The North Rhine-Westphalia Regional Development Plan (LEP NRW)
Ordinance on the North Rhine-Westphalia Regional Development Plan of

Pursuant to Section 17, para. 1, sentence 4 of the NRW Development Act as published on 3 May 2005 (GV. NRW, p. 430), last amended by the Act dated 24 May 2016 (GV. NRW, p. 259), it is decreed:

Article 1
The North Rhine-Westphalia Regional Development Plan, which is announced as an appendix to this ordinance, is an integral part of this ordinance. It consists of text and graphical specifications (North Rhine-Westphalia Regional Development Plan LEP NRW)

Article 2
The North Rhine-Westphalia Regional Development Plan (LEP NRW) will be available for inspection at the offices of the NRW planning authority and the regional planning authorities.

Article 3
The ordinance will enter into force on.... The Sectoral Subplan for Large-Scale Retail Developments, the North Rhine-Westphalia Regional Development Plan (LEP NRW 95) which has been in force since 1995 and Regional Development Plan IV “Protection from Aircraft Noise” will be revoked on the same date.

Düsseldorf, 2016

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of North-Rhine Westphalia
Table of Contents

Reason ........................................................................................................................................ 1
1. Introduction .......................................................................................................................... 1
   1.1 New challenges ........................................................................................................... 2
   1.2 Dealing with demographic change ........................................................................... 2
   1.3 Enabling sustainable economic growth ..................................................................... 4
   1.4 Nature, renewable resources and protecting the climate ......................................... 7
2. Spatial structure of NRW .................................................................................................... 10
3. Sustainable cultural landscape development ................................................................. 15
4. Climate protection and adapting to climate change ...................................................... 19
5. Regional and cross-border cooperation ......................................................................... 22
6. Settlement areas .............................................................................................................. 25
   6.1 Specifications for the settlement area as a whole ................................................... 25
   6.2 Additional specifications for General Settlement Areas ........................................ 35
   6.3 Additional specifications for Areas for Commercial and Industrial Use ................ 37
   6.4 Locations for major projects significant to NRW and involving intensive land use .. 40
   6.5 Large-scale retail developments ............................................................................. 43
   6.6 Facilities for recreation, sport, leisure and tourism .................................................. 54
7. Open space ..................................................................................................................... 57
   7.1 Preservation of open space and soil preservation .................................................. 57
   7.2 Nature and landscape ............................................................................................. 62
   7.3 Forests and forestry ................................................................................................ 65
   7.4 Water ...................................................................................................................... 68
   7.5 Agriculture ............................................................................................................... 74
8. Transport and technical infrastructure ........................................................................... 80
   8.1 Traffic and transport ............................................................................................... 80
   8.2 Transport using pipes and cables ........................................................................... 86
   8.3 Waste disposal ........................................................................................................ 90
9. Supply of natural resources ............................................................................................ 92
   9.1 Safeguarding reserves of natural resources ........................................................... 92
   9.2 Non-energy resources ............................................................................................. 93
   9.3 Energy resources .................................................................................................... 95
10. Energy supply ................................................................................................................ 97
    10.1 Energy structure .................................................................................................... 97
    10.2 Sites for the use of renewable energies ............................................................... 99
10.3 Power station sites and fracking ................................................................. 103
11. Legal foundations and legal effect .............................................................. 107
Appendix 1: Central places in North-Rhine Westphalia ...................................... 110
Appendix 2: Cultural landscape areas significant to NRW .................................. 119

Appendix: Graphical Representations

List of Illustrations
Figure 1 Central-place system in NRW ............................................................. 14
Figure 2 Cultural landscapes and cultural landscape areas in NRW .................... 18
Figure 3 Non-fragmented, low-traffic areas in NRW .......................................... 76
Figure 4 Biotope system across NRW ............................................................... 77
Figure 5 Forests in NRW ................................................................................... 78
Figure 6 Concepts relating to flood prevention ................................................... 79
Figure 7 Spatial planning system in NRW ......................................................... 109
List of objectives, principles and notes

2-1 Objective: central place system ................................................................. 10
2-2 Principle: public services ........................................................................... 10
2-3 Objective: Settlement areas and open spaces ............................................ 10
   Re 2-1 Central place system ....................................................................... 10
   Re 2-2 Public services .................................................................................. 11
   Re 2-3 Settlement areas and open spaces .................................................... 11
3-1 Objective: 32 cultural landscapes .............................................................. 15
3-2 Principle: Significant cultural landscape areas ......................................... 15
3-3 Principle: Historical centres, monuments and other valuable features of the cultural landscape .......................................................... 15
   Re 3-1 32 Cultural landscapes .................................................................... 15
   Re 3-2 Significant cultural landscape areas .................................................. 17
   Re 3-3 Historical centres, monuments and other valuable features of the cultural landscape ......................................................... 17
   Re 3-4 New landscape areas ....................................................................... 17
4-1 Principle: Climate protection ....................................................................... 19
4-2 Principle: adaptation to climate change (climate change adaptation) ......... 19
4-3 Principle: Climate protection plans ............................................................. 19
   Re 4-1 Climate protection .......................................................................... 20
   Re 4-2 Adaptation to climate change (climate change adaptation) .............. 20
   Re 4-3 Climate protection plans .................................................................. 21
5-1 Principle: Integrating regional plans into the regional planning system ....... 22
5-2 Principle: European Metropolitan Area of North-Rhine Westphalia .......... 22
5-3 Principle: Cross-border and transnational cooperation ............................... 22
   Re 5-1 Integrating regional plans into the regional planning system ............ 22
   Re 5-2 European Metropolitan Area of North-Rhine Westphalia ................. 23
   Re 5-3 Cross-border and transnational cooperation ....................................... 23
6.1-1 Objective: Land-saving and demand-led settlement development .......... 25
6.1-3 Principle: “Decentralised concentration” model ..................................... 25
6.1-4 Objective: No ribbon developments or scattered settlements ............... 25
6.1-5 Principle: “Sustainable European city” model ........................................ 25
6.1-6 Principle: Priority for urban infill development ...................................... 25
6.1-7 Principle: Energy-efficient and climate-proof settlement development .... 25
6.1-8 Principle: Re-using derelict land .............................................................................. 26
6.1-9 Principle: Forward estimate of infrastructure costs and infrastructure maintenance costs ................................................................................................................................. 26
   Re 6.1-1 Land-saving and demand-led settlement development ............................... 28
   Re 6.1-2 “Land-saving settlement development” model ........................................... 31
   Re 6.1-3 “Decentralised concentration” model ......................................................... 32
   Re 6.1-4 No ribbon developments or scattered settlements ..................................... 32
   Re 6.1-5 “Sustainable European city” model ............................................................. 32
   Re 6.1-6 Priority for urban infill development ............................................................ 33
   Re 6.1-7 Energy-efficient and climate-proof settlement development ...................... 33
   Re 6.1-8 Re-using derelict land ................................................................................. 34
   Re 6.1-9 Forward estimate of infrastructure costs and infrastructure maintenance costs ................................................................................................................................. 34

6.2-1 Principle: Orientation towards General Settlement Areas significant to the central place system ..................................................................................................................... 35
6.2-2 Principle: Use of rail-based public transport ....................................................... 35
6.2-3 Principle: Controlled reclamation of unused surplus settlement areas ............... 35
   Re 6.2-1 General Settlement Areas significant to the central-place system ............... 35
   Re 6.2-2 Use of rail-based public transport ............................................................... 36
   Re 6.2-3 Controlled reclamation of unused surplus settlement areas ..................... 36
6.3-1 Objective: Supply of land .................................................................................... 37
6.3-2 Principle: Protecting the surrounding area ........................................................ 37
6.3-3 Objective: New areas for commercial and industrial use .................................... 37
6.3-4 Principle: Inter-authority cooperation ................................................................. 37
6.3-5 Principle: Connecting new Areas for Commercial and Industrial Use ................ 37
   Re 6.3-1 Supply of land ........................................................................................... 38
   Re 6.3-2 Protecting the surrounding area ................................................................. 39
   Re 6.3-3 New areas for commercial and industrial use ............................................ 39
   Re 6.3-4 Inter-authority cooperation ....................................................................... 40
   Re 6.3-5 Connecting new areas for commercial and industrial use ...................... 40
6.4-1 Objective: Locations for major projects significant to NRW and involving intensive land use ............................................................................................................................. 40
6.4-2 Objective: Use of locations for major projects significant to NRW and involving intensive land use ..................................................................................................................... 41
6.4-3 Principle: Development of locations for major projects significant to NRW and involving intensive land use ............................................................................................................. 41
   Re 6.4-1 Locations for major projects significant to NRW and involving intensive land use ............................................................................................................................. 41
Re 6.4-2 Use of locations for major projects significant to NRW and involving intensive land use.................................................................................................................. 42

Re 6.4-3 Development of locations for major projects significant to NRW and involving intensive land use ........................................................................................................................................ 43

6.5-1. Objective: Locations for large-scale retail developments only in General Settlement Areas ........................................................................................................................................... 43

6.5-2 Objective: Locations for large-scale retail developments with centre-relevant core product ranges only in central service areas .................................................................................................................. 43

6.5-3 Objective: Prohibition of impairment .......................................................................................... 43

6.5-4 Principle: Non-centre-relevant core product ranges: Retail floorspace .................................. 43

6.5-5 Objective: Non-centre-relevant core product ranges: Location, relative share of centre-relevant peripheral product ranges .................................................................................................................. 43

6.5-6 Principle: Non-centre-relevant core product ranges: Retail floorspace for centre-relevant peripheral product ranges .................................................................................................................. 44

6.5-7 Objective: Replanning of existing locations with large-scale retail developments ........... 44

6.5-8 Objective: Agglomeration of retail developments ..................................................................... 44

6.5-9 Principle: Regional retail plans ........................................................................................................ 44

6.5-10 Objective: Project-related zoning plans for projects as defined in Section 11, para. 3 of the Land Use Ordinance .................................................................................................................. 44

Re 6.5-1 Locations for large-scale retail developments only in General Settlement Areas ........................................................................................................................................... 45

Re 6.5-2 Locations for large-scale retail developments with centre-relevant core product ranges only in central service areas .................................................................................................................. 45

Re 6.5-3 Prohibition of impairment ........................................................................................................ 45

Re 6.5-4 Non-centre-relevant core product ranges: Retail floorspace ........................................... 47

Re 6.5-5 Non-centre-relevant core product ranges: Location, relative share of centre-relevant peripheral product ranges .................................................................................................................. 49

Re 6.5-6 Non-centre-relevant core product ranges: Retail floorspace for centre-relevant peripheral product ranges .................................................................................................................. 50

Re 6.5-7 Replanning of existing locations with large-scale retail developments ....................... 50

Re 6.5-8 Retail agglomerations ........................................................................................................ 52

Re 6.5-9 Regional retail plans ........................................................................................................ 54

Re 6.5-10 Project-related zoning plans for projects as defined in Section 11, para. 3 of the Land Use Ordinance .................................................................................................................. 54

6.6-1 Principle: Providing settlement areas with public spaces and recreation, sports, leisure and tourism facilities .................................................................................................................. 54

6.6-2 Objective: Locational requirements ......................................................................................... 54

Re 6.6-1 Providing settlement areas with public spaces and recreation, sports, leisure and tourism facilities ........................................................................................................................................... 55

Re 6.6-2 Locational requirements ........................................................................................................ 55
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1-1</td>
<td>Principle: Protecting open spaces</td>
</tr>
<tr>
<td>7.1-2</td>
<td>Objective: Protecting open space in regional planning</td>
</tr>
<tr>
<td>7.1-3</td>
<td>Principle: Non-fragmented, low-traffic areas</td>
</tr>
<tr>
<td>7.1-4</td>
<td>Principle: Soil preservation</td>
</tr>
<tr>
<td>7.1-5</td>
<td>Objective: Green belts</td>
</tr>
<tr>
<td>7.1-6</td>
<td>Principle: Ecological upgrading of open spaces</td>
</tr>
<tr>
<td>7.1-7</td>
<td>Principle: Use of former military land earmarked for redevelopment</td>
</tr>
<tr>
<td>7.1-8</td>
<td>Principle: Landscape-oriented and environmentally compatible recreation, sport and leisure use</td>
</tr>
<tr>
<td>7.2-1</td>
<td>Objective: NRW-wide biotope system</td>
</tr>
<tr>
<td>7.2-2</td>
<td>Objective: Areas for nature conservation</td>
</tr>
<tr>
<td>7.2-3</td>
<td>Objective: Preventing encroachment</td>
</tr>
<tr>
<td>7.2-4</td>
<td>Principle: Recreation, sport and leisure use in nature conservation areas</td>
</tr>
<tr>
<td>7.2-5</td>
<td>Principle: Landscape protection and landscape preservation</td>
</tr>
<tr>
<td>7.3-1</td>
<td>Objective: Forest conservation and forest consumption</td>
</tr>
<tr>
<td>7.3-2</td>
<td>Principle: Sustainably and efficiently managed forests</td>
</tr>
<tr>
<td>7.3-3</td>
<td>Principle: Sparsely and densely wooded areas</td>
</tr>
<tr>
<td>7.4-1</td>
<td>Principle: Efficiency and functional capacity of water</td>
</tr>
<tr>
<td>7.4-2</td>
<td>Principle: Surface water</td>
</tr>
<tr>
<td>7.4-3</td>
<td>Objective: Protecting drinking water reserves</td>
</tr>
</tbody>
</table>
7.4-4 Objective: Dam sites.................................................................69
7.4-5 Principle: Sites for dams for energy production and storage ..........69
7.4-6 Objective: Flood plains ..............................................................69
Re 7.4-1 Efficiency and functional capacity of water .........................69
Re 7.4-2 Surface water ........................................................................70
Re 7.4-3 Protecting drinking water reserves .........................................71
Re 7.4-4 Dam sites .............................................................................71
Re 7.4-5 Sites for dams for energy production and storage ..................72
Re 7.4-6 Floodplains ..........................................................................72
Re 7.4-7 Reclamation of retention areas ...............................................73
Re 7.4-8 Taking account of potential flood risks ...................................74
7.5-1 Principle: Spatial conditions for agriculture ..................................74
7.5-2 Principle: Preserving usable agricultural land and businesses ........74
Re 7.5-1 Spatial conditions for agriculture ...........................................74
Re 7.5-2 Preserving usable agricultural land and businesses ..................75
8.1-1 Principle: Integration of settlement and transport planning ..........80
8.1-2 Objective: New transport infrastructure in open spaces ..............80
8.1-3 Principle: Roads ..........................................................................80
8.1-4 Principle: Trans-European Transport Network ............................80
8.1-5 Principle: Cross-border transport ................................................80
8.1-6 Objective: Airports in NRW of significance to NRW and the region 80
8.1-7 Objective: Protection from aircraft noise .....................................80
8.1-8 Principle: Protection from aircraft noise and settlement development 81
8.1-9 Objective: Ports and waterways significant to NRW ....................81
8.1-10 Principle: Freight transport by rail and waterway .......................81
8.1-11 Objective: Public transport .......................................................81
8.1-12 Objective: Accessibility .............................................................81
Re 8.1-1 Integration of settlement and transport planning ....................82
Re 8.1-2 New transport infrastructure in open spaces ..........................82
Re 8.1-3 Roads ..................................................................................82
Re 8.1-4 Trans-European Transport Network .......................................82
Re 8.1-5 Cross-border transport ..........................................................83
Re 8.1-6 Airports in NRW of significance to NRW and the region ............83
Re 8.1-7 Protection from aircraft noise .................................................84
Re 8.1-8 Protection from aircraft noise and settlement development ........84
Re 8.1-9 Ports and waterways significant to NRW .................................84
Re 9.2-3 Updating ......................................................................................................... 95
Re 9.2-4 Subsequent use ............................................................................................. 95
Re 9.2-5 Sites for surface extraction facilities ............................................................... 95
9.3-1 Objective: Brown coal plans .................................................................................... 96
9.3-2 Objective: Subsequent use for coal mines .............................................................. 96
Re 9.3-1 Brown coal plans ............................................................................................ 96
Re 9.3-2 Subsequent use for coal mines ...................................................................... 96
10.1-1 Principle: Sustainable energy supply ..................................................................... 97
10.1-2 Principle: Spatial conditions for the energy supply ................................................ 97
10.1-3 Principle: New sites for energy production and storage ......................................... 97
10.1-4 Objective: Combined heat and power .................................................................... 97
Re 10.1-1 Sustainable energy supply ........................................................................... 97
Re 10.1-2 Spatial conditions for the energy supply ....................................................... 98
Re 10.1-3 New sites for energy production and storage ............................................... 98
Re 10.1-4 Combined heat and power ........................................................................... 98
10.2-1 Objective: Waste tips and landfill sites as sites for the use of renewable energies 99
10.2-2 Objective: Priority areas for wind energy use ...................................................... 99
10.2-3 Principle: Extent of land designated for wind energy use ...................................... 99
10.2-4 Principle: Wind energy use through repowering .................................................... 99
10.2-5 Objective: Solar energy use ................................................................................ 99
Re 10.2-1 Waste tips and landfill sites as sites for the use of renewable energies .... 100
Re 10.2-2 Priority areas for wind energy use .............................................................. 100
Re 10.2-3 Extent of land designated for wind energy use ............................................. 101
Re 10.2-4 Wind energy use through repowering ......................................................... 102
Re 10.2-5 Solar energy use ......................................................................................... 102
10.3-1 Objective: New power station sites in the regional plan ....................................... 103
10.3-2 Principle: Requirements for new sites to be designated in the regional plan .... 103
10.3-3 Principle: Protecting the area around power station sites .................................... 103
10.3-4 Objective: Suspension of fracking in unconventional deposits ............................ 103
Re 10.3-1 New power station sites in the regional plan .............................................. 103
Re 10.3-2 Requirements for new sites to be designated in the regional plan .......... 104
Re 10.3-3 Protecting the area around power station sites ............................................. 104
Re 10.3-4 Suspension of fracking in unconventional deposits ..................................... 105
Reason

Contents

This draft for a new Regional Development Plan is intended to replace the North Rhine-Westphalia Regional Development Plan (LEP NRW 95) which has been in force since 1995, Regional Development Plan IV “Protection from Aircraft Noise” and the NRW Development Programme (LEPro) which ceased to apply on 31 December 2011.

In addition, the objectives, principles and notes of the separately elaborated and prepared technical sub-plan for large-scale retail developments have been inserted into the draft of the new LEP NRW as Section 6.5. The regulations on large-scale retail developments will initially continue to apply as a technical sub-plan and will not be integrated into the new LEP NRW until the latter acquires legal force.

The LEP also contains objectives and principles with regard to climate protection and adapting to climate change.

Based on a parallel formulation of the climate protection plan and the LEP, these specifications for the LEP are consistent with the currently accepted spatial requirements of climate protection and the spatial measures laid down in the climate protection plan. Overarching substantive requirements for climate protection and adaptation to climate change have only been summarised as principles in Section 4; certain aspects have therefore been incorporated as objectives and principles concerning specific areas in subsequent sections.

In this way, all the spatial planning objectives are combined into a single instrument at regional level, thereby simplifying the spatial planning system in North-Rhine Westphalia. This combination also accords with the requirement in Section 8, para. 1 of the Federal Spatial Planning Act (Raumordnungsgesetz = ROG), that an overriding spatial development plan must generally be prepared for each Land.

Section 7, para. 1, ROG states that specifications in spatial development plans must be set out for a regular medium term; the previous regional development plans therefore had to be reviewed.

The draft for the new LEP NRW takes account of changed conditions for spatial development - in particular demographic change, the continuing globalisation of the economy and the predicted climate change - and the models for spatial development in Germany produced by the ministerial conference on spatial development. Accordingly, it includes new specifications for space-saving settlement developments, climate protection, the use of renewable energy and cultural landscape development.

In addition, the new LEP NRW must comply with changed legal principles and requirements of new case law - it must take into account and further define the new spatial planning principles enshrined in the ROG, differentiate and identify spatial planning objectives and principles, take account of redefined area categories (priority, reserve and suitability areas) and include graphical representations to a scale not exceeding 1:300,000.

Reasons for the specifications in the LEP and the resulting considerations are set out in the introduction to the LEP, the environmental report and the notes of the various objectives and principles. Consideration was also given to a number of interests during the revision of the draft LEP on the basis of the objections and suggestions made (see also the summary of suggestions made and responses to them).

Environmental audit

In accordance with Section 12, para. 4 of the Land Planning Act (Landesplanungsgesetz = LPIG) in conjunction with Section 9 ROG, an environmental report has been prepared for this draft for a new Regional Development Plan. In summary, the environmental report concludes that the new LEP NRW provides the regional plans as a whole with a comprehensive and differentiated set of instruments for protecting and developing the environment, which can be expected to have a significant positive impact on the environment. The reservation should be made that the further definition of specifications in the new LEP could in certain cases result in a damaging environmental impact at subordinate planning levels, which has to be taken into account in the relevant planning process.
In the “Datteln-Waltrop” area, a location for major projects involving intensive land use, and in some dam sites optionally guaranteed in the LEP, this also concerns the impact on protected areas (cf. Sections 2.3.2 and 2.4 of the environmental report).

No substantial environmental impact that could cross borders to affect neighbouring countries or regions of Germany has been ascertained or forecast for the abstract programme specifications and principles of the new LEP NRW or for the audited site-specific specifications at LEP level; this is also subject to the reservation that during further definition it is impossible to rule out damaging, cross-border environmental impacts occurring in certain cases at subordinate planning levels. This must be taken into account in the relevant planning process on the basis of the appropriate legal principles (cf. Section 2.3.3 of the environmental report).

The specifications of the draft LEP changed on completion of the participation process were subjected to a reassessment of their environmental impact as part of the environmental audit.

Procedure

The procedure for drawing up the new LEP NRW is laid down in Section 10 ROG in conjunction with Sections 13 and 17 LPIG. Under Section 10, para. 1 ROG, the public and the affected public bodies acting in their interests must be notified of the preparation of the spatial development plan; they must be given an opportunity to express their opinion on the draft spatial development plan and the reasons behind it.

Furthermore, a cross-border agreement has been made with the countries and Länder bordering North-Rhine Westphalia as laid down in Section 7, para. 3 ROG.

On 25 June 2013, the NRW government had approved the draft Regional Development Plan and instructed the NRW planning authority to conduct a wide-ranging public participation procedure on the basis of this draft. The draft plan was made available during the period 30 August 2013 until 28 February 2014.

In this public participation procedure, 751 institutional submissions and 650 submissions from private individuals, involving a total of about 10,000 individual objections and suggestions were received. The main points raised in the submissions received and their evaluation by the NRW government have been listed in a comprehensive summary. Particular reference is made in this regard to the extensive synopsis of the first public participation procedure.

Following an analysis of all the comments, suggestions and objections, the North-Rhine Westphalia government passed resolutions on 28 April 2015, 23 June 2015 and 22 September 2015 to amend significant parts of the draft for the new North-Rhine Westphalia Regional Development Plan and to launch a second public participation procedure.

The public and the affected public bodies acting in their interests had another opportunity to comment on the amended contents of the revised draft LEP (dated 22 September 2015) and the reassessment based on the environmental audit during the second public participation procedure from mid-October 2015 until 15 January 2016. All the relevant documents were also published on the website of the State Chancellery of North-Rhine Westphalia during the second public participation procedure.

A total of 685 submissions were received on the revised draft Regional Development Plan, of which 319 were from rural districts and municipalities in North-Rhine Westphalia, 24 from public bodies in North-Rhine Westphalia and federal authorities, 20 from public bodies and institutions in neighbouring Länder and countries, 107 from organisations and citizens’ initiatives and 20 from businesses. Eighty-four individual submissions were made by private individuals. Approximately 1,000 citizens from the South Westphalia area (Sauerland and Siegerland) expressed an opinion on the plans for expanding the use of wind energy in the form of standardised communications.

This second public participation procedure was again followed by an analysis of the submissions received. Based on the submissions received, a few objectives and principles of the LEP were changed to include a clarification and/or supplementary information.

On completion of the preparation procedure, the NRW government will forward the draft plan to the NRW parliament with a report on the preparation procedure, pursuant to Section 17, para. 1 LPIG. The NRW development plan will be adopted by the NRW government with the agreement of the NRW parliament in the form of a regulation (Section 17, para. 2 LPIG).
Thereafter, the new LEP NRW will be published in the Official Gazette of North-Rhine Westphalia and therefore become legally effective.
1. Introduction

Under Section 1 of the Federal Regional Planning Act, the NRW Regional Development Plan must develop, organise and protect the territory of NRW as a comprehensive, supra-regional and interdisciplinary spatial development plan. It must harmonise the different demands on an area, resolve any conflicts that may arise and allow for the different uses and functions of the area.

The development, organisation and protection of the territory of NRW should match the conditions and requirements of the territory of the Federal Republic of Germany as a whole and take into account the conditions and requirements of regional and local planning areas in NRW (principle of countervailing influence).

The overall concept behind this task is that of sustainable spatial development which will bring the social and economic demands on an area into line with its ecological functions and result in a stable order which will be well-balanced on a large scale with similar standards of living in all regions of NRW.

This *Landesentwicklungsplan* (LEP - Regional Development Plan) sets out the medium- and long-term strategic spatial development objectives for the Land [federal state] of North-Rhine Westphalia (NRW). Its general specifications (Sections 2-5), its specifications for specific subject areas (Sections 6-10) and its graphical specifications must be noted and taken into account in subordinate regional, urban development and sectoral planning. Conversely, the existing subordinate plans are included in the preparation of the spatial development plans of Land and regional planning authorities. This legally enshrined “principle of countervailing influence” is an obligation and an incentive for achieving fruitful cooperation based on trust between the different levels of the planning system.

Only limited spatially delineated specifications for land uses and protection functions are possible at LEP level. These specific aspects are mostly left to regional and other subordinate planning authorities. There, they must be implemented in compliance with or in consideration of the objectives and principles set out in the text of the LEP. The tiered spatial planning system is designed to prevent time-consuming discussions about land use in subordinate planning procedures by issuing framework Land and regional planning specifications. As far as they are able, Land planning specifications create certainty with regard to planning and investment for the public and the business community and they also prevent damage, e.g. by designating flood plains on which no further building is permitted.

Besides the spatial planning specifications, other sectoral and social goals must be achieved, especially at lower levels of the planning system and in licensing and approval procedures. For example, in order to achieve the consistent implementation of the gender and disability mainstreaming approach as part of lower-level plans, it is necessary to review the effects on sexual equality and the social participation of people with disabilities.

The objectives and principles set out in the text of the LEP, in Sections 2-10 with Appendices 1 and 2 and the attached specifications for drawings have the legal effect described in Section 4 of the German Spatial Planning Act (ROG) (cf. LEP, Section 11 "Legal principles"). In addition, the text of the LEP also provides notes to justify all the objectives and principles and information on their implementation. As well as specifications, the graphical representations also contain information on the division of NRW into settlement areas and open space and on the orientation of spatial planning to regional planning areas and municipal boundaries. In the course of updating the regional plans, boundaries will change in the informative representations of the LEP, which will not be updated in the LEP.

Previously, the objectives and principles of regional planning in NRW had been set out in different plans, the *Land* Development Programme (LEPro) which ceased to apply on 31 December 2011, the North-Rhine Westphalia Development Plan of 1995, Regional Development Plan IV “Protection from Aircraft Noise” and the Sectoral Subplan for Large-Scale Retail Developments. Combining the above into the new Regional Development Plan presented here streamlines the spatial planning regulations for NRW and concentrates them into a single plan. In this way, the new LEP helps to simplify the legal requirements.
1. Introduction

1.1 New challenges

As a result of the high population density and the resultant competition between a range of demands on the limited space available, spatial planning is of particular importance in NRW – and it has taken root here. NRW now has an abundance of plans, so that this LEP can build on previous NRW development plans and the existing Land-level regional plans.

However, the conditions for spatial development have changed since the previous LEP was drawn up in the 1990s, making it necessary to adjust the spatial planning objectives and principles accordingly. The main changes concerned are

- the forecast demographic change in NRW,
- the continuing globalisation of the economy, including developments in the retail sector and climate protection and adaptation to climate change.

It is in the nature of spatial planning to satisfy the different and sometimes contrary demands of protection and use within the context of an interdisciplinary and supraregional overall plan.

The aspects referred to below cannot therefore be considered in isolation. The interactions must be included in order to obtain a complete picture of the wide range of demands on spatial planning. With the aid of the objectives and principles set out in Sections 2-10, the LEP strikes a balance between these demands.

1.2 Dealing with demographic change

Current situation:

In 2014, NRW was home to approximately 17.6 million people (9.0 million women and 8.6 million men). In the 1990s, NRW recorded a population growth of nearly 0.9 million people (0.4 million women and 0.5 million men). This trend did not continue, with population numbers stagnating in the first decade of this century. Since 2011, however, NRW’s population has been on the increase again – mainly due to high net migration – and according to current population projections commissioned by the State Chancellery from IT.NRW in the cities and rural districts of NRW for 2014-2040/60, referred to below as “current population projections” for short, the population is initially expected to continue to increase by about 9% from 2014 to 2025, return to 2015 levels by 2035 and decline consistently thereafter.

This Land-wide trend will have a very different effect on different areas of NRW. For example, the results of current population projections show a population growth of over 10% by 2040 for the cities of Düsseldorf, Cologne, Bonn and Münster as these are the only ones among the cities and rural districts still to have an excess of births over deaths due to their age distribution. According to these projections, growth between 5% and 10% is being recorded by the city of Leverkusen and the districts of Rhine-Neuss, Rhine-Erft and Rhine-Sieg, which lie in the immediate vicinity of these cities, as well as the city of Dortmund. Moreover, the population is still growing in the cities of Essen, Solingen, Wuppertal, Aachen and Bielefeld and the rural districts of Kleve, Gütersloh and Paderborn, according to current population projections. The largest population declines (over 10%) by 2040, according to current population projections, will be seen in the urban district of Remscheid (-12.8%) and the rural districts of Lippe (-10.3%), Höxter (-16%), Olpe (-10.9%) Hochsauerlandkreis (-16%) and Märkischer Kreis (-19%).

In the long term, according to current population projections, only the older age groups (65 and over) are set to see an increase compared with the base year of 2014. However, current population projections show that younger age groups could also achieve an increase by 2030: The greatest rise will be seen in the 25-40 age group, with a 10.3% increase by 2025. The number of 0-6 year olds is set to increase by just under 30,000 by 2025 and then return to the starting level of the current year. The 6-10 age group will increase more slowly. It will not peak until 2030 and will then be 1.7% up on the initial level of 2014. Current population projections calculate the proportion of people aged 65 and over in 2040 to be 28.9%, the current proportion being 20.6% (2014).

The basic trends of demographic change will therefore remain, especially with regard to the juxtaposition of shrinking and growing regions, but the effects will kick in later than previously expected. All of this also makes it increasingly important to orientate settlement patterns so as to provide medical care close to home and barrier-free access to services. This will at the same time improve the social participation of people with disabilities and meet the specific requirements of the UN Disability Rights Convention.
In the regions with population growth, there will also be a corresponding demand for housing in the medium term. But even in regions with population decline, the number of one and two-person households is initially expected to rise, mainly due to the number of older people living in single-person and small households. The main effect of the increase in the number of households will be to further increase the average living space per capita and increase the overall demand for housing. However, with continuing population decline, the demand for housing will also decline – although this will vary from region to region.

How the scenario described above will change as a result of the current influx of refugees from war zones is impossible to predict at the time of preparation of the LEP. However, even the initial scenarios do not assume that NRW will only have regions with population growth in future so that in all probability the situation will remain one of a juxtaposition of shrinking and growing regions. It is important to state in this context that the basic structure of this LEP should be sufficiently robust to respond to changing population trends. The fact that regional and urban development planning is specified to ensure that residential and commercial development is tailored to meet demand guarantees that changes in population trends, as well as the different conditions and challenges, in NRW’s regions can be taken into account.

The LEP contains specifications on the subject of “dealing with demographic change”

- Developing regional diversity and identity

  The aim of “sustainable cultural landscape development” is to preserve the diversity of NRW’s man-made landscapes and their heritage and develop them as an anchor point for regional identity. Greater importance is to be attached to the design of our spatial environment so that it is and remains our home and we can pass it on to future generations with pride. At the same time, the living and working environment is to be improved as it is an increasingly important means of attracting people and businesses to settle here.

- Strengthening central places and city centres

  In the medium term, the population is expected to decline in many parts of NRW. This could cause capacity problems there, especially in the case of the infrastructures required to provide public services. To counteract this and guarantee basic services for all sections of the population, further settlement development must already be concentrated in locations in which an attractive range of public and private utilities and services can be provided in the long term. This will also strengthen city centres, prevent settlement dispersal and reduce infrastructure maintenance costs for municipalities.

- Guaranteeing mobility and accessibility

  In the light of demographic change and the obligations arising from the UN Disability Rights Convention, accessibility – especially the accessibility of public services – is becoming an increasingly important issue. On the one hand, the mobility patterns of an ageing society are set to change. On the other hand, population decline and the resulting concentration of public and private service and healthcare facilities in many parts of NRW are increasing the distances that individuals have to travel. This makes it essential to link settlements with a range of public transport services that can be used by all sections of the population.
1.3 Enabling sustainable economic growth

Current situation:

Section 2, para. 2, No. 4 ROG states that an economic structure must be created in the planning area, which is competitive and spatially balanced in the long term, has an economy-oriented infrastructure and holds out an adequate and varied range of jobs and training places.

Like all the other principles contained in Section 2, para. 2 ROG, this principle is aimed at all subordinate planning authorities, giving them the task of further defining them in spatial development plans by laying down specifications.

If it were an independent country, the NRW economic area would be ranked number 18 in the league table of international economies. What distinguishes the NRW economy from Germany’s other Länder is that it is characterised by a higher degree of internationalisation. With 11 million people living around the Rhine and the Ruhr, NRW is the largest conurbation in Europe and therefore an important market for national and international investors. In NRW, commerce and industry perform equally well in densely populated urban centres and in rural areas in which, traditionally, many companies are based. Food production and food processing are also important to NRW, with around half of its area being used for agriculture. A creative economy depends on a productive exchange between the different spheres which have developed alongside existing sub-regional arrangements.

Prosperity in NRW is conditional upon having successful, sustainable economic growth in all parts of its territory. Innovative industries and industrial services, trade and crafts are the backbone of NRW’s economic strength. It should be borne in mind that by far the largest segment of the NRW economy consists of small and medium-size enterprises (SMEs). These family businesses, often owner-managed firms, are clinging particularly to their location. One of the NRW government’s objectives is therefore to provide sufficient land to meet the demands of the economy, taking into account the spatially differentiated conditions in NRW.

NRW uses a relatively high proportion of its total area for settlement and traffic, but at the same time also has one of the highest rates of space productivity (GDP per km\(^2\) of settlement and traffic area) among Germany’s regions: At EUR 77 million per km\(^2\), NRW ranks fifth after the city regions and Baden-Württemberg, which is evidence of NRW’s highly efficient land use. However, there are limits to the extent to which this already high space productivity can be increased. In order to achieve the objective of minimising land consumption at the same time, what is required is innovative land development dependent on and making use of the dynamics of the economy, which is nowadays greatly influenced by megatrends (e.g. digitisation, globalisation, demographic change and climate protection).

The economic structural change and internationalisation of the markets have intensified competition between cities and regions which is becoming even fiercer as a result of increasing corporate and employee mobility. Municipalities are increasingly confronted with international competition which they are unable to cope with because of their small-scale planning and decision-making structures.

Running in parallel with this trend, the competition for qualified skilled workers will intensify as a result of demographic change. As employees are increasingly considering “soft location factors” when selecting a place to live and work, an improved quality of life, the cultural offering provided and a family-friendly and barrier-free infrastructure are winning in the competition between locations.

Today, land development requires a differentiated analysis of the current situation. For this reason, the main factors to be considered are the different economic structures in NRW’s regions, the differences between rural and densely populated areas and topographical conditions. In order to obtain information on actual trends and the demand for land, a methodical approach must be adopted to conducting land surveys, which can be applied across NRW, while at the same time reliably taking account of regional conditions.

Environmental and climate protection place new demands on land development but at the same time provide economic opportunities, as is shown for example by focusing on resource efficiency. Subject-specific land development in the cooperation arrangements between different municipalities provides win-win solutions for a planning system that is both demand-led and space-saving.

A sustainable economy calls for an ambitious climate, environmental and resource protection system. At the same time, flourishing companies will generate the funds to achieve further progress in protecting the environment and natural resources.
Structural change brings to the forefront growth industries and production processes which currently have different requirements for land. Previously perceived to be a contradiction in terms, the relationship between ecology and economics is becoming increasingly harmonious. For example, business-related services generally require much less land and fewer resources. Although sectors such as logistics, which are playing an increasingly important role, involve a considerable amount of land consumption, the value-added intensity of logistics and therefore its space productivity is increasing at the same time.

Against this background, it is one of the tasks of the spatial planning system to create the spatial and infrastructural conditions for the demand-led development of attractive industrial, commercial and tourist locations. In this way, it contributes to attracting new industrial, commercial and tourism businesses or retaining and expanding those existing in the course of the restructuring process.

The chemical sector is of particular importance to NRW and its industry. As a resource intensive sector, it relies on a secure, continuous supply of gaseous and liquid raw materials and products. It is therefore extremely important to have long-distance pipelines as a means of transporting the quantities that are often required on a continuous basis. This also applies to links with neighbouring countries (see Principle 8.2-1 and the notes to Principle 8.2-1).

Tourism has an important balancing function in terms of regeneration and shaping people’s leisure activities. At the same time, tourism plays an important part in the economic development of NRW. NRW’s attractiveness as a leisure and tourist destination is closely intertwined with its perception as an attractive place in which to work, live and invest. Tourism and recreation are to be given a boost in the regions of NRW which have the appropriate natural conditions in order to develop tourism as an economic factor in a sustainable manner.

Over the last few decades, the retail sector in Germany has changed: on the supply side, as a result of different or new business types, concentration processes and multi-branch operations and on the demand side, as a result of changes in buying behaviour.

The growth in the amount of retail floor space was substantial: the German Retail Trade Association estimates that total retail floor space in Germany increased from just under 80 to about 120 million m² between 1990 and 2011 alone. At the same time, stagnating per capita retail spending has been recorded in recent years. In view of the predicted rises in both energy costs and expenditure on private health care and pensions, it is assumed that this trend will continue and total retail spending will at least tend not to rise again. The retail space productivity resulting from this and other trends is already lower in Germany than in most other European countries. The lower the retail space productivity, the greater the interest in inexpensive retail premises which are generally not found in city centre locations or in local centres.

There is also an observable trend in the retail sector towards selling substantial centre-relevant product ranges in addition to a core range of products relevant for local supply or non-centre-relevant products. Where these trends take place in locations outside city centres and local centres, they contribute to the weakening of centres.

A look at other European countries leads us to the conclusion that the establishment of large shopping centres – whether conventional shopping centres or factory outlet centres or similar – has not yet been completed in Germany either. Even though it is possible to observe a trend towards city centre locations among the large new shopping centres, the trend also continues of offering a substantial number of centre-relevant product ranges outside the centres as well – whether they are peripheral product ranges of specialist furniture markets or core product ranges of factory outlet centres.

The LEP contains specifications on the subject of “Enabling sustainable economic growth”

- Promoting growth and innovation

NRW is an attractive location with a high quality of life and environment. To strengthen and expand its position as a business location, the LEP will provide a range of commercial and industrial premises to meet the demand. From the point of view of businesses and NRW, this is not about individual municipalities but the quality of the entire region as a location. The municipalities can overcome this challenge by cooperating more closely in order to strengthen the competitive position of their region.

Spatial planning instruments can be used to determine the demand for commercial premises. Land development will respond flexibly to new requirements. They can be met with modern instruments such as use exchange, the smart use of derelict land and the release of specific land, cooperation between
1. Introduction

The North Rhine-Westphalia Regional Development Plan (LEP NRW) 6 municipalities and the use of monitoring-based procedures, which determine realistic land requirements and match them to land which is actually available.

Individual businesses depend on being able to expand their specific business by acquiring adjacent land. These development options will generally be retained.

Large areas can be secured as commercial and industrial locations across NRW or at regional level.

The regional distribution of economic growth factors in rural areas and in conurbations and specific spatial and economic structures in NRW’s regions and their endogenous potential (strengths, clusters, lead markets, etc.) can be taken into account at the regional planning level.

The LEP is a response to these requirements. It ensures the demand-led supply of the business community with commercial and industrial premises, thereby helping NRW to continue building on its economic strengths.

- Managing trade sustainably

The developments in the retail sector, as described above, in particular the trend towards selling centre-relevant product ranges outside of the centres, weaken the centres: more vacant premises in NRW’s urban centres and district centres could result in a renewed impairment of urban centres and district centres upgraded using urban development funds. In particular, the low retail space productivity rates increase the pressure on municipalities to provide retailers with cheaper premises than the 1a/1b sites in urban centres and district centres.

Against the background of an inclusive but also generally ageing society (i.e. “demographic change”), the centres are becoming even more important as supply locations; at the same time, increasing energy costs and expenditure on private healthcare and pensions further increase pressure on municipalities.

The strengthening of the centres which these regulations are intended to achieve will therefore also ensure that public services are maintained, the use of open space is minimised and traffic is avoided without restricting the free movement of goods. The regulations do not focus on the prohibition of specific types of trading but solely on the management of spatial planning aspects.

- Developing soft location factors

Lively cities and localities, the range of sport, recreation, leisure, culture and tourism activities on offer and region-wide local supply are becoming an even more important factor in the competition among Europe’s regions to attract skilled workers. These “soft” location factors are therefore relevant to spatially significant planning.

- Increasing the quality of the living environment by minimising conflict and controlling emissions in the territory, principle of separation

It is one of the main tasks of spatial planning to arrange and develop different uses and functions of the area so as to avoid or minimise mutual encroachment as far as possible and ensure that overlapping uses and functions are compatible. This also includes planning spatially significant measures to ensure that emissions remain as low as possible in accordance with advances in technology or that possible emissions are also avoided by precautionary physical separation and by maintaining sufficient distances. The aim of the specifications in the LEP is to balance the demands on an area. Conflict must be further minimised in the defining implementation in subordinate planning authorities.

- Strengthening regional cooperation, extending metropolitan functions

Municipal, governmental and private actors are being urged to engage in more regional cooperation. An interdisciplinary and networked NRW-wide planning and management system will expressly assist them to do so. Cooperation and the division of labour are not only ways of cutting costs, they also protect the existing high level of amenities and therefore the quality of life. These are key factors in the location decisions taken by business and therefore in the supply of jobs.

