Resolution CARPC No. 2008-1

Adopting the Revised Dane County Water Quality Plan Policies and Criteria

WHEREAS, the Capital Area Regional Planning Commission (CARPC) was created by Executive Order 197 effective May 2, 2007, with the intent that the CARPC would become the designated Areawide Water Quality Planning Agency (AWQPA) for Dane County under sec. NR 121.06 (2)(a), Wis. Adm. Code, upon approval of the Wisconsin Department of Natural Resources and the United States Environmental Protection Agency; and

WHEREAS, before the CARPC can be designated as the AWQPA, the Commission must adopt a water quality plan containing policy goals and objectives for protecting and enhancing water quality as Dane County communities grow and expand sewer service areas; and

WHEREAS, the CARPC has reviewed the policies which governed expansion of Urban Service Areas and Limited Service Areas under the former Dane County Regional Planning Commission (DCRPC); and

WHEREAS, discussion by the Commission members has formulated a proposed set of criteria with significant modifications to the former criteria; and

WHEREAS, the Commission scheduled and conducted a public hearing on January 24, 2008 on the proposed criteria, and has received written and oral comments on the criteria and made revisions in response to pubic input received; and

WHEREAS, the Dane County Water Quality Plan is consistent with the natural resource protection element of the state Comprehensive Planning law, §66.1001

NOW, THEREFORE, BE IT RESOLVED AS FOLLOWS:

The CARPC adopts the 2004 Dane County Water Quality Plan, as revised in 1. draft document dated 12/14/07, and as further amended by Commission action today on Section I.1. Paragraph I (line 33, regarding flexibility margin) and Section I.2. Paragraph G (line 129, regarding the FUDA process) and Section I.2. Paragraph D and Section II.4. Paragraph C (lines 89 and 246, regarding Agricultural Loss Mitigation additional language), as part of the state Water Quality Plan administered by the Wisconsin DNR as part of the Regional Master Plan under §66.0309, Wis. Stats.

The CARPC will create an advisory group for the purposes of soliciting and 2. receiving input by local units of government on the policies and criteria in the month of December 2008 to be reviewed by the Commission in January 2009.

45 46

47 48

49

February 28, 2008 Date Adopted

George Kamperschroer, Vice-Chairperson

Capital Area Regional Planning Commission

Urban and Limited Service Area Policies, Environmental Corridor Policies, and Criteria for the Review of Urban and Limited Service Area Amendments

CARPC Redline Review Draft 12/14/07 as amended and adopted on 2/28/08*

*changes indicated by strikethrough/underline.

Table of Contents

1.	Urban Service Area Policies	. I
	I. PLANNING REQUIREMENTS	
	2. CRITERIA FOR THE REVIEW OF URBAN SERVICE AREA AMENDMENTS	2
	3. SUBMITTAL REQUIREMENTS	4
H.	Limited Service Areas	. 4
	I. DESCRIPTION	4
	2. CRITERIA FOR ESTABLISHING A LIMITED SERVICE AREA	
	3. CRITERIA FOR EXPANSION OF A LIMITED SERVICE AREA	
	4. ADDITIONAL CONSIDERATIONS FOR LIMITED SERVICE AREAS	
	5. SUBMITTAL REQUIREMENTS	
	TABLE A-4: SEWER SERVICE LIMITATIONS FOR LSAS	8
111	Environmental Corridors	Q

