TRANSPORTATION, INFRASTRUCTURE, + PUBLIC FACILITIES

Chapter 6

This section addresses community service systems necessary to support the concepts and directions of the Land Use Plan.

TRANSPORTATION PLAN

As Omaha continues to grow to the west, the regional transportation system must also continue to develop. Rapid suburban growth has often strained the rural section line road system in areas adjacent to Omaha, and local governments have struggled to keep pace with demand. The County's continued challenge will be to guide growth in ways that ensures an efficient expansion of the arterial and collector street system.

Map 6.1 displays the proposed transportation plan for the county, based on both regional needs and the future requirements of development proposed in the Land Use Plan. Elements of the Transportation Plan include:

ARTERIAL SYSTEM

The MAPA (Metropolitan Area Planning Agency) 2025 plan identifies a number of section line arterials streets that should be upgraded in the coming years in Douglas County. Most of these streets fall within the Omaha planning jurisdiction but outside Omaha's corporate limits. Those streets within the Douglas County planning jurisdiction that are identified for upgrades are identified in Chapter Two. In addition to these improvements an arterial system will include section line roads in the Urban Development district and key cross county links west of the Elkhorn River. This system will include:

- 180th Street
- 192nd Street
- Highway 31/204th north of West Maple Road
- 216th Street north of Highway 64/Maple Road
- 222nd Street
- 240th Street
- 252nd Street
- 264th (South of Highway 275)
- 276th Street
- 300th Street
- Q Street to 216th as a four-lane then narrowing to three-lanes west to 264th Street
- Blondo Street west of Highway 275
- Military Road improvements include improved intersections at Rainwood and Bennington Roads.
- Rainwood Road both east and west of the Elkhorn River
- Bennington Road
- Highway 36 to four-lanes west of Highway 31/204th Streets

This system and its related land uses should be taken into consideration in MAPA 2025 Long Range Transportation Plan.

A COLLECTOR SYSTEM

A network of collector streets should be established within the urbanized areas typically on or near the half-section lines. They would be integrated into the neighborhood street system and provide neighborhood-to-neighborhood connectivity. They should be designed to relieve section-line arterials of the need to accommodate substantial local traffic. As such, the collector network improves local access, creates a better sense of connected community, and extends the effectiveness of the arterial system. Further, the land use patterns created by this fine-grained street network can bring local activity centers closer to home, reducing the length of typical trips. These half-section collectors should be dedicated incrementally with subdivision development. The policy of collectors on half-section lines is consistent with the City of Omaha's comprehensive plan.

In the less urbanized western reaches of the county the collector street system will include some section line roads. These include:

- F Street
- Pacific Street
- West Dodge Road
- State Street
- 264th Street north of Highway 275
- 288th Street
- 312th Street

LOCAL STREET SYSTEMS

The county road system of the future will service a population accustomed to urban services and many areas will accommodate much higher densities than today. For this reason most local streets should be hard-surfaced. Paved streets should be required of all residential developments with densities in excess of 1 unit per 5 acres. Typically, urban standards will be used when densities exceed one unit per acre. However, the county should be open to innovative designs that use surface stormwater management and retention/detention, even in areas with higher densities. Local connections should also be provided between developments in additions to connections to the arterial and collector system.

TRANSPORTATION FUNDING

Funding both the back-log of improvements and meeting future needs of the regional transportation system is one of the most significant challenges facing the metropolitan region. In 2004, HDR completed a funding study for the Metropolitan Area Planning Agency (*Transportation Funding Study Douglas and Sarpy Counties*) that assessed the existing and future transportation systems in Sarpy and Douglas Counties, analyzed current funding mechanisms, and identified potential funding methods. The study found:

- An existing need of nearly $38 million dollars in road improvements
- A future need for nearly $451 million dollars in road improvements totaling $489 million dollars in existing and future needs
- A gap for the entire study area (Douglas and Sarpy counties) between baseline revenue and needs that will total roughly $30 million per year with annual increases resulting in a $42 million per year gap by 2025