Moreover, NRW must respond to the processes of “metropolisation” and “regionalisation”, which are gathering pace nationally and internationally. In these processes, neighbouring cities and areas which feel
that they belong together historically, geographically or culturally act like regions with their own profile in the national and international competition among locations.

NRW will profile and further expand its position as a metropolitan region with a European dimension so that it can claim to be one of the leading economic areas in Europe and the world.

- Long-term protection of raw material supply

The LEP will task the regional planning authorities with supplying industry and the people with mineral resources for a period of at least 20 years in the case of unconsolidated material and 35 years in the case of bedrock. The use of a uniform monitoring system across NRW will ensure that the planned security of supply does not fall below 10 years for unconsolidated material and 25 years for bedrock, even while extraction is in progress. This will maintain a balance between the interests of industry on the one hand and those of protecting the open space on the other and take account of the overall concept of sustainable spatial development.

1.4 Nature, renewable resources and protecting the climate

Current situation:
A major constraint on spatial development is climate change. Anthropogenic climate change threatens the basic necessities of human life all over the world. Besides the serious consequences of climate change for human health, nature and the environment, it also gives rise to a massive economic burden.

Climate change is also becoming noticeable in NRW: whereas the average annual temperature in NRW was 8.4°C at the beginning of the 20th century, it is now 9.6°C. Average annual rainfall has increased by about 15% over the same period (German Weather Service). According to forecasts by the Potsdam Institute for Climate Impact Research, we can expect global warming to continue until the middle of this century. Depending on the model used, the researchers are expecting the average temperature in NRW to rise by about 1.4-2.3°C in the period 2031-2060 (compared with the reference period, 1961-1990). Rainfall is expected to continue to increase during this period, subject to significant regional differences. Extremes of weather such as heavy precipitation or prolonged heatwaves are also predicted to intensify. These climatic changes also require protective and adaptive measures in regional, building development and sectoral planning.

In order to keep the consequences of global warming to a manageable level, scientists claim that it is essential to limit the global temperature rise to a maximum of two degrees above pre-industrial levels. The international community jointly accepted the two-degree target for the first time at the 2010 climate conference in Cancun. To achieve the two-degree target means having to reduce anthropogenic greenhouse gas emissions in industrialised countries by at least 80% compared with 1990 levels, by 2050. At national level, Germany is pressing ahead with ambitious but as yet non-binding emission reduction targets. Germany intends to reduce its emissions by 40% compared with 1990 by 2020 and by 80%-95% by 2050 – irrespective of other countries’ efforts. These targets have been highlighted once more against the backdrop of the decision to move away from nuclear power by 2022 at the latest.

NRW emits around one third of all greenhouse gases produced in Germany. As a major industrial centre and a European energy region, NRW has both a special responsibility for protecting the climate and great potential for reducing greenhouse gas emissions. NRW is facing up to this responsibility. For the first time, the Climate Protection Act (Klimaschutzgesetz) imposes binding climate protection measures on NRW and establishes an institutional framework for preparing, implementing and reviewing climate protection measures. The result is that NRW intends to reduce its greenhouse gas emission by at least 25% by 2020 and by at least 80 % by 2020, compared with 1990. These targets set in the Climate Protection Act are to be achieved by spatial planning and other measures.

The LEP contains specifications on the subject of “Nature, renewable resources and protecting the climate”

- Sustainable protection of the natural environment

Particular importance is to be attached to the protection and development of open spaces. In the event of conflicts of use, environmental protection requirements must be given priority where the life and health of the population or the sustainable protection of the natural environment are at risk.
1. Introduction

- **Long-term protection of resources**

The principle of sustainable forest use (where logging activities are restricted to the amount of new timber that can be grown) which was first described scientifically in the forestry of the 18th century and implemented in the forests was initially expanded in spatial planning terms to the “sustainable protection of the natural environment” and after the Earth Summit in Rio (1992) to the overall concept of sustainable spatial development.

This obliges the planning authorities in NRW to balance the demands on an area and protect the natural resources to ensure that the opportunities for living and using the land continue to be available to future generations.

The LEP is therefore focusing on restricting the use of renewable resources to the rate at which they can be regenerated and using finite natural resources sparingly so as to conserve them for as long as possible while guaranteeing security of supply.

- **Reducing the use of open space**

As part of the German government’s strategy on sustainability, the aim of the LEP is to focus more closely than in the past on effecting a space-saving, compact settlement development while at the same time keeping the use of open space to a minimum. In this way, it will be contributing to NRW’s objective of reducing the daily growth of land for settlement and traffic use to 5 ha by 2020 and to net zero in the long term. At the same time, the LEP will provide land for residential, commercial and industrial purpose, based on demand. This requires the creation of a settlement land monitoring system which will provide watertight information on available reserves of land, indicating their development potential. A properly functioning monitoring system will be able to curtail expensive inspection procedures.

- **Implementing climate protection targets**

The consistent use of renewable energy is a key pillar of NRW’s climate protection policy. The production of energy from renewable sources will make NRW less dependent on energy imports and will make a significant contribution to the reduction of greenhouse gas emissions. A steadily increasing proportion of energy production is therefore to be switched to renewable sources. Wind energy will play a key part in this, as without expansion in this area, NRW will be unable to achieve its climate protection targets. The aim is therefore to increase the proportion of wind energy used to generate electricity to at least 15% by 2020.

The expansion of decentralised, efficient and climate-friendly combined heat and power (CHP) generation facilities will be another major step on the way to achieving climate protection targets. Germany is planning to generate 25% of its electricity nationwide by means of CHP by 2020. NRW intends to underpin these plans by contributing 25% of the electricity generated on its territory.

It is clear from NRW’s climate policy objectives that climate protection is an issue which must already be fully considered at Land and regional planning level in order to create the conditions, in terms of planning, for energy production and energy efficiency.

- **Protecting nature, landscape and biodiversity**

Nature and landscape in settled and unsettled areas are to be protected, developed and, where necessary, restored so that all the functions of the natural balance, biodiversity and the scenic qualities of the landscape are safeguarded in a sustainable way.

NRW’s biodiversity is natural capital which also makes an important contribution to the well-being of the people and to economic prosperity. In line with the international strategies for preserving biodiversity adopted by the UN (Rio 1992) and the EU (Strategy 2020), the aim is to halt the progressive reduction in biodiversity and the productive capacity of ecosystems. Spatial specifications for protecting nature and developing the landscape with this in mind are already required in the regional planning system. About 15% of NRW’s surface area has been designated as key areas in a biotope system covering all of its regions and designated for nature protection in the LEP.

These measures include the Eifel National Park and the safeguarding of a regional scenario for the possible designation of a Senne National Park.

This also contains the areas protected by the Fauna-Flora-Habitat Directive and the Birds Directive. In the conurbations, open spaces close to settlements are protected by green belts, including the Emscher
Landscape Park, the design of which is not yet completed. The preservation and development of open spaces have a significant impact on the quality of life and the general health of the people who live in NRW and is becoming more important in terms of combating the predicted global warming by clearing space for fresh air corridors and cold air production areas.

The extraction of natural gas from unconventional sources is associated with consequences for the environment, especially for groundwater resources. Moreover, the question remains as to whether these sources can be exploited economically.
2. Spatial structure of NRW

Objectives and principles

2-1 Objective: central place system
Spatial development in NRW’s territory must be based on the existing, functionally classified central place system.

2-2 Principle: public services
To ensure equal living conditions in all parts NRW, accessibility and qualities of public service facilities must be based on the functionally classified central place system, taking into account population trends, the securing of development opportunities and good environmental conditions. An exception to this is the network of the digital infrastructure. The digital infrastructure is to be expanded across NRW independently of the central place system.

2-3 Objective: Settlement areas and open spaces
As a basis for a sustainable and environmentally sound development of land use taking account of settlement-structural requirements, NRW must be divided into areas giving precedence either to primarily fulfilling settlement functions (settlement areas) or to primarily fulfilling open space functions now or in future.

The settlement growth in municipalities is taking place within settlement areas designated in regional plans.

Notwithstanding sentence 2, a settlement development is permitted in non-central places situated within areas designated as open space in regional plans; the settlement developments in these non-central places must be geared towards the needs of the local population and business, taking into account the requirements of landscape development and the preservation of agricultural land.

Exceptionally, building land and development areas can be represented and designated in open space designated in regional plans if
- this is a requirement of the special intended public use as structural installations for the federal or NRW government or
- the relevant building uses are clearly subordinate to an appropriate designation as open space.

Notes

Re 2-1 Central place system

The three-stage central place system in NRW continues to provide orientation for an efficient concentration of public and private service and healthcare facilities. Adopted as long ago as 1979 in the then Regional Development Plan I/II and included in the LEP NRW in 1995, the central place system is set to continue unchanged. It is the result of historical processes and also forms the basis for future spatial development.

All 396 municipalities in NRW have been central places since the municipal reorganization of the 1970s. The existing classification into major, middle and basic centres will remain unchanged for the planning period of the LEP (cf. Fig. 1 and Appendix 1 and the graphical specifications marked with names of cities and municipalities).

The final designation of central places in the LEP provides a balanced and classified network of major, middle and basic centres in all parts of NRW. The central places are linked by efficient transport and communication networks. This spatial structure network provides public and private service providers, as well as the public and the business community with reliable conditions on which to base their decisions on where to locate and invest.

Over the term of this LEP, this structure which has evolved in NRW, is to be preserved wherever possible, despite the overall population decline forecast. In future, however, some central places in NRW may have capacity problems and, in particular, the continued existence of some middle centres could be at risk. The significance of cities and municipalities and the related management capabilities required to safeguard public services are therefore to be reviewed in the course of this LEP.
Under the influence of demographic change, regional planning is facing new challenges: After decades of expansion, it is now confronted with the task of constructively planning and shaping quantitative reduction and qualitative conversion in many areas.

**Re 2-2 Public services**

The aim is to create a stable order which will be well-balanced on a large scale with similar standards of living in all regions of NRW. All parts of NRW have access to a varied, high-quality and efficient range of public and private service and healthcare facilities. Spread across NRW, the central places make it possible to reach the various facilities they offer within a reasonable time.

Each municipality in NRW has the status of at least a basic centre and guarantees its residents a basic supply of everyday goods. To obtain supplies of higher-value goods, it is possible to reach a middle or major centre by private and public transport from each location within a reasonable time. To safeguard this accessibility and also to guarantee the mobility of an increasing proportion of the population with restricted mobility, the quality of public transport links must be maintained and improved (see also Section 8.1 of LEP).

Despite the changing demographic and economic conditions, the aim must be to maintain and, if possible, optimise the level attained. In regions with a rapidly ageing population and in sparsely populated areas with a declining population, this objective will only be achievable if public and private service and healthcare facilities are spatially concentrated. This requires suitable strategies to ensure that facilities and basic universal services are accessible and available to all sections of the population. The interests of families with children are also to be taken into account in this process. The characteristics of demographic change and the fact that in some cities and city regions the population is still growing, mean that the task of providing public services will differ between municipalities.

Access to public and private service and healthcare facilities is an indicator of equal living conditions. This presupposes a suitable offering of public and private educational and cultural facilities, of social, medical and care services, of recreation, sport and leisure facilities, of administration and supply of goods. Measures are to be taken to combat social segregation and exclusion.

The sectoral structure and geographical distribution of educational and care facilities should be expanded and adapted to ensure that all parts of NRW are provided with a varied and appropriate range of options in central places for pre-school care, school learning and education and basic and advanced training, which can be reached in a reasonable time by public transport. A balanced provision of education and qualifications covering all types of schools must be provided, taking account of the declining total number of school students, the requirements of the UN Disability Rights Convention for schools and the changing behaviour of parents when selecting a school. Besides the desired evening-out of regional and social differences in educational opportunities, the growing demand for further education and occupational training and retraining facilities and extra-curricular youth education prompted by trends in the economic and social structure also has to be met.

Healthcare facilities are to be expanded and their existence protected to ensure that basic medical care close to home and barrier-free access to services are provided in all municipalities. Higher-level and specialist medical facilities, in particular inpatient hospital care, are to be classified according to specialism and catchment area and interlinked in line with the central place system.

Enhanced interaction between public and private actors and closer cooperation between infrastructural facilities will be required to cope with the regional adaptation processes among public and private infrastructures in growing, stagnating and shrinking municipalities.

**Re 2-3 Settlement areas and open spaces**

A homogeneous distribution and mixing of settlement and open space uses is incompatible with sustainable spatial development. With NRW’s high population density, this would result in an urban sprawl across the countryside which would not be able either to meet the social and economic requirements of the area or to guarantee its ecological functions.

Fundamental decisions on sustainable spatial development are made by dividing the area into “settlement areas” and “open space” for spatial planning purposes. The starting point should be the spatial structure
which has evolved with the differences between densely populated urban areas and areas with a predominantly rural structure.

The provisions for the environment and the protection of natural resources which are associated with sustainable spatial development require an equally responsible approach to settlement areas and open space in densely populated and highly industrialised NRW. In view of this dynamic settlement pattern, which has only slowed in the last few years, it remains an essential task of regional planning to safeguard areas with no buildings or roads to ensure the preservation and regeneration of natural resources. The creation and safeguarding of healthy environmental conditions is another precondition for ensuring equal living conditions.

The settlement growth in municipalities must take place within settlement areas and be demand-led, sustainable and environmentally compatible. Open space must be preserved and its ecological, social and economic significance must be safeguarded and developed in accordance with its function. The demarcation of settlement areas and open space in regional plans currently applicable across NRW are based on the text specifications in the LEP on the future development of settlement areas and open space. Updating them or changing them in individual cases – in accordance with relevant specifications in the LEP – is another regional planning task.

General Settlement Areas designated in regional plans are based on an existing or planned minimum level of 2,000 residents; generally, no service functions significant to the central place system can be developed below this level.

Where demand for settlement areas exists but there is no possibility of further developing settlement areas already designated in a regional plan, the development of a small non-central place may be allowed, which will then have to be designated as a settlement area in the regional plan. This is expressed in the formulation “fulfil now or in future” in Objective 2-3 and is possible notwithstanding Principle 6.2-1.

The term “settlement development” as used in the Objective encompasses in particular the designation of building land and development areas in urban development plans as well as developments as defined in Section 34 of the Federal Building Code. The settlement development thus defined must take place in the settlement areas designated in regional plans and – to a limited extent – in smaller locations designated as open space in regional plans.

With the exception of the specification in Objective 2.3, sentence 2, the representation and designation of construction projects are for

- national or NRW government projects which are necessary for pressing public interest reasons but cannot be located either in the settlement area or in the non-central places in the open space designated in the regional plan (e.g. projects required in NRW’s interests with a special intended use such as correctional facilities or forensic clinics),
- projects functionally assigned an open space use and clearly subordinated in the potentially available area.

Where the LEP contains specifications for other projects, e.g. projects as defined in 6.6-2 (Locational requirements for certain facilities for recreation, sport, leisure and tourism), 8.3-2 (Locations for waste treatment plants) and 10.2-5 (Solar energy use), these are not affected.

The exception does not apply to urban development plans for commercial enterprises which do not enjoy the privileges set out in Section 35, para. 1, No. 1, 4 or 6 of the Federal Building Code after establishment or no longer enjoy them as a result of an extension or alteration. This exception must be applied within narrow boundaries. Changes to existing, previously approved enterprises, which serve solely to maintain the previously approved enterprise, continue to be permitted pursuant to Section 35, para.1, No. 4 of the Federal Building Code, especially if they are not connected with a structural expansion and serve the purposes of environmental protection or animal welfare. For this reason, a finely tuned development plan will not be ruled out either.

New development areas designated over and above local requirements are often associated with corresponding losses in other locations and reduced capacity utilisation of their existing infrastructure and come at the expense of open space functions. This can end up resulting in unfair competition. Overall, the expansion of settlements must therefore satisfy supralocal demand and therefore be coordinated at supralocal level. The instrument required for this is the designation of settlement areas in regional plans.
However, focusing settlement development without exception on settlement areas designated in regional plans would not be in the interests of existing smaller non-central places. The concentration of settlement development on settlement areas designated in regional plans therefore includes the growth-oriented allocation of settlement areas for immigration and business relocations or new business start-ups. The self-contained development of small non-central places with a capacity of less than 2,000 residents to meet the needs of the local population and the development of existing businesses will continue to be possible.

Their development should be limited to the capacity of the existing infrastructure. Measures must also be taken to ensure that the growth of such non-central places viewed in isolation and in general remains to a considerable extent part of the development of the General Settlement Areas featuring in the regional plan in terms of the use of open spaces.

Non-central places in which fewer than 2,000 people live do not generally have a concentration of public and private service and healthcare facilities. Nevertheless, in areas with a rural structure, the aim must be to achieve an active, integrated village development, provide a reasonable level of public services and make village centres attractive as part of a self-contained development. In large, sparsely populated municipalities, such as the Eifel or Sauerland, some of these non-central places can assume service functions (e.g. schools) for other, even smaller non-central places.
2. Spatial structure of NRW

The North Rhine-Westphalia Regional Development Plan (LEP NRW)

Figure 1

Central-place system in NRW
3. Sustainable cultural landscape development

Objectives and principles

3-1 Objective: 32 cultural landscapes
The variety of cultural landscapes and spatially significant cultural heritage must be preserved in settled and unsettled areas and shaped in accordance with other land uses and spatially significant measures. The division of NRW into 32 historical cultural landscapes as shown in Figure 2 must be based on the above.

Models for preserving and developing the distinguishing features of the cultural landscapes must be set out in the regional plans.

3-2 Principle: Significant cultural landscape areas
The 29 "cultural landscape areas significant to NRW" highlighted in Figure 2 are to be developed while retaining their special value as cultural landscape.

The elements and structures that make them valuable are to be preserved as witness to NRW's heritage in terms of its landscape, built environment and industrial past. Their significant archaeological monuments and finds are to be protected or explored and documented prior to any necessary interventions.

In addition, regional planning must take account of other "significant cultural landscape areas" with the elements and structures that give them value.

3-3 Principle: Historical centres, monuments and other valuable features of the cultural landscape
The structure and appearance of historic urban and local centres are to be retained in any future settlement growth.

Historical monuments and regions including the surrounding area and the territorial dimension of the cultural landscape as well as historically significant parts and elements of the landscape and images of localities and the countryside are to be taken into account in spatially significant planning initiatives and measures in terms of cultural landscape development. Reasonable uses are to be permitted.

3-4 Principle: New landscape areas
In damaged landscape areas which are being converted or cleaned up, the opportunity should be taken to design high-quality, new cultural landscape areas. Signs of their previous use should remain visible.

Notes

Re 3-1 32 Cultural landscapes

For spatial planning purposes, cultural landscapes encompass both settlement areas and open space. They are the result of the interaction which has taken place between natural features and human exploitation and design in the course of history. The "evolved cultural landscape" is therefore not static. On the one hand it is subjected to continuous change, while on the other it boasts a significant cultural heritage which must be preserved.

Different natural features (land, relief, climate) and different historical and cultural developments between regions have resulted in a considerable diversity of cultural landscapes in NRW. Essential features, e.g. in land use and land management, construction methods and settlement structure and the development of commerce and industry make it possible to typify cultural landscapes and define them as regional.

1 The cultural landscapes and significant cultural landscape areas described in this document differ substantially from the "valuable cultural landscapes" addressed in the 1995 LEP (B.III.2.26). The latter were based on the Nature 2000 master plan and represented the key issues affecting the biotope system.
3. Sustainable cultural landscape development

The diversity of cultural landscapes with their spatially significant cultural heritage is an important factor in determining the quality of life of the local population and provides significant potential for regional development and competition between regions. In the light of global trends towards the levelling-out of urban planning, architecture and lifestyle, the evolved individual cultural landscapes are a major factor in underpinning regional identity and binding people to their home region. Their character determines the attractiveness of the environment as a space in which to live, work and relax. Distinctive cultural landscapes are therefore also an excellent location factor for attracting economic development and tourism.

In densely populated NRW with its correspondingly strong pressure to change, specific attention must be paid to the conscious development of cultural landscapes and the preservation of the landscape as witness to its cultural history in current and future demands on the area. This is not just about safeguarding spatially significant but vulnerable cultural heritage and the surrounding area. Rather, it is about adopting a cross-sectional and integrated approach at all planning levels which sees the qualities that forge an identity and create an image of cultural landscapes within a regional context.

The defining features of the diverse, evolved cultural landscapes are to be preserved along with their cultural and natural heritage. However, another challenge is to continue to develop landscapes cautiously and consciously incorporate the resulting design of the cultural landscape in plans for and changes to land uses and functions and enhance the quality, uniqueness and beauty of the cultural landscape. These efforts must also take account of new land use requirements. For example, wind turbines are already a widespread and conspicuous element of cultural landscapes. Where the potential for this exists, the construction of wind turbines, the extraction of natural resources or the re-use of buildings or settlement areas which are no longer required must be integrated into cultural landscape development. It will be the task of future plans to organise this so as to ensure that the essential character of the cultural landscape is preserved. Sustainable cultural landscape development involves both rural areas and urban or industrial/commercial areas to an equal extent.

Consistent with its level and its resources, the LEP takes up options in the European Spatial Development Perspective and several international agreements which regard the preservation of the diversity of cultural landscapes in people’s daily lives and the conservation of cultural heritage in the context of landscape as a European matter and as a task for the international community.

Sustainable cultural landscape development is intended to exploit the development potential that arises from the cultural, historical and aesthetically creative dimension of cultural landscapes in citizens’ everyday lives and for the identity of NRW and its regions.

The sustainable protection and care of essential and historically significant features in the settled and unsettled areas of NRW's cultural landscapes do not require either new area categories under relevant legislation or new planning disciplines or government bodies. In accordance with the interdisciplinary nature of sustainable cultural landscape development, the existing planning and protection instruments of spatially significant plans or initiators of spatially significant measures will be used. Significant implementation options are available, especially in regional, urban development and landscape planning.

On the one hand, the passive aim of sustainable cultural landscape development is to take account of protected resources, relationships and shared identities in competing spatial and structural measures. On the other hand, its active aim is to protect and further develop the diverse cultural landscape heritage within the context of economic development.

The Regional Associations of Westphalia-Lippe and Rhineland have analysed the diversity of NRW’s cultural landscape and classified NRW as a whole into 32 cultural landscapes. ²

The LEP takes on the classified cultural landscapes (see Figure 2) and tasks regional planning with establishing models for developing these cultural landscapes. The task of actually specifying essential and valuable features to be preserved and developed in the cultural landscapes has been made the responsibility of the regions and this can be used to shape regional identity. Cultural landscapes can be further differentiated and specified in spatial terms to meet regional requirements.

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² Regional Association of Westphalia-Lippe, Regional Association of Rhineland: *Erhaltende Kulturlandschaftsentwicklung in Nordrhein-Westfalen*; Münster, Cologne 2007
3. Sustainable cultural landscape development

Re 3-2 Significant cultural landscape areas

More narrowly defined “significant cultural landscapes” can be determined within the broadly classified cultural landscapes when analysing the inventory of cultural landscapes, including the stock of monuments and archaeological heritage. Some of these significant cultural landscape areas are of paramount importance to cultural landscape development in NRW and its public image and are therefore “significant to NRW”. In Fig. 2 of the LEP, 29 “cultural landscape areas significant to NRW” are identified on the basis of the above-mentioned technical paper on cultural landscapes by the Regional Associations.

The valuable elements and structures of these 29 “cultural landscape areas significant to NRW” as detailed in Appendix 2 are to be taken into account and adopted in regional planning specifications and at other subordinate planning levels. They are to be protected in regional planning models for preserving and developing cultural landscapes by means of suitable textual representations. Where necessary, planar individual cultural landscape elements can be protected in regional plans with an appropriate specific use and signature.

Any archaeological finds included in cultural landscape areas significant to NRW should be protected and evaluated where possible. Sufficient surveys must be conducted and documentation compiled before competing priority land uses are created.

In certain cases, the creation of land use requirements in cultural landscape areas significant to NRW must be assessed on the basis of their value-adding elements and structures.

Besides the cultural landscape areas significant to NRW, the Regional Associations have included in their expert recommendations for planning in NRW additional “significant cultural landscape areas” as the spatial backbone of NRW’s cultural landscape development. Within the framework of sustainable cultural landscape development, these “significant cultural landscape areas” are to be formalised factually and geographically at regional level and supplemented as more knowledge is acquired. Reasonable consideration is to be given to their value-adding elements and structures, including vulnerable plots of land which are witness to specific historical farming methods, when comparing competing land uses. They can be included in the regional planning models for preserving and developing cultural landscapes as appropriate.

Re 3-3 Historical centres, monuments and other valuable features of the cultural landscape

Historically significant parts, structures and elements of the landscape and local views and the countryside with their cultural and natural heritage often have unused potential for forging identities and creating images. This also applies to views and perspectives. This potential has to be identified, the awareness of value-adding cultural landscape elements and spatial and visual references to be raised and their visibility to be improved.

These value characteristics and development opportunities should be taken into account in spatially significant decisions – including in regional planning and in strategic environmental audits. Besides this passive consideration, it is also a matter of developing and exploiting significant location factors and unique features. Measures to this effect are to be planned and implemented as part of regional development and at local level.

Monuments and local views can only be preserved in the long term by finding a suitable use, which sometimes requires compromises between conservation measures and future land uses, including commercially oriented uses. Adequate attention should be paid to the special requirements of barrier-free access.

Re 3-4 New landscape areas

In addition to the preservation of the cultural landscape heritage, sustainable cultural landscape design aims to achieve a high quality when shaping the landscape as planned. It is mostly possible to redesign the landscape in places where the previous use has to a large extent been abandoned or changed. In these areas it is often necessary to repair damage. As well as putting into practice contemporary design concepts it is also possible to pursue the development of near-natural areas (“second-hand paradises). The principle focuses particularly on design and development issues resulting from mining operations, large-scale quarrying and urban contraction processes. Witnesses to these previous uses are to be preserved, including links between cultural landscapes.
3. Sustainable cultural landscape development

The North Rhine-Westphalia Regional Development Plan (LEP NRW)
4. Climate protection and adapting to climate change

Principles

4-1 Principle: Climate protection
Spatial development should contribute to the protection of natural resources, the efficient use of resources and energy, energy savings and the expansion of renewable energies in order to reduce greenhouse gas emissions to the maximum extent possible.

This includes
- spatial plans providing for a climate-friendly energy supply, in particular locations for the use and storage of renewable energies and runs for additional power lines;
- exploiting the potential of combined heat and power and industrial waste heat;
- the energy-efficient development of settlements and transport so as to reduce the area used for the development of settlements and the coordination of settlement development and the transport infrastructure so as to reduce the amount of traffic;
- the protection, enlargement and sustainable management of forests and the protection of other CO₂ sinks such as moors and grassland.

4-2 Principle: adaptation to climate change (climate change adaptation)
The expected climate change and its effects must be taken into account in spatial planning.
The following, in particular, should help to achieve this:
- the protection and reclamation of flood plains,
- risk management in areas liable to flooding,
- the alleviation of the effects of the warming climate in settlement areas by maintaining cold air corridors and preserving green spaces, woodland and bodies of water within city boundaries,
- the long-term protection of water resources and
- the protection of a biotope system as a precondition for maintaining biodiversity in the shifting ranges of climate-sensitive plant and animal species.

4-3 Principle: Climate protection plans
Existing climate protection plans and the expert contributions concerning climate protection must be taken into account in regional planning.

Notes

Climate change caused by human activities is threatening the natural environment around the world and entails considerable economic costs – including in NRW. Extreme weather events such as heatwaves, heavy precipitation and flooding are also becoming increasingly frequent in NRW. According to scientific findings, an increase in the earth surface temperature by more than 2°C compared with pre-industrial levels will have irreversible and uncontrollable consequences for human beings and the environment. In order to avert this danger, greenhouse gases must be reduced.

The NRW government has therefore set itself the target of reducing the total quantity of greenhouse gases emitted in NRW by at least 25% by 2020 and by at least 80% by 2050 compared with 1990 levels. This target has also been enshrined in law in Section 3, para. 1 of the NRW Climate Protection Act.

The measures required to achieve the climate protection targets across NRW and to limit the negative effects of climate change will be set out in a climate protection plan based on the NRW Climate Protection Act. Where necessary, the climate protection plan will also contain instructions for the regional planning areas, including the securing of sites for the production and storage of renewable energies and low-energy settlement and transport developments aimed at minimising the growth of settlement areas and the coordination of settlement development and transport infrastructure to minimise traffic.

Section 12, para. 6 LPIG imposes a basic obligation on spatial development planning to implement the spatial requirements to facilitate climate protection and adaptation to climate change in terms of the climate protection targets enshrined in Section 3 of the Climate Protection Act. Section 12, para. 7 LPIG stipulates that spatial development plans must implement the specifications in the NRW climate protection plan, which have been made binding in Section 6, para. 6 of the NRW Climate Protection Act insofar as they can be protected by objectives or principles of spatial planning.
The implementation of specifications in the climate protection plan in spatial plans is possible where a territorial dimension exists. It will be based, where possible, on objectives or otherwise on principles of spatial planning. The comprehensive consideration of all interests as specified in Section 1, para. 1 ROG for the establishment of objectives and principles in spatial planning will be retained.

The spatial planning objectives have the binding effect as laid down in Section 4 ROG on subordinate planning authorities, thereby creating the conditions in which the specifications in the climate change plan will apply at subordinate planning levels.

The climate protection plan will be updated every five years. If it contains spatially significant requirements, this will be a reason for reviewing the need for an amendment to the regional plan, where appropriate.

**Re 4-1 Climate protection**

The main cause of climate change is the emission of greenhouse gases as a consequence of technical, economic and social trends and the associated lifestyles. Climate change therefore also involves changing social conditions and individual lifestyles in terms of mobility and energy use, construction and housing and consumption and nutrition.

Spatial development plans are governed by Section 12, paras. 6 and 7 LPIG. Spatial planning can contribute to climate protection by drawing on the spatial conditions in the energy utilisation chain from production to end use via transportation. In order to achieve NRW’s climate protection targets, the long-term aim is to switch the energy supply to renewable sources. The production of energy from renewable sources will reduce NRW’s dependency on imported energy feedstocks and will make a significant contribution to the reduction of greenhouse gas emissions. From a spatial planning point of view, this requires sites to be secured for the production of energy from renewable sources, e.g. wind, biomass, sun, geothermal energy or water. A changeover of the energy supply to renewable energies will increasingly result in fluctuating power generation. Spatial plans therefore need to provide for the storage of renewable energies. The decentralisation of the energy supply resulting from the use of renewable energies will also require the expansion of the energy network. Runs for additional power lines will therefore have to be secured. Spatial plans for sites and runs will have to take other demands on the space into consideration (see also LEP, Sections 10 Energy supply and 8.2 Transport using pipes and cables. The expansion of decentralised, efficient and climate-friendly combined heat and power generation facilities and the use of industrial waste heat will be another major step on the way to achieving climate protection targets.

Other contributions that spatial planning can make to climate protection are the consistent planning support for low-energy and low-traffic settlement area and transport infrastructure developments based on the model of a decentralised concentration (cf. LEP, Sections 6.1 Specifications for the settlement area as a whole and 7.1 Preservation of open space and soil preservation) and the preservation of moors and the preservation and enlargement of forests and other ecosystems which, in addition to their significance for nature, landscape and recreation, serve as CO₂ sinks (see also LEP, Sections 7.2 Nature and landscape and 7.3 Forests and forestry).

**Re 4-2 Adaptation to climate change (climate change adaptation)**

Despite efforts to protect the climate, a long-term rise in average temperatures, increasing precipitation during the winter months and an increase in extreme weather events are forecast for NRW. Prompt adaptation to the effects of climatic changes is therefore essential, e.g. in architecture, construction engineering and urban waste water management as well as cultivation methods in agriculture and forestry and choice of crops and tree species.

The main requirements in terms of spatial planning are
- to keep clear and reclaim floodplains to allow flood water to run off without causing damage (see also LEP, Section 7.4 Water) and
- to safeguard the balancing function of open space for neighbouring urban settlement areas by means of regional green belts and other fresh air corridors,
- to protect city centre green spaces, bodies of water and woodland (see also LEP, Section 6.1 Specifications for the settlement area as a whole),
- to protect water resources by promoting uses that protect the climate, such as hydropower,
to protect and develop a comprehensive biotope system that offers climate-sensitive species diversions and migrations in response to changing climatic conditions and takes account of the demands on climate-sensitive species and biotopes (see also LEP, Section 7.2 Nature and landscape).

**Re 4-3 Climate protection plans**

In order to implement the NRW government’s climate protection targets, the public bodies as defined in Section 2, para. 2 of the NRW Climate Protection Act, have been instructed to draw up climate protection plans as specified in Section 5 of the Climate Protection Act. In addition to these plans, the climate protection plans developed by municipalities on a voluntary basis also set out the options for climate protection and climate adaptation in their respective areas and propose suitable measures.

In order to successfully implement the climate protection plans, any spatially relevant conclusions they contain are to be incorporated into the spatial development plans. In addition, the NRW Office for Nature, the Environment and Consumer Protection is preparing expert contributions in terms of adaptation to climate change for regional planning purposes.

The inclusion of climate protection plans and expert contributions in regional planning mostly occurs when plans are updated, provided that these planning principles are submitted in time for inclusion in the draft.
5. Regional and cross-border cooperation

Principles

5-1 Principle: Integrating regional plans into the regional planning system
Regional development plans and measures and projects for regional public services and sustainable regional development which are prepared by local, regional and/or national institutions, including those prepared in conjunction with private actors, are to be integrated into regional planning as expert contributions.

5-2 Principle: European Metropolitan Area of North-Rhine Westphalia
The Metropolitan Area of NRW is to be developed through closer regional cooperation. This mainly involves international locational conditions in terms of infrastructure, services, research and development, economic activity and science as well as culture, recreation, sport, leisure and tourism.

Across NRW, existing approaches to developing international metropolitan functions are to be taken up and developed in regional, or sometimes cross-border, cooperation. NRW will give particular support to cooperation arrangements which are particularly important to it.

Cooperation and the functional division of labour should create synergies in the metropolitan regions of Ruhr and Rhineland and in the SME-led growth regions in Westphalia-Lippe and help to systematically expand the metropolitan functions across the NRW metropolitan area.

The strengths and efficiency of the whole NRW metropolitan area are to be showcased at international presentations and competitions.

5-3 Principle: Cross-border and transnational cooperation
Cross-border and transnational cooperation is to be used to help to shape spatial development in Europe and in particular to ensure balanced and sustainable development in border regions.

Notes

Re 5-1 Integrating regional plans into the regional planning system
In order to promote sustainable development and overcome key challenges in the regions (utilisation of land, climate protection/climate change, globalisation and demographic change), it is necessary for public actors to cooperate with each other and with private partners and forge strategic links. In this context, a region is a spatial unit above municipal level and below NRW government level, which drives cooperation between the actors in a targeted and strategic way as part of a regional management system.

The regional actors must join forces locally to meet the challenges of an increasingly dynamic development. In particular, the organisation of public services calls for closer regional cooperation. In future, demographic change will mean that not every municipality will be able to sustain a full range of infrastructure and public service facilities. Nevertheless, reasonable conditions should be preserved, particularly for families, and access to services should be guaranteed for all sections of the population. Cooperation and the division of labour are not only ways of cutting costs, they also guarantee high-quality amenities and improve the attractiveness of the location for households and businesses. Neighbouring municipalities which are spatially and functionally interwoven should coordinate their plans and measures, exploit specific opportunities to cooperate and agree on a perspective and a strategic approach to regional developments in order to strengthen the range and efficiency of public and private service and healthcare facilities. At the same time, care must be taken to ensure that the social balance within and between municipalities is maintained and enhanced.

Integrating regional concepts into the regional planning system will provide municipalities with a greater incentive to participate in regional cooperation as part of a regional management system to promote cooperation. Regional development plans that combine spatially significant measures and projects into an action programme should be discussed with regional planning authorities at an early date.
Regional and cross-border cooperation

Re 5-2 European Metropolitan Area of North-Rhine Westphalia

In its models and action strategies for spatial development in Germany, the Ministerial Conference on Spatial Development (MKRO) divided the country into eleven metropolitan regions of European relevance in order to initiate cooperative and proactive communities and push the economic efficiency of regions more firmly into the focus of spatial development. Metropolitan regions are expressly not confined to conurbations but also represent “partnerships between urban and rural areas”, i.e. large proactive communities that include rural areas. Such proactive communities have already formed around solitary major centres with partial metropolitan functions.

The NRW metropolitan area has the most populous conurbation in Germany and also boasts high location qualities and growth potential in its more distant integrated area, sometimes extending across national borders. In terms of its metropolitan functions, this puts NRW at the forefront of all German regions. It is in the interests of NRW as a whole to strengthen its metropolitan functions and to expand its position in the competition with Europe’s other leading economic areas.

NRW is, on the one hand, a single economic location whose efficiency is to be extended through NRW-wide cooperation and presented at international level. On the other hand, in view of NRW’s size, we cannot expect all the actors to combine all the tasks into a single effective collaboration. Although, for this reason, the establishment of effective cooperative structures is in the interests of NRW as a whole, the local actors are primarily responsible for them and must deploy existing resources accordingly in an efficient manner. NRW will support such regional cooperation on equal terms; this also applies to cross-border cooperative structures (e.g. Euregios) and city networks. However, it must also set priorities from the NRW point of view but this will not justify entitlement to preferential financial support.

Besides the “Ruhr Metropolis”, which was set up decades ago as a local government association, the “Rhineland Metropolitan Region” has been formed as a cooperative venture to strengthen its metropolitan functions. In both regions, increased cooperation and functional division of labour can still create synergies in a number of tasks. Plans developed in inter-municipal cooperation can be taken up in the regional planning system as necessary.

Regional cooperation zones have been successfully established in the Westphalian regions of Münsterland, Ostwestfalen-Lippe and Südwestfalen, which closely match the regional planning areas specified in the LPIG, making it easier to link informal, cooperative regional development with the legally binding regional planning system.

Re 5-3 Cross-border and transnational cooperation

Spatial planning in Europe is based on the principle of transnational cooperation. It was in the European Spatial Development Perspective (ESDP) of 1999 that the EU Member States and the European Commission first identified common development goals for
- sustainable spatial development,
- exploiting regional development potential and
- interconnecting spatial and urban development.

The Territorial Agenda of the European Union of 2007 lists six priorities for spatial development in Europe:
- polycentric development and innovation through networking of city regions and cities,
- new forms of partnership between rural and urban areas,
- regional clusters of competition,
- strengthening and extension of trans-European networks,
- trans-European risk management including the impacts of climate change, and
- a responsible approach to ecological resources and cultural values.

In accordance with the principles of German spatial planning, spatially significant plans and measures by the European Union and its Member States are to be taken into account and cooperation between countries and cross-border cooperation between cities and regions supported (cf. Section 2, para. 2, No. 8 ROG).

Effective cooperation with the neighbouring countries of the Netherlands and Belgium is particularly important for NRW, including in the area of spatial planning.

A structure for cross-border cooperation with the Netherlands, which has evolved and proved its worth over many years in the area of spatial planning exists in NRW in the form of the Dutch-German Spatial Planning...
Committee, which was established as long ago as 1967. A regular exchange of information on significant cross-border planning intentions and spatially significant projects takes place in Subcommittee South for the southern border area between NRW and the Netherlands and Subcommittee North for the border area between NRW, Lower Saxony and the Netherlands.

Cooperation between NRW and Belgium in the area of spatial planning mainly takes place through Border Committee East of the BENELUX community.
6. Settlement areas

6.1 Specifications for the settlement area as a whole

Objectives and principles

6.1-1 Objective: Land-saving and demand-led settlement development
Settlements must be developed using the minimum amount of land and based on demand to match demographic trends, economic development, the existing infrastructures and the potential for developing open spaces and the cultural landscape.

Demand-led General Settlement Areas and Areas for commercial and industrial uses are designated in regional plans.

Where demand-led settlement areas have already been designated in regional plans, open space may be used for the designation of a new settlement area if at the same time land already designated as a settlement area elsewhere is returned to open space or an equivalent amount of building land is changed to an open space in the zoning plan (use exchange).

Land earmarked for settlement purposes in regional or zoning plans which is no longer required must be returned to open space, where it has not yet been included in binding urban development plans.

Regional and urban development planning should implement land-saving settlement development in accordance with NRW’s model of reducing the daily growth of land for settlement and traffic use to 5 ha by 2020 and to net zero in the long term.

6.1-3 Principle: “Decentralised concentration” model
The settlement structure is to be further developed according to the “decentralised concentration” model, based on the central place system.

6.1-4 Objective: No ribbon developments or scattered settlements
Both ribbon developments running alongside transport routes and scattered developments must be avoided.

6.1-5 Principle: “Sustainable European city” model
Settlements should be developed according to the “Sustainable European city” model to be compact and strengthen their centre. Regional and urban development planning should help to improve the quality of life and reduce the volume of traffic by arranging housing, public services and employment in an environmentally friendly and gender-sensitive way which is optimised for the settlement structure.

Large settlement areas are to be restructured and broken up by a phased system of urban open spaces. This is also intended to meet the requirements for climate change adaptation. The edges of towns and settlements are to form boundaries, which are recognisable and effective in terms of spatial function, separating them from the open space.

6.1-6 Principle: Priority for urban infill development
Plans and measures for infill development within urban areas have priority over the use of land outside the cities. This does not affect the targeted preservation and creation of urban open spaces for urban development reasons.

6.1-7 Principle: Energy-efficient and climate-proof settlement development
Plans for new settlement areas and the conversion or clean-up of land for settlement areas are to encourage energy-efficient construction methods, the use of combined heat and power and options for the passive and active use of solar energy and other renewable energies.
Spatial development must not exacerbate the existing vulnerability of settlement areas to the effects of climate change – especially heatwaves and flash floods – but should strengthen the resilience of settlement areas and help to mitigate the impact of climate change.

6.1-8 Principle: Re-using derelict land
The recycling of land should lead to new uses being found for derelict land, with isolated plots of land in open space being designated an open space use. A regional concept shall be drawn up at an early date to find alternative uses for regionally significant derelict land.
With regard to the re-use of any contaminated derelict land, any suspected contamination should be mapped out at an early stage in the planning process.

6.1-9 Principle: Forward estimate of infrastructure costs and infrastructure maintenance costs
If it is intended to use land for settlement purposes, municipalities should establish and evaluate both the infrastructure costs and the infrastructure maintenance costs, consistent with the stage of planning.

Notes
According to Section 1, para. 2 ROG, the overall concept of spatial planning is that of sustainable spatial development “which will bring the social and economic demands on an area into line with its ecological functions and result in a sustainable order which will be well-balanced on a large scale with similar standards of living in all regions of NRW” (see also Section 1 of the LEP).