I. Urban Service Area Policies

1. Planning Requirements

3 4 5

1 2

6

7

8

9

10 11

12

13 14

15

16

17

18

19 20

21

22

23

24

25

26 27

28

29

30 31

32 33

34

35

36

37

38

39

40

41

42

43 44

45

- A. Service area boundaries must be delineated for the provision of sewer services with a 20-year planning horizon.
- B. Delineation must be based on the official 20-year population projection for the region generated by the State DOA.
- C. The regional population projection must be allocated to individual service areas based on WDOA-approved population projection methodology, and density assumptions acceptable to the respective municipality.
- D. Service areas must be delineated in a manner to ensure adequate treatment capacity in wastewater treatment facilities that receive the expected volume of wastewater.
 - E. Service areas must be delineated to ensure the cost-effective (as defined in NR 110) and environmentally sound expansion of public sewerage facilities.
 - F. Creation of new service areas must meet the requirements and conditions of NR 110 regarding new treatment facilities to serve new and existing residential and nonresidential development, and the state anti-degradation policy (NR 207, which prevents the unnecessary creation of new point-sources of wastewater discharge on water bodies).
 - G. Requests for additions to the Central Urban Service Area must be part of a neighborhood plan that covers a logical planning area as defined by efficient and effective provision of urban services. The plan shall cover an area large enough to be considered a logical unit for service provision and to determine compatibility and consistency of the proposed change with adjacent areas and existing plans. This neighborhood planning area may be substantially larger than the area of request (and usually is).
 - H. Service area expansion requests containing over 100 acres of developable land must include 10-year staging boundaries. Staging boundaries are encouraged in smaller expansion requests.
 - I. Generally, tThe urban service area boundaries represent the outer limits of planned urban growth over the long-term planning period—at least 20 years—and include more than enough land to accommodate anticipated growth. However, CARPC recognizes that the needs of communities may differ. For this reason, CARPC may approve more land in an urban service area than that called for by the 20-year growth projection where a demonstrated special need for additional land has been established based upon factors such as, but not limited to: inaccurate population projections, previous municipal infrastructure financing plans, displacement of development, intergovernmental agreements, a small USA size, and deficiencies in certain land uses (e.g. inadequate industrial development area). This provision applies until such time as a community and CARPC have adopted the 25-year Future Urban Development plan for the area.
 - J. Amendments to service areas must be sponsored by the unit of government planning to provide the services or by the CARPC, to ensure that designated local management

- 47 agencies in charge of pollution prevention (both point- and non-point source) are in support of the expansion.
 - K. Plans should be prepared and adopted with meaningful public participation. A public hearing will be set for the next CARPC meeting unless more time is needed to address issues. All affected local units and their respective county board supervisors will be notified by letter at least thirty (30) days prior to the public hearing. The 30-day notification period may be waived by the CARPC if the supporting unit can demonstrate that other affected units of government have been consulted and there are no unresolved issues. The CARPC may at its discretion consider to delay action on any request for urban service area expansion in areas where annexation law suits are pending.
 - L. Requesting units of government must notify neighboring or affected units of government of their intent to expand the service area. The CARPC will notify all the units of government in the Central Urban Service Area and invite them to comment if a request within the CUSA contains more than 300 developable acres.

2. Criteria for the Review of Urban Service Area Amendments

- A. Additions to the Central Urban Service Area should be contiguous with existing urban service areas.
- B. Contiguity to urban infrastructure.
 - It is the policy of the CARPC to seek the efficient use of existing capacity in urban infrastructure (roads and streets, sewerage systems, water systems, parks and open space, etc.), and to give priority to areas that can best utilize such existing capacity of urban service areas.
- C. Infill, redevelopment, density, and needs assessment.
 - It is the policy of the CARPC to seek efficient use of land through higher densities of development, mixed use infill development and redevelopment within the urban cores of the region, and the use of existing vacant developable lands within urban service areas prior to expansion into new areas.
 - Generally, if there is a 20-year supply of developable land in the current USA (or a portion of the USA available to the respective unit of government; this is based on official land demand calculations derived from official population projections without flexibility margins), priority should be given to developing the existing developable lands within the USA. Special consideration would be given to adding developable land for under-represented land uses (such as industrial development in a service area with inadequate industrial development or available land).
 - Higher densities than the current density of the urban service area are encouraged for USA expansion proposals. Consideration would be given to lower densities in proposed USA expansion areas if such lower densities are more than off-set by higher densities through infill development, redevelopment, and new development in areas within the current USA under the jurisdiction of the requesting unit of government.
- D. Agricultural loss mitigation.
 - The CARPC desires to promote approaches to mitigate the loss of farmland to urbandevelopment through the use of, for example, intergovernmental agreements,

98

99

100

101

102

103

104

105

106

107

108

109

110

111

112

113

114

115

116

117

118

119

120

121

122 123

124

125

126

127

128

129

130

131

132

133

134 135

easements, TDR and PDR programs, etc. to support the economic viability of the farming industry and protect wildlife habitat, recharge for streams, springs, and drinking water. Until such time as the Commission adopts a specific proposal about how to use these tools (no later than the adoption of an amended Water Quality Plan), they will be encouraged but not required.

