

ENVIRONMENTAL + DEVELOPMENT RESOURCES

Chapter 2

A basic principle of the land use plan for the Douglas County planning jurisdiction is the need to establish a balance between environmental values and reasonable development demands. A corollary to this principle is matching development policy to environmental attributes, placing a value on conserving the region's most important natural resources and assets. This section includes a series of maps that identify and locate these vital assets. These maps are then used to establish specific development policy districts to guide land use decisions and project design.



THE DOUGLAS COUNTY PLANNING JURISDICTION: A GEOGRAPHIC OVERVIEW

The 72 square mile planning jurisdiction can be divided into three environmental districts: the northern uplands, the Elkhorn bluffs, and the river plains.

The northern uplands includes the northeast part of the planning area, bounded by the Elkhorn bluff environment on the west and the Elkhorn, Omaha, and Bennington planning jurisdictional limits on the south and east. This area is characterized by a rolling terrain and generally drains to the southeast via the Papio Creek system. The largest of these drainageways is the Big Papio Creek, extending northwest from Bennington. Bedrock in this area is deep, generally situated more than 100 feet below the surface.

The Elkhorn bluffs area includes a relatively narrow corridor along or east of the Elkhorn River. This region is characterized by steep slopes, in some cases exceeding 15% grades. In some parts of this geographic region, relatively sheer bluffs rise above the river. The corridor forms a boundary between the rolling hills that characterize much of the Omaha metropolitan region and the flatlands associated with the Platte River valley. In general, soils in this region are poorly suited to agriculture because of slopes and poor soils. Soils are subject to erosion if disturbed or if vegetation, most notably prairie/grass lands, is removed.

The river plains extend from the edge of the Elkhorn bluffs west to the Platte River. The river plains region makes up the majority of the current planning jurisdiction. This area is relatively flat, and much of its land area is located within 100- and 500-year floodplains of the Elkhorn and Platte Rivers. In the northern part of the area, Rawhide Creek and Big Slough drain land to the southeast into the Elkhorn. Drainage patterns are less clearly defined to the south. Soils vary in their physical properties; significant sand and gravel deposits occur in these alluvial soils, producing significant gravel extraction uses in parallel to the Platte River floodplain. Soil conditions and high water tables make the area ideal for resource extraction and agricultural uses.

Environmental Conditions

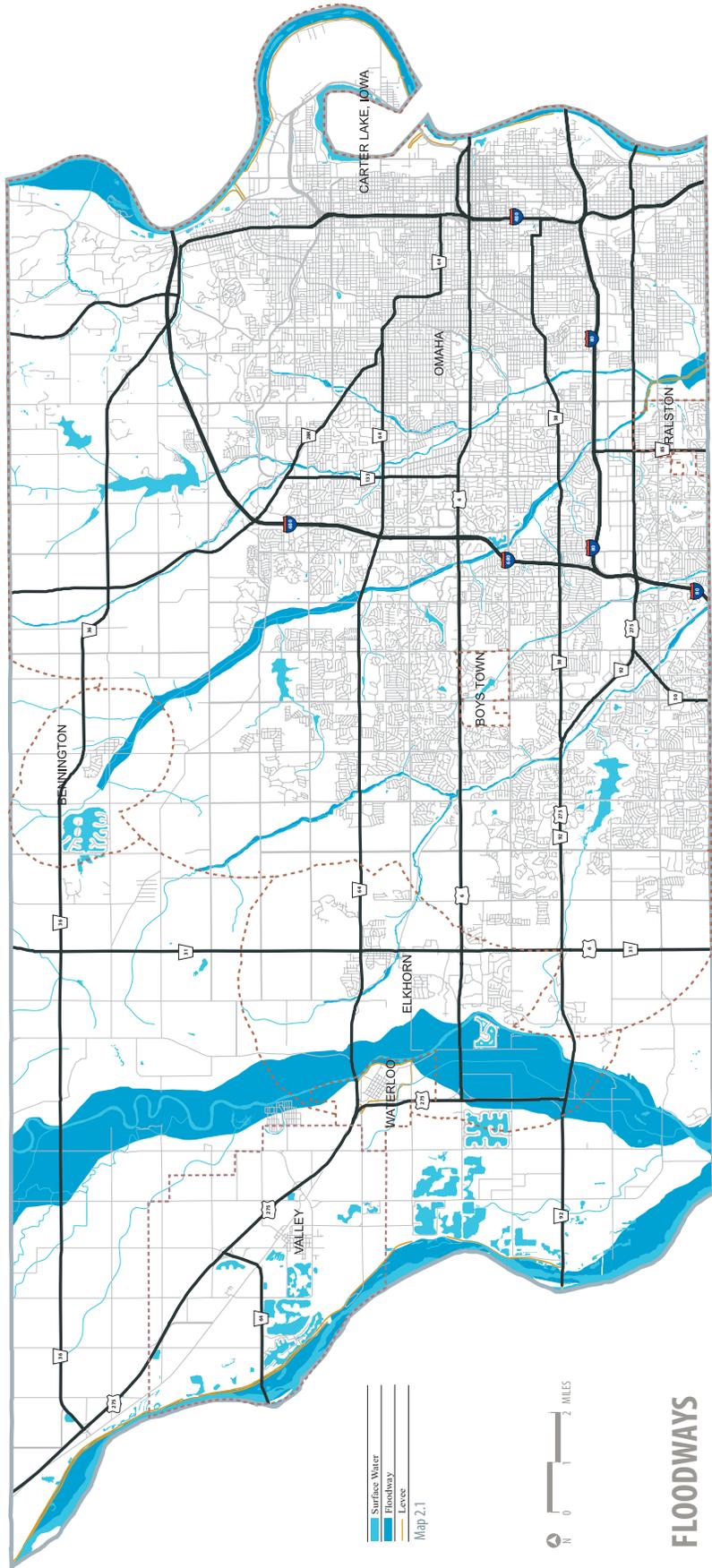
The First Principles, presented in detail in Chapter Four, indicate that development, while important to the future of the county, should respect the county's environmental resources. Ultimately, these resources and constraints should limit development to certain areas and preserve the natural character of the county. Therefore, evaluation of environmental conditions and constraints in the Douglas County planning jurisdiction are the building blocks in the development of the county's future land use.