In terms of managing settlement development/settlement areas, the following principles of spatial planning as stated in Section 2, para. 2 ROG are particularly relevant:

- “The aim must be to create balanced social, infrastructural, economic, ecological and cultural conditions throughout the territory of the Federal Republic of Germany and its regions. To achieve this, sustainable public services must be provided, sustainable economic growth and innovation supported, development potential secured and resources protected in a sustainable way. (Section 2, para. 2, No. 1, sentences 1 and 2)
- “Demographic, economic, social and other structural challenges must be faced, including in terms of the decline of and growth in population and employment [...]; regional development concepts and demand forecasts in Land and regional plans must be included.” (Section 2, para. 2, No. 1, sentence 4)
- “To achieve the aim of strengthening and developing the territory and its regions, it is essential to work towards cooperation within and between regions, which are also possible in a variety of forms, including partnerships between urban and rural areas.” (Section 2, para. 2, No. 2, sentence 3)
- “Settlement activity must be concentrated spatially, the priority being to focus on existing settlements with adequate infrastructure and on central places.” (Section 2, para. 2, No. 2, sentence 4)
- “[...]; the utilisation of land in open space must be restricted.” (Section 2, para. 2, No. 2, sentence 6)
- “The provision of services and the infrastructures required to provide services, in particular access to facilities and basic universal services for all sections of the population, is intended to guarantee a reasonable level of equal opportunities in NRW’s regions; this also applies in sparsely populated regions.” (Section 2, para. 2, No. 3, sentence 1)
- “The social infrastructure must be concentrated in central places as a priority; the accessibility and sustainability criteria of the central place concept must be flexibly aligned to regional requirements.” (Section 2, para. 2, No. 3, sentence 2)
- “The spatial conditions must be created to maintain city centres and local centres as central service areas.” (Section 2, para. 2, No. 3, sentence 3)
- “The spatial conditions must be created for sustainable mobility and an integrated transport system.” (Section 2, para. 2, No. 3, sentence 5)
- “Spatial structures must be designed to reduce traffic pollution and prevent additional traffic.” (Section 2, para. 2, No. 3, sentence 8)
- “Areas must be developed so as to create a competitive and spatially balanced economic structure and an economy-oriented infrastructure in the long term and a plentiful and varied range of jobs and training places.” (Section 2, para. 2, No. 4, sentence 1)
- “Rural areas must be preserved and developed to take account of their different economic and natural development potential as self-contained residential and economic areas; [...].” (Section 2, para. 2, No. 4, sentence 6)
- “Economic and social uses of an area must be designed to take account of its ecological functions; natural resources must be used sparingly and carefully, [...].” (Section 2, para. 2, No. 6, sentence 2)
6. Settlement areas

“The first-time use of open space for settlement and transport purposes must be reduced, in particular by giving priority to exhausting the potential for rehabilitating land, building on vacant lots and other infill measures within urban areas and municipalities, as well as developing existing traffic areas.” (Section 2, para. 2, No. 6, sentence 3)

According to Section 2, para. 1 ROG the principles of spatial planning must be applied as part of the overall concept of sustainable spatial development and defined by specifications in spatial development plans, where this is required (see also, in general, Section 11 of the LEP).

With the provisions in Section 6 of the LEP, the intention is to combat undesirable developments observed, i.e. to respond to developments (cf. Section 1 of the LEP), to support a concentrated, future-proof and therefore sustainable settlement development and protect central service areas. They are intended to protect public services, minimise the use of open space and prevent traffic. For this reason, this is particularly important in NRW because it has the greatest population density of all the regions of Germany (apart from the city regions), with all the attendant competition between a wide variety of demands for use and protection (see also Section 1 of the LEP).

The concentration of settlement development and amenities in the centres helps to create similar standards of living in all regions of NRW. This is the only way to guarantee a comprehensive set of amenities close to home with a varied and easily accessible range of goods and services.

The retail sector is particularly important for city centres and local centres in municipalities in NRW. The retail offering is the main crowd puller that brings life to the centres (customer magnet).

However, the continuing trend towards ever larger shop units, combined with spatial concentration processes, increases demand for locations outside the centres. This trend undermines the centres considerably.

For this reason, the NRW government, together with municipalities and partners from the business community, is making great efforts to revitalise and strengthen inner cities and local centres. The continuing development of new large-scale retail facilities and expansion of existing facilities outside the centres would frustrate these efforts.

As a result of demographic change (cf. Section 1 of the LEP), it is becoming even more important to concentrate settlement development and use the centres as supply locations. Older people in particular need amenities close to home, which can also be reached by short routes without a car. Moreover, concentrated settlement development also takes account of the everyday lives of the population – including in relation to men and women – and prevents structural disadvantages from arising. For example, families in which both parents work in many cases rely on having short routes to a local provision of jobs, services of all kinds and shopping facilities.

This is another reason why the existing centres should be consistently strengthened as places to work, do business and live. In this way, care is taken to make effective use of public and private service providers now and in future, at the same time safeguarding sustainable public services, supporting sustainable economic growth and innovation, keeping the use of open space to a minimum and preventing traffic.

The early appraisal of infrastructure costs and infrastructure maintenance costs will also assist such concentrated settlement development. Moreover, it will ensure that overall infrastructure costs remain affordable in regions with a declining population.

Expected climatic changes again require, on the one hand, protective and adaptive measures in regional, building development and sectoral planning (climate change adaptation). However, they also require the reduction of greenhouse gas emissions to prevent more drastic changes (climate protection).

It is only by adopting a supraregional management system and regional coordination that uniform, binding and municipal conditions can be created, which will prevent competition between municipalities to attract a population which is set to grow slightly in NRW overall until 2025, but is already declining in parts of NRW and businesses and projects as defined in Section 11, para. 3 BauNVO (Land Use Ordinance), resulting in further urban sprawl and spatial structures that increase rather than reduce traffic with a more serious impact on greenhouse gas emissions, in no longer affordable infrastructure costs, at least in some regions, and in an impairment of central service areas and therefore the supply function of the central places concerned and amenities close to home.
Against this background, the further definition of the above-mentioned principles of spatial planning in the regional plan is essential. The provisions do not go beyond what is required to achieve the objective. On the one hand, many of the plans affected by the provisions of Section 6 of the LEP also have an effect outside the municipality in neighbouring authorities or in a whole region, so that a supralocal plan is required. On the other hand, it is precisely the projects as defined in Section 11, para. 3 BauNVO that could put at risk the preservation of inner cities and local centres as central service areas, local supply areas for the population and therefore the ability of the central place system to function. For the rest, spatial planning management concerns only the planning of projects as defined in Section 11, para. 3 BauNVO in the retail trade (Section 6.5 of the LEP). However, the management system in the specifications in Section 6.5 of the LEP does not cover atypical large-scale retail establishments, which according to Section 11, para. 3 BauNVO do not require representation and designation as a special area but are nevertheless selected for representation and designation as a special area. Details of these atypical establishments can be found in the latest version of the NRW decree for the retail sector.

The provisions of Section 6 of the LEP are justified by overriding reasons relating to the public interest. They define various principles of spatial planning law and therefore pursue objectives set in spatial planning law. The European Court of Justice has recognised them as overriding reasons relating to the public interest (ECJ, Judgment of 24 March 2011, Case C-400/08 [2011] I-41).

They are based on purely spatial planning grounds, but not on test criteria for regulating markets and competition (as in the Spanish regulations on the management of the retail sector – cf. ECJ, Judgment of 24 March 2011, Case C-400/08 = juris).

Although this inevitably has an impact on all the areas affected, including the economy, this impact is not the purpose of the management system, but only individual indicators or reflexes of the overarching spatial planning considerations. For example, urban development planning for projects as defined in Section 11, para. 3 BauNVO, which satisfy the requirements in the relevant provisions is permitted in regional plans, irrespective of the actual situation with regard to amenities. The effects on existing businesses or the retail structure of the region, which – as in Spain – result in refusal of an application for a trading permit if a certain value is exceeded, are not criteria in the above provisions. This inherently involves the detailed definition of the spatial planning principles referred to in Section 2, para. 2 ROG.

In all other respects, the provisions of Section 6 of the LEP are proportionate, i.e. appropriate and necessary, enough to achieve the spatial planning objectives. Other spatial planning provisions of a less radical tenor would not be able to achieve the desired – and necessary – objectives to the same extent. Shifting the assessment of regional development policy aspects entirely on to subordinate planning and assessment levels would not be appropriate. The goals pursued in the provisions – in particular concentrated settlement development, the protection of natural resources and the protection of central service areas – could not be achieved as effectively at the urban development planning or project approval level, quite apart from the fact that such a shift in management would not be any less radical for the affected population or the affected economic operators.

The provisions of Section 6 of the LEP are in line with the requirements of EU law. In particular, they correspond to the requirements of Article 49 of the Treaty on the Functioning of the European Union (TFEU) and Directive 2006/123/EC of the European Parliament and of the Council of 12 December 2006 on services in the internal market (EC Services Directive).

The provisions of Section 6.1 of the LEP contain specifications for overall settlement development and the entire settlement area, i.e. both for the General Settlement Areas and for the Areas for commercial and industrial uses and their implementation by the urban development planning system.

Re 6.1-1 Land-saving and demand-led settlement development

The graphical representation of the settlement area is a map taken from the regional plans (as at 1 January 2015). The map in the LEP is intended to give an impression of the current settlement structure, which must be further developed in accordance with the objectives and principles of the LEP.

Settlement development is intended to meet the housing, amenity, employment, recreation, sport and leisure needs of people living today without restricting the development options for future generations. As a result of demographic change, which will lead to a decline in the population in NRW in the medium to long term, the spatial management of settlement development will in future focus less on designating new areas.
and more on the maintenance and qualitative development of evolved settlement structures in terms of social, economic, ecological and cultural landscape aspects and will also be open to the removal of settlements and infrastructure.

In the medium term, it is the spatially differentiated growth of the population that will be of particular importance. Whereas some municipalities have to cope with a projected population decline, sometimes of over 10%, others are still growing (for the moment). In the longer term, it must be assumed that the population will decline in many parts of NRW. Against this background, and depending on their quantity and quality, only infrastructures that can subsequently be borne by a declining population should be created. However, as a result of demographic trends, a requirement to expand infrastructure may also arise in specific areas (health and care).

Spatial demands by industry on land zoned for commercial and industrial uses do not depend on population trends to the same extent as land development for housing. What is most significant in this regard is structural change, the development of individual industries and businesses and also the change in the age distribution of the population, which among other things will make it more difficult for businesses to find and retain qualified new recruits.

In this case, soft location factors will become even more important. Features of the natural and cultural landscape, which are sometimes limiting factors in settlement development, do at the same time offer potential for recreational, sport and leisure activities and a high degree of satisfaction and identification with the location and the region as a whole.

According to the NRW planning objectives, settlement development must be demand-led. In this context, “demand-led” means on the one hand releasing a sufficient amount of land to allow appropriate development while on the other hand restricting the redesignation of land to the amount required. The proper determination of the amount of land required for settlement development plays a key part in this process. As a result of demographic trends, economic structural change, the requirements for sustainable and land-saving spatial development and the need to standardise the procedures in the planning regions, which currently employ different methods, it became necessary to revise the methods for estimating the demand for land in regional plans. To this end, the Institute for Urban and Transport Planning at RWTH Aachen commissioned an expert report in March 2011. This expert report analysed the existing methods used to calculate the demand for land for housing and commercial developments and concluded by proposing a method for determining the demand for housing land and, in the case of commercial land, recommended focusing on extrapolating the trends in data from the settlement land monitoring system.

Whether and to what extent a demand for additional settlement areas exists must be determined by the regional planning authorities – based on the results of the above report – as follows.

The aim of estimating the demand for residential building land is to ensure that there is a sufficient amount of land to provide households with housing in future. The demand is made up of the following components:
- new demand, which arises from the change in the number of households during the planning period according to IT.NRW’s projections (this can also be negative),
- the replacement demand, i.e. the need to replace housing units which have been demolished, combined or can no longer be used for other reasons (0.2% of the housing stock each year) and
- the fluctuation reserve of 1% of the housing stock to guarantee a sufficient supply of housing for people prepared to move within or to NRW; the fluctuation reserve may be increased to a maximum of 3% of the housing stock if half of all vacant housing units are credited against the fluctuation reserve, i.e. this amount is deducted from the fluctuation reserve.

In any case, the municipality is left to meet a basic demand amounting to half of the replacement demand – even if the components add up to a lower or negative demand.

The demand for housing units estimated in this way is converted to areas of land based on densities typical of the settlement patterns (gross including development 20 - 35 / 30 - 45 / 40 - 60 HU/ha for settlement densities below 1,000/1,000-2,000 or cities above 100,000 inhabitants with a density below 1,000/above 2,000 inhabitants per km²).

The regional planning authority may depart from these guide values in justified cases, e.g. on the basis of empirical studies.

The demand for new commercial land is estimated on the basis of the results of the settlement land monitoring system as described in Section 4, para. 4 LPIG (see below). For each region (at least one
6. Settlement areas

district), the average annual use during the last (at least two) monitoring periods – if necessary differentiated according to locally and supralocally significant land – is multiplied by the number of years of the planning period. The regional planning authority decides how the demand is to be quantitatively divided among the municipalities (see also 6.3-1). Its decision should take account of spatial planning criteria, in particular the number of people in employment, the significance of individual municipalities as central places and their economic structure.

The demand ascertained on the basis of the amount of settlement land required in the urban development plan can be increased by a planning or flexibility supplement of up to 20% so that settlement areas can be specified in the regional plan. As part of the amendment process described in Section 34 LPlG and the approval procedure described in Section 6 of the Federal Building Code, the settlement land monitoring system must ensure that only land included in the total amount of the demand ascertained is converted at urban planning level.

The regional planning authority compares this demand determined using the settlement land monitoring system with the available reserves of land shown in plans. Some of these available reserves of land shown in plans are areas of derelict land which are suitable for subsequent constructional use and have already been designated as settlement areas.

Port land as specified in NRW’s Waterway, Port and Logistics Plan of 29 March 2016 (cf. Table 6, p. 51 and Appendix, number 6.2, pp. 91-104) and locations for major projects involving intensive land use significant to NRW must be considered individually. Half of the industrial expansion areas must be taken into account if their use has been included in the estimated demand for commercial land. If, on the other hand, their use has not been included in the estimated demand for commercial land, they should not be taken into account either (individual comparison of supply (demand) with reserves).

The settlement land monitoring system not only provides an overview of current land reserves, it is also used to provide information on the actual first-time use of the plan reserves at FNP level (building land) and any other reserves of settlement land. The municipalities assist the regional planning authority by providing information on land and, if necessary, giving reasons why building land shown in the zoning plan cannot be used.

In this and subsequent specifications, “derelict land” means land which is no longer used (in particular abandoned industrial sites, former railway land and military land earmarked for redevelopment), which could have the potential for new uses. Existing interim uses do not constitute a criterion for exclusion. Part of this derelict land is land which is suitable for subsequent constructional use (settlement land) and is generally part of settlement networks (but see also Objective 6.3, paragraphs 2 and 3). Former opencast mining sites are not subsumed under the term “derelict land” in the LEP as the subsequent use (recultivation) has already been specified in the brown coal plan. As a rule, the subsequent use of other excavation sites has also been specified already.

In conclusion, three scenarios are conceivable:
− the projected demand exceeds the land reserves => redesignate settlement areas;
− the projected demand matches the size of the land reserves => use exchange, if possible, to improve quality;
− the land reserves exceed the projected demand => reclaim land from reserves.

Where, as a result of demographic and economic growth, the regional plan provides evidence of an additional requirement for building land, settlement areas can basically only be extended at the expense of open space if no suitable land is available in sufficient quantity in the previously designated settlement areas, based on the settlement land monitoring system.

The urban climate functions must be considered when assessing the suitability of the land.

The market potential of the land must be considered when designating new settlement areas.

If settlement areas are extended at the expense of open space subject to the precondition set out in Objective 6.1.1, particular account must be taken of the interests of protecting open spaces (cf. Section 7 of the LEP) when considering the matter. This also applies in terms of the “land-saving settlement development” model.
The expansion options for existing businesses are covered in sentence 2 of Objective 6.1-1 (demand-led designation of ASBs and GIBs) and by the fact that this involves a principle of prioritising urban infill development (6.1-6).

Based on the above-mentioned methods of estimating demand and determining eligibility, the NRW planning authority audits the land balance sheets as part of the legal review of the regional plans prepared. The total of the requirements for ASBs and GIBs accounted for in regional planning should not exceed the demand for residential and commercial development estimated for the regional planning area. Evidence of the need to reclaim land must be provided in this connection.

The strategy of adopting urban infill development (*Innenentwicklung*, definition taken from the Federal Building Code) and use exchange alone will not create a sufficient supply of building land for the population or industry everywhere in NRW. The designation of new General Settlement Areas and new Areas for commercial and industrial uses in the regional plan to meet the demand is therefore an option (see above).

If it is anticipated that the settlement areas designated in the regional plan to meet the estimated demand will be taken up before the end of the planning period, an amendment to the regional plan can be made. With regard to the location of the land required, an appraisal of municipalities will initially be necessary and (depending on the amount and type of land required and opposing protection designations, if any), an appraisal of the region (see also Objective 6.3-1).

Even if reserves of settlement land designated in the regional plan are based on demand, it may be necessary or desirable not to allocate a proposed settlement use to that settlement area but to a new settlement area to be designated. In such cases, it must first be ascertained whether an equivalent area previously designated for settlement purposes in the plan can be returned to open space or building land in the zoning plan can be changed to an urban open space (use exchange). The equivalence relates both to the quantity and to the quality of the open space functions as specified in LPlG-DVO. The particular vulnerability of certain types of land is also taken into account. Evidence of demand for the new settlement areas is not required in this zero-sum game, provided that the areas concerned are of the same size and equivalent quality as open space. Where appropriate, an opinion of the competent authorities must be obtained on the equivalence of the exchanged areas as part of the procedure when preparing spatial development plans.

A use exchange is required when the regional plan and the zoning plan have provided a sufficient supply of land to meet the anticipated demand for building land but restrictions on use limit the actual amount of building land available, with the result that the potential building land approved in plans does not meet the proven demand. Accordingly, it may be necessary to amend plans for other reasons, which require the use of land previously designated as open space.

The regional planning authority is required to designate as open space land previously designated as settlement land if, as a result of population decline or structural change, it is no longer needed to meet demand for settlement land. Where the reserves of settlement land exceed the demand for settlement land, the amount of settlement land surplus to requirements must be reclaimed, subject to the conditions for regional plan updates referred to in the objective and by agreement with the municipalities. Where new settlement areas are designated in a regional plan amendment, surplus reserves of settlement land are to be reclaimed by agreement with the municipalities concerned, provided that the total of new designated land and reserves exceeds the projected demand by the end of the planning period. These options should be exercised in conurbations in particular to clear spaces and improve their quality.

Objective 6.1-1 and the subsequent objectives and principles of the LEP on the re-use of suitable derelict land, “decentralised concentration”, the avoidance of ribbon developments and scattered settlements and the prioritisation of urban infill development are contributing to the efforts to reduce land consumption in NRW to 5 ha per day by 2020 and to “net zero” in the long term.

**Re 6.1-2 “Land-saving settlement development” model**

The NRW government supports the objective of the national sustainability strategy to reduce land consumption to 30 hectares per day by 2020 across Germany, i.e. to reduce land consumption for NRW to at least five hectares per day in line with its share of Germany’s settlement and transport infrastructure. Its longer-term objective is to achieve net zero land consumption, i.e. building land, open space, transport infrastructure areas and industrial sites are to show no more growth in the land balance sheet.
As stated in Section 2, para. 2, No. 6 ROG: “On account of its importance to the functional capacity of the soil, the water balance, animal and plant life and the climate, including the interactions between them, space must be developed, protected or – where necessary, possible and reasonable – restored. [...] The first-time use of open space for settlement and transport purposes must be reduced, in particular by giving priority to exhausting the potential for rehabilitating land, building on vacant lots and other infill measures within urban areas and municipalities, as well as developing existing traffic areas.” The reduction of new land uses is a major task in terms of the future development of NRW. Land-saving and demand-led settlement and transport infrastructure developments will help to avoid possible competition between municipalities, resulting in rising infrastructure costs and increasing economic burdens for the municipalities and their residents. It should be regarded as a development opportunity and not as an impediment.

The decline in population projected for NRW, at least in the long term, may make it easier to achieve the aim of reducing land consumption as pursued in this model and the national sustainability strategy. However, the growth in settlement land cannot be reduced within the planning period of the LEP without additional management by the spatial planning authorities.

The aim must be to achieve economically efficient land use in accordance with the three essential strategies: Avoidance (active area conservation and land-saving construction), release (activation of spaces between buildings, depaved areas in the housing stock) and revitalisation (revitalisation and recultivation of derelict land and urban redevelopment).

Regional planning is to implement the principle by ensuring that the regional planning authorities in the formulation procedure record the contribution from regional plan amendments to the daily growth of settlement and transport infrastructure for their planning area and report it to the NRW planning authority in accordance with Section 4, para. 4, LPIG (Monitoring). Redesignating settlement areas makes it possible actually to consume this land after the amendment of urban development plans accordingly. The NRW planning authority already evaluates this in the context of its advice to the regional planning authorities in the current procedure with regard to the NRW-wide development of settlement and traffic areas. As the model, in particular the reduction of greenfield land consumption to 5 ha per day by 2020, relates to the indicator “Increase in Settlement and Traffic Areas (SuV)”, NRW also continuously evaluates how this indicator is changing by analysing the relevant statistics.

On the one hand, the urban planning level is to implement the principle by continuing to be involved in the settlement land monitoring system, thereby helping to make the consumption of land reserves more transparent. On the other hand, the opportunities to work towards a land-saving implementation of the plan must be exploited, especially when formulating specifications in development plans.

Re 6.1-3 “Decentralised concentration” model

The large scale settlement structure in NRW is expected to stabilise its distribution in the central place system (see also Objective 2-1 and Principle 2-2) This large-scale decentralised structure must be linked to a concentration of compact settlement areas at regional and local level (see also Principle 6.2-1). In this way, the conditions for the capacity and accessibility of amenities are guaranteed in all parts of NRW.

Re 6.1-4 No ribbon developments or scattered settlements

Ribbon developments along transport routes and scattered settlements are incompatible with the objective of developing settlements based on settlement areas significant to the central place system. They can have an adverse effect on the functional capacity and efficiency of the open space and the scenic qualities of the landscape. Regional and urban development planning have therefore been called upon to protect the open space and prevent developments on greenfield land and the convergence of non-central places along transport routes and the resulting ribbon development over and above what is permitted in Section 34, para. 4 and Section 35 of the Federal Building Code. This does not affect the possible designation of areas for commercial and industrial uses (GIBs) situated in isolated positions in the open space in exceptional cases, subject to the exceptions provided in Objective 6.3-3. Also unaffected is the development of open space solar energy installations along federal highways or railways of supra-regional significance, which is permitted in exceptional cases in Objective 10.2-5.

Re 6.1-5 “Sustainable European city” model
The guiding principle for settlement development is the “Leipzig Charter on Sustainable European Cities”, adopted in 2007 by the Ministers with responsibility for urban planning of the Member States of the European Union. European cities are characterised, inter alia, by a compact structure, different uses coexisting side by side and clearly identifiable and functionally effective boundaries between settled and unsettled areas. This kind of settlement structure saves on land, traffic, energy and cost. The infrastructure costs in particular are significantly lower for supply and disposal than in the case of a dispersed settlement structure. Moreover, this compact type of settlement structure can take proper account of the different everyday lives of the population in terms of gender mainstreaming and help to prevent structural disadvantages in future.

The aim must also be to provide a sufficient amount of green space in urban areas within the context of land-saving development. With the increasing size of settlement areas, these open spaces – in addition to their previous functions – are becoming more important to the adaptation to the more prolonged and frequent heatwaves which have been predicted. They should be accessible on foot. Expert contributions concerning existing climate protection plans and climate protection can be used to assess when a settlement area is so big that it should be divided up or opened out. At the end of the day, however, it depends on the region or subregion concerned what is meant by a “big” settlement area.

Peripheral areas are to be kept as small as possible, depending on the urban planning objectives and natural conditions, and designed to meet the requirements of the cultural landscape. Topographical or recognisable natural boundaries can be used as a guide.

**Re 6.1-6 Priority for urban infill development**

Municipalities are under an obligation to release building land as part of their duties of self-government. To this end, municipalities have instruments provided by the Federal Building Code at their disposal. Urban infill development not only serves to save land, avoid traffic and improve the quality of use and design of settlement land, it is also generally less expensive for municipalities than the consumption of open space on greenfield sites in terms of operating and maintenance costs of the technical infrastructure. Overall, urban infill development maintains a large-scale overarching network of open spaces and is therefore of supralocal significance.

The urban infill measures (definition taken from the Federal Building Code) include a reasonable possibility of building on vacant sites and releasing unused or potentially derelict land in urban areas. Please also refer to Section 4, para. 2 of the NRW Soil Protection Act (LBodSchG) in this regard. Derelict industrial, commercial, military and railway sites represent a considerable potential supply of land in urban areas, which is considered a priority to exhaust first. Previous efforts to release potential supplies of land as part of urban infill development and to reduce barriers to release at municipal level are to be intensified to concentrate more on exhausting development reserves.

However, building should not go ahead if this land has a particular value in terms of a living and working environment, local recreation activities, sport, leisure, the urban climate or biotope and species protection. In certain cases, the disproportionate cost of cleaning up contaminated land, for example, could also militate against putting new buildings on brownfield sites. Urban infill measures presuppose the availability of such sites. If they are not available, even in the longer term, planning alternatives will have to be sought.

The recycling of derelict land outside urban areas is based on Principle 6.1-8 and – depending on the planned use – on the specifications for this use provided in the LEP and regional plan.

**Re 6.1-7 Energy-efficient and climate-proof settlement development**

The potential for reducing the heat required by new development areas through energy-efficient and solar-energy-optimised settlement planning is (without additional thermal insulation or solar technology) 10% - 20% or sometimes up to 40% greater than a non-optimised plan. The resulting energy savings are effective in the long term, as settlement structures have a lifespan of over 200 years.

It is therefore essential when planning new development areas to think about an energy-efficient settlement structure from the outset. This includes in particular the creation of suitable conditions for the use of combined heat and power, a close connection to central service areas, land-saving development, compact construction methods and building orientation optimised for solar energy in order to create the conditions, in terms of urban development, for low heat and electricity requirements. At the same time, this makes settlement structures more robust in terms of adaptation to climate change.
Areas of urban heat islands characterised by closely spaced buildings with little green space or air circulation between them are particularly susceptible to heat stress. In areas subject to stress, green areas (roof and wall greening, roadside grass verges, parks, planted courtyards) and the proportion of open bodies of water should be increased, especially in renovation, remodelling and new building projects. If necessary, specifications for the shading and insulation of buildings should be included in the designation of new development areas.

High-density areas with a high level of soil sealing, closely spaced buildings and sensitive infrastructure are particularly susceptible to damage due to heavy rain events. In particularly at-risk areas, the facilitation of decentralised rainwater management should be improved, bottlenecks and flow obstacles removed and precipitation buffers and emergency waterways created, especially in renovation, remodelling and new building projects. If necessary, specifications for property protection should be included in the designation of new development areas.

The early adoption of regional and local climate protection plans and the implementation of climate adaptation measures in regional and urban development planning (see also Section 4 of the LEP) could help not to exacerbate the vulnerability of settlement areas to the effects of climate change but, on the contrary, to strengthen their resilience.

**Re 6.1-8 Re-using derelict land**

The large number of brownfield sites left over from NRW’s industrial past (in particular abandoned industrial sites and former railway land) and sites no longer used by the military should be cleaned up and recycled so as to save open space which has not previously been built on. The cost of recycling must be economically viable.

The subsequent use will mainly be determined by the surrounding spatial uses and functions. Subsequent use as settlement land can be considered if the site borders on a settlement area.

A regional planning amendment to “General Settlement Area” in accordance with the specifications in Section 6.2 of the LEP is generally excluded in the case of isolated plots of land in open space. This does not affect the subsequent use of derelict land for “other spatially significant recreation, sports, leisure and tourism facilities” as exceptionally permitted in Objective 6.6-2 or the resulting designation as a “General Settlement Area earmarked for a specific purpose”. It can only be changed to a “commercial and industrial development area” in accordance with the specifications in Section 6.3 of the LEP.

It is useful to prepare a regional concept for the subsequent uses of regionally significant derelict land (minimum size approx. 10 ha, see LPIG-DVO), especially for former military sites, which are often very large. It should form the basis for regional planning. Because the sites are often of a substantial size, it is generally necessary to be guided by the planning area of the regional plan or, if necessary, individual parts of it. The preliminary work on such a concept can begin as soon as it is known when their military use is likely to end. Where appropriate, the lead regional planning authority and the municipalities concerned should involve other public and private actors in the region (regional development companies, etc.) in the preparation of the concept.

A change of use for derelict land is often conditional on contaminated sites being effectively treated and any suspicion of contamination being eliminated at an early stage at the appropriate planning level in the regional and urban development planning.

Principle 7.1-7 must be taken into account in the case of former military land situated in isolated positions in the open space.

**Re 6.1-9 Forward estimate of infrastructure costs and infrastructure maintenance costs**

In addition to planning and development costs, the development of building land involves substantial long-term costs (expenditure on maintaining technical infrastructures, the construction and operation of social amenities such as day nurseries, schools, etc.). The analysis of infrastructure costs and infrastructure maintenance costs and their evaluation in terms of possible alternatives provide potential savings for municipalities, which could amount to as much as approx. 30%-50% for technical infrastructure maintenance costs and up to approx. 10% for social infrastructure maintenance costs.
6.2 Additional specifications for General Settlement Areas

Objectives and principles

6.2-1 Principle: Orientation towards General Settlement Areas significant to the central place system
The development of settlements in municipalities is to be oriented towards those General Settlement Areas which have a concentration of public and private service and healthcare facilities (General Settlement Areas significant to the central place system).

Any new General Settlement Areas which may be required are generally to be designated adjacent to existing General Settlement Areas significant to the central-place system. If the expansion of General Settlement Areas significant to the central place system has an adverse effect on topographical features or other priority spatial functions, the allocation can be made in connection with another General Settlement Area already featuring in the regional plan.

6.2-2 Principle: Use of rail-based public transport
Special account is to be taken of existing boarding points for rail-based public transport when aligning settlement development.

6.2-3 Principle: Controlled reclamation of unused surplus settlement areas
A demand-led reclamation of General Settlement Areas in the regional plan or equivalent building land in the zoning plan should preferably take place outside the General Settlement Areas significant to the central place system.

Notes

For the reasons behind the specifications in Section 6.2 of the LEP, please refer to the general notes in Section 6.1 and the subsequent notes.

Re 6.2-1 General Settlement Areas significant to the central-place system

The spatial planning management of the development of land for housing, retail outlets, services, industry – where compatible with the surrounding use – and open spaces in urban centres is based on the specification of General Settlement Areas (ASBs) in the regional plan. The extent of ASB representations required to meet demand is determined using a uniform method across NRW combined with the settlement land monitoring system (see also notes to 6.1-1).

The existing stock and the future development of ASBs are the main factor determining the attractiveness of municipalities for households and businesses. They create the conditions for the capacity and sustainability of existing and planned technical and social infrastructures. Population decline and changes in the behaviour of the public when using infrastructure facilities could result in their underutilisation, with serious consequences for their functional capacity, their economic viability and the fees generated. It is therefore necessary to orientate the demand for settlement developments towards future-proof settlement areas which have a concentration of public and private service and healthcare facilities (ASBs significant to the central place system).

The regional planning authority must designate the ASBs significant to the central place system in consultation with the municipalities before it updates regional plans, in order to orientate settlement development accordingly. These ASBs significant to the central place system can be marked in an explanatory map in the regional plans.

At least one ASB significant to the central place system must be designated for each municipality in the regional plan to provide basic large scale supralocal amenities, in which at least the sustainability of basic amenities should be guaranteed in the long term.

The orientation of future settlement development towards settlement areas that already have public and private service and healthcare facilities (e.g. education, culture, administration, social and medical services and retail outlets) is consistent with the aims of sustainable spatial development and takes account of the economic prerequisites for sustainability in terms of the protection and future development of public and private infrastructures. It also satisfies the requirements for the efficient deployment of public funds and is therefore in the public interest.
In order to reduce traffic, it is advisable also to specify designated areas for commercial and industrial uses spatially connected to the settlement areas significant to the central place system. As the planning of these areas also has to take account of specific aspects relating to emission control legislation and traffic, the specifications in the NRW plans can be found in Section 6.3 below “Additional specifications for Areas for Commercial and Industrial Use”.

Other existing General Settlement Areas which do not have the above-mentioned infrastructure significant to the central place system, but which are regionally significant because of their size and population (over 2,000 inhabitants), are also represented in the regional plan. However, they should generally not be taken into account in the location of limited urban sprawl in the regional plan. Their development is generally to be confined to plans and measures for the use and completion of sites already built on. In the event of population decline, the continuing development of these settlement areas would put at risk the long-term protection of generally sustainable central settlement structures.

In view of the population decline anticipated in large parts of NRW, future settlement development is to be orientated towards the settlement areas significant to the central place system so as to be able to efficiently connect any expansion of settlements that may be required to the existing infrastructure network and the available social amenities. The orientation towards settlement areas significant to the central place system is at the same time intended to be a step towards a compact settlement structure with the aim of minimising the consumption of open space and the cost of technical infrastructure and creating more favourable conditions for the use of public transport.

Exceptions from the priority expansion of settlement areas significant to the central place system have to be made, for example, if the direct spatial expansion of a settlement area significant to the central place system is impeded by topographical or natural features or priority protective and utility functions, e.g. of nature conservation or flood prevention, if new General Settlement Areas have mainly been specified for commercial enterprises and do not therefore have to be connected to General Settlement Areas significant to the central place system or if open space designated in the regional plan for specific General Settlement Areas has to be consumed for projects which are necessary for pressing public interest reasons but which cannot be located in or at existing General Settlement Areas (e.g. projects required in NRW’s interests with a special intended use such as correctional facilities or forensic clinics).

It is also possible to depart from this principle where, in certain cases, a General Settlement Area significant to the central place system is deliberately developed by regional planners and is designated accordingly in the regional plan. Where existing smaller non-central places exceed the representation threshold of 2,000 inhabitants in the course of their self-contained development, they should be represented.

Re 6.2-2 Use of rail-based public transport

In order to ensure that settlement development is environmentally friendly and protects the climate, as many parts of the public transport network as possible should be on rails. To this end, residential settlement areas should be developed in close proximity to existing boarding points for rail-based public transport. In areas without a connection to rail-based public transport, settlement development should be aligned with other forms of public transport.

Re 6.2-4 Controlled reclamation of unused surplus settlement areas

The projected demographic trends will have a very different effect on different municipalities in NRW. In areas with a substantial decline, it may be necessary to keep the population in the settlement areas significant to the central place system to the maximum possible extent, in order to be able to provide an attractive range of public and private service and healthcare facilities – including in the long term.

Planned reserves of building land are to be reclaimed if, when amending or preparing a regional plan or zoning plan, the regional planning authority finds that a municipality has more reserves than it needs for its anticipated structural development. The regional planning authority and the municipality will then determine which land will be returned to open space or an external area and will preferably relinquish settlement land outside central areas significant to the central place system. The instrument of use exchange can also be used in this case (see also Objective 6.1-1).
6.3 Additional specifications for Areas for Commercial and Industrial Use

Objectives and principles

6.3-1 Objective: Supply of land
A suitable supply of land for pollution-emitting commercial and industrial firms must be provided in regional plans on the basis of regional harmonisation measures (regional commercial and industrial land schemes) and in urban development plans.

6.3-2 Principle: Protecting the surrounding area
Regional and urban development planning should ensure that the involvement of different uses does not have an adverse effect on development opportunities for pollution-emitting commercial and industrial firms within existing Areas for Commercial and Industrial Use.

6.3-3 Objective: New areas for commercial and industrial use
New areas for commercial and industrial use must be located directly adjacent to existing General Settlement Areas or areas for commercial and industrial use.

As an exception to the above, derelict land situated in an open space can be designated as an area for commercial and industrial use if it is guaranteed via a supplementary specific use or a supplementary text objective that there will be only one subsequent use of already sealed land including existing infrastructure and that any nature conservation areas on this derelict land will be excepted from the subsequent use and a short transport link has been provided. Any expansion of such areas for commercial and industrial uses for a specific purpose is not possible.

Exceptionally, another Area for Commercial and Industrial Use situated in an open space can be designated in future, where designation directly adjacent to existing General Settlement Areas or Areas for Commercial and Industrial Use is not possible for the following reasons:
- topographical and natural features or
- other conflicting combined protection measures or uses or
it is not possible to restore an efficient connection to the supraregional transport network and there are no conflicting specifications in the spatial plans. Suitable derelict land with a short connection to the supraregional road network and high-capacity modes of transport (in particular rail, waterway, local public transport) must be prioritised.

6.3-4 Principle: Inter-authority cooperation
Before another Area for Commercial and Industrial Use situated in an open space is designated, efforts must be made to achieve inter-municipal cooperation in locations in different municipalities which are directly adjacent to existing General Settlement Areas or Areas for Commercial and Industrial Use.

Opportunities for inter-municipal cooperation should also be exploited when rezoning areas for Commercial and Industrial Use directly adjacent to existing General Settlement Areas or Areas for Commercial and Industrial Use.

6.3-5 Principle: Connecting new Areas for Commercial and Industrial Use
New Areas for Commercial and Industrial Use which are not in an isolated location in an open space should be designated where a short connection exists or is planned to the supraregional road network and high-capacity modes of transport (in particular rail, waterway, local public transport). Multi-modal interchanges should be used, as a priority, in regional planning for a demand-led designation of land for logistics centres.

Moreover, new Areas for Commercial and Industrial Use should be designated where it is possible to use available potential heat sources or renewable energies.

Notes

For the reasons behind the specifications in Section 6.3 of the LEP, please refer to the general notes in Section 6.1 and the subsequent notes.
6. Settlement areas

Re 6.3-1 Supply of land
The basic configuration of NRW as a business location includes a demand-led and land-saving (see also Objective 6.1-1 and Principle 6.1-2 including the related notes) availability of land for commercial and industrial enterprises that produce emissions, therefore generally require an immission control approval and in particular are limited in their choice of location because of distance requirements (e.g. the latest version of the NRW Minimum Distance Decree and warning distance requirements as specified in KAS 18, Guideline of the Commission on Process Safety). To accommodate the relocation and expansion of these enterprises, the only locations that can be considered are those designated in the regional plans as areas for commercial and industrial uses (GIBs) and in the urban development plans as industrial areas as defined in Section 9 BauNVO or commercial areas as defined in Section 9 BauNVO. The designation of suitable locations in the regional and urban development plans is therefore of great importance to NRW’s economic development.

The largest proportion of the demand comes from the relocation and expansion of existing enterprises or the outsourcing or hiving-off of parts of enterprises. In addition, supplies of land are required for the establishment of new businesses.

The frame of reference for the development of commercial and industrial land often goes beyond individual municipal boundaries and the supply of commercial and industrial sites and the demand for land are affected by development in neighbouring and sometimes also more distant locations. Infrastructure costs can be reduced by coordinating commercial and industrial land policy with neighbouring municipalities. The development of a regional profile that concentrates on regional strengths improves the marketing of sites.

Against this background, a suitable supply of land is a supply of land that:
- is sufficient in terms of quantity and differentiated in terms of quality – and therefore meets demand – and at the same time uses the minimum amount of land,
- meets minimum distance requirements and
- has been developed in accordance with the spatial planning objectives and in line with the principles and other requirements of spatial planning.

In order to achieve this, future commercial and industrial land development – at least insofar as it results in the designation of new GIBs or the expansion of existing GIBs – must be coordinated at regional level.

The final regional coordination takes place as part of the regional planning procedure.

As part of the preliminary work of updating a regional plan or element of a regional plan, the regional planning authority prepares this regional coordination by determining the demand for GIBs on the basis of a uniform method across NRW (cf. notes re Objective 6.1-1) and, acting jointly with the municipalities and, where appropriate, other participants:
- determines the available GIB reserves in the municipalities;
- identifies potential new GIB sites, including potential sites which are likely to become available through the relinquishment of uses (commerce and industry, railway, military), provided that they are suitable for a subsequent commercial or industrial use (see also notes re Principle 6.1-7);
- evaluates the GIB reserves – also in terms of the options for a more intensive use of already developed GIBs – and potential new GIB sites;
- formulates recommendations (regional commercial and industrial land scheme) for the further development of GIB reserves and potential new GIB sites (site profiles of differentiated quality).
They must take account of subregional industrial and commercial land schemes initiated by municipalities and other public bodies. The regional commercial and industrial land scheme is not binding in respect of any incentive measures.

As part of the preliminary work of amending a regional plan, the regional planning authority prepares the regional coordination by ascertaining whether the initiated new representation of a GIB – where a regional commercial and industrial land scheme as described above exists – can be integrated into this scheme. Where no regional commercial and industrial land scheme as described above yet exists, the regional planning authority prepares the regional coordination by involving the affected municipalities in the region in the preliminary work of amending the regional plan.

The assignment of core areas and special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance is not possible in GIBs (see also Section 6.5 of the LEP).
6. Settlement areas

Re 6.3-2 Protecting the surrounding area

Development prospects for pollution-emitting commercial and industrial enterprises may be limited by pending uses. This principle is intended to counteract this possibility.

It is not only the regional plan amendments of recent years in which GIBs had been changed to ASBs in order to comprehend (or prepare for) the structural change that show that inner-city areas previously used by industry are increasingly being designed for different, often mixed, uses. In the past, this often resulted in a situation where GIBs were redesignated as open space.

Section 50 of the Federal Act on the Prevention of Harmful Effects on the Environment Caused by Air Pollution, Noise, Vibration and Similar Phenomena (BImSchG), including the minimum distance requirement implemented therein under Article 12 of the Seveso II Directive or, after the entry into force of the Seveso III Directive, under Article 13 of the Seveso III Directive and the corresponding spatial planning guidelines and principles (Section 1 and Section 2, para. 2 ROG) is implemented in the regional plan by means of the spatial separation of different uses and functions into specific categories of land use such as ASB and GIB. In this way, regional planning settles level-specific conflicts – i.e. usually large-scale conflicts. On the other hand, regional planning can leave the small-scale conflicts to subordinate planning levels, e.g. urban development planning. For details of the above-mentioned minimum distance requirement, please refer to the most recent version of the guideline of the Commission on Process Safety “KAS 18”.