- E. The minimum requirement (related to water quality planning) for services which should be provided initially in urban service area expansions are the following:
 - 1. public sewage collection and treatment systems (layout, facilities, capacity);
 - 2. publicly managed urban storm drainage system layout and standards. Stormwater management measures should be aimed at mitigating to the maximum extent practicable the cumulative and incremental adverse impacts of development on surface water and groundwater quality and quantity and associated ecological functions. Such impacts include, but are not limited to, increases in off site erosion and flooding, increases in pollution, reductions in stream baseflow, reductions in groundwater recharge, lowering of groundwater levels and groundwater quality, reductions in flows to and from springs, drying up of wetlands, and reductions in the ecological health of aquatic habitats. The extent of practicability and likelihood of success of proposed mitigation measures will be determined by CARPC staff based on site specific and land use specific characteristics, in the context of the best possible management practices and technology, and in consultation with municipal, county, and WDNR technical staff and the CARPC Natural Resources Technical Advisory Committee. Any appeal of such a determination would be to the CARPC. It is understood that appropriate mitigation of some adverse impacts may require reduced levels of development, a change in the type of development, or off-site mitigation and remediation.
 - urban transportation systems and facilities, including public street layout and standards, provision for pedestrian and bicycle movement, and provision for mass transit and para-transit and trip reduction measures (carpooling, park/ride lots);
 - 4. solid waste collection service;
 - 5. public water supply and distribution system layout and facilities, for both potable water and fire protection (include hydrants and water storage sufficient for fighting fires).
- F. Additional services to be provided within the planning period (not all services may be required or needed in each case):
 - 1. Higher or urban levels of police protection (local police patrol, or response from a station located within 2-3 miles; this is in addition to normal Sheriff's Dept. coverage and response);
 - 2. urban levels of fire protection (ISO Fire Insurance Rating of 1 to 6);
 - 3. urban levels of emergency medical services (EMS);
 - 4. neighborhood public facilities located no more than two miles away, with a desirable service radius of 1/4-1/2 mile walking distance from main residential areas (neighborhood and community parks, schools, etc.).

G. Applications need to demonstrate consistency with local and regional adopted plans and with the provisions of paragraph 7 of the resolutions petitioning the governor creating the CARPC.

3. Submittal Requirements

A. Requests for urban service area additions must be accompanied by specific plans for development and provision of urban services to the proposed addition, which include the following elements:

1. A plan and description of proposed development, land use and major facilities in the area, which is specific enough in terms of type and densities of land use to enable the determination of long-range urban service needs and impacts of development;

 2. a description of the relationship of the proposed development with adjacent land uses and urban development, and consistency and conflict with any applicable adopted plans;

3. identification of environmental corridors and other environmentally sensitive areas, consistent with CARPC and DNR criteria, which are to be protected from urban development, and a description of local policies, ordinances and other measures to protect such areas;

4. a specific plan for providing the full range of urban services to the area (see E and F in section 2 above);

5. an analysis of the infill and redevelopment potential in the existing urban service area and a description of the need for the urban service area expansion.

II. Limited Service Areas

1. Description

A. Statement of Purpose. To consolidate, clarify and revise the current policies and criteria for Limited Service Areas (LSA) as part of the *Dane County Land Use and Transportation Plan* and *Water Quality Plan*. The intent is for any creation or expansion of an LSA to be consistent with existing plans and to support local and regional planning.

 B. Definitions. Limited Service Areas are areas where only one or a few urban services, such as sanitary sewer service, are provided to accommodate special or unique facilities or institutional uses which are appropriately located outside urban service areas, or areas of existing development experiencing wastewater disposal or water supply problems.

C. Types of Limited Service Areas

1. Special Facilities: including, but not limited to, landfills, park, recreational, and tourist facilities such as park shelters, golf course clubhouses, etc.

2. Institutional Uses: including, but not limited to, schools, correctional facilities, etc.

 3. Existing Development: existing residential or commercial development experiencing wastewater disposal or water supply problems. Existing development means

development existing in the local unit of government on the date the application for Limited Service Area establishment or expansion is submitted.

2. Criteria for Establishing a Limited Service Area

- A. Special Facilities and Institutional Uses
 - 1. The LSA should be limited to the area needed for use/service;
- 2. Evaluation of alternative means of providing needed services, including costeffectiveness analyses;
 - 3. Documented agreement from the agencies which will be providing the service(s);
 - 4. If establishment or expansion of an LSA is proposed within one-half mile of an urban service area, a discussion and evaluation of the feasibility of including the proposed LSA in the USA must be submitted.