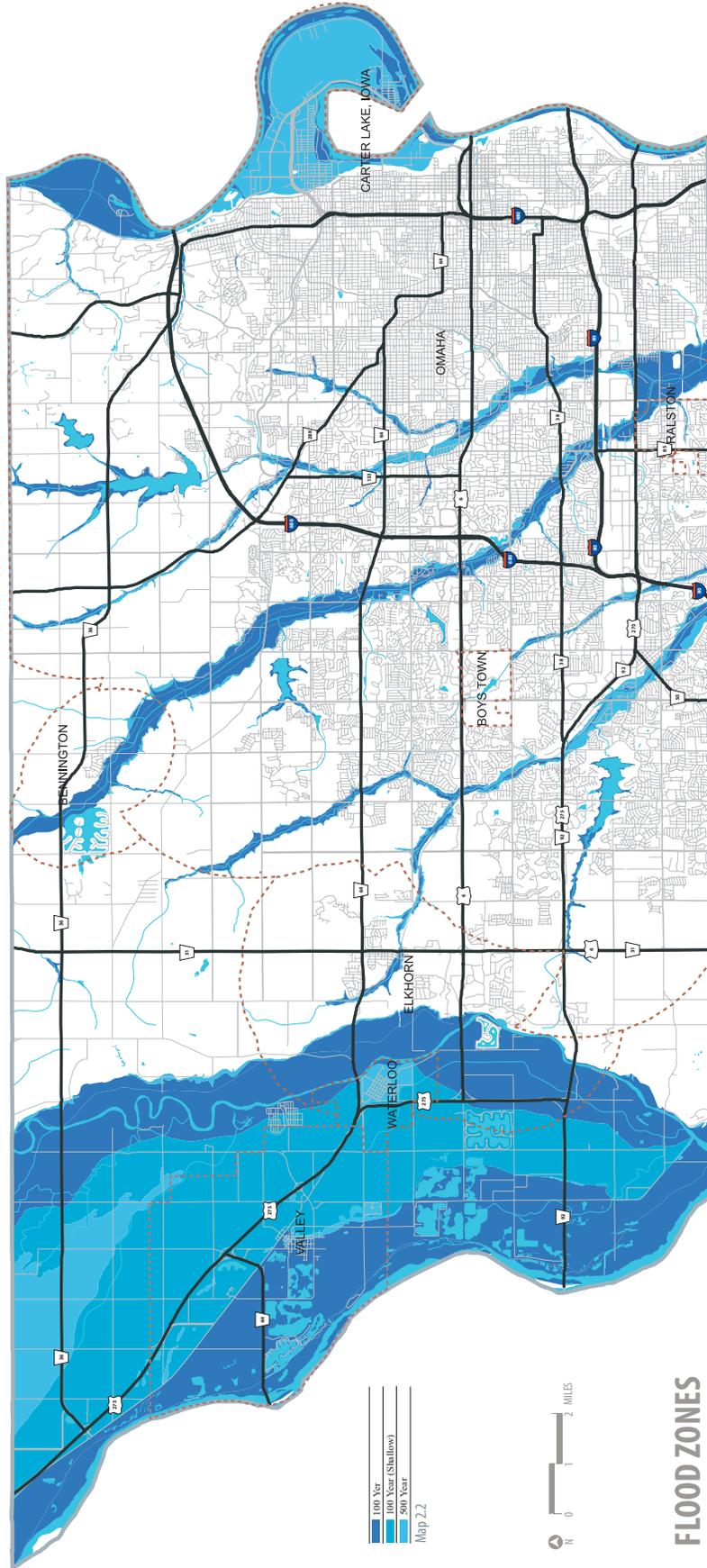
In order to define areas of significant environmental value and limitation, the planning process includes an environmental analysis based on the work of the landscape architect and planner Ian McHarg. The McHargian analysis identifies and maps areas affected by specific environmental issues and limitations, and overlays these factors to define those areas in which development has reduced environmental impact. The premise of this analysis is that, other things being equal, unconstrained areas can support greater development densities while areas of significant limitation or special value should be developed at very low intensities or remain in open uses.

Factors that were evaluated included:

Floodways. These areas represent the primary channels of rivers in flood conditions. Most land use regulation prohibits development within floodways and requires that these channels be kept free of obstruc-





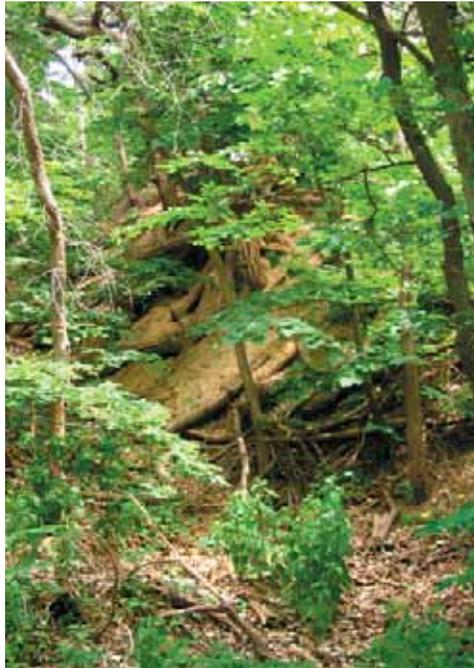


tion. The floodway includes a portion of King Lake. The Platte River floodway in the north is contained on the west side of Union Dike and remains fairly narrow in the south.

Floodplains. Most of the land area within the river plains region is designated as 100-year floodplain. These are areas that have a 1% probability of inundation during any give year. The entire planning jurisdiction and community of Valley are included in this category as are King Lake and Waterloo's planning jurisdiction. Contemporary floodplain regulations require elevation of finished floor levels one foot above the 100-year flood level. Some areas in the northern part of the planning jurisdiction are located at slightly higher elevations within a 500-year floodplain. These areas have a 0.2% probability of inundation during any given year.

