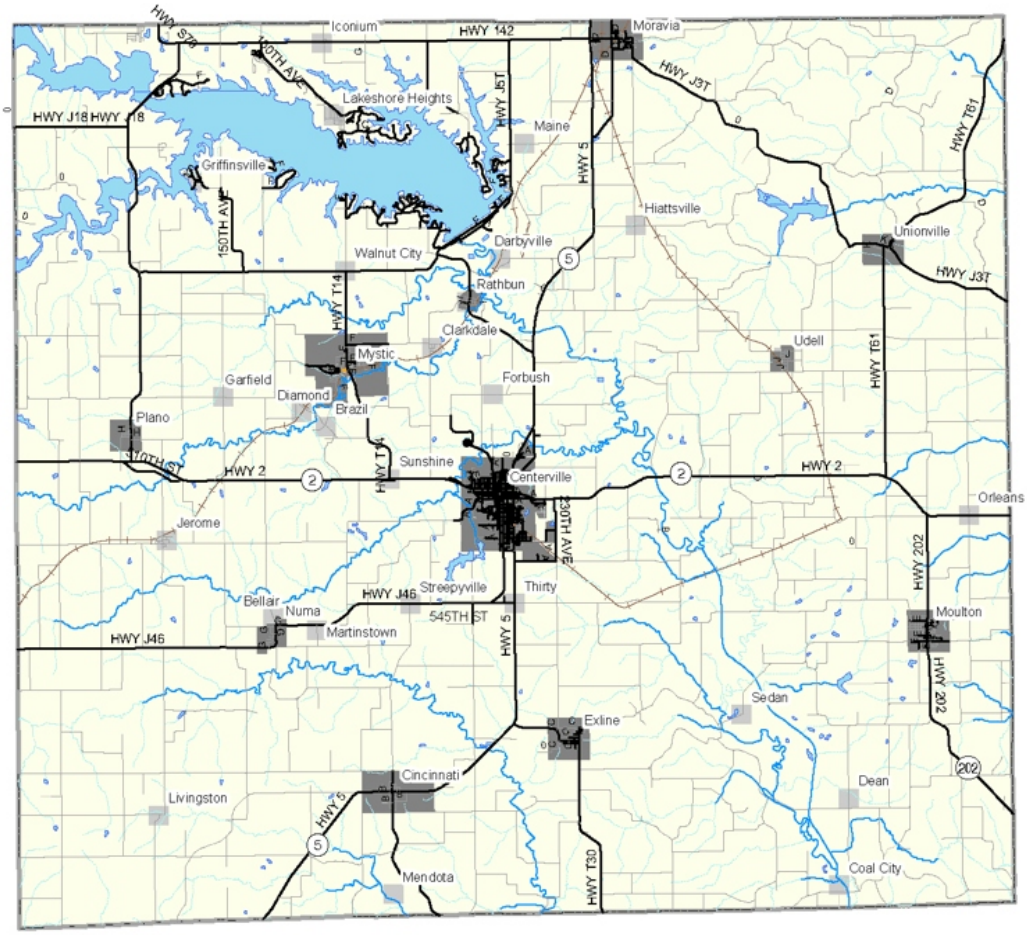
**Appanoose County**
**Chariton Valley Planning and Development**
**Iowa Department of Transportation**

# Appanoose County, Iowa Transportation/Land Use Study




**FINAL REVIEW DRAFT**
**July 19, 2005**

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## Overview

Planning is forethought in action. Effective plans guide decision-makers as they weigh competing objectives. The short-term interests of today must be balanced with the long-term considerations for the future. Private benefits must be weighed against public costs and benefits. The Transportation / Land Use Plan is structured as a guide to manage the development of land and to time the provision of public facilities to adequately serve the expanding population. It sets out in one document the basic parameters that must be considered when managing the use of the land. To avoid inefficient sprawl development patterns and to be fiscally responsible, the amount, type and location of development must be coordinated with the efficient extension of public facilities and utilities.

This document is a statement of the community's vision for its own future and a guide to achieve that vision through the year 2025. The view of the future expressed in the Appanoose County Comprehensive Plan (adopted 1997) and updated by this Transportation / Land Use Plan is shaped by local community values, ideals and aspirations about the best management and use of the community's resources.

## Transportation - Land Use Relationship

Land use and transportation share a very close relationship. Whether planned or not, land improvements are often sited close to transportation features that suit the needs of the development. In return, as the development generates more demand for transportation services, the transportation system evolves (through infrastructure improvement projects) to meet that demand.

Land use planning is a tool to develop a set of rules and guidelines for the location, intensity, types and amounts of future development. Ideally, good land use planning mates land uses with their supporting transportation infrastructure needs. Simultaneously, good land use provides buffers between incompatible land uses.

## Project Purpose

The purpose of this project is to develop a rural transportation plan for Appanoose County that reflects the goals and values of the County residents and leadership. The project is intended to:

- Develop a future land use plan according to the County goals and values
- Identify transportation system priorities based on the land use plan
- Identify potential funding sources for transportation system needs and enhancements
- Provide justification for public investment in transportation infrastructure projects within Appanoose County and map the future course toward the transportation system goals.

## Plan Priorities

During the course of implementing this Plan, County officials will need to balance competing objectives when making decisions. For instance, should the County approve an affordable, environmentally sensitive rural development application that would cause increased tax burdens to fund road maintenance? The goals and policies of the Plan are not of equal importance. The County will continually need to balance private property rights with the responsibilities of property owners, just as it needs to balance the preservation of land resources with the need to develop additional land to accommodate growth. County decision-makers will use the following priorities to balance competing objectives.

- ***Efficiently fund the maintenance of the County road system.*** A top priority for the County is the provision and maintenance of the public road system. This entails the efficient maintenance practices, equitable funding of roadway improvements and the management of new demands on the roadway system.

- ***Preserve valuable agricultural lands.*** The County's historic land use practices have placed a high priority on the preservation of valuable agricultural lands. Some of the most fertile croplands seem to require little protection because of their location within floodplain areas. Most of the agricultural and rangelands are in areas that are not planned for rural or suburban residential development. However, the preservation of some of these lands that are close to urban and rural development areas will require strategies to ensure that development of adjacent lands does not impair the continuation of normal farm and ranch practices.

- ***Provide for appropriate development in rural areas.*** Some residents of the County desire to live on one-half to five-acre lots in rural areas. The plan provides appropriate opportunities for this lifestyle choice, ensuring that designated locations can be adequately served by the road system and that such development does not interfere with agricultural operations.

- ***Ensure compatibility between adjacent land uses.*** Agribusiness, other commercial operations, industrial development and residences each generate different impacts that can affect their compatibility with adjacent development. The land use plan prescribes where these uses should be located in relation to each other and establishes a framework for zoning and development standards that ensure compatibility. Compatibility does not mean that adjacent land uses will be the same, but it does mean that they can coexist without interfering with the normal use of each property.

- ***Ensure that development standards are consistent with Plan goals and policies.*** The Plan does not implement itself; it is implemented through a variety of public and private decisions. The County's development standards should reflect adopted goals and policies of the Plan to ensure that public decisions help achieve the County's goals.

- ***Ensure that the provision of adequate facilities and services is coordinated with new development demanding the facilities and services.*** New development creates demand

for public services and facilities (*e.g.*, roads, utilities, schools, stormwater facilities, emergency services). The County's growth and development decisions should ensure that facilities and services are adequate to serve new development. This means that facilities should be in place or funded before development occurs. It also means that the County should focus public investments in areas where it has planned new development.

- ***Provide for the long-term growth of communities in the County.*** Inappropriate development (e.g., low density homes using wells and septic systems) can effectively block efficient growth of a community. The Plan places a priority on protecting community growth corridors and coordinating development decisions with affected communities.

- ***Protect the environment.*** Appanoose County places a priority on the protection of its natural infrastructure, including its air, soils, vegetation, riparian woodlands, wild vegetation-woodland corridors, habitat areas, surface waters and ground waters. To minimize the negative impacts of development and use of land on these resources, the Plan limits land use intensities in floodplains and prime agricultural areas, and encourages the clustering of allowed development to protect environmental assets.

- ***Promote economic development.*** The City of Centerville is a regional economic center that has provided economic opportunity and prosperity for residents throughout Appanoose County. The Plan places a priority on the continued economic vitality of the community.

- ***Provide for the development of housing that is attainable for County residents.*** Appanoose County is home to residents from a variety of income groups. While not all residents will be able to afford all types of homes, the County supports the provision of a wide range of housing types in areas that provide accessibility to jobs. In most instances, more affordable housing will be located within or adjacent to existing communities.

**Land Use**

The Future Land Use Element identifies the basis for the goals, policies and implementation strategies presented in the Plan by proposing efficient development patterns that focus growth in activity centers and along key corridors.

While it is generally agreed by County residents these distinctions between urban, suburban and rural/agricultural areas should be maintained and encouraged, development in the growth areas must be coordinated with the provision of public facilities and services (roads, water, sewers, public safety, *etc.*) as necessary and required. Detailed plans for public facilities and services must be developed, at appropriate levels of service, which identifies an equitable financing mechanism. Residents are concerned about the long-term impact of growth on agricultural operations, family farms and the overall quality of life for Appanoose County as the population increases and demands for land and public facilities and services change the character of once rural areas.

***Alternative Growth Scenarios.*** As Appanoose County develops and implements a coordinated set of growth strategies, the community faces many choices regarding the character, intensity and location of new growth. By exploring the implications of alternative growth patterns, the County can chart a course of actions and policies that best achieve the community's preferred growth scenario. Through the alternatives analysis process, the Advisory Committee, County staff and general public debated the merits of land use pattern alternatives and formulated a consensus-based future land use plan. The future land use plan serves as the foundation for Plan goals, objectives, policies and ultimately the implementation actions necessary to bring the land use plan to fruition. The alternative analysis process included an examination of the vacant land available for development because the identification of vacant land for future land uses allows for the analysis of growth projections.

***Growth Tiers.*** Growth tiers help to focus development, infill, and redevelopment where it is appropriate. Tiers are based on the existing levels of service for public facilities and services by identifying the availability of facilities and services and projecting the County's ability to efficiently provide additional facilities and services to support development. A key and critical component of applying growth tiers to future land use alternatives is to include a temporal element to the analysis, which provides guidance regarding the timing and availability of public facilities and services.

***Preferred Growth Scenario.*** The Advisory Committee carefully weighed the impacts of each of the growth alternatives and the growth tiers. Both a preferred growth alternative and preferred growth tier were selected simultaneously. The Preferred Growth Alternative was developed and based on community and Advisory Committee input. The Preferred Growth Alternative integrated key factors of all three growth alternatives and also considered alternative growth tier configurations. There are three maps that define Appanoose County's Preferred Growth Alternative, identified and described as:

- The **Preferred Growth Tiers Map** (Exhibit 1) combines elements of each of the alternative growth tiers that were considered, and establishes how development and infrastructure investment should be timed and coordinated.

- The **Development Concepts Map** (Exhibit 35) shows the placement of "tiles" representing different land uses relative to the preferred development alternative, similar to the process used during the alternatives analysis workshop. The tiles are located on the map as arranged by community workshops and staff input.

- The **Future Land Use Map** (Exhibit 36) converts the ideas of the development concepts map to show future land uses that are appropriate for various areas of the County. The land uses are shown in a conceptual way, not tied to specific properties (*i.e.*, the map is not parcel-specific).

**Transportation**
The transportation element consists of:

- Determination of future transportation system demand;
- Identification of future infrastructure needs based on the future demand;
- Estimate budgetary needs for infrastructure improvements;
- Prioritization of investment alternatives to be used for the implementation program;
- Identification of available revenue streams.

This process was used to varying degrees on each of the major transportation components listed below. System demand is estimated based on the future land uses and growth scenario developed in the planning portion of this project. As the various predicted land uses are realized over time, increased demand for transportation services will be generated. This demand is then quantified for each of the transportation modes listed above. From the estimated future demand, infrastructure improvement projects can be identified and costs associated with those improvements are developed. Because existing revenue streams for each of the transportation modes are finite and limited, the projects must be prioritized in order of importance. The transportation network evaluated in this study is comprised of six primary components including:

- Roadways
- Bridges
- Railroads
- Aviation
- Trails
- Transit

The components were inventoried to determine quantity, capacity, condition, and maintenance. Certain components also had special features such as safety data (roadway crashes). The existing street and highway network can be described by functional classification, which is a process by which streets and highways are grouped into classes or systems according to the service provided. Basically, street functional classification uses a hierarchical structure to describe the operation of all roadways within a transportation system. If the transportation system is working correctly, all portions of this hierarchy should work together to facilitate efficient and safe movement between trip origins and destinations.

## A Vision for the Future

Appanoose County's Transportation / Land Use Plan is intended to define a long-term vision for the future that is shared by its residents and guide public and private actions to help achieve that vision. The goals and policies for this Plan were developed from input received from the Citizen's Advisory Committee, Board of Supervisors, Zoning Commission, stakeholder groups, staff and the community at large. The following growth issues were refined during the planning process and are addressed by Plan goals and policies.

- ***Plan for growth and development.***
- ***Protect valuable resources.***
- ***Ensure land use compatibility.***
- ***Ensuring a balanced land-use mix.***
- ***Coordinate growth decisions with other jurisdictions.***
- ***Coordinate growth with provision of adequate public facilities and services.***
- ***Ensure the provision of adequate water and wastewater facilities.***
- ***Coordinating with other service providers.***
- ***Implement a coordinated county-wide economic development program.***
- ***Support agricultural industry.***
- ***Develop a Land Evaluation and Site Assessment System (LESA).***
- ***Developing more diversified housing mix.***
- ***Maintain an adequate transportation network.***
- ***Ensure adequate future roadway funding.***
- ***Maintain fiscal integrity.***

## Recommended Goals

The goals for this Plan were developed from input received from the Citizen's Advisory Committee, Board of Supervisors, Planning Commission, stakeholder groups, staff and the community at large. This policy hierarchy forms Appanoose County's statement of public purpose and intent regarding land use, infrastructure, services, and fiscal impacts of growth.

The following recommended goals are generally applicable throughout unincorporated areas of the County, and presume that development regulations will be adopted in the future. However, they do not obligate the County to, or guarantee that the County will, adopt development regulations.

**Goal 1:** **To maintain a balanced, sustainable land use pattern that accommodates projected growth while fostering community vitality, improving the quality of the built environment and protecting the integrity of the natural environment.**

**Goal 2:** **To coordinate the timing, location and intensity of growth with the provision of adequate public facilities and the implementation of equitable funding strategies.**

**Goal 3:** **Provide for adequate public facilities and services for existing and future residents and businesses and to allocate growth-related development costs in an equitable and cost-effective manner.**

**Goal 4:** **To maintain the rural character of the countryside and preserve viable agricultural operations.**

**Goal 5:** **To develop a more diversified local economy that provides a stable economic base, greater employment opportunities for all segments of the local population and the fiscal resources to provide high quality public services to all residents while retaining relatively low tax rates.**

**Goal 6:** **Create a more diverse housing stock that provides adequate and attainable housing for the diverse shelter needs of Appanoose County's residents in a manner that creates stable, viable neighborhoods and enables the County to adequately fund public facilities and services.**

**Goal 7:** **Provide a convenient and cost effective transportation system that emphasizes connectivity, safety, choices of modes and harmony between transportation modes and land uses.**

**Goal 8:** **To preserve and protect resources essential to sustain a healthy environment, including the County's Lakes, river and stream corridors, woodland habitats and agricultural areas.**

**Implementation Strategies**

The Plan describes the processes to annually review, monitor, amend and implement the Plan and the Future Land Use Plan Map. The detailed amendment process will be incorporated into the County's development regulations. The Plan requires on-going action to achieve its goals over the planning period. The necessary course of action is described in the Implementation Work Program, which consists of Short Term and Long Term Work Programs.

# INTRODUCTION

This document is a statement of the community's vision for its own future and a guide to achieve that vision through the year 2025. The view of the future expressed in the Appanoose County Comprehensive Plan (adopted 1997) and updated by this Transportation / Land Use Plan is shaped by local community values, ideals and aspirations about the best management and use of the community's resources. This Plan uses text, maps and diagrams to establish policies and programs which the County may use to address the many physical, economic and social issues facing the community. Thus, the Plan is a tool for managing community change to achieve the desired quality of life.

**Why Plan?**
Successful communities do not just happen; they must be continually shaped and guided. A community must actively manage its growth and respond to changing circumstances if it is to continue to meet the needs of its residents and retain the quality of life that initially attracted those residents to the community.

Residents of Appanoose County value the high quality of the natural environment, the character and diversity of their neighborhoods, the quality of public services, the cultural resources and breadth of recreational opportunities, as well as the strong sense of "community." Concern about the impact of new growth has increased as residents have experienced increased traffic congestion, school crowding, commercial encroachment on neighborhoods and the inappropriate development of natural, open areas. Effective growth management can help the community address each of these concerns.

The County recognizes the importance of coordinating growth management efforts with its cities and independent service providers. Much of the recent growth is located within the unincorporated portions of the County, as will anticipated future development. By shifting urban and suburban service demands to areas that lack adequate services and facilities, this growth threatens to create detrimental fiscal impacts in addition to its impacts on the character of urban and rural areas. The County and cities recognize that a joint strategy for growth management will make efficient use of both valuable infrastructure that is already in place, and prevent unnecessary loss of the surrounding open space areas where such infrastructure is not yet in place. A good plan and effective plan implementation measures can curb the trend towards sprawl development and promote appropriate and available infill development and redevelopment. While allowing appropriate development opportunities in outlying areas, this plan seeks to promote development and economic growth in areas that can be effectively and efficiently served by public facilities and utilities.

This Plan, once adopted and effectuated consistently and carefully, also will strengthen the partnership between the public and private sectors. This partnership can achieve infinitely more for both parties than either acting alone. An important premise of an effective Plan is that it creates a "win/win" situation for the public and private sectors, for existing and new neighborhoods, for economic development and open space land conservation, and for fiscal integrity and enhanced quality of life.

This plan provides a framework for decisions affecting the growth of Appanoose County. The vision and goals of the plan describe a desired future for the County. The policies and strategies describe the

actions that the County will take to achieve the desired future. The plan as a whole will guide public and private growth decisions so the County will realize the following benefits:

- Increased predictability for public and private growth decisions;
- Cost savings from more efficient use of existing infrastructure;
- Cost savings from reduced demand for new infrastructure;
- Provision of adequate opportunities for rural development;
- Maintenance of the rural character of the County;
- Effective preservation of productive crop and range land;
- Protection of the environment; and
- Increased support for the prosperity of the cities and County.

**How Should the Plan Be Used?**

This plan is intended for use by elected and appointed County officials, residents and other individuals making investments and other growth decisions in the County. In addition to describing the long-range goals of the County, this plan outlines the intent of the County's development standards and establishes a program of specific actions that will help the County achieve its goals.

The Plan is a guide to action. It is not, itself, an implementation tool. By ensuring that individual actions are consistent with the goals, objectives and policies of the Plan, the County can effectively achieve the vision. For example, the Zoning Commission and the Board of Supervisor's will use the Plan's policies and maps to decide whether to approve a proposed development. Zoning, subdivision, building and construction code and standards should regulate development in conformance with this Plan.

The Plan also should guide the preparation of detailed facility master plans and capital improvement programs for the County's wastewater, storm water management and detention, parks, and transportation systems. The Plan should be a dynamic document, subject to periodic amendment when conditions within the County change significantly. Periodic updates of the Plan will be needed to ensure that it continues to meet the needs of County businesses and residents.

> ***Relationship to Private Development.*** The Transportation / Land Use Plan balances the rights of private property owners with their responsibilities to their neighbors and the community at large. The policies for guiding and coordinating the development of privately-owned land are limited to actions which the Board of Supervisors has determined to be the least intrusive means of achieving the community's goals. The purpose of the Plan is to provide direction and coordination in a manner that will not discourage individual initiative and creativity, but will protect the health, safety and welfare of the entire community. Land use policies presented

within the Plan will be implemented through regulations, incentives, programs and activities adopted by the County.

***Public Facilities.*** The Plan will coordinate the orderly provision of public facilities with public and private development activities in a manner that is compatible with the fiscal resources of the County.

***Land Use and Growth Assumptions.*** The Plan reflects a plan for growth that, ultimately, is based on a series of choices identified by the community through a series of workshops, meetings, and data review and analysis. While some of these assumptions have some margin of error, it is unlikely that any error will significantly impact the community's growth plan, which is the vision of its future. Land use development patterns dictate the ability and cost of providing necessary facilities and services. Encouraging new development in areas with adequate levels of service for public facilities will create a more effective, efficient use of man-made and natural resources, and will encourage the full use and immediate expansion of existing public facilities while protecting agricultural operations and the natural resources from encroachment. New development should be concentrated in areas with adequate levels of service to discourage sprawl.

***Natural Environment.*** Unplanned, intensive development will degrade the environment of both the County and the region. Unplanned development will encroach upon valuable wildlife habitat and critical environmental areas, and leaking septic tanks will pollute the groundwater, as will unregulated intensive land uses. One of the County's major needs is to ensure the protection and viability of agricultural areas, open spaces and environmentally significant areas, including Rathbun and Sundown lakes, floodplains, rivers, wetlands and woodlands that are crucial to the community's quality of life and economic health.

***Activity Centers and Corridors.*** The Plan is predicated upon a growth scenario that uses activity centers to serve the needs of the residents of Appanoose County. These activity centers and corridors, which include neighborhood and regional commercial uses, will form a land use and economic development framework that encourages the protection of agricultural areas and promote economic development efforts while facilitating the connection and interdependence of the County, and region, as a whole.

***Population and Employment Growth.*** Appanoose County's population is growing and can be expected to continue growing as commercial and office development occurs. Though recent growth has been limited, development proposals focused on Honey Creek Lodge and Sundown Lake will spur additional development and will permit the County to expand and grow into a diversified community. The County's economy also will expand throughout the next 20 years. The increase in employment will occur in the services and retail employment sectors, based on development of the commercial and office activity centers, and increased industrial development.

***Land Allocation.*** Implementation of the Plan will help ensure that adequate amounts of land will be available to satisfy future land use needs. In addition to providing for anticipated growth, it also includes a margin for market choice -- by allocating an excess of anticipated land needs,

the Plan Element helps ensure that development potential is not constrained by quirks in the real estate market. Thus, the County will be able to provide adequate supplies of residential land to meet projected growth demands as well as offering residents varied housing options. Similarly, non-residential land will be available to meet the County's long-term needs, including needs extending beyond the 20-year planning horizon. The Plan also provides for a variety of housing choices responding to different markets and needs.

The County's potential to maintain and improve the quality of life for Appanoose County's residents will be contingent upon adequately providing for existing and future demands for services. Anticipated demand upon City services must be met with adequate (adopted) levels of service in place to meet those needs, and a strategy for new development to finance needed facilities. The County's goal is to assure an improvement to the quality of life while adequately managing the public cost (whether that cost be in physical, social or economic terms). The quality of life includes a panoply of Elements that include adequate infrastructure, health care, attractive entries to the County, streets and developed areas, and the arts.

**Who Implements the Plan?**

The policies and strategies of the Plan must be implemented in a timely manner in order to ensure that the vision of the Plan becomes a reality. Who should be charged with the implementation of the goals, policies and strategies? It should be a joint effort of the Board of Supervisors, the Zoning Commission and County staff, the private sector and other service providers.

Many problems faced by local governments are regional in nature. Issues such as population growth, environmental preservation, growth patterns, and the adequacy of public facilities and services often transcend local, neighborhood or County boundaries. This Plan strongly supports partnerships between Appanoose County, and communities adjacent to the planning area. These partnerships should focus on coordinated growth management and service provision strategies. Through effective coordination, residents and business owners will enjoy the benefits of more cost-effective service provision and a more stable, sustainable region. Failure to coordinate will result in excessive consumption of valuable open space land, as well as the inefficient use of existing public investments in infrastructure.

In other communities, lack of intergovernmental coordination has resulted in the loss of population and economic development. Such losses undermine the stability of neighborhoods and businesses within the County, and reduce public facility and service efficiencies, thereby making it more costly for residents of the cities and County. This makes the County less attractive for major economic development that would benefit the entire planning area and the region, and generates a need for more expansive roads and highways to transport workers longer distances to their jobs. These adverse consequences can be avoided by: coordinated (joint) comprehensive planning; the adoption and implementation of key growth management goals, objectives and policies; and sustained monitoring of development over the planning period.

**The Planning Context**

The Appanoose County Comprehensive Plan (1997) anticipated refinements and updates by recognizing the ongoing nature of preparing for growth, that the Comprehensive Plan and the Transportation / Land

Use Plan are part of a "continual planning process ... intended to promote orderly growth and development of the County as well as provide guidelines for directing physical change."

In light of the alternatives presented to the County leaders seven years ago, what choices were made? Has the County been allowed to develop as it has in the past without any regard to land planning or have intelligent evaluations been made to require proper growth and development? Visual inspections of the County coupled with citizen input indicate that progress has been made; however, choices also have been made that have eroded the character of what people perceive Appanoose County to be. This Plan:

- Considers previous planning efforts and documents, identifies shortfalls and problems, assesses the County's current environment and recommends alternatives for future development based heavily on citizen comments.

- Sets forth a vision to emphasize, develop, and strive to be widely recognized as an aesthetically pleasing rural community, providing a superior quality of life and accommodate growth in a fiscally-responsible manner.

- Seeks to make the community's vision a reality by focusing on creating a *place* that feels, looks and functions like a community offering charitable goals, addressing health, educational, social and cultural needs; and providing recreational amenities. This involves the development of places designed, constructed and maintained to stimulate and please the senses, to encourage community use, and to promote civic and personal pride.

If County leaders adopt policies meeting the aforementioned criteria, then Appanoose County will not only continue to be a great place to live as its residents strongly believe it is, but also, by cultivating a sense of well-being among its residents, it will encourage value-added development.

