een integraal resultaat)?  
Specifiek m.b.t. gedeelde ambitie/interdependentie, bewustzijn en begrip voor wederzijdse belangen, vertrouwen/verbindend leiderschap/constructieve groepsdynamiek, passende organisatiestructuur (institutioneel ontwerp), afspraken over de procesgang.
  - To what extent does value capturing facilitate cooperation within the area-oriented approach? Specifically with regard to shared ambitions/interdependence, understanding and respect for mutual interests, interactive factors, institutional design, and agreements about the planning process.
-



## Appendix 4: The MIRT-programme<sup>3</sup>

The MIRT-programme [Meerjarenprogramma Infrastructuur Ruimte en Transport] is the Dutch long term plan for infrastructure and transport. This program, currently published by the Ministry of Infrastructure and Environment (see for example I&M, 2016), contains an overview of all spatial developments that receive funding from the national government. It provides an insight into factors such as problem analysis and solutions, time planning, project budgets and the political-administrative status of projects.

In the MIRT-programme, projects are categorized into three main planning stages (strategic explorations, in-depth plan-study and finally realization. Usually, these formal planning stages are preceded by strategic agenda setting – resulting from close collaboration between national and regional administrative levels – and are followed by operational stages that aim at management and maintenance. The figure below provides an overview of the stages in the MIRT-programme and its position in the field of national infrastructure and spatial planning.



*The Dutch infrastructure planning process: strategic, operational and realisation stages (Heeres et al., 2015; based on I&M, 2011)*

<sup>3</sup> This text is based on: Heeres, N., Tillema, T. & Arts, J. (2011), *Integration in road infrastructure planning: An overall analysis of Dutch experiences*, paper presented at the WPSC-conference 2011, Perth.



## References

Heeres, N., Tillema, T. & Arts, J. (2015), 'Overcoming Lock-in: instruments for value creation and assessment early in the infrastructure planning process' in: Ruth, M., Woltjer, J., Alexander, E. & Hull, A. (Eds.), *Place-Based Evaluation for Integrated Land-Use Management*. Ashgate Publishing.

I&M (2011), *Spelregels van het MIRT*, Ministry of Infrastructure and Environment , The Hague.

I&M (2015), *MIRT Overzicht 2016 (MIRT programming overview 2016)*, Ministry Infrastructure & Environment, The Hague.

## Appendix 5: Project milestones Eindhoven and Maastricht

| Milestones in the Eindhoven region's development (with a focus on the region's eastern zone)  | Year      |
|---|-----------|
| Project for completing the ring road around the city of Eindhoven   | From 1994 |
| Studies of expansion of existing road capacity in Eindhoven region  | 2002-2006 |
| Initial identification of region as a national priority   | 2004      |
| Network analysis: recognition of the interrelatedness of infrastructure and other land use functions  | 2006      |
| Cooperation between national, regional and local government bodies begins   | 2007      |
| Explorative study (MIRT-programme) resulting in an integrated, strategic regional vision  | 2008      |
| Project study for the eastern zone: sectoral approach   | 2011      |
| Political debate on use and necessity of adding infrastructure in the eastern zone, including reconsideration of the national funds in the eastern zone's infrastructure budget | 2013      |
| Decision making on infrastructure development in the region's eastern zone  | 2014      |