Levees. The planning jurisdictions' primary flood control levee is the Union Dike, managed by the Papio-Missouri River Natural Resources District. The dike begins approximately at Highway 92 and extends north into Dodge County.

Streams and Drainageways. The Platte and Elkhorn Rivers are dominant features in the landscape of the planning area. Land east of the Elkhorn bluffs in the north part of the jurisdiction is drained by the Papillion Creek tributaries running from northwest to southeast. Major drainageways, including Rawhide Creek and Big Slough, also provide defined waterways from the northwest part of the jurisdiction to the Elkhorn River. Preservation of natural drainage corridors is an impor-



tant environmental priority for the county land use plan.

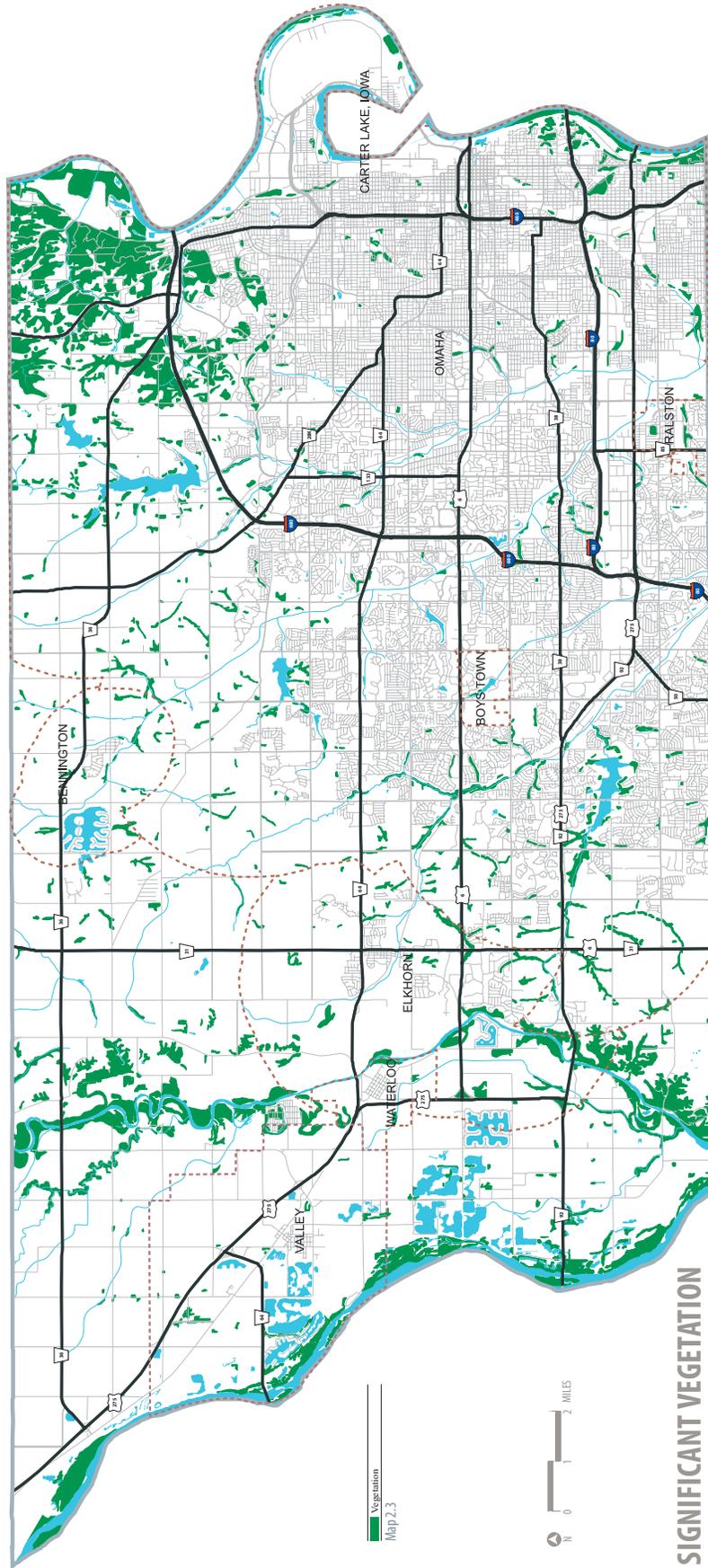
Ridges. Ridgelines provide excellent views into the surrounding countryside of the rolling north-eastern part of the county panning jurisdiction. Major ridges generally run between 216th and 225 Streets east of Elk City, and in an east-west direction from the Elk City ridge along Rainwood Road and State Street; and along Bennington Road, splitting around one of the Big Papio Creek tributaries between Bennington Road and Highway 36. While these ridges create excellent building sites, they also provide important opportunities for views and rural preservation.