**The Relationship Between Transportation and Land Use**

Land use and transportation share a very close relationship. Whether planned or not, land improvements are often sited close to transportation features that suit the needs of the development. In return, as the development generates more demand for transportation services, the transportation system evolves (through infrastructure improvement projects) to meet that demand.

Land use planning is a tool to develop a set of rules and guidelines for the location, intensity, types and amounts of future development. Ideally, good land use planning mates land uses with their supporting transportation infrastructure needs. Simultaneously, good land use provides buffers between incompatible land uses. Land use planning and transportation planning are intertwined on several levels:

***Land use planning situates development at locations with appropriate transportation access.*** For example, heavy industrial uses are best situated with access to rail and high type highways for truck access. In contrast, residential uses are best located away from rail, aviation, and industrial land uses and away from high-speed highway facilities.

***Transportation system capacity links with land use planning to identify and address underutilized and overutilized facilities.*** For example, the land use plan should encourage

growth in areas where there is excess transportation system capacity and discourage certain types of growth/land use along congested facilities with limited capacity.

***Future land use plans provide the basis for future traffic volume predictions used to identify transportation improvement projects and set priorities for funding.*** Having a conceptual understanding of the location and timing of projected growth areas and the impacts of new development on transportation infrastructure (maintenance and construction) improves the County's ability to provide facilities in a timely and cost-effective manner.

***The shape of the future land use plan is often heavily influenced by the existing transportation system.*** Improvements and modifications to the transportation system are often heavily influenced by the land use plan.

**Project Purpose**

The purpose of this project is to develop a rural transportation plan for Appanoose County that reflects the goals and values of the County residents and leadership. The project is intended to:

- Develop a future land use plan according to the County goals and values
- Identify transportation system priorities based on the land use plan
- Identify potential funding sources for transportation system needs and enhancements
- Provide justification for public investment in transportation infrastructure projects within Appanoose County and map the future course toward the transportation system goals.

The plan addresses the following four primary elements:

***System Performance and Preservation.*** This element inventories the existing transportation system, both physically and operationally, and identifies needed system maintenance and upgrades.

***Mobility and Access for People and Goods.*** This element addresses the transportation needs of the community and links the different transportation modes (roadways, rail, air, etc.) into an integrated system to address those needs. This report specifically deals with intermodal aspects of the transportation system within Appanoose County.

***Environment and Quality of Life.*** Maintaining the existing high quality of life within Appanoose County in the face of significant growth and change is a top priority of both the County leadership and residents. County groups have been working to promote and cultivate new business opportunities within Appanoose County.

***Land Use Planning.*** For a transportation plan to be successful, this element is vital not only for the estimation of future traffic growth and transportation demands, but also sets the tone for the shape and character of future land development in the County.

Appanoose County is at a critical juncture where the traffic demands generated by existing and potential development threaten to overtax the transportation infrastructure. County funding levels are inadequate to maintain the existing transportation network, let alone build new facilities or add capacity to meet these new demands.

**Planning Process**

This plan was the result of input from many individuals representing a broad cross-section of interests, including rural residents, urban residents, the business community, economic development interests, the development community, environmentalists, agricultural operators and public service providers. Input from these groups came through meetings, surveys and representation on the Citizen's Advisory Committee.

- Public Participation. The development of this plan included a multifaceted citizen participation process that employed a number of public input techniques. Citizen surveys, public workshops, interviews and a broad-based Citizen's Advisory Committee provided various avenues for gathering information from all stakeholder groups in the County.

    1. Citizen Survey. A non-scientific citizen survey was used to gather citizen concerns and opinions about land use, transportation, infrastructure and environmental issues. The survey included both narrow and open-ended questions that focused both on the positive and negative aspects of the County as determined by its citizenry.

    2. Public Workshops and Hearings. A series of public workshops were conducted to provide a forum for public education, discussion and value gathering. The workshops featured a number of questions to be discussed with fellow citizens in small groups. After a period of discussion and opinion formation, the small groups shared their responses with the entire workshop and further interaction ensued. Comments generated through the workshop aided the development of the plan values, goals, objectives, and policies.

    3. Citizen's Advisory Committee Meetings. The Advisory Committee included knowledgeable representatives from a broad cross-section of stakeholder groups. The Committee was charged with debating policy issues and making recommendations to the Board of Supervisors.

**Plan Priorities**

During the course of implementing this Plan, County officials will need to balance competing objectives when making decisions. For instance, should the County approve an affordable, environmentally sensitive rural development application that would cause increased tax burdens to fund road maintenance? The goals and policies of the Plan are not of equal importance. The County will continually need to balance private property rights with the responsibilities of property owners, just as it

needs to balance the preservation of land resources with the need to develop additional land to accommodate growth. County decision-makers will use the following priorities to balance competing objectives.

- ***Efficiently fund the maintenance of the County road system.*** A top priority for the County is the provision and maintenance of the public road system. This entails the efficient maintenance practices, equitable funding of roadway improvements and the management of new demands on the roadway system.

- ***Preserve valuable agricultural lands.*** The County's historic land use practices have placed a high priority on the preservation of valuable agricultural lands. Some of the most fertile croplands seem to require little protection because of their location within floodplain areas. Most of the agricultural and rangelands are in areas that are not planned for rural or suburban residential development. However, the preservation of some of these lands that are close to urban and rural development areas will require strategies to ensure that development of adjacent lands does not impair the continuation of normal farm and ranch practices.

- ***Provide for appropriate development in rural areas.*** Some residents of the County desire to live on one-half to five-acre lots in rural areas. The plan provides appropriate opportunities for this lifestyle choice, ensuring that designated locations can be adequately served by the road system and that such development does not interfere with agricultural operations.

- ***Ensure compatibility between adjacent land uses.*** Agribusiness, other commercial operations, industrial development and residences each generate different impacts that can affect their compatibility with adjacent development. The land use plan prescribes where these uses should be located in relation to each other and establishes a framework for zoning and development standards that ensure compatibility. Compatibility does not mean that adjacent land uses will be the same, but it does mean that they can coexist without interfering with the normal use of each property.

- ***Ensure that development standards are consistent with Plan goals and policies.*** The Plan does not implement itself; it is implemented through a variety of public and private decisions. The County's development standards should reflect adopted goals and policies of the Plan to ensure that public decisions help achieve the County's goals.

- ***Ensure that the provision of adequate facilities and services is coordinated with new development demanding the facilities and services.*** New development creates demand for public services and facilities (*e.g.*, roads, utilities, schools, stormwater facilities, emergency services). The County's growth and development decisions should ensure that facilities and services are adequate to serve new development. This means that facilities should be in place or funded before development occurs. It also means that the County should focus public investments in areas where it has planned new development.

- ***Provide for the long-term growth of communities in the County.*** Inappropriate development (e.g., low density homes using wells and septic systems) can effectively block efficient growth of a community. The Plan places a priority on protecting community growth corridors and coordinating development decisions with affected communities.

- ***Protect the environment.*** Appanoose County places a priority on the protection of its natural infrastructure, including its air, soils, vegetation, riparian woodlands, wild vegetation-woodland corridors, habitat areas, surface waters and ground waters. To minimize the negative impacts of development and use of land on these resources, the Plan limits land use intensities in floodplains and prime agricultural areas, and encourages the clustering of allowed development to protect environmental assets.

- ***Promote economic development.*** The City of Centerville is a regional economic center that has provided economic opportunity and prosperity for residents throughout Appanoose County. The Plan places a priority on the continued economic vitality of the community.

- ***Provide for the development of housing that is attainable for County residents.*** Appanoose County is home to residents from a variety of income groups. While not all residents will be able to afford all types of homes, the County supports the provision of a wide range of housing types in areas that provide accessibility to jobs. In most instances, more affordable housing will be located within or adjacent to existing communities.

**What is in the Transportation / Land Use Plan?**

This Plan focuses on land use and development issues facing Appanoose County. The following listing of chapters outlines the major areas covered by the Plan

- **Section II - Understanding Key Issues** identifies key community issues and creates the foundation for defining the community's future, which is the basis for the Plan's recommendations. The most significant aspect of Appanoose County' planning process has been the quality of citizen and staff involvement. The County's outreach program included group meetings, interviews, public workshops and press releases in an effort to inform the public and capture the thoughts, ideas, hopes and desires of the community. Issues defined by community values set priorities for community action and Plan implementation.

- **Section III - Background Assessment** summarizes existing conditions, trends and issues facing the community and establishes the setting for the Plan. It summarizes historical development and identifies demographic characteristics and trends. This section also describes the County's role as a service provider and partnerships with other service providers for the provision of facilities and services and define public and private responsibilities for the provision of facilities.

- **Section IV - Future Land Use Element** establishes the basis for which goals, objectives and policies were based and address issues related to existing and future land use, the planning area and growth areas.

- **Section V - Transportation Element** identifies current and projected status of various modes of transportation in and through the County and forms the basis for establishing a transportation network coordinated with future development decisions and funding alternatives.

- **Section VI - Goals** identifies specific goals for key planning components.

**What Do These Terms Mean?**

The following terms are used throughout the Plan to convey key concepts:

***Development:*** The physical construction of buildings and/or the preparation of land for non-agricultural uses. Development activities include: subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover.

***Goal:*** Description of a desired state of affairs for the community in the future. Goals are the broad public purposes toward which policies and programs are directed. Generally, more than one set of actions (policies) may be needed to achieve each goal. In this Plan, goals are phrased to express the desired results of the Plan; they complete the sentence "Our goal is ...."

***Policy:*** Statements of government intent against which individual actions and decisions are evaluated. Policies typically indicate the agency primarily responsible for implementing the policy.

***Strategy:*** Individual tasks or accomplishments which, taken together, will enable the County to achieve Goals and Policies. Strategies are the basis for implementation of the Plan by identifying and recommending specific courses of action.

# UNDERSTANDING THE KEY ISSUES

*[Note: Additional maps and graphics can be found at the end of this Report.]*

**Overview**

Appanoose County supports its communities as centers of social and economic vitality. The County, through this plan, is entering a partnership to ensure that development around communities reinforces their long-term vitality. In order to develop and implement policies to address the needs of each community's Growth Area, it is crucial to define and understand the land use, transportation, utility and other public service issues in a manner that reinforces each community's growth plans. This will enable the communities to grow in an orderly manner, coordinating annexation with the timely extension of public facilities and services.

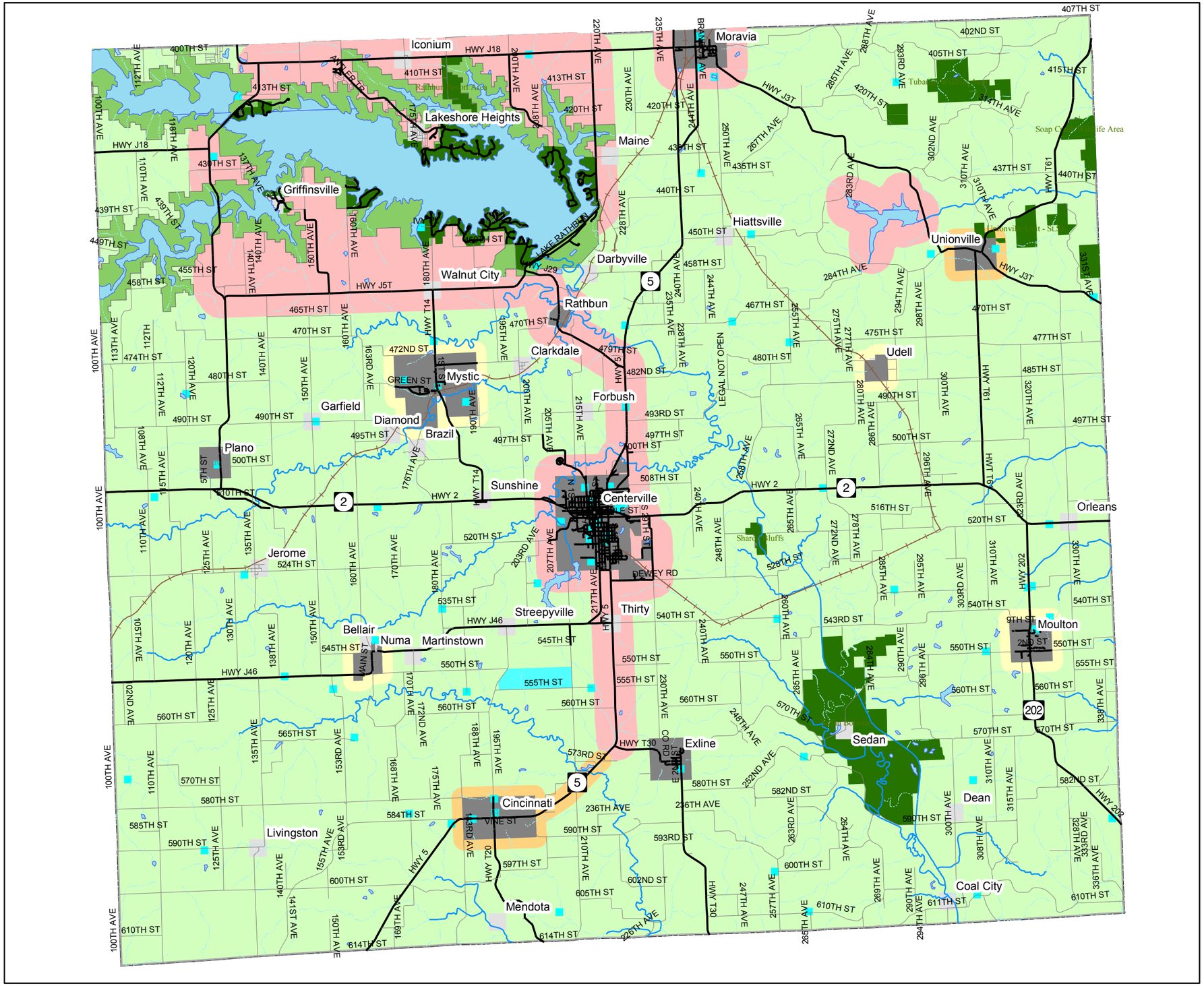
As an increasing proportion of the Appanoose County's urban residents live in unincorporated areas, the costs of inefficient development patterns has become more evident. The sprawling development pattern has created fiscal burdens and is consuming large tracts of the agricultural and open space land that attracted so many of its residents. These key issues affect long-term urban growth and development in portions of Appanoose County. Consequently, the resolution of these issues is the focus of the Growth Areas policies.

Growth Areas include land around cities and key corridors that is planned for development as well as centralized water and wastewater services during the next 20 years. These areas, which are illustrated in the **Preferred Growth Tiers Map** (Exhibit 1) should be protected from development that would constrain the growth of the County. Inappropriate development includes low-density residential lots served by on-site wastewater systems and other development that is inconsistent with adopted future land use plans. With isolated exceptions, much of the land within a Growth Area is expected to become urban or suburban in character over the course of the next 20 years. New development shall be consistent with the County's Plan and with the applicable city's adopted land use plan. Growth Areas are intended to provide a more effective growth management tool than the statutory extra-territorial jurisdiction of cities and are intended to replace these areas for subdivision and land use review.

These Growth Areas represent policies that were established by a joint planning committee and should be refined through a similar process. As circumstances, priorities and fiscal conditions change, so may the policies or boundaries of the Growth Areas. Thus, any amendment to Growth Area policies or boundaries should be consistent with the process for amending the comprehensive plan.

The State vests final decision-making authority over unincorporated areas with the County Board of Supervisors. Because of the importance of decisions within the Growth Areas to the affected cities, Growth Area amendments should involve input from city representatives. This plan element outlines an appropriate process for Growth Areas amendments as well as for the regulation of development that occurs within Growth Areas. The implementation of the Growth Areas policies established in this element will be accomplished through the County's development regulations and intergovernmental agreements with the individual cities.

# Exhibit 1: Preferred Growth Tiers




## Legend

- Unpaved Roads
- Paved Roads
- Railways
- Intermittent stream
- Perennial stream or river
- Water
- Parks (DNR)
- USACE Land
- Public/Semi-Public
- Incorporated Area
- Unincorporated Place
- Primary Growth Area
- Secondary Growth Area
- Future Growth Coordination Area
- Agricultural/Rural

0 0.5 1 2 3 4

Miles

PLANNING WORKS

Please use this map as a guide and not as definitive information. The areas depicted by this map are approximate and are provided for illustrative purposes only. While every effort has been made to ensure the accuracy, completeness, correctness, and timeliness of information presented within this map, the burden for determining appropriateness for use rests solely with the user. This map is provided "as is" with no warranties, express or implied.

1 inch equals 2.4 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Prefered Growth Tiers.mxd)
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**Community Survey**

Appanoose County conducted a survey, to gauge resident opinion concerning the Transportation Planning process. Survey topics included County issues and needs, public services, and future development.

- 86% of respondents felt the quality of life in the County was either good or excellent;
- Infrastructure improvements were the most welcome public improvements within the last ten years;
- Respondents identified employment as a top concern;
- Nearly all (93%) respondents feel the County should protect family farming;
- Respondents feel that adequate levels of service for public facilities should be required for public services before new development commences;
- Most respondents rated transportation within the County as good.

Respondents to the survey have generally lived or worked within the area for a significant amount of time. Some 59% of respondents have lived or worked in the County for over 20 years and 31% have lived or worked in the area for 6 to 15 years. Sixty-six percent of respondents felt that the quality of life in the County was excellent or good when they first moved to the area, and that the quality of life has improved since then.

When asked to list three attributes that make the County a good place to live, responses centered on friendly people and rural living. When asked what the three most positive changes have occurred within the last 10 years, infrastructure improvements, schools, and industrial growth were the popular responses. The three changes that have occurred within the last ten years that most concerned respondents include loss of jobs, aging population and drug related crime. Respondents were asked to identify three key planning issues that face the County today. Key issues identified include employment, housing and road and bridge improvement.

Two-thirds of respondents felt the pace of new development was occurring too slowly. Respondents were split evenly regarding whether the County should limit non-agricultural activities in agricultural areas while 93% of respondents felt that the County should protect and encourage family farmsteads. Respondents were split regarding whether the County should encourage residential development throughout the County while the majority of respondents felt development, residential (70%) and non-residential (76%), should occur where there is existing infrastructure. A smaller majority of respondents felt residential (56%) and non-residential (59%) development should be discouraged from areas not served by existing infrastructure. Respondents were asked to choose which types of development they would like the County to encourage. Categories receiving the most responses were (in order of preference): industrial, agricultural, and single family residential. When asked which types of development the County should discourage, categories receiving the most responses were (in order of preference): neighborhood commercial, multi-family residential and rural residential. Respondents felt

that agricultural and rural areas (27 responses) need the most protection from new development. Fifty-six percent of respondents were in favor of minimum site design and architectural criteria for residential development while 76% of respondents felt commercial development should have minimum site design and architectural criteria. The majority of respondents (58%) felt the County should concentrate development within defined areas.

Respondents generally rated public services as good with no service receiving more than 5% poor responses. Services receiving at least 40% excellent rating were water (68%), fire/ems (46%) and schools (46%). Services receiving the majority of responses as either good or excellent include roads, sewer, police, parks, and drainage. Cultural services received mainly fair to good responses. Respondents felt that the County should require adequate levels of service for all public services, but were split as to whether the cost of additional public services should be shared by new development and residents (60%) or the cost should be paid for by new development solely (58%).

Most (61%) respondents rated their experience with transportation service within the County as good. Transportation elements rated very important were: widen major roads, improve roadway maintenance, replace deficient bridges and add more turn lanes at intersections. Transportation elements rated somewhat important include: improve pedestrian access, provide bicycle lanes, improve public transit, install traffic signals and improve facilities to move freight. Building new roads was rated not important. Respondents were very dissatisfied with the availability of bus service. Respondents were somewhat dissatisfied with the availability of bike paths, trails and sidewalks. Respondents were somewhat satisfied with the ability to move freight, availability of roads, accessibility to roads, roadway safety, the amount of congestion on the roads and roads planned for new development. When asked what funding source would be most appropriate to fund transportation, responses were gas tax (51%), sales tax (10%) and miscellaneous other taxes (24%).

**Transportation**

Several key issues face the transportation system in Appanoose County:

***Bridge conditions and availability of bridge replacement funds.*** Appanoose County is responsible for the maintenance of nearly 200 bridges throughout the county. The average age of the bridges in the county is about 50 years old. This age equals the industry accepted standard for design life for a highway bridge. While approximately one-third of the bridges are eligible for federal aid assistance replacement funds, the County only receives enough funding to replace about two to three bridges annually.

***Accommodation of the transportation demands from the proposed Honey Creek Destination Park.*** Seen as an economic stimulus for the regional economy, the 850 acre resort complex will create special transportation system demands in addition to the jobs and commercial

opportunities. In particular, the lodge, conference facilities, water park and golf course are expected to generate more than 4,500 daily trips on weekdays, increasing to over 6,000 trips per day on the weekends. The added traffic from the destination park represents more than a 500% increase in vehicle traffic on the north side of Lake Rathbun.

***Pavement condition and availability of pavement maintenance and rehabilitation funds.*** The county is responsible for the maintenance of about 110 miles of paved roadways. These roadways require approximately $1.25 million to $1.5 million in annual maintenance. The county currently averages just under $1 million in annual maintenance on the paved roads. Almost all of the current county budget toward pavement rehabilitation comes from the Farm-to-Market (FMO) funding system.


***Modification/Replacement of the existing APNC Railroad bridge over Iowa Highway 2.*** The existing railroad bridge over Ia. Hwy. 2, east of Centerville, is one of the major impediments to a Highway 2 corridor improvement project from Centerville east, into Davis County. The low clearance of the bridge over Highway 2, combined with inadequate span to provide standard safe clear zones require the bridge be replaced. The estimated replacement cost is between $1.5 million to $2 million, which is about 3 times the annual operating revenues of the APNC Railroad.

***Extension of the Centerville Airport Runway to accommodate existing commercial demand and expected tourism demand.*** The existing Centerville Airport runway is 4,100 feet long. Local businesses are currently using the Ottumwa Airport (or doing without air service) due to insurance requirements of 5,000 foot minimum runway lengths to land their aircraft. Expected growth associated with the Honey Creek Destination Park will increase demand for air service. The estimated cost to extend the existing runway (including land acquisition) is approximately $1 million.

***The Trails Plan.*** Appanoose County has almost no pedestrian/equestrian/bicycle trail facilities. Some limited facilities exist around Lake Rathbun and in Sharon Bluffs Park. Initial trails master planning work was performed for the seven county region in 2000. However, that work has not been carried forward into implementation. Not only does recreational development increase demand for trail facilities, but trails also improve the quality of life for existing residents.

***Focus on intermodal aspects of the transportation system.*** To date, the major transportation systems (roadways, rail, aviation) have been developed and maintained independently of one another. Recent changes in expected development (Honey Creek Destination Park, Lake Sundown, etc), and changes in economic factors (fuel prices, attracting new businesses) will emphasize the need for cooperation between the various modes of transportation toward mutual benefits.

***Economic development through transportation infrastructure investments.*** During the course of this study, several emerging economic opportunities were identified that would benefit from transportation infrastructure improvements. These opportunities include:

- Potential Lake Sundown development.
- New Ag related industry in the Amish community (located in the southwestern part of the County).
- Investment in the transportation systems surrounding Lake Rathbun to support development outside the Honey Creek Destination Park.
- Support of new mining opportunities (limestone quarrying) that will generate tax revenues and will be needed for economic development within the county.
- Support of existing businesses trying to expand by meeting their transportation system needs through system upgrades/maintenance.

***Roadway Investment.*** The County is struggling to maintain existing roadways. The scattered nature of these developments makes it difficult to deliver services in a cost-effective manner. Pockets of residential development throughout the County necessitate wider networks of roads resulting in more time, personnel and equipment for their maintenance. Appanoose County is responsible for about 763 miles of roadways, of which about 110 miles (15%) miles are paved.

The County's General Revenue fund provides $1.9 million for unpaved roadway maintenance. Other transportation funding includes: the State's Farm-to-Market fund provides $500,000 for paved roadway maintenance; the federal Bridge Fund (BROS) and STP-TEA21 provide $240,000 and $100,000, respectively.

Though the road maintenance budget is roughly proportional to the miles of road categorized by surface type, there is a potential needs-funding imbalance – the County is using 80% of total roadway improvement cost for unpaved roadways but unpaved roadways encompass 85% of total County-responsible roadways. In addition, there are no funds available to convert unpaved roadways to paved roadways. When residential areas, which require hard surfaced roads, are scattered throughout the County, the net effect is a higher cost to the County, which affects the taxes of all residents. Ensuring that adequate funding mechanisms are in place are critical for the County to maintain the status quo; implementing alternative funding tools is essential to improving the County transportation network.

**Agricultural Areas/Uses**

Preservation of agricultural land received the highest rating by citizens. The issue of preservation of agricultural land centers on the conversion of agricultural land to other uses and the subsequent erosion of the agricultural base in the County. The **Agricultural Lands and High CSR (Corn Suitability Ratings) Lands Map** (Exhibit 2) shows these critical areas. Preservation of agricultural land would not be meaningful unless the viability of farming could be addressed. To support a viable agricultural economy in Appanoose County, it is important to have agricultural areas unrestricted by residential development. Farming adjacent to residential land uses can be highly incompatible. Agricultural production is often associated with noise, dust, vibration, odors, extended hours of operation, and the application of chemicals, items commonly addressed by "industrial performance criteria". These conditions are generally not well received by residents in adjacent residential developments. It is a situation much like locating homes next to industrial areas in a city.

The nature of agriculture has changed greatly since the inception of zoning 80 years ago. Yet, in most zone district classification charts, it is still identified as a less intense land use than residential. Such was the case when zoning was first adopted. However, as agriculture has become more sophisticated and technological, the intensity of agricultural operations places it on a par with industrial land uses. Except for the most genteel of farming operations, agriculture is a more intense use of land than residential.