The study identified potential revenue sources for filling this gap. These included:

- Developer contributions
- Local options sales tax
- Occupation head tax
- Property taxes
- Nebraska State Highway Allocation Fund
- Elimination of street lighting expenditures

The City of Omaha and Douglas County began to address this issue with the approval of the Arterial Street Improvement Program (ASIP Fund) in 2005. The program is designed to fund the design and construction of arterial street improvements within the unincorporated portions of Douglas County that fall in the City of Omaha's planning jurisdiction. The fees charged under the program include:

- A 1.25% fee on the building permit value of all new residential construction
- A mobile home fee of $1,000 per unit
- A multifamily, commercial and industrial fee of $5,000 per development acre

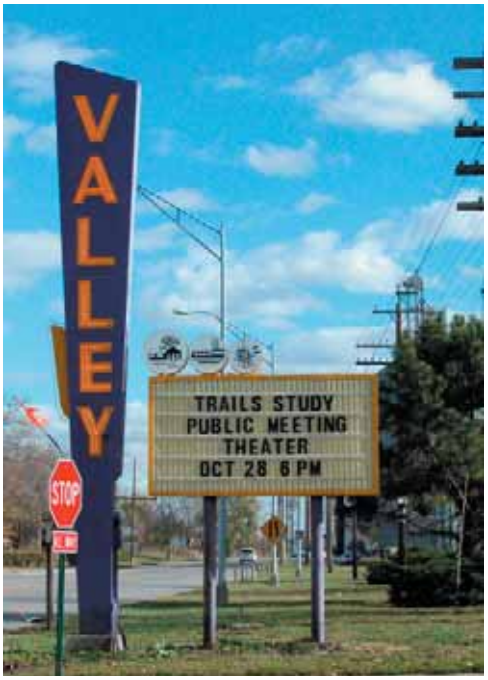
Initial projects to be funded under the program include:

- Q Street from 169th Street to 204th Street
- 156th Street from State Street to Blondo Street

Every three years the fees and priority roads will be re-evaluated. The County should also consider extension of this program to areas outside the City of Omaha's planning jurisdiction. As development fills in Omaha's jurisdiction development pressures will continue to increase within the Douglas County planning jurisdiction. The County should begin to plan for the transportation needs of future populations, especially within those areas designated for urban density development.

TRAIL AND PATHWAY NETWORK

Non-motorized transportation should be incorporated into the county's overall transportation framework, providing alternatives for short and medium-distance trips. In an effort to identify ways to expand the regional trail system to areas outside Omaha and the Papillion Creek system the Western Douglas County Trails Plan was completed in 2004. The basic trail framework is identified in Map 6.2.



The system is based on seven trail types. These include:

- *Exclusive off-road trails.* These trails are physically separated from motor vehicle traffic and rights-of-way and are typically built along utility, railroad, or drainage corridors, or within a greenway acquired by purchase of easement across private land.
- *Separated roadside trails.* This class of trail resembles off-road trails, except that they are developed on or adjacent to road rights-of-way.
- *Paved shoulders.*
- *Detachable shoulders.* This technique applies to bicycle shoulder segments where the drainage ditch either disappears or is set back far enough from the driving surface to permit a separated roadside trial.
- *Reichmuth Bikeway.* The concept of a "Reichmuth Bikeway" adapts Reichmuth Road (Old Highway 275) to joint trail use, and applies to the corridor from the Highway 64 overpass to the Dodge County line and ultimately into Fremont.
- *Share the Road (STR) Routes.* These routes are suggested (but not mandatory) pathways for bicyclists from one place to another. These streets generally do not require major capital improvements other than assuring their accessibility and ease of safe use to cyclists.
- *Walking Trails.* Walking trails vary from paved surfaces to more natural surfaces such as wood chips. They are most applicable in the hilly and natural areas, where the casual user will not expect full accessibility to people with disabilities or wheeled vehicles.