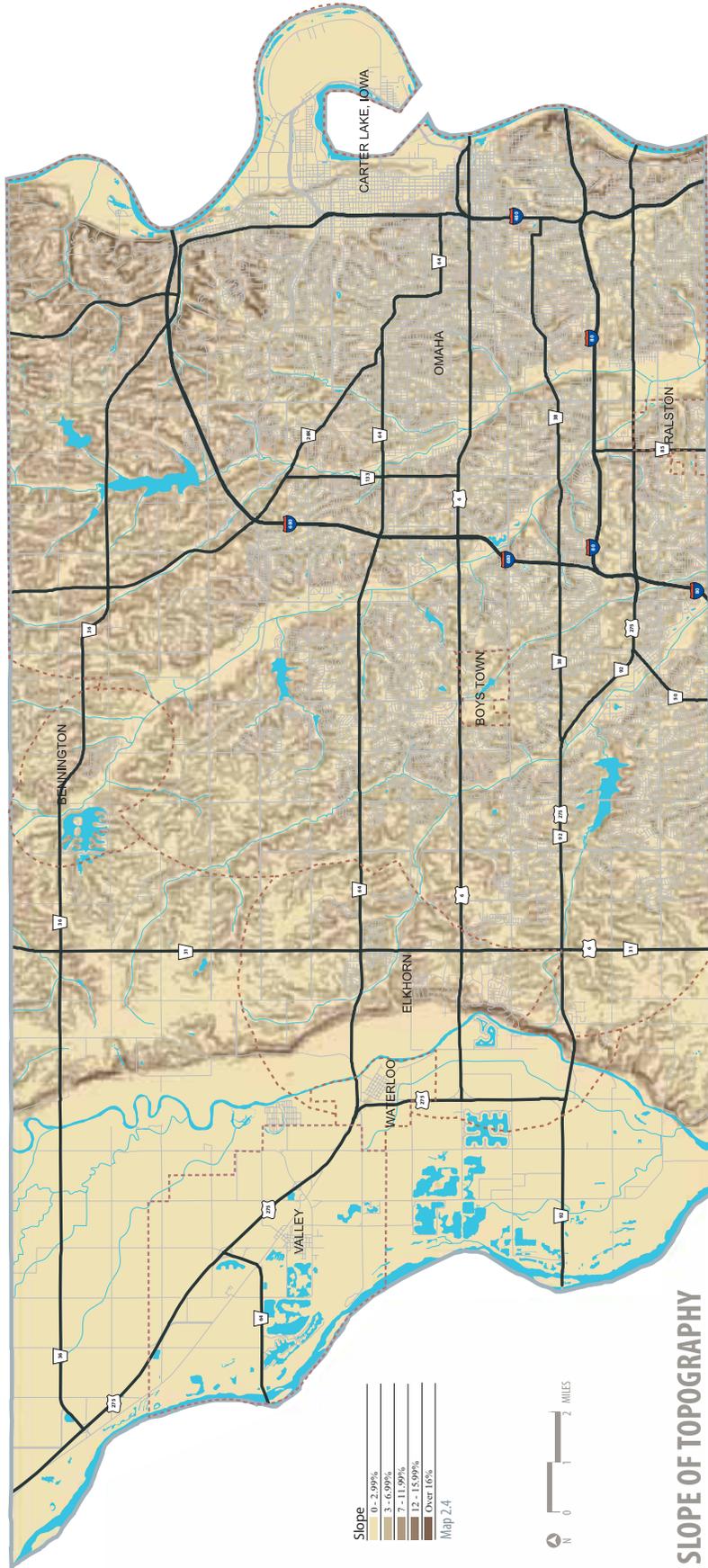
Woodlands. Woodlands occur at specific locations along the Elkhorn and Platte Rivers. They are found along the river corridors and in the Elkhorn bluffs, particularly near Elk City in the north and the bluffs east of the river to the south.

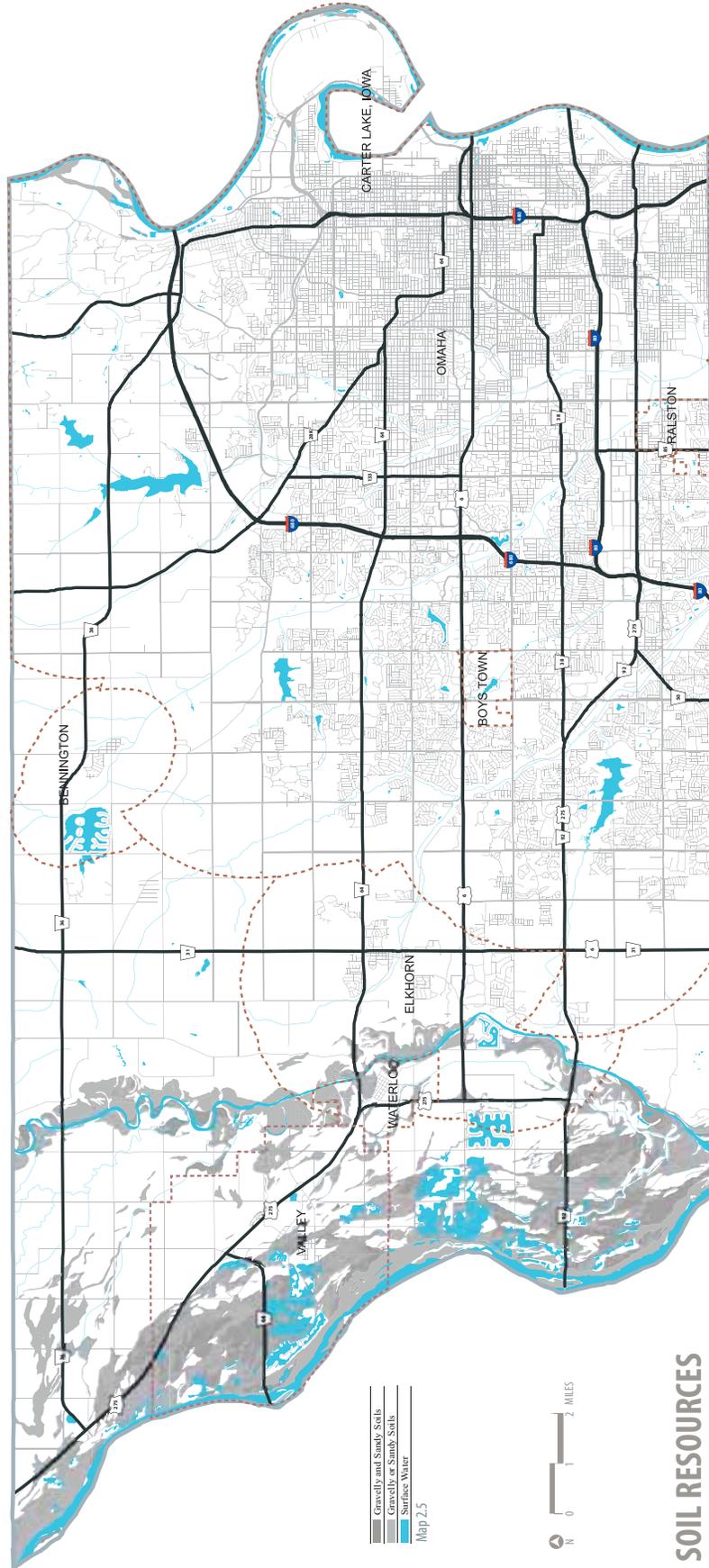


Steep Slopes. Slopes in excess of 11% are found on the face of bluffs on the east boundary of the Elkhorn River valley. These slopes are very erodible; thus land disturbing activities here should generally be avoided. In determining environmentally sensitive areas soil types with slopes greater than 7% were considered environmentally constrained.