Where pollution-emitting commercial and industrial enterprises exist in existing settlement areas, these enterprises should be protected from the involvement of different uses which could limit their development potential. This also applies to industrial ports and the pollution-emitting commercial and industrial enterprises located there. This helps to limit the consumption of open space for the redesignation of land to commercial and industrial uses to the amount required, thereby saving land.

Re 6.3-3 New areas for commercial and industrial use

The planning of new GIBs (including the expansion of existing GIBs) is demand-led and land-saving (see also Objective 6.3-1, Objective 6.1-1 and Principle 6.1-2, including the related notes).

The protection of open spaces and the cost-efficient use of existing technical infrastructures and the concentration of settlement development required in view of demographic change is best achieved by designating new GIBs directly adjacent to existing General Settlement Areas or areas for commercial and industrial use. It will have to be ascertained in individual cases whether being "directly adjacent" as defined in this designation is also secured when band infrastructures mark out existing settlement areas.

The designation of a GIB in an isolated location in the open space encourages urban sprawl across the countryside and is contrary to the aim of the LEP to focus future settlement development mainly on existing infrastructures.

Against this background, it is also noted in Principles 6.1-2 and 6.1-8 that derelict land (for a definition of derelict land, see the note to 6.1-1) situated in an isolated location in the open space should be designated an open space use. Under certain conditions, however, it may be useful to designate derelict land in an isolated location in the open space a subsequent commercial or industrial use. This fact is taken into account in paragraph or sentence 2 of Objective 6.3-3: under the stated conditions, the subsequent commercial or industrial use of derelict or partially derelict land in an isolated location in the open space will be given priority over a subsequent use of the entire derelict site as open space. In this case, the "subsequent use of already sealed land including existing infrastructure" referred to in the objective does not mean that non-minor adjustments to meet the current requirements of industry (e.g. broadband expansion, upgrading of existing transport links) can be made. The "ban on expansion" does not relate to the section-by-section development of sealed areas on a former military site and its replanning by means of multiple, successive regional plan amendment procedures.

Furthermore, a designation of a GIB in an isolated location in the open space may exceptionally be allowed if the municipality can prove to the regional planning authority that the new GIB is designated directly adjacent to the existing General Settlement Areas or areas for commercial and industrial uses that conflict with the reasons referred to in paragraph 3 of the objective – of course only to the extent that no other spatial planning specifications conflict with this designation. In this case, priority must be given to the
potential sites referred to in the objective when designating the GIB. A derelict site is suitable in terms of this designation if a subsequent commercial/industrial use is possible.

For an explanation of the term “short connection” as used in this objective, please refer to the first paragraph of the notes to Principle 6.3-5.

Urban development planning should support this objective – in particular the priority given to locating new areas for commercial and industrial uses directly adjacent to the existing settlement area – by resolving potential conflicts with neighbouring uses by adopting a suitable system for zoning adjacent General Settlement Areas/areas for commercial and industrial uses. It is also working towards the sustainable development of commercial and industrial zones that takes account of climate and environmental protection and minimises the use of natural resources when doing business.

Re 6.3-4 Inter-authority cooperation

As already mentioned in the notes to 6.3-3, there are many reasons for designating new GIBs directly adjacent to existing General Settlement Areas or areas for commercial and industrial uses. If this is not possible, priority must be given to ascertaining whether inter-municipal cooperation on these sites in different municipalities is possible.

In view of the budgetary constraints of many municipalities in NRW, regional and inter-municipal cooperation is becoming increasingly important.

Only by combining local financial and administrative forces can the growing demand by companies for industrial and commercial land (see also the notes to 6.3-1) be satisfied and quality standards achieved that will strengthen the competitiveness of NRW, its regions and municipalities in the location competition between the regions in an open European market.

The opportunities provided by inter-municipal cooperation include that of minimising risk in preliminary and development costs and opportunities for clustering.

Re 6.3-5 Connecting new areas for commercial and industrial use

Sites designated for the establishment and expansion of pollution-emitting commercial and industrial enterprises should have an efficient, if possible direct local connection to the supraregional transport network and a link to the public transport system. Sites with an existing or expected high level of heavy goods traffic should also be connected to high-capacity modes of transport (rail, waterway). Where necessary, suitable land must be secured to accommodate the connection.

Environmentally friendly logistics centres depend on multi-modal interchanges. The regional plan should make allowance for the demand for logistics areas by locating them as part of the industrial sites as described in the notes to Objective 6.1-1.

Another element of the sustainable planning of new GIBs or the expansion of existing GIBs (cf. notes to 6.3-3) is the requirement that the use of available potential heat sources or renewable energies is possible.

6.4 Locations for major projects significant to NRW and involving intensive land use

Objectives and principles

6.4-1 Objective: Locations for major projects significant to NRW and involving intensive land use
The following locations are designated for major projects significant to NRW and involving intensive land use
1. Datteln/Waltrop,
2. Euskirchen/Weilerswist,
3. Geilenkirchen-Lindern,
Locations for major projects significant to NRW and involving intensive land use must be secured according to size, as described in the notes.
6.4-2 Objective: Use of locations for major projects significant to NRW and involving intensive land use
Locations for major projects significant to NRW and involving intensive land use are reserved for spatially significant projects of particular importance for NRW's economic development which are of an industrial nature and require at least 80 ha of land. This size relates to the planned final stage of completion of a project.

Exceptionally, a location can be occupied for project consortia consisting of several businesses, if it has been ascertained that
- the individual projects are functionally interlinked and
- the first project group to be established is by a manufacturing company with a land requirement of at least 10 ha.

6.4-3 Principle: Development of locations for major projects significant to NRW and involving intensive land use
The locations for major projects significant to NRW and involving intensive land use should be planned, developed and marketed by NRW and municipalities working in partnership with industry.

Notes
For the reasons behind the specifications in Section 6.4 of the LEP, please refer to the general notes in Section 6.1 and the subsequent notes.

Re 6.4-1 Locations for major projects significant to NRW and involving intensive land use
For decades, NRW has kept a supply of land available for major projects significant to NRW and involving intensive land use. Manufacturing industry in NRW continues to be a key pillar of the NRW economy. About a quarter of its added value is generated directly or indirectly by manufacturing industry.

To ensure that NRW can also position itself successfully in the international competition between locations in future, a select number of locations will continue to be designated for major projects significant to NRW and involving intensive land use which is of particular importance for NRW's economic development. This offers the following advantages:
- the establishment of new major projects would be of particular importance to NRW's image in terms of industrial policy;
- as industrial hubs, new businesses of this order of magnitude could offer a wide variety of opportunities and touch points for small and medium-size enterprises (SMEs) and corporate services;
- if they were not designated, the number of suitable sites would tend to decline as a result of competing uses.

The selection is based on a survey of the locations for major projects significant to NRW and involving intensive land use already designated in the LEP since 1978 and the current and future former military sites earmarked for development of an area of approx. 200 ha and above (for details, see also Appendix 1, Part A, of the environmental report). The survey relied on the criteria for reviewing the locations for major projects involving intensive land in the 1995 LEP, as previously used in an ILS [Research Institute for Regional and Urban Development] survey of 2001, which are still considered suitable for this purpose. The individual criteria were: the development or the development potential, the availability (ownership structure), restrictions due to nature conservation, restrictions relating to the availability of labour (“central position”) and other restrictions such as the proximity of residential areas. The present selection is based on excluding from consideration already used locations and locations for which sufficiently well advanced conflicting plan proposals exist in the region.

The four locations are identified by a symbol in the NRW development plan and spatially designated in concrete terms in the regional plans:
1. Datteln/Waltrop with approx. 330 ha,
2. Euskirchen/Weilerswist with approx. 220 ha,
3. Geilenkirchen-Lindern with approx. 240 ha,
4. Grevenbroich-Neurath with approx. 300 ha.
They must also continue to be secured with the specified size.
Development initiatives are already in place for the three locations in Datteln/Waltrop, Euskirchen/Weierswist and Geilenkirchen-Lindern. The aim is to have these locations available in the medium term. This includes a link to the supraregional transport network (in particular road and rail).

The four locations must be protected from combined uses which render a goal-oriented use difficult or impossible. To bring about the desired commercial or industrial use at these locations, a sufficient safety distance from neighbouring General Settlement Areas for example must be observed. Existing building rights are not affected.

**Re 6.4-2 Use of locations for major projects significant to NRW and involving intensive land use**

Locations for major projects significant to NRW and involving intensive land use are reserved for the establishment of projects of particular importance for NRW’s economic development. Of particular importance for NRW’s economic development are projects, which

− make a substantial contribution to the creation and safeguarding of jobs (labour-intensive businesses) or
− are important to NRW’s supply and processing industries (important link in the value chain) or
− help to strengthen NRW’s innovative capability (companies or networks of companies with new, pioneering products or production processes).

The use of the locations by projects which are neither significant to NRW nor involve intensive land use, such as merely company relocations, is generally excluded. However, the following exceptions may be granted:

− relocations where businesses can no longer expand at their existing location;
− the creation of an additional new corporate location while retaining the existing site;
− the development of new fields of business by a company.

The locations have been primarily earmarked for uses of an industrial nature or of particular importance to industry. Examples include companies in the automotive, mechanical engineering and plant construction sectors, the pharmaceutical, chemical and plastics industries and power systems and control engineering or labour-intensive processing companies in the logistics industry.

The locations are not part of the regional supply of land for pollution-emitting commercial and industrial enterprises and are therefore not included in the determination of the regional demand for industrial land (see Section 6.3 of the LEP). The establishment of large-scale retail, leisure, sports or recreational facilities is not taken into consideration (see Sections 6.5 and 6.6 of the LEP).

According to the norms of business promotion, the minimum amount of land required for major projects is 80 ha.

In a particular justified case, a project group comprising multiple companies may be recognised as a “major project involving intensive land use” subject to the conditions referred to in the objective and expanded upon below. Although each individual project in such a project group has a land requirement of less than 80 hectares, the individual projects are functionally interconnected so that they require at least 80 hectares in total by the final stage of completion. Here too, the size of 80 ha relates to the planned final completion stage of a project group.

The first project group to be established must be by a company with a land requirement of at least 10 ha.

The deciding factor is the specific amount of land required by the project as a whole as result of the functional interconnection. Unlike a purely organisational or legal connection, a functional group exists in the relationship between a supplier and the final technical assembly stage or in the manufacture of a product from multiple chemical feedstocks. For example, integrated chemical plants as defined in the Ordinance on Installations Requiring a Permit (4 BlmSchV) and UVPG should be classified as a functionally connected project in this context (i.e. a group established to manufacture substances or groups of substances through chemical conversion on an industrial scale, in which multiple units are located close together and are interconnected from a functional point of view). Locating functionally connected projects together on a single site prevents traffic between the individual projects and in any case allows uses which are interdependent.

A spatial planning contract, which is also binding on private project initiators, is to be recommended when a site is being used by a functional project group.
Re 6.4-3 Development of locations for major projects significant to NRW and involving intensive land use

When the development of a location for major projects significant to NRW and involving intensive land use is envisaged, it should be implemented in close collaboration between NRW, regions and municipalities and industry because considerable amount of coordination and financing is involved. It involves in particular optimising transport links and acquiring land.

Targeted marketing should be carried out by NRW’s own economic development company in conjunction with municipal cooperation partners.

6.5 Large-scale retail developments

Objectives and principles

6.5-1. Objective: Locations for large-scale retail developments only in General Settlement Areas
Core areas and special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance [Baufnutzungsverordnung] should only be represented and designated in General Settlement Areas designated in regional plans.

6.5-2 Objective: Locations for large-scale retail developments with centre-relevant core product ranges only in central service areas
Core areas and special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance may only be represented and designated with centre-relevant core product ranges:
- in existing central service areas and
- in newly planned central service areas in integrated urban locations which, because of their spatial allocation and transport connections, are to provide key functions for providing the short, medium or long-term needs of the population.

The following are centre-relevant
- the product ranges referred to in Appendix 1 and
- other product ranges designated by the municipality concerned as centre-relevant (list of typical local product ranges).

In exceptional cases, special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance may also be represented and designated with core product ranges relevant for local supply outside central service areas, where it can be demonstrated that:
- a location in the central service areas is not possible for reasons of urban development or settlement structure, in particular the maintenance of mature building developments or attention to a historically valuable local view and
- urban development planning ensures the supply of product ranges relevant for local supply close to people's homes and
- central service areas of municipalities are not significantly impaired.

6.5-3 Objective: Prohibition of impairment
Central service areas of municipalities must not be significantly impaired by the representation and designation of core areas and special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance.

6.5-4 Principle: Non-centre-relevant core product ranges: Retail floorspace
In the representation and designation of special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance with a non-centre-relevant core product range, the expected overall turnover of the retail development enabled by the respective assignment shall not exceed the purchasing power of the residents of the respective municipality for the planned groups of product ranges.

6.5-5 Objective: Non-centre-relevant core product ranges: Location, relative share of centre-relevant peripheral product ranges
Special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance with non-centre-relevant core product ranges are also permitted to be represented and designated outside central service areas if the extent of centre-relevant product ranges amounts to a maximum of 10% of the retail floorspace and these product ranges are peripheral product ranges.

6.5-6 Principle: Non-centre-relevant core product ranges: Retail floorspace for centre-relevant peripheral product ranges
The extent of centre-relevant peripheral product ranges of a special area for projects as defined in Section 11, para. 3 of the Land Use Ordinance with non-centre-relevant core product ranges shall not exceed 2,500 m² of retail floorspace outside central service areas.

6.5-7 Objective: Replanning of existing locations with large-scale retail developments
Notwithstanding Specifications 6.5-1 - 6.5-6, existing locations for projects as defined in Section 11, para. 3 of the Land Use Ordinance may be represented and designated outside central service areas as special areas as defined in Section 11, para. 3 of the Land Use Ordinance. In this case, the product ranges and their retail premises must generally be confined to retail premises which are protected under building regulations. If the permitted use is revoked or changed as a result of this limitation within a period of seven years from permission being granted, the product ranges and their retail premises must be confined to the permitted upper limits of retail floorspace. Centre-relevant product ranges may be replaced with non-centre-relevant product ranges.

In exceptional cases, minor expansions can be considered provided that this does not result in a significant impairment of central service areas of municipalities.

6.5-8 Objective: Agglomeration of retail developments
Municipalities have to counteract the emergence of new retail agglomerations and the strengthening and expansion of existing retail agglomerations outside General Settlement Areas. Furthermore, they have to counteract the emergence of new retail agglomerations and the consolidation and expansion of existing retail agglomerations with centre-relevant product ranges outside General Settlement Areas. They must ensure that a significant impairment of central service areas of municipalities by retail agglomerations is avoided.

6.5-9 Principle: Regional retail plans
Regional retail plans must be taken into consideration when regional plans are being drawn up and amended.

6.5-10 Objective: Project-related zoning plans for projects as defined in Section 11, para. 3 of the Land Use Ordinance
Project-related zoning plans for projects as defined in Section 11, para. 3 of the Land Use Ordinance are only permitted, provided that Section 12, para. 3a, sentence 1 of the Federal Building Code is not invoked, if they comply with the requirements set out in Specifications 6.5-1, 6.5-7 and 6.5-8; in the case of centre-relevant core product ranges, they must also comply with Specifications 6.5-2 and 6.5-3 and, in the case of non-centre-relevant core product ranges, Specifications 6.5-3, 6.5-4, 6.5-5 and 6.5-6.

Appendix 1
- Paper/office supplies/stationery
- Books
- Clothing, bed linen
- Shoes, leather goods
- Medical, orthopaedic, pharmaceutical products
- Homewares, glass/porcelain/ceramics
- Toys
- Sportswear, sports shoes, sports products (not including angling products, camping products, bicycles and accessories, hunting equipment, riding equipment and large items of sporting equipment)
- Electrical products, media (= entertainment and communication electronics, computers, photographic equipment – not including large items of electrical equipment, lights)
- Watches, jewellery

and
- Foodstuffs and beverages (while also relevant for local supply)
- Health and personal care products (while also relevant for local supply)
Notes

For the reasons behind the specifications in Section 6.5 of the LEP, please refer to the general notes in Section 6.1 and the subsequent notes.

Re 6.5-1 Locations for large-scale retail developments only in General Settlement Areas

The General Settlement Areas represented in regional plans are areas that primarily fulfill or are intended to fulfill settlement functions and from which sites have been or are to be developed – within the context of a “compact city” – for a wide variety of uses. This also encompasses any sites for projects as defined in Section 11, para. 3 BauNVO. Integrating these sites into the General Settlement Areas helps to reduce the physical distances between homes, workplaces, local amenities, services, leisure and education provision, etc. and therefore also equalises social participation by the whole population in this provision. Such a compact settlement structure can moreover result in the avoidance of traffic with its associated emissions and a reduced consumption or fragmentation of open space.

On top of this is the fact that commercial and industrial enterprises that produce substantial emissions are limited in their choice of sites, mainly because they have to observe minimum distance requirements. The areas for commercial and industrial uses (GIBs) to be specifically designated for these enterprises must therefore be kept free of other uses, e.g. retail use, which are not subject to these limitations on choice of site.

Re 6.5-2 Locations for large-scale retail developments with centre-relevant core product ranges only in central service areas

The objective takes up the integration requirement in spatial plans and fleshes out, in particular, the spatial planning principle in Section 2, para. 2, No. 3, sentence 3 ROG in the form of the spatial planning targets for urban development planning. Urban development planning for the construction or expansion of projects as defined in Section 11, para. 3 BauNVO with centre-relevant core product ranges are now only possible in central service areas of municipalities unless the exceptions contained in the specifications apply. The objective does not apply to the parts of core areas, from which projects as defined in Section 11, para. 3 BauNVO with centre-relevant core product ranges are excluded under Section 7, para. 4 BauNVO.

The core product range of a retail enterprise – as opposed to the peripheral range (cf. notes re Objective 6.5-5) – describes the main part of the range of goods, which according to prevailing expert opinion must be assigned to a specific or classified product range accordingly and can also be sufficiently clearly outlined. The core product range generally also determines the nature of a retail enterprise.

As stated in Objective 6.5-2, the centre relevance of a product range is determined on the basis of two criteria: The product ranges referred to in Appendix 1 as the firm, legally binding core of centre-relevant product ranges and the product ranges recorded as centre-relevant in the local product range lists.

The product ranges referred to in Appendix 1 are always centre-relevant in NRW. These product ranges to a large extent characterise the offering structure of NRW’s city centres, as well as city centres across Germany. In their interplay, they make an important contribution to the diversity of the city centre retail offering. Last but not least, because of their magnet function they make a substantial contribution to the revitalisation (frequency of passers-by) and attractiveness of city centres. The product ranges referred to in Appendix 1 have been determined on the basis of an expert analysis of the distribution of range-specific sales outlets by location inside and outside NRW’s city centres, the product range structure in the NRW municipalities studied and the analysis of existing local product range lists (cf. “Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels“, Junker and Kruse, Dortmund, June 2011). In the case of the product ranges referred to in Appendix 1, individual ranges have been excluded for which Junker and Kruse’s study had shown that local differentiation could be useful. The product ranges referred to in Appendix 1 are therefore the legally binding core of product ranges which must always be considered centre-relevant and which the municipalities cannot ignore when setting targets. These product ranges therefore give a minimum standard in NRW plans to protect central service areas.

However, account is also taken of local conditions when defining the centre relevance of the product ranges – insofar as reference is made to product ranges designated centre-relevant at local level (local product range lists) as well as the product ranges applicable to the whole of NRW as listed in Appendix 1. There
may also be other product ranges with centre relevance in municipalities over and above the product ranges referred to in Appendix 1, which only describe the common core of centre-relevant product ranges in NRW. In order to guarantee reasonable protection with reference to local conditions, municipalities can include these product ranges in local product range lists.

This allows the municipalities to tailor the level of protection to the local central service areas concerned. Over and above the binding core of product ranges for all municipalities as referred to in Appendix 1, the municipalities have been allowed sufficient flexibility to make the integration requirement more specific.

For details of the establishment of local product range lists, please refer to the latest version of the NRW decree for the retail sector.

In terms of spatial planning, the integration requirement relates to “central service areas”. Not only is this term used in many places in the Federal Building Code and the Land Use Ordinance, it is also a key element of spatial planning law (see, e.g. Section 2, No. 2 ROG).

Central service areas can evolve both from the actual conditions (e.g. in the context of Section 34, para. 3 of the Federal Building Code) and from designations and representations in plans (cf. Section 9, Para. 2a of the Federal Building Code). This is the point of departure for Objective 6.5-2.

Insofar as the concept of central service areas takes account of the actual conditions, it can be determined on the basis of the case law relating to the above-mentioned legislation, in particular Section 34, para. 3 of the Federal Building Code.

According to this case law, central service areas are spatially defined areas of a municipality, which acquire a service function beyond the immediate local area as a result of existing retail uses – often supplemented by various services and food outlets. City centres are generally of vital importance as service areas because their location, nature and intended use mean that they not only serve their residents but are also oriented towards a clientele from a larger catchment area. A typical city centre will offer a wide range of goods to meet long-, medium- and short-term needs (Federal Administrative Court, Judgment of 11.10.2007, Case 4 C 7.07 = BVerwGE 129, 307). However, service areas are not only "central", when their location, nature and intended use allows them to serve people across and beyond the municipality, areas for basic services or local supply can also be central service areas as defined in Section 34, para. 3 of the Federal Building Code (NRW Higher Administrative Court, Judgment of 11.12.2006, Case 7 A 964.05 = BauR 2007, 845).

Central service areas can evolve not only from the actual local conditions but also from relevant municipal plans. According to Objective 6.5-2, the establishment of projects as defined in Section 11, para. 3 BauNVO with centre-relevant core product ranges is also permitted in any central service areas which have been designated as central service areas by municipalities.

It is NRW’s intention according to the basis for the LEP NRW – Sectoral Subplan for Large-Scale Retail Developments – to support sustainable spatial development in accordance with Section 1, para. 2 of the Federal Spatial Planning Act (ROG) – and by strengthening the centres, promoting compact settlement development and reducing the consumption of open spaces. The criteria for NRW’s plans as stated in Objective 6.5-2 ensure that, in line with the aim of effecting integration, it cannot be undermined by municipalities by planning new central service areas in non-integrated urban locations. Urban development planning for projects as defined in Section 11, para. 3 BauNVO with centre-relevant core product ranges is therefore only possible where existing local conditions allow essential demand functions to be fulfilled. This also involves specifying the location in urban development plans for projects as defined in Section 11, para. 3 BauNVO with centre-relevant core product ranges. It does not therefore involve specifying general criteria for new central service areas.

The planning of central service areas by municipalities has substantial legal implications, with particular regard to the permissibility of major retail development projects. It therefore seems necessary to involve the public and the affected bodies and other public authorities in the procedure, as well as a consideration as defined in Section 1, para. 7 of the Federal Building Code and a decision by the local council for the planning of new central service areas to go ahead. In this connection, it also makes sense to hold consultations in accordance with the procedure referred to in Sections 3 et seq. of the Federal Building Code when a municipal retail concept is being prepared. The results of a municipal retail concept as defined in Section 1, para. 6, No. 11 of the Federal Building Code approved by the municipality must be taken into account when the urban development plans are being prepared. Central service areas can be represented
in the zoning plan to safeguard the associated legal effects procedurally. Details of the delimitation of central service areas can be found in the latest version of the NRW decree for the retail sector.

The justification for the zoning plan or the land-use plan must provide evidence that the criteria for NRW's plans as stated in Objective 6.5-2 have been satisfied.

The steadily declining number of smaller-scale grocery shops is a trend which is set to continue with demographic change; in particular, supermarkets with a full range of grocery products are increasingly assuming the role of local supplier of everyday goods, the product ranges relevant for local supply.

Account is already taken of this need for a local supply of everyday goods in the regulations to the extent that only "projects as defined in Section 11, para. 3 BauNVO" are relegated to central service areas. This is because the reference to Section 11, para. 3 BauNVO ensures that only those large-scale projects that could have a detrimental effect on central service areas (among others) are covered by the specification in Objective 6.5-2.

According to the NRW decree for the retail sector of 22 September 2008 (No. 2.8) and the report of the working group on "Structural change in the food retail sector and Section 11, para. 3 BauNVO" of 30 April 2002 (ZfBR 2002, p. 598) "the flexibility provided in Section 11, para. 3 BauNVO is basically sufficient to allow appropriate location decisions to be taken for food retailing businesses, while taking account of individual cases. Even if the size exceeds the threshold of 800 m² of retail floorspace […] and the value assumed in the regulations of 1,200 m² of floor space, there may be indications that the effects described in Section 11, para. 3, sentence 2 BauNVO (e.g. on traffic, the environment, development of central service areas and having supply close to consumers) will not arise." If a project does not have the effects described in Section 11, para. 3, sentence 2 BauNVO, an urban development plan that permits this project will not be subject to the stipulations of the integration requirement either.

The exception provided in Objective 6.5-2 takes into account the fact that the establishment or expansion of such a food retailing business may sometimes require the representation and designation of a special area for projects as defined in Section 11, para. 3 BauNVO. To ensure that the supply of food in particular is close to people's homes, it may exceptionally be necessary to depart from the bonding of the centre-relevant retail sector to the central service areas which would otherwise be required.

Although this exception safeguards local supply, the city centres and local centres should not be weakened by the establishment of these new projects. Also, according to Junker and Kruse's study, "the product groups that supply day-to-day requirements are major crowd pullers" – and in the central service areas at all levels of the hierarchy, except for the main business centres in the major centres (cf. "Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels", Junker and Kruse, Dortmund, June 2011, p. 28). The LEP NRW – Sectoral Subplan for Large-Scale Retail Developments – the exception is therefore subject to strict and exhaustive conditions. These ensure that the exception only applies in justified cases and the objective of the integration order is not undermined.

For example, the condition referred to at the first bullet point, i.e. a location in the central service areas is not possible for reasons of urban development or settlement structure, can be met if central service areas are parcelled into very small parts within a rural area.

According to the second bullet point, this urban development plan to establish projects as defined in Section 11, para. 3 BauNVO with centre-relevant core product ranges will only be considered to guarantee supply "close to people's homes". This condition is dependent on the conditions in terms of settlement structure. It generally presupposes that the location must be accessible on foot or at least by public transport.

For details of the determination of a significant impairment of central service areas – third bullet point – please refer to the relevant notes to Objective 6.5-3.

The conditions for allowing the exception are listed comprehensively in the objective; the evidence that the conditions for the exception apply must be provided by the municipality.

**Re 6.5-3 Prohibition of impairment**

The compatibility of the retail uses permitted by the representation and designation of core areas and special areas for projects as defined in Section 11, para. 3 BauNVO with centres depends both on the location and on the nature and extent of the goods potentially on offer. For this reason, Objective 6.5-3
focuses on the significant impairment of central service areas by centre-relevant product ranges. The prohibition of impairment in spatial plans allows municipalities greater leeway than the general congruence requirement but, at the same time, ensures that central service areas in the municipality concerned and the neighbouring municipalities are not significantly impaired.

Supraregional interests are responsible for the impairment prohibition. Although the impairment prohibition also has significance as regards urban development for relevant local planning, as stated in Section 2, para. 2 and Section 34, para. 3 of the Federal Building Code, it does not rule out a degree of spatial significance. Where the service areas fulfill a supraregional service function (generally middle and higher-order centres), the impairment prohibition is used at the same time to protect the central place service function of the municipality concerned in terms of retail development. Supraregional interests also justify the specification when the central service areas do not have a supraregional service function. It is one of the tasks of spatial planning to guarantee the provision of services and amenities, including the reasonable access of all sections of the population to amenities and basic universal services (Section 3, para. 2 ROG). This task is laid down by law in association with the central place concept. This is intended to ensure an adequate level of service for sections of the population with impaired mobility. In this case, supraregional interests are involved, which are to be supported by the impairment prohibition. The target quality of similar spatial planning impairment prohibitions has been recognized by various higher administrative courts; even the Federal Administrative Court does not cast doubt on this (cf. Lüneburg Higher Administrative Court, Judgment of 16.12.2010, 4 C 8.10; Koblenz Higher Administrative Court, Judgment of 15.10.2008, 1 A 10388/08; Federal Administrative Court, Judgment of 12.02.2010, 7 A 1635/07; Baden-Württemberg Higher Administrative Court, Judgment of 17.12.2009, 4 B 2510/08; NRW Higher Administrative Court, Judgment of 01.12.2015, 10 D 91/13 NE). The impact of this urban development plan must be determined on the basis of a “worst-case scenario” even in the case of general designations of core areas without any specific forthcoming projects.

The fact that the concept of the “significant impairment” of a service area is justiciable has been shown in the case law relating to Section 34, para. 3 of the Federal Building Code (Federal Administrative Court, Judgment of 11.10.2007, 4 C 7/07 = BVerwGE 129, 307). It is therefore also possible to rely on this case law to interpret the impairment prohibition in the LEP NRW – Sectoral Subplan for Large-Scale Retail Developments.

According to this, a significant impairment of a central service area must be assumed in all cases where the functional capacity of the central service area concerned is impaired to a considerable extent and therefore disrupted. This functional disruption is deemed to exist when the central service area can no longer maintain its services in general or in a substantial way in respect of individual sectors. All relevant circumstances of the particular case must be taken into consideration as part of a comprehensive survey when assessing whether a significant impairment is to be expected. This should set out in suitable detail, among other things, outflows of purchasing power expected as the result of a plan or projected distribution of sales and harmful effects on urban development and highlight functional disruptions (Federal Administrative Court, Judgments of 11.10.2007, 4 C 7/07 and 17.12.2009, 4 C 2.08). The key parameters for the necessary impact analysis and assessment are the area of retail floorspace, the product range and the rates of space productivity of the project pursued in the plan. The impact must be forecast on the basis of a realistic worst-case scenario (cf. NRW Higher Administrative Court, Judgment of 02.10.2013, 7 D 18/13 NE). To achieve a realistic survey, it may be necessary to take into account any certain, specific changes to be expected by the time of the market entry of the planned project (the inclusion of other new retail developments safeguarded under planning law and equally predictable closures) as well as the stock of existing retail floorspace in the area (cf. NRW Higher Administrative Court, Judgment of 01.12.2015, 10 D 91/13 NE). The impact of this urban development plan must be determined on the basis of a “worst-case scenario” even in the case of general designations of core areas without any specific forthcoming projects as defined in Section 11, para. 3 BauNVO.

An initial indicator for assuming a functional disruption is a loss of sales in product ranges relevant to centres or local supply amounting to approx. 10%. However, a smaller loss of sales can also result in a functional disruption if urban planning factors have a serious impact; likewise, a higher loss of sales can still prove to be harmless (for details of the foregoing, see inter alia Federal Administrative Court, Rulings of 22.12.2009, 4 B 25.09 and 03.08.2011, 4 BN 15.11; see also NRW Higher Administrative Court, Judgments of 01.02.2010, 7 A 1635/07 and of 02.10.2013, 7 D 18/13 NE). For this reason, a projection must be carried out for each individual case as part of an overall survey to ascertain whether the relevant redistribution of sales turns into significant impairments of central service areas.

In addition to the anticipated redistribution of sales, the following must be taken into account (cf. Federal Administrative Court, Judgments of 11.10.2007, 4 C 7/07 and 17.12.2009, 4 C 2.08; Münster Higher Administrative Court, Judgments of 11.12.2006, 7 A 964/05 and 01.02.2010, 7 A 1635/07; Lüneburg Higher Administrative Court, Judgment of 15.03.2012, 1 KN 152/10):

- the retail premises allowed by the urban development plan in comparison with the retail premises of the same sector existing in the central service areas;
- any “initial damage” to the affected central service areas, e.g. due to existing vacant properties;
- the putting at risk of existing “magnet operations” which are of vital significance to the functional capacity of the affected central service areas;
- the product range structure of the new project, in particular if it is geared to these product ranges, which represent a vital crowd puller for central service areas;
- the existence of retail offerings from the same sector at non-integrated locations in the supply area of the affected central service areas;
- the attractiveness of the development to customers due to location-specific synergy effects;
- the spatial distance between the development and the affected central service areas;
- the failure of an individual product range if it is a “special centre-relevant lead product range”.

Re 6.5-4 Non-centre-relevant core product ranges: Retail floorspace

The predictive model calculation carried out as part of the above-mentioned study (“Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels”, Junker and Kruse, Dortmund, June 2011) into the expansion and establishment of three specialist furniture markets in the South Westphalia region clearly exemplifies the complex interplay of regional effects that result from these projects. In addition to potential negative effects on central service areas (more likely with new projects than the expansion of existing ones), it was possible to demonstrate negative effects on supply close to consumers and other negative repercussions, e.g. on traffic (significant traffic-inducing effect). The study found that, in addition to the overall dimensioning of a settlement project, the extent of negative effects in the region mainly depends on the relationship between the project turnover, taking into account the existing stock of retail outlets, and the local retail purchasing power of a municipality. Where very high centralities already exist in a municipality, even comparatively low growth can cause substantial harmful effects in the region.

Against this background, and taking into account the fact that the central place system in the LEP NRW is mainly based on the population distribution in North-Rhine Westphalia, it is appropriate and expedient to orientate non-centre-relevant retail development to local retail purchasing power in order to guarantee amenities that are as close as possible to consumers and reduce traffic as much as possible in line with the above-mentioned spatial development principles. Where the expansion of an existing business is involved, the existing stock of such businesses must be taken into account in the evaluation. Any consideration of the existing retail enterprises beyond this is out of the question for reasons relating to competition law.

Re 6.5-5 Non-centre-relevant core product ranges: Location, relative share of centre-relevant peripheral product ranges

Projects as defined in Section 11, para. 3 BauNVO with non-centre-relevant core product ranges (e.g. specialist garden, furniture, home improvement or DIY stores) are not essential for the functional capacity of central service areas and compatibility issues often prevent them from being accommodated there. They confine themselves to supplying the population with durable goods, require a lot of space to present and store their wares and generate a considerable amount of traffic.

Specialist stores generally also sell centre- and non-centre-relevant peripheral product ranges in addition to the non-centre-relevant core product range.

This regulation also makes it possible to operate urban development plans for the above-mentioned projects, subject to the conditions referred to in the objective, outside the central service areas but inside the General Settlement Areas. At the same time, however, Objective 6.5-5 is also intended to prevent the integration requirement in spatial plans (in Objective 6.5-2) from being undermined. Centre-relevant product ranges of projects as defined in Section 11, para. 3 BauNVO outside central service areas are therefore restricted by Objective 6.5-5 in two respects. On the one hand, the proportion of centre-relevant product ranges must not exceed 10% of the retail floorspace and, on the other hand, existing centre-relevant product ranges must be “peripheral product ranges”. Where these conditions do not apply, the project is deemed to be a project with a centre-relevant core product range which may only be established in central service areas as specified in Objective 6.5-2. This restriction ensures that the protection of the central service areas by projects as defined in Section 11, para. 3 BauNVO outside central service areas will not be questioned again.

For an interpretation of the concept of “peripheral product ranges”, reference can be made to the case law relating to this issue. According to this, peripheral product ranges are merely supplementary in nature and...
are related to the core product range. Peripheral product range propositions must be clearly subordinate to
the core product range in terms of scale and importance (“of no particular significance”); the main features
of this subordination are the proportions of retail floorspace and total sales of the business concerned (cf. inter alia NRW Higher Administrative Court, Judgment of 22.06.1998, 7a D 108/96. NE = BauR 1998, 1198; Rhineland-Palatinate Higher Administrative Court, Judgment of 24.08.2000, 1 C 11457/99 = BauR 2011, 221; Thuringia Higher Administrative Court, Judgment of 21.08.2001, 1 KO 1240/97 = juris; NRW Higher Administrative Court, Judgment of 26.01.2000, 7 B 2023/99 = BauR 2000, 1021). If this is not the case, they represent an essential part of the retail enterprise and are therefore no longer a “peripheral” product range (NRW Higher Administrative Court, Judgment of 26.01.2000, 7 B 2023/99 = BauR 2000, 1021).

The basis for the restriction on the scale of the centre-relevant peripheral product ranges in a special area for these projects to a maximum of 10% of the retail floorspace is also the case law on the concept of a
"peripheral product range".

As it is not unusual for centre-relevant peripheral product ranges to have twice as much space productivity as the core product range, at 10% of the total retail floorspace, centre-relevant peripheral product range propositions can achieve 20% of the total sales of the enterprise concerned, not counting the sales achieved by additional existing non-centre-relevant peripheral product range propositions. At higher proportions of peripheral product ranges, they would cease to be a peripheral product range according to the criteria defined in the case law (cf. also “Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels”, Junker and Kruse, Dortmunt, June 2011).

A restriction on centre-relevant peripheral product ranges to 10% of retail floorspace is also consistent with the actual conditions in NRW. The study shows that the proportions of centre-relevant peripheral product ranges in most of the 637 furniture, home improvement and garden stores surveyed in NRW municipalities – irrespective of their location in a settlement area – are within a range of 5 – 8% and therefore below 10%. The restriction must therefore be regarded as economically sustainable and does not represent an unreasonable encroachment on the rights of business owners. Of the 637 specialist furniture, garden and home improvement stores observed in Junker and Kruse’s study, only twenty-one showed on average a higher proportion of centre-relevant peripheral product ranges; these were mainly specialist furniture stores with a total retail floorspace between 10,000 m² and 30,000 m² (cf. also “Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels”, Junker and Kruse, Dortmunt, June 2011, p. 50). As, at this order of magnitude, the potential danger of centre-relevant product ranges to central service areas is particularly serious in view of the absolute proportion, the existing, not inconsiderable encroachment is justified. The appreciable restriction affects precisely those projects that put the conservation objectives (central service areas) at particular risk.

The specification of the 10% limit is also based, as described above, on the study conducted by Junker and Kruse on the standard proportions of centre-relevant peripheral product ranges (see “Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels”, Junker and Kruse, Dortmunt, June 2011, p. 34 et seq.). This study not only looked at centre-relevant product ranges as described in Appendix 1, it also covered the local centre-relevant product ranges where, in cases in which there are different local product ranges in the municipalities, the data were based on the proportion most frequently found in the municipalities. The above-mentioned standard proportions (5-8%) of centre-relevant peripheral product ranges were determined on this empirical basis. This must be taken into account when considering the extent to which the maximum possible proportion of centre-relevant peripheral product ranges should actually be used.

The restriction on the scale of centre-relevant peripheral product ranges to a maximum of 10% of retail floorspace relates to one special area. The project as a whole must be taken into account where existing enterprises are being expanded.

Re 6.5-6 Non-centre-relevant core product ranges: Retail floorspace for centre-relevant peripheral product ranges

In the case of furniture stores with over 10,000 m² of retail floorspace in particular, there is a tendency to substantially increase the proportion of centre-relevant peripheral product ranges in relation to the retail floorspace. This intensifies competition between centre-relevant peripheral product range propositions in non-integrated urban locations on the one hand and mostly small-scale specialist propositions in central service areas on the other hand. It is precisely in megastores with a total retail floorspace of over 10,000 m² that the peripheral product range proposition can assume high quantitative significance in comparison (in both absolute and relative terms) with existing propositions in surrounding central service areas. In small
middle centres in particular, the centre-relevant peripheral product range of a large-scale specialist store quickly exceeds – in terms of absolute volume – the comparable specialist proposition within the central service area of the municipality concerned. Junker and Kruse’s study therefore also concludes that what is needed is an absolute rather than merely a relative restriction on centre-relevant peripheral product ranges outside the central service areas (cf. "Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels", Junker and Kruse, Dortmund, June 2011, pp. 51 and 52).

An absolute restriction at regional planning level must at the same time take account of the finding confirmed in the study that it is not possible to establish a universal value for the potential danger to centre-relevant peripheral product ranges resulting from NRW’s heterogeneity (cf. "Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels", Junker and Kruse, Dortmund, June 2011, p. 52). Against this background, the absolute restriction can only be imposed in the form of a spatial planning principle. The conclusive consideration of an absolute threshold value which is necessary to set an objective will never have legal certainty at regional level.

The key factor in determining the threshold value for a retail floorspace of 2,500 m² was the potential danger posed by projects as defined in Section 11, para. 3 BauNVO. The key factors in determining the potential danger posed by centre-relevant peripheral product ranges of projects with non-centre-relevant core product ranges are the detrimental effects on central service areas to be feared in consideration of the settlement and product range structure in NRW.

The greater the proportion of centre-relevant peripheral product ranges becomes, the more the projects as defined in Section 11, para. 3 BauNVO with a centre-relevant product range are likely to generate a “windfall effect” of their own through the centre-relevant peripheral product ranges. This is because once an enterprise has grown to a certain size, the limit for a realistically achievable absorption of excess purchasing power by existing non-centre-relevant core product range proposition will have been reached. For the enterprises concerned, this triggers the economic imperative to use peripheral product range propositions (including centre-relevant ones) to achieve some of their target sales. According to Junker and Kruse’s study, this tendency occurs when the retail floorspace exceeds 10,000 m² (cf. "Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels", Junker and Kruse, Dortmund, June 2011, p. 51). With projects of this size, the relative restriction of the centre-relevant peripheral product ranges to 10% of retail floorspace as described in Objective 6.5-5 to the effect that the absolute proportion of centre-relevant peripheral product ranges does not exceed 1,000 m² of retail floorspace. As the particularly problematic furniture stores with between 10,000 m² and 30,000 m² of retail floorspace average even more than a 10% proportion of peripheral product ranges, the relative 10% threshold already has the effect of an appreciable restriction on centre-relevant peripheral product ranges.

A threshold value lower than 2,500 m² is not advisable in view of the typical proportions of projects as defined in Section 11, para. 3 BauNVO with non-centre-relevant core product ranges in NRW.

This is especially true as even the mainly heterogeneous local conditions in NRW do not call for management at NRW planning level to be deployed before that figure is reached. Only after a threshold of 2,500 m² is reached does a potential danger arise as a result of centre-relevant peripheral product ranges, even at NRW level.