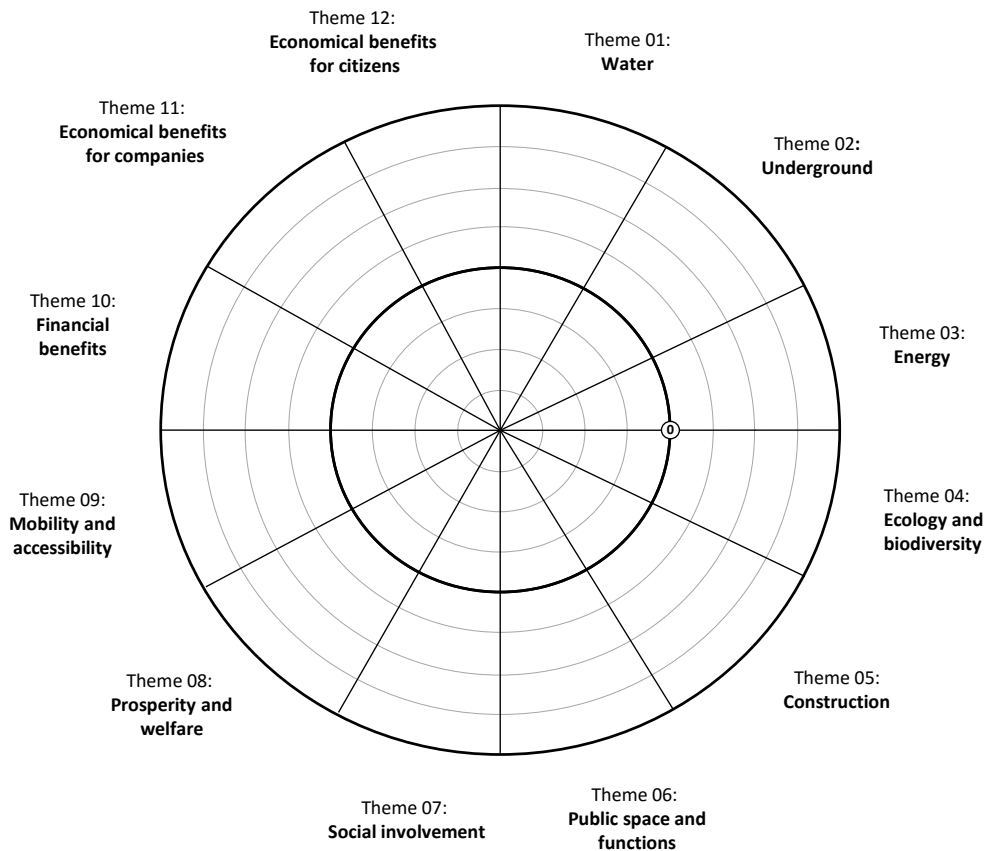
| <b>Milestones in the A2 Maastricht development</b>   | <b>Year</b> |
|--|-------------|
| Various studies to improve the route of the A2 in and around Maastricht.<br>Main issue: funding  | 1980-1995   |
| Report on connecting infrastructure and the urban environment, basis for debate between national, regional and local governments over private funding                                  | 2000        |
| Agreement between national, regional and local governments on the combination of infrastructure and area development, including plans for public-public and public-private cooperation | 2003        |
| Choice for tunnel option and route   | 2006        |
| Start of procurement process   | 2007        |
| Selection of private consortium (and detailed plan)  | 2009        |
| Project decision and incorporation into local land use plan (appeal processes until 2013)  | 2010        |
| Construction works begin   | 2011        |
| Opening of the tunnel  | 2016        |
| Real estate redevelopment  | 2016-2020   |

## Appendix 6: Sustainability Check

The Sustainability Check instrument (*Omgevingswijzer*) uses various principles to operationalize the twelve sustainability themes (RWS, 2012; 2013). The instrument is publicly accessible through [www.omgevingswijzer.org](http://www.omgevingswijzer.org).

| Sustainability theme | Indicators                     | Relevant principles relate to (e.g.)   |
|----------------------|--------------------------------|--|
| Ecology/planet       | Water                          | Water safety/water flooding/water quality/water shortage/climate proofing  |
|                      | Underground/soil               | Soil quality/diversity of soil types/soil biodiversity/archaeology/soil subsidence   |
|                      | Energy and materials           | Reduction of energy consumption/use of renewable energy/use of fossil fuels/consequences of extraction of resources/exchange of energy/robustness of energy networks |
|                      | Ecology and biodiversity       | Room for flora and fauna/biodiversity/ecological structures  |
| Social/people        | Use of space                   | Linkage with existing regional or other construction needs/restructuring/expansion/multiple land use   |
|                      | Public space and functions     | Spatial quality values: experience, use and future/integrated design   |
|                      | Social relevance               | Social wellbeing/demographical composition and trends/public support/local expertise   |
|                      | Wellbeing                      | Health: positive contribution and limitation risks/physical and social safety/prevention of nuisance   |
| Economy/Profit       | Mobility and accessibility     | Robustness of transport system within/between modalities/efficient infrastructure use/accessibility and connectivity/adaptiveness for mobility policies              |
|                      | Investments                    | Cost benefit ratio/area potential/value capturing  |
|                      | Economic benefits for business | Business climate/economic policy/capacity for innovation and adaptation  |
|                      | Economic benefits for citizens | Employment/accessibility of job market/development of labour force/available services  |

The synergy wheel is used to display the scores of assessed alternatives.