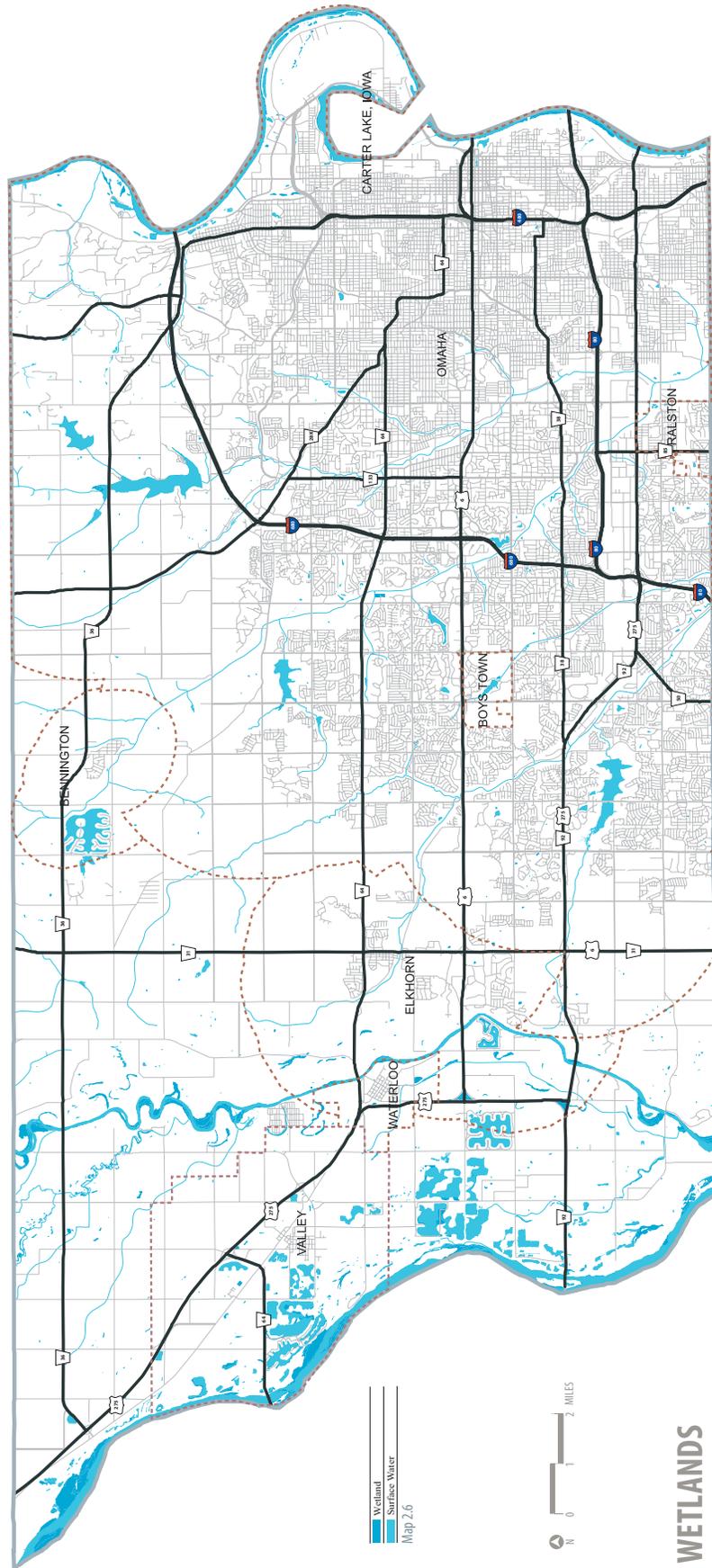
Sand and Gravel Soils. Areas within both the Platte and Elkhorn floodplains provide opportunities for sand and gravel extraction. Most of this is concentrated in the western portions of the county roughly within the Platte