This can be deduced for NRW from the relationship between city centre retail floorspace for centre-relevant product ranges and potentially competing centre-relevant product ranges from projects as defined in Section 11, para. 3 BauNVO with non-centre-relevant core product ranges. About 10% of municipalities in NRW have a population in excess of 80,000. However, just under half of the 187 middle centres and many secondary centres in the major centres sometimes even have populations substantially smaller than 50,000. If we assume, as in Junker and Kruse’s study, that a city centre retail floorspace proposition in the glass, porcelain, ceramics and homeware sector in NRW’s middle centres averages 0.03 m² per resident (cf. "Grundlagen für die Erarbeitung einer neuen landesplanerischen Regelung zur Steuerung des großflächigen Einzelhandels", Junker and Kruse, Dortmund, June 2011, p. 51), this means that, statistically, a middle centre with a population of over 80,000 will have a city centre retail floorspace proposition of 2,500 m² in this sector. According to the above-mentioned study, there are already furniture megastores today with a total retail floorspace of over 25,000 m² and a number of projects and developments in recent years have significantly larger total retail floorspace. With the relative restriction of centre-relevant peripheral product ranges to a maximum of 10% of total retail floorspace, the centre-relevant peripheral product range of a furniture store of this size would be equivalent to or even far exceed
the total range-specific volume of the city centre retail floorspace of a municipality with a population of 80,000 and therefore represent a danger to the city centre proposition. This only applies in municipalities with a small population and a correspondingly smaller city centre retail floorspace.

In view of the above population breakdown of NRW's municipalities and the growth in the size observed in projects as defined in Section 11, para. 3 BauNVO with non-centre-relevant core product ranges, it seems appropriate to calculate the threshold value based on a municipality with a population of 80,000 and to subject the urban development plan for retail floorspace of 25,000 m² (over and above the relative restriction of centre-relevant peripheral product ranges to 10%) to an absolute threshold value of 2,500 m².

The 2,500 m² threshold value has therefore been established as a kind of “reverse lower limit”. It merely describes an upper limit above which the municipalities in NRW must regularly assume that centre-relevant peripheral product ranges outside central service areas will have a detrimental impact on central service areas. This upper limit is designed to be specifically adapted to meet local conditions. In smaller towns and municipalities in particular, it may be advisable for urban development reasons alone, to specify a significantly lower retail floorspace limit for centre-relevant peripheral product ranges, whereas the (few) larger towns can if necessary exceed this limit in the course of their deliberations.

No-one can successfully object that this threshold value leads to the “greyhound race” between potential investors and applicants for planning permission which has been criticised in several rulings of the Federal Administrative Court. Because of the principle of legal certainty and the requirement to achieve a fair balance, municipalities will generally not be able to designate “open” special areas as available space in the land-use plan. However, in the case of project-related special areas it is possible and also permissible according to the case law of the Federal Administrative Court to agree on suitable operational specifications, e.g. by further subdividing the special areas. Where expansion projects are involved, the existing centre-relevant peripheral product ranges of the project concerned must be included.

Re 6.5-7 Replanning of existing locations with large-scale retail developments

Existing retail locations outside central service areas can also have a detrimental impact on the fabric of the centres if centre-relevant product ranges are sold there. Outside the General Settlement Areas designated in regional plans, they can also have a detrimental impact on the objectives proposed in Objective 6.5-1: mixed-use development in the General Settlement Areas designated in regional plans, the reservation of areas for commercial and industrial uses designated in regional plans for pollution-emitting enterprises and the protection of open spaces.

To ensure the protection of old locations which do not conform to the current specifications and establish a management system in those cases, it may be advisable to replan them with differentiating specifications for special areas which enshrine the stock of product ranges enjoying this protection and their retail outlets and exclude any growth. Such a restriction generally has to be imposed.

However, a restriction on the protection granted under building regulations can at the same time mean the revocation of or a change to the permitted use of a plot of land. If a restriction on protection under building regulations has been represented and designated within a period of seven years from the use being permitted, this could trigger compensation claims under Section 42 of the Federal Building Code. Sentence 3 of Objective 6.5-7 is intended to prevent such compensation claims. In cases where a restriction on product ranges and their retail floorspace to the protected retail floorspace results in compensation claims, the municipalities are not therefore required to impose such a restriction; instead, they only have to restrict the product ranges and their retail floorspace to the permitted upper limits for retail floorspace, even if not protected.

Minor expansions of retail floorspace are only considered in exceptional cases, provided that the full retail use permitted by the designation does not result in the significant impairment of central service areas. The decision as to what “minor” means will depend on the individual case. Besides the most important criterion that it should not have a significant detrimental effect, the assessment must also consider whether the expansion is proportionate.

Re 6.5-8 Retail agglomerations

Objective 6.5-8 also extends the regulations applicable to the planning of individual projects as defined in Section 11, para. 3 BauNVO to retail agglomerations and takes into account the finding that multiple self-contained retail enterprises, not large-scale in themselves, can have the same effect as projects as defined
in Section 11, para. 3 BauNVO if spatially concentrated (impairment of central service areas, etc.). For example, there are cases in which business parks, quite unintentionally, grow into such an agglomeration over time. In this case, the impact on central service areas in their own municipality or neighbouring municipalities is very similar to the impact of a single large-scale retail store. The permissibility of regulating agglomerations has been confirmed by the Federal Administrative Court (Federal Administrative Court, Judgment of 10.11.2011, 4 CN 9/10 = BVerwGE 141, 144).

The regulation in Objective 6.5-8 on retail agglomerations is analogous to the regulations applicable to the planning of individual projects as defined in Section 11, para. 3 BauNVO, which take account of the fact that, unlike projects as defined in Section 11, para. 3 BauNVO, retail agglomerations are not the result of a positive planning decision but have generally evolved unintentionally. Municipalities must take these parallels into account when interpreting Objective 6.5-8.

The regulatory connecting factor for the instructions to the subordinate planning level cannot therefore be the prohibition of a specific development. Instead, the municipalities are given the task of “discouraging” the creation of new retail agglomerations or the expansion of existing ones (with centre-relevant product ranges) outside General Settlement Areas and central service areas. This imposes a duty on municipalities to take action.

What constitutes a “retail agglomeration”, whose creation, strengthening or expansion is to be discouraged by the municipalities as specified in Objective 6.5-8, can be determined in accordance with the appropriate regulations for planning individual projects. These regulations are based on projects as defined in Section 11, para. 3 BauNVO, i.e. on large-scale retail projects that could have a detrimental effect as defined in Section 11, para. 3 BauNVO. A retail agglomeration as defined in Objective 6.5-8 is deemed to exist, where multiple self-contained retail enterprises, not large-scale in themselves, have become established in a spatially concentrated area or intend to do so and is or can be assumed to have the same spatial impact as defined in Section 11, para. 3 BauNVO as a shopping centre or a large-scale retail enterprise.

It is to a certain extent up to the municipality to decide when exactly it is justified in applying its duty to act to “discourage” a development. It can take precautions at an early stage to prevent the creation of retail agglomerations or oppose such developments at a later date. This degree of discretion granted to municipalities does not alter the fact that Objective 6.5-8 imposes specific instructions on them.

Objective 6.5-8, sentence 1, will be deemed to have been contravened at the latest when a new retail agglomeration has been created outside a General Settlement Area. The finality of an objective does not prevent a municipality from being granted the scope, for the purpose of establishing the details, to exercise its discretion in terms of planning (settled case law, see, e.g. Federal Administrative Court, Rulings of 14.04.2010, 4 B 78/09 = DVBl. 2010, 839).

The same applies to the interpretation of Objective 6.5-8, sentence 2, according to which municipalities are given the task, inter alia, of discouraging new retail agglomerations with centre-relevant product ranges outside central service areas.

The municipalities’ duty to take action becomes stricter when they are required to discourage existing retail agglomerations outside General Settlement Areas or central service areas (with existing centre-relevant product ranges) as both cases constitute a retail agglomeration with effects as defined in Section 11, para. 3 BauNVO. In this context, “strengthening” means changing the product ranges of existing enterprises, whereas “expansion” means including other retail enterprises in an existing agglomeration. Municipalities must discourage both.

The municipalities have a number of options at their disposal for discouraging the creation, and also, where appropriate the strengthening or expansion of such retail agglomerations, which the Federal Administrative Court has also described (Federal Administrative Court, Judgment of 10.11.2011, 4 CN 9/10 = BVerwGE 141, 144):
- the exclusion of “retail” use as defined in Section 1, para. 5 BauNVO,
- the exclusion of the product-related types of retail outlet (system types) as defined in Section 1, para. 9 BauNVO,
- the structure of the planning area (spatially according to different types/sub-types of retail development, floor and system-related differentiation),
- the establishment of a special area for a project as defined in Section 11, para. 3 BauNVO (retail park) and subdivision into product ranges and (product-range) retail premises.
Objective 6.5-8 cannot go beyond Objective 6.5-2 or 6.5-5 – in terms of imposing a specific action. It is therefore at the planning discretion of a municipality whether or not to discourage retail agglomerations as defined in 6.5-8 with product ranges relevant for local supply or centre-relevant product ranges outside central service areas subject to the conditions set out in Objectives 6.5-2 and 6.5-5.

**Re 6.5-9 Regional retail plans**

Regional retail plans (REHKs) are an important informal instrument for cooperative retail development. They intermediate between local and supralocal interests, are based on voluntary cooperation by different actors from industry and government and contain mutually agreed rules for the establishment of large-scale retail developments. On this basis, it is possible – at a very early stage – either not to pursue any projects that are not compatible with NRW’s objectives or modify them accordingly. From NRW’s point of view, the value of these plans also lies in the fact that they promote regional cooperation and communication, which is becoming increasingly important, especially in times of demographic change.

This principle highlights the importance of the REHKs as part of the deliberations around the preparation and amendment of regional plans. This is becoming increasingly important against the background of demographic change and the resulting concentration of amenities.

The principle focuses only on REHKs in respect of which all the municipalities involved have passed declarations of partnership (i.e. relevant council decisions). In the case of small-scale cooperation areas, the REHKs should include not only coordination mechanisms within the desired scope, but also those with affected municipalities outside.

**Re 6.5-10 Project-related zoning plans for projects as defined in Section 11, para. 3 of the Land Use Ordinance**

This specification is accompanied by a clarification to the effect that the requirements in Specifications 6.5-1 to 6.5-8 for core and special areas also apply to project-related zoning plans for projects as defined in Section 11, para. 3 BauNVO, unless Section 12, para. 3a, sentence 1 of the Federal Building Code is being relied on. This is because spatial planning management in this LEP NRW – Sectoral Subplan for Large-Scale Retail Developments – covers all projects as defined in Section 11, para. 3 BauNVO.

### 6.6 Facilities for recreation, sport, leisure and tourism

**Objectives and principles**

**6.6-1 Principle: Providing settlement areas with public spaces and recreation, sports, leisure and tourism facilities**

Settlement areas should be provided with the greatest possible variety of public spaces and recreation, sports, leisure and tourism facilities to meet demand and in line with the central place system.

**6.6-2 Objective: Locational requirements**

Spatially significant recreation, sports, leisure and tourism facilities predominantly characterised by structural installations, including areas of holiday and weekend homes must be designated so as to take account of environmental, social and urban planning issues.

New areas of holiday and weekend homes must be designated directly adjacent to General Settlement Areas.

Other spatially significant recreation, sports, leisure and tourism facilities predominantly characterised by structural installations must generally be designated within or directly adjacent to General Settlement Areas or areas for commercial and industrial uses.

Exceptionally, other potentially suitable land situated in open spaces may be considered if

- it consists of derelict land (e.g. former military land earmarked for redevelopment) – provided that it is suitable for such a subsequent use – or suitable non-central places, and
- it has priority for open space functions, and
6. Settlement areas

- the interests of nature conservation and landscape management, soil and groundwater protection, emission control, listed buildings and the natural uniqueness of the landscape including the image of the locality and the landscape and their recreational value are taken into account, and
- an efficient short connection to the supraregional road network and high-capacity modes of transport (in particular rail, waterway, local public transport) exists or is planned.

Notes

For the reasons behind the specifications in Section 6.6 of the LEP, please refer to the general notes in Section 6.1 and the subsequent notes.

Re 6.6-1 Providing settlement areas with public spaces and recreation, sports, leisure and tourism facilities

The compact “European City” (cf. Principle 6.1-5) also requires the supply of public spaces and recreation, sports, leisure and tourism facilities to be mainly within (or in the proximity of) settlement areas. “Public spaces” means publicly accessible areas for local leisure activities. In this context, “tourism facilities” means facilities that people have to travel to and which are neither these people’s principle and permanent residence nor their place of work.

Against the background of demographic change, many municipalities are already beginning to see a decline in facilities for sport, physical activity, games and leisure. It is likewise important to ensure that the necessary amenities continue to be provided in this area which is essential to health, even in the face of reduced financial resources and increasing supply areas. Solutions aimed at combining or dividing responsibilities for facilities and mobile care structures should also be considered. The demand will be determined by the responsible public bodies.

Re 6.6-2 Locational requirements

Both private and public recreation, sports, leisure and tourism facilities are making increasing demands on space in densely populated NRW. For example, the number of large-scale leisure facilities alone has risen from 197 in 1997 by about 57% to 309 in 2006, of which 131 are located in areas of a predominantly rural spatial structure (source: ILS Research 2/09 “Moderne Freizeiteinrichtungen in Nordrhein-Westfalen” [Modern leisure facilities in North-Rhine Westphalia], May 2009).

According to Section 2 (2) Nos. 2 and 3 ROG, settlement activity should be physically concentrated, land consumption in the open space limited and spatial structures must be designed to reduce traffic pollution and prevent additional traffic. Principles 6.1-8 and 7.1-7 must be taken into account.

In NRW there are some 300 areas of holiday and weekend homes in a wide variety of sizes. In the past, there have been repeated undesirable developments aimed at establishing a permanent residential use in these areas, associated with a long-term functional change to the accommodation concerned and the demands on the infrastructure in these areas. Bearing this in mind, areas of holiday and weekend homes are in future to be developed directly adjacent to General Settlement Areas in order to protect the open space from urban sprawl. The development of weekend and holiday home areas should exploit the unique qualities of the region and safeguard the attractiveness of their landscapes in the long term as a means of promoting tourism.

Any other spatially significant recreation, sports, leisure and tourism facilities predominantly characterised by structural installations must generally be designated directly adjacent to General Settlement Areas or areas for commercial and industrial uses. The latter are considered in individual cases, e.g. for reasons of emission control. The conditions for allowing an exception are referred to in the objective; suitable non-central places are those which, although represented as open space in regional plans, have at least a basic supply of public and private medical and care services on account of their size.

Spatially significant recreation, sports, leisure and tourism facilities predominantly characterised by structural installations must be designated as a General Settlement Area for specific uses. The designation of special areas for projects as defined in Section 11, para. 3 of the Land Use Ordinance in spatially significant recreation, sports, leisure and tourism facilities predominantly characterised by structural installations is based on Section 6.5 of the LEP.
Regional consultation and cooperation are useful in exploiting and developing the tourism potential of a region and ensuring the sustainability of large recreation, sports, leisure and tourism facilities with extensive supply areas. Account should be taken of the resulting informal plans in the regional plan.
7. Open space

7.1 Preservation of open space and soil preservation

Objectives and principles

7.1-1 **Principle: Protecting open spaces**
The open space should be preserved; its use, protection, recreation and compensation functions should be protected and developed.

The maintenance of the efficiency and functional capacity of open space must be ensured in all spatially significant plans and measures.

This applies in particular to the performance and functions of open space as
- a habitat for wild animals and plants and a space in which biodiversity can develop,
- a space that maintains the climate and air pollution compensation effects,
- a space with soil preservation functions,
- a space with significant water management functions,
- a space for agriculture and forestry,
- a space for future economic activity by people,
- a space for landscape-oriented and environmentally compatible recreation, sport and leisure use,
- a space to identify with and a unique part of historical cultural landscapes, and
- a structured space for settlement and agglomeration areas.

7.1-2 **Objective: Protecting open space in regional planning**
Regional planning must protect open spaces, in particular by designating general open space and agricultural areas, forests and surface waters. It must organise and develop open spaces by designating specific open space functions and uses and providing for individual uses and functions in open spaces.

7.1-3 **Principle: Non-fragmented, low-traffic areas**
The fragmentation of previously non-fragmented, low-traffic open spaces should be avoided.

In particular, previously non-fragmented, low-traffic areas at least 50 km² in size should not be fragmented by a linear transport infrastructure.

7.1-4 **Principle: Soil preservation**
The productive capacity, sensitivity and vulnerability of land must be taken into account in all spatially significant plans and measures.

Damaged land, in particular sealed, contaminated or erosion-damaged land, should also be cleaned up in the open space and reasonable uses and open space functions allocated to them.

When designating new settlement areas in high erosion-risk areas, sufficient precautions should be taken to prevent damage due to erosion.

7.1-5 **Objective: Green belts**
Regional green belts are to be designated as priority areas in regional plans when classifying settlement areas.
They must also be preserved as
- open spaces close to settlements for recreation, sport and leisure uses compatible with open spaces,
- biotope systems and
- in their functions in terms of climate and air pollution control and be developed as such.
Regional green belts must be protected from consumption by settlement areas to guarantee their open space and settlement-related functions.

Exceptionally, they may be used for development as settlement areas if there is no alternative to the development of settlement areas outside the green belt concerned and the functional capacity of the green belt is preserved.

7.1-6 Principle: Ecological upgrading of open spaces
Open spaces that only have a few landscape elements left or whose landscape structure or appearance has been damaged should be upgraded by taking suitable measures to care for the landscape.

7.1-7 Principle: Use of former military land earmarked for redevelopment
Former military land of a mainly rural nature (e.g. training areas) should be subject to priority specifications and measures to protect nature and the landscape and/or be used for renewable energies. In particular, any sites which are not predominantly characterised by structural installations must be designated for use as open space.

7.1-8 Principle: Landscape-oriented and environmentally compatible recreation, sport and leisure use
Areas whose structure, unspoiled nature and accessibility make them particularly suitable for environmentally compatible recreation, sport and leisure use should be safeguarded and further developed for these uses.

Notes

Re 7.1-1 Protection of open spaces
In a densely populated region like NRW, the preservation and protection of open space is a basic prerequisite for preserving the efficiency and functional capacity of the natural balance and the use and regenerative capacity of natural resources.

The informative graphical representation of open space in the LEP is based on the specifications of the Regional Plans for General Open Space and Agricultural Areas, Forests and Surface Waters (date: 01.01.2015).

An essential aspect of open space protection is to ensure a more economical consumption of open space, in particular for settlement purposes, in future. The appropriate management of settlement development is becoming particularly important in this regard.

This LEP therefore contains a specification in Objective 2-3 to the effect that the settlement development of the municipalities must take place within the settlement areas designated in the regional plans. To this end, specific restrictions are imposed on settlement development in non-central places located in the open space designated for open space in the regional plan and certain final exceptions for specific building land and development areas.

It is further specified in Objective 6.1-1 that the settlement area can only be expanded into previously unused open space subject to detailed local preconditions. In this regard, it is also specified as a binding condition that land previously earmarked for settlement purposes in regional or zoning plans which is no longer required must be returned to open space, where it has not yet been included in binding urban development plans.

The protection of natural resources must be included as an important interest in the consideration of the consumption of open space.

Text specifications on forests and surface waters follow in the relevant section of the LEP, 7.3 “Forests and forestry” and 7.4 “Water”.

Open space fulfils important ecological, economic and social functions and capabilities. It is a precondition for preserving soils with their habitat, regulation and production functions and provides habitat for wild animals and plants. The protection of unsealed land in the open space helps to regulate the water balance,
including the regeneration of groundwater reserves, the run-off of floodwater without causing damage and the retention of water in the land in the context of flooding.

Open space has climatic air pollution compensation effects that work their way into settlement areas affected by climate change.

The economic functions of open space include agriculture and forestry. However, open space is also becoming increasingly important for the supply of other resources (secure supply of raw materials, extraction of drinking water).

The social functions of open space include landscape-oriented recreation, sport and leisure uses.

Moreover, open space is essential for shaping the cultural landscape. Local views which evolved over time and are dominated by forests and farms help people to identify with the place where they live.

The functional capacity and efficiency of the open space and unspoilt or almost unspoilt local views are therefore to be preserved and taken into account with other interests in all spatially significant plans and measures in the course of consideration.

Detailed provisions to ensure a demand-led and therefore more economical consumption of open space can be found in the relevant sections of the LEP.

**Re 7.1-2 Protecting open space in regional planning**

In accordance with the implementing order for the Regional Planning Act, the regional plans contain differentiated specifications to protect, organise and develop the diverse functions and capabilities of open space as referred to in Principle 7.1.1.

In this way, the regional plan also fulfils the function of a landscape framework plan and a forestry framework plan

**Re 7.1-3 Non-fragmented, low-traffic areas**

The functional capacity of the ecosystems, the NRW-wide biotope system and specific functions and capabilities of the open space also depend on the protection and the long-term safeguarding of non-fragmented low-traffic areas.

Areas are defined as non-fragmented, low-traffic areas when they are not fragmented by technogenic elements such as roads (with more than 1,000 vehicles per 24 h), navigable canals, extensive building developments or commercial sites with specific functions, such as civil airports.

The preservation of non-fragmented, low-traffic areas helps in particular to safeguard the permeability of the biotope system, allows animals to wander freely within continuous areas of open space and ensures the survival of animal populations in barrier-free minimum-size areas. Moreover, non-fragmented, low-traffic areas are particularly important as peaceful spaces for recreation, sport and leisure use by people.

The loss of previously non-fragmented, low-traffic areas is generally irreversible because of the specifications for permanent uses. When these areas are used, the direct land consumption is generally accompanied by a detrimental effect on neighbouring open spaces, e.g. as a result of fragmentation, green islands, barrier effects, noise and light pollution and harmful emissions, the effects of which on the natural balance can have a large number of negative consequences for the affected ecosystems, people and animals to varying degrees of intensity and expansion. The fragmentation of areas also has an effect on the scenic qualities of the landscape and the cultural landscapes which have evolved over time.

The preservation of non-fragmented, low-traffic areas is highly significant in forest areas in particular as fragmentation in these areas can lead to especially substantial impairment of the natural balance (forest climate, biotope protection).

The map in Figure 3 provides an overview of non-fragmented, low-traffic areas in NRW. Non-fragmented, low-traffic areas have been determined by the NRW Office for Nature Conservation, the Environment and Consumer Protection based on analysis of the Official Topographical Cartographic Information System (ATKIS) of the NRW Land Survey Office. The following are deemed to be fragmenting elements: roads with...
a traffic density of over 1,000 vehicles in 24 hours, single and double-track railway lines, built-up areas (over 10 ha) and airports, areas of a special functional nature, such as industrial and business parks outside towns and canals with the status of Federal waterways.

The illustration clearly shows that larger non-fragmented, low-traffic areas have become rare even outside of agglomeration areas as a result of the closely interwoven transport network in NRW. In NRW, only 52 non-fragmented, low-traffic areas are still between 50 and 100 km² in size – taking into account a 10 km cross-border buffer zone – and only 19 areas exceed 100 km² in size. In these 71 largest non-fragmented areas, the proportion of forest is disproportionately high (LANUV, 2013).

The preservation of these non-fragmented, low-traffic areas, which are particularly valuable in terms of nature conservation, is of particular importance across NRW.

In densely populated regions of NRW, even the preservation of smaller non-fragmented, low-traffic areas is already becoming more important.

Re 7.1.4 Soil preservation

Spatial planning contributes to soil preservation across disciplines by coordinating the use requirements for the soil and designates land, including from the point of view of the efficiency and vulnerability of land, for different uses (e.g. as land for agriculture, nature conservation areas or floodplain).

In particular, the specifications in the regional development plan contribute to the protection of open space and a more economical and demand-led consumption of open space in order to preserve the soil.

The specific consideration of the spatial diversity of soils is the main task of regional and urban development planning. An important basis for planning is the map of vulnerable land prepared by the NRW Geological Agency, in which the vulnerability of land is classified according to different functions.

In view of the high land-use density in NRW, it is necessary to redesignate even damaged land for suitable functions. To this end, contaminated sites both in settlement areas and in open space should be cleaned up and derelict land re-allocated for appropriate uses. Efforts should be made to ensure that these sites, especially in the open space, are fully included in natural cycles of the natural balance (e.g. water balance, soil development, vegetation location).

In view of the expected increase in the risk of erosion as a result of climate change, precautionary measures should be taken in the transitional area between settlement areas and neighbouring farmland to ensure that neither discharges from settlements resulting in erosion of agricultural land nor discharges or drifts from agricultural land within range of the new settlements cause damage. This can be done by creating green belts at the edge of settlements (e.g. as part of compensatory measures under building regulations) or by means of agricultural activities. The Geological Agency’s map showing potential soil erosion by water on agricultural land in conformity with DIN 19708 is available to help predict land potentially at risk of erosion.

Re 7.1-5 Green belts

The protection, care and development of the open space are particularly necessary in densely populated areas as the open spaces still in existence there both fulfil special functions in terms of open space and settlements and are under a severe threat from competing land uses.

Regional green belts must be designated in regional plans, particularly in densely populated areas, in order to prevent settlement areas from converging and to safeguard and develop land close to settlements for recreation, sport and leisure, air pollution and climate compensation effects, a network of biotopes, agriculture and other open space functions. Green belts should be designated in regional plans based on the green belts represented in the LEP for information purposes and further developed; the informative representation shows the delimitation of regional green belts at the time the LEP was being prepared.

They include the green belts in the more densely populated areas along the river Rhine and in the Ruhr region. The designation and protection of regional green belts has a long tradition in the Ruhr region. Dating from the 1920s, the seven regional green belts running north to south in the Ruhr region have been linked to the “Emscher Landscape Park” with the international “Emscher Park” building exhibition with the New
Emscher Valley as a new east-west green belt. The further design of the Emscher Landscape Park will be a special task for the duration of this LEP.

Regional green belts must be designated in the LEP as part of the specified regional planning objectives and supplement them with other areas that provide the population with recreation, sport and leisure functions close to home or have special significance for the urban environment, species and biotope protection and adaptation to the consequences of climate change, link them together and, if necessary, restore them.

Where, in exceptional cases, the use of regional green belts as settlement areas is unavoidable, it should be ascertained whether it is possible to achieve a functional balance in favour of the green belt in the functional area around the green belt affected by the settlement designation, in particular by reclaiming settlement land and building land or by expanding the green belt elsewhere.

**Re 7.1-6 Ecological upgrading of open spaces**

Open space, which only has a few natural landscape elements left to take care of or whose landscape structure or appearance has been damaged should be identified as part of landscape planning and upgraded by measures to care for the landscape in accordance with its natural potential.

**Re 7.1-7 Use of former military land earmarked for redevelopment**

Because of the peculiarities of military use, former military land earmarked for redevelopment often has special significance for biotope and species protection. This applies in particular to training areas, which have often been created in localities with low-nutrient soils and used extensively when occupied by the military. The former military land of a mainly rural nature which is located in the open space should therefore be prioritised for the purpose of nature and landscape conservation in future.

In the case of larger areas of former military land, this may also be advisable as part of a shared use with renewable energy production facilities. However, they should not have a detrimental effect on nature conservation goals. Facilities that take up a lot of land, e.g. photovoltaic power plants should therefore only be considered on already sealed sites.

Other uses can also be considered in individual cases. Sites which have not previously been built on or sealed should continue to be preserved for open space functions. Principle 6.1-8 must be taken into account and Objective 6.3-3 observed when the use of areas previously predominantly characterised by structural installations is being considered for a subsequent use involving structures.

**Re 7.1-8 Landscape-oriented and environmentally compatible recreation, sport and leisure use**

In densely populated NRW, it is particularly important to have sufficient propositions and options both for recreational facilities close to settlement areas and for attractive areas in the open space for recreation, sport and leisure use.

Areas whose structure, unspoiled nature and accessibility make them particularly suitable for landscape-oriented and environmentally compatible recreation, sport and leisure use are designated in regional plans as areas for the protection of the landscape and landscape-oriented recreation.

Operators of wildlife parks bear a particular responsibility in this regard, as the topographical features of areas recognised as wildlife parks make them particularly suitable for landscape-oriented and environmentally compatible recreation, sport and leisure use and sustainable tourism.

It is also the responsibility of municipal development planning and the landscape planning of rural and urban districts to preserve and develop nature and landscape as attractive areas for public, non-commercial recreation, sport and leisure uses.

Landscape-oriented recreation, sport and leisure uses can generally be designed to be environmentally compatible. In some cases, landscape-oriented uses which are physically concentrated in specific places and follow each other in rapid succession cannot be environmentally compatible and result in substantial disturbance of endangered animal species and habitats.
Planning measures at regional and local level (e.g. to attract visitors) can often help to reduce conflicts with the interests of nature conservation and landscape preservation as well as conflicts between different user groups.

7.2 Nature and landscape

Objectives and principles

7.2-1 Objective: NRW-wide biotope system
Across NRW, a sufficient number of large habitats containing a wide variety of biotic communities and biotopes typical of the landscape must be protected and developed in order to maintain biodiversity. They must be functionally linked to an overarching biotope system, at the same time guaranteeing the cross-border biotope system.

7.2-2 Objective: Areas for nature conservation
The areas mapped out in the LEP for nature conservation must be safeguarded so that a NRW-wide biotope system can be set up and clearly defined in the regional plans by specifying nature conservation areas. The nature conservation areas must be preserved and developed by means of nature conservation and landscape preservation measures.

The uniqueness and natural functional diversity of any area mapped out in the LEP for nature conservation that overlaps the existing Eifel National Park must be preserved and developed by means of specifications in regional plans.

The uniqueness and natural functional diversity of any area mapped out in the LEP for nature conservation that overlaps the existing Senne military training area, which is owned by the Federal government, must be preserved by means of specifications in regional plans as one of the most important continuous biotope complexes in NRW, so that it can be protected as a national park.

7.2-3 Objective: Preventing encroachment
Subject to more detailed provisions of nature conservation legislation, nature conservation areas or parts of them may only be used in spatially significant plans and measures if the desired purpose cannot be achieved elsewhere, the importance of the areas allows this and the encroachment is confined to what is strictly necessary.

7.2-4 Principle: Recreation, sport and leisure use in nature conservation areas
Nature conservation areas should also be used to provide experience of nature and environmentally compatible recreation, sport and leisure use, where this is not contrary to the relevant conservation objectives and level of protection.

7.2-5 Principle: Landscape protection and landscape preservation
Even outside nature conservation areas, open spaces characterised by a high concentration of natural elements or elements significant to the natural landscape, landscape structures significant to endangered species and habitats or their particular uniqueness and beauty must be protected from being used in ways that could have a serious adverse effect on their productive and functional capacity.

Notes

Re 7.2-1 NRW-wide biotope system

The continuing and sometimes even increasing intensity of land use changes the structure and appearance of the cultural landscape and habitats, and living conditions of native animal and plant species are put at serious risk. Worldwide, a decline in biodiversity has been observed for many years. For this reason, the Convention on Biological Diversity (CBD) was agreed at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992. Since then, 193 countries and the European Union have signed up to this convention. Germany ratified the convention in 1993.

At European level, the preservation of biodiversity in terms of protecting habitats and wild species has been taken into account in the the Birds Directive and the Fauna-Flora-Habitat Directive. The objectives include
the establishment of “Natura 2000”, the network of protected areas, based on FFH and bird sanctuaries. The aim is to keep or develop Europe's most endangered habitats and species in the most suitable areas.

The preservation of biodiversity is also one of the greatest challenges for nature conservation in NRW. According to NRW's Red List of 2011, 45% of the species studied were endangered, threatened with extinction or already extinct, including 42% of plant species, 42% of mammal species, 52% of bird species, 31% of native fish species and 55% of butterfly species.

The preservation of biodiversity is therefore at the centre of nature conservation in NRW. The comprehensive protection and development of natural landscapes and the functional capacity of the natural balance is needed, while taking account of other land uses.

Across NRW, habitats must be preserved and developed, the size and structure of which make them suitable for helping to preserve the diversity of species and biotic communities and biotopes typical of the landscape in a sustainable manner.

The biotope system must be oriented towards all native animal and plant species, especially those whose existence is under threat or for which NRW has special responsibility under the above-mentioned EU directives.

The requirements of climate-sensitive species and biotopes must also be taken into account.

The diversity of habitats and their physical network in the biotope system make the landscape “permeable” for wild animal and plant species and enable them to make evasion and migration movements which will continue to become more important for the populations, especially as a result of climate change.

NRW's biodiversity strategy also includes the development of wilderness areas.

The biotope system generally benefits all migratory animal species. Where possible, large-scale connecting corridors are to be kept open or restored for migratory species that require a lot of space, such as the red deer and wildcat. Their routes should be taken into account when expanding transport routes and settlements. In some cases, green bridges or passages will be required at transport routes to improve the permeability of the landscape for migratory species. An overview of NRW's biotope system is shown in Fig. 4.

Specifications in regional and landscape plans for nature conservation must be coordinated across borders to guarantee a cross-border and international biotope system. In addition, international conservation areas must be integrated into NRW's biotope system.

Re 7.2-2 Areas for nature conservation

In the nature conservation areas designated in the LEP, the aims of nature conservation have priority over other spatially significant utilisation demands. These areas must be preserved or developed as the basic structure for the NRW-wide biotope system.

The graphical representation of the nature conservation areas includes the FFH areas, key areas in bird sanctuaries, the Eifel National Park, the designated nature conservation areas and other areas valuable to nature conservation, which have special significance for the construction of a NRW-wide biotope system. This also encompasses the special protection of land for which the political objective is to create a future Senne National Park.

Objective 7.2-2, paragraphs 2 and 3, serves to safeguard the existing Eifel National Park and to secure a suitable regional scenario for the possible designation of a future “Senne” National Park. There are unanimous decisions of the NRW parliament dating from 1991 and 2005 that set the designation of a national park in the Senne area as a strategic objective.

The actual suitability of the military training area for such a designation has been proved in an expert report. Once the military use of the Senne training area has been relinquished or, where compatible with its use, a Senne National Park is to be created on Federal land. The aim of the text specifications is to use the resources of spatial planning to sustainably preserve this special vulnerability of the Senne landscape. In order to preserve the uniqueness of the Senne area as one of the most important continuous biotope complexes in NRW, regional planning will ensure that the natural conditions are preserved so that it can be placed under protection as a national park in future.
For reasons of scale, the representation threshold for these areas in the LEP is 150 ha, which is why the LEP can only represent the basic structure of the NRW-wide biotope system graphically. The nature conservation areas are therefore to be clearly defined in the regional plans by specifying nature conservation areas and adding further areas significant for the regional biotope system on the basis of an expert contribution on nature conservation.

On the basis of the obligation to create a European network of protected areas, “Natura 2000”, NRW has reported to the EU a total of 518 FFH areas and 28 special protection areas for birds (as of 2011), which take up approx. 8.4% of its territory. The FFH areas have mainly been designated as nature conservation areas.

The protection of bird sanctuaries is already covered by Section 48 c, para. 5 LG NW so they do not require further designation as nature conservation areas, unless there are other grounds for protection in specific areas.

Apart from the Eifel National Park and the legally designated nature conservation areas (150 ha and over), other areas of value to nature conservation and the NRW-wide biotope system, which have been designated as nature conservation areas in the regional plans since 31.12.2014, have been included in the scenario for nature conservation areas.

The designation of nature conservation areas is based on expert assessments by LANUV and is considered at the LEP planning level along with other land uses. Other land uses continue to be taken into account at subordinate planning levels as part of the confirmation of conservation area designations or measures to protect nature and the landscape, including nature conservation agreements.

The decision whether to designate land as nature conservation and landscape protection areas is not taken in the LEP but at the subordinate planning level as part of landscape planning or by the bodies responsible for nature conservation. It must also be ascertained whether the objectives and principles of nature conservation and landscape preservation can also be achieved through contractual agreements (nature conservation agreements).

The designation of nature conservation areas also extends to parts of military land which are subject to conservation. Where nature conservation and landscape preservation measures are in force on land exclusively or principally used for defence purposes, including the fulfilment of international obligations and the protection of the civilian population or are designated for these purposes in a binding plan, the use of the land in accordance with regulations must be guaranteed. The objectives of nature conservation and landscape preservation must be taken into account (cf. Section 4 of the Federal Nature Conservation Act [Bundesnaturschutzgesetz = BNatSchG]). This does not affect nature conservation and landscape preservation measures based on mutual agreement between the military administration and nature conservation bodies.

Re 7.2-3 Preventing encroachment

Measures to protect and develop nature conservation must be primarily carried out in areas for nature conservation. These areas must therefore be protected from avoidable prejudicial uses and encroachments. The specifications in the LEP cannot conclusively settle any conflicts of aims between different land uses, which may arise locally.

The consumption of nature conservation areas is only considered in exceptional cases subject to the restrictive conditions set out in the objective and only for subordinate regions, i.e. when
- there is a proven demand for it,
- there are no reasonable alternatives to the purpose pursued in the plan or measure outside the nature conservation areas,
- the spatial planning and ecological functions of the area concerned allow this, and
- the encroachment on to the area is limited to what is absolutely necessary.

A desired use should not be implemented inside a nature conservation area if a reasonable alternative exists to the purpose pursued in the plan or measure outside the nature conservation areas.

The concept of a reasonable alternative presupposes that any additional expense is reasonable and proportionate to the specific encroachment of the nature conservation area. The existence of a reasonable
alternative precludes the consumption of the nature conservation area. Also deemed to be reasonable are any alternative plans and measures that fulfil the desired purpose in terms of time, space and function only by compromising on the degree to which the purpose can be fulfilled.

In particular, a reduction in size or transfer of locations, resulting in little if any encroachment on protection functions is considered as an alternative.

The recognition of a demand for the consumption of open space and the implementation of a use exchange as defined in Objective 6.1-1 are not in themselves sufficient to rule out an alternative as unreasonable.

Even the expectation of increased costs, e.g. for the acquisition of land, for its development, due to the creation of more complex operating processes or due to the necessity of sustaining multiple amenities or recruiting additional staff alone will not put in doubt the reasonableness of an alternative.

A plan or measure is deemed to be compatible with the significance of an affected area where the spatial planning and ecological functions of the affected area allow this.

The possibility of consuming nature conservation areas may also be subject to more wide-ranging legal reservations. In case that an area of European importance or a European Special Protection Area for birds is likely to be encroached upon in any of their component parts essential to their conservation objectives or protective purpose, Section 7, para. 6 ROG states that when spatial development plans are being drawn up pursuant to Sections 8 and 17, paras. 2 and 3, the provisions of the Federal Nature Conservation Act concerning the admissibility and implementation of these interventions must be applied, including the obtaining of the opinion of the European Commission. The above-mentioned admissibility requirements also apply to any amendments to spatial development plans.

Re 7.2-4 Recreation, sport and leisure use in nature conservation areas

Inside nature conservation areas, nature-compatible recreation, sport and leisure uses should be permitted, where the aim of biotope and species conservation allows. Accordingly, certain sporting activities can also be allowed in nature conservation areas, provided that their nature and extent are kept within limits compatible with nature.

Re 7.2-5 Landscape protection and landscape preservation

Outside the open spaces designated for nature conservation in spatial development plans, other areas with valuable landscape components and structures or extensively used land should also be protected. This includes parts of European Special Protection Areas not designated for nature conservation and significant culture landscape areas in the open space in spatial development plans, which – where they are not graphically represented in regional plans as a nature conservation area – are mostly to be designated as areas for the preservation of landscape and landscape-oriented recreation. In sectoral plans, most of these areas should be designated as landscape preservation areas.

Nature conservation and landscape preservation should therefore play a part in conserving landscapes suitable for sustainable use and maintain their potential as natural space in the long term. In addition, the uniqueness of the landscape in terms of natural space and cultural history should be preserved in order to encourage people to identify with their home area.

7.3 Forests and forestry

Objectives and principles

7.3-1 Objective: Forest conservation and forest consumption

In view of their importance for sustainable timber production, species and biotope conservation, the cultural landscape, landscape-oriented recreation, sport and leisure use and climate protection and because of their important function of regulating the landscape and ecosystem, forests must be preserved, protected from inappropriate developments and further developed. To this end, suitable areas of forest are designated in regional plans.
Exceptionally, forest areas may only be used in plans and measures if there is a proven need for the desired uses, this cannot be achieved outside the forest and the forest conversion is confined to what is strictly necessary.

The erection of wind turbines is possible, provided that this does not have a significant adverse effect on the essential functions of the forest.

### 7.3-2 Principle: Sustainably and efficiently managed forests

Forests must be managed sustainably and efficiently so as to maintain, increase and develop native, ecologically intact, productive expanses of forest.

Near-natural expanses of forest must be preserved and increased in terms of their existence and their significance for animal and plant life.

As part of forest conservation programmes, parts of forests should not be designated for use but allowed to become a wilderness.

### 7.3-3 Principle: Sparsely and densely wooded areas

In densely wooded areas, the structure of existing expanses of forest must be improved to compensate for the utilisation of forest land.

As part of the development aimed at, efforts should be made to work towards enlarging the forest in areas which have a low percentage of forest cover.

**Notes**

**Re 7.3-1 Forest conservation and forest consumption**

Twenty-seven percent of NRW’s surface area is covered by forest, of which about 48% is coniferous and 52% deciduous. Forests, especially mature forest ecosystems, which require more than a hundred years to grow, fulfil a variety of functions. In terms of wood production, forests have a great economic significance in many areas of industrial and craft production and application as well as for energy production.

Forests are characterised by natural soils with corresponding soil functions, protect against erosion and have a balancing effect on the water balance and climate. Near-natural forests also help to preserve near-natural biotopes and ensure biodiversity.

Moreover, forests are of great importance in the carbon cycle in terms of CO₂ storage.

Forest is a significant component of our cultural landscapes that dominates the scenery and also plays an important part in landscape-oriented recreation, sport and leisure uses as well as in environmental education. On average, there is only about 532 m² of forest for each resident of NRW (this is similar to the surface area per head in Berlin; by way of comparison, Germany as a whole has 1,400 m² per head).

Because of these diverse use and protection functions, the forest in NRW must be preserved and protected from encroachments and inappropriate developments. Suitable forest areas are being designated in NRW in accordance with export contributions on forestry. Forests should continue to be developed in terms of structure and enlarged in sparsely forested areas.

In Germany, NRW has the highest proportion of private forest ownership (65% of forests are privately owned). The preservation of the forest as a space for recreation, sport and leisure and as a component of the cultural landscape with important ecological and economic functions is therefore also effected by most of the private forest owners as an important social task.

On account of its economic benefits and its significance for the environment, in particular for the sustainable efficiency of the natural balance, the climate, the water balance, the cleaning of the air, the fertility of the soil, the scenic qualities and the recreation of the population, the forest must be preserved, increased if necessary and sustainably and efficiently managed (cf. Section 1 of the Federal Forest Act).

Under the provisions of the Federal Forest Act and the NRW Forest Act, the approval of a forest conversion should be refused, for example, if the preservation of the forest is overwhelmingly in the public interest, in particular if the forest makes up a small proportion of a municipality’s area or is of great importance to the
efficiency of the natural balance, to the protection of natural soil functions as defined in the Federal Soil Protection Act, forestry production, the scenic qualities or the recreation of the population or helps to protect against any harmful environmental effects as defined in the Federal Immission Protection Act and any adverse effects of the conversions can be averted in whole or in part by secondary conditions, in particular by the requirement to undertake reforestation using seed or by planting.