*The 'synergy wheel' with 12 indicators of sustainability (translated from RWS, 2011)*

## Appendix 7: Additional information chapter 6

### Interviewees

#### Greenportlane (N295)

- Two project managers from Development Company Greenport Venlo
- Strategic project manager from Limburg Province
- Operational project manager from Limburg Province and Development Company Greenport Venlo

#### A59/GOL

- Project manager from North Brabant Province
- Project manager from Heusden Municipality
- Project manager from national infrastructure planning agency (Rijkswaterstaat, advisory role)

#### A9 Badhoevedorp

- Strategic project manager from national infrastructure planning agency (Rijkswaterstaat)
- Operational project manager from national infrastructure planning agency (Rijkswaterstaat)
- Project manager from Haarlemmermeer Municipality

### Project documents studied

#### Greenportlane (N295)

- Greenport Venlo (2006), *Intentieovereenkomst Gebiedsontwikkeling Greenport Venlo*, consulted on July 1, 2013.
- Greenport Venlo (2009), *Strategisch Business Plan Gebiedsontwikkeling Klavertje 4*, consulted on July 1, 2013.
- Limburg (2011), *Basisrapportage Greenportlane + Appendix*, consulted on July 1, 2013, Province of Limburg, Maastricht.

#### A59/GOL

- Bade, T. & Smid, G. (2009), *Vrij baan voor de Langstraat: Over duurzame structuurversterking als kans*, Province of North Brabant, 's-Hertogenbosch.
- BD (2012), *Gebiedsversterking – “Deze kans krijgt de regio maar één keer”*, Brabant Dagblad, Waalwijk.
- Cooperating actors GOL (2012), *Samenwerkingsovereenkomst Gebiedsversterking Oostelijke Langstraat*, consulted on July 1, 2013.
- North Brabant (2013), *Samen, Slimmer, Beter werken aan de Oostelijke Langstraat*, Province of North Brabant, 's-Hertogenbosch.
- North Brabant (unknown), *Businesscase gebiedsontwikkeling Oostelijke Langstraat: Van botsende naar verweven corridors*, Province of North Brabant, 's-Hertogenbosch.

#### A9 Badhoevedorp

- Stuurgroep A9 Badhoevedorp (2005), *Overeenkomst omlegging A9 te Badhoevedorp*.
- Stuurgroep A9 Badhoevedorp (2006), *Omlegging A9 bij Badhoevedorp: keuze voorkeurstracé*, consulted on July 1, 2013.
- Haarlemmermeer (2013), *Rondom A9 en Gebiedsontwikkeling Badhoevedorp: Rapportage februari 2013*, Haarlemmermeer Municipality, Hoofddorp.

## Appendix 8: Biography

Niels Heeres (Stadskanaal, 1985) holds a BSc in Technical Planning and a MSc in Environmental and Infrastructure Planning from the University of Groningen. He wrote his Master's thesis about the planning of the Transeuropean Transport Network (TEN-T). In 2010 he started as a PhD researcher at the University of Groningen, Faculty of Spatial Sciences. Besides the study about area-oriented planning of highways, he was also involved in teaching. In addition to guest lectures, Niels was a thesis supervisor for master students. His PhD is part of a cooperation programme between Rijkswaterstaat (the Dutch department for public works and water management) and the Faculty of Spatial Sciences, University of Groningen. From 2014 onwards Niels combined his PhD research with his work as an advisor on infrastructure, mobility and planning at Sweco in De Bilt. His current work involves plan-making and environmental impact analysis for several large infrastructure projects in road and rail.