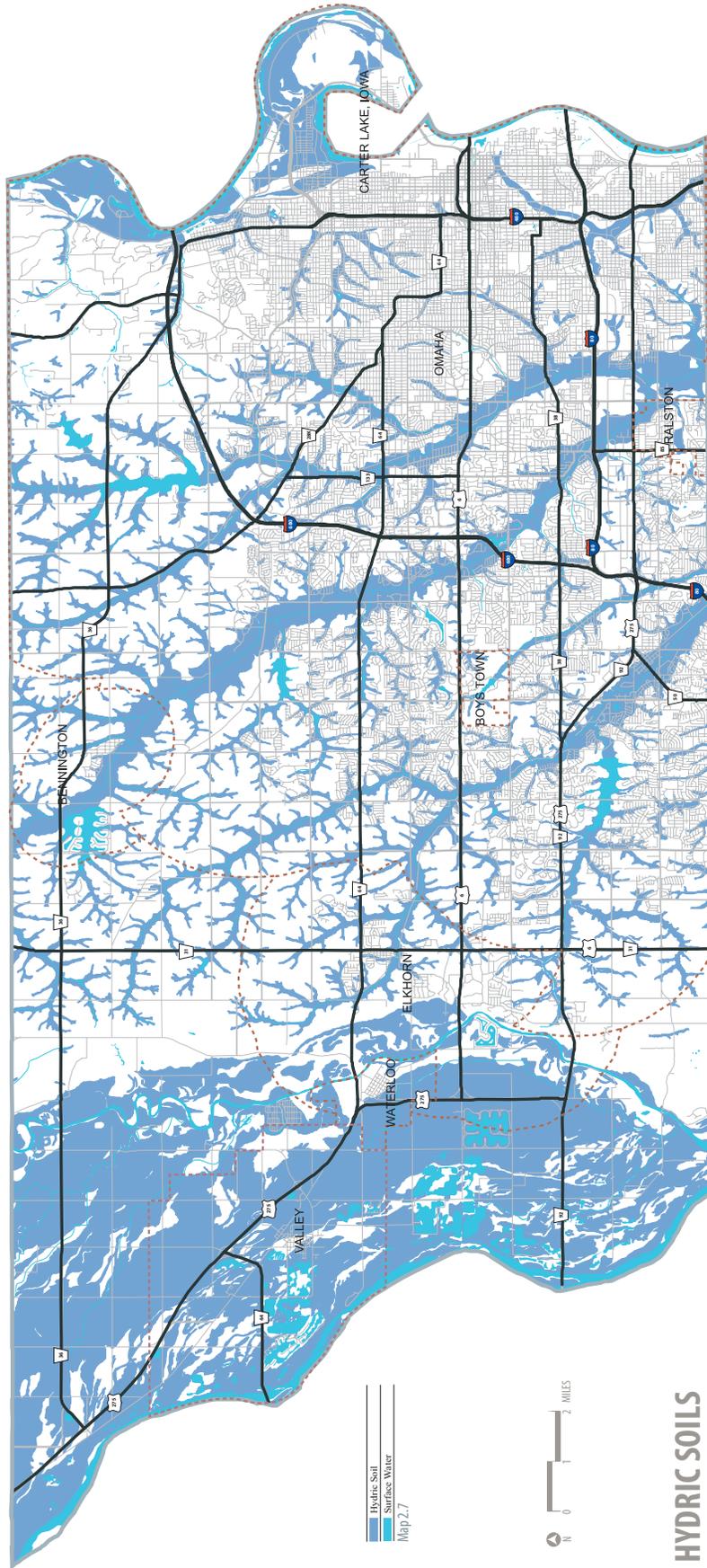




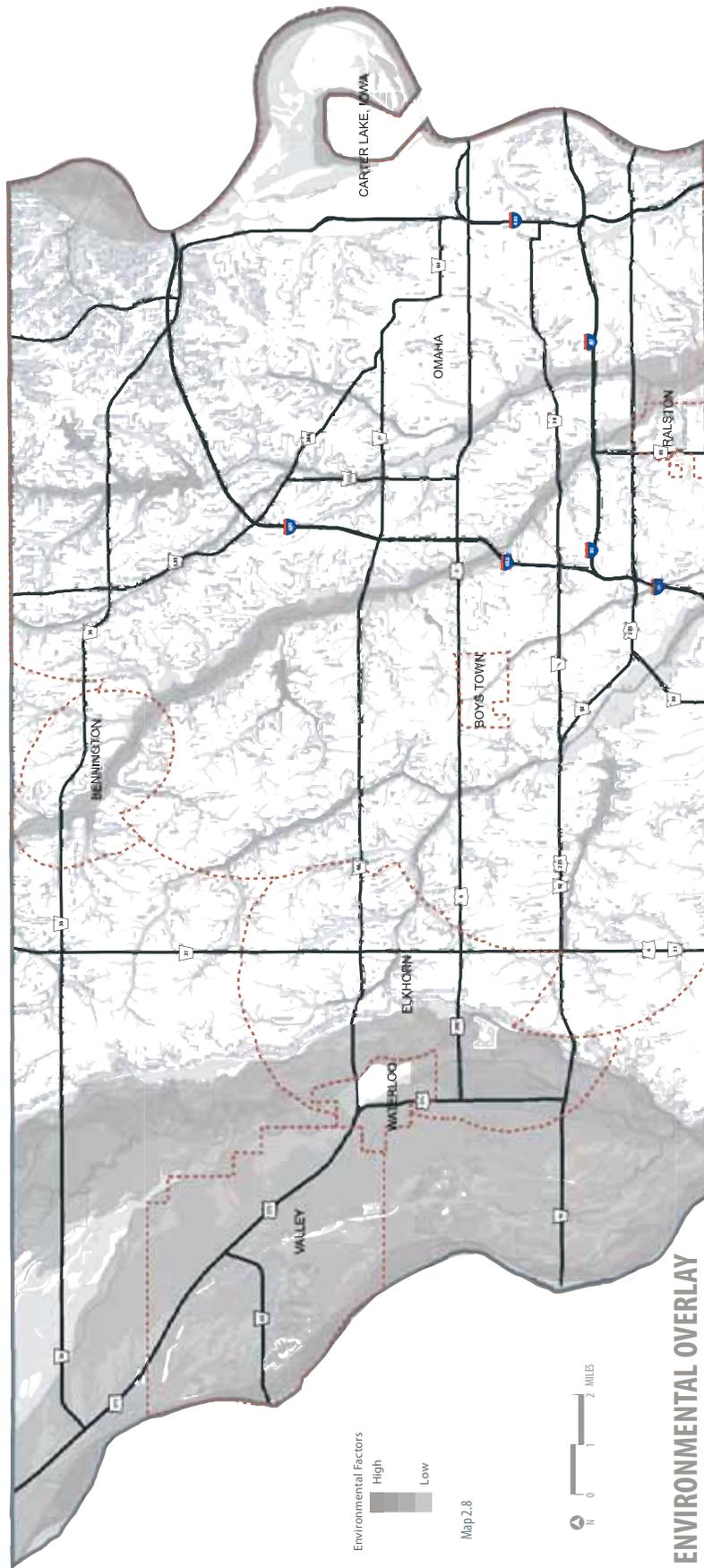
SOIL RESOURCES



WETLANDS



HYDRIC SOILS



ENVIRONMENTAL OVERLAY

Floodplain. Soil composition in this area provides higher quality and quantity of these resources and is an important regional commodity.

Wetlands and Hydric Soils. Wetlands, as identified in the most current National Wetlands Inventory (NWI) maps, would appear to occur in spotted locations in the river plains portion of the planning jurisdiction. However, many important wetlands resources in the county are not incorporated into the NWI. Specific project applications must include an inventory of wetlands on sites.

Hydric soils are frequently saturated during the growing season and are typically flooded. Hydric soils, along with vegetation attracted to wet environments and hydrology are used to define wetlands. These maps provide a detailed inventory of wetlands within the county. Determining this type of natural feature requires a site by site analysis.