The foregoing must take into account the fact that only mature forest ecosystems can fulfil all of their functions, including in relation to species and biotope protection, and reforestation can only make up for the lost functions of consumed forest to a limited extent.

For this reason, forest areas designated in regional plans may only be consumed for other uses if there is a proven need for the desired uses, this cannot be achieved outside the forest and the forest conversion is confined to what is strictly necessary.

A desired use should not be implemented inside a forest area designated in regional plans if a reasonable alternative exists to the purpose pursued in the plan or measure outside the forest.

The concept of a reasonable alternative presupposes that any additional expense is reasonable and proportionate to the specific encroachment of the forest. The existence of a reasonable alternative precludes the consumption of a forest. Also deemed to be reasonable are any alternative plans and measures that fulfill the desired purpose in terms of time, space and function only by compromising on the degree to which the purpose can be fulfilled.

An alternative outside the forest can therefore also be reasonable if it incurs higher costs, e.g. for acquiring the land and for its development or an increased cost as a result of changed operating processes.

Where no alternatives are available outside the forest, a transfer or reduction in size of the plan or measure may be required as part of the required restriction to the level of forest consumption that is absolutely necessary, in order to minimise the encroachments on the forest functions.

This general specification on an exceptional consumption of the forest by other uses is open to wind energy use in the forest, as a steadily increasing proportion of electricity generation is being changed over to renewable energy and the expansion of wind energy use is set to make a significant contribution to this. Because of the unequal distribution of forest areas, this mostly applies to densely forested regions within NRW.

There is no reason to prevent the erection of wind turbines in forests, provided that this does not have a significant adverse effect on the essential functions of the forest.

The forest functions as described in Objective 7.3-1 are based on forest function mapping. Where there is no forest function mapping, the functions must be determined individually at each location. A substantial encroachment on the recreation function by wind turbines in the forest presupposes that the effective scope of the planned intervention affects forest areas with an above-average significance for recreation and leisure uses. This can happen, for example, if forest areas are used intensively for recreation and leisure or if the forest areas concerned are the subject of specific tourism development.

In sparsely forested areas in which forests are often only small-scale and form islands in landscape areas mainly used for agriculture, forests are generally highly rated for the biotope system, species and biotope protection, the function of regulating the natural balance and landscape-oriented recreation and scenic functions.

In these areas, it is also generally safe to assume that sufficient suitable locations for wind turbines are available outside the forest.

The financial earnings function of the forest does not generally prevent land from being designated for wind energy use in the forest because only small areas (mainly the foundations) are permanently removed from forestry production.

Re 7.3-2 Sustainably and efficiently managed forests

Near-natural forests are characterised by a greater variety of habitat niches and typical forest and endangered species and greater stability vis-à-vis the consequences of climate change, pest infestation and other stresses.
The prerequisites for financial success in forestry are stability, quality and high growth of existing forests.

Even from an economic perspective, the increase in climate-induced extreme weather conditions is bringing the stability of the forests to the fore.

This is achieved by means of near-natural, sustainable forestry and the build-up of richly structured and ecologically intact mixed stands of tree varieties which are where possible native and also appropriate to the location and efficient. The hallmarks of efficient and sustainable forest management include extended periods of rejuvenation, development and use.

By using site-typical, if possible native deciduous varieties, forest stands can be preserved and developed that match potentially natural vegetation. They are habitats for plant and animal species that occur naturally in NRW and important components of the NRW-wide biotope system.

In the state-owned forest, subsections of the forest conservation areas are to be taken out of forestry utilisation.

In this case, no interventions are to be made into the natural processes of ecosystems, so that natural forests (wilderness) can develop in the long term. A network of natural forest cells has existed in NRW since as long ago as the mid-1970s. In addition, forestry utilisation was banned by ordinance in individual forest conservation areas in order to promote biodiversity in sub-plots. The designation of the first national park in the Eifel region in 2004 doubled the proportion of unused forest areas in NRW by refraining from forestry utilisation in the core zone. Currently, the proportion of unused forests in NRW is running at just under one percent of the total area of forest.

Re 7.3-3 Sparsely and densely forested areas

Some parts of NRW have a forest coverage that makes reforestation to preserve the forest unnecessary because they can reduce the diversity of the landscape and valuable open-land biotopes. In municipalities with more than 60% forest coverage (cf. Fig. 5), adverse effects of forest consumption can often be better compensated by other means than by replanting forest.

In municipalities with less forest coverage, compensating reforestation will be required if forest compensation is essential.

In sparsely forested areas (municipalities with less than 20% forest coverage, cf. Fig. 5), the aim should be to increase the forest coverage if possible while maintaining the character of the cultural landscape of these areas.

7.4 Water

Objectives and principles

7.4-1 Principle: Efficiency and functional capacity of water

Spatially significant plans and measures should help to sustainably safeguard and develop water bodies with their various benefits and functions as part of the natural balance, as a livelihood for people, as a habitat for animals and plants and as a usable good.

7.4-2 Principle: Surface water

Spatially significant plans and measures should help to ensure that richly structured and ecologically valuable, natural or near-natural surface water is preserved and developed.

It should also be possible to use surface water for recreation, sport and leisure purposes, provided that they are not in conflict with important water management and nature conservation interests.

7.4-3 Objective: Protecting drinking water reserves

Groundwater reserves and surface water intended for use in the public water supply or maintained for future use must be protected and developed to ensure that water can be extracted and the population can be supplied with high-quality drinking water on a permanent basis. They must be
designated in their special conservation areas and sectors for drinking water extraction in the regional plans as areas for groundwater conservation and water conservation and their water management functions must be protected.

7.4-4 Objective: Dam sites
The sites mapped out in the LEP for planned dams must be mapped out in the regional plans including any catchment areas requiring protection in the case of planned water storage basins and/or dams and protected as a long-term option for any dams that may become necessary in future.

7.4-5 Principle: Sites for dams for energy production and storage
Existing or planned dams should where possible be protected simultaneously in regional plans and zoning plans as sites for the production and storage of energy.

7.4-6 Objective: Flood plains
The floodplains of running waters must be maintained and developed for run-off and flood water retention.

Floodplains must not be designated for uses that are sensitive to flooding or prevent run-off, in particular additional settlement areas and building land.

Building land represented within floodplains in zoning plans which have not yet been implemented or converted to binding urban development plans, should be reclaimed and prioritised as a natural retention area.

Exceptions from the specifications in Sections 2 and 3 are possible for spatially significant plans and measures for which the Federal Water Act or the NRW legislation on water also provides exceptions. Sites for spatially significant flood retention basins must be protected in regional plans as floodplains and are not to be designated for uses that are likely to jeopardise the intended purpose of conserving water resources.

7.4-7 Objective: Reclamation of retention areas
In order to increase retention capacity, suitable areas for this must be provided on expanded and embanked waters and, after testing, be reclaimed as retention areas by means of appropriate plans and measures.

7.4-8 Principle: Taking account of potential flood risks
The potential risk of flooding should be taken into account where land is used in areas protected by dams and vulnerable to severe flooding.

Notes

Re 7.4-1 Efficiency and functional capacity of water
In NRW, the waters as defined in Section 3 of the Federal Water Act [Wasserhaushaltsgesetz] (WHG) include surface water and groundwater. Surface water consists of standing bodies of water (e.g. lakes) and running waters. Surface water is also divided into natural and artificial bodies of water. Groundwater mainly arises from precipitation seeping into the soil, which collects as seepage water via impermeable strata and combines to fill cavities in the soil and subsoil.

To acknowledge the special significance of water to people and the natural balance, all the member states of the European Union have undertaken to pursue an integrated water protection policy in Europe in the form of the Water Framework Directive (WFD), which entered into force in December 2000. It was implemented in German law in 2002 by amending the Federal Water Act, which applies uniformly in all regions of Germany.

The directive requires all member states of the European Union
- to achieve “good ecological status” and “good chemical status” in surface water,
- to achieve “good ecological potential” and “good chemical status” in substantially altered or artificial bodies of water,
- to achieve “good quantitative and chemical status” in groundwater.
According to the directive, these objectives are to be achieved by 2015. Where it is not possible to achieve these objectives by 2015, the deadlines can be extended until 2021, or by 2027 at the latest.

In principle, the environmental objective for surface water is no deterioration of quality and the environmental objectives for groundwater bodies are to reverse significant trends in pollution, prevent or minimise pollution inputs and prevent deterioration of groundwater status.

In order to achieve the above-mentioned quality objectives, all waters are managed by the water management authorities on the basis of the management objectives of the Federal Water Act and NRW water management legislation. The management plan, together with an action plan, for NRW's shares of the Meuse, Rhine, Weser and Ems river basin districts, sets the management objectives for waters subject to reporting requirements and contains details of measures to promote the ecological development of these bodies of water and to improve the status of the groundwater.

The management plan first came into effect in 2010 as a plan binding on the authorities and is to be updated on a regular basis.

As part of a sustainable water management system, waters are to be used only to the extent that they can regenerate. This applies in particular to groundwater and surface water which have not been created as artificial bodies of water by humans.

For this reason, the uses for water must be geared to the natural conditions, especially to the regeneration rate of the groundwater and the minimum water levels and discharges in running waters.

Re 7.4-2 Surface water

The image of NRW's cultural landscape is dominated by over 50,000 km of streams and rivers, some natural lakes and many artificial lakes resulting from anthropogenic use of the landscape and by artificial canals and dams. As part of the landscape and the natural balance, bodies of surface water are very important as habitats for animals and plants and the biotope system and are also very attractive as a space for human recreation, sport and leisure uses.

The running waters in particular are also important in terms of securing and guaranteeing the most natural and harmless run-off of water possible and in terms of different uses of the water, e.g. obtaining bank filtrates for drinking water extraction or the drawing of service water or their uses as waterways or as part of the energy production process. The different use requirements must be coordinated as part of the water management system to ensure that the objectives set out in the Water Framework Directive and the Federal Water Act are achieved.

The Federal Water Act states that bodies of water which are in a natural or near-natural state should be preserved in that state. Expanded natural bodies of water which are not near-natural should wherever possible be returned to a near-natural state, unless compelling reasons of the common good dictate otherwise. The same also applies to substantially altered and artificial bodies of water, where this is compatible with their use.

On the basis of the comprehensive review of all river areas in NRW, the management plan sets out the measures to be taken to improve the bodies of surface water which are subject to reporting requirements. In order to preserve or attain the good status of the waters as specified in the Federal Water Act and the WFD, it will be necessary to improve the ecological status of running waters, mainly by taking measures to improve permeability, reduce diffuse or occasional inputs of nutrients and pollutants and increase the structural diversity in and on the waters and their riverbank zones and water meadows. An ecological improvement can be made by means of the complementary development of knock-on effects and stepping stones.

Potential development corridors for the relevant measures to implement the WFD can be present, particularly in the frequently designated floodplains accompanying running waters and nature conservation areas, which are designated in the regional plans as priority areas.

The interests of water management and nature conservation and the interests of leisure uses and sport must be carefully coordinated. It may be advisable to undertake both the spatial separation of competing functions and uses on different bodies of water within a single water area and functional separation on a single body of water.

Where possible and worthwhile, framework specifications in this regard should be drawn up at regional planning level.
Re 7.4-3 Protecting drinking water reserves

A sufficient supply of readily available and clean water is an essential foodstuff for people in the form of drinking water and is also required for a variety of commercial and industrial production processes and services and for irrigation in horticulture and agriculture.

The provisions of the EU Water Framework Directive state that surface water and groundwater must be kept in a good condition or developed with this aim in view. Taking appropriate measures is not generally a matter for NRW and regional planning as they involve arrangements between water management authorities and individual land uses to minimise pollution inputs, the limitation of water abstractions and structural improvements to bodies of water and their side strips, which cannot be regulated at the scale of NRW and regional planning.

It is the task of spatial planning, together with water management authorities, to keep the catchment areas for drinking water extraction and dams free from detrimental uses. Limited precautions should be taken, over and above the protection of currently used water reserves, to ensure that it is possible to cope with the failure of existing water extraction operations (e.g. because of contamination or nitrate pollution) or a demand for water arising from climate change.

The LEP contains a graphical representation of water conservation areas in which water is drawn from the groundwater or from surface water and provided as drinking water for the public water supply. The representation in the LEP is limited to areas in excess of 150 ha for reasons of scale. The boundaries are based on protection zones I - III B of designated and planned water conservation areas or corresponding spa protection zones and on the catchment areas for drinking water dams.

Within these areas, the regional plans protect areas for groundwater conservation and water conservation by imposing planning restrictions on other uses in accordance with the differentiated requirements of water protection zones I - III A. Smaller water conservation areas which can be represented in regional plans must also be protected.

This is especially necessary in order to protect options for future additional water extraction plants that may be required. The precautionary, optional water protection measures in regional plans should be based on a water management expert contribution from the higher-level water authority or a corresponding expert report.

Re 7.4-4 Dam sites

In NRW, 19% of drinking water is supplied from surface water (dams). A total of 28 dams and foredams are used for the drinking water supply. These specially protected drinking water dams are located in the bedrock areas of the Eifel and Bergisch Land regions.

Besides the existing dams, which are graphically represented as surface water in the LEP, sites for drinking water dams (above a possible storage capacity of 5 million m³) and other planned dams (above a possible storage capacity of 10 million m³) are also designated in the LEP and therefore optionally protected.

The individual sites are listed below:
- Elberndorf dam,
- Hundem dam,
- Naafbach dam,
- Prether/Platissbach dam,
- Renau dam,
- Silberbach dam,
- Trufe dam,
- Wennen dam.

In the case of the planned drinking water dams, their catchment areas are also protected in the LEP as water conservation areas. The sites for the planned dams and the catchment areas of the planned drinking water dams are also to be designated in graphical representations in the regional plans.

This protects these areas from uses which could obstruct a subsequent plan for a dam. Although these dams could not be constructed until after 2025 – if at all – the long-term precautionary protection is
necessary because otherwise these options for additional drinking water extraction plants and flow regulation systems that may be required would be irretrievably lost.

It will first be decided in the planning approval procedure whether permission will be given for dams. The subsequent construction of a dam will be subject to evidence that its erection is essential to safeguard the water supply or other water management functions. A guarantee must be given that other supply options from the options currently available have been ruled out. Under the duty of avoidance laid down in the Landscape Act (Landschaftsgesetz) existing dams must be used before new encroachments are permitted in other places.

In the case of the Naafbach, Renau, Elberndorf, Silberbach and Trufte dam sites, the legal position makes it necessary, because of the inevitable substantial encroachments, to grant permission for the plan only to be implemented subject to the condition that a positive FFH exemption assessment has been carried out.

Once all the alternatives have been tried and all interests have been considered a dam may even be planned within an area for nature conservation designated in the LEP. The nature conservation goals will apply to the dams planned for the area containing the bodies of water until such time as suitable water management plans have been satisfactorily concluded.

Re 7.4-5 Sites for dams for energy production and storage

With regard to the requirement to designate existing or planned dams as sites for energy production and storage as well, please refer to the notes on energy policy for Principle 10.1-3 Sites for energy production and storage.

Re 7.4-6 Floodplains

Floods are natural fluctuations in water level as a result of heavy rainfall in running waters which are caused by variations in weather conditions and are part of the very nature of a river. When human construction activities and land uses are close to bodies of water, damage can be caused when floods occur.

Preventive flood protection is a joint task of water management and spatial planning authorities. Under Section 2, para. 2, No. 6 ROG, preventive flood protection measures must be taken in inland areas mainly by securing or reclaiming water meadows, retention areas and discharge areas. As regards water management, the Directive on the Assessment and Management of Flood Risks (2007/60/EC) provides a uniform framework for dealing with flood risks within the EU. The EU Directive was incorporated into German law on 1 March 2010 with the entry into force of Section 6 of the Federal Water Act and imposes a requirement to minimise the adverse effects of flooding on human health and human economic activity, the environment and cultural heritage.

As a first step in the implementation of the legal requirements for preventive flood protection for individual sections of river basins, NRW has designated the areas or stretches of water on its territory with a significant risk of flooding. Since December 2011, bodies of water in NRW have been subject to the “Report on the provisional assessment under the Floods Directive (EG-HWRM-RL) in NRW”. With 448 running waters with a length of about 6,000 kilometres, the report noted that there was a substantial flood risk.

The regional authorities have drawn up flood hazard maps and flood risk maps for these stretches of water. These provide information on the extent and depth of a possible inundation and highlight where, for example, residential and industrial areas or roads and amenities are likely to be affected. The flood hazard maps and flood risk maps refer to different scenarios which are defined in terms of their probability of occurrence: High, medium and low-probability flood events (e.g. “HQ100”: “100-year flood”, where the risk of occurrence is once every 100 years).

Based on this information, regional authorities draw up flood risk management plans together with all the responsible actors (e.g. municipalities, water boards, dyke authorities and other interested bodies). These plans will specify targets and measures for all areas of action – from urban planning to emergency response – which are relevant in connection with flooding in the region concerned. The plans were first drawn up at the end of 2015 and are updated in a six-year cycle (first cycle 2015 - 2021). The regional development plan represents floodplains as priority spatial planning areas. The boundaries of these floodplains follow the boundaries of the “areas without technical flood protection” which were mapped by the regional authorities and can be accessed by the public everywhere in NRW via the internet-based information system on catchment areas. The above is based on the HQ100 scenario, which shows the...
extent and scale of a medium-probability flood (events that occur statistically at least once every 100 years on average).

Rivers must be given more space in order to keep the size of the waves of extreme flood events within manageable proportions. The volumes of water can then expand into the space, reducing the peak levels of the flood. With these measures, the “upstream riparian zone” further up the course of the river naturally protects the “downstream riparian zone” at a lower point in the river.

The Rhine area faces special challenges in terms of managing extreme flood events, mainly because in many areas the ability of extreme floods to expand into the space is limited by the construction of dykes. In order to provide the Rhine with more space in which to discharge its enormous volumes of water, dyke realignment at six locations has been included in the flood protection plan. In addition, some of the floodwater discharges from the Rhine are to be buffered in three controllable retention areas. According to the water management plan, these retention areas are only to be flooded when there is a threat of dyke breaches and major flooding disasters. Statistically, a flood occurs less than once in one hundred years, which means that these areas can continue to be used as before. These areas must also be designated as floodplains in the LEP to prevent them from conflicting uses in spatial development plans.

For reasons of scale, the floodplains are not shown in full in graphical representations in the LEP. The floodplains must be defined according to scale in the regional plans (based on the hazard maps with the HQ100 scenario). Other suitable reclaimable retention areas must also be designated by agreement with the water management authorities (cf. Objective 7.4-7). It should proceed accordingly with existing or planned spatially significant sites for flood retention areas in regional plans.

Most floodplains are areas used for agriculture. At the same time, a large number of them may be significant for other spatial functions such as biotope and species protection, water extraction and landscape-oriented recreation, sport and leisure use.

Floodplains do not generally preclude quarrying operations as they can help to increase retention capacity, where required. The various spatial functions must be coordinated in the floodplains bearing in mind the priority function of preventive flood protection.

Where permitted under legislation on water, floodplains should be opened up to accommodate wind turbines.

Floodplains must be kept free from uses that are sensitive to flooding or prevent run-off and preserved as retention areas. As part of the preventive flood protection scheme, no new settlement areas or building land may be approved or designated in these areas via the regional planning or land use planning systems. These planning levels are a suitable means of highlighting and protecting planning alternatives for flood prevention at an early date as part of the demand-oriented provision of land. The objective is therefore in line with precautionary flood protection as defined in Section 76 of the Federal Water Act, which states that at least those areas in which, statistically, a flood event is expected to occur once in 100 years must be designated as floodplains. Section 78, para. 1 of the Federal Water Act prohibits, inter alia, the designation of new building land in urban development plans or other regulations (except ports and dockyards).

Exemptions from the provisions of Section 78, para. 1 of the Federal Water Act can only be permitted by the competent authorities in exceptional cases, subject to very strict criteria. Where, in accordance with the provisions of the Federal Water Act and NRW legislation on water, such exemptions are already represented as being permitted by the competent authorities at regional or land use planning level, an exceptional plan can be implemented at regional planning level or a permit can be issued as part of the amendment process described in Section 34 LPIG.

Building land which is represented within floodplains in zoning plans but has not yet been implemented or converted to binding urban development plans must be reclaimed in the LEP or the regional plan as part of the amendment to conform to the spatial planning objectives. This objective is in line with the objective set in Section 77 of the Federal Water Act, which states that former floodplains which are suitable as retention areas should where possible be restored, unless compelling reasons of the common good dictate otherwise. An exemption as defined in Section 78 of the Federal Water Act is also provided for this specification.

Re 7.4-7 Recovery of retention areas
To ensure that floodwater can run off without causing damage, the aim is – where possible – to have permeable floodplains alongside rivers over a sufficiently wide area (“space for the river”). In order to improve the retention capacity of the river system, land which can be reclaimed as a retention area should also be included in the specification of floodplains in regional plans and coordinated with other spatial requirements. This is intended to prevent the first designation of building uses in these areas, thereby safeguarding the option of implementing suitable water management measures (e.g. dyke realignment).

Re 7.4-8 Taking account of potential flood risks

In areas which have only been flooded during extreme flood events (statistically less than once in 100 years) and in areas protected by dykes, the spatial use should take account of the potential flood risk. Where scale allows, these areas should be depicted in explanatory maps in regional plans in order to raise awareness of the potential hazard and encourage changes to building methods and uses as well as protective measures (e.g. taking account of this hazard when siting facilities that will be needed in the event of a disaster, keeping low-lying land clear, floodplain division, preparatory emergency procedures).

7.5 Agriculture

Objectives and principles

7.5-1 Principle: Spatial conditions for agriculture

As part of the efforts to protect open spaces, the spatial conditions must be maintained so as to ensure that agriculture can develop in all parts of NRW, especially in areas with a predominantly rural structure, as a spatially significant industry which is also significant to the cultural landscape.

In this connection, particular importance is attached to an area-specific, multifunctional agricultural industry which also performs specific functions for the ecosystem, landscape preservation and the shaping and maintenance of rural areas.

7.5-2 Principle: Preserving usable agricultural land and businesses

Land situated in open spaces and used for agriculture should be preserved as an essential basis for the production of foodstuffs and regenerative resources.

Valuable agricultural land with an especially high soil fertility or which is particularly suitable for agricultural use should not be used for settlement or transport purposes.

The existence and development potential of agricultural businesses should be protected. Where the subsequent use of usable agricultural land is unavoidable, any negative effects on agricultural business should be kept to a minimum.

Taking into account the relevant regional and local conditions, solutions based on the agricultural structure should be developed in cooperation with the parties affected and – if possible – supervised using the instruments provided in the rural land regulations, when implementing specifications in regional plans at sectoral or urban planning level.

Notes

Re 7.5-1 Spatial conditions for agriculture

The agricultural sector forms the basis for an efficient food industry in NRW and, combined with the latter, represents an important driver of the economy. The agricultural sector, including horticulture, takes up about 50% of NRW’s surface area. This makes it the biggest land user in the open space and gives it a particular responsibility for preserving natural resources and shaping the cultural landscape with its diverse habitats.

Agricultural and horticultural enterprises in all sizes and involving all types of production can be found in all the regions of NRW. Because of its close economic ties to the upstream and downstream sectors, including the food industry, the economic significance of agriculture extends far beyond its direct use of the land.

Besides food production, the production of raw materials for non-food and energy purposes is another important aspect.
In addition to the production of food and animal feed and downstream raw materials, the agricultural sector in NRW has numerous other functions, which can be summarised as “multifunctional agriculture”:

- Preserving the cultural landscape is the most visible “ancillary service” of agriculture. Attractive landscapes dominated by agriculture are an essential factor in attracting tourists to rural areas and also upgrade them as residential and business locations and for landscape-oriented recreation, sport and leisure uses.
- Agricultural areas are a habitat for many species of animals and plants.
- Agricultural enterprises are actively involved in the development of specific offerings in their marketing, catering operations, tourism and providing other innovative services to strengthen the regional economy in rural areas. In this way, they create new sources of income and jobs in rural areas.

Viable agricultural businesses and the land they manage are a precondition for maintaining sustainable land management. Agriculture, especially in the predominantly rural areas of NRW, must therefore be preserved and further developed as an important economic and socio-cultural driver.

Even in urban centres and their surrounding areas, “urban farms” are likely to become much more important because of their supply function close to the consumer and their functions in connection with the preservation and care of the open space and its diverse open space functions.

Re 7.5-2 Preserving usable agricultural land and businesses

Requirements in terms of the agricultural structure should be taken into account when competing uses are being considered. Where possible, no land should be consumed for other uses if it has a high natural soil fertility or is otherwise particularly valuable for agricultural purposes.

Natural soil fertility describes the natural capacity of soils for sustainable plant production. As this ability is mostly independent of cultivation measures such as fertilisation, humus management, irrigation or drainage, high-fertility soils have a special value for agriculture. Soils are deemed to be particularly fertile if they have a soil value (Bodenwertzahl) in excess of 55 points.

Even agricultural land below this soil value can be particularly significant for agriculture. This may be the case when

- its location, shape, size and properties make it an important component of the structure of an agricultural enterprise or the general agricultural structure, or
- the land is developed appropriately.

Unavoidable encroachments on the agricultural structure, e.g. by new roads, should also be compensated in future by means of land division measures.

The maintenance and further development of businesses are supremely important to the management of agricultural land.
7. Open space

The North Rhine-Westphalia Regional Development Plan (LEP NRW)

Figure 3 Non-fragmented, low-traffic areas in NRW
7. Open space

The North Rhine-Westphalia Regional Development Plan (LEP NRW)
Waldflächen in Nordrhein-Westfalen
Figure 6 Concepts relating to flood prevention
8. Transport and technical infrastructure

8.1 Traffic and transport

Objectives and principles

8.1-1 Principle: Integration of settlement and transport planning
Plans for settlement areas and transport infrastructure should be coordinated.

8.1-2 Objective: New transport infrastructure in open spaces
Open spaces should only be used for new spatially significant transport infrastructure if the demand cannot be met by the expansion of existing infrastructure. Exceptions to this are infrastructure for non-motorised mobility and new rail infrastructure used to shift goods traffic out of settlement areas.

8.1-3 Principle: Roads
Routes to be designated for demand-led supraregional and regional traffic must be combined to save land.

8.1-4 Principle: Trans-European Transport Network
The regional planning system should set land aside for the routes and functionally allocated land for the transport axes of the Trans-European Transport Network and the corresponding demand plans of the Federal and NRW governments.

8.1-5 Principle: Cross-border transport
Cross-border transport links should be developed in areas bordering neighbouring countries and states.

8.1-6 Objective: Airports in NRW of significance to NRW and the region
The airports in NRW which are of significance to NRW and region are:
- Düsseldorf (DUS) and
- Cologne/Bonn (CGN) and
- Münster/Osnabrück (FMO)
and the regionally significant airports:
- Dortmund (DTM),
- Paderborn/Lippstadt (PAD) and

NRW’s significant airports, including the land used for the airport infrastructure and for airport-related businesses, should be developed to meet demand.

Regionally significant airports and other airports should be safeguarded in line with NRW’s air transport programme and the development of its significant airports.

8.1-7 Objective: Protection from aircraft noise
The population must be protected from the environmental impact of air traffic, including aircraft noise. For this reason, the regional plans must designate an Extended Noise Zone around the significant airports and the military air bases at Geilenkirchen and Nörvenich, which results from the recommendations of the Länder Working Group on Emissions Control [Länderarbeitsgemeinschaft Immissionsschutz (LAI)].

In addition, the noise zones designated in regulations under the Aircraft Noise Act (FlugLärmg) must be included in the regional plans for information.

For areas within the Extended Noise Zone, development plans and rules must include a note to the effect that the property developers must refer to the considerable noise pollution caused by air traffic in the building permit.
Where regulations provide for designated noise zones for other regional airports and airfields, an Extended Noise Zone can be designated in regional plans.

**8.1-8 Principle: Protection from aircraft noise and settlement development**
The Extended Noise Zone must be taken into consideration in the development of regional and local settlement areas.

**8.1-9 Objective: Ports and waterways significant to NRW**
Locations of publicly accessible ports significant to NRW are to be found in the towns and cities listed below:
- Bonn,
- Dortmund,
- Duisburg,
- Düsseldorf,
- Emmerich,
- Hamm,
- Cologne,
- Krefeld,
- Minden,
- Neuss,
- Rheinberg,
- Voerde and
- Wesel.

The location potential offered by these significant ports must be protected to attract port-oriented businesses and port land and land for port-related industry must be designated in regional plans.

NRW’s significant ports must be developed as multi-modal freight handling centres and should reserve their land for port-related industry. They must be protected from the involvement of uses that are likely to restrict the use of the port.

The waterways and functionally related land must be developed to ensure that the functions envisaged for them can be reasonably fulfilled in multi-modal freight handling (water, rail and road).

**8.1-10 Principle: Freight transport by rail and waterway**
In order to cope with the level of freight traffic expected in future, the rail and inland waterway infrastructure must be developed as a priority.

In order to meet demand, the development of the waterway network should focus on the economic requirements of freight transport using large inland cargo vessels.

**8.1-11 Objective: Public transport**
NRW's middle- and major centres must be connected to the public transport system in order to meet demand.

The rail network must be developed so efficiently that it can assume the function of basic network for public transport.

A Rhine-Ruhr Express (RRX) must be created as an efficient way of developing the Rhine-Ruhr city region.

Unused railway lines which are significant to regional spatial development must be protected as routes in the regional planning system.

**8.1-12 Objective: Accessibility**
In all regions of NRW, the municipalities and public transport authorities must guarantee access to the central service areas in the basic, middle and higher-order centres of the residential locations in their catchment area by public transport within a reasonable time.

Notes
**Re 8.1-1 Integration of settlement and transport planning**

Settlement planning and transport planning are mutually influential and interdependent. On the one hand, transport planning results in the upgrading of settlement areas by improving their accessibility and on the other hand traffic has a disruptive effect inside and outside settlement areas.

The improved coordination of settlement and transport planning should achieve a reduction in land consumption and traffic pollution, prevent additional traffic and save infrastructure costs.

Short-range mobility (non-motorised traffic) and the necessary infrastructure are of essential importance in this regard. As major interfaces, the carrying of bicycles on public transport and the provision of Bike & Ride facilities contribute to adequate short-range mobility.

The conditions should also be created for the development of multi-modal transport structures with different transport operators and the future integration of new transport concepts using different drive systems.

**Re 8.1-2 New transport infrastructure in open spaces**

In order to reduce the consumption of land, the expansion of existing roads and their capacity has precedence over new plans. This is in line with the German government’s sustainability strategy to limit the consumption of open space by settlement and traffic areas to 30 ha per day for the country as a whole. For NRW, this means a reduction to a maximum of 5 ha per day.

Facilities for non-motorised mobility, e.g. cycle paths and cycle parks are excluded from the specification because they reduce the amount of motorised traffic, which is associated with emissions. The shifting of goods traffic from road to rail helps to protect the environment and the climate. As the increasing concentration of rail goods traffic will result in rising levels of noise pollution for neighbouring residential areas, there is no objection to the consumption of open space to shift goods traffic from settlement areas.

**Re 8.1-3 Roads**

The development of settlements and the economy of NRW rely on having an adequate transport infrastructure (roads, railways, waterways, ports and airports as well as functionally allocated land). Because of fierce competition for space, routes for road must be protected at an early stage and also for the long term.

Linking the designation of roads to demand should minimise land use conflicts and the environmental pollution associated with new routes. This applies both to pollution of settlement areas, especially residential areas and city centres, and to pollution of the countryside. Combining different transport infrastructures into a single route should prevent further fragmentation of the landscape space.

The demand for new routes must be specified by sectoral planning authorities and project lead partners, e.g. in Federal and NRW transport demand plans.

**Re 8.1-4 Trans-European Transport Network**

NRW is situated at the intersection of several major European transport axes which run both in a north-south direction (Rotterdam-Genoa) and in a west-east direction (Paris-Warsaw). The expansion of the European Union with the accession of the markets of Eastern Europe, the growing European single market and the increasing global division of labour are also leading to an increase in the volume of long-distance goods and passenger traffic in NRW.

The regulation of large-scale goods and passenger traffic flows must be coordinated with the neighbouring Länder and countries. The Trans-European networks developed by the European Commission are to form the basis for project proposals and coordination processes.

The upgraded lines from Oberhausen – Emmerich – German border, Rheydt-Odenkirchen – Kaldenkirchen – German border and the “Iron Rhine” as elements of the “Lyon/Genoa-Basel – Duisburg – Rotterdam/Antwerp” transport axis and the upgraded line from the German border – Aachen – Cologne as part of the high-speed line linking Paris, Brussels, Cologne, Amsterdam and London (PBKAL) will become increasingly important. They are intended to improve the link between the ports of Amsterdam, Rotterdam
and Antwerp to the European industrial centre in the Rhine-Ruhr region. The following stretches are situated in NRW and are therefore to be secured in the regional plans:

- Emmerich – Duisburg – Cologne – towards southern Germany (connecting to the Dutch "Betuwe Line" to Rotterdam),
- Kaldenkirchen – Mönchengladbach – Cologne – towards southern Germany,
- Cologne/Duisburg – Mönchengladbach – Antwerp ("Iron Rhine") and
- German border – Aachen – Düren – Cologne.

Re 8.1-5 Cross-border transport

The linkages between residential, employment and educational centres, service and healthcare facilities and tourist attractions in the border areas with neighbouring Länder and countries have been growing continuously over the past few decades. Close transport links across NRW's borders are also supremely important to its economic development.

To satisfy the resulting demand for transport, cross-border rail links will have to be improved, especially in the border areas with Belgium and the Netherlands.

The following stretches are partly situated in NRW and are therefore to be secured for short-distance passenger rail traffic in the regional plans:
- Aachen – Liège,
- Aachen – Avantis – Kerkrade,
- Herzogenrath – Heerlen,
- Mönchengladbach – Dalheim – Roermond,
- Mönchengladbach – Kaldenkirchen – Venlo,
- Kleve – Kranenburg – Nijmegen,
- Borken – Burlo – Winterswijk,
- Gronau – Enschede.

Re 8.1-6 Airports in NRW of significance to NRW and the region

Transport systems form the necessary basis to ensure the efficient functioning of a modern society and economy. In times of increasing globalisation, air transport becomes increasingly important. It guarantees the fastest possible transportation of passengers and goods over long distances.

The backbone of NRW's airport infrastructure consists of three NRW-significant airports (Düsseldorf, Cologne/Bonn and Münster/Osnabrück) and three “major” regional airports with airline and charter traffic (Dortmund, Paderborn/Lippstadt and Niederrhein/Weeze-Laarbruch).

The airports which are significant to NRW and its regions are designated as priority areas in the graphical representations in the LEP with the symbol for “airports significant to NRW and regions”. There is no demand for the construction of new airports in the planning period. NRW’s air transport programme of 2010 does not provide for any new airports. Instead, it involves developing and securing existing airports to meet demand. The top-level air traffic authority assesses the demand on a project basis, based on demand forecasts by external experts.

The three airports of significance to NRW (Düsseldorf, Cologne-Bonn, Münster-Osnabrück) have a major part to play. In the case of Düsseldorf Airport, the Angerland Agreement on the limits of the airport’s expansion and the reduction of aircraft noise must be observed.

The airports are also increasingly assuming a role in freight transport. Commercial development at the airports is to be confined to businesses that have an affinity with airports, i.e. to the establishment of enterprises that require a direct link to air transport. This will avoid creating a competitive situation with regional and municipal business locations integrated in urban development plans.

For reasons relating to the regional economy and structural policy, regional airports have been promoted in order to balance out locational disadvantages or encourage industrial development. In order to guarantee a sustainable and demand-led provision of airports, regional expansion, reconstruction or conversion projects must be consistent with NRW’s air transport programme and the development of airports of significance to NRW.
To ensure the demand-led development and designation of airports of significance to NRW and its regions and the integration of the airports of regional significance into NRW’s air transport programme and the development of the airports of significance to NRW, the Regional Councils will seek the opinion of NRW’s top-level air traffic authority via the NRW planning authority when relevant projects are proposed. The NRW government will decide whether the designation and development of regionally significant airports are consistent with the development of airports of significance to NRW.

**Re 8.1-7 Protection from aircraft noise**

The economic interests and the need for protection of an airport’s neighbours require an equal amount of attention. Specifically, night flights are the cause of noise pollution for the people who live close to the airport. Besides planning certainty for airports and airlines, noise control must therefore be given special priority.

The Aircraft Noise Act (FlugLärmG) governs the protection of the public from aircraft noise and, in particular, prohibits certain types of construction within predefined noise zones. The Lüneburg Higher Administrative Court has expressly confirmed that it is permissible to set spatial planning targets for noise zones in order to control aircraft noise (Judgment of 1.7.2010, AZ 1 KN 11/09). This is based on the authorisation provided in Section 13 (2) of the Aircraft Noise Act.

The physical layout of the Extended Noise Zone is determined by the top-level pollution control authority. In addition to the forecast years recommended by the Working Group of the Federal States on Pollution Control (LAI), the forecast year specified in the Aircraft Noise Act can also be used to determine the applicable noise zones. Following this procedure, the Extended Noise Zone must be redesignated in the relevant regional plans without delay but within two years at the latest in the event of a redesignation of noise zones under the Aircraft Noise Act.

The purpose of the Extended Noise Zone is to manage the municipalities’ urban development plan so that new land and areas with a predominantly residential use and buildings requiring protection as defined in Section 5, para. 1 of the Aircraft Noise Act are designated at an adequate distance from the site of existing and planned airports. This covers areas in which noise control measures must be implemented pursuant to the Aircraft Noise Act as soon as existing airports are extended.

**Re 8.1-8 Protection from aircraft noise and settlement development**

In order to minimise the spatial conflicts surrounding existing airports as a precaution, controls must be imposed on settlement development the physical size of which is determined by the Expanded Noise Zone. These controls must be in the interests of protecting the public from aircraft noise.

**Re 8.1-9 Ports and waterways significant to NRW**

NRW’s waterways, including the Rhine, are traditionally the key elements in the transportation system for industrial production, manufacturing and the building industry in NRW and also generally facilitate the supply of products from the seaports in the Netherlands and Belgium. This includes the inflow of raw materials and the outflow of manufactured goods. The growing volume of freight transport, in particular container shipping, is also reflected in inland waterway transport.

In order to generate more added value for NRW from the growing transport flows, multi-modal transport hubs are required on the waterways to which the logistics industry can connect. Published on 29.03.2016, the NRW Waterway, Port and Logistics Plan states that it should be possible to develop ports significant to NRW with suitable freight terminals and transport links. An efficient and environmentally friendly transport link can be created by reviving regional rail freight lines between the ports and the industrial centres in their catchment area.

In the cities, a location by the water close to the ports is subject to an increasing demand for property to provide residential, office and leisure uses. In order to ensure that sufficient land is available for ports significant to NRW and for port-related industry without restrictions on use, regional plans should designate areas for commercial and industrial uses for a specific purpose at the port locations in graphical representations (taking account of the regional scenario, recommendations for action and restrictions set out in the NRW Waterway, Port and Logistics Plan). In addition, it is essential to avoid restrictions on port development due to the proximity of neighbouring uses with increasing demands on pollution control.
Ports are deemed to be significant to NRW in the NRW Waterway, Port and Logistics Plan based on the following criteria:
the volume of freight (over 2 million tonnes per annum), container transshipment on the waterside (over 50,000 TEU (standard Containers) per annum) or their special significance in terms of local economy.

The ports significant to NRW are designated as priority areas in the graphical representations of the LEP with the “Port significant to NRW” symbol.

In the cities of Düsseldorf and Cologne, the symbols consist of two physically separate locations of the publicly accessible ports. In the case of Voerde and Wesel, the symbol consists of three publicly accessible ports.

This concerns the following locations:
- Düsseldorf: main port and Reisholz,
- Cologne: Niehl and Godorf,
- Voerde/Wesel: Port of Rhein-Lippe, Port of Wesel and Emmelsum.

The term “port-related industry” covers all businesses in the service industry relating to freight transport and industrial manufacturing operations which have an affinity with the transshipment of goods or the operation of a port.

Details of the future development of the port locations – including in terms of the land required – and the development of the waterways can be found in the most recent update of the NRW Waterway, Port and Logistics Plan.

Re 8.1-10 Freight transport by rail and waterway

Owing to the large-scale division of labour increasingly practised in the area of industrial manufacturing, the volumes of freight transported are expected to continue to rise sharply. In order to manage the projected growth in freight traffic, it must be possible to use the most suitable mode of transport to transport the freight more efficiently and taking account of transshipment costs on each part of their transport route. The infrastructural conditions required must be created by multi-modal transport chains. What is needed are logistics hubs to optimise the transshipment of goods between road, rail and inland waterway. The optimisation of transshipment facilities should promote the use of rail as a mode of transport.

The expansion of existing freight distribution centres and ports is to be preferred to the development of completely new locations when transshipment centres are being planned. This will help both to limit the additional consumption of land and to make it possible to use existing infrastructures and connections between settlement areas. Where necessary, new locations must be planned to be as environmentally friendly and efficient as possible.

Inland navigation is the only one of the three modes of transport that still has substantial spare capacity for freight traffic. In the canal network, large inland cargo vessels with a carrying capacity of up to 2,100 tonnes unload the “Europaschiff” barge with a carrying capacity of up to 1,350 tonnes on account of its greater efficiency as a regular vessel on the inland waterways. Modern inland waterways and port facilities must therefore be able to accommodate large inland cargo vessels as a standard size for inland navigation.

Re 8.1-11 Public transport

In order to maintain their centrality, accessibility and service functions, middle and higher-order centres must be connected to the public transport system. It would be preferable for this to be provided by rail transport but, depending on local conditions in middle centres, could also be provided by other modes of transport (e.g. express buses). Cities will only be able to retain their attractions as places in which to live work and do business and as supply locations if private and business travel by rail is possible without time-consuming transfers and without connection risks. The type of connection to the public transport network will be determined by its potential.

The interconnections within densely populated areas are close and result in a big demand for an efficient public transport service in terms of development in the area and also in terms of rapid regional connections.

In future, the Rhine-Ruhr Express is set to form the backbone of rail passenger transport in the Rhine-Ruhr city region and create an efficient connection within Europe’s biggest conurbation. The key route for the Rhine-Ruhr Express is the Dortmund – Bochum – Essen – Mülheim an der Ruhr – Duisburg – Düsseldorf –
Cologne connection which is linked by feeder lines to the termini at Münster, Minden, Cologne/Bonn Airport, Koblenz, Emmerich and Aachen.