The plan concept laid out in the Western Douglas County Trails plan includes the following major features:

- **A Tri-Community Core** that connects Valley, Waterloo, and Elkhorn with each other and with the metropolitan trail system. This core is designed for multiple users and makes extensive use of the Old Highway 275 corridor. It begins at the Highway 64 overpass on the north edge of Valley and connects

to Elkhorn's Center Street trail at Center Street and Highway 64. In the process, it serves Valley's town center, the YMCA, Waterloo schools and village ce the Waterloo Trail Loop, Ta-Ha-Z Park, and ultimately the traditional town center of Elkhorn.

- **A Platte River Branch** that connec River Landing and Ginger Cove and the Tri-Community Core. This branch uses road segments and is integrated into a city trail for Valley.

- **A North Elkhorn Loop** that utilizes road rights-of-way that ring the Elkhorn River, and connects to the Elkhorn River at specific public access points. This loop is integrated into the Elkhorn River Canoe Trail at these access nodes. The legs of the North Elkhorn Loop are connected into the Tri-Community Core and tie together through Waterloo.

- **A South Rivers Loop,** mirroring the North Elkhorn Loop by using roads that parallel the Elkhorn and Platte Rivers. The South Rivers Loop forms a ring around the Elkhorn River in concert with Elkhorn's proposed Skyline Trail. The loop also provides a direct connection to Two Rivers State Recreation Area and serves major population centers like Westshores and Riverside Lakes.

- **The Fremont Connection,** using the Reichmuth Bikeway to connect Douglas County into Fremont and its evolving trail system.

- **Connections of both major river loops into the Omaha metropolitan trail system** at their north and south edges, and linkage of the Tri-Community Core into the central part of the Omaha system.

INFRASTRUCTURE

WASTEWATER

Wastewater and stormwater management will be significant issues as the county develops at higher densities. In the past, wastewater treatment has been handled either through septic systems or community wastewater systems. However, Newport Landing and other major development in the Bennington vicinity have extended Omaha's sewer system and consequent urban development far earlier than anticipated by the 1998 Douglas County Comprehensive Plan. Sanitary sewer service should be provided in the entire northern section of the Urban Residential District during the planning period. These extensions, like other extensions in the Omaha jurisdiction, are likely to be funded by the City of Omaha's Interceptor Sewer Fund. Therefore, all new subdivisions in this district must be designed at urban densities and be connected to municipal sewer.

The county's largest subdivisions are located in the southern part of the jurisdiction, and are not connected to the Omaha wastewater system. Westshores pumps its wastewater to Waterloo and the Hamptons is currently planning to develop a community wastewater system. Much of the southern development area is located over the ridge line and drains into the Elkhorn River. The most economically feasible solution in this rather limited area will involve directing wastewater over the ridgeline and into the Papio watershed's system.

Wastewater Policies

North Urban Districts

- In the north Urban Residential District, all new subdivision development will be served by municipal services, including sanitary sewer. Interceptor sewers will be developed incrementally from the current terminus of the line, and will typically be financed by the City of Omaha's Interceptor Sewer Fund. Acreage developments under 20 acres per unit on individual systems should not be permitted within this development district.

- Portions of the north Urban Residential District that are not limited by environmental factors, but are west of the Papio/Elkhorn drainage divide should be permitted to pump wastewater into the municipal system in the Papio watershed.

- Existing developments built out to urban densities (generally over 1 unit per acre) should connect to municipal sewers when they are extended into the area.

South Urban Districts

- In the south Urban Residential District, areas that are not limited by environmental factors but are west of the Papio/Elkhorn drainage divide should be permitted to pump wastewater into the municipal system in the Papio watershed.

- Other portions of the south development district, including areas in the Environmental Resources District, may develop to lower densities, using conservation standards.