The Environmental Composite is created when these critical environmental features are overlaid. These include slope, wetlands, hydric soils, vegetation, floodplain and floodway. In the composite, areas in the lightest color present the fewest limits to development, while those in darker shades present greater challenges. The most environmentally constrained area is easily defined beginning with the Elkhorn bluffs on the east then moving into the floodplains of the Elkhorn and Platte Rivers. These areas encompass a large portion of the county and create both unique opportunities and challenges.

INFRASTRUCTURE: TRANSPORTATION SYSTEMS

As urban growth within Douglas County continues to move westward its transportation system must also continue to grow. The county's rapid growth over the past twenty years has stressed the existing transportation system. Upgrades to the system have often followed development, placing traffic on a road system that is frequently unable to handle the increased loads. The upgrade of Highway 275 to an expressway and plans to continue to expand the section line roads east of 204th are significant initiatives that will increase the traffic capacity of major transportation

corridors. This section will examine the county's existing system.

Map 2.9 illustrates the transportation resources of the county planning jurisdiction. Principal roads are classified as follows:

State and Federal Highways. These major regional arterials include:

- US Highway 275, extending from Omaha and Waterloo northwest to Fremont and continuing northward through the Elkhorn Valley. Since the completion of the 1998 Douglas County Comprehensive Plan the highway has been expanded to a limited access 4-lane express and routed around Valley to the northeast. The former Highway 275 was renamed Reichmuth Road and is maintained by Douglas County outside of municipal boundaries.
- Nebraska Highway 92 (West Center Road), extending west across the Platte River to Wahoo.
- Nebraska Highway 36, a major east-west route between North Omaha and Fremont. Highway 36 carries substantial truck traffic as it provides primary access to the Douglas County landfill.
- Nebraska Highway 31 (204th Street), extending north and south from Gretna and Elkhorn to US Highway 30 near Arlington.
- Nebraska Highway 64 linking Valley with Highway 77 in Saunders County.

Hard-surfaced Roads. These roads generally follow section lines and are paved to rural standards, generally in asphalt with grass shoulders. Some principal routes that break the section line grid include Military Road, extending to Elk City from 90th Street; West Q Road linking 264th Street with Q Street at 204th; 225th/230th Street from Maple to Highway 36; and Reichmuth Road (former US 275) from Valley to Fremont. A diagonal portion of Military Road, between 156th and 168th Street in the Omaha jurisdiction, is proposed for closing and conversion to a trail. Reichmuth Road in-

cludes paved shoulders that may be adapted for use in the Planned Western Douglas County trail network.

Gravel Roads. These county roads are generally found on section lines, although some diverge off the grid or use half-section line routes. These roads primarily provide agricultural access. In addition, all local roads within King Lake are gravel-surfaced.

Street Classification

Map 2.9 illustrates the county’s existing federal classification system. Principle roads within the county are classified as follows:

Freeways and Expressways include multi-lane, limited access facilities. Freeways provide access only at fully grade separated interchanges while expressways also provide limited at-grade access to intersecting major streets. The county’s freeway system includes Interstates 80, 680 and 480 and US Highway 275 from the Dodge County line to Maple Street/Highway 64. This recent upgrade has yet to be identified on the federal transportation map and therefore still appears as a principal arterial. Highway 275 from Maple Street to West Dodge Road/Highway 6 is scheduled for completion in 2007; with the completion of the West Dodge project, this will provide a freeway link between Omaha and Fremont.

Arterials include State and Federal highways, and other major transportation corridors that provide regional access. Access to major arterials is typically controlled, often limited to section and half-section points. Existing Arterials within the Douglas County planning area include:

- 204th Street
- West Center Road/Highway 92
- Highway 36

Collectors in Douglas County’s current classification system generally follow section line and are hard surfaced. These roads currently include a two-lane rural section rural section, and connect to the county’s major arterial transportation system. Currently designated collector roads include:

- Military Road

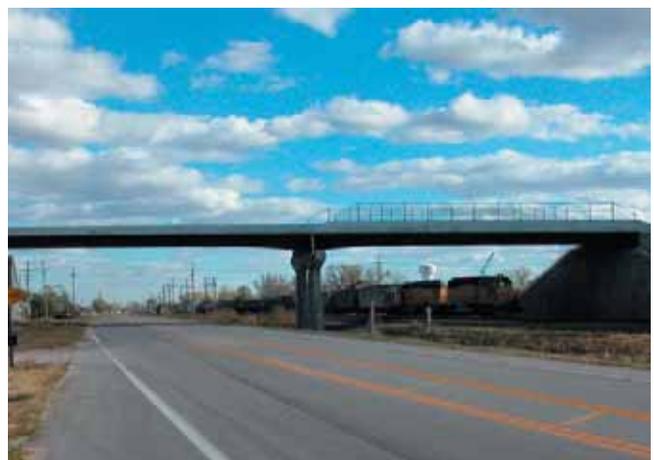
- Ida Street
- West Doge Road (west of 204th Street)
- F Street
- West Q Road
- 230th Street
- 245th Street
- 264th Street
- 276th Street
- Reichmuth Road (former Highway 275)