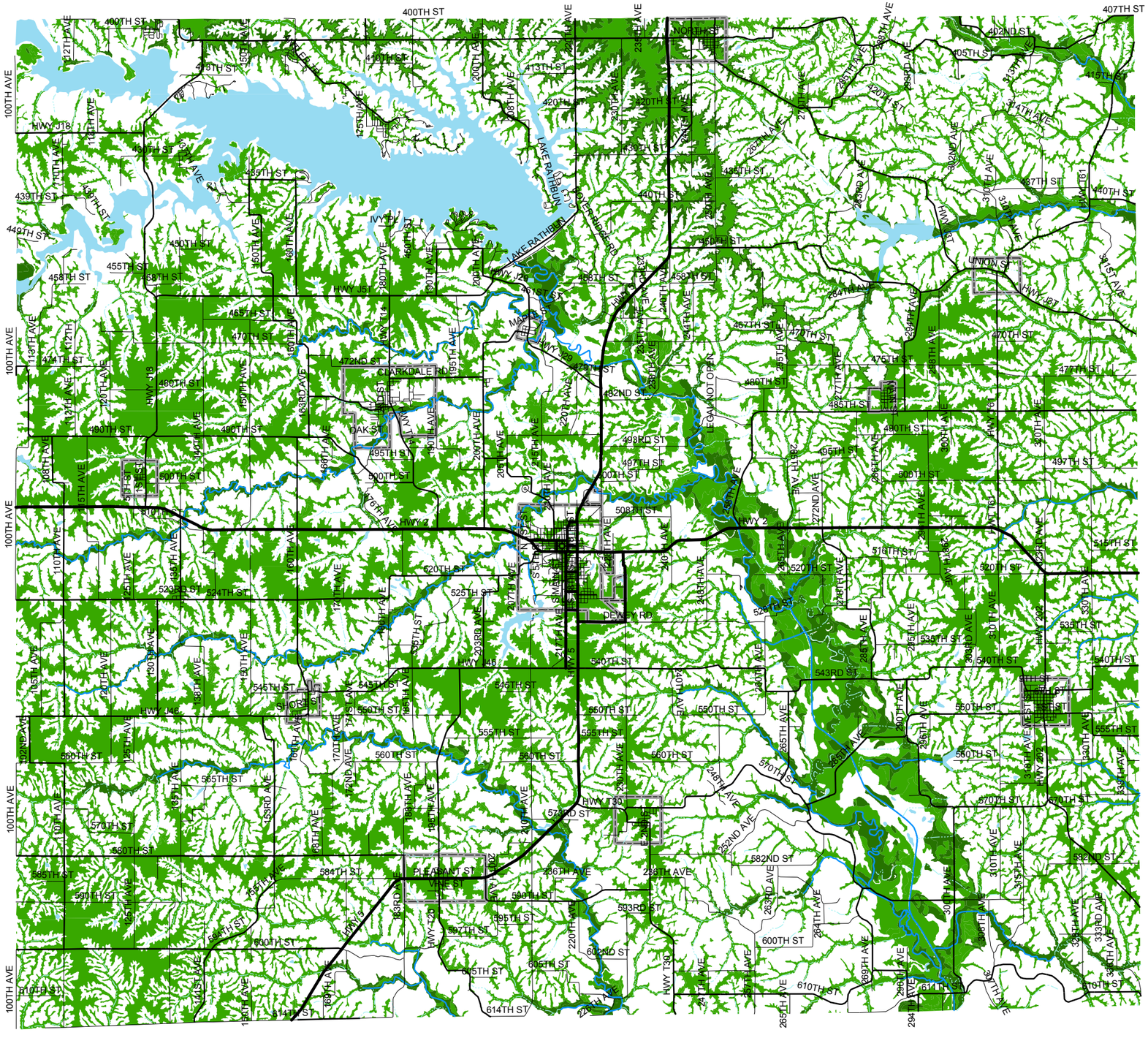
As residential subdivisions are introduced into agricultural areas, conflicts between land uses arise. The collective voice of new residents may be louder than that of the working farmer. Agricultural operations are being squeezed out by the conflicts brought on by these incompatible land uses, coupled with the higher per acre price for land zoned residential.

People who move from the "city" to the "country" are looking for a retreat, a bit of nature and a quiet place to live. They want to live in a quiet rural setting. However, they often bring with them expectations for services similar to those they experienced in the city: paved roads and roads cleared of snow before the commute to work. Those looking for the "peace and quiet" of the country often are not aware of the noise, dust, odors and long hours of operations associated with agricultural operations.

As agricultural areas become interspersed with residential and other types of development, farming becomes much more difficult and in some cases impossible. The effect is similar to that which occurs when large, older homes are converted to apartments in the midst of single family neighborhoods. The change of use is generally perceived as the coming trend. It often leads to a sense of impermanence toward the current land use. For property owners in the immediate vicinity, the result may be a disinvestment in the current use and eventually, sale of the property.

The County's goal is to ensure the viability of agriculture in a community and maintain a critical mass of agricultural land. The County also is concerned about the higher level of service expected and needed to support residential and commercial uses in rural areas. For example, increased residential development in rural areas will generate demands for higher levels of road maintenance and emergency services than required or expected by the agricultural community.

# Exhibit 2:
# Soil Corn Suitability Rating




## Legend

- Arterial Roads
- Collector Roads
- Local Roads
- Intermittent stream
- Perennial stream or river
- Cities
- Water
- 71 - 90
- 51 - 70

The CSR index rates soils on a scale of 0 to 100. A rating of 100 is given to soils than have no physical limitations, occur on minimal slopes, and can be continuously row-cropped. Ratings near 0 have severe limitations for row crops and would best be left in permanent cover, such as grassland or forest. From Iowa State University website

0 0.5 1 2 3 4

Miles

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1 inch equals 2.4 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Soils.mxd)
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**Private Property Rights**

Protection of private property rights also appears to be a significant concern for residents. The Plan needs to:

- Encourage the use of incentives, not mandates, whenever possible.
- Foster an environment of trust through fair and predictable development regulations.
- Equitably balance the rights of property owners with responsibilities to adjacent property owners and the community at large.

Balancing the rights of the private property owner with the needs of the public, in development of this Plan, has been an enlightening challenge. Rarely has there been, or likely will there be in the future, agreement on all sides of the private property issue. However, what has come out through the debate on the issue is the underlying sense from our community that they want to be treated fairly and with respect by their local government.

> "Private property rights are a creation of the government as provided for in the Fifth and Fourteenth amendments to the United States Constitution. When you own land, what you really own is a bundle of private property rights. These include water rights, mineral rights, air rights, the right to use the land in different ways, the right to develop the land, the right to sell the land, and the right to pass the land on to heirs. This bundle of rights is known as the fee simple. Each right in the bundle may be separated and sold or given away.
>
> However, local and state governments may limit a landowner's right to use or develop private property according to the Tenth Amendment to the United States Constitution. Government may impose land-use controls to protect public health, safety, morals, and welfare. Local governments need not pay compensation to landowners for limitations on the use of their land as long as an economic use of the land remains.
>
> In devising land-use controls aimed at furthering the public health, safety and welfare, governments must be careful not to be overly restrictive. If a government regulation removes all economic use of the land, the regulation could be considered a taking of private property. The regulation could be ruled invalid, or the government could be required to buy the land from the landowner."
>
> Holding Our Ground: Protecting America's Farms and Farmland
> (Tom Daniels and Deborah Bowers, 1997)

One of the key issues presented during the development of this Plan, and discussion of the County's roadmap for future actions, was the adoption of countywide development regulations. The County is sensitive to property owner concerns and is committed to not attempting to over-regulate the community.

A central theme of protecting private property rights, with which the County agrees, has been that when a local government imposes a development regulation or sets new policies affecting private property rights, that regulation or policy should be in proportion to the need of the regulation or policy. Citizens do not want government to require more than is necessary to achieve the public purpose, but expect that this standard will be adhered to by all those in positions of authority.

**Grow Smart and Stop Sprawl**

The issue of sprawl received considerable discussion by citizens during the visioning process. The Plan needs to:

- Encourage higher density in areas identified for urban and suburban development.
- Encourage development to occur first in the cities and then at the city fringe, rather than in outlying areas.
- Encourage infill of existing pockets of residential development in agricultural areas.
- Encourage the creation of mixed-use developments.
- Foster an environment of trust and cooperation between the County and its cities.
- Discourage scattered and leap-frog development.

"Grow Smart" means promoting development that provides for the efficient use of land resources, promotes the full use of urban services, mixes different types of land uses, provides transportation options and provides a human-scale to development. "Sprawl" means uncontrolled growth both in the rural and urban areas, which is geographically scattered or linearly based along major thoroughfares. Sprawl is characterized by poor accessibility, low density, lack of infrastructure support systems or costly infrastructure support systems that do not pay for themselves, lack of common open space, and poor definition of neighborhood or a "sense of place." Though many believe that sprawl is fostered by the cities, in reality, County Land Use Policies encourage sprawl by permitting and effectively directing growth to agricultural areas.

**Municipal Growth**

The citizens participating in the visioning process expressed a desire to better accommodate growth of our cities. Land use regulations were viewed as partially responsible for sprawl and the conflicts resulting from incompatible uses located adjacent to one another. Each use has a different impact on adjacent uses. While it is important to encourage a variety of land uses, it is also important to have policies that minimize conflicts among them while, at the same time, maximizing the use of public infrastructure.

One of the strongest tools to preserve agricultural lands is to redirect growth from agricultural areas to cities. Several methods to achieve this were researched and discussed. Without the cooperation of the cities, particularly Centerville, no viable program could be put into place to effectively address

agricultural land preservation. Past County Land Use Policies permitted too many large lots on septic systems being created, thus blocking orderly development.

As in any good relationship you must give in order to receive. Therefore, to set a firm foundation of trust, the County has identified land reserves around each municipality in the Growth Areas. Strategic growth plans, as provided by statute, should be developed with each city, with accompanying Intergovernmental (28E) Agreements, establishing adequate public facilities. In return, it is hoped that the cities will not feel the need to annex large areas of land or adopt development agreements that hasten the premature conversion of agricultural land.

**Natural Resources**
The issue of preserving and conserving our natural resources received the forth-highest rating by citizens during the visioning process. The Plan needs to:

- Recognize that agricultural land is a vital and important component of the County's natural resource base.
- Foster development of land that will take into account the impact on watersheds and drinking water.
- Encourage methods of preserving and conserving our land.
- Address how to coordinate the Land Use Plan with the identified critical natural resource areas, such as Rathbun Lake, the proposed Honey Creek resort area and the Sedan Bottoms.
- Address the 'cabin issue' along our watersheds and in rural and open space areas, to determine what types of uses should be permitted in agricultural protection zones, including but not limited to the rental of cabins for hunting and other outdoor recreation activities.

Those who participated in the visioning process valued abundant natural resources as a key element of Appanoose County's quality of life and urged guardianship of them. Agricultural lands were considered a valued component of the County's natural resources. There is a great appreciation for the beauty of the land among residents and a strong desire to preserve it for the quality of life it makes possible.

The group expressed desires to have paved roads and low taxes. Satisfaction of both of these desires will not necessarily be achievable. Even if development is required to pay for new roads, paved roads are costlier to maintain. Consequently, significant new revenues will be needed to support maintenance of more paved roads.

**Septic Systems and Water Quality**
Development in the unincorporated areas of the County has been permitted to occur with the installation of septic systems. Salts from household wastes can clog soils in septic fields. Consequently, absorption

of effluents and natural aerobic processes fail to breakdown contaminants. These pollutants then surface and the effluent is washed into the natural waterway contributing to higher levels of water pollution. Residents also may come into contact with raw, untreated waste flows on-site that expose them to diseases such as dysentery, hepatitis A or typhoid fever. The identification of existing problems, particularly poorly drained soils and shallow bedrock, and the refinement of standards for the septic systems will help prevent contaminants from reaching the public water supply.

While the rate of septic system failure is relatively low in the County, the rate will increase as population density increases.

**City / County Coordination**

Early in the planning process the residents of the Cities and County realized the importance of working together, that jointly, the Cities and the County could better address issues such as environmental preservation, growth patterns and public facilities and services. This Growth Plan coordinates future development patterns so that compatible uses are adjoining to each other. Land uses along the municipal boundaries may be continued into the County in a logical pattern. The Plan will also ensure improved service provision throughout the County. Areas will be allowed to develop when there is adequate funds to provide public services and facilities (such as roads). Finally, the Plan will simplify the review process for future developments since the same standards will be adopted throughout the County.

**Land Use Compatibility**

Residents are concerned that commercial encroachment or poorly developed multi-family projects will degrade the quality of life in their neighborhoods. Residents recognize the value of developing residential units of various types and price ranges throughout the community and the value of having quick access to businesses. However, they want to be certain that new development will not erode their property values or create excess traffic or noise. This plan supports a heterogeneous mix of land uses, but calls for the establishment of appropriate standards to ensure neighborhood compatibility.

**Compact Development Patterns**

Residents want to preserve the extensive agricultural and open space land surrounding the urban area. They also want the benefits of more efficient street and utility services. More compact development patterns will support both of these objectives. Unfortunately, sprawling infrastructure, historical development approvals and market demands for larger lots has led to decreased urban densities. This plan represents one step in the community's efforts to balance the pressures for outward growth with the desire to promote infill.

**Adequate Public Facilities for Residents and Businesses**

Increased traffic, utility demands, park usage and wastewater treatment capacities are challenging local governments' abilities to keep up with growth. The quality of life in the community is directly related to maintaining an acceptable level of these vital services. As streets, parks or schools get crowded, residents begin to resent growth. High capital costs associated with expanding utility systems typically translate into rate increases. This Plan recommends strategies to develop acceptable standards for infrastructure, though wastewater, roads and bridges will remain the primary constraints to development in the Growth Areas.

**Equitable Funding Strategies**
Growth can help stimulate the local economy. However, growth that does not adequately fund construction of new capital facilities creates an ongoing drain on local government budgets. In addition to funding operations and maintenance costs, existing residents and business owners continually provide funds for new roads, new utility plants and lines, new fire stations new parks and new schools. If growth funds the capital costs for which it is directly responsible, then local taxes and user fees can be set at the more moderate levels required to maintain existing facilities and remedy existing deficiencies.

**Coordination Between Service Providers**
As the community demands better and more cost-effective services, local governments and utility companies have been forced to search for more efficient ways to provide services. County, cities and school district efforts to jointly provide recreational services is one example of local government providing higher quality services more efficiently. Through better coordination of capital and operations plans, the County and utility companies can continue to improve local service efficiencies. This plan identifies several strategies to accomplish this objective.

**Community Aesthetics**
The residents take pride in their community and have shown an interest in preserving and reinforcing all aesthetically appealing aspects of the area. Therefore, they have begun a successful effort to enhance the community's appearance. In the past, aesthetic amenities such as entry roads, gateways, bike and recreation areas and river corridors were not the focus of development proposal review efforts. Junk yards and open storage areas have been scattered throughout the County. This Plan recommends stronger design guidelines, especially for areas considered to be important viewsheds.

# BACKGROUND ASSESSMENT

**Appanoose County Population Trends and Projections**
Demographic information is important in showing trends affecting future development and redevelopment potential, explaining current conditions, and identifying needs. This chapter focuses on the demographic trends of Appanoose County.

The demographic information contained in this chapter was compiled from US Census data. The US Census collects information systematically by dividing each county into a set of census tracts. Each census tract is further divided into block groups, which, as the name suggests, are made up of groups of individual blocks. The County consists of 5 tracts, 15 block groups and over 1,000 blocks. Census data is obtained on a decennial basis collected using one of two forms: a short form which every household receives and a detailed long form which one in six households randomly receive. It should be noted that blocks only contain data from the short form, while block groups and tracts contain data from both forms.

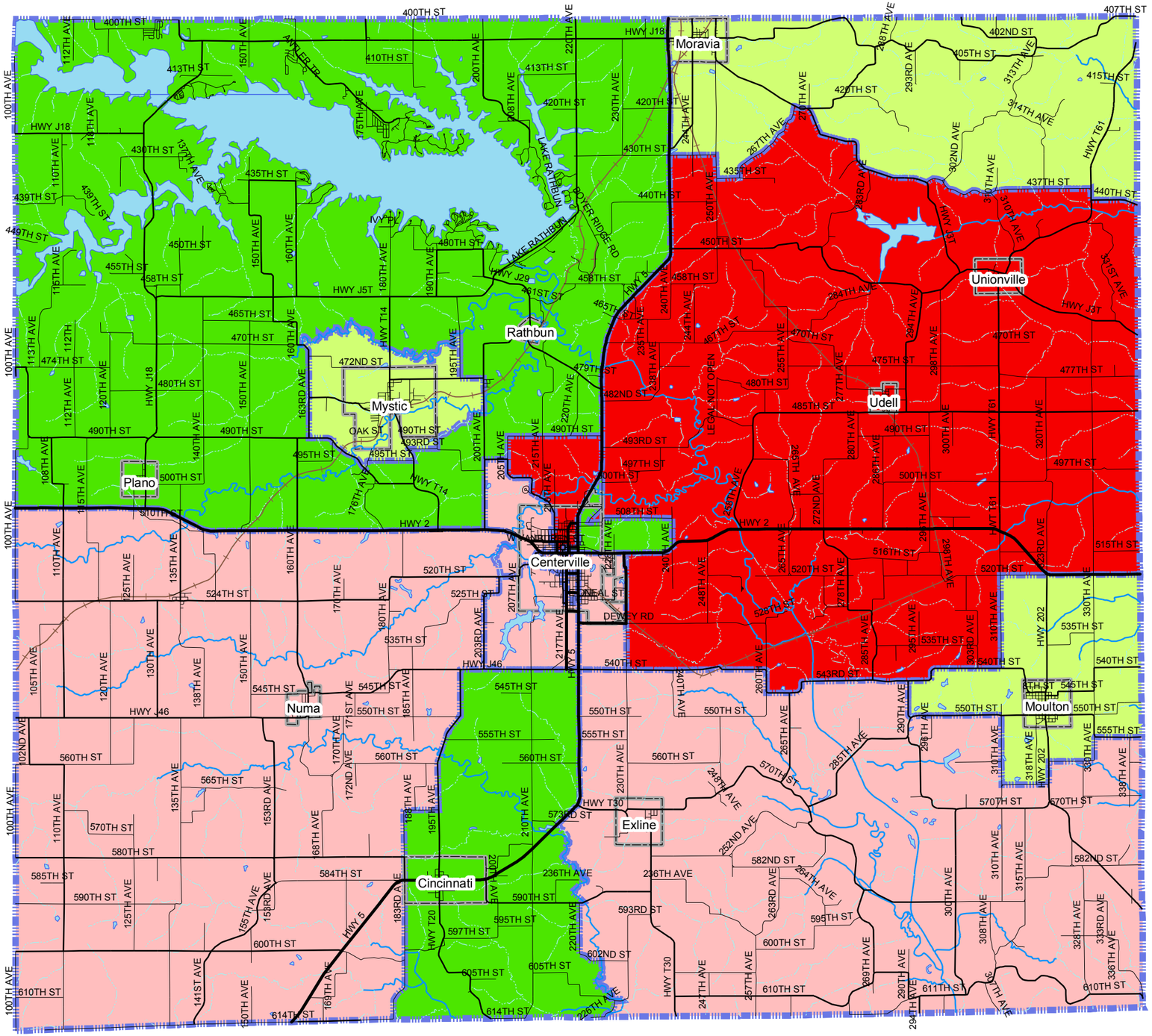
**Population**
Population for Appanoose County has remained flat for the decade between 1990 and 2000 with a slight population decline of 22 persons, which is less than a 1% change. More recent estimates of population are available as the Census publishes population estimates on a yearly basis. The most recent estimate is for 2003 and is just over a 1% increase from the 2002 estimate as can be seen in **Exhibit 3**. The 2003 population estimate is down approximately 1% from the Census 2000 population. While the County as a whole decreased slightly in population, a more accurate picture of population change within the County is illustrated in the **Population Change Map** (Exhibit 4).

Generally, the western half of the County experienced growth while the eastern half of the County experienced population decline. The City of Cincinnati experienced the greatest percentage of growth, while the City of Numa experienced the greatest percentage of population decline.

**Exhibit 3: Population Estimates**

| | | |
|---|---|---|
| July 2003 | 13,590 | 1.12% |
| July 2002 | 13,439 | -1.32% |
| July 2001 | 13,619 | -0.74% |
| July 2000 | 13,703 | |

# Exhibit 4:
# 1990 to 2000 Population Change by Census Block Group




## Legend

- Arterial Roads
- Collector Roads
- Local Roads
- Railways
- Intermittent stream, river, or wash
- Perennial stream or river
- Water
- Cities
- -126 - -67
- -66 - -1
- 0 - 35
- 36 - 105

Census Data obtained from Iowa State University

0 0.5 1 2 3 4

Miles

PLANNING WORKS



1 inch equals 2.4 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Population Change by Group.mxd)
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Population for Appanoose County is projected to increase 11% over the next 20 years to a total population of 15,308 as detailed in **Exhibit 5**. Much of this growth can be attributed to the Rathbun Lake Honey Creek resort area.

**Exhibit 5: Population Projection**

| | 2000 | 2010 | 2020 | 2025 |
|---|---|---|---|---|
| Population | 13,721 | 14,255 | 14,926 | 15,308 |
| Average Annual Increase | | 0.38% | 0.46% | 0.51% |
| Total Increase | | 3.89% | 4.71% | 2.56% |
| Total Change | | 534 | 671 | 382 |

The racial composition of the county is 98.16% White, 0.42% Black or African American, 0.17% Native American, 0.26% Asian, 0.01% Pacific Islander, 0.27% from other races, and 0.71% from two or more races. 0.98% of the population are Hispanic or Latino of any race. This makeup is nearly identical to 1990 data.

Appanoose County residents have a median age of 40.6 years, relatively high compared to the State of Iowa, while similar to many counties in the Regional Planning Area (RPA). **Exhibit 6** shows a comparison of the age cohorts for the RPA counties as well as the State. The percentage of persons aged 44 and younger are lower than the percentage for the State, and on par with the Counties of the RPA with the exception of Decatur County. These numbers are indicative of an aging population. As with the racial composition, these numbers are similar to 1990 Census data.

**Exhibit 6: Population Age Comparison**

| Geographic area | Total Population | Percent of total population | | | | | Median age (years) |
|---|---|---|---|---|---|---|---|
| | | Under 18 years | 18 to 24 years | 25 to 44 years | 45 to 64 years | 65 years and over | |
| Iowa | 2,926,324 | 25.1 | 10.2 | 27.6 | 22.2 | 14.9 | 36.6 |
| COUNTY | | | | | | | |
| **Appanoose County** | **13,721** | **23.7** | **7.8** | **25.1** | **23.5** | **20** | **40.6** |
| Clarke County | 9,133 | 26.3 | 7.6 | 26.5 | 22.5 | 17.1 | 38.6 |
| Davis County | 8,541 | 27.1 | 7.4 | 25.2 | 22.9 | 17.4 | 38.5 |
| Decatur County | 8689 | 23 | 16.3 | 21.6 | 21.5 | 17.7 | 36.4 |
| Lucas County | 9422 | 25.4 | 7.3 | 24.6 | 23.4 | 19.3 | 39.9 |
| Monroe County | 8,016 | 25.3 | 7.2 | 25 | 23 | 19.5 | 39.7 |
| Wayne County | 6,730 | 23.9 | 5.9 | 23.4 | 23 | 23.8 | 43 |

**Households & Housing Units**

Household characteristics provide further information about the character of the area. Households, as defined by the Census, are occupied housing units. While population has declined, the total number of

housing units has increased 295 units from 6,402 units to 6,697 units during the decade. The number of vacant units also increased from 793 units in 1990 to 918 units in 2000, a difference of 125 units. There are 5,779 households, (occupied housing units) an increase of 170 over 1990 numbers. Seventy-four percent of households are owner-occupied. Occupancy status is shown in **Exhibit 7**. Average household size of 2.34 people is down slightly from the 1990 average household size of 2.41 persons. This average size is slightly smaller than that of the 2000 State average of 2.46.

Households can be divided into two basic types: family and non-family. Family households are composed of people living together who are related, such as a mother and her two children or a married couple. Non-family households are composed of people who are unrelated, such as roommates. A person living alone is considered a non-family household. In Appanoose County, of the 5,779 households within the County, 28.4% have children under the age of 18 living with them, 53.1% are married couples living together, 8.8% have a female householder with no husband present, and 34.2% are non-families.

**Exhibit 7: Housing Occupancy and Tenure**

| Housing Occupancy | Number | Percent |
|---|---|---|
| Total housing units | 6,697 | 100.0% |
| Occupied housing units | 5,779 | 86.3% |
| Vacant housing units | 918 | 13.7% |
| For seasonal, recreational, or occasional use | 219 | 3.3% |
| Homeowner vacancy rate (percent) | 3.3% | |
| Rental vacancy rate (percent) | 9.4% | |
| Housing Tenure | | |
| Occupied housing units | 5,779 | 100.0% |
| Owner-occupied housing units | 4,275 | 74.0% |
| Renter-occupied housing units | 1,504 | 26.0% |
| Average household size of owner-occupied unit | 2.42 | |
| Average household size of renter-occupied unit | 2.11 | |

The number of dwelling units is projected to increase 10% over the next 20 years. Again most of this change can be attributed to the Rathbun Lake Honey Creek resort area. **Exhibit 8** shows the number of additional dwelling units projected until 2025.

**Exhibit 8: Projected Additional Dwelling Unit Demand**

| | 2010 | 2020 | 2025 |
|---|---|---|---|
| Dwelling Unit Change | 228 | 287 | 163 |
| Single Family (80%) | 183 | 229 | 131 |
| Multi Family (20%) | 46 | 57 | 33 |

Appanoose County's home ownership rate is similar to that of the State and is above average as compared to the National average. It should be noted that the County has a higher rate of seasonal or recreational housing than the State.