Resource Extraction/Lake Districts

- Development in these areas currently uses individual or community wastewater systems. The long-term population potential of these areas may exceed the ability of these systems to provide adequate service and protect water quality.

- A plan should be developed and implemented at a specific population threshold for extension of municipal services from the Valley/Fremont system. The plan should include a method of financing this system extension, potentially following the model of the Omaha Interceptor Sewer Fund.

- Subdivision agreements for developments in this area will recognize the responsibility of subsequent property owners to connect to a municipal system when this service is available.

Lower-Density Development Districts: Environmental Resources and Floodplain Districts

- Subdivisions with lot sizes over 3 acres should be permitted to use individual or community septic systems.

- Alternative means of wastewater treatment, such as constructed wetlands, should be encouraged.

Overall Policies for Community Wastewater Systems

- In general, County policy should discourage the use of community wastewater treatment facilities by individual subdivisions. If community systems are utilized, they should provide service to a consortium of developments.

- Careful monitoring of existing and any new community systems should be carefully monitored. New systems should be approved only if effective long-term measures are in place for continued management and maintenance.

WATER SYSTEMS

New subdivision developed at urban densities must utilize municipal water systems. Within the urban growth areas municipal water will be extended with the sewer system. A large Metropolitan Utilities District (MUD) wellfield operates in the southwestern corner of the county, generally southwest of 264th and Q. Water from this wellfield is pumped east along the Q Street to a treatment plant at 216th Street. Municipal water can be provided to this area with the construction of a distribution line west of the treatment plant.

Existing and future residential projects in the Resource Extraction/Lakes District should utilize the Valley or Waterloo systems for water supply. Waterloo

currently works with MUD for its water supply and provides service to the Westshores subdivision. For cost reasons developments on larger parcels of land within the Floodplain and Urban Reserve areas are likely to utilize private or community wells. However, "full appropriation" of the area would limit new community wells and require the use of municipal water sources.

STORMWATER MANAGEMENT

Since completion of the 1998 Douglas County Comprehensive Plan, pressure to improve stormwater management and water quality has increased. New federal mandates impose water quality standards on urban runoff. This places a greater emphasis on site-related stormwater management, designed to reduce the volume and velocity of runoff and provide for on-site absorption of stormwater. These techniques can be used to create "greener" developments that will also help to satisfy the desire of existing county residents for maintenance of rural character.

To address these issues on varying scales from individual lots to the entire county, Stormwater Best Management Practices can be established. The practices use a "distributed stormwater management" approach rather than the more conventional "end of the pipe" approach. The approaches are laid out in Appendix B and are divided into two sections. The first section describes stormwater best management practices (BMPs) in various categories, including policy/regulations, planning/zoning, stormwater management, and landscaping. The second section illustrates conservation site design templates for various types of developments that may be applied throughout Douglas County.

The BMP techniques identify strategies and guidelines for stormwater management and water quality protection, including ecologically and hydrologically sensitive designs that can be included in an overall watershed protection and management program. The stormwater BMPs are also multi-dimensional practices that can meet traditional water quality and quantity control standards outlined in many stormwater ordinances, as well as achieving planning, urban design, and landscaping objectives.

The templates identified in the second section of Appendix B are more specific and apply to the site level application of BMPs. Seven templates are laid out for commercial/industrial sites; moderate density residential, rural residential, and estate residential sites; agricultural areas; stream corridors; bluff and ravines; and lakes and wetlands. Each of these templates is designed to illustrate conservation-based development and land management techniques and to contrast those techniques to the typical developments Douglas County has seen in the past. The basic concept of these templates should be transferable to most development plans, with modification for site conditions and land characteristics.

PUBLIC FACILITIES

Public facilities include public buildings and community services which are necessary to support development in the jurisdiction. These facilities include schools, public safety facilities, and parks and open spaces.