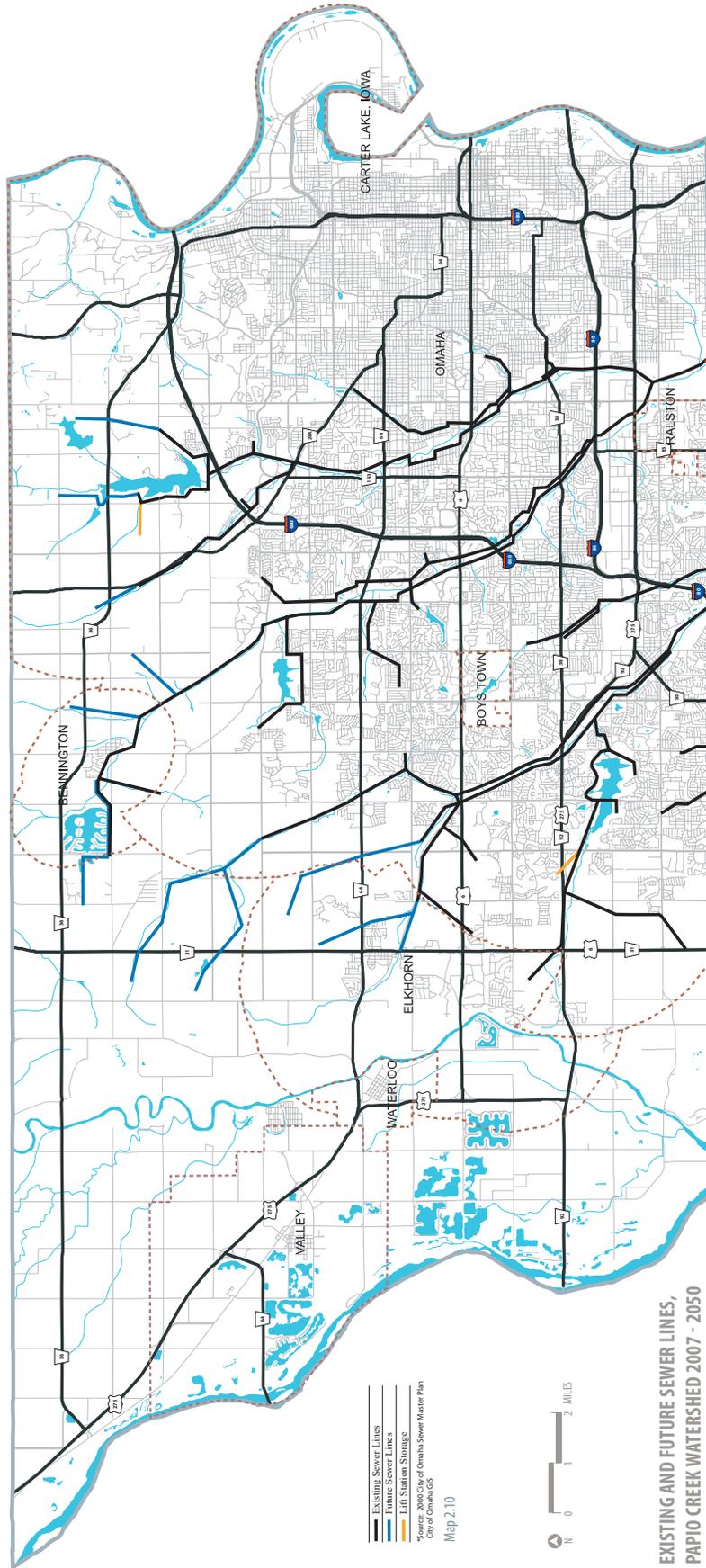
Other county roads tend to be section line roads that have a fairly continuous north south pattern but are disconnected by the Elkhorn River along east west routes. As development pressures increase outside of Omaha’s jurisdiction boundary these roads have experienced increased traffic volumes. The upgrade and maintenance of these roads is the responsibility of the county.

MAPA 2025 Long-Range Transportation Plan

The Metropolitan Area Planning Agencies Long-Range Transportation Plan proposes significant regional improvements for the county most of which are located within the Omaha jurisdiction. Within Douglas County’s planning jurisdiction improvements include:

- 192nd Street from Fort Street to Military Road
- Highway 36 from I-680 to Highway 31
- Highway 275 interchange improvements at 276th Street, Blondo Street and Highway 36





Priority projects for the county include expansion of the arterial system east of the Elkhorn River and specifically Highway 36.

In 2005, allocated funding for a Missouri River Bridge and a Pflug Road interchange in Sarpy County revived consideration of an Outer Loop system. This major roadway facility would encircle the metro area and is only in the conceptual stages. The idea of an outer loop has been discussed for several years and could include both western and northern section within Douglas County. A study of such a loop in the context of overall metropolitan growth and transportation needs is likely to occur during 2006.

INFRASTRUCTURE: WATER AND SEWER SYSTEMS

Within Douglas County there are three primary municipal wastewater treatment systems. The Omaha system is designed to serve the entire Papillion Creek Watershed, including areas in Sarpy County. The current interceptor sewer system is extended incrementally within areas Omaha has classified as its zone of present development. Developers contribute to the interceptor sewer fund which helps fund extension of the system. The policy within the Papillion Creek watershed has been to allow very limited pumping into the system from adjoining watersheds. However, recently the city has begun discussions that would allow additional areas to pump over the ridgeline. These have included portions of the Zwiebel Creek watershed in Sarpy County and areas along Q Street in western Douglas County.

Elkhorn, Waterloo and Valley also maintain municipal sewer systems. The Elkhorn system currently discharges in the West Papillion Creek. Valley has recently taken their local treatment facility off-line and constructed a line roughly following Reichmuth Road that eventually ties into the Fremont wastewater treatment system.

Municipal water service in the area is primarily provided by the Metropolitan Utilities District (MUD) and the City of Valley. MUD has recently developed a new well field in the area of 264th and Q Streets. Water from these wells is pumped to a treatment facility at 204th and Q Streets. Providing water services west of

204th and north of the wellfields will require an addition line from the treatment facility back to the west.

The use of water resources and the interaction between groundwater and surface water has become a significant issue since completion of the 1998 Douglas County Comprehensive Plan. On an annual basis, beginning in January, 2006, the Department of Natural Resources will determine which basins, sub-basins, or river reaches are "fully appropriated" or "overappropriated." An "overappropriated" area is one where the extent of development is not sustainable over the long term. If an area is declared "fully appropriated" or "overappropriated" then an integrated surface water and groundwater management plan (IMP) must be developed to manage all hydrologically connected groundwater and surface water in order to sustain a balance between water uses and water supplies. This must be done to ensure the economic viability, social and environmental health, safety and welfare of the basin, sub-basin or reach can be achieved and maintained for both the near and long term (Source: Nebraska Department of Natural Resources, June, 2005). In Douglas County the declaration of "fully appropriated" would mean limitations on additional community and irrigation wells. However, it is unlikely that Douglas will be declared "fully appropriated" in 2006.