**Social Characteristics**

More detailed socio-economic characteristics, such as income levels, employment, and educational attainment is important in further developing demographic data. This kind of detailed information is collected by the Census through sampling, asking 1 in 6 households to complete the long form with additional information. This detailed information is reported only on the block group and tract levels, to protect privacy and limit the sampling error inherent in small populations.

**Educational Attainment & Employment**

**Exhibit 9** shows the educational attainment of County residents according to the 2000 Census. While the percentage of residents without at least a high school diploma or equivalent is high compared to the State, it is a significant drop from 1990, when nearly 30% of residents of the County did not have a high school diploma or equivalency.

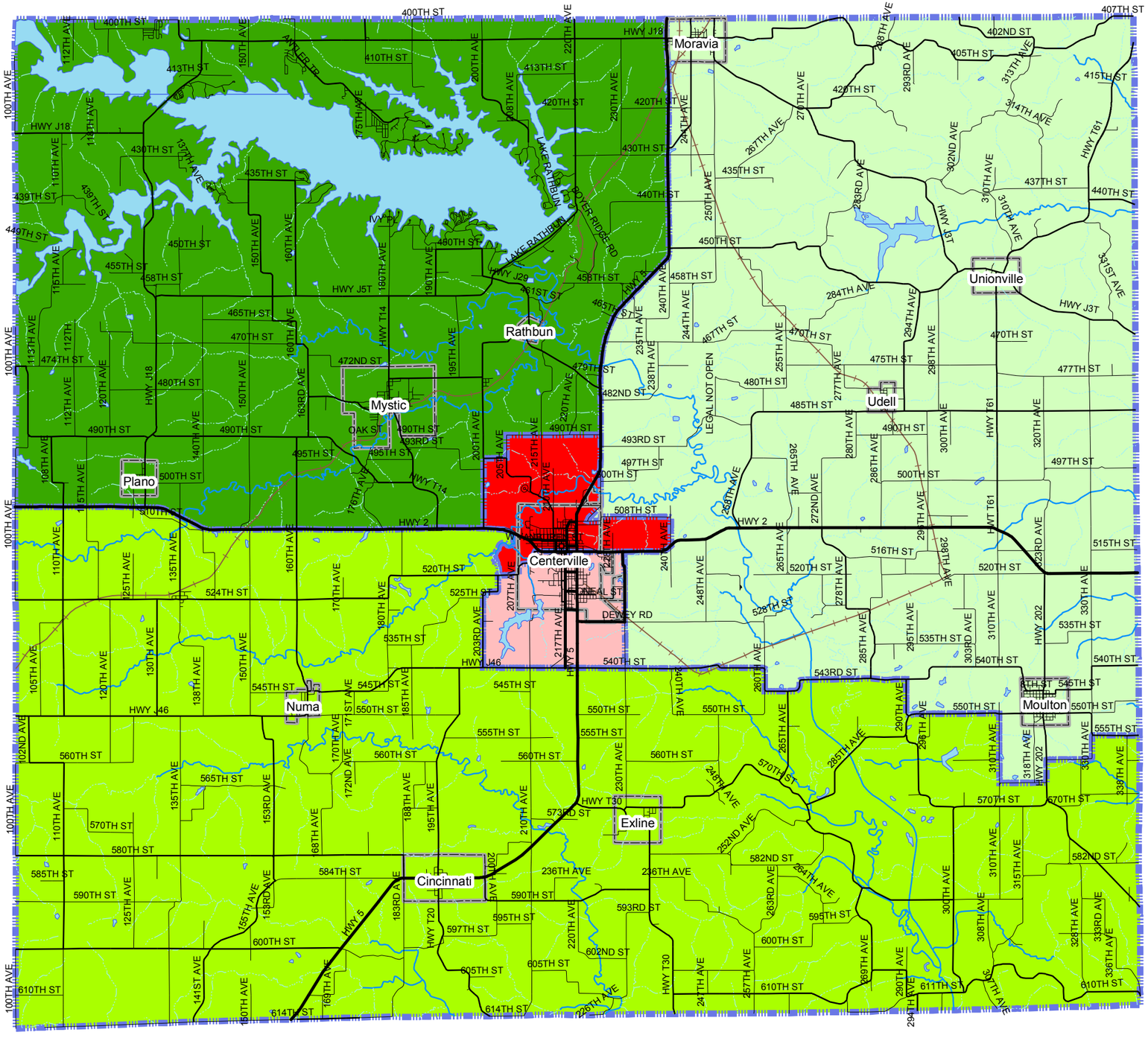
**Exhibit 9: Educational Attainment**

| | 1990 | % 1990 | 2000 | % 2000 | # Change | % Change |
|---|---|---|---|---|---|---|
| Persons 25 years and over | 9,244 | 100% | 9,401 | 100% | 157 | 2% |
| Less than 9th grade | 1,312 | 14% | 692 | 7% | -620 | -47% |
| 9th to 12th grade, no diploma | 1,266 | 14% | 1,052 | 11% | -214 | -17% |
| High school graduate (includes equivalency) | 3,603 | 39% | 3,871 | 41% | 268 | 7% |
| Some college, no degree | 1,371 | 15% | 1,842 | 20% | 471 | 34% |
| Associate degree | 632 | 7% | 798 | 8% | 166 | 26% |
| Bachelor's degree | 784 | 8% | 857 | 9% | 73 | 9% |
| Graduate or professional degree | 276 | 3% | 289 | 3% | 13 | 5% |

Employment data was obtained from the Iowa Economic Development (IED) agency in addition to data obtained from the Census. According to the Census, the number of employed persons within the County

increased above 4% between 1990 and 2000. The **Employment Change Map** (Exhibit 10) illustrates the geographic extent of employment change between 1990 and 2000.

# Exhibit 10:
# 1990 to 2000 Total Employed Change by Census Tract




## Legend

- Arterial Roads
- Collector Roads
- Local Roads
- Railways
- Intermittent stream, river, or wash
- Perennial stream or river
- Water
- Incorporated Area
- -96
- -51
- 57
- 106
- 224

Census Data obtained from Iowa State University

0 0.5 1 2 3 4

Miles

PLANNING WORKS



1 inch equals 2.4 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Employed.mxd)
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Interestingly, all of the employment gain has been experienced outside of Centerville, where employment declined. IED data is available on a yearly basis. According to IED data and consistent with trends in the national economy, employment was down 4 percent between1999 and 2000. The county has reversed that decline and it is now increasing the number of persons employed. **Exhibit 11** shows projected employment change categorized by employment type.

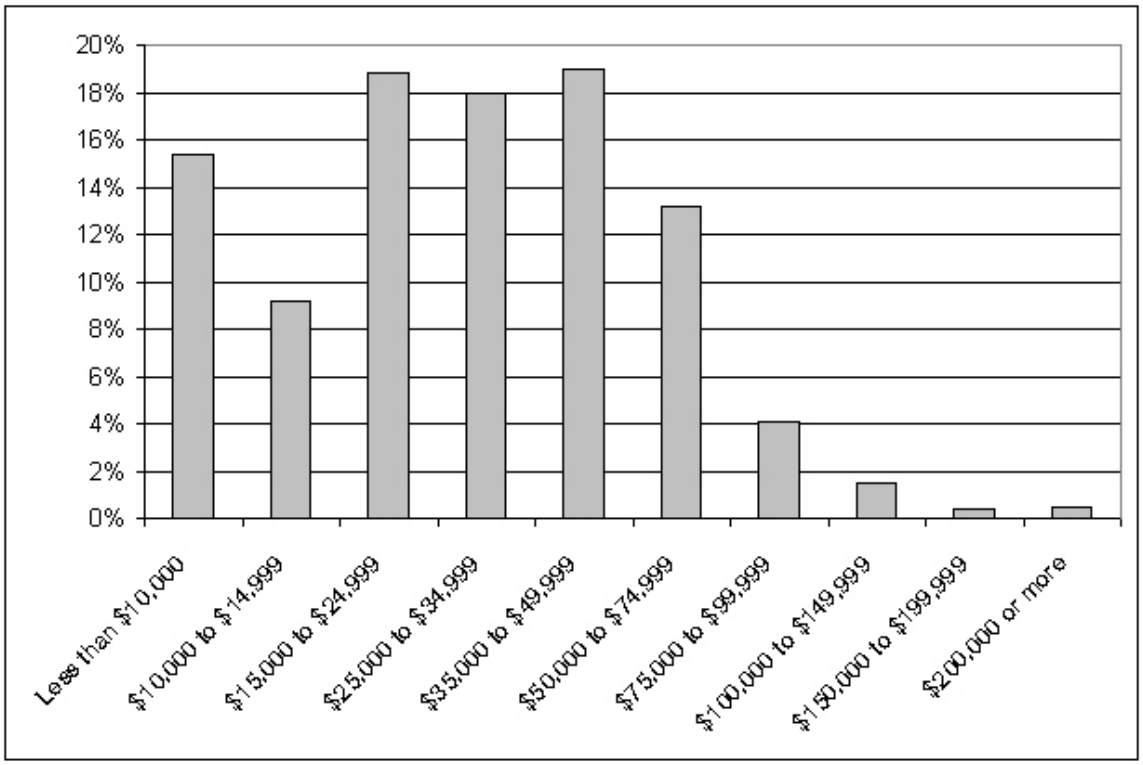
**Exhibit 11: Employment Projections**

| | 2000 | 2010 | 2020 | 2025 |
|---|---|---|---|---|
| Employment | 5,897 | 6,230 | 6,582 | 6,766 |
| Average Annual Increase | | 0.55% | 0.55% | 0.55% |
| Total Increase | | 5.65% | 5.65% | 2.79% |
| Change (employees) | | 333 | 352 | 183 |
| Office | | 88 | 93 | 49 |
| Retail | | 123 | 130 | 68 |
| Industrial | | 122 | 129 | 67 |

**Income & Poverty**

The median income for a household in the County is $28,612, and the median income for a family is $35,980. Males have a median income of $27,449 versus $20,452 for females. The per capita income for the county is $14,644. Fourteen percent of the population and 10.1% of families are below the poverty line. Out of the total people living in poverty, 16% are under the age of 18 and 14.1% are 65 or older. Income distribution is weighted somewhat low due to the number of people making less than $10,000 per year as illustrated in **Exhibit 12**.

**Exhibit 12: Income Distribution**




**Environmental Assets**

An inventory of the environmental features in Appanoose County includes both known Assets and Potentials. The Assets are items identified both in the public participation process, and in meetings with individual stakeholders, as providing overall benefits to the county community. The Potentials are items that are as yet emerging, or in planning, that may have some benefits and possibly some drawbacks.

***Traffic Capacity.*** In general, the existing roadway system within Appanoose County has sufficient capacity for existing and future growth traffic. Some exceptions exist primarily within Centerville (Highway 2 and 5 intersection, and spot locations near the industrial park), however, the overall roadway capacity in the County appears adequate.

***Gravel Road Maintenance.*** Both visual observations of several gravel roads in the County, as well as comments from the public during the public participation process indicate the existing gravel roadway system in the County is well maintained.

***Availability of Water.*** Through the Lake Rathbun Water District, potable water supply is not an issue in Appanoose County. According to local sources, the water supply is more than sufficient for daily use and fire protection under both existing conditions and expected future growth conditions.

***Indian Hills Community College.*** Indian Hills Community College is a valuable resource to the Appanoose County community and to the region. IHCC has taken an aggressive role in promoting business development through workforce training, Bioprocessing and Biodevelopment, small business development, housing construction, and several other economic development activities. Additionally, IHCC has an impressive baseball program that finished fourth in national tournaments and sent four players to the major leagues.


***Appanoose Area Schools.*** Five school districts cover Appanoose County. These include Moravia, Centerville, Moultin/Udell, Seymour, and Wayne. Discussions with Moravia and Centerville school district representatives indicate sufficient capacity for existing and near term growth. Improvements to the school districts are being realized through the School Infrastructure Local Option (SILO) sales tax.

***Law Enforcement/Emergency Response/Medical Facilities.*** Public comments included a general satisfaction with local law enforcement and the availability of medical care and emergency response.

***Natural Resources.*** One of the primary assets of Appanoose County is the availability of natural lands and preserves (Sedan Bottoms/Dean Bottoms, Lake Rathbun, Sharon Bluffs Park, Honey Creek State Park). Also, the County has raw marketable resources in the form of limestone quarry materials.

***Tourism.*** Appanoose County has several existing tourist attractions showcasing the history and culture of the area. These attractions include the Bradley House, Beck Mansion, Dale Church, Drake Library, several museums, Mormon Trail, Underground Railroad site in Cincinnati, Centerville Pancake Days and several other features and events.

***Rural Life Style/Farming Industry/Ag Related Business.*** One consistent message throughout this project is the desire to preserve the existing rural lifestyle and farming industry that has been the foundation of the County's culture and economy.


***Non-Ag Industry.*** The farm crisis of the early 1980's pointed out the need to diversify Iowa's economy beyond strictly agriculture and ag-related businesses. Manufacturing and industry play an important role in minimizing the impact of economic downturns in specific markets. The County has made significant efforts in promoting industry and job growth within Appanoose County.

**Environmental Potentials**

The following 'wildcards' have the potential to create positive and negative impact on the County's transportation network:

***Honey Creek Destination Park.*** This project is still in the early stages of development. At this time, it is expected the development will consist of a lodge with 110 guest rooms, 5,000 square foot conference center, 30 family cabins, 15,000 square foot aquatic center, golf course, and campsites. This project is expected to cost $30 million construction cost in a joint public/private venture. Annual revenues for the facility are estimated at approximately $8 million. This development represents a very large sales tax revenue generator for the county in and of itself, not to mention ancillary businesses expected to develop in the surrounding area. The improved tax revenues can then be used, in part, to fund other transportation improvements around the county.

In addition to tax generation, other advantages of the Park include job creation, expected population growth, stimulation of the local economy through tourist spending, improvements to the quality of life of residents through the availability of park amenities, and the development of a regional wastewater treatment facility to serve not only Honey Creek, but also the surrounding area. Disadvantages of the Honey Creek development of course will be increased traffic, decline in the rural nature in the area immediately surrounding the park, and more demand for county services.

***Unregulated Development***. A recurring theme in the discussions and public meetings in this project was the regulation of development within the county. Arguments for and against development controls included anecdotal evidence of incompatible land uses being developed side by side (junk yards next to residential subdivisions and food processing facilities). Discussions also included a strong expression of property rights and a desire to minimize governmental intrusion on land use.

In terms of transportation, this project tries to focus new development in areas that have sufficient available infrastructure (roadways, utilities, etc.), and discourage development in areas

that will put significant additional burden on the County provided services (roadway maintenance, bridge rehabilitation, etc.).

Because of the close relationship between land use and transportation, this item has a significant impact on the success or failure of the transportation plan. Unregulated development has the potential for creating significant transportation services demands in locations that simply can't be served with the current county budgets. Further, there are no mechanisms in place to fairly distribute the burden of transportation system enhancements between the public and private sectors.

***Trails System.*** As stated previously, Appanoose County has a very limited trails system. There are currently about 6 miles of established pedestrian trails within the county. Facilities designed specifically for biking are virtually non-existent, in spite of regular bicycling activities along Old Highway 142 and other areas around the County.

Advantages to the trails system include better quality of life for residents, an opportunity to expose people to the natural features of Appanoose County, improves safety by providing facilities separate from automobile and truck traffic areas.

Disadvantages of trails include maintenance costs, initial costs to acquire and build trail corridors. Other recreational trails include 26 miles of snowmobile trails and off-road vehicle areas, all around Lake Rathbun.

***Amish Community.*** A growing Amish community in the southwestern part of the county provides both opportunities for county economic growth and special needs to accommodate the great disparity in transportation operations between traditional modes (horse and buggy/pedestrian) versus modern traffic (passenger cars and trucks). The economic opportunities include a new sawmill operation, some agricultural operations, and Ag related business. The Amish community also represents an opportunity for tourism similar to other communities in the region like the Amana Colonies, Jamesport, Missouri, northeastern Iowa, and numerous other areas.

Amish communities present unique transportation challenges to provide and maintain transportation infrastructure that accommodates the needs of slow moving horse drawn equipment and high speed modern vehicles. This problem will increase as tourism associated with the Amish community and Amish businesses continue to develop, attracting more traffic to the area.

***New Residential Communities.*** Two higher end residential communities are being planned to take advantage of the demand for larger homes located next to recreational amenities such as lakes and golf courses. One proposed development is around Lake Sundown, located in the northeastern quadrant of the county. The other is a new Golf Course Development just south of Centerville, on the east side of Highway 5. These developments are popular and will no doubt develop rapidly. The disadvantage is residential development typically requires more County services than they generate in tax revenues.

***Hunting/Guide Service Industry.*** An emerging industry in the southeastern quadrant of the county is hunting and guiding services on the large tracts of public ground along the Chariton River bottom known as Sedan Bottoms and Dean Bottoms. Hunting is becoming an increasingly popular activity. Iowa in general, and Southeast/South-central Iowa in particular have developed a national reputation for producing very large whitetail deer and outstanding turkey hunting. Although the revenues generated by hunters (hotels, cabin rentals, restaurants, fuel, etc.) are very seasonal, deer hunting alone contributes over $80 Million to Iowa's economy annually (Source: Iowa Department of Natural Resources). Lake Rathbun is also an underutilized waterfowling resource.

Throughout the project's public input process, concern was raised several times that the acquisition of private lands to increase public lands was having a detrimental impact on the tax revenue stream for the county. Between Lake Rathbun, the Chariton River bottoms, and other parks in the county, it is estimated between 15% - 20% of the County is public lands.

***Siltation/erosion.*** Between the natural soil types found in the county, and the topography, many of the soils around Appanoose County are subject to severe erosion. There is interest and potential to reduce erosion and improve water runoff quality through the construction of on- or off-road ponds and minor impoundments. At a few locations, this strategy has been used to combine storm water detention in these impoundments, with reduction of cross road structure sizes to reduce the expense to maintain a bridge to a much cheaper culvert.

***Wastewater treatment.*** In most instances in Appanoose County, wastewater treatment has been limited to on-site septic system treatment. However, the poor percolation characteristics of the soils do not lend themselves well to this type of treatment. As such, there is a growing need for unified wastewater collection and treatment.

***Public Transportation.*** The current 10-15 Bus system provides local, on-demand public transit for Appanoose County. As businesses continue to expand and tourism concentrates people in the northwest portion of the county, that demand may increase sufficiently to establish permanent routes between Centerville and Honey Creek/Moravia area. A tourist oriented public transportation route would greatly improve traffic operations and reduce congestion on Highway 5/Old 142.

***Highway 2 Improvements Project.*** This project consisted of $24 Million in rehabilitation and replacement funds for Iowa Highway 2, from Highway 5 in Centerville, east about 17 miles to Acorn Avenue in Davis County. The project was intended to replace the grade and alignment deficiencies as well as replace or repair deteriorated pavement. However, as spending priorities changed at the administrative levels of the Iowa Department of Transportation, the project lost funding and was taken off of the State Transportation Improvement Program.

Because of the poor condition of the existing roadway, and because of the physical constraints of the existing highway alignment, the loss of this construction project has limited the economic viability and focus of future growth along this corridor. Reinstatement of this project, either in full or in a multi-year phased approach, is one important step for restoring economic vitality along the Highway 2 corridor.

**Existing Transportation Network**

The transportation network evaluated in this study is comprised of six primary components including:

- Roadways
- Bridges
- Railroads
- Aviation
- Trails
- Transit

The components were inventoried to determine quantity, capacity, condition, and maintenance. Certain components also had special features such as safety data (roadway crashes).

The existing street and highway network can be described by functional classification, which is a process by which streets and highways are grouped into classes or systems according to the service provided. Basically, street functional classification uses a hierarchical structure to describe the operation of all roadways within a transportation system. If the transportation system is working correctly, all portions of this hierarchy should work together to facilitate efficient and safe movement between trip origins and destinations.

The hierarchy of street types in ascending order includes local streets, collector streets, minor arterials, other principal arterials, expressways, and freeways. The differentiation between street classifications is based upon through traffic movement and access to adjacent land. Lower functional classes, such as local and collector streets, provide greater access to adjacent land or individual properties as compared to higher functional classifications, such as arterials or freeways, which provide for greater mobility.

Individual streets do not serve trips independently; rather, most trips involve movement through a network or system of roadways. Developing a working functional classification provides a method for channeling traffic in a logical and efficient manner. Roadways are classified by the function they serve and not by the amount of traffic they carry; however, higher traffic volumes are usually found on higher roadway classifications.

Arterial highways provide direct service between cities or activity centers and typically attract a large proportion of longer distance trips. Collector roads serve small towns or villages directly and collect

traffic from a system of local roads. Functional classifications are based upon criteria developed by the Federal Highway Administration (FHWA), and are provided in **Exhibit 13**.

**Exhibit 13: Roadway Condition by Type and Length (Miles)**

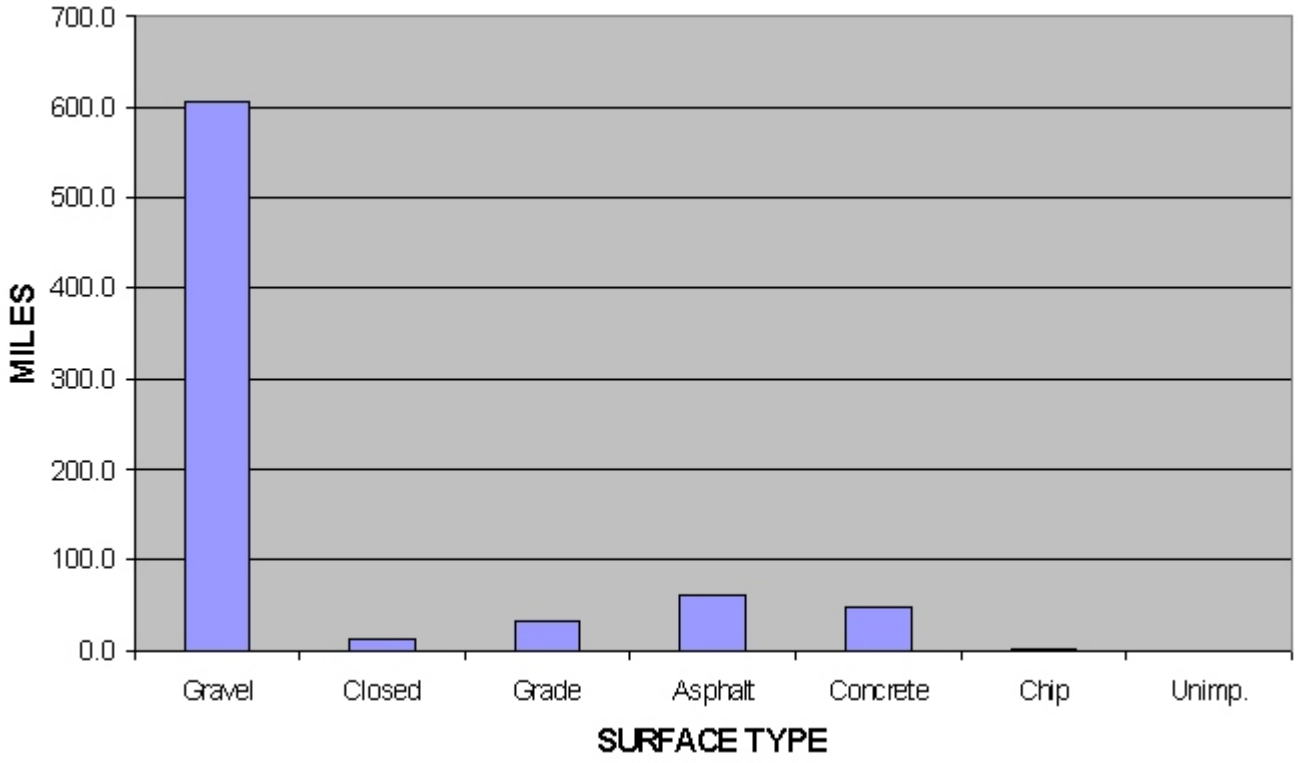
| Surface Type | Very Poor | Poor | Fair | Good | Excellent | Total |
|---|---|---|---|---|---|---|
| Unimproved | 45 | | | | | 45 |
| Gravel | 1 | 3 | 25 | 238 | 340 | 607 |
| Asphalt | | | 3 | 12 | 47 | 62 |
| Concrete | | | 2 | 28 | 19 | 49 |
| TOTAL | 46 | 3 | 30 | 278 | 406 | 763 |

***Development Nodes.*** A typical concern in a rural transportation improvement project is the spread of suburban growth that comes with road development. It is therefore important to note that the development component of the future land use plan is not necessarily intended to only facilitate growth in the traditional sense, that is, along the roadways, but to also promote the growth of rural "development nodes" in the County and accommodate the travel between them, such as development associated with the Amish communities and between unincorporated places and the cities. These primary development nodes include the incorporated areas and destinations, such as Rathbun Lake and Sundown Lake.