B. Existing Development

- 1. Addressed in and consistent with the local comprehensive plan;
- 2. The LSA should be limited to existing development including infill;
- 3. Infill should be limited to vacant lots or parcels contiguous to existing development or permanent open space, or a combination thereof, on at least two sides; and immediately adjacent to and having direct access to sanitary sewer and existing public streets or roads. Any area proposed for infill must contribute to the solution of the stated water quality problem and must be consistent with resolution of the problem as defined in the application for creation of the LSA;
- 4. Documentation of existing and reasonably anticipated on-site wastewater or water supply problems;
- 5. Evaluation of alternative means of providing needed services, including cost-effectiveness analyses (cost-effectiveness shall not be the sole determinant of LSA establishment);
- 6. Documented agreement from the agencies which will be providing the service(s); and
- 7. If establishment or expansion of an LSA is proposed within one-half mile of an urban service area, a discussion and evaluation of the feasibility of including the proposed LSA in the USA must be submitted.

3. Criteria for Expansion of a Limited Service Area

A. Special Facilities

Proposals to expand the original use or facility will be evaluated, using the same criteria as for establishing the service area. For expanding the area to include related but different uses or facilities, additional urban services may be required, depending on the specific circumstances and uses proposed. Economic development of an existing facility is not an acceptable criterion for expansion of an LSA. The intent of an LSA is not to support economic expansion.

221 B. Institutional Uses

222 Proposals to expand the original use or facility will be evaluated, using the same criteria 223 as for establishing the area. If the area is to be expanded, an evaluation of the need for 224 additional urban services may be required. These same criteria apply to expanding the 225 area to include related but different uses.

C. Existing Development

Proposals to expand a Limited Service Area which was established to serve existing development may be considered if the following criteria are met:

- 1. The local comprehensive plan must address the expansion area, and include policies to control development in the rest of the community and preserve farmland.
- 2. The additional development should be consistent with the goals and objectives of the *Dane County Land Use and Transportation Plan* and Wisconsin's Comprehensive Planning Legislation.
- 3. Residential development should meet the definition of Conservation Subdivisions in §66.1027(1)(a) Wis. Stats., with compact lots, common open space and maintenance/protection of natural features. Suggested guidelines include a minimum net density (exclusive of open space) of two dwelling units per acre (which corresponds to a maximum lot size of about 20,000 sq. ft.). It is also recommended that a mix of housing types be included.

4. Additional Considerations for Limited Service Areas

A. Contiguity to urban infrastructure.

It is the policy of the CARPC to seek the efficient use of existing capacity in exurban and rural infrastructure (roads and streets, sewerage systems, parks and open space, etc.), and to give priority to areas that can best utilize such existing capacity.

B. Infill, redevelopment, density, and needs assessment.

It is the policy of the CARPC to seek efficient use of land through higher densities of development and the use of existing vacant developable lands within limited service areas prior to expansion into new areas.

C. Agricultural loss mitigation.

The CARPC desires to promote approaches to mitigate the loss of farmland to urban development through the use of, for example, intergovernmental agreements, easements, TDR and PDR programs, etc. to support the economic viability of the farming industry and protect wildlife habitat, recharge for streams, springs, and drinking water. Until such time as the Commission adopts a specific proposal about how to use these tools (no later than the adoption of an amended Water Quality Plan), they will be encouraged but not required.

- D. The minimum requirement (related to water quality planning) for services which should be provided initially in limited service area expansions are the following:
 - 1. public sewage collection and treatment systems (layout, facilities, capacity);
 - 2. publicly managed urban storm drainage system layout and standards. Stormwater management measures should be aimed at mitigating to the maximum extent practicable the cumulative and incremental adverse impacts of development on surface water and groundwater quality and quantity and associated ecological

functions. Such impacts include, but are not limited to, increases in off site erosion and flooding, increases in pollution, reductions in stream baseflow, reductions in groundwater recharge, lowering of groundwater levels and groundwater quality, reductions in flows to and from springs, drying up of wetlands, and reductions in the ecological health of aquatic habitats. The extent of practicability and likelihood of success of proposed mitigation measures will be determined by CARPC staff based on site specific and land use specific characteristics, in the context of the best possible management practices and technology, and in consultation with municipal, county, and WDNR technical staff and the CARPC Natural Resources Technical Advisory Committee. It is understood that appropriate mitigation of some adverse impacts may require reduced levels of development, a change in the type of development, or off-site mitigation and remediation;

3. solid waste collection service.