The demand plans of the NRW and German governments show that there is a demand for the connection of middle and higher-order centres to the rail system and a demand for the development of the rail network in and between NRW’s regions.

Spatially significant rail links which are no longer used (no longer operated, closed or already released) will be required as optional roads for the future, as the planning of completely new routes would be subject to substantial restrictions and incur high costs due to the high population density. Spatially significant connections are on the one hand the rail routes scheduled for reopening in the Federal and NRW governments’ demand plans and on the other hand disused rail routes for which there is no foreseeable demand for reopening as a railway line at present, but which connect regionally significant settlement areas, amenities or facilities. The latter must be designated as routes and therefore permit use by other linear infrastructures. Efforts will be made to find interim uses for these routes for short-range mobility or for tourism, e.g. by creating cycle paths. In this way, new amenities that promote health and mobility can be based on former railway lines and networks.

**Re 8.1-12 Accessibility**

The availability of public transport plays a decisive part in ensuring that living conditions are the same in all regions of NRW, as it enables all sections of the population to participate equally in the life of their communities.

A reasonable provision of services and amenities must also be provided in future to take account of changing demographic conditions. This includes guaranteeing access to central service areas within a reasonable time.

Access to central service areas by public transport within a reasonable time can be taken into account when new residential developments are being planned by municipalities. Public transport operators are also required to take account of access to central service areas in local transportation plans and in consultation with the municipalities.

Criteria for a reasonable public transport service can be found in Section 2, para. 3 of the NRW Public Transport Act. This states that alternative forms of public transport services can be deployed, e.g. “citizens’ buses” or shared taxis on call and regular taxis on call.

**8.2 Transport using pipes and cables**

**Objectives and principles**

**8.2-1 Principle: Transport lines**
The regional and supraregional transport lines for energy, raw materials and other products should be protected and extended to meet demand. This also applies to linking long-distance transmission networks with neighbouring countries and states.

The transport lines should be laid together to save space and integrated into existing band infrastructures in the area. The extension of the existing network using existing runs takes precedence over the installation of new pipes and cables in new runs.

The pipes and cables should be planned to ensure that the specific dangers that the surrounding area and the pipe or cable pose to each other should be minimised as far as possible.

**8.2-2 Principle: High-voltage cables**

In the spatial planning of high-voltage cables with a rated voltage of 110 kV or less, any options allowed under energy law for laying them as underground cables should be exploited.

**8.2-3 Principle: Existing extra high-voltage overhead cables**

When new development areas are designated under construction law in urban development plans or other regulations under the Federal Building Code, which are for residential purposes or in which premises of similar sensitivity – in particular, children’s nurseries, hospitals and care homes – are
permitted, a distance of at least 400 m must be maintained from legally approved runs of extra high-voltage overhead cables. When specifying outside area regulations pursuant to Section 35, para. 6 of the Federal Building Code, a distance of at least 400 m must if possible be maintained from legally approved runs of extra high-voltage overhead cables of 220 kV or above.

8.2-4 Objective: New extra high-voltage overhead cables

New runs for new extra high-voltage overhead cables with a rated voltage of 220 kV and above, which are not constructed in the immediate vicinity of an existing high or extra high-voltage cables, must be planned in such a way

- as to maintain a distance of 400 m from residential buildings and similarly sensitive premises
  – in particular, schools, children's nurseries, hospitals, care homes which are situated within the scope of a development plan or in an unplanned internal area as defined in Section 34 of the Federal Building Code and these areas are used predominantly for residential purposes,
- as to maintain a distance of 200 m from residential buildings which are situated in external area as defined in Section 35 of the Federal Building Code.

In exceptional cases, it is possible to fall short of this distance, provided that equal preventive protection of the quality of the surrounding residential area is guaranteed or there is no other technically suitable alternative permitted under energy industry law that would make it possible to maintain the minimum distances.

8.2-5 Principle: Extra high-voltage lines to be laid underground

When planning the construction of new extra high-voltage cables, any options allowed under Federal law for laying them as underground cables should be exploited.

8.2-6 Principle: Regional district heating networks

Regional district heating systems should be maintained and further developed. In particular, existing heating networks should be connected and expanded.

Notes

Re 8.2-1 Transport lines

To provide NRW with a secure supply of energy, raw materials and other products, adequate and efficient supply networks will be required in all parts of NRW.

Conflicts with other spatial uses, including the problem of additional fragmentation of the space and encroachment on the scenic qualities of the landscape, can be reduced by combining pipes into pipeline routes or bands and by following suitable breaks (e.g. roads) in the topography. The combination should not adversely affect efficiency during energy transport.

In order to limit further land consumption for an extension of the transport systems, it should first be ascertained, when planning new pipes, whether there is a possibility of using existing pipeline routes. The pipeline operator must provide evidence that there is demand when the extension of a pipeline network or the laying of new pipelines is being planned.

The use of existing routes is assumed when

- the routing that dominates their appearance is basically retained,
- only short sections are displaced to optimise a route or
- technical requirements for minimum distances and preloads have not been significantly exceeded in pipes that run parallel.

There may also be circumstances in which a combination is not advisable (e.g. in the case of safety problems, capacity problems, etc.).

Almost 100% of pipelines in which liquid and gaseous substances are transported are laid underground. Transport by underground pipelines relieves the strain on roads, railways and waterways. This reduces environmental pollution and improves safety. However, even the transport of hazardous substances through pipelines still poses potential dangers. Top priority is therefore given to safety aspects during the planning, construction and operation of these pipelines to prevent harm to people and the environment.

Re 8.2-2 High voltage cables
High-voltage cables with a rated voltage of 110 kV or less are part of the transmission grid, which requires further development so that power generated in the region from renewable energy and combined heat and power plants can be incorporated into the integrated grid. Laying power cables underground can help to prevent encroachments on the scenic qualities of the landscape and the settlement structure as well as protecting the resident population.

Section 43h of the Federal Energy Act (EnWG) stipulates that new runs of high-voltage cables with a rated voltage of 110 kV or less must be laid as underground cables provided that the total cost of laying and operating the underground cable does not exceed the total cost of a technically similar overhead cable by a factor of 2.75 and does not go against the interests of nature conservation. Whether it is possible to comply with these provisions essentially depends on the interventions in nature and landscape, soil and use associated with laying underground cables, on development options for construction operations, on the extent of earthworks and on the level of compensation. In the course of planning routes, these provisions will have to be taken into account in the coordination of spatial plans and if possible create the spatial conditions for Section 43h of the Federal Energy Act to be applied.

Re 8.2-3 Principle: Existing extra high-voltage overhead cables

In the past, housing developments were built very close to extra high-voltage overhead cables because there were no spatial planning regulations on minimum distances. The result of this is that there are conflicts between housing development and extra high-voltage overhead cables in many places in densely populated NRW.

Increasing the distance between residential buildings and extra high-voltage overhead cables will help to reduce these conflicts in future.

On the one hand, the aim of Principle 8.2-3 is to prevent housing developments from being built close to extra high-voltage overhead cables. On the other hand, maintaining a minimum distance alongside existing and new extra high-voltage overhead cables could help to implement any cabling projects which may be required in future without causing conflicts.

This principle should be read in the context of Objective 8.2-4, which also specifies a minimum distance from housing developments in the planning of new extra high-voltage overhead cables.

For details of the reasons behind the minimum distances, please refer to the note to Objective 8.2-4.

Re 8.2-4 Objective: New extra high-voltage overhead cables

The energy revolution and the expansion of the European interconnected grid are making it necessary to expand the extra high-voltage grid with a rated voltage of 220 kV or above. In the process, the spatial impact of a new extra high-voltage overhead cable will be checked and evaluated by the competent authority (regional planning authority and/or the Federal Grid Agency).

In principle, the combination of extra high-voltage overhead cables with existing band infrastructures is regarded as the most sustainable regional solution as it avoids any additional fragmentation of the area (see Principle 8.2-1).

Where no combination options exist for a new extra high-voltage overhead cable, a new spatially sustainable route will have to be planned and designated. In this case (construction of new route), please refer to Objective 8.2-4.

In this regard, “new routes for new extra high-voltage overhead cables” as defined in Objective 8.2-4 means any new routes for new extra high-voltage overhead cables for which no planning approval procedure has begun at the time of the entry into force of the new LEP.

A new route for a new extra high-voltage overhead cable is deemed to be spatially sustainable when it maintains sufficient distance from housing development.

The specified minimum distances for extra high-voltage overhead cables from the centre of the route to residential buildings (400 m or 200 m) go far beyond the legal health protection requirements laid down in the Federal Pollution Control Act. They are intended as a precaution to help prevent possible adverse
effects on nearby homes. In the coordination of spatial plans for cable routes, these sensitive areas should be identified at an early stage and suitable alternatives investigated.

Sufficient account is taken of the interests of health protection through the consistent implementation of the most recent version of the 26th Federal Pollution Control Ordinance (26. BlmSchV) and its provisions concerning exposure levels, the prohibition of excess voltage and the minimisation requirement.

The distance is determined by the knowledge that land use conflicts often arise between housing development and extra high-voltage cables in densely populated NRW and they are almost impossible to resolve. As there were no comparable regulations on distances in spatial plans in the past, residential areas and extra high-voltage cables moved closer together, which exacerbated the land use conflicts over the years. The aim of Objective 8.2-4 and Principle 8.2-3 is to achieve a situation in which these conflicts will be prevented wherever possible in future with new designations of housing developments or new extra high-voltage routes. The distances are based on different perspectives.

The coordination of uses and a high weighting of interests relating to the qualities of the living environment are initially based on the task and overall concept of spatial planning. The precautionary principle is laid down in Section 1 ROG, which states that the relevant precautions must be taken for individual spatial functions and uses while at the same time minimising conflict. This also gives rise to the spatial planning task of balancing interests and minimising conflict between settlement structure, infrastructure and the protection of open spaces. The aim of this spatial planning task is to achieve wide-ranging consideration and may therefore go beyond the relevant legislation.

The specified minimum distances are determined by the knowledge that although the statutory requirements concerning electromagnetic effects are fully satisfied at a distance of about 100 m from the cables, the exposure levels are still above the level of acceptable background exposure. At a distance of 200 m from the cables, the electromagnetic effects are at the level of ever-present background exposure and are therefore no longer measurable. Doubling the distance from housing developments in settlement areas takes account of typical nearby activities (use of playgrounds or playing fields and footpaths, cycle paths and walking routes close to the edge of the development) and therefore helps to protect and preserve the nearby living environment as a precautionary measure. Precautionary planning principles therefore come into play when determining and justifying an adequate distance of 400 m from residential buildings in settlement areas, which go far beyond the statutory health protection requirements in the Federal Pollution Control Act (BImSchG) and are justified by the fact that this makes it possible to bring the economic demands on an area into line with its ecological functions and achieve a sustainable order which will be well-balanced on a large scale (Section 1, para. 2 ROG).

In the event that it is not possible to comply with the 400 m distance, the shortfall may exceptionally be spatially sustainable if the local conditions or additional measures keep the protection afforded to the living environment at at least a level equivalent to that afforded when the 400 m distance is observed. This exceptional case may arise when, in the event of existing preloads, the planned measures can make an improvement in the preloaded situation of the living environment. Likewise, if it is necessary to fall below the distance for reasons of proportionality in individual cases, where otherwise the objectives of a secure and efficient energy supply cannot be achieved or no suitable alternative route permitted under energy legislation allows the minimum distances to be observed. This case may arise, for example, with regard to the connection of the cables to existing transformer stations.

The distance of 400 m must also be taken into account in the urban development plan and other regulations to ensure that an adequate preventive distance is always maintained between cables and housing developments in new designations.

In the case of residential buildings in an external area, it is reasonable to specify a shorter distance as such areas are basically to be kept free of housing developments and other uses are to be established there. In terms of proportionality, if the distance is less than 200 m (e.g. as a result of topographical features), it can also be ascertained in particular cases, in consideration with other interests, whether an equivalent degree of preventive protection of the qualities of the living environment can also be maintained by appropriate alternative measures.

However, in view of the great importance of the qualities of the living environment in the context of the precautionary principle in spatial planning, the strict standard of a guaranteed equivalence of the protection from encroachments must be applied. In view of the existing legal restrictions on the laying of underground cables, it is necessary in the case of the distance from residential buildings to leave a certain amount of
leeway for the planning and optimisation of routes in places where dispersed settlement structures make it impossible to adhere to a distance of 200 m from existing residential buildings in an external area in a consistent manner.

Keeping distances parallel to existing and new extra high-voltage overhead cables can prevent a situation where new cabling projects that may be required in future – and often cannot yet be predicted with certainty today – can only be implemented at unnecessary expense if at all, especially in compaction areas.

The large-scale laying of underground cables in suitable corridors is also being considered in NRW, as well as the partial cabling of extra high-voltage overhead lines. This must be tested in a corridor.

The legal options with regard to underground cabling are not affected by this regulation and are to be included in the consideration.

**Re 8.2-5 Extra high-voltage lines to be laid underground**

The electricity network development plan indicates that there is a demand for additional extra high-voltage cables.

High-voltage direct current (HVDC) transmission is a technology that allows the low-loss transmission of electricity over long distances.

The laying of extra high-voltage cables underground can improve the quality of the living environment and reduce the required distances from residential buildings and similarly sensitive buildings.

In December 2015, in parallel with the second public participation procedure for the new LEP, essential new Federal legislation on the expansion of networks entered into force (“Act amending the provisions of the act on power line construction”). Underground cabling was made a priority for extra high voltages in DC technology and the term “new construction” was introduced for the first time in the Power Grid Expansion Act (EnLAG) and the Federal Demand Plan Act (BBPIG). This necessitated a minor amendment of Principle 8.2-5 during the second public participation procedure for the LEP.

Publication No. 18/6909 of the German Parliament states that a new construction exists when transmission capacity is created by the construction of new cables and new pylons. In other words, the definition of new construction encompasses the laying of the cable in both a new and an existing route. However, the definition excludes merely adding or rearranging cables.

In the planning of new extra high-voltage cables in NRW, the options for fully underground cabling provided under Federal law (extra-high voltage direct current cables) and partially underground cabling (extra-high voltage alternating current cables) should be used in new construction in new and existing routes.

The interests of nature conservation and agriculture and forestry should also be considered in the planning process.

The conditions imposed in energy legislation (in particular the Power Grid Expansion Act (EnLAG) and the Federal Demand Plan Act (BBPIG) and the Federal Energy Act (EnWG) must be observed.

**Re 8.2-6 Regional district heating networks**

The provision and use of local and district heating systems makes a major contribution to climate protection.

The regional heating networks in NRW provide a valuable and environmentally friendly infrastructure for the heating and cooling of urban districts and industrial and commercial sites. In order to benefit from the advantages of this grid-bound infrastructure in the long term, the regional systems must be adapted and further developed to meet the changes in energy demand (reduction in the demand for heating in the supply areas) and, if necessary, energy supply. Existing heating networks should be combined and expanded (especially in the Ruhr region).

**8.3 Waste disposal**

**Objectives and principles**
8.3-1 Objective: Locations for landfill sites
Locations for spatially significant landfill sites required for waste disposal must be protected in regional plans. The suitability of closed landfill sites as locations must be checked when planning new landfill sites.

8.3-2 Objective: Locations for waste treatment plants
Locations for new waste treatment plants must be provided within the areas designated in regional plans for commercial and industrial uses (GIBs). The exceptions to this are waste treatment plants which are operated in conjunction with landfill sites.

8.3-3 Objective: Transport links between locations
Locations for waste treatment plants and landfill sites must be connected by environmentally compatible transport links.

8.3-4 Principle: Disposal of waste near to place of origin
The spatial distribution of the locations for landfill sites and waste treatment plants should make it possible to dispose of non-recyclable waste as near to its place of origin as possible.

Notes

Re 8.3-1 Locations for landfill sites
The overriding objectives of waste management in NRW are to promote a low-waste recycling economy to save natural resources and to ensure the environmentally friendly disposal of waste that cannot be recycled. The best use of waste is as a source of raw materials and energy. The proportion of waste that has to be dumped in landfill sites must be minimised. Landfill sites that use environmentally disposal methods must be maintained for non-recyclable waste.

In order to minimise the consumption of land by landfill sites, the search for sites should also include the possibility of using closed landfill sites. Supplementing existing landfill sites in this way also has the advantage that it is possible to fall back on existing infrastructure.

Landfill sites are suitable locations for renewable energy production (photovoltaics, wind energy) during their operational, closed and after-closure phases, provided that this does not adversely affect the landfill facilities.

Information on the use of landfill sites as locations for renewable energy production can be found in Section 10.2 of the LEP and in Objective 10.2-1, with specific reference to solar energy on landfill sites.

Re 8.3-2 Locations for waste treatment plants
In principle, the areas designated for commercial and industrial uses (GIBs) in the regional plan are suitable as sites for waste treatment plants that produce emissions. The integration of waste treatment plants in landfill sites can result in benefits, mainly in terms of reducing environmental pollution. This requires the integration of the functions of waste treatment plants into landfill sites.

Re 8.3-3 Transport links between locations
As the transport of waste to both landfill sites and waste treatment plants causes environmental pollution in the form of noise, dust, etc., the possibility of providing an environmentally friendly and short connection to the supraregional transport network must already be a decisive criterion when seeking a site.

Re 8.3-4 Disposal of waste near to place of origin
The principle of proximity should be taken into account with a spatial distribution of waste treatment plants and landfill sites which is based on the centres where the waste to be disposed of originates. The aim must be to keep transportation distances as short as possible, also for reasons of climate and resource protection.

Please refer to the current waste management regulations governing spatial planning.
9. Supply of natural resources

9.1 Safeguarding reserves of natural resources

Principles

9.1-1 Principle: Site-specific nature of reserves of natural resources
All spatial plans should take into account the fact that reserves of energy and non-energy sources (natural resources) are site-specific, limited and incapable of regeneration. The quality, quantity and rarity of a reserve of natural resources should also be taken into account.

9.1-2 Principle: Substitution
The regional planning authorities should consider the possibility of substituting recycled building materials and industrial by-products for primary natural resources when designating areas for protection and the exploitation of deposits near the surface.

9.1-3 Principle: Space-saving extraction
The exploitation of natural resources should be as kind to the environment as possible within the context of sustainable spatial development and confined to what is required in economic and social terms while taking account of possible energy-saving potential. If possible, a natural resource should be extracted in a space-saving manner and completely and all natural resources should be extracted from the one deposit. Accordingly, existing mineral resources should be extracted as completely as possible before extraneous material is deposited in the same place.

Notes

Re 9.1-1 Site-specific nature of reserves of natural resources
The availability of energy and non-energy resources is the indispensable foundation on which our industrial society is built. Industry and the general population have an interest in ensuring that natural resources are exploited economically and according to their quality. They rely on having a secure supply of natural resources sufficient to meet demand.

Reserves of local natural resources are limited, finite and localised, i.e. they are only available at the place of their geological genesis. Reserves are therefore unevenly distributed across the land and are seldom found in good, high-value qualities. To take account of these characteristics, known reserves of natural resources and deposits on which information is provided in the mineral map produced by the competent authority for geology in NRW are included in the consideration of all planning applications. The possibility of exploiting significant reserves of non-energy resources close to the surface should be provided in the long term in the interest of future generations. This also applies to any deposits which are not designated as priority areas in the regional plans.

The long-term protection of economically viable deposits is of existential importance not only to the enterprises directly involved in the exploitation of mineral resources but also to the entire primary processing industry and downstream sectors – e.g. the construction industry, the chemical industry, the steel industry, the glass industry and the environmental protection industries – and also of general economic importance because of the impact on the labour market and structural policy. The protection of natural resources in plans is a precautionary measure to meet the demand from the economy and does not protect individual operating sites. The aim is to build a reliable framework for the mineral extraction and processing industries and to manage quarrying operations in a spatially sustainable manner.

Re 9.1-2 Substitution
Any options for using recycled products and industrial by-products should be exploited and further developed. Their increased use would reduce the amount of land required in plans to protect natural resources (see also the notes to 9.2-2).

Re 9.1-3 Space-saving extraction
The extraction of minerals is accompanied by permanent change to the extraction site and, generally, pollution for the population and the environment. The impact of mineral extraction should be minimised in terms of space and time. However, the economic imperative of keeping industry and the population supplied with raw materials must be taken into account.

The limited supply of mineral deposits and the incursion into nature and the landscape associated with the extraction of mineral deposits requires that the minerals should be extracted as completely as possible except where incomplete exploitation is required to minimise the incursion and allow ecological compensation measures directly at the excavation site. The extraction should be consistent with the geological properties of the minerals. Extensions to existing excavation sites help to optimise the exploitation of deposits as well.

If a deposit contains multiple exploitable minerals, they should be extracted in combination with the aim of achieving the most efficient and conservative land consumption, where this is technically feasible and completed in an economical and spatially sustainable manner. This also applies before the start of open-cast lignite mining. The aim is to avoid extraction operations in other places.

Extraction sites which have already been exploited should be checked to ascertain whether other minerals can be extracted by subsequent extraction at greater depth. Depending on the depth and quality of the deposit in line with the latest advances in technology, the greatest extraction depths possible should be designated when approving or permitting new extraction sites.

Resources in the overburden of open-cast lignite mines are only available for an industrial application if they can be spared in the context of tip management aimed at saving groundwater and the restoration of usable surface areas for recultivation measures does not have priority.

9.2 Non-energy resources

Objectives and principles

9.2-1 Objective: Spatial specifications for non-energy resources near the surface
Regional plans must designate areas for the protection and exploitation of near-surface deposits of non-energy resources as priority areas with the status of suitability areas.

9.2-2 Objective: Periods of supply
The areas for the protection and exploitation of near-surface deposits of non-energy resources must be designated for a period of supply of at least 20 years for unconsolidated material and at least 35 years for bedrock.

9.2-3 Objective: Updating
The areas for the protection and exploitation of near-surface deposits of non-energy resources must be updated so as to ensure that the period of supply does not fall below 10 years for unconsolidated material and 25 years for bedrock.
The update must re-establish the period of supply as stated in Objective 9.2-2.

9.2-4 Objective: Subsequent use
Land used for the extraction of near-surface resources must be recultivated or made re-usable section by section and within a short space of time. The subsequent use for this land must be designated in graphical representations in the regional plans.

9.2-5 Principle: Sites for surface extraction facilities
The greatest possible compatibility with other land uses must be sought when designating sites for surface facilities for extracting non-energy resources, thereby minimising the possibility of conflicts.

Notes

Re 9.2-1 Spatial specifications for non-energy resources near the surface
Besides the unconsolidated rock and bedrock close to the surface as discussed in detail in this section, e.g. sand and gravel, clay, loam, limestone, claystone, basalt and sandstone, non-energy resources also include minerals generally extracted by deep mining, e.g. salts, ores, barite and roofing slate. Regional plans do not generally contain a specification for the latter.

The local near-surface mineral resources are safeguarded in regional plans by means of text and graphical specifications of “areas for the safeguarding and extraction of near-surface mineral resources” (BSABs) as priority areas with the status of suitability areas.

Knowledge of the local mineral resource potential is essential if reasonable safeguards are to be provided in plans. The existing geological maps and data collections and, in particular the NRW mineral map by the competent authority for geology, serve as the key basis for planning. The NRW mineral map provides the necessary information for identifying significant deposits so that they can be included in all planning appraisal processes. BSABs should where possible be specified for mineral safeguarding in areas which are designated in the NRW mineral map with comparatively higher concentrations of mineral reserves. The qualities should also be taken into account.

The spatial management of mineral extraction takes the form of a regional safeguarding plan within the context of a coherent planning concept encompassing the entire planning area which takes account of the recommendations of the competent authority for geology as regards the geological aspects of the minerals. Operational development proposals should also be taken into account.

The graphical representation of BSAB show that it is expected that the land can generally be used for excavations and this potential use will prevail in decisions at subordinate planning levels.

Excavation projects must take place within the BSABs. The regional plans regularise justified exemptions in which small-scale excavations are compatible with the spatial planning objectives, even outside the designated BSABs.

The specifications in plans conform equally to the extraction of mineral resources as described in the provisions of the NRW Scouring Act, the Federal Mining Act, the Federal Pollution Control Act and the Federal Water Act. Both because of the importance of mineral resources to the economy as a whole and because of the conflicts of uses that their extraction often triggers, they have to be safeguarded for the long term in spatial development plans as a precautionary measure; they precede special legal approvals.

Re 9.2-2 Periods of supply

A demand-based period of supply, relative to the types of minerals available in the planning area, must be guaranteed with the graphical representation. To this end, the priority areas with the status of suitability areas must be assessed to ensure that the deposits they contain cover the projected demand for at least 20 years for unconsolidated material and at least 35 years for bedrock.

The rule is 20 years for unconsolidated material and 35 years for bedrock. With regard to the many and varied conflicts of use associated with excavations, these periods of supply should not be significantly exceeded in new regional plans. Longer supply periods already designated in regional plans can therefore justify deviations from the rule.

The periods can be less than specified if it is found during the consideration process that no suitable land is available for 20 or 35 years.

The period of supply for bedrock is longer than that for unconsolidated material as limestone extraction and cement production involve substantial investment costs and require planning certainty for at least 25 years for the amortisation of these costs, otherwise no further investment would be possible.

Demand is determined on the basis of a uniform excavation monitoring system across NRW which records the progress of mineral extraction by area and volume. During the excavation monitoring process, major aspects, including the supply of industry and the population, the possibility of substitution and the targeted use of mineral deposits with higher concentrations, are taken into account in the determination of demand. The mineral reserves still available in approved excavations outside BSABs must be taken into account in the places of supply. Furthermore, quantities of minerals from open-cast lignite mines must be included when determining demand, provided that this does not have an adverse effect on the regular operation and completion of open-cast lignite mining.
Re 9.2-3 Updating

Mineral extraction is supervised by aerial or satellite monitoring according to the instructions of the NRW planning authority. As part of the monitoring process, progress of the extraction is recorded and the mineral reserves remaining in the designated BSABs and approved areas are evaluated using the NRW mineral map. The results are used by the relevant regional planning authorities to verify an update requirement. The regional planning authority will decide whether to update the regional plan.

The excavation monitoring system is used to conduct an annual survey to quantify the extent of the residues of individual mineral groups (e.g. sand and gravel, clay and loam, limestone, claystone, basalt and sandstone) in the plans.

The updating must begin promptly to ensure that the period of supply does not fall below 10 years for unconsolidated material and 25 years for bedrock. The timing of the update is based on the fact that a regional plan usually runs for 10 years and is then followed by a review of the regional plan. If it is found during the extraction monitoring process that the period of supply of the BSABs is dropping faster than originally determined, the BSAB must be extended so as not to compromise the control effect of the regional plan.

Where an update is found to be necessary, the planning scope for all near-surface non-energy resources covered in the plan must be extended again to at least 20 years for unconsolidated material and at least 35 years for bedrock.

Re 9.2-4 Subsequent use

Recultivation, renaturing and functional rehabilitation of excavation sites must be performed, where appropriate, across regions and companies and if possible on the basis of inter-municipal subsequent use programmes. The subsequent use concerned must be evident from the graphical representation. Programmes for the subsequent use for nature conservation, recreational, sport or leisure-oriented uses are not confined to newly closed areas. Where possible, they also cover existing and former excavation sites.

The strain to space associated with mineral extraction makes it obvious that mineral extraction should be subjected to the obligation to ensure that the area concerned is upgraded in terms of natural space and function after the extraction operations have ended – where appropriate, including as part of inter-municipal or inter-enterprise programmes. The aim is, in this connection, to create an added social value by, for example, creating recreation, sport and leisure facilities or nature conservation or flood protection measures to benefit the affected area. The quickest way of achieving this is with a sensible subsequent use, if necessary coordinated between municipalities, which is implemented soon after the extraction operations.

The actual availability and suitability of the materials must be considered before designating a subsequent use that provides for the partial or complete backfilling of the excavation site.

Re 9.2-5 Sites for surface extraction facilities

Because of the surface operating equipment, the extraction of non-energy resources by deep mining can also lead to conflicts of use with other demands on land use. As a result of the localised nature of deposits, the operational facilities required for extracting them at the surface are mostly localised. When the surface plant required to extract these resources is being constructed, the aim must be to achieve the greatest possible compatibility with other land uses.

Caverns created in salt mines by solution mining may be suitable for the underground storage of natural gas and oil and compressed air after mining operations. Underground storage requires the construction of a suitable infrastructure, e.g. compressor units, pumping stations and supply lines. The way this infrastructure is constructed must be compatible with other land uses. Where thus infrastructure is localised, it becomes particularly important in terms of energy production when considered alongside other demands on land use.

9.3 Energy resources

Objectives and principles
9.3-1 Objective: Brown coal plans
Spatially significant land uses associated with brown coal mining must be protected in brown coal plans so that demand can be met.

9.3-2 Objective: Subsequent use for coal mines
Sites of surface operating plant and facilities for coal mining must be designated a subsequent use after mining activities have ended, which is in harmony with the surrounding spatial uses and functions.

Exceptionally, where these sites are earmarked for use as underground energy storage or other energy-related purposes, the surface entrance to the local coal deposits must be preserved.

Notes

Re 9.3-1 Brown coal plans

The demand for land suitable for brown coal (lignite) mining in the Rhenish coalfields has been safeguarded for the long term in the existing Inden, Hambach and Garzweiler brown coal plans. The consumption of more mining land is not necessary.

On 9 April 2014, the NRW government took the decision to prepare a new landmark decision on brown coal. The political aim is to avoid having to resettle Holzweiler, a part of the town of Erkelenz. The Garzweiler II Brown Coal Plan has to be amended accordingly to take account of this. The landmark decision involves imposing a spatial limit on surface mining at Garzweiler II and not a time limit.

The requirements of planning regulations issued for the approved mining areas (subsequent resettlement sections, if necessary pipes) will require further brown coal plans in due course. The size of the resettlement locations will be determined on the basis of the number of people expected to be involved in the resettlement, the urban development plan of the municipalities and Section 48, para. 1, sentence 2 of the NRW Expropriation and Compensation Act (Landesenteignungs- und entschädigungsgesetz). The necessary amount of land must be designated in the brown coal plans for the relocation of pipes and other infrastructure.

Information on brown coal deposits is held by the competent authority for geology and will be made available to the regional planning authorities for specification in regional plans.

Re 9.3-2 Subsequent use for coal mines

In the mining industry, it is principally the location and viability of the coal fields as well as organisational requirements that determine the complicated system of shafts and other plant and machinery on the surface. Depending on the location, these sites – if 10 ha or over – are generally designated graphically in the regional plan as areas for commercial and industrial uses for specific uses as “surface plant and equipment for mining”.

Which subsequent use can take place after use as a mine will mainly be determined by the surrounding land uses and functions. A construction or more particularly an industrial use will be considered if the site is integrated into an urban development plan or is allocated to an area for commercial and industrial uses and there are no objections from a pollution control perspective. A subsequent use for construction will not be considered in the case of sites in an isolated location in the open space. In this case, the aim of a subsequent use must be to take account of the ecological importance of the surrounding open space and its suitability for recreation, sport and leisure use. It must also be ascertained during the deliberations on the subsequent use of these sites whether they are suitable for the use of renewable energy or for energy storage. Notwithstanding the above, derelict land situated in open space can be designated as an area for commercial and industrial uses subject to the condition set out in Objective 6.3-3 New areas for commercial and industrial uses.
10. Energy supply

10.1 Energy structure

Objective and principles

10.1-1 Principle: Sustainable energy supply
The spatial requirements of an energy supply focused on prioritising and exploiting the potential of renewable energy should be taken into account in all parts of NRW. This will provide an adequate, secure, climate and environment-friendly, resource-efficient and inexpensive, efficient energy supply, including the expansion of energy networks.

Efforts must be made to ensure that priority is given to the use of renewable energy sources. These should – where necessary and in line with climate protection targets – be flexibly supplemented by the highly efficient use of fossil fuels.

10.1-2 Principle: Spatial conditions for the energy supply
Spatial conditions must be created for expanding renewable energies, increasing energy efficiency and using energy economically.

10.1-3 Principle: New sites for energy production and storage
Suitable sites for the production and storage of energy should be designated in regional and urban development plans.

10.1-4 Objective: Combined heat and power
The potential of combined heat and power generation and the use of waste heat must be exploited in regional and urban development planning to achieve the most efficient use of energy possible.

Notes

Re 10.1-1 Sustainable energy supply
The key objectives of energy and climate policy should also be taken up and implemented in spatial planning. A high level of security of supply and an affordable energy supply should be guaranteed as essential locational and competitive factors, just as much as an energy supply which is environmentally friendly and efficient, especially for reasons of climate and resource protection.

An electricity and gas supply network that expands to meet demand is a precondition for the secure supply of the population and the competitiveness of trade and industry. Specifications for electricity cables and gas pipes can be found in Section 8.2 Transport using pipes and cables.

Against a backdrop of decreasing fossil resources worldwide, an increasing dependence on imports and rising energy prices, the use of renewable and local energy sources is of strategic importance. Renewable energy sources, including wind, biomass, sun, geothermal energy and water, are available in NRW as well as the fossil energy sources, i.e. lignite, bituminous coal and natural gas.

The proportion of renewable energy in the energy mix will increase steadily in future. At least for the duration of the LEP, it will have to continue to be flexibly supplemented by a highly efficient use of fossil energy sources. The use of local brown coal can reduce the high dependence on imported energy sources and therefore help to ensure a secure energy supply. Brown coal is a local energy source, but it does emit a substantial amount of CO₂ when being converted to electricity.
The aim of the European Union's integrated climate and energy strategy is to increase the proportion of renewable energy in primary energy consumption to 20% and energy efficiency by 20% in the European Union by 2020. NRW is additionally endeavouring to reduce total greenhouse gas emissions in NRW by at least 25% by 2020 and by at least 80% by 2050 compared with total emissions in 1990.

The consistent use of renewable energy is a key element in reducing greenhouse gas emissions. To this end, the spatially compatible use of the various types of renewable energy must be facilitated at the appropriate planning level. However, the tendency towards a sustainable energy system is associated with a multiplicity of spatial impacts, as the production and storage of energy from renewable sources requires a substantial amount of land. Where the expansion of renewable energy requires sites in the open space, the designation of sites for renewable energy should take account of the interests of open spaces and the conservative use of land and soil, thereby contributing to the sustainable consumption of land in order to avoid conflicts with other use and protection functions of the open space.

Planning measures can also make a substantial contribution to energy efficiency. The potential energy savings that can be made are significant in spatial and settlement development that reduces traffic and facilitates combined heat and power systems and the use of waste heat. This requires the implementation of the “European city” model (see also LEP, Section 6.1 Specifications for the settlement area as a whole). Integrated settlement and transport planning and a reduction in new land consumption for settlement purposes, combined with high-quality, high-density construction in the housing stock will make a substantial contribution to reducing energy consumption.

It is an important task of regional and urban development planning to resolve spatial planning conflicts relating to the designation of sites for energy production and storage. Each regional and municipal planning authority takes the planning decisions for its own level with regard to sites to be used for energy production from renewable sources (wind energy, biomass, solar energy, geothermal energy, water power) and fossil fuels (gas, coal).

Suitable sites are those that are compatible with the text and graphical specifications in the NRW planning standards and meet the conditions set out in regional plans and construction planning and sectoral legislation. Moreover, sites for energy production from renewable sources must have the necessary natural features, e.g. wind conditions, solar radiation and local geology. The suitability of a site for energy production from fossil fuels is mainly dictated by the proximity to the deposits, the supply routes for coal or natural gas, the electricity transmission grid, the district heating pipelines and the high-demand areas or the existing production facilities with their electricity and heating requirements.

Further specifications can be found in the following sections: 10.2 Sites for the use of renewable energies and 10.3 Power station sites. No discrete specifications have been issued for the use of geothermal energy as it is generally assumed not to have any spatially significant effects.

The increasingly fluctuating nature of energy production requires new storage capacity. Dams are suitable as energy storage facilities and, at the same time, as sites for pumped-storage power plants (see Section 7.4 Water). In addition, the construction of new pumped-storage power plants with suitable reservoirs is being considered. Pumped-storage power plants will make a decisive contribution to the switching of the energy supply to renewable energy as they even out the fluctuating power input from renewable energy and the varying demand for electricity throughout the day. In this way, pumped-storage power plants increase the effectiveness of electricity production and contribute to grid stability. Cavities created by mining activities lend themselves to the construction of underfloor pumped-storage plants (see Section 9.3 Energy resources). The sites for the above-ground parts of these plants must be safeguarded if they are spatially significant. Likewise, the above-ground parts of possible sites for compressed-air storage in caverns (cf. note to 9.2-5) must be safeguarded if they are spatially significant.

In the interests of minimising conflicts of use, it is necessary that the sites for energy production and storage should be compatible with surrounding uses. This can be achieved, for example, by leaving sufficient distance from sensitive uses.
Energy efficiency can be increased through the use of combined heat and power, thereby helping to protect the climate. Heat can only be transported economically over limited distances without major heat losses. Where possible, suppliers and consumers should be geographically aligned for the coupling out of heat to local and long-distance heating systems. Suppliers could include plants for producing energy from both conventional and renewable sources as well as manufacturing industry and commercial enterprises or sewage treatment plants. Consumers of heat could include commercial and industrial enterprises. The use of heat is also conceivable in glasshouse horticulture and private households.

Combined heat and power generation can be particularly effective when used in residential areas with a high demand for heat or in commercial and industrial developments. Regional and municipal planning authorities must exploit the technically achievable and economically viable potential of combined heat and power (see also Principle 6.1-7). They should also study the options for further expanding local and district heating networks (see Section 8.2 Transport using pipes and cables).

10.2 Sites for the use of renewable energies

Objectives and principles

10.2-1 Objective: Tips and landfill sites as sites for the use of renewable energies
Tips and landfill sites must be protected as sites for the production of energy from renewable sources, provided that the technical conditions are right and practical requirements do not prevent this.

Exceptions from the above are waste tips and landfill sites already used for culture. Practical requirements also prevent use for energy production from renewable sources where a regionally coordinated and decided subsequent use programme specifies uses in the area of art and culture for waste tips and landfill sites.

10.2-2 Objective: Priority areas for wind energy use
To meet the objective of providing at least 15% of NRW’s power supply from wind energy by 2020 and 30% from renewable energy by 2025, sufficient areas must be designated in regional plans as priority areas for the use of wind energy in proportion to its regional potential.

10.2-3 Principle: Extent of land designated for wind energy use
The priority areas mapped out by the regional planning authorities for wind energy use should safeguard at least the following surrounding areas in regional plans:

- Arnsgberg planning area 18,000 ha,
- Detmold planning area 10,500 ha,
- Düsseldorf planning area 3,500 ha,
- Cologne planning area 14,500 ha,
- Münster planning area 6,000 ha,
- Planning area for the Ruhr Regional Association 1,500 ha.

10.2-4 Principle: Wind energy use through repowering
Regional and urban development planning should support the repowering of older wind turbines which are being replaced by a smaller number of new, more powerful turbines. Local planning authorities should create the conditions in their urban development plans so that the wind turbines to be repowered can be combined or rearranged within an area.

10.2-5 Objective: Solar energy use
The use of open spaces for the spatially significant use of solar energy must be avoided.

Exceptions to this are open space solar energy installations, where the site is compatible with the protective and utility function in the relevant specification in the regional plan and the plan involves
- the re-use of derelict land formerly used for commercial, mining, transport or housing purposes or military land earmarked for redevelopment and predominantly characterised by structural installations,
- tips, or
- sites along federal highways or railways of supra-regional significance.
10. Energy supply

Notes

Re 10.2-1 Tips and landfill sites as sites for the use of renewable energies

The increased expansion of renewable energy requires the availability of sufficient land for the relevant energy production plants. In order to avoid conflicts with other use and protection functions and in the interests of the conservative use of land and soil, suitable sites are those which are already predominantly characterised by structural installations from their previous use or had been built as artificial structures (e.g. waste tips). Because of their exposed location, waste tips and landfill sites are considered for solar energy use, the cultivation of renewable resources or as sites for wind energy production. The precondition for this is that waste tips or landfill sites are suitable structurally and in terms of landfill type for the erection of solar energy installations or wind turbines and do not conflict with requirements, e.g. relating to groundwater, fire and nature protection.

Waste tips and landfill sites are part of the cultural landscape dominated by anthropogenic industry. The use by renewable energy represents a further development of the cultural landscape as defined in Section 3 of the LEP. By the same token, a tourism and leisure function or a scenic function does not necessarily preclude a use by renewable energy. In the case of waste tips and landfill sites with special significance for biotope and species protection, the sustainability of renewable energy use must be evaluated on an individual basis.

Re 10.2-2 Priority areas for wind energy use

According to NRW’s objectives for the expansion of wind energy, the proportion of wind energy in the NRW electricity supply should be at least 15% by 2020, as a first step. Compared with electricity consumption in 2010, this corresponds to approx. 21 TWh/a. The proportion of renewable energy should rise to 30% of the electricity supply by 2025. Based on the electricity consumption in 2010, this means that a total of approx. 41 TWh/a will have to be generated from renewable sources in NRW. Taking into account the current expansion targets and trends for other types of renewable energy, this corresponds to generating approx. 28 TWh/a from wind energy.

The proportion of renewable energy should rise to 80% of Germany’s electricity supply by 2050. This means that wind energy use – including in NRW – will continue to have an important part to play. In addition to the erection of additional wind turbines, the repowering of wind turbines is set to become increasingly important. Even though sites of older wind turbines will not always be suitable for new, modern turbines (greater distances needed), we can still expect that the growth of wind energy as part of the electricity supply will no longer have to be entirely achieved through the consumption of additional land for the erection of new wind turbines.

The potential for wind energy use in NRW depends on a variety of factors such as topography, settlement structure and other vulnerable uses, as a result of which not all planning areas can make the same contribution to the expansion of wind energy.

The specification of priority areas in the regional plans promotes the expansion of wind energy use, in which especially suitable sites are safeguarded in spatial development plans and kept free from conflicting uses. Using the priority areas as efficiently as possible allows optimum use to be made of the wind energy available on the site and at the same time the consumption of land, e.g. for road building and cable laying – to ensure the space-saving use of land – to be minimised. When combined with the representation of concentration zones for wind energy use in urban development plans, it is possible to keep other areas with sensitive uses free from spatially significant wind turbines.