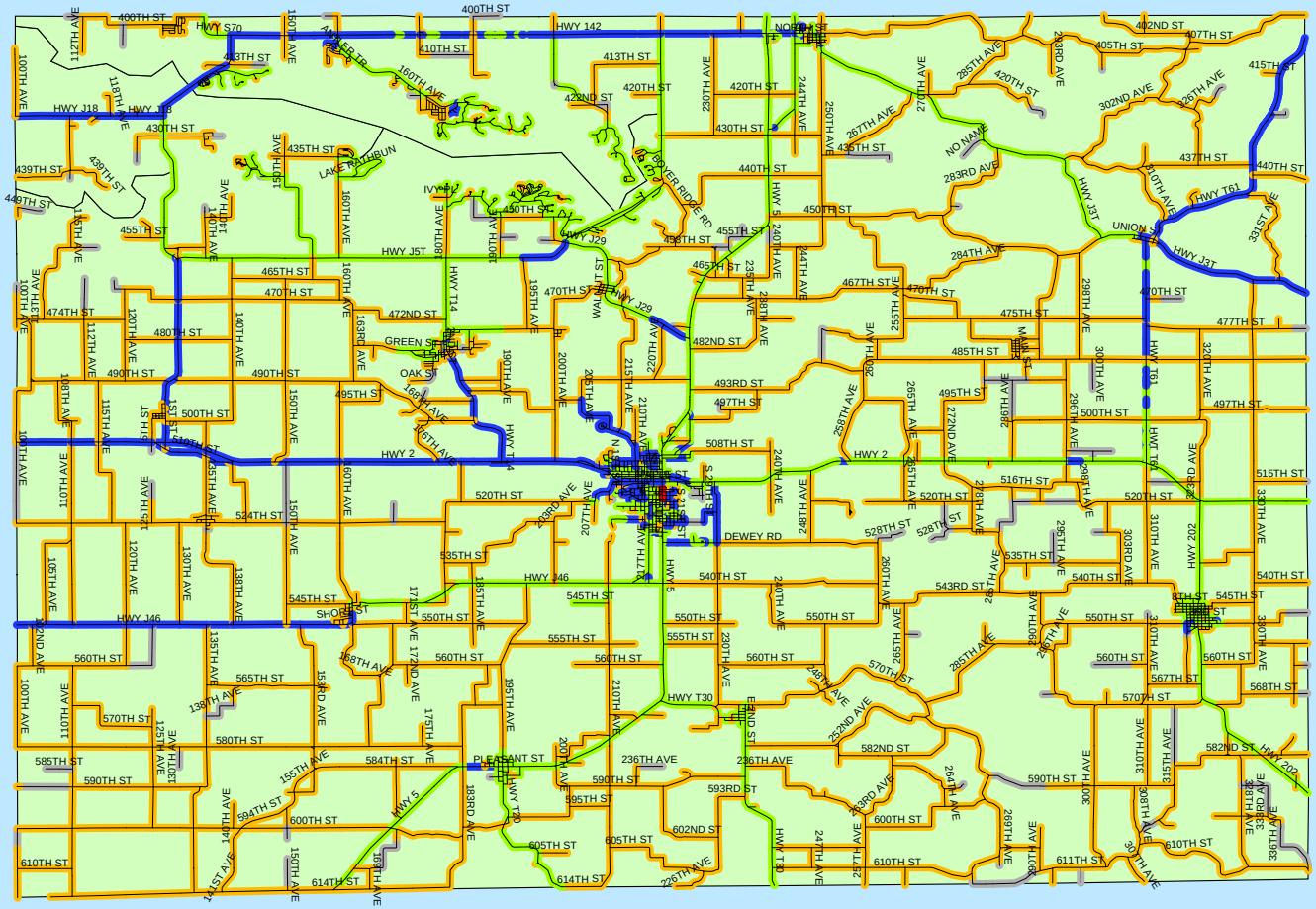
**Roadways**

Appanoose County is responsible for the maintenance of about 763 miles of roadways, of which about 607 miles are gravel, 111 miles are paved (either asphalt, concrete, or a composite of asphalt and concrete), with the remaining 45 miles being graded, unimproved, or low maintenance roadways. **Exhibit 14** charts the miles of pavement by surface type. **Exhibit 15** graphically shows the locations of the various pavement types throughout the county.

## Exhibit 14: Lane Miles v. Surface Type



# ROAD SURFACE TYPE




**Legend**

- Unimproved
- Gravel
- Asphalt
- Concrete
- Other/Unknown

EXHIBIT 15
ROAD SURFACE TYPE

N

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Engineers & Surveyors

**Exhibit 16** charts lane-miles of pavement width versus surface width. Approximately 75% of the roadways in the county are between 20' and 28' wide. For two way traffic, 20' is generally the minimum width on rural unimproved roadways, with 22' being the minimum standard for new construction. Almost 90% of asphalt roads, and 95% of concrete roads in the county are 22' wide or greater.

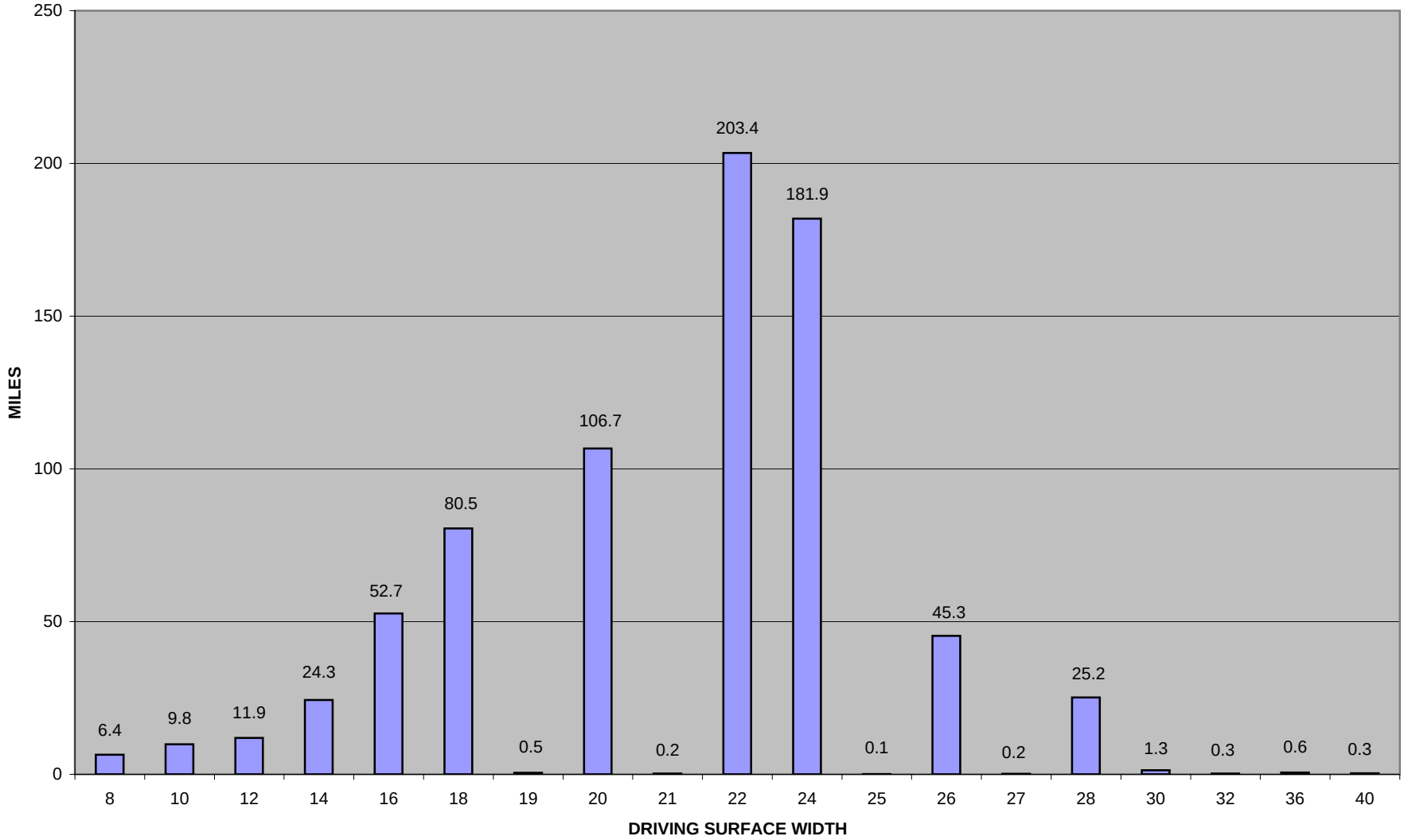
In terms of roadway geometry, Highway J3T between Moravia and Unionville has several sharp curves that could use realignment or additional superelevation to improve ride, capacity, and safety. Highway 2, east of Centerville also has reverse curves with tight geometry that should be addressed during reconstruction.

***Surface Condition.*** The Iowa Department of Transportation (IDOT) provided record data of roadway condition ratings taken in early 2001. While the data are somewhat dated, they do provide a relative picture of roadway conditions within Appanoose County. **Exhibit 17** summarizes the roadway conditions by surface type.

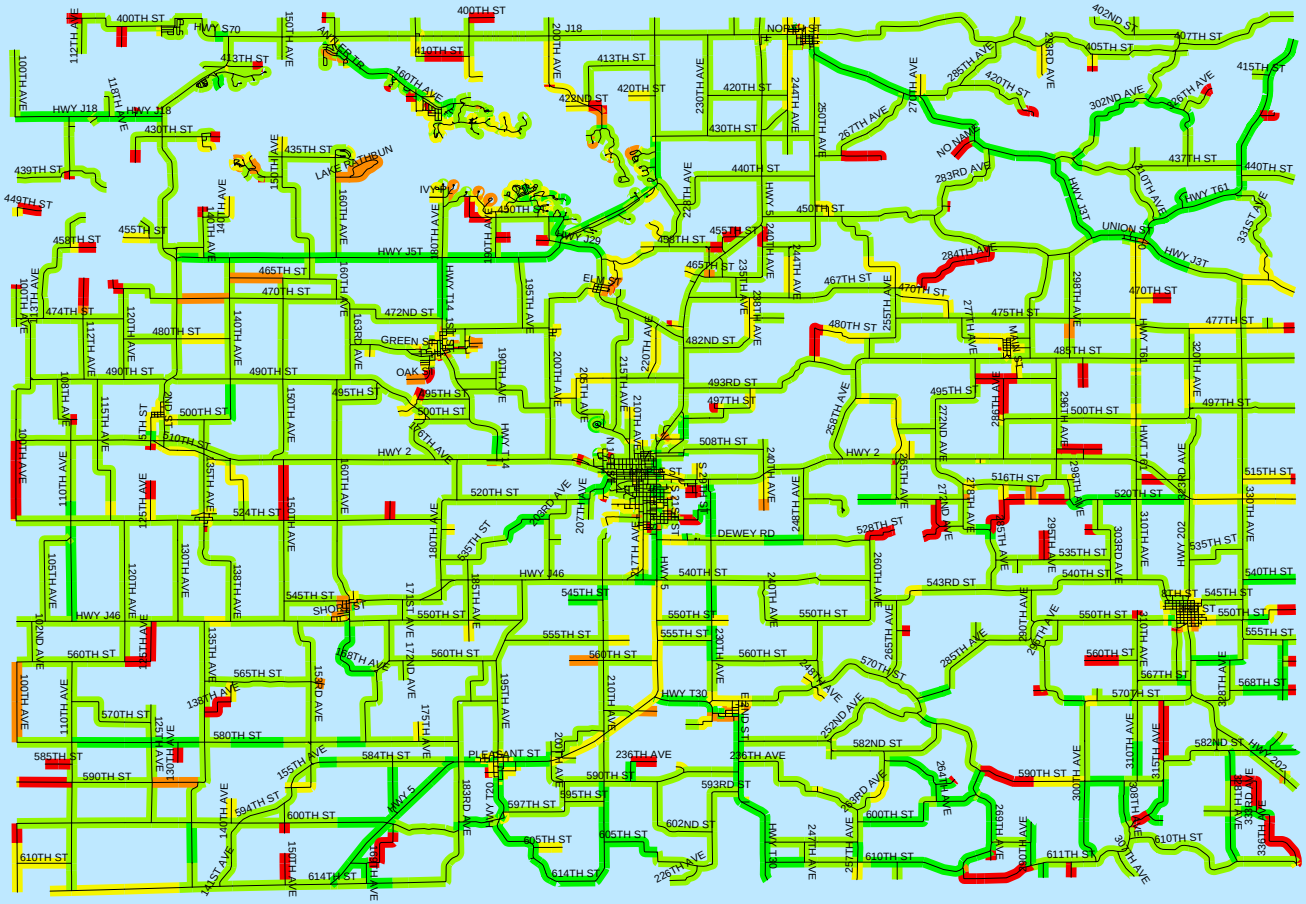
In addition to the overall roadway ratings (paved and unpaved) IDOT also provided a separate pavement condition rating for some of the paved roadways within the county. A pavement condition index (PCI) was developed based on surface distresses observed in the pavements. The PCI is on a scale of 0 to 100 with a PCI of 100 representing brand new pavement, and a PCI of 0 representing completely failed pavement. **Exhibit 18** shows the geographic layout of the reported pavement conditions. Again, the data are incomplete, however they do provide some relative information about the pavement conditions within Appanoose County.

As can be seen from the table, most (95%) of the gravel roads were rated good to excellent, which seems to correspond with overall public opinion within Appanoose County. Similarly, the County maintained paved roadways were generally in good shape at the time of the inventory.

**EXHIBIT 16: ROADWAY SURFACE WIDTH (ALL SURFACE TYPES)**



# ROADWAY CONDITION RATING



**Legend**

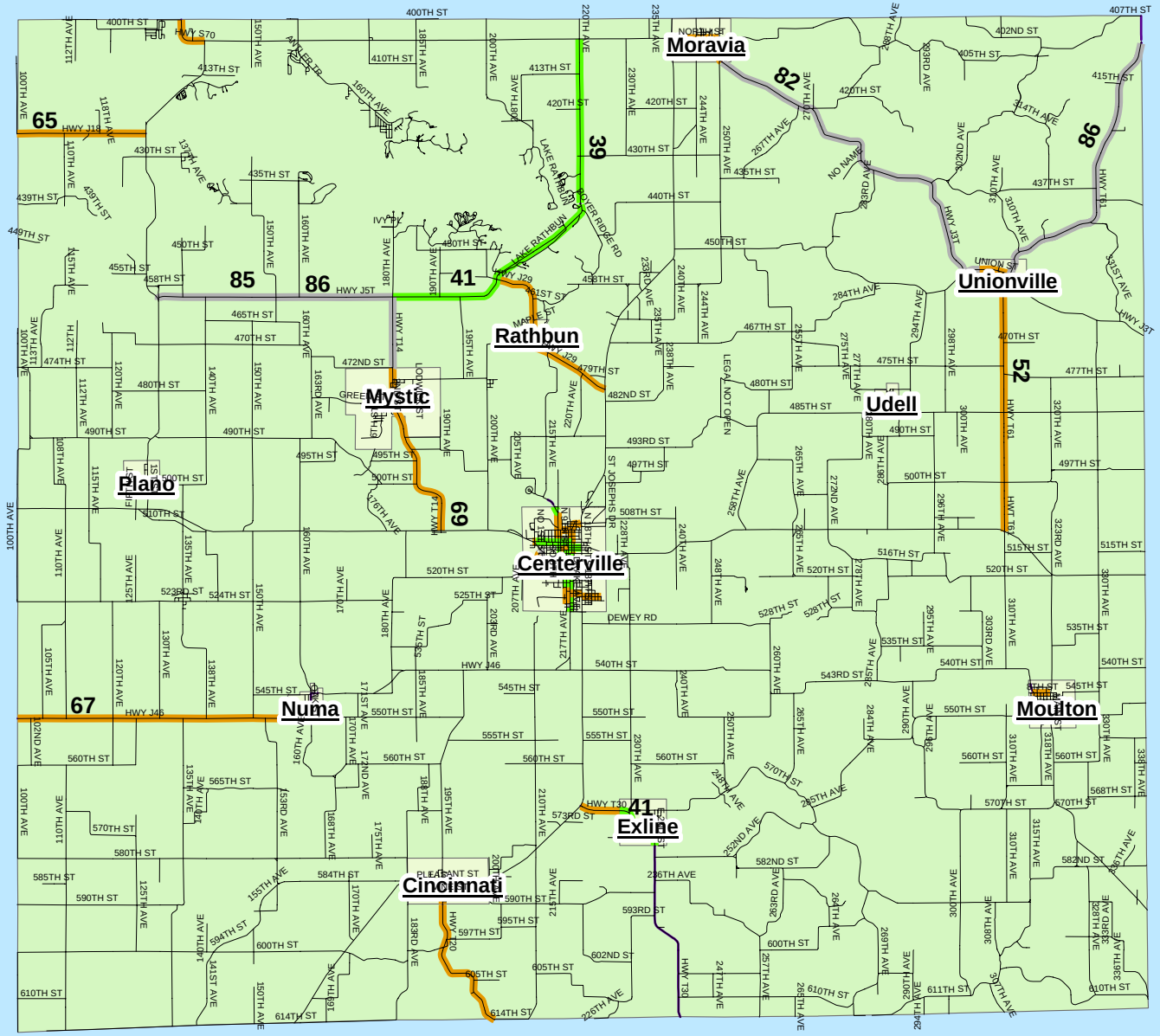
- Very Poor
- Poor
- Fair
- Good
- Excellent

EXHIBIT 17
LAYOUT OF ROADWAY
CONDITION RATING

N

ANDERSON-BOGERT
Engineers & Surveyors

# PAVEMENT CONDITION INDEX RATING




**Legend**
**Pavement Condition Index (PCI)**

- 0 - 50
- 51 - 75
- 76 - 100

EXHIBIT 18
LAYOUT OF PCI RATINGS
PAVED COUNTY ROADS

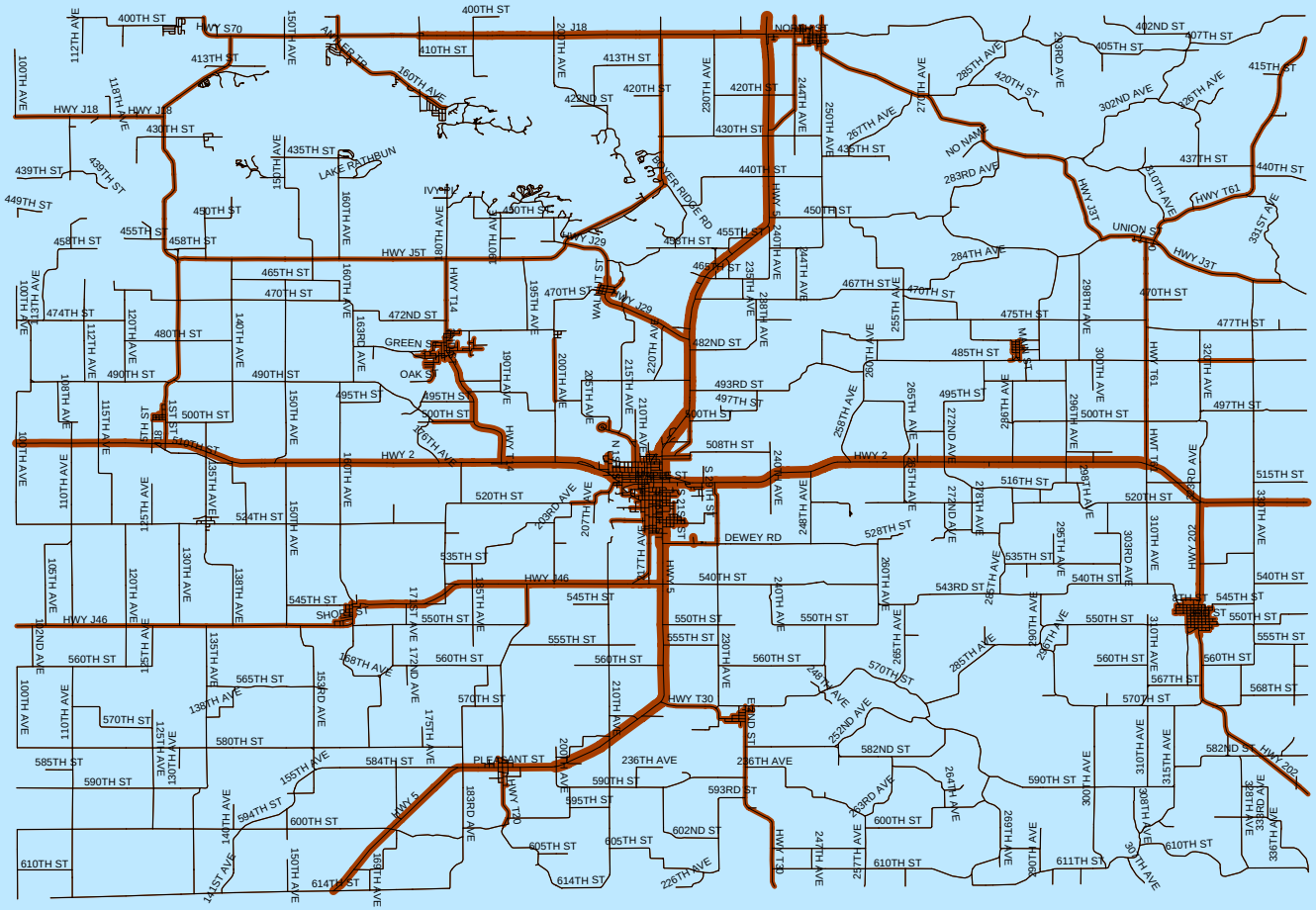
N

ANDERSON-BOGERT
Engineers & Surveyors

Other roadway facilities within Appanoose County include the State maintained roadways including Iowa Highway 2, Highway 5, and Highway 202. The Iowa DOT publishes maps of the condition ratings (from January 2001) for those pavements showing Highway 2 east of Centerville, Highway 5 south of Centerville, and Highway 202 all in poor condition. Highway 2 west of Centerville was rated good, and Highway 5 north of Centerville, and Highway 142 (recently transferred to County jurisdiction) rated fair.

***Traffic and Capacity.*** **Exhibit 19** shows traffic counts on the roadway network taken by IDOT in 2002. As can be seen, the traffic volumes are concentrated on the State Routes (2 and 5), and increase around Centerville. Annual Average Daily Traffic (AADT) volumes on Highway 5 range from about 1,100 vehicles per day (vpd) south of Cincinnati to over 7,000 vpd just north of Centerville. Traffic on Highway 2 is generally between 2,000 vpd and 4,000 vpd.

# EXISTING TRAFFIC (VEHICLES PER DAY)




**Legend**

- 0 - 250
- 251 - 926
- 927 - 2360
- 2361 - 5000
- 5001 - 10500

EXHIBIT 19
AVERAGE DAILY
TRAFFIC VOLUMES

N

ANDERSON-BOGERT
Engineers & Surveyors

The Highway Capacity Manual provides general traffic capacities for various types of roadways. Traffic carrying capacity is affected by driveway frequency and spacing, lane widths, lateral clearance to fixed objects, hilliness of terrain, capacity at major intersections, amount of heavy vehicles in the traffic mix, and other physical features. Two-lane rural highways (such as Highways 2 and 5) can carry as much as 20,000 vpd. There is clearly more roadway capacity available than needed for existing demand.

Spot locations for traffic capacity improvements were identified during project meetings with stakeholders, businesses, and the general public. These locations include:

- Highway 2 and Highway 5 intersection suffers from significant congestion during peak commuter traffic periods. The intersection approaches have four through traffic lanes (two each way) and all turning movements share the through lanes. The intersection operates under signalized traffic control, and carries heavy truck traffic to and from the industrial park on the south side of Centerville. Based on comments from the public, the intersection geometry is perceived to be inadequate for turning trucks.

- At Highway 5 and Dewey Road, a separate left turn bay should be added to accommodate industrial park traffic turning off of Highway 5, onto Dewey Road.

- Indian Hills Community College paved entrance is through a residential neighborhood. Current enrollment levels are such that the traffic situation is tolerable, however, a second paved access should be considered.

***Safety.*** A review of countywide traffic safety data was performed. **Exhibit 20** shows the overall crash trends for Appanoose County for the period 1995 through 1999. As can be seen from the exhibit, the crash trends have continued downward.

## Exhibit 20: Crash Trends in Appanoose County

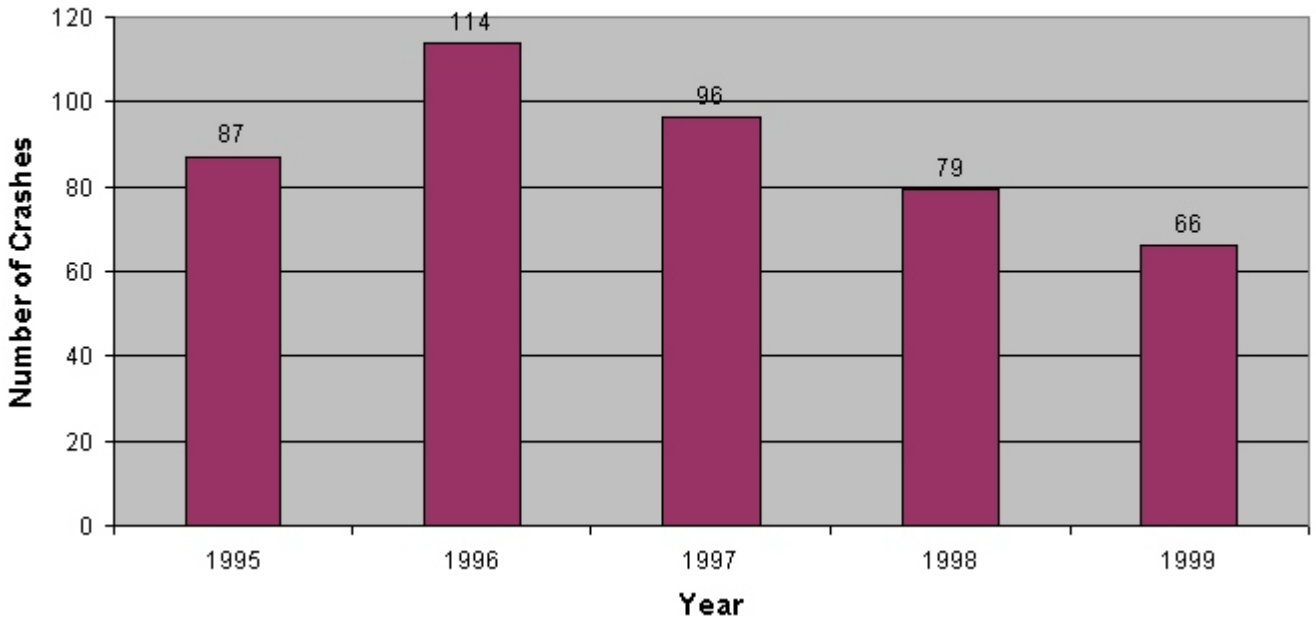


**Exhibit 21** summarizes the Statewide Safety Improvement Candidate (SICL) ranking data for Appanoose County from 1995 through 1999. These data are used by IDOT to prioritize safety funds projects. Of particular note were the locations that included three or more crashes plus either fatality or major injuries.