2.71

5. Submittal Requirements

- A. An application for establishment or expansion of a Limited Service Area must include a plan describing:
 - 1. The specific proposed land uses and/or facilities to be included in the service area;
 - 2. the services to be provided, including a cost-effectiveness analysis, and a statement from the service provider, if other than the applicant, of the willingness to provide the service(s);
 - 3. delineation of environmental corridors in the service area consistent with CARPC and DNR criteria;
 - 4. a plan for protecting sensitive environmental resources and water quality, including a preliminary stormwater management plan;
 - 5. how the proposal meets the applicable criteria listed under II.2. and 3. above;
 - 6. the relation to and opportunities for coordination and cooperation with other units of government; and
 - 7. any other relevant information needed to evaluate the request.
- B. Applications must be submitted by the general purpose unit of government (town, village, city, county) having jurisdiction in the proposed service area. CARPC staff will provide assistance in assembling the needed information.

Updated table from Dane County Land Use and Transportation Plan

Table A-4
Sewer Service Limitations For Limited Service Areas

Limited Service Areas	2000 Resident* Population	Sewer service is limited to the following:
Limited Service Areas		
BFI (Landfill)	0	landfill
Rodefeld (Landfill)	0	landfill
Municipal Golf Course (Yahara Hills)	0	a public recreational facility
Cave of the Mounds (T. Blue Mounds)	2	a special private facility and existing development
Albion	342	existing development and infill
Kegonsa (T. Dunn & T. Pleasant Sprgs)	2,228	existing development and infill
Fox Bluff (T. Westport)	240	existing development and infill
Waubesa (T. Dunn)	2,027	existing development and infill
Windsor Prairie (T. Vienna)	163	existing development and infill
Westport (Riverview)	134	existing development and infill
River Road (T. Westport)	243	special private institution, existing development and infill
Wisconsin Heights (T. Black Earth)	693	a public school complex
Badger Prairie (T. Verona)	117	a public institution and landfill
Oak Hill (C. Fitchburg)	705	a public correctional institution
Thompson (T. Deerfield)	122	a public correctional institution

^{*} Population for Wisconsin Heights is school enrollment

Revised 11/07

Source: U.S. Census Bureau, Dane County Regional Planning Commission & CAPD

302

III. **Environmental Corridors**

304 305

303

A. Major areas unsuitable for installation of waste treatment systems because of physical or environmental constraints are to be excluded from the service area (Environmentally 306 Sensitive Areas in NR 121 and known in Dane County as Environmental Corridors). 307 These Environmental Corridors include the following elements and criteria: 308

309

311

312

313

1. Wetlands under WDNR jurisdiction.

310

2. Vegetative buffers for wetlands and shorelands (75-feet minimum and excluding impervious surfaces). The minimum width of vegetative buffers for shorelands and wetlands may be increased to up to 300 feet where site specific habitat susceptibility and protection needs make such an increase advisable. CARPC staff will make the determination of needed buffer width in consultation with DNR staff and the Natural Resources Technical Advisory Committee of the CARPC.

314 315 316

317

320

321

322

323

3. 100-year floodplains and floodways.

318 319 4. Steep wooded slopes (12% gradient and higher in the glaciated portions of the county; 20% gradient and higher for the driftless portion of the county) within 75 feet of the ordinary high water mark of water bodies or from the top of each bank. Steep slopes between 12% and 20% in the driftless portion of the county and adjacent to water bodies receive conditions for stringent site plan review and inspection by the local unit of government aimed at maintaining the stability of the slope. Steep slopes (12%-20%) in the driftless portion of the county that are not adjacent to water bodies receive recommendations for stringent site plan review and inspection by the local unit of government.

324 325 326

327 328 5. Navigable water bodies based on DNR determination of navigability (plus the 75-foot shoreland buffer).

329 330 6. Non-navigable streams based on DNR determination of navigability (within a 75-foot wide corridor, and maintaining at least 25-feet from the edge of the corridor to the ordinary high water mark or top of bank).