In the interests of minimising conflicts of use between sites for wind turbines and other uses, the following are among the aspects that must be checked when suitable sites are being designated for wind energy use:

− wind conditions,
− proximity to infrastructure corridors (Federal highways, rail routes of supraregional significance or high-voltage overhead power lines),
− distance from settlement areas, cultural heritage sites and tourist facilities,
− impact on elements significant to the cultural landscape, e.g. local view, city skyline, large-scale visual axes, scenery and recreational function,
− distance from nature reserves,
Embracing the counterflow principle, the regional planning authorities consider the concentration zones represented in urban development plans in terms of their suitability for the specification of priority areas for wind energy use in regional plans.

Depending on the planning area to be considered and the criteria used in the site search process, there may be differences between the specifications for sites for wind energy use in regional and urban development plans. The graphical designations in the regional plans are therefore deemed to be priority areas without the status of a suitability area. This enables the municipal planning authorities to represent other land for wind energy use outside priority areas designated in regional plans in the interests of expanding renewable energy. The municipalities may designate areas in their zoning plans that concentrate wind energy use on suitable sites.

Outside the priority areas for wind energy use designated in regional plans, the proposed representation of areas for wind energy use must be oriented towards the text and graphical specifications of the NRW planning standards and the regional plans that exist for the planning area.

Priority areas designated in regional plans and concentration zones represented in zoning plans outside priority areas together contribute to the above-mentioned expansion targets for wind energy. This is consistent with the nature of the expansion targets as minimum targets. The NRW government expects the regions and municipalities not to content themselves with fulfilling the minimum target once it has been set but to show a commitment far beyond this by opening up approx. 2% of the area for wind energy use. An expansion of wind energy beyond the priority areas in regional plans will also create a reserve for contingencies in the actual implementation of land-use planning and facilitate the problem-free expansion of wind energy after 2025.

In the interests of creating added value for municipalities, the latter should make an effort to safeguard a site at an early stage in the process of establishing a priority area/concentration zone for wind energy use. Concluding site safeguarding agreements under construction law and initiating participation models, such as “civic wind farms” (Bürgerwindparks) can increase the acceptance of wind energy use and therefore assist in the rapid implementation of the energy revolution.

Further information on the planning and approval of wind turbines can be found in the current version of the Common Circular Decree known as the “Wind Energy Decree”.

**Re 10.2-3 Extent of land designated for wind energy use**

In 2012, the NRW Office for Nature, the Environment and Consumer Protection conducted a “Potential Study into Renewable Energy in NRW, Part 1 – Wind Energy, LANUV Technical Report 40” (Wind energy potential study). In its NRW lead scenario, this study showed that there is potentially approx. 113,000 ha of land available for wind energy use in NRW. This potential supply of land includes land both for wind farms (three or more turbines) and for individual turbines. For wind farms alone, the study showed a potential 74,600 ha of land (Table 20, Feasible potential for NRW, NRW-wide review (rounded), potential land for the NRW lead scenario).

The LANUV potential study shows that NRW’s expansion targets for wind energy use are already achievable on 1.6% of its territory (approx. 54,000 ha). This provides the regional planning authorities with sufficient leeway within which to take their own planning decisions. From a planning point of view, the concentration of turbines in wind farms is preferable to wind energy sites with a single turbine. The potential for using wind energy varies widely in NRW’s planning areas. The area outline for the proportional contributions of the regions have been taken from the results of the wind energy potential study.

According to the study, the quantities for the individual planning regions are:

- **Arnsberg planning area**: 18,000 ha (8.9 TWh/a),
- **Detmold planning area**: 10,500 ha (5.6 TWh/a),
- **Düsseldorf planning area**: 3,500 ha (1.7 TWh/a),
- **Cologne planning area**: 14,500 ha (8.0 TWh/a),
Münster planning area 6,000 ha (3.0 TWh/a),
RVR planning area 1,500 ha (0.8 TWh/a).


The NRW energy atlas of the NRW Office for Nature, the Environment and Consumer Protection provides the latest review of the stock of wind turbines, their performance and their income and documents the progress of the expansion of wind energy use.

Re 10.2-4 Wind energy use through repowering

"Repowering" provides substantial potential for developing wind energy use. As defined in the Renewable Energy Act, repowering means replacing wind turbines which are at least 10 years old (old turbines) with newer modern turbines which, besides being more efficient, are generally also taller and fitted with larger rotors.

Repowering provides the opportunity to replace older, low-income turbines with modern units. This not only increases the yield while occupying the same amount of land, it often reduces environmental damage as well. The municipalities should therefore design the conditions under construction law to ensure that repowering can be achieved in a targeted way.

Height restrictions are an obstacle to repowering within existing concentration zones. Municipalities will therefore be required to review height restrictions in older land-use and zoning plans to ascertain whether they are still necessary in terms of urban development and not to lift necessary height restrictions compulsorily.

Repowering can have a positive impact on municipal development, including in respect of the aspects below:

− it increases municipalities’ contribution to achieving climate protection targets by increasing electricity production from renewable sources;
− it increases trade tax revenue due to the increased production of electricity from wind;
− it promotes the local building industry through repowering measures;
− it prevents or minimises noise emissions and shadow effects through the use of modern plant engineering methods and selecting new sites for wind turbines;
− it prevents or minimises light pollution through the use of new technologies (visual range measurement, downward-facing shielding, synchronisation of lighting on multiple wind turbines);
− it integrates better into the existing settlement structure and the surrounding landscape;
− it reduces the number of turbines by combining or otherwise reorganising the sites for turbines, accompanied by the removal of individual turbines; with regard to the scenic qualities of the landscape, the adverse effects of modern turbines are less serious than the units to be removed;
− where necessary, it "cleans up" the landscape and eliminates negative effects through the removal of old turbines with reflective colours, varying sense of rotation and speed, heights, etc.

Because of the complex tasks involved, the preparation of repowering operations regularly requires the development of a “Repowering Plan” (either local or involving multiple municipalities or regional), where appropriate as an integral part of energy and climate protection plans. Such a plan is, at the same time, a suitable practical basis for the guaranteeing of repowering under planning law by the urban development plan. In this regard, urban development plans (land-use plan and zoning plan) are the main instruments in planning law for guaranteeing repowering. In view of the diversity of the tasks concerned and the parties involved in repowering, even the conclusion of urban planning or spatial planning contracts is often considered.

Re 10.2-5 Solar energy use

The use of solar energy on and near structural installations is preferred to the construction of large scale solar energy installations in open spaces (open space solar energy installations). Existing buildings provide great potential in terms of suitable spaces, which can be increased further by forward-looking urban planning. “Solar land registers” are also helpful in this regard.
Sites for open space solar energy installations should therefore only be designated in the open space in exceptional cases. The site requirements should take into account the interests of open space protection and the scenic qualities of the landscape and contribute to sustainable land consumption. It is essential that this does not involve new sites situated in an isolated location in the open space but sites which are already predominantly characterised by structural installations from their previous use or had been built as artificial structures (e.g. waste tips). This helps to prevent conflicts with other use and protection functions and is in the interests of the conservative use of land and soil. Their exposed location makes waste tips and landfill sites suitable for solar energy use.

Unlike wind turbines and privileged biomass energy plants, open space solar installations are not privileged under construction planning law. For an open space solar energy installation to be erected as an independent installation, it will be necessary to draw up a zoning plan which must be amended to comply with the text and graphical specifications of the NRW planning standards and the regional plans that exist for the planning area.

**10.3 Power station sites and fracking**

**Objective and principles**

**10.3-1 Objective: New power station sites in the regional plan**

Regional plans are designating new sites for energy production (power station sites) as areas for commercial and industrial uses (GIB) for specific use as “power stations and related plant”, as priority areas without the status of suitability area. New sites will also actively assist in the integration of renewable energies in the energy system.

**10.3-2 Principle: Requirements for new sites to be designated in the regional plan**

New sites to be designated in the regional plan should
- allow a minimum electrical efficiency of 58% for the power station or the highly efficient use of combined heat and power (CHP) facilities with a total efficiency of 75% with CHP
- be geared to existing and planned power and district heating networks so that as little land as possible is used for new pipe and cable runs and structural installations for the energy supply networks.
- guarantee that a suitable mains connection is available.

**10.3-3 Principle: Protecting the area around power station sites**

Power station sites designated in drawings in the regional plan as areas for commercial and industrial uses for specific use as “power stations and related plant” should be protected by suitable plans and measures from the involvement of uses which are not compatible with the use as a power station.

**10.3-4 Objective: Suspension of fracking in unconventional deposits**

The extraction of natural gas found in “unconventional deposits” by means of fracking technology has been suspended because it is feared that the use of fracking technology can have substantial adverse effects on people and their environment and it is currently impossible to assess the scope of the risks associated with it.

**Notes**

**Re 10.3-1 New power station sites in the regional plan**

A continuous, secure and also affordable energy supply is a basic prerequisite for ensuring the competitiveness of the local economy and protecting jobs in the energy region that is North-Rhine Westphalia. Running in parallel with the expansion of renewable energy, flexible and highly efficient fossil power stations are used in addition to storage and load management facilities. Against this backdrop, new power stations will continue to play a changed but important part over the decades to come. To ensure a secure electricity supply, additional highly efficient, decentralised generating capacity which can be flexibly adjusted to the fluctuating supply of renewable energy is required. The replacement of old, inflexible, inefficient power plant units also helps to reduce the annual CO₂ emissions resulting from power generation.
The switchover of the energy supply to a steadily rising proportion of renewable energy will mean that supply-side planning will in future no longer be necessary at LEP level for new sites for more large-scale fossil power stations. The 1995 LEP NRW had designated 17 sites for energy production in spatial plans. Some of them were in isolated locations in the open space or adjacent to sensitive nature conservation areas (e.g. FFH or special protection areas). As a result of the realignment, the previous designation of energy supply sites in spatial plans ceased to apply, with the result that – if not yet used – they are available for other land uses.

New power station sites, which need to be safeguarded in regional plans, must be designated in graphical representations as areas for commercial and industrial uses for specific uses as "power stations and related plant". This involves both the initial designation of a power station site in regional plans and the expansion of existing power station sites if the threshold for representation in regional plans is exceeded.

The objective focuses exclusively on sites for power stations in which energy sources are incinerated to generate electricity and/or heat. The size and impact of these plants vary significantly according to the technology used. At present, they range from a micro-cogeneration plant for a single-family home to large gas and steam turbines and coal-fired power stations via cogeneration plants for supplying residential areas. As far as spatial planning management is concerned, this means: micro-cogeneration plants must be classified as not spatially significant. The spatial significance of cogeneration plants must be investigated in specific cases. The criteria could be the land consumed, the installed power of the plant or the size of the area supplied with local and district heating. In the case of gas and steam turbine plants and coal-fired power stations, their spatial significance must be assumed on a regular basis. These projects are generally designated in the regional plan at the request of a project lead partner.

Power station sites are designated for energy production as a priority area without the status of suitability area. Power stations continue to be permitted even outside these priority areas. In particular, existing rights to build power stations in suitable industrial zones or within non-central places built in connection with them (Section 34 of the Federal Building Code) are not restricted. The objective does not cover power station uses which involve spatially and functionally subordinate ancillary plants with other uses (e.g. power plants that allow hospitals or care homes to generate their own energy).

Re 10.3-2 Requirements for new sites to be designated in the regional plan

In order to achieve the climate protection targets (see Section 4. Climate protection and climate adaptation) the fluctuating electricity production from renewable energy is to be bolstered by highly efficient, flexible power stations (see also Principle 10.1-10).

The efficiency of a power station is determined by its electrical efficiency and fuel utilisation efficiency (total efficiency). For example, modern gas and steam turbine plants can achieve the electrical efficiency specified in the principle of 58% without making special demands on the site. The spatial management of gas and steam turbine plants mainly takes place via the link to the existing and planned mains supply.

A cogeneration plant is a high-efficiency plant for the purposes of the Combined Heat and Power Act if it produces high-efficiency cogeneration as defined in Directive 2004/8/EC of the European Parliament and of the Council of 11 February 2004 on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC (Official Journal No. L52, p. 50). In order to guarantee this, the potential of cogeneration must be exploited to the full.

Meeting the requirements of the electricity grid should guarantee the integration of renewable energy into NRW's electricity system using high-efficiency, flexible power plants and help to secure grid stability. Additional expansion of the grid and the consumption of land and landscape should generally be avoided. This also satisfies the justified interest of local residents in protecting their living environment.

The above-mentioned requirements for the designation of new power station sites must be considered alongside other requirements for the energy supply as stated in Principle 10.1-1 Sustainable energy supply.

Re 10.3-3 Protecting the area around power station sites

The use of power station sites designated in the regional plan with specific use as “power stations and related plant” may be further restricted by pending uses. Section 50 of the Federal Pollution Control Act therefore states that it must be ascertained that the pending use is compatible with the power station use when planning decisions are being taken on areas and land bordering on these power station sites. To this
end, sufficient distance must be maintained outside the power station sites from vulnerable uses, e.g. areas which are mainly residential.

Further information on distances between industrial and commercial areas and residential areas in the context of urban development planning and other distances significant for pollution control can be found in the current version of the Common Circular Decree known as the “Distance Decree”.

**Re 10.3-4 Suspension of fracking in unconventional deposits**

It is suspected that natural gas deposits are present in shale, argillaceous rock or coal seams in NRW. The deposits in this type of rock are “unconventional deposits” as defined in Objective 10.4-3. According to our current state of knowledge, the only way to extract natural gas from these deposits is to use fracking technology. This method involves drilling first vertical and then horizontal boreholes and then injecting a fracking fluid consisting of water, quartz sand and chemical additives, which can sometimes be water-polluting, into the ground and subjecting it to considerable pressure. This creates cracks in tight or impermeable rock strata through which the gas can escape and then be recovered. Raw materials and therefore, ultimately, economic interests argue in favour of extracting natural gas from unconventional deposits. The need for a secure and, in particular, independent energy supply must be taken into consideration. However, the interests that favour the use of fracking technology must be put into perspective. Uncertainty exists both with regard to the amount of gas available in unconventional deposits in NRW and with regard to the amount that can actually be recovered. Combined with a trend in the gas price which is hard to predict and essentially depends on future demand – also unclear – and the international market situation, the possibility of a sustainable economic extraction industry cannot be assumed with certainty. This is not just the risk borne by the project initiator but a matter of importance in managing consequential damage to legal assets adversely affected by the use of fracking technology, which has to be considered in the national interest.

However, research has shown that fracking projects involving exploration for and extraction of natural gas in unconventional deposits can cause substantial adverse effects on people and the environment, which are transmitted via surface and underground pathways. In particular, fracking fluid can endanger the soil balance and water balance, which – as the prerequisite for human existence – are also a precondition for other spatial functions, e.g. those that benefit nature and agriculture. Based on current scientific knowledge, it is impossible to rule out irreversible damage being caused to the soil and water balance. Scientific uncertainty also exists with regard to fracking-induced seismic activity.

With this in mind, the NRW government commissioned – as long ago as 2012 – a report with a risk study on the exploration for natural gas and its extraction from unconventional deposits in NRW and the impact of this on the natural balance, in particular on the public drinking water supply. The report concludes that substantial risks must be assumed, especially to the groundwater. Much further investigation is required before a risk assessment can be completed.

Interests in favour of using fracking technology are faced by opposition from substantial and ultimately decisive interests in favour of imposing a suspension of fracking projects across NRW. The sometimes substantial, sometimes insurmountable barrier of geographical distance means that a large part of NRW’s territory is not considered suitable for fracking projects in any case. The use of technology in the course of exploring for and extracting natural gas in unconventional deposits can also have adverse effects on people and the environment which are transmitted via surface and underground pathways. In particular, the fracking fluid used can endanger the soil and water balance, the functioning of which is the prerequisite for human existence as well as a precondition for various other spatial functions, e.g. those that benefit nature and agriculture. Current scientific knowledge is unable to conclusively evaluate the potential threat or risk inherent in the technology.

In view of the high value of the threatened legal assets and the possibly irreversible damage to various areas and their functions, which cannot be ruled out, the LEP is fulfilling its protection and risk prevention role and is suspending fracking projects in unconventional deposits across NRW.

Until such time as the possibility of irreversible damage to the land is ruled out by advances in science and technology, it is one of the tasks of spatial planning to preserve and protect the land to ensure that other uses can still be developed at a later date.
The high value of the legal assets (human life and health, protection of water including groundwater, nature, landscape and soil) militates in favour of a high level of risk prevention and ultimately the suspension of fracking operations in unconventional deposits for the time being.

Overall, the existing barrier of geographical distance, the scientific uncertainties surrounding impact and the technological uncertainty in terms of finding a sure way to prevent harmful effects from such fracking projects outweigh the benefits of fracking operations.

If the potential risks and threats of fracking operations in unconventional deposits can be properly scientifically and technologically assessed and managed in future, a re-evaluation of the barriers to such fracking projects in NRW may be considered.

Objective 10.3-4 does not refer to deep drilling for other purposes, e.g. the use of deep geothermal energy, or to conventional natural gas extraction. Safe technologies for extracting natural gas have been in use in Germany since the 1960s.
11. Legal foundations and legal effects

The legal foundations of the LEP are provided by the Federal Spatial Planning Act (Raumordnungsgesetz = ROG) of 22 December 2008 (BGBl. I p. 2986), last amended by Article 9 of the Act of 31 July 2009 (BGBl. I S. 2585) and in addition in the Land Planning Act (Landesplanungsgesetz = LPIG) of 3 May 2005 (GV. NW. p. 430), last amended by the Act of 24 May 2010 (GV. NRW. p. 259).

As part of the reform of the federal system, the legislative powers of the Federal Government and the Länder have been redefined by means of an amendment to the German Constitution. The area of spatial planning has been transferred from framework legislation to concurrent legislation (Section 74, para. 1, No. 31 of the Constitution), with the result that the provisions of the ROG now apply directly.

Section 1, para. 1 ROG states that the whole territory of the Federal Republic of Germany and its regions must be developed, organised and safeguarded by comprehensive, supraregional and interdisciplinary spatial development plans (...). Spatial development plans have therefore assumed the function of harmonising the different demands on an area, resolving any conflicts that may arise at a particular planning level and allowing for the individual uses and functions of the area.

Whether spatial planning at NRW level is entitled to binding standards under the constitution and, if so, which, can be gleaned from the principles developed in the Federal Constitutional Court (cf. BverfGE 3, 407). They state that spatial planning is “the comprehensive, overarching planning and organisation of space”. It is overarching because it is supraregional planning and because it combines and coordinates a variety of sectoral plans. This can be found in Section 1 ROG as the allocation of spatial planning duties.

“As a mediator between private investors and sectoral planning authorities, spatial planning specifies to municipal development planning the lines of spatial development within the framework of which land and soil are to be used for settlement activity, economic development and infrastructure projects and designated for spatial functions (cf. Runkel, Section 1, Paragraph No. 48 in Spannowsky/Runkel/Goppel, Commentary on ROG).

Furthermore, spatial planning is used to effect the large-scale separation of incompatible uses, e.g. airports and the settlements that surround them (loc. cit., Paragraph No.49).

Another task is to designate spatial functions, most of which consist of safeguarding specific functions predominating in an area against economically attractive demands on land use. Nature and landscape, groundwater and local recreation are functions which should be safeguarded by spatial planning against other uses in their spatial distribution area (loc. cit., Paragraph No. 50).”

Section 2 (principles of spatial planning) and Section 8, ROG (NRW-wide spatial development plans, (...)), state what a permissible subject for a spatial planning rule and the contents of spatial development plans can be. Section 2, para. 1, ROG requires the principles as defined in the overall concept of sustainable spatial development to be applied and to be fleshed out by specifications in spatial development plans. The possible contents of a spatial development are listed in Section 8, para. 5, ROG by way of example and not exhaustively.

At the same time, spatial development plans are given the function of a supraregional and interdisciplinary plan. Their supraregional nature serves as a boundary separating them from the municipal local planning system. Their supraregional nature is also defined according to the purpose of the plans.

Already, Section 78, para. 2 of the NRW constitution shows that the right to local self-government is not unlimited but is only guaranteed within the framework of current laws which in turn are subject to constitutional restrictions and require justification. The fact that municipalities are bound by the specifications of the LEP does not in principle infringe the right to local self-government. This was clearly stated by the Federal Constitutional Court as long ago as 2003 (cf. Federal Constitutional Court, judgment of 15.03.2003 – BverwG 4 CN 9.01) and was confirmed again in a decision by the court (cf. Federal Constitutional Court, decision of 09.04.2014 – 4 BN 3.14, Rn.7).

The ROG states that spatial development plans for a specific planning area and a regular medium term must set out specifications in the form of objectives and principles for the development, organisation and protection of the area, especially as regards the uses and functions of the area (Section 7, para. 1, ROG).
Section 8, para. 1, sentence 1, No. 1 of the ROG states that a regional spatial development plan must be prepared for each individual Land.

As a spatial development plan for the whole Land, the LEP consists of specifications in the form of text and graphical representations with explanations. The specifications in text form, expressed as objectives and principles, must be identified as such.

Spatial planning objectives
are, according to Section 3, para. 1, No. 2 of the ROG, prescribed standards in the form of texts or drawings in regional plans which are governed by or can be reconstructed on the basis of area-specific or functional features and which have been finally decided upon by state authorities responsible for regional or subregional planning in the individual Länder; they serve to develop, organize and protect the respective areas. They must be observed by the authorities referred to in Section 4, para. 1 of the ROG. In other words, they are specifications which have a binding effect and cannot be negotiated away by trade-off.

Under Section 1, para. 4 of the Federal Building Code (BauGB), urban development plans must be amended to meet spatial planning objectives; for this reason, local urban development plans have a duty to take action to achieve the spatial planning objectives.

Spatial planning principles
are general statements concerning the development, organisation and protection as standards to be complied with in subsequent judgements and discretionary decisions. They must be taken into account as stated in Section 4, para. 1 of the ROG. In other words, they must be given their due weight in considerations and be overcome when considered with other relevant interests.

The specifications can describe priority, reserve and suitability areas as stated in Section 8, para. 7 of the ROG:
- **Priority areas** are areas scheduled for certain spatially significant functions or uses, excluding other spatially significant uses in this area, if they are inconsistent with the priority functions or uses.
- **Reserve areas** are areas where special importance is attached to certain spatially significant functions when balanced with competing spatially significant uses.
- **Suitability areas** are areas where certain spatially significant measures or uses which are to be assessed in accordance with Section 35 of the Federal Building Code do not impede other spatially significant interests. At the same time, these measures or uses are prohibited in another location in the planning area.

Section 8, para. 7, sentence 2 of the ROG states that priority areas for spatially significant uses may be established to have the simultaneous effect of suitability areas for spatially significant measures or uses.

The **graphical area specifications in the LEP** appear as priority areas in the scale of 1:300,000 with a display threshold of 150 ha as a result of the scale used. For this reason, the levels subordinate to the Land planning level (regional planning, urban development planning and sectoral planning) have options in terms of design to put the graphical specifications in the LEP into practice under their own responsibility. In this way, the priority areas graphically represented in the LEP can be supplemented in regional plans with further appropriate priority areas – also with individual additional areas in excess of 150 ha.

The plan symbols to be used to implement the LEP in regional plans are set out and defined in the implementing order for the Land Planning Act.

Open spaces, settlement areas and brown coal mining areas are also included in the LEP plan map within their current boundaries in regional plans in the form of an informative representation. These informative representations do not have any legal effect of their own; they are only intended to show the current plans and spatial structures to which certain text specifications in the LEP relate, especially with regard to the further development of settlement areas and open spaces.

Figure 7 shows the position of the LEP in the planning system.
System der räumlichen Planung in Nordrhein-Westfalen
# Appendix 1: Central places in North-Rhine Westphalia

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<th>Planning area, district, municipality</th>
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### Appendix 1: Central places in North-Rhine Westphalia

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## Appendix 1: Central places in North-Rhine Westphalia

The North Rhine-Westphalia Regional Development Plan (LEP NRW)

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## Appendix 1: Central places in North-Rhine Westphalia

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### Appendix 1: Central places in North-Rhine Westphalia

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## Appendix 1: Central places in North-Rhine Westphalia

The North Rhine-Westphalia Regional Development Plan (LEP NRW)

<table>
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<tr>
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| Selfkant                         | Basic centre  
| Waldfeucht                       | Basic centre  
| Wassenberg                       | Basic centre  

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| Gummersbach                           | Middle centre  
| Radevormwald                          | Middle centre  
| Waldbröl                              | Middle centre  
| Wipperfürth                           | Middle centre  
| Bergneustadt                          | Basic centre  
| Hückeswagen                           | Basic centre  
| Lindlar                               | Basic centre  
| Marienheide                           | Basic centre  
| Morsbach                              | Basic centre  
| Nümbrecht                             | Basic centre  
| Reichshof                             | Basic centre  
| Wiehl                                 | Basic centre  

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<tr>
<th>Administrative Region of Münster minus RVR area</th>
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| Münster                                        | Major centre  

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| Ahaus             | Middle centre  
| Bocholt           | Middle centre  
| Borken            | Middle centre  

### Appendix 1: Central places in North-Rhine Westphalia

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### Appendix 1: Central places in North-Rhine Westphalia

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**Ruhr Regional Association**

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**District of Ennepe-Ruhr**

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**District of Recklinghausen**

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**District of Unna**

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## Appendix 2: Cultural landscape areas significant to NRW

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<tr>
<th>No. / Name</th>
<th>Value-adding elements and structures</th>
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<tr>
<td>1 / Weser Valley between Porta Westfalica and Schlüsselburg</td>
<td>Very rich archaeological landscape for all periods of human history, Weser ford as intersection of main roads, Bishopric of Minden with cathedral, Medieval churches, Medieval town hall, town centre with urban development from the 13th to the 20th century, Prussian fortifications, waterway intersection; Valley landscape with characteristic settlement structure and prominent landmark (Porta Westfalica), Petershagen town centre and Schlüsselburg village centre, each with palace, public buildings and community centres, Village centres at Jössen, Windheim, Heimse, Buchholz and Ovenstädt with Romanesque parish churches and rural architecture mainly from the 19th century but also with noteworthy older examples, Manors Neuhof and Schlüsselburg, Weser ferry crossings and barrages, Lahde power station, Barn district in Schlüsselburg, Jewish cemeteries in Petershagen, Petershagen-Frille and Petershagen-Wasserstrasse, Glassworks in Gernheim, windmills and watermills</td>
</tr>
<tr>
<td>2 / Amtsvenn – Ammerter Mark</td>
<td>One of the largest and most important complexes of raised bog and wet grassland in NRW, with usually highly structured mosaic of peatland units, Typical settlement pattern along the Dinkel depression with close link between running waters and former heathland and wasteland areas, Ammerter Mark: neolithic settlement area with settlements and flat grave burial ground of the Funnel Beaker Culture as well as late neolithic burial mounds, Large Bronze Age and Iron Age burial ground with traces of a contemporary settlement, Detailed archaeobotanical archive of landscape history under dunes, Archaeological landscape at Ammerter Mark near Heek</td>
</tr>
<tr>
<td>3 / Cathedral city of Münster with the Wigbold of Wolbeck</td>
<td>Cathedral, Medieval churches, Medieval town hall, housing developments from the 16th to the 20th century, full range of urban development, extensive archaeological archive on the origins of Medieval central places, Around Münster: episcopal manorial system, ecclesiastical institutions and stately homes, In Wolbeck: Landesburg (<em>national monument</em>), layout of town centre, church, Drostenhof, numerous buildings at the Steintor gate, on Herrenstrasse, Hofstrasse, Münsterstrasse and Neustrasse, the Fronhof estate, historic zoo dating from the 18th century</td>
</tr>
<tr>
<td>4 / Nordkirchen Castle and surrounding area</td>
<td>Nordkirchen Castle and park in the Westphalian Baroque style, variety of visual axes, forest belt, Village centres at Capelle, Herbern, Nordkirchen and Südkirchen, Stately homes at Westerwinkel and Ittlingen with parkland, forest and green spaces, Forester’s lodges in Nordkirchen and Westerwinkel</td>
</tr>
<tr>
<td>5 / Senne with adjacent Teutoburg Forest</td>
<td>Military training area at Senne, villages of Haustenbeck, Lippereihe and Taubenteich, Historic road routes, Sennelager: barracks, stables, riding halls and canteens, rest home for soldiers, Hövelhof: Staumühle prisoner-of-war camp, Schloss Holte-Stukenbrock: Stalag 326 prisoner-of-war camp with detention block and camp church situated along the former camp road; Largest, continuous heath landscape in NRW; Archaeological remains of Lopshorn Castle, Sennestadt with different types of residential buildings and central buildings (<em>town hall, churches</em>), as an example of typical notions of architecture and urban planning in the 1960s and 1970s</td>
</tr>
</tbody>
</table>
6 / Lippe – Anreppen – Boker Heide
Roman camp at Anreppen, built 4/5 AD, Early Medieval Hünenburg near Boke,
Castle and palace square in Ringboke with early modern fortifications,
Significant archaeological landscape west of Lippstadt,
Medieval Lipperode Castle,
Scattered settlement patterns: Drubbel: settlement with long strip field in Untereichen, individual
farmsteads with scree landscapes around Hagen, Hagenhufensiedlung at the southern edge of the
Delbrück ridge around Riege and crofter settlements around the former communal area ‘Gemeinheit’,
church village of Kirchboke and town of Delbrück,
Canal system created 1850-53,
Hovestadt Castle with Baroque garden

7 / Weser – Höxter – Corvey
Benedictine abbey of Corvey (World Heritage Site) and Herstelle Abbey,
Church village and ford in Höxter, Carolingian crypt
Reconstructed ruin of Medieval provost’s residence in Roden,
Historic settlement structure on the Weser with towns, monasteries, castles and rural settlements,
Tonenburg,
historic forms of land use (semi-arid grassland, coppice and vestiges of pasture woodland),
Evidence of the history of hydraulic engineering (regulation and expansion of rivers/Eder dam to
regulate water flow in summer) and the history of transport (tow path, timber rafting, old harbour sites,
e.g. Beverungen)

8 / Issel – Dingdener Heide
Ancient settlement landscape: prehistoric and protohistoric, imperial roman time Germanic settlement
sites, mounds and burial grounds;
Medieval heath soils, roads, territorial boundaries and moor colonisation (Ringenberg, Wertherbruch);
Cultural landscape created by centuries of traditional peasant land use with fields upgraded by forest
soil, remnants of heathland, territorial boundaries and deserted farms (Project: “Dingdener Heide –
History of a cultural landscape” of the NRW Foundation).

9 / Xanten
Roman town with camp, training camp, Limes Road, burial grounds, aqueduct, port on old rhine
(Archaeological Park);
Birten with Roman camp, amphitheatre and cemeteries;
Medieval town, cathedral with immunity.

10 / Residenz Kleve – Reichswald
Baroque Residenz Kleve with Medieval and modern town and Schwanenburg: garden and parkland,
avenues, visual axes and views into the surrounding landscape and to the towns of the Lower Rhine
Valley, silhouettes; 19th century spa quarter, castle and Hochelten monastery, Spoykanal, Kleve-
Elten railway, Moyland castle;
Kalkar with Roman sanctuary, Burginatium, Medieval fortified town;
In Reichswald: stone-age rest areas and workplaces, prehistoric burial mounds and settlement sites,
Roman village Burgus Asperden;
Reichswald highly significant in terms of forest history.

11 / Mittlere Niers
Palaeolithic and Mesolithic settlement sites and rest areas;
Roman settlement and burial sites near Pont and Straelen;
Medieval mills, mottes and moated castles, closely spaced series of stately homes;
Geldern and Straelen: Medieval castle, town and fortifications,
Mansions with parkland, amply provided with vegetative cultural landscape elements;
Forest village (Waldf unrestricted) of Lütelforst;
Section of the Napoleonic road from Venlo to Geldern;
Section of the Venlo-Geldern and Geldern-Baerl rail lines.

12 / Haltern – Lippe – Haard
Archaeological landscape in Haltern with several military camps, cemetery and port facilities dating
from the time of the Roman occupation, historic centre in Haltern, pilgrimage site in Annaberg with
church,
Church in Marl-Hamm and Carolingian fortifications with church in Bossendorf; Former Flaesheim monastery, Haltern dam, anthropogenic biotopes in Westrup Heath, Facilities for mining and the chemical industry on the territory of the town of Marl, “An der Haard” shaft (Shaft 6 of the Auguste Victoria/Blumenthal mine), Wesel-Datteln Canal, “Haard” forest area: oak, birch and pine forests, three fire lookout towers are modern landmarks, historically and archaeologically valuable structures (e.g. sunken paths, old excavations or “pingen”, former boundaries), particularly well preserved Neolithic and Bronze Age burial mounds, underground finds, mainly from the Stone Age.

13 / Zollverein – Nordstern
Cultural landscape of heavy industry dating from the 19th/20th century, containing World Heritage Site, the Essen-Zollverein mine with buffer zone (Stoppenberg, Schonnebeck and Katemberg): mining landscape on the Cologne-Minden railway and the Rhine-Herne canal with mines, pits, spoil heaps, rail tracks, cemeteries and canals, workers’ housing and amenities such as churches and schools; Post-industrial landscape architecture (IBA, BuGa).

14 / Ruhr valley
Varied cultural landscape well differentiated over time: Stone Age, Iron Age, Imperial Roman and Germanic settlement and graves; Frankish, Early Medieval and Medieval settlements, castles (Hohensyburg, Blankenstein, Herbede, Steinhausen, Kemnade, Witten, Husen), Broich Castle, monastery (Werden), towns and villages (Werden, Kettwig, Hohensyburg, Blankenstein (with Gethmann Garden), Hattingen, Volmarstein, Wetter, Wengern and Stiepel); Observation and commemorative towers (Vincketurm, Kaiserdenkmal); Early industrial coal mines (drift and open-pit mining), Muttental with historical mining installations (Nachpigall mine); Iron- and steelworks (Henrichshütte - sites of the LWL Industrial Museum -, Lohmann factory) since the 1860s on the Ruhr near Herbede; Industrialist’s villas (Krupp) with parkland (Villa Hügel); Pre-modern shipping route on the Ruhr with locks and harbours, historical tow path, river reservoirs; Early 19th century railway lines (Prince William Railway, Hespertal Railway).

15 / Soester Börde – Hellweg
Rich archaeological potential in the ground, burial grounds from the late 6th to the early 9th centuries, Sparsely wooded agricultural landscape, dry valleys or “Schledden”, anthropogenic limestone grasslands, Local green sandstone deposits as a characteristic regional building material, Historical east-west transport axes (Hellweg – B 1 – A 44), Historic centres of Werl and Soest with historic urban structures and historic buildings dating back eight centuries, Villages on the Börde and church villages on the Hellweg road, Paradieuse convent, patrician country estates around Werl, Railway since 1854, Salt mining: saltworks, spas (Werl, Bad Sassendorf).

16 / Roman Limes Road
Roman road corridor, accompanying military and civilian infrastructure, Roman settlements.

17 / Cologne
Varied urban area well differentiated over time: Prehistoric settlement and burial sites; Germanic settlement from roman imperial time in Westhoven; Roman city CCAA Colonia Claudia Ara Agrippinensium (urban layout), Roman settlement sites, roads, port, bridges, fort on the right bank of the Rhine Divitia (Deutz); Frankish urban settlement, burial grounds; Medieval city with city wall, Romanesque churches and monasteries, cathedral (World Heritage Site), cemeteries and potteries; Early modern Prussian fortress (preserved forts);
Important transport hub with main railway station and Hohenzollern Bridge, Rhine bridges (20th century), ring roads; 
Trade fair site, green system (green belt), parks.

18 / Brühl palaces – promontory mountains (Vorgebirge)
Baroque palaces of Augustusburg and Falkenlust (World Heritage Site with buffer zone), gardens and parks, visual axes and views; 
Medieval and modern castle and town of Brühl; 
In the promontory mountains: Roman settlement sites, section of Roman Eifel-Cologne aqueduct; 
Early to Late Medieval potteries; 
Medieval castles and hamlets, monasteries.

19 / Wupper Valley
Cultural landscape of outstandingly complex persistence and significance in terms of industrial history: 
Pre-modern iron working with many preserved plants, 
Mills, hammer mills with extensive water systems; 
Textile industry around Lennep of Europe-wide significance (Dahlhausen, Vogelsmühle, Dahlerau, Keilbeek); 
Historically significant transport routes (suspension railway, railways, bridges, Münstern Bridge); 
fossil-bearing Devonian limestone; 
Burg Castle, Burg an der Wupper.

20 / High plateau of Brilon
Intensively used agricultural landscape, 
Finds from the Roman imperial period; 
Lead mining areas around Brilon, Brilon-Alme and Wünnenberg-Bleiwäsche, 
Structural remains of former lead mining industry and smelting works around Brilon, Brilon-Alme and Wünnenberg-Bleiwäsche, 
Abandoned Medieval settlements (since the 8th century and in the 9th –11th centuries at the latest), 
Derelict Archdeacon's residence at Haldinchusen, 
Brilon town centre with church and town hall dating from the Middle Ages, parts of town fortification, 
monastery and town houses dating from 1700, 
Historic mills along the Alme, castle and village of Alme, Baroque manor houses at Tinne and Almerfeld, 
resettlement farms in hamlets on the consolidated high plateau, historic centres of Altenbüren, Nehlen, Scharfenberg and Thülen, 
“Bruchhausen rocks”.

21 / Schmallenberg area
Wilzenberg archaeological site with chapel and crossroads, Grafschaft Abbey, 
Historic town centre of Schmallenberg, church villages of Lenne, Oberkirchen and Wormbach with parish church and rectories, typical rural buildings with plain half-timbered houses dating from the 17th century up to the period of reconstruction 1945-50, 
Weiler Winkhausen, Niedersorpe and Obersorpe with farmsteads dating from the 17th century, 
Former hammer mill sites on the Lenne, grain mill in Oberkirchen.

22 / Wahner Heide – Siegburg
Paleolithic quartzite quarrying and processing; 
Prehistoric settlement and burial sites, burial mounds; 
Germanic settlements and burial sites from Imperial Roman times; 
Medieval and modern potteries; 
Medieval mines and factories; 
Military installations dating from the 19th century, biotope complex of Europe-wide significance due to the specific use; 
Medieval monastery and town of Siegburg, significant visual axes and impact of skyline; 
Forsthaus Telegraph near Troisdorf as part of the semaphore telegraph line linking Berlin, Minden, 
Cologne and Koblenz.

23 / Cologne–Heerlen Roman road
Roman road corridor with accompanying infrastructure, 
Roman settlement sites.
24 / Erft with Swist and Rotbach – Euskirchener Börde and Voreifel
Varied cultural landscape well differentiated over time:
Prehistoric and Roman settlement sites;
Medieval villages;
Mills with extensive water systems;
Moated castles and palace complexes, gardens and parks, grassland areas, valuable ancient forests;
Medieval town of Kaster;
Euskirchener Börde and Voreifel:
Paleolithic settlement sites (Lommersum);
Iron Age settlement sites, metal extraction and metalworking;
Roman settlement sites, roman Market town Vicus Belgica (Billig),
Section of the Roman Eifel-Cologne aqueduct,
Roman mining, lime kiln, metalworking;
Early Medieval Frankish settlement sites, burial grounds;
Medieval castle complexes, mills with extensive water systems;
Medieval and modern towns of Euskirchen and Rheinbach;
section of the Aachen-Frankfurt military road.

25 / Aachen
Varied urban area well differentiated over time:
Fossil-bearing Carboniferous limestone;
Early modern mining on Lousberg mountain;
Roman settlement and Roman thermal baths in Aachen and Burtschied;
Early Medieval Palatine chapel and cathedral (World Heritage Site) and settlement sites;
Medieval Aachen boundary mark, mills, castle complexes;
Early modern mining;
Modern city with buildings dating from the 17th - 19th centuries, spa facilities and parks (Bad Aachen);
Lousbergpark, the oldest park in Central Europe to be established by public subscription (1807);
Section of the Aachen-Frankfurt military road;
Section of the early Aachen–Cologne railway line;
Section of the Siegfried Line (Second World War).

26 / Nordeifel – Cologne–Trier Roman road
Varied cultural landscape well differentiated over time:
Fossil-bearing Devonian limestone;
Paleolithic karst cave in Mechernich-Eiserfey;
Mining dating from prehistoric times, red sandstone mining, ore mining and metalworking;
Roman settlement sites (Manor Blankenheim), temple complexes, Eifel aqueduct;
Cologne-Blankenheim-Trier Roman road corridor with accompanying infrastructure;
Roman limestone quarrying and limestone working;
Medieval castles and mills with extensive water systems;
Medieval castle with aqueduct and Blankenheim;
Medieval towns of Blankenheim and Münstereifel;
Limestone grasslands as a significant biotope complex due to their specific location and use;
Stockert radio telescope near Bad Münstereifel.

27 / Monschau Hedge Land
Rich and varied cultural landscape:
Medieval castle and town of Monschau;
Numerous vestiges of the textile industry visible in buildings and the landscape (Rahmenberg);
Rural hedge landscape with characteristic unique system of hedges around houses and fields;
Reichenstein Abbey;
Section of the Vennbahn;
Section of the Siegfried Line (Westwall, Second World War).

28 / Siebengebirge
Varied cultural landscape well differentiated over time and of European significance:
Prehistoric hilltop enclosure at Petersberg, prehistoric settlement and burial sites;
Roman mining and quarrying, harbour;
Medieval castle complex and town of Königswinter;
Ruins of the Cistercian monastery at Heisterbach with complex (Heisterbach monastery landscape);
Medieval to modern quarrying (*different types of stone for different purposes*); Earliest brown coal mining in the modern era (18th century) with alum extraction in the Ennert (19th century); Wine growing since the Middle Ages, historic forms of forest utilisation (e.g. trade in wood for use in vineyards); Starting point for romantic tales of the Rhine (*ruined abbeys and castles, mountain scenery, etc.*), Tourist development since the early 19th century (*roads, outlook points, rack railways, memorial stones, inns, dragon’s lair, etc.*), saga landscape (*“Nibelungenhalle” dragon’s lair*); Drachenburg castle and park; Hotels and vineyards; Indoor and outdoor sightseeing (*Tomburg castle, Cologne cathedral, Godesburg castle, heights of the Eifel*); Second-oldest nature reserve in Germany.

**29 / Siegen and surrounding area**
Traces of historical iron ore mining (*dating from pre- and protohistoric times, silver mining from Medieval times*), Siegerland Hauberg woodland, Iron Age hill fort complex, sunken paths, Medieval castle complexes, Siegener Hecke, a Late Medieval to modern boundary system surrounding the whole town, Siegen with the Burgberg, the Nikolai church, the Obere Schloss (upper castle) and its old town, Freudenberg with its historic town centre known as “Alter Flecken”, Former Krupp steelworks with conical slag heap in Siegen-Geisweid.