Of the 442 crashes reported in the 5-year period, 65% were property damage only, 8% involved fatalities or major injuries, and 27% were classified as minor injuries or possible injuries.

Looking at all crashes in the county, 66% of the crashes occurred in Centerville, with the remaining 34% classified as rural locations. Twelve of the fifteen fatality crashes (73%) occurred at rural locations. Adding in major injuries, the combined fatality/major injuries total 69% in rural areas versus urban (Centerville) areas. Conversely, only 24% of the minor injury crashes and 33% of property damage only crashes occurred at rural locations. These data probably reflect the effects of higher speeds typically observed on county roads versus lower speeds typically observed in the urban areas. As such, crashes in town may be more numerous, but are less likely to be severe.

A cursory field review of two of the locations highlighted in Exhibit 21 indicates some possible physical features at the crash locations that warrant further study. The locations reviewed were County T14 just north of Mystic and the intersection of Ia. 5 and County T30.

***Looking south at limited sight distance on Hwy. T14 north of Mystic.***

## Exhibit 21: SICL Ranking Data

| Statewide Rank | County | Route | City Name | Literal Description for Intersection or 1st Cross Street | Literal Description for 2nd Cross Street (if blank, intersection crash) | Number of Crashes | | | | | | Number of Crashes, by Severity | | | | | Number of Injuries, by Severity | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Total | 1995 | 1996 | 1997 | 1998 | 1999 | Fatal | Major Injury | Minor Injury | Possible Injury | Property Damage Only | Fatalities | Major Injury | Minor Injury | Possible Injury |
| 186 | 4 | 0002 | CENTERVI | NONE | | 56 | 11 | 11 | 11 | 15 | 8 | 0 | 1 | 14 | 10 | 31 | 0 | 1 | 22 | 22 |
| 1037 | 4 | 0005 | CENTERVI | INT N 18TH ST & E | NONE | 19 | 3 | 5 | 7 | 3 | 1 | 0 | 2 | 4 | 1 | 12 | 0 | 2 | 8 | 1 |
| 1575 | 4 | 0005 | RURAL | INT IA 5 & CO J46 & CO | NONE | 20 | 2 | 6 | 9 | 1 | 2 | 0 | 2 | 5 | 1 | 12 | 0 | 2 | 10 | 2 |
| 2219 | 4 | 0005 | RURAL | NONE | NONE | 4 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 2 | 1 | 0 | 0 |
| 2488 | 4 | 0T14 | RURAL | 1ST ST AT NORTH CORP | BR CO T14 @ WOLF | 3 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 3 | 5 | 0 |
| 2739 | 4 | 0002 | RURAL | NONE | BR IA 2 @ CHARITON RIV | 11 | 1 | 2 | 1 | 2 | 5 | 0 | 1 | 1 | 0 | 9 | 0 | 2 | 1 | 1 |
| 2943 | 4 | 0990 | RURAL | NONE | | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 |
| 3091 | 4 | 0005 | CENTERVI | NONE | INT N 18TH ST & E | 12 | 4 | 4 | 1 | 1 | 2 | 0 | 2 | 0 | 0 | 10 | 0 | 2 | 3 | 1 |
| 3482 | 4 | 0J3T | RURAL | NONE | NONE | 3 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 |
| 3485 | 4 | 0T30 | RURAL | NONE | INT IA 5 & CO T30 | 3 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 2 | 1 | 0 | 1 | 0 |
| 3579 | 4 | 0002 | CENTERVI | INT N 10TH ST & W | | 16 | 1 | 4 | 4 | 6 | 1 | 0 | 0 | 3 | 2 | 11 | 0 | 0 | 4 | 4 |
| 3620 | 4 | 0005 | CENTERVI | INT N 18TH ST & E STATE | | 16 | 2 | 2 | 5 | 5 | 2 | 0 | 0 | 3 | 3 | 10 | 0 | 0 | 5 | 9 |
| 3686 | 4 | 0002 | RURAL | INT IA 2 & CO T12 | NONE | 12 | 1 | 2 | 4 | 2 | 3 | 0 | 1 | 0 | 0 | 11 | 0 | 3 | 2 | 0 |
| 3777 | 4 | 0005 | RURAL | INT IA 5 & CO T30 | BR IA 5 @ DRAINAGE | 6 | 0 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 5 | 1 | 0 | 1 | 0 |
| 3887 | 4 | 0J13 | RURAL | NONE | INT CO J13 & T55 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 4048 | 4 | 0990 | RURAL | NONE | NONE | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 4499 | 4 | 0202 | RURAL | NONE | NONE | 3 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 1 | 1 | 0 | 0 |
| 4606 | 4 | 0142 | RURAL | INT IA 142 & RATHBUN | | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 |
| 4711 | 4 | 0002 | RURAL | INT IA 2 & CO T24 | INT IA 2 & CO T14 | 11 | 0 | 6 | 4 | 0 | 1 | 0 | 2 | 1 | 2 | 6 | 0 | 2 | 2 | 6 |
| 4889 | 4 | 0005 | CENTERVI | INT N 18TH ST & CROSS | S INT HAYNES AVE & N | 11 | 1 | 3 | 2 | 2 | 3 | 0 | 1 | 1 | 2 | 7 | 0 | 1 | 2 | 3 |
| 5549 | 4 | 0002 | RURAL | NONE | NONE | 8 | 3 | 2 | 2 | 1 | 0 | 0 | 2 | 1 | 0 | 5 | 0 | 2 | 1 | 0 |
| 5615 | 4 | 0002 | CENTERVI | INT N HAYNES ST & E | | 11 | 1 | 5 | 0 | 3 | 2 | 0 | 1 | 0 | 2 | 8 | 0 | 1 | 0 | 7 |
| 5931 | 4 | 0005 | CENTERVI | INT N 18TH ST & E OAK | INT N 18TH ST & E | 13 | 4 | 2 | 3 | 3 | 1 | 0 | 0 | 2 | 0 | 11 | 0 | 0 | 2 | 2 |
| 6021 | 4 | 0995 | UNIONVIL | INT CO RD T61 & UNION | | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6240 | 4 0005 | CENTERVI | INT N 18TH ST & E OAK | | 12 | 3 | 5 | 0 | 3 | 1 | 0 | 0 | 2 | 2 | 8 | 0 | 0 | 3 | 2 |
| 6289 | 4 0002 | RURAL | IA 2 @ N W RR | INT IA 2 & CO T61 | 10 | 1 | 0 | 3 | 2 | 4 | 0 | 1 | 1 | 0 | 8 | 0 | 1 | 1 | 2 |
| 6435 | 4 0005 | RURAL | NONE | NONE | 8 | 3 | 4 | 0 | 1 | 0 | 0 | 1 | 3 | 0 | 4 | 0 | 1 | 4 | 0 |
| 6456 | 4 0005 | RURAL | NONE | | 5 | 1 | 0 | 0 | 3 | 1 | 0 | 2 | 1 | 1 | 1 | 0 | 3 | 2 | 2 |
| 6643 | 4 0002 | RURAL | INT IA 2 & CO T40 | | 2 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 6 | 3 | 0 |
| 6683 | 4 0005 | CENTERVI | N INT HAYNES AVE & N | INT IA 5 & N 18TH ST | 12 | 5 | 4 | 2 | 0 | 1 | 0 | 0 | 1 | 4 | 7 | 0 | 0 | 1 | 5 |
| 7038 | 4 0002 | CENTERVI | INT S MAIN ST & W | | 12 | 3 | 2 | 1 | 2 | 4 | 0 | 0 | 2 | 2 | 8 | 0 | 0 | 3 | 6 |
| 7294 | 4 0005 | CENTERVI | S INT HAYNES AVE & N | | 13 | 4 | 4 | 2 | 2 | 1 | 0 | 0 | 1 | 2 | 10 | 0 | 0 | 1 | 2 |
| 7407 | 4 0995 | CENTERVI | INT IA 2 & S 29TH ST | | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 2 | 0 |
| 7445 | 4 0002 | RURAL | NONE | INT IA 2 & CO T40 | 8 | 2 | 0 | 3 | 2 | 1 | 0 | 0 | 1 | 0 | 7 | 0 | 0 | 2 | 0 |
| 7453 | 4 0002 | CENTERVI | INT DRAKE AVE & E | | 12 | 4 | 4 | 1 | 2 | 1 | 0 | 0 | 1 | 3 | 8 | 0 | 0 | 1 | 3 |
| 7479 | 4 0002 | RURAL | NONE | NONE | 11 | 1 | 2 | 3 | 2 | 3 | 0 | 0 | 2 | 1 | 8 | 0 | 0 | 2 | 1 |
| 7949 | 4 0995 | CENTERVI | INT N 12TH ST & W VAN | INT N MAIN ST & W VAN | 8 | 2 | 3 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 1 |
| 8020 | 4 0005 | CENTERVI | INT S 18TH ST & | | 9 | 1 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 3 | 4 | 0 | 0 | 2 | 8 |
| 8049 | 4 0005 | RURAL | NONE | INT S 18TH ST & GREEN | 8 | 2 | 3 | 1 | 1 | 1 | 0 | 0 | 3 | 1 | 4 | 0 | 0 | 3 | 5 |
| 8319 | 4 0005 | CENTERVI | N INT HAYNES AVE & N | | 10 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 1 | 7 | 0 | 0 | 3 | 1 |
| 8482 | 4 0002 | CENTERVI | W INT N 5TH & W MAPLE | | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 1 |
| 8594 | 4 0005 | RURAL | INT IA 5 & CO J27 | NONE | 9 | 1 | 4 | 3 | 0 | 1 | 0 | 0 | 2 | 0 | 7 | 0 | 0 | 2 | 2 |
| 9251 | 4 0005 | CENTERVI | INT S 18TH ST & E TERRY | | 8 | 1 | 2 | 3 | 1 | 1 | 0 | 0 | 1 | 4 | 3 | 0 | 0 | 1 | 6 |
| 9485 | 4 0005 | CENTERVI | INT S 18TH ST & | INT S 18TH ST & ONEAL | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 9748 | 4 0995 | CENTERVI | INT N 12TH ST & W VAN | | 9 | 3 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| 9862 | 4 0995 | CENTERVI | INT N 13TH ST & E VAN | | 8 | 2 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 7 | 0 | 0 | 0 | 1 |
| 9966 | 4 0005 | CENTERVI | INT S 18TH ST & E | | 6 | 2 | 2 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| 10034 | 4 0005 | CENTERVI | INT N 18TH ST & E VAN | | 7 | 1 | 1 | 3 | 1 | 1 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 1 | 6 |
| 10092 | 4 0995 | CENTERVI | INT N 13TH ST & E | | 8 | 1 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 |
| | | | | **TOTALS** | **442** | **87** | **114** | **96** | **79** | **66** | **15** | **21** | **64** | **54** | **288** | **16** | **44** | **108** | **114** |

***Looking north on Ia. 5 from T30 at horizontal curve.***

***Looking south on Ia. 5 from T30 at limited sight distance and horizontal curvature.***

No physical measurements or analyses were made of the intersection to determine whether or not actual deficiencies exist in the roadway alignments. However, the intersection and roadway alignments should be evaluated.

***Budgetary Needs.*** IDOT used to publish a Quadrennial Need Study (last updated in January 2002) reporting on highways, roads, and streets. The study documented the estimated construction, maintenance, and administrative needs for the primary, secondary, municipal,

county parkway, state park and institutional roadways on a county-by-county basis. In Appanoose County, the Secondary System and Farm-to-Market System needs was estimated at $186 Million.

From the County's 5-Year Plan, the County budgets just under $1 Million per year of Farm-to-Market funds on roadway rehabilitation ($1,050K in 2004; $800K in 2005; $985K in 2006). The County also spends about $50,000 per year in crack sealing maintenance, which corresponds to about 10 miles of pavement annually.

County crews perform much of the County's roadway maintenance. The County Road Department is comprised of 28 staff including equipment operators, bridge crew, technicians, engineering staff, and administrative personnel. Secondary Roads funds are used for the operations of the County Road Department, as well as to provide matching funds for federal aid funds.

**Bridges**

There are over 20,000 bridges on county roads in Iowa. Appanoose County is responsible for about 200 bridges, which is very typical for many counties in Iowa. Bridges are defined as a roadway structure with a span of 20 feet or more. Structures with spans less than 20 feet are classified as culverts, and do not qualify for federal bridge maintenance and rehabilitation funds.

All counties are required to inspect bridges at least once every two years. Depending on the condition of a particular bridge, the inspections may be more frequent. The results of the inspections are a bridge condition sufficiency rating on a scale of 0 to 100, an estimated cost of repairs/replacement, estimated detour length around the bridge if the bridge were closed, load posting recommendations, and several other pieces of information.

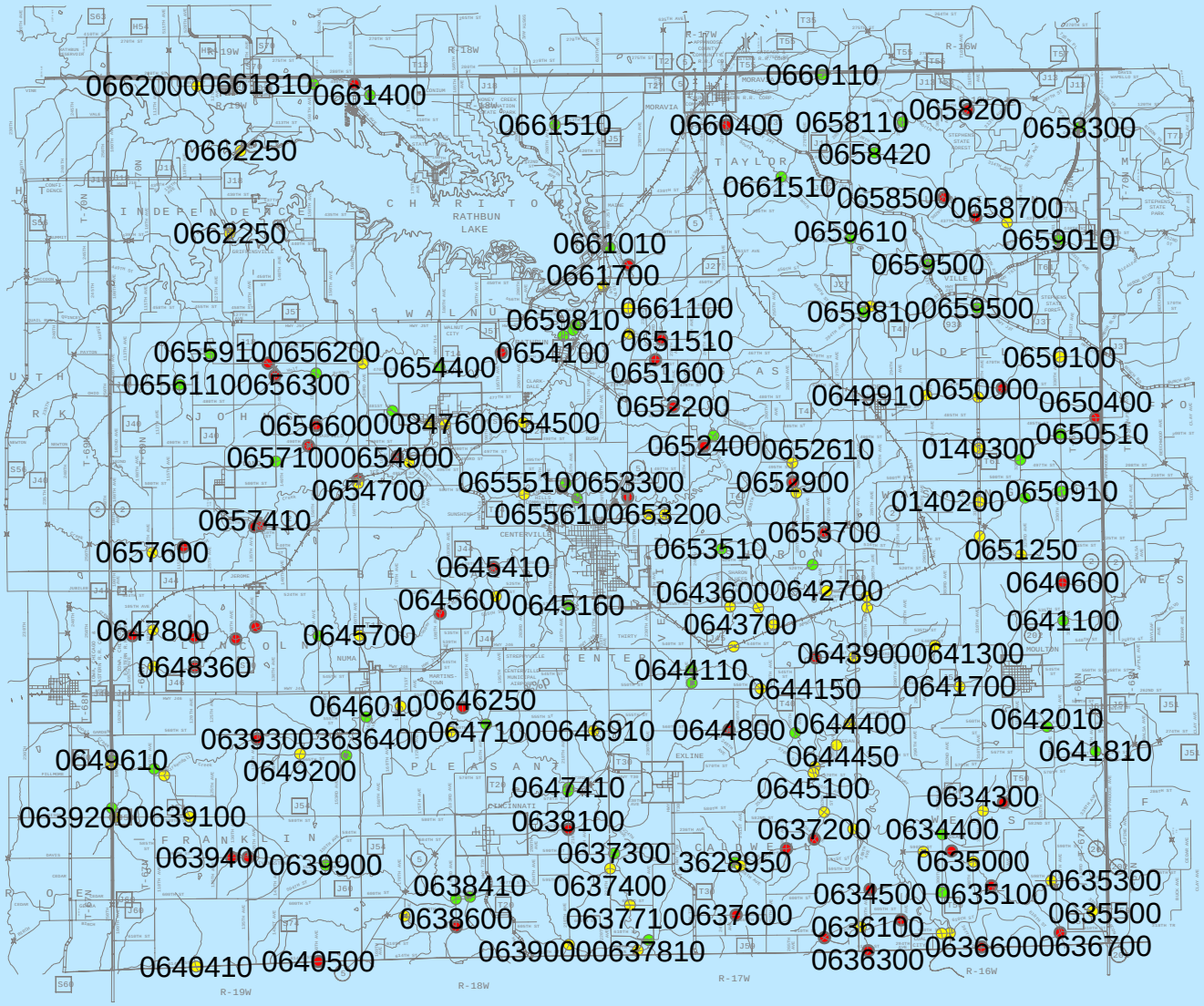
Bridges with a sufficiency rating of 0 to 50 are eligible for federal bridge replacement funds. Bridges with a sufficiency rating between 50 and 80 are eligible for maintenance funds. Above 80, maintenance activities are entirely the responsibility of the County to fund. Federal bridge funds are based on an 80/20 federal/local participation. Acquisition of the federal funds is somewhat of a competitive process. The Iowa DOT looks at Sufficiency Rating, Traffic carried (ADT), Detour Length, and Load Rating. The bridge projects statewide are then compared based on the above rankings and funds are apportioned to each of the jurisdictions applying for funding. Currently, Appanoose County receives enough bridge funding to rebuild 2 to 3 bridges per year.

In Appanoose County, about 1/3 of the bridges currently have sufficiency ratings of 50 or less. Almost 40 % have sufficiency ratings between 51 and 80. The remainder of the bridges are rated as 81 or above.

Similarly, 45% of the existing bridges were built between 1900 and 1954, placing almost half of the bridges at or over the 50-year design life commonly accepted for a bridge structure. The average year built for all of the bridges in Appanoose County is 1954. The estimated average remaining life of all the bridges is about 18.5 years.

**Exhibit 22** shows the distribution of county maintained bridges and their condition, color coded by sufficiency rating.

# EXISTING BRIDGE CONDITION




**Bridge Sufficiency Rating**

- 0 - 50
- 51 - 80
- 81 - 100

EXHIBIT 22
EXISTING BRIDGE
SUFFICIENCY RATINGS

N

ANDERSON-BOGERT
Engineers & Surveyors

***Budgetary Needs.*** The County's 5-Year Plan, budgets around $450,000 per year towards bridge replacement. This total includes the 20% local matching funds and 80% federal aid funds. Based on the bridge inventory, there is about $9 Million worth of replacement/major repair work for all bridges with a sufficiency rating of 50 or less. There is roughly $7 Million in rehabilitation work for bridges rating between 50 and 80, and about $1 Million in general maintenance work for all bridges over a Sufficiency Rating of 80. At a rate of $450,000 per year, it would take nearly 40 years to do the work backlogged today. Counting in deterioration during that period, it is plain to see the current funding levels are insufficient to keep up with current maintenance needs.

Recently, the County was able to replace a bridge with a culvert by using funds from the Soil Conservation Service (SCS) for pond construction. By building a pond impoundment upstream of an existing bridge location, the outflow during rainfall events can be designed such that the roadway structure requirements are significantly less. This is an innovative way to use non-traditional funding sources to address a woefully inadequate bridge replacement funding system. The drawback to this strategy is it is generally limited to small drainage areas (200 acres or less).

**Rail**

There are two railroads operating in Appanoose County. The Iowa, Chicago & Eastern Railroad (ICE - formerly the I&M Rail Link) and the Appanoose County Community Railroad (APNC).

The ICE railroad is a Class II Railroad freight railroad operating 1,404 miles of track from Minneapolis to Chicago and Kansas City. Approximately 688 miles of track are in Iowa, and roughly 23 miles in Appanoose County. The ICE hauls about 16.5 million tons of freight annually, accounting for 2,789 ton-miles in Iowa.

The ICE has 18 railroad crossings in Appanoose County. Five of the crossings are grade separated (either overpass or underpass), and the remaining 13 are at-grade crossings.

The town of Centerville, using the abandoned sections of the Burlington Northern, Rock Island and Norfolk Southern railroads, formed the Appanoose County Community Railroad as a non-profit railroad in 1983.

The APNC is a Class III Railroad and operates 35 miles of rail from Centerville to Albia. The line connects with the Burlington Northern Santa Fe and the Norfolk Southern at Albia. Current employment totals five people, all located in Iowa. The main commodity handled by the APNC is plastic products. Local control of this short line facility provides unique opportunities for industrial and tourism development.

Currently, the Railroad has 2 locomotives, 2 maintenance cars, and a ballast car. The Railroad moves about 1 million ton-miles of freight annually, receiving and forwarding about 300 cars per year.

The APNC has 52 railroad crossings, 28 of which are in Appanoose County. Four of the crossings in Appanoose County are grade-separated, with the remaining 24 being at-grade crossings.

At-grade railroad crossings are inventoried and classified by the IDOT to determine need and priority for crossing upgrades. The priority ranking is based on two calculated indices: Predicted Accidents, and Exposure (or risk) for Accidents. Factors included in calculating the indices include:

- Train Traffic (Trains per day)
- Roadway Traffic (Average Daily Traffic)
- Angle of the crossing
- Train Speed
- Number of tracks at the crossing
- Number of roadway lanes at the crossing
- Pavement Type
- Crossing Control Device (Cross Bucks, Flashers, Gates, etc.)

These data are summarized for each at-grade crossing in Appanoose County in **Exhibit 23**. Based on Exposure and Predicted Accidents, at-grade railroad crossings are prioritized for further study and possible upgrades. IDOT sets a primary threshold of 0.075 Predicted Accidents (PA) for projects to meet First Priority status for grade crossing modification. Second Priority status is given to all crossings with a PA of less than 0.075. Second priority status projects are then ranked by dividing the estimated project cost by the Exposure. This calculation provides an indication of dollars spent versus risk reduction.

| EXHIBIT 23 - APPANOOSE COUNTY RAIL-HIGHWAY GRADE CROSSINGS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Rail data | | | | | | | Road Data | | Calculated Data | |
| FRA No. | Rail Carrier | Road | Traffic Control Device | Speed (MPH) | Number of Trains/Day | Collisions | ADT | Crossing Surface Type | Predicted Accidents | Exposure |
| 375697M | ICE | HWY J29 | FLASHING LIGHTS | 40 | 12 | 1 | 1270 | HI-RAIL | 0.0645 | 10972.8 |
| 375695Y | ICE | T24/200TH AVE | FLASHING LIGHTS | 40 | 12 | | 290 | FULL WOOD PLANK | 0.0146 | 2505.6 |
| 375681R | ICE | 135TH AVE | CROSSBUCKS | 40 | 12 | | 120 | FULL WOOD PLANK | 0.0136 | 1036.8 |
| 375675M | ICE | 110TH AVE | CROSSBUCKS | 40 | 12 | | 80 | FULL WOOD PLANK | 0.0118 | 829.44 |
| 375677B | ICE | 524TH AVE | CROSSBUCKS | 40 | 12 | | 35 | FULL WOOD PLANK | 0.0089 | 604.8 |
| 375699B | ICE | 461ST ST | CROSSBUCKS | 40 | 12 | 1 | 60 | FULL WOOD PLANK | 0.0479 | 518.4 |
| 375683E | ICE | 140TH AVE | CROSSBUCKS | 40 | 12 | | 30 | FULL WOOD PLANK | 0.0084 | 311.04 |
| 375701A | ICE | 219TH AVE | CROSSBUCKS | 40 | 12 | | 30 | FULL WOOD PLANK | 0.0084 | 259.2 |
| 375706J | ICE | 420TH ST | CROSSBUCKS | 40 | 12 | | 20 | FULL WOOD PLANK | 0.0073 | 172.8 |
| 375678H | ICE | 115TH AVE | CROSSBUCKS | 40 | 12 | | 20 | UNCONSOLIDATED | 0.0073 | 172.8 |
| 375673Y | ICE | 105TH AVE | CROSSBUCKS | 40 | 12 | | 20 | FULL WOOD PLANK | 0.0073 | 172.8 |
| 098356F | APNC | J45/540TH ST | CROSSBUCKS | 10 | - | | 500 | ASPHALT | 0.0002 | 168 |
| 375679P | ICE | 125TH AVE | CROSSBUCKS | 40 | 12 | | 10 | FULL WOOD PLANK | 0.0057 | 86.4 |
| 484007J | APNC | 296TH AVE | CROSSBUCKS | 25 | - | | 80 | ASPHALT | 0.0002 | 51.2 |
| 484029J | APNC | 250TH AVE | CROSSBUCKS | 25 | - | | 130 | ASPHALT | 0.0002 | 49.92 |
| 484013M | APNC | T4J/485TH ST | CROSSBUCKS | 25 | - | | 120 | ASPHALT | 0.0002 | 46.08 |
| 098358U | APNC | DEWEY RD | CROSSBUCKS | 10 | - | | 110 | ASPHALT | 0.0002 | 36.96 |
| 098359B | APNC | 230TH AVE | CROSSBUCKS | 10 | - | | 70 | ASPHALT | 0.0002 | 23.52 |
| 604672B | APNC | 260TH AVE | CROSSBUCKS | 10 | - | | 70 | ASPHALT | 0.0002 | 19.6 |
| 484033Y | APNC | 244TH AVE | CROSSBUCKS | 25 | - | | 30 | ASPHALT | 0.0002 | 19.2 |
| 484015B | APNC | 480TH ST | CROSSBUCKS | 25 | - | | 40 | ASPHALT | 0.0002 | 15.36 |
| 484009X | APNC | 500TH ST | CROSSBUCKS | 25 | - | | 40 | ASPHALT | 0.0002 | 12.8 |
| 484016H | APNC | 277TH AVE | CROSSBUCKS | 25 | - | | 40 | ASPHALT | 0.0002 | 12.8 |
| 484025G | APNC | 450TH ST | CROSSBUCKS | 25 | - | | 40 | ASPHALT | 0.0002 | 12.8 |
| 484020X | APNC | 255TH AVE | CROSSBUCKS | 25 | - | | 30 | ASPHALT | 0.0002 | 11.52 |
| 484021E | APNC | 255TH AVE | CROSSBUCKS | 25 | - | | 30 | ASPHALT | 0.0002 | 11.52 |
| 484022L | APNC | 255TH AVE | CROSSBUCKS | 25 | - | | 30 | ASPHALT | 0.0002 | 11.52 |
| 484031K | APNC | 430TH ST | CROSSBUCKS | 25 | - | | 35 | ASPHALT | 0.0002 | 11.2 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 484017P | APNC | 475TH ST | CROSSBUCKS | 25 | - | | 20 | ASPHALT | 0.0002 | 7.68 |
| 484034F | APNC | 243RD AVE | OVERPASS | 25 | - | | 20 | - | 0.0002 | 6.4 |
| 484018W | APNC | 470TH ST | CROSSBUCKS | 25 | - | | 15 | ASPHALT | 0.0002 | 5.76 |
| 484012F | APNC | 288TH AVE | CROSSBUCKS | 25 | - | | 10 | ASPHALT | 0.0002 | 4.08 |
| 484019D | APNC | 467TH ST | CROSSBUCKS | 25 | - | | 10 | ASPHALT | 0.0002 | 3.84 |
| 484004N | APNC | 516TH ST | CROSSBUCKS | 25 | - | | 10 | ASPHALT | 0.0002 | 3.2 |
| 484011Y | APNC | 490TH ST | CROSSBUCKS | 25 | - | | 10 | ASPHALT | 0.0002 | 3.2 |
| 604680T | APNC | 520TH ST | CROSSBUCKS | 5 | - | | 10 | UNCONSOLIDATED | 0.0002 | 2.8 |
| 604670M | APNC | J45/540TH ST | UNDERPASS | | | | | - | | |
| 604675W | APNC | 285TH AVE | UNDERPASS | | | | | - | | |
| 484005V | APNC | HWY 2 | OVERPASS | | | | | - | | |
| 484036U | APNC | 420TH ST | CROSSBUCKS | | | | | ASPHALT | | |
| 375707R | ICE | HWY 5 | UNDERPASS | | | | | - | | |
| 375705C | ICE | 430TH ST | OVERPASS | | | | | - | | |
| 375703N | ICE | BOYER RIDGE RD | UNDERPASS | | | | | - | | |
| 375688N | ICE | 168TH AVE | OVERPASS | | | | | - | | |
| 375686A | ICE | 160TH AVE | OVERPASS | | | | | - | | |
| 375685T | ICE | HWY 2 | UNDERPASS | | | | | - | | |

As can be seen from Exhibit 23, none of the existing crossings in Appanoose County has a PA of 0.075 or more. The closest candidate is the ICE rail crossing of J29 at the City of Rathbun.