331 332

7. Open drainageways (within a 75-foot wide corridors and maintaining at least 25-feet from the edge of the corridor to the ordinary high water mark or top of bank).

334 335

333

8. Public lands, parks, and conservancy areas (related structures can receive sewer service), except isolated (small) neighborhood parks.

336

9. Proposed public parks and conservancy areas; except isolated (small) neighborhood parks.

337 338

10. Problem soil areas and unique geologic formations (such as Karst features and known critical recharge areas).

339

11. Archaeological sites on the National Register.

340 341

12. Endangered and sensitive habitats based on DNR determination.

342 343 13. Stormwater facilities (stormwater facilities should be located outside environmentally sensitive areas when feasible).

344

14. Known or documented significant or sensitive groundwater recharge areas.

345 346

B. Existing development (impervious area) is exempted from inclusion in corridors.

- C. Local units of government are in charge of the local implementation and protection of environmental corridors, and shall have programs to ensure the integrity of the corridors based on the criteria of the Dane County Water Quality Plan (zoning, plat design review, building permitting and inspections, conservation design requirements, etc.).
 - D. The minimum criteria for delineating environmental corridors represent a basic skeleton, and local units of government are encouraged to build upon this skeleton and expand it.
 - E. Higher minimum standards for environmental corridors will be considered where site specific habitat susceptibility and protection needs make such higher standards advisable (based both on current habitat quality and potential habitat quality if rehabilitative measures are undertaken). CARPC staff will make the determination if higher corridor standards are needed in consultation with DNR staff and the CARPC Natural Resources Technical Advisory Committee.

To maintain a flexible but principled administration of the environmental corridor concept, the *Water Quality Plan* includes provisions for changes to these corridors as follows:

- F. "Major changes" to the environmental corridors are those changes that have the potential for significant adverse impacts on water quality (determined through a technical analysis by the RPC staff). These changes require the approval of the RPC after a public hearing, staff analysis of the impacts of the encroachment and the likelihood that the mitigation measures will be successful, and the approval of the WDNR. These "major changes" include the following:
 - 1. Removing any mapped wetland area unless exempted by state administrative rules or state-approved rezoning.
 - 2. Any change that would remove any area below the ordinary high water mark of a stream, pond, or lake.
 - 3. Any change resulting in the elimination or interruption in the continuity of any corridor segment which includes woodlands with significant ecological or water resources functions, floodplains, wetlands, shoreland buffer strips or steep slopes adjacent to water bodies.
 - 4. Any change that reduces the width of vegetated shoreland buffer strips along streams, wetlands, and drainageways below minimum guidelines.
 - 5. Grading in a wetland vegetative buffer and within 30 feet of the wetland edge, where the buffer has been delineated in environmental corridors, unless the grading is intended to re-establish natural grades or to restore wetland habitat.
- G. "Minor changes" to the environmental corridors are changes that do not have the potential for significant adverse impacts on water quality (as determined by the RPC staff). These changes do not require RPC approval, though they are reviewed by the RPC staff to ensure that they meet the definition of a "minor change."

"Minor changes" include the following:

1. Changes resulting from DNR-approved changes in floodplain or wetland delineations, or DNR-approved rezoning.

- 2. Relocation or shortening of a corridor based solely on intermittent streams and drainageways, or adjustment of the buffer strip width within the guidelines.
- 3. Addition to or removal from the corridors of public or private lands which do not include water bodies, floodplains, wetlands, minimum buffer strips, or steep slopes adjacent to water bodies.
- 4. Changes resulting from utility or roadway maintenance or construction which meet the criteria set in NR 117 (this chapter of Wisconsin Administrative Code outlines the state shoreland-wetland protection program and includes permitted uses within the shoreland zone). (It is not the intent of the environmental corridors to prevent or obstruct necessary maintenance, expansion or construction of transportation or utility facilities intended to serve areas outside of the corridors, needed to maintain or improve the continuity of those systems, or designed to serve compatible uses in the corridors, such as park shelters or facilities. Facilities intended to serve new residential, commercial or industrial development in the corridors are not permitted.)
- H. Grading or the installation of stormwater management measures and practices in an environmental corridor should not appreciably reduce or harm the ecological functions of the environmental corridor.