SCHOOLS

There are seven school districts serving the Douglas County jurisdiction with school facilities located within constituent communities. The districts include:

- Bennington Public Schools
- Elkhorn Public Schools
- Arlington Schools (based in Washington County)
- Fremont Schools (based in Dodge County)

- Douglas County West Public Schools
- Gretna Public Schools (based in Sarpy County)
- Millard Public Schools

Beginning in the 2005 school year, Valley and Waterloo school districts consolidated forming Douglas County West (DC West) Public School. The district is divided into three buildings, K through 4th grade in Valley, 5th through 8th grade in Waterloo and 9th through12th grades in Valley. Elkhorn Public Schools and Millard public schools have continued to expand with the opening of new elementary schools. Bennington has constructed a new high school and Millard Public schools is planning to purchase additional land for a fourth high school at 216th and Q Street. This site would represent the westernmost extension of the Millard School District, which itself is rapidly approaching full build out within Douglas County.

The plan projects near-term development to be focused in the northeast sectors of the jurisdiction in the Bennington and Elkhorn school districts. The county should work closely with these districts to ensure that new populations can be adequately served and that new school sites are identified ahead of development.

PUBLIC SAFETY FACILITIES

The Douglas County Sheriff's Office provides police services throughout the jurisdiction and outside the municipal limits of communities. The sheriff's base of operations is the law enforcement center at 156th and West Maple Road. The facility opened in 1997 and provides good access throughout the service area. Although it was a new facility when the previous plan was completed growth in the jurisdiction has created additional needs. Additional room is needed at the facility for property and evidence, crime lab, and the k-9 unit. Room for these expansions does exist on site.

Fire protection services are provided through rural volunteer departments, housed jointly at fire stations in individual communities. These districts, complemented by mutual assistance agreements, provide generally adequate coverage to the county jurisdiction. A chronic limiting factor has been the availability of adequate water storage to provide good fire protection. However, urban level development should occur adjacent to existing development thus providing the water sources needed for fire protection.

PARKS AND RECREATION

Parks and recreation concepts have been discussed in the context of the land use plan. In addition to municipal parks within constituent towns, the jurisdiction's main recreation facility is Two Rivers State Recreation Area. The jurisdiction also includes several privately owned recreation facilities and campgrounds.

Major park, open space, and recreation recommendations include:

- Incorporating park land and open space by applying conservation subdivision concepts. The preservation of a substantial part of a subdivided parcel in common or open space will provide adequate reservations of open space for recreation purposes. Each subdivision's open space should be open ended, connecting to adjacent development and creating a linear park and open space system across the county.
- Modifying and extending Omaha's Suburban Parks Master Plan should be extended to future Urban Development Districts. Providing

designated neighborhood and community parks ensures a level of service residents with Douglas County's communities have come to expect.

- In those areas where conservation design techniques are not mandatory the purchase of open space may be necessary to preserve rural character. If a developer chooses not to use these techniques they should make a payment into a special open space benefit fund, based on a ratio of open space to platted residential land.
- Preparing a detailed implementation plan for the Elkhorn Preserve. This concept envisions a system of public lands, lands held by nonprofit organizations and land trusts, and private lands, united in maintaining the integrity of this unusual environment. The implementation plan and its execution should be developed in cooperation with Waterloo and Elkhorn, whose jurisdiction incorporates significant parts of the river corridor. It must include adjacent property owners and the Papio-Missouri River Natural Resource District (P-MNRD) to develop a cooperative concept for management and to define appropriate levels and locations for public use and access. This process has begun with the Canoe Access study completed by P-MNRD for the Elkhorn River.
- Completing the regional trail system as outlined in Transportation section of this document.

SOLID WASTE DISPOSAL

The existing landfill is meeting the county's needs, however, an element of long-term county and metropolitan planning should include measures to reduce the overall waste stream feeding landfills and making more efficient use of existing resources. Therefore, techniques such as recycling and composting of organic materials should be included in both overall public planning for solid waste disposal and in the design and operation of individual development projects.