***Budgetary Needs.*** Track maintenance expenses have historically been about $150,000 per year. However, there are some significant rehabilitation and improvement projects on the horizon. **Exhibit 24** summarizes some of the immediate term improvements planned by the APNC.

**Exhibit 24: Estimated Track Improvement Expenditures – 2004/2005**

| Item | Estimated Cost |
|---|---|
| 1.7 Miles tie replacement | $40,000 |
| Rebuild 14° curve to 8° curve | $85,000 |
| New Storage Track at Rubbermaid | $40,000 |
| Rebuild siding at Moravia | $55,000 |
| Miscellaneous Culverts | $20,000 |
| **TOTAL** | $240,000 |

The Railroad's primary clients include Rubbermaid, Bemis-Curwood, and Centerville Iron, with Rubbermaid being the largest. The APNC is a freight rail service. No passenger service is offered, or expected to be offered, in the foreseeable future. The Railroad's primary source of income is from commercial freight operations.

One of the biggest challenges facing the railroad is the disposition of the existing railroad bridge over Iowa Highway 2. This bridge is estimated to cost $1.5 Million to $2 Million. The operating revenues and expenses of the APNC are less that $1 Million annually. As such, it is unlikely the railroad will be able to afford the full burden of the bridge replacement.

**Aviation**

The Centerville Municipal Airport, 3 miles southwest of Centerville, averages about 113 aircraft operations per week. The facility has a 4,100' long by 75' wide concrete runway, and is centrally located in the County. There are currently 12 aircraft based at the Centerville Municipal Airport. Increased operations at the airport could provide a source of local revenues from fuel sales and increased opportunities for tourism income. There are currently about 4,500 operations (arrivals or departures) at the airport annually.

From the Airport Layout Plan, last updated in 2000, the pavement condition of the runway and apron is classified as Very Good to Excellent.

The existing runway capacity is approximately 150,000 operations (arrivals or departures), which is more than sufficient for existing and foreseeable demand. However, the runway length has been an issue with the ability to land local, private aircraft for businesses such as Rubbermaid. According to Rubbermaid representatives, the runway needs to be 5,000' long for their insurance to cover their company aircraft to land at the Centerville airport.

> ***Budgetary Needs.*** The Centerville Airport receives about $150,000 annually in federal funds for airport improvements projects. Additionally, the airport generates revenues through fuel sales, landing fees, aircraft storage rental, etc. The operating revenues are sufficient to cover annual operating and maintenance expenses. Major capital improvement projects, such as the runway extension, real-time weather reporting system (AWOS), additional hangars, etc. need to be funded through federal/state discretionary funds, local intergovernmental matching funds, and private sector investment.

**Trails**

Appanoose County has approximately 6 miles of existing pedestrian/bicycle trails. Three miles are located in Sharon Bluffs Park, and three miles are located on Corps of Engineers property surrounding Lake Rathbun. A study was completed in early 2000 that identified desired trail corridors in the seven county region surrounding and including Appanoose County.

The first level of preference from the public involvement process was a trail system around Lake Rathbun and the Rathbun recreation areas.

In general, the secondary corridors included:

- Around Lake Rathbun
- Lake Rathbun, through the City of Rathbun, south to Centerville
- From Seymour (Wayne County) east through Numa to the Sedan Bottoms
- West from Moravia and south to Rathbun Lake
- From Unionville through Stephens State Forest and Lake Wapello State Park

The above second order of public preference corridors represent about 45 – 50 miles of new trail (not counting a circumferential trail around Lake Rathbun).

***Budgetary Needs.*** The existing trails fall under the jurisdictions of Corps of Engineers and Iowa Department of Natural Resources. Therefore, no County funds are currently allocated for existing trail maintenance. New trail construction (10' wide granular surfaced trail) can range from $70,000/mile to $150,000/mile depending on the amount of grading, bridges/drainage structures, etc. Right-of-way and easement acquisition is over and above the initial construction costs. Annual maintenance can be estimated at $1,500/mile to $2,000/mile, which includes:

- Tree/brush clearing
- Mowing
- Map/signage updates
- Trash removal/litter clean-up
- Repair flood damage: silt clean-up, culvert clean-out, etc.
- Patching, minor regrading, or surface repair
- Snow grooming and/or plowing for winter-use trails
- Planting, pruning, and general beautification
- Installation and removal of seasonal signage

From the existing planned improvements, the second order preference corridors are estimated at $5.5 Million initial construction cost, and $100,000 annual maintenance cost for all 50 miles.

**Transit**

The existing public transit service for Appanoose County is the 10-15 bus. This service covers the 10 county area surrounding Wapello County and provides on-demand public transit. **Exhibit 25** is summary data from the 10-15 service showing ridership by month and by service contract.

**Exhibit 25: Ridership by Month**

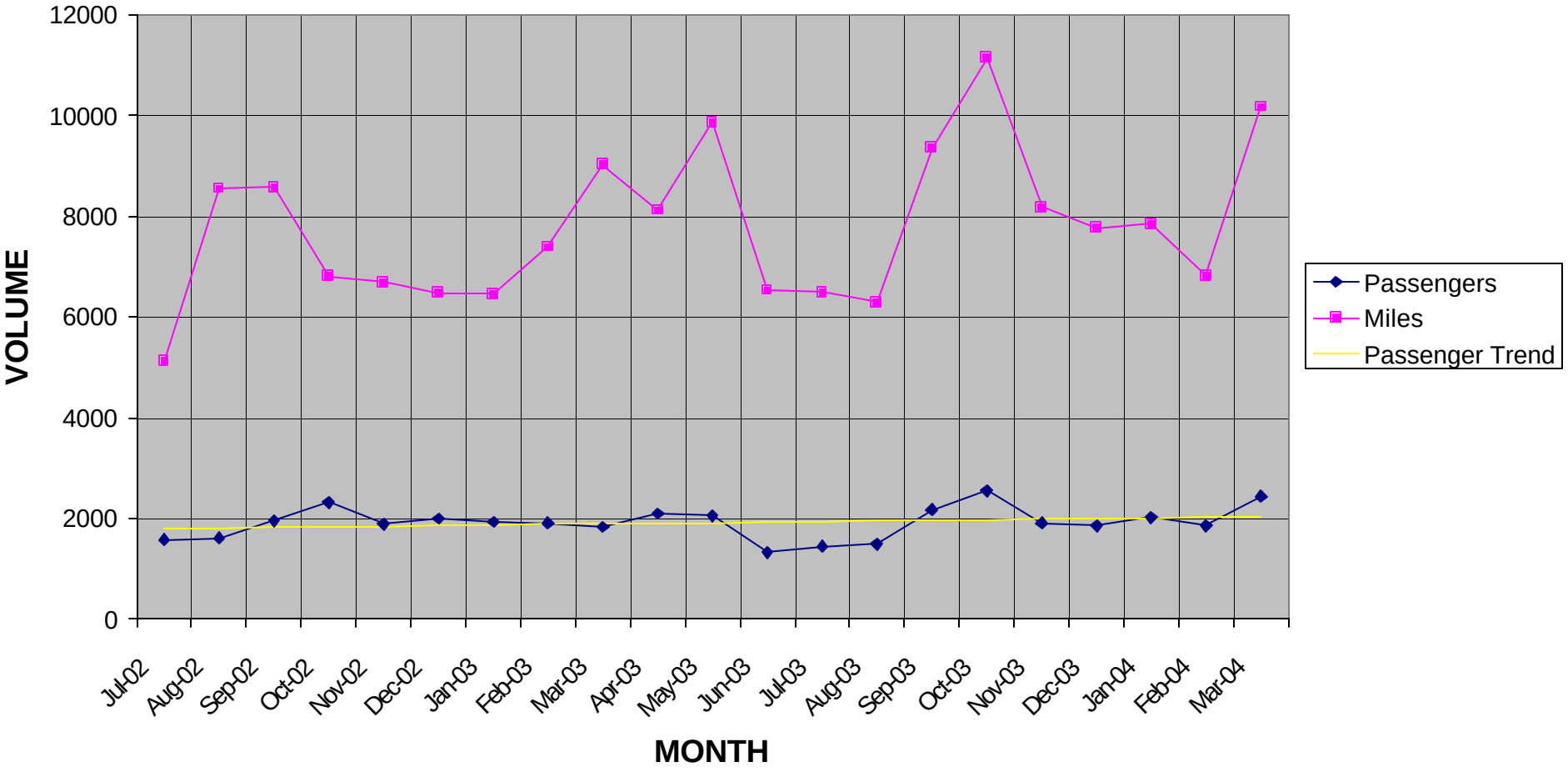
| Month | Passengers | Miles | Hours |
|---|---|---|---|
| Jul-02 | 1,573 | 5,121 | 235 |
| Aug-02 | 1,604 | 8,550 | 350 |
| Sep-02 | 1,947 | 8,572 | 462 |
| Oct-02 | 2,318 | 6,809 | 490 |
| Nov-02 | 1,884 | 6,688 | 387 |
| Dec-02 | 1,994 | 6,473 | 381 |
| Jan-03 | 1,934 | 6,460 | 383 |
| Feb-03 | 1,912 | 7,395 | 391 |
| Mar-03 | 1,830 | 9,029 | 391 |
| Apr-03 | 2,095 | 8,120 | 438 |
| May-03 | 2,050 | 9,858 | 417 |

| Month | Passengers | Miles | Hours |
|---|---|---|---|
| Jun-03 | 1,323 | 6,536 | 300 |
| Jul-03 | 1,445 | 6,491 | 313 |
| Aug-03 | 1,482 | 6,285 | 291 |
| Sep-03 | 2,167 | 9,350 | 411 |
| Oct-03 | 2,547 | 11,141 | 482 |
| Nov-03 | 1,912 | 8,177 | 404 |
| Dec-03 | 1,853 | 7,767 | 413 |
| Jan-04 | 2,015 | 7,846 | 405 |
| Feb-04 | 1,848 | 6,820 | 368 |
| Mar-04 | 2,439 | 10,172 | 510 |
| **Total** | **40,172** | **163,660** | **8,220** |
| Monthly Average | 1,913 | 7,793 | 391 |
| Std. Dev. | 313 | 1,517 | 68 |

Nearly half of the bus usage is through New Focus Shelter Workshop. Approximately 42% of the trips are split equally between Seneca Area Agency on Aging and SEIDA Headstart program. The remaining bus usage is through the local school districts and miscellaneous trips.

**Exhibit 26** shows a trend line plot of bus ridership over a 21 month period ending March, 2004. There does appear to be a slight increase in usage over time.

## EXHIBIT 26: EXISTING BUS USAGE



There are no established regular bus routes in Appanoose County. A van pool with Rubbermaid employees was offered at one time, but due to lack of subscription for the service, the route was never established.

Based on discussions with the public and with the operators of the 10-15 bus service, it appears the existing transit service is adequate for the current demand. However, the 10-15 staff expressed interest in providing additional service as demand increases.

# FUTURE LAND USE ELEMENT

## Overview

Planning is forethought in action. Effective plans guide decision-makers as they weigh competing objectives. The short-term interests of today must be balanced with the long-term considerations for the future. Private benefits must be weighed against public costs and benefits. The Transportation / Land Use Plan is structured as a guide to manage the development of land and to time the provision of public facilities to adequately serve the expanding population. It sets out in one document the basic parameters that must be considered when managing the use of the land. To avoid inefficient sprawl development patterns and to be fiscally responsible, the amount, type and location of development must be coordinated with the efficient extension of public facilities and utilities.

The Future Land Use Element identifies the basis for the goals, policies and implementation strategies presented in the Plan by proposing efficient development patterns that focus growth in activity centers and along key corridors. An activity center is a focal point within the context of a larger, contiguous area surrounding it. It is an area of concentrated activity that attracts people from outside its boundaries for purposes of interaction within that area. Corridors are the paths that connect the activity centers and encourage interaction between different activity centers. Activity centers in one area of the community will differ from activity centers in other areas based on location-specific needs. The Future Land Use Element delineates areas eligible for development to accommodate projected population and employment growth.

Because Appanoose County recognizes the vital role of private development shaping the community's future, the Future Land Use Element also coordinates the orderly provision of public facilities with public and private development activities in a manner that is consistent with the fiscal resources of the County. Public and private investment in public facilities will ensure that public safety, streets, water and wastewater levels of service are established to serve existing and new development, funded by equitable facility financing programs. Land use policies will be implemented through the County's regulations, capital improvements and other partnerships with private investors in Appanoose County.

## Land Use

Appanoose County is in the process of transitioning to geographic information system (GIS) based data and mapping software. Based on data being developed and refined, as shown in **Exhibit 27**, there are almost 290,000 acres of built or buildable land available in the unincorporated areas of the County. However, most of this land is used for agricultural purposes and should be protected from encroachment and premature development patterns.

**Exhibit 27: Buildable County Land (in acres)**

| | |
|---|---|
| County | 330,446 |
| Incorporated Areas | 9,396 |
| Water | 12,859 |
| Parks | 21,064 |
| Buildable Land | 287,127 |

**Future Land Use Planning Challenges**

While it is generally agreed by County residents these distinctions between urban, suburban and rural/agricultural areas should be maintained and encouraged, development in the growth areas must be coordinated with the provision of public facilities and services (roads, water, sewers, public safety, *etc.*) as necessary and required. Detailed plans for public facilities and services must be developed, at appropriate levels of service, which identifies an equitable financing mechanism. Residents are concerned about the long-term impact of growth on agricultural operations, family farms and the overall quality of life for Appanoose County as the population increases and demands for land and public facilities and services change the character of once rural areas.

The Transportation / Land Use Plan projects growth and land use through the year 2025 and serves as a means for guiding public and private decision-making for development and zoning issues. The Plan builds on recent planning efforts to identify key community issues and establishes goals, policies and recommendations of this Plan Element which are essential to address the following challenges facing Appanoose County:

- **The need to prepare for long-term growth.** The relatively low capital costs associated with rural and suburban subdivisions (no sidewalks, curb, gutters, limited fire flow, etc.) create an incentive for low intensity development. Physically, the costs of extending urban facilities through rural areas can be very costly. Politically, residents who feel that they live in a rural environment are likely to protest urban intensity development. The County can help ensure that rural development in Growth Areas is configured to anticipate future development. Suburban cluster development can be used to allow some interim development while protecting large lot development by clustering low density lots [in a suburban subdivision] together, thus preserving open space within the subdivision that to reflect a rural development style.

- **The need to respond effectively to new growth opportunities and challenges.** As the County increases in size (population, employment, built-up areas) and complexity, demands for appropriate responses to problems create additional challenges for a County emerging as a regional influence. The creation of a more stable management structure could enhance the County's ability to respond consistently and professionally to new opportunities and challenges and more effectively build on the successes of recent administrations.

- **The need to ensure land use compatibility.** Residents are concerned that the development of additional commercial and residential uses will negatively impact agricultural operations and degrade the quality of life in their community. Residents recognize the value of developing residential units of various types and price ranges throughout the community and the value of having reasonable access to businesses. However, they want to be certain that new development will not erode their property values or create excess traffic or noise. This Plan Element supports a heterogeneous mix of land uses, but calls for the establishment of appropriate standards to ensure land use and neighborhood compatibility. Residents want to preserve their extensive rural lifestyle throughout the area. They also want the benefits of adequate public safety, street and utility services. This Plan Element represents one step in the community's efforts to balance the pressures from external development approvals with the desire for outward growth.

- **The need to achieve coordinated growth strategies.** Intergovernmental coordination is essential to ensure that the County and cities will be able to provide and maintain adequate public facilities to support anticipated growth and land use compatibility. Through better coordination on growth issues, service providers can determine what levels of growth they can afford to serve and which areas are best suited for urban, suburban and rural development intensities and to avoid a sprawl pattern of development.

- **The need to ensure adequate public facilities for residents and businesses.** The quality of life in the community is directly related to maintaining an acceptable level of these vital services. High capital costs associated with expanding utility systems typically translate into rate increases. This Plan Element recommends strategies to develop acceptable standards for facilities and services. Extension and funding policies should be consistent with growth policies to ensure that the County does not foster undesirable growth patterns. Connection and capacity availability fees should be structured so that infrastructure investment is based on need and financial responsibility.

- **The need to establish equitable funding strategies.** Growth can help stimulate the local economy. However, growth that does not adequately fund construction of new capital facilities creates an ongoing drain on the County's budgets. If growth funds the capital costs for which it is directly responsible, then local taxes and user fees can be set at the more moderate levels required to maintain existing facilities and remedy existing deficiencies. Consequently, the County will need to explore all funding options to pay for future transportation needs generated by new development, which may include a percentage of fair share from new development, tax increment financing, impact fees, facilities benefit assessment and development agreements.

- **The need to improve coordination between service providers.** As the community demands better and more cost-effective services, local governments and utility companies have been forced to search for more efficient ways to provide services. Through better coordination of capital and operations plans, the County, school districts, utilities and

other providers can continue to improve local service efficiencies. This Plan Element identifies several strategies to accomplish this objective.

- **The need to promote development of attainable housing and quality neighborhoods.** As new neighborhoods are developed, the County should ensure that there are adequate public facilities to promote long-term neighborhood quality. The County must ensure that its regulations do not pose obstacles to development. This Plan Element encourages a variety of housing types and densities to provide a full range of housing options, from townhomes to large lot homes. Providing opportunities to reduce housing development costs may include providing development incentives, such as clustering, reduced lot sizes or planned developments should be considered.

- **The need for economic development strategies and incentives to ensure a balanced, vigorous economy.** Through its partnerships with the private sector and the use of alternative financing techniques, Appanoose County can successfully support commercial development at such locations to promote high quality growth. Proposed industrial, commercial and office lands are adequate to meet future demands and provide for market flexibility, which is essential to maintain competitive real estate prices and ensure that property can be assembled in the appropriate size and configuration to serve the needs of end users. Increased County revenue is dependent upon attracting quality business development to the County.

- **The need to protect natural resources and open space.** There is general agreement that Appanoose County has a positive character, based on a sense of community pride and the quality of life residents enjoy. Enhancing community character begins with ensuring land use compatibility between existing and new uses, promoting safe, friendly neighborhoods and communities and providing and encouraging a broad array of facilities and services that offer residents opportunities for healthy, rewarding lifestyles. Public and private investments have created an attractive community that is an asset to the region and a valuable economic development tool. To maintain this asset, the community needs to retain high aesthetic standards. adequate levels of service and ensure that commercial development does not threaten residential areas. Increased attention to the design of public streetscape, private landscape and signs can enhance the community's appeal to business visitors and tourists, and helps foster community pride for residents.

The long term health of this area depends on maintaining a safe and attractive environment for residents and visitors. Planning for growth will enable the County to ensure that new development is adequately served, is consistent with local development standards and is compatible with existing and planned development.

**Future Land Uses**

Appanoose County is a unique community with an agricultural/rural character changing to include lake-centered development and recreation activities. This unique environmental amenity may continue to be celebrated with future growth by employing new zoning districts and modifying the existing districts to ensure the County continues to be a unique and special community. New land use classifications have

been created to provide the County with the necessary regulatory tools to foster land use compatibility and create an improved sense of *place* through the establishment of development regulations and design and performance standards. The land use classifications provide a framework intended to ensure a unique community identity, mitigate potential land use conflicts and provide the tools for balancing land uses and to plan future land uses in a conceptual manner through the identification of various districts and lot sizes, based on existing zoning and land use patterns.

***Agriculture (AG).*** Private lands with homes on approximately 30 acres or more. Typical uses would consist of farms, orchards, pastures, ranches, other commercial agriculture operations or open areas. Agricultural parcels will not receive urban level services. This category may include industrial farms or livestock feedlots. Public or private lands reserved for open space, wildlife habitat, sensitive or hazardous land protection, and other environmental conservation purposes. Mining and sand/gravel operations may be permitted as a temporary use. Home-based businesses, which are similar to, but more intensive than, a home occupation, may be permitted subject to specific standards, conditions and criteria.

***Rural Residential (RUR).*** For residents who enjoy a rural lifestyle. Designed to retain a rural character rather than to support new urban development. Most of the land developed in this district would be used for rural residential, agricultural or agricultural-related purposes. Private land will remain in parcels of 5 to 35 acres. The uses will vary among residential lots, low intensity agricultural operations, orchards and other small scale operations. The bulk of these parcels will receive no urban level services, though rural water supplies may be available. Clustered or attached single family units may be developed in future urban areas through the planned development process. Typical "estate" or "ranchette" style single family homes on large lots at least 5 acres will be permitted. Centralized services might be needed depending on site conditions and proximity to existing services. Zoning will regulate the intensity of agricultural operations permitted on Estate parcels. Home-based businesses, which are similar to, but more intensive than, a home occupation, may be permitted subject to specific standards, conditions and criteria.

***Low Density Residential (LDR).*** Primarily single-family detached residential development with home occupations, schools, churches and other non-profit organizations. Lots ranging from ½ to 5 acres. These homes are generally served by a public water and wastewater systems. Clustered homes and attached single family units may be permitted in planned developments.

***Medium Density Residential (MDR).*** Area composed of moderate-density residential development serving as a transition between commercial and low-density residential land uses. A mix of residential development types with gross densities of 5 or less dwelling units per acre are anticipated in areas with this designation. Single family development will be integrated with other dwelling types, including duplexes, and low intensity attached residential development. Some low intensity multi-family development may be permitted through the planned development process where compatibility with adjacent development can be assured. Duplexes, manufactured home subdivisions and low intensity attached residential development will be integrated with townhomes, and low intensity multi-family development. Larger multi-family developments and/or small neighborhood retail/service centers may be permitted through the

planned development process where compatibility with adjacent development can be assured. Mixed use residential and commercial development may occur adjacent to NC, RC and IND areas. Alternative residential development types, including single family attached, townhomes, and multi-family units may be permitted in these areas through the planned development process, where compatibility with adjacent development can be assured.

***High Density Residential (HDR).*** Consists of high-density residential structures and mixed use structures with commercial and service establishments on the lower floors. HDR areas shall be located adjacent to Neighborhood Commercial and Regional Commercial centers. All types of residential development may be permitted in these areas provided that gross densities are at least 5 and no more than 10 dwelling units per acre. Higher density residential and neighborhood retail/service center development may be permitted, up to 24 dwelling units per acre, through the planned development process where compatibility with adjacent development can be assured and adequate community-wide amenities or other benefits are provided consistent with zoning standards.

***Office / Institutional (OI).*** Provides for office and professional services. If adjacent to residential uses, then to be designed in scale and integrated with those uses. Land allocated to OI uses shall have access to a thoroughfare. Includes offices (general, medical, *etc.*), public and quasi-public uses, such as schools, government facilities, cemeteries, hospitals and churches. Prior to conversion of these areas to private, non-institutional uses, a land use amendment will be required pursuant to the process established in the development code. These uses may be permitted in other categories if developed consistently with zoning regulations and compatibly with adjacent development.