### List of publications

| Peer-reviewed journals |   |
|------------------------|---|
| 2017                   | Heeres, N., Van Dijk, T., Tillema, T. & Arts, J. (2017), 'Coping with functional interrelatedness and stakeholder fragmentation in planning at the infrastructure-land use interface: The potential merits of a design approach', <i>Journal of Transport and Land use</i> , 10(3), 1-28. |
| 2016                   | Heeres, N., Tillema, T. & Arts, J. (2016), 'Dealing with interrelatedness and fragmentation in road infrastructure planning: an analysis of integrated approaches throughout the planning process in the Netherlands', <i>Planning Theory &amp; Practice</i> , 17(3), 421-443.            |
| 2016                   | Heeres, N., Tillema, T. & Arts, J. (2016), 'Beyond financial value capturing? Interactions between value capturing and cooperation at the interface of road infrastructure and land use planning', <i>Town Planning Review</i> , 87(2), 179-204.  |
| 2012                   | Heeres, N., Tillema, T. & Arts, J. (2012), 'Integration in Dutch Planning of Motorways: from "line" towards "area"-oriented approaches', <i>Transport Policy</i> , 24, 148-158.   |
| Book chapters          |   |
| 2015                   | Heeres, N., Tillema, T. & Arts, J. (2015), 'Overcoming lock-in: instruments for Value Creation and Assessment Early in the Infrastructure Planning Process', in: Woltjer, J., Alexander, E., Hull, A. & Ruth, M., <i>Place-based evaluation for land use management</i> .                 |
| Conference papers      |   |
| 2016                   | Heeres, N., Tillema, T. & Arts, J. (2016), 'National road network development in a local spatial context: 8 lessons for area-oriented infrastructure planning', <i>Colloquium Vervoersplanologisch Speurwerk</i> , November 2016, Zwolle.   |
| 2013                   | Heeres, N. & Arts, J. (2013), 'Overcoming Complexities on the Interface of Infrastructure and Land Use: Design for Multifaceted Regional Development', <i>RSA winter conference</i> , November 2013, London.  |
| 2013                   | Heeres, N., Tillema, T. & Arts, J. (2013), 'Streamlining the instruments for value creation and assessment early in the planning process', <i>International Workshop on Planning and Evaluation</i> , March 2013, Groningen.  |
| 2013                   | Heeres, N., Tillema, T. & Arts, J. (2013), 'Value capture around road infrastructure as an alternative means to promote public-public cooperation?', <i>PLPR Conference</i> , February 2013, Portland.  |



- 2012 Heeres, N. & Beukers, E. (2012), 'Hoe kan de afweging van integrale plannen beter worden ondersteund door slim gebruik van afwegingsinstrumenten', *Colloquium Vervoersplanologisch Speurwerk*, November 2012, Amsterdam.
- 2012 Heeres, N., Tillema, T. & Arts J. (2012), 'Functional-spatial sustainability potentials of integrated infrastructure planning', *TRA-conference*, April 2012, Athens.
- 2011 Busscher, T., Heeres, N. & Lenferink, S. (2011), 'Rijkswaterstaat als partner: van asfaltboer tot suikeroom', *Colloquium Vervoersplanologisch Speurwerk*, November 2011, nominated for CVS youth award.
- 2011 Heeres, N. & Tan, W. (2011), 'Corridorontwikkeling in de Zuidvleugel: parallelle ontwikkelingen langs elkaar heen', *Colloquium Vervoersplanologisch Speurwerk*, November 2011, Antwerp.
- 2011 Heeres, N., Tillema, T. & Arts, J. (2011), 'Integration in road infrastructure planning: an overall analysis of Dutch experiences', *WPSC Conference*, July 2011, Perth.
- 2010 Heeres, N., Tillema, T. & Arts, J. (2010), 'From line- towards area-oriented approaches; a historical analysis and international perspective', *AESOP Conference*, July 2010, Helsinki.

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**Other publications**

- 2013 Heeres, N. (2013), 'Over de grens: Gebiedsgerichte oplossingen in Duitsland en Zweden', in: *KIS-bericht 11: Knooppunten en Netwerken*, Ministerie van Infrastructuur en Milieu.
- 2012 Heeres, N., Tillema, T. & Arts, J. (2012), 'Duurzame planning van weginfrastructuur: Een internationaal perspectief' ('Sustainable planning of (road)infrastructure: an international perspective'), *Eindrapport strippenkaartonderzoek RUG-RWS*.
- 2010 Heeres, N. (2010), *Inventarisatie: Rijkswaterstaat in verkenningen weginfrastructuur*, in cooperation with Arts, J. & Tillema, T., commissioned by Van Winden, R. (Staf DG Rijkswaterstaat).
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