***Neighborhood Commercial (NC).*** Provides small areas for limited commercial uses (*e.g.*, office, retail, service, lodging, entertainment) with no outdoor storage or operations and designed in scale with surrounding residential uses. Land allocated to NC uses shall have adequate access to a thoroughfare and be integrated with the adjacent residential uses. Mixed commercial and residential developments will be encouraged in some areas.

***Regional Commercial (RC).*** Intended for services, large-scale retail and wholesaling activities that serve the entire community and the region. RC areas should have access to a paved major thoroughfare. Heavy Commercial, offices and light industrial uses with outdoor storage, but no outdoor operations other than sales (*e.g.*, office/warehouse uses, auto sales, auto repair shops, lumber yards, light manufacturing). Some yard operations may be permitted through the planned development process where adequate screening and buffering can be provided to ensure compatibility with existing and planned development in the vicinity of the proposed use. Residential uses are not appropriate in RC areas.

***Industrial (IND).*** Provides sites for light industrial activities adjacent to commercial districts and major thoroughfares. IND areas will fulfill economic development strategies by providing opportunities for base employment activities. Heavy commercial and industrial operations are predominant in industrial areas. Batch plants and manufacturing uses with outdoor operations

are appropriate if developed consistently with zoning regulations. Residential uses are not appropriate in IND areas.

Future land use need is based on population and employment growth projections, and is shown in **Exhibit 28**. Adjustments were made to future land use demand, based on Urban Land Institute (ULI) and Center for Urban Policy Research (CUPR) recommendations, to account for the following:

- Suburban and urban residential densities included a 25% reduction in total available acreage to allow for internal streets and open space;
- The amount of available residential land was increased by 150% to provide a reasonable amount of excess development capacity, which improves design and development flexibility and opportunities;
- The amount of available commercial land was increased by 150% to provide a reasonable amount of excess development capacity, which improves design and development flexibility and opportunities; and
- The amount of available industrial land was increased by 200% to provide a reasonable amount of excess development capacity, which improves design and development flexibility and opportunities.

**Exhibit 28: Future Land Use Demand**

| Future Land Use | | Projected Need (DUs) | Minimum Area Needed (acres) | Adjusted Area Needed (acres) | Percent of Total DUs | Percent of Total Land Area |
|---|---|---|---|---|---|---|
| **Residential** | | | | | | |
| Rural Residential | RR | 54 | 268.6 | 402.9 | 7.9% | 53.1% |
| Low Density Residential | LDR | 304 | 174.7 | 262.0 | 44.9% | 34.5% |
| Medium Density Residential | MDR | 184 | 45.0 | 67.5 | 27.2% | 8.9% |
| High Density Residential | HDR | 136 | 17.5 | 26.3 | 20.0% | 3.5% |
| Total | | 678 | 505.8 | 758.7 | | |

| Future Land Use | | Projected Need (DUs) | Minimum Area Needed (acres) | Adjusted Area Needed (acres) | Percent of Total DUs | Percent of Total Land Area |
|---|---|---|---|---|---|---|
| **Non-Residential** | | | | | | |
| Office / Institutional | OI | 68,953 | 7.9 | 11.9 | 19.4% | 22.7% |
| Neighborhood Commercial | NC | 64,227 | 7.4 | 11.1 | 18.0% | 21.2% |
| Regional Commercial | RC | 64,227 | 7.4 | 11.1 | 18.0% | 21.2% |
| Industrial | IND | 158,874 | 12.2 | 24.3 | 44.6% | 34.9% |
| Total | | 356,282 | 34.8 | 58.3 | | |

**Alternative Growth Scenarios**

As Appanoose County develops and implements a coordinated set of growth strategies, the community faces many choices regarding the character, intensity and location of new growth. By exploring the implications of alternative growth patterns, the County can chart a course of actions and policies that best achieve the community's preferred growth scenario. Through the alternatives analysis process, the Advisory Committee, County staff and general public debated the merits of land use pattern alternatives and formulated a consensus-based future land use plan. The future land use plan serves as the foundation for Plan goals, objectives, policies and ultimately the implementation actions necessary to bring the land use plan to fruition.

Building on the information presented at the community workshops, this alternatives analysis assesses the impact four future land use patterns would have on community growth, agriculture, local economics, public facilities and services and the area's natural environment. Initially, the community considered and reviewed four conceptual land use allocation models *(Existing Trends*, *Centers*, *Corridors1* (development limited to key corridors) and *Corridors2* (development permitted along any paved roadway but not in agricultural areas)). The allocation models were revised, based on community input, to reflect four Growth Alternatives:

- **Alternative 1 - Recreation Corridors**
- **Alternative 2 - Lake-Centered Development**
- **Alternative 3 - Regional Corridor (North-South)**
- **Alternative 4 - Community Centers**

identified. Each alternative shares some common characteristics due to the existing land use pattern of the County. However, each also represents a distinct future growth pattern, with varying influences on the community. Plan alternatives were designed with four objectives in mind:

- The alternatives should reflect a clear understanding of the existing conditions within Appanoose County. The process should evaluate land use and fiscal impacts over a 20-year planning period.

- The alternatives should propose growth trends and development patterns that reflect realistic possibilities for the County, recognizing Appanoose County's regional context. They should reflect a range of distinct, but possible futures.

- The alternatives should describe future land uses with enough detail to permit detailed quantitative and qualitative analysis. They should provide a means of comparing relative fiscal, land use and character outcomes.

- The alternatives should pose district land use policy options, which reflect the goals and objectives of distinct constituencies within the County. They are unlikely to reflect the preferred outcome; the preferred scenario may include characteristics of each alternative.

The Advisory Committee formulated a preferred land use scenario, with public input, which incorporated different aspects of the growth alternatives. The preferred scenario was presented for public comment and examined by County staff. Based on feedback, the Advisory Committee modified the preferred land use scenario, which has been presented as the future land use plan. This process of continual refinements allows for the building of community consensus and ensures that stakeholder concerns are addressed in an appropriate manner. The alternatives analysis process employed in this study consists of several clearly defined steps.

***Step 1 - Definition of the Planning Area.*** The initial step in conducting an alternatives analysis is to define the boundary of the planning area in which the alternatives are going to be applied. In addition to delineating a geographic study area, demographic, land use, economic, infrastructure and environmental information must be collected to quantify variables related to the impact of new development. For this analysis, the planning area boundaries are coterminous with the County's extraterritorial jurisdiction boundary, as of the date of this document.

***Step 2 - Significant Community Features***

Within the planning area there are a number of key community nodes and significant sites, which tend to dictate land use patterns, private investment, public investment and community identity. Within the context of this analysis, "nodes" are also referred to as activity centers and are represented by incorporated areas, unincorporated places and the intersection of thoroughfares and freeways. These path convergences are created by public investment in road infrastructure, which is typically the first sign of imminent conversion of land to urban uses. At nodes access to land is the most convenient, which contributes to speculative land prices that makes the "highest and best use" of land shift to more intensive urban uses. The availability of water, sewer and other necessary services accelerates land conversion adjacent to transportation nodes. When

establishing growth alternatives, the most intensive land uses should be clustered around nodes. However, the degree of land use intensity will vary between alternatives.

***Step 3 - Application of Land Uses***

Once the planning area is defined and significant community features (nodes and sites) are identified, land use categories can be assigned to areas in accordance with the community development philosophy of the alternative. General land use categories include residential, commercial, industrial and open space. These general categories are further divided into specific intensity and design subcategories in order to replicate the intricate variations of development patterns. The land use categories in this analysis mirror the County's existing zoning districts.

***Step 4 - Build-Out Scenario***

Community development is influenced by a large number of social, economic and physical factors. Many of these factors are beyond the purview of local government while others may be influenced directly or indirectly by Appanoose County's actions. In order to evaluate the alternative growth scenarios, it is essential to examine the residential, commercial and industrial development potential according to the alternative's land use pattern. A fundamental tool for assessing the alternatives ability to accommodate future growth is the development of a "build-out" analysis. The build-out scenario developed in this analysis uses vacant land and the land use categories within the planning area to determine the development capacity allowed under each growth alternative. Comparing the amount of development potential allowed in each alternative provides insight into the scenario's likely population, housing stock, commercial and industrial space and land use mix. Since it would be too cumbersome to evaluate each factor within the build-out scenario, the following assumptions are made concerning selected variables relevant to the scope of this analysis.

- Land will be developed to its full potential under the land use categories;
- No expansion of municipal boundaries will occur during the next 20 years;
- Zoning, subdivision and related codes will be adopted and amended to fully implement the respective alternative;
- Infrastructure and service improvements will be completed to fully implement the respective alternative;
- No significant changes in technology will modify the impacts of development;
- Existing patterns of demand for public infrastructure will remain constant; and
- Platted parcels have existing right-of-way for access.

***Step 5 - Impact on Review Factors***

The build-out analysis provides insight into the alternative impacts on a number of community factors. Some review factor impacts are quantifiable (*i.e.*, water service demand, employment

opportunities, etc…) and some are descriptive based on urban planning research (*i.e.*, community character, congestion, etc…). Impacts on review factors are summarized in order to provide the Advisory Committee, public officials and the public a basis for comparing the effects of each alternative. Through discussion of these comparisons the Advisory Committee will create a preferred alternative, which will be illustrated in the future land use plan.

**Analyzing Alternatives**

The alternative analysis process included an examination of the vacant land available for development because the identification of vacant land for future land uses allows for the analysis of growth projections. The alternatives are described, and shown in their respective maps, as:

**Alternative 1 - Recreation Corridors** presents a growth scenario that is focused on the full spectrum of recreational options available in Appanoose County. This alternative focuses primary growth areas around Rathbun Lake, Moravia, Sundown Lake, Unionville, Centerville, and Exline and along Highway 5 linking Moravia and Centerville and the County road linking Moravia and Unionville. Secondary growth areas focus on the towns of Rathbun and Plano and along major County roads, including Highway 2, Highway 5 south from Centerville, Highway 202, and the County roads extending northeast, east, and south from Unionville. This scenario identifies the remaining areas of the County as agricultural preservation areas.

**Alternative 2 - Lake-Centered Development** presents a growth scenario that is focused on the lakes in the northern half of the county. Primary growth areas center on Rathbun and Sundown Lake with additional primary growth areas along J18/S70 south from Rathbun Lake to Plano, east along Highway 2 to Centerville, and north along Highway 5 to the town of Rathbun. Secondary growth areas include the remainder of Highway 2 west of Plano and east of Centerville, Highway 5 north of Rathbun and south of Centerville, Highway 202 through Moulton, and County Roads T61 and J3T emanating from Unionville. This scenario identifies the remaining areas of the County as agricultural preservation areas.

**Alternative 3 - Regional Corridor (North-South)** focuses growth in a north-south spine through the County. The primary growth areas include both Rathbun and Sundown Lake with all other primary growth areas located along Highway 5 from Moravia south through Centerville to Exline. Secondary growth areas include the other major routes through the County: Highway 2, Highway 202 through Moulton, Highway 5 south from Exline, and County Roads T61 and J3T emanating from Unionville. This scenario identifies the remaining areas of the County as agricultural preservation areas.

**Alternative 4 - Community Centers** is a community centered alternative. The primary growth areas identified in this scenario are focused around the existing communities of Plano, Centerville, Exline, Moravia, and Unionville, and the two lakes, Rathbun and Sundown. The primary growth area surrounding Centerville also extends along Highways 2 and 5 approximately 4 miles in each direction. The secondary growth areas identified in this scenario follow the major routes linking these communities, including Highway 2 from the Centerville area to the eastern and western county lines, Highway 5 from the Centerville area north to Moravia and

south through Cincinnati to the state line, Highway 202 south from Highway 2 through Moulton, and the County roads linking Unionville to Moravia, to Highway 2, and to the County line. This scenario identifies the remaining areas of the County as agricultural preservation areas.

To determine where the growth of residential and non-residential uses were most appropriate and to start to identify a preferred future growth alternative, a group exercise was conducted at a community workshop. Four groups were charged with distributing land uses throughout the County and its environs where they wanted to see future growth. The groups could determine the intensity of land uses as well as the type. Each group started with the same amount of total future development available, but they were not required to allocate all of it. The amount of growth indicated in each group's scenario is different because each group had a different opinion about the placement and the amount of future development. The summary of each group's results includes a general description of their scenario and the uses placed in various areas.

Each group came to a different conclusion about future growth in the area, based on different opinions about current issues and future opportunities. The four alternatives are useful for identifying trends and points of conflict among the groups that will affect the preferred alternative. The following analysis summarizes the level of consensus among Advisory Committee, staff and public participants at the 'Alternatives' workshop, as well as identifying areas where consensus was not reached.

***Group 1.*** The scenario developed by Group 1 centered development around Centerville, with additional major development nodes in Moravia and Cincinnati/Exline. Most of the development in this scenario occurs in the northern half of the County. The limited development placed in the southern half of the county is confined to Cincinnati, Exline and Moulton, with none occurring in rural areas.

The development placed in Centerville included most of the non-residential development for this scenario. All industrial development was focused in Centerville, along with a majority of the office development, nearly all of the regional commercial development, and a majority of the high density residential development. In addition, development in the Centerville area did not include any low density and a very small amount of neighborhood commercial development.

The smaller development nodes in Moravia and Cincinnati/Exline involved a lower intensity of development. These nodes included low, medium and high density residential development. Both regional and neighborhood commercial development was located in Moravia, while office and neighborhood commercial development was placed in Cincinnati and Exline.

Neighborhood commercial development also was located in Moulton, Unionville, Mystic, and Rathbun. Development around Rathbun Lake was very limited, but included rural and low density residential development and neighborhood commercial. Development occurring outside the existing communities in the northern half of the County was limited to rural and low density residential development.

## Exhibit 29: Group 1 Alternatives

| Land Use Code | |
|---|---|
| AG | Green |
| LD | Yellow |
| MD | Orange |
| HD | Brown |
| NC | Pink |
| RC | Red |
| OI | Blue |
| IND | Purple |

***Group 2.*** The scenario developed by Group 2 featured a much more dispersed development pattern. Most development was focused along Route 5, Rathbun Lake and Sundown Lake. Rural residential development was dispersed throughout the County, with significant development around Moulton and Livingston in the southern half of the County.

In this scenario, non-residential development was not located in any one location, but was scattered throughout the country. Industrial development was located in Unionville, Moulton, Cincinnati, near Livingston, and on Route 2 west of Centerville. Likewise, regional commercial development was located on the outskirts of Centerville and around Moravia and the County line near Rathbun Lake. Neighborhood commercial development was located around Livingston, near Exline, in Mystic, Unionville, Moravia, and near Rathbun Lake along the County line. Office development was dispersed in Centerville, Moulton, and Moravia.

Residential development was scattered throughout the County. Rural residential development was dispersed throughout the rural areas of the County. Low and medium density residential were located along Route 5 through Centerville and Cincinnati. Low and high density residential was located in Moulton, low and medium density residential was located around the Sundown Lake near Unionville, and low, medium, and high density residential were all located around Rathbun Lake.

This scenario concentrates development around Rathbun Lake on the north side of the lake. Only a limited amount of low density residential was located on the south side of the lake.

**Exhibit 30: Group 2 Alternatives**

| Land Use Code | |
|---|---|
| AG | Green |
| LD | Yellow |
| MD | Orange |
| HD | Brown |
| NC | Pink |
| RC | Red |
| OI | Blue |
| IND | Purple |

***Group 3.*** The scenario created by Group 3 involved much less development than any of the other groups. Development was focused on Centerville, with mainly non-residential development, and on the Rathbun Lake/County line. Limited residential and commercial development was located in the existing towns in the County. Development in rural areas was limited to areas between Route 2 and Rathbun Lake.

Development placed in Centerville included all of the industrial development for this scenario, all of the office development, and all of the high density residential development. Medium density residential development was located to the north of Centerville and near the County line, between Rathbun Lake and Moravia. Regional commercial development was divided between Rathbun Lake and Centerville.

Uses located in other areas of the County were very limited and confined to low density residential and neighborhood commercial development. Outside of the northwestern quadrant of the County, no development was located in the rural areas of the County. This scenario also

concentrated development on the north side of Rathbun Lake, with no development along the southern shoreline.

**Exhibit 31: Group 3 Alternatives**

| Land Use Code | |
|---|---|
| AG | Green |
| LD | Yellow |
| MD | Orange |
| HD | Brown |
| NC | Pink |
| RC | Red |
| OI | Blue |
| IND | Purple |

***Group 4.*** The scenario developed by Group 4 featured a very dispersed development pattern. Development was primarily located in and around Centerville and Rathbun Lake. This scenario featured the most development around Rathbun Lake. While other scenarios concentrated development on the north side of the Lake, this scenario located more intense development on all sides of the lake. In addition, rural residential was located throughout the rural areas of the County.

Development around Centerville included all the high density residential development in this scenario, a majority of all industrial development and half of the County's office development. A limited amount of low density residential and regional commercial also was located in Centerville.

The other node for non-residential development was Moravia, with the remainder of all industrial development as well as office and regional commercial. Rathbun Lake was a focus for low and medium density residential and neighborhood and regional commercial development.

Neighborhood commercial and low density residential development also was located in Plano and Exline. A small node of development was located in Mystic, including office, neighborhood and regional commercial development.

**Exhibit 32: Group 4 Alternatives**

| Land Use Code | |
|---|---|
| AG | Green |
| LD | Yellow |
| MD | Orange |
| HD | Brown |
| NC | Pink |
| RC | Red |
| OI | Blue |
| IND | Purple |

## Growth Tiers

Growth tiers help to focus development, infill, and redevelopment where it is appropriate. Tiers are based on the existing levels of service for public facilities and services by identifying the availability of facilities and services and projecting the County's ability to efficiently provide additional facilities and services to support development. A key and critical component of applying growth tiers to future land use alternatives is to include a temporal element to the analysis, which provides guidance regarding the timing and availability of public facilities and services. Four types of growth tiers are identified for the planning area, and which are summarized in **Exhibit 33**.

## Reaching a Preferred Alternative

The Advisory Committee carefully weighed the impacts of each of the growth alternatives and the growth tiers. Both a preferred growth alternative and preferred growth tier were selected simultaneously. The Preferred Growth Alternative was developed and based on community and Advisory Committee input. The Preferred Growth Alternative integrated key factors of all four growth alternatives and also considered alternative growth tier configurations. There are three maps that define Appanoose County's Preferred Growth Alternative, identified and described as:

- **Preferred Growth Tiers Map** (Exhibit 34)
- **Development Concepts Map** (Exhibit 35)
- **Future Land Use Map** (Exhibit 36)

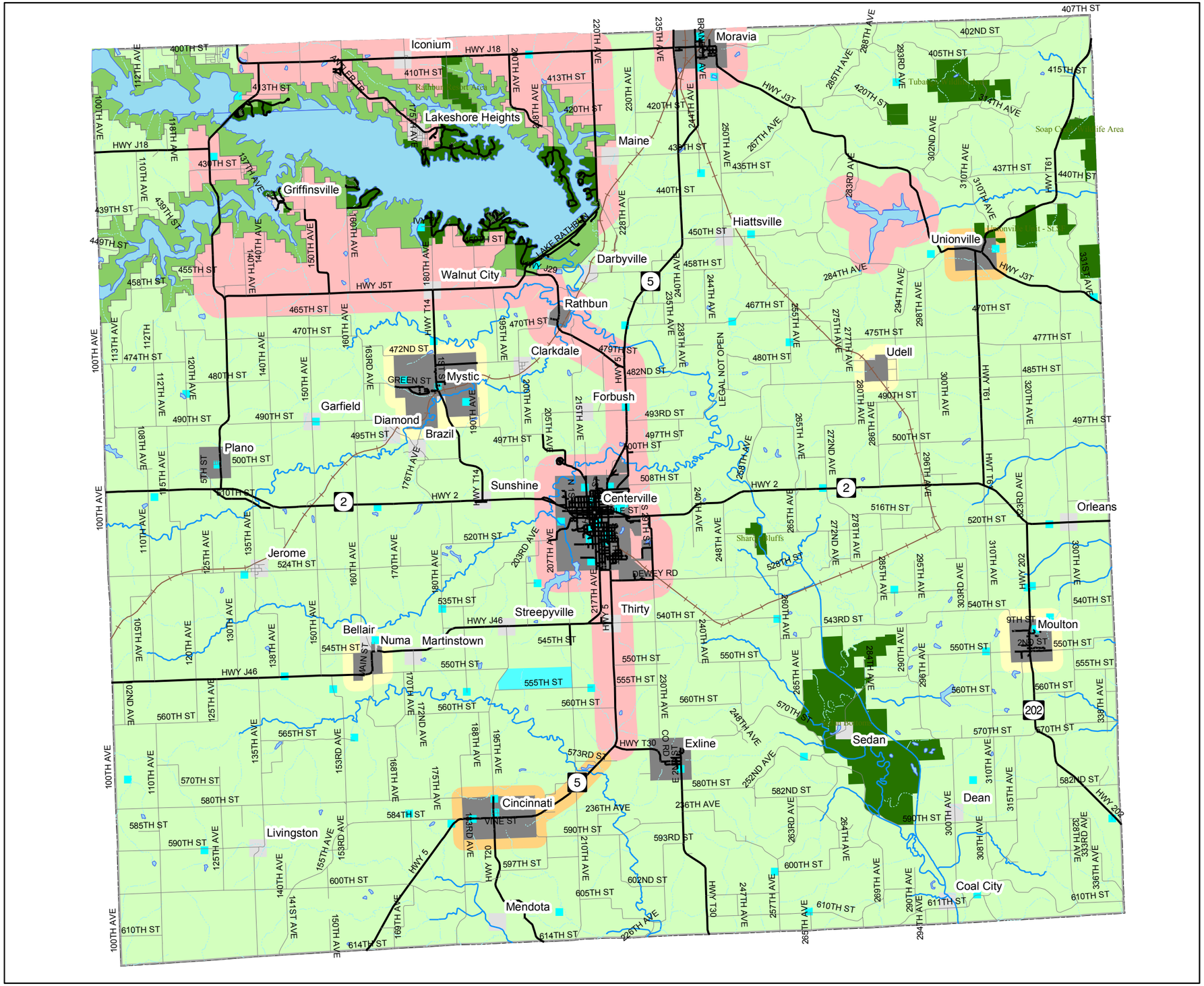
The **Preferred Growth Tiers Map** combines elements of each of the alternative growth tiers that were considered, and establishes how development and infrastructure investment should be timed and coordinated. As with all four growth alternatives, the Preferred Growth Tiers identify both Rathbun Lake and Sundown Lake as *Primary Growth Areas*, which also surround the towns of Plano and Moravia and extend south from Rathbun Lake to include the towns of Rathbun, Centerville, and Exline and Highway 5 connecting them. The Preferred Growth Tiers also identify two *Secondary Growth Areas*, surrounding Unionville and Cincinnati and Highway 5 to the north of Cincinnati. In addition, the Preferred Growth Tiers designates *Future Growth Coordination Areas* around the towns of Moulton, Udell, Mystic and Numa. All other areas in the County are *Rural/Agricultural Preservation Area*.

## Exhibit 33: Growth Areas

| Growth Area | Intent | Residential Development | Non-residential Development | Service Provision |
|---|---|---|---|---|
| **Primary Growth Area** | Provide for more intense, urban development in cities, key corridors and urbanizing areas | Density in developed areas is 5 DU/A or greater; density in developing areas is 2 DU/A. | All non-residential land uses may develop here, if they are in appropriate locations and have adequate services. Commercial retail, hospitality and highway services uses located within ½-mile of the intersection of a state highway and a paved roadway. Industrial, light manufacturing and wholesale services, where compatible with surrounding land uses and infrastructure. | Full urban services are required, including connection to centralized water and wastewater systems. Roads are built to urban standards. Required public services and improvements are currently available. |
| **Secondary Growth Area** | Provide for larger lot, suburban development in growing parts of County's incorporated and unincorporated areas if facilities and services are available. | Minimum density in developing areas is 2 DU/A. Cluster and planned development is encouraged. Residential densities generally reflect continuation of historic development patterns. Large lot single-family residences with access to adequate water and road improvements. Sub-urban or urban residential densities may be allowed through the planned development process if all improvements are provided as required. | Small neighborhood commercial uses serve local needs. Low intensity non-residential land uses may develop here, if they are in appropriate locations and have adequate services. Commercial retail, hospitality and highway services uses located within ½-mile of the intersection of a state highway and a paved roadway. Non-residential uses should locate in community centers or outlying industrial parks where services are adequate. | Connection to centralized water system is required. Connection to centralized wastewater system may be required. Roads built to urban standards under specified conditions. Required public services and improvements to be provided within planning period. |

| Growth Area | Intent | Residential Development | Non-residential Development | Service Provision |
|---|---|---|---|---|
| **Future Growth Coordination Area** | Provide for continuing growth of the smaller cities and towns as distinct communities, but dependent upon communities working with the County to establish public facility and service standards and financing. | Minimum density in developing areas is 2 DU/A. Cluster and planned development is encouraged, but dependent upon provision of facilities and services. Large lot single-family residences with access to adequate water and road improvements. Residential densities generally reflect continuation of historic development patterns. | Small neighborhood commercial uses serve local needs. Rural employment centers may be planned in the future. Limited commercial uses serving the needs of rural residents. Located only within ¼-mile of the intersection of two paved roads. Uses include small retail, agricultural support operations and neighborhood services. Non-residential uses should locate in community centers or outlying industrial parks where services are adequate. | Limited water service may be provided; no wastewater services provided. Urban services generally required for non-residential development. All roads built to County's rural standards. Levels of services depend on the community's character. Required public services and improvements not planned to be provided within planning period, but can be subject to adequate planning and financing. |
| **Rural/ Agricultural Preservation Area** | Maintain the opportunity for agricultural activities and a rural lifestyle. | Provide appropriate protection from environmental hazards; protect sensitive open spaces; provide major parks; emphasize other environmental features. Uses are limited as appropriate to address particular environmental issues. Identifies farm and range land to be protected from encroachment of non-farm development and conversion to urban uses. Non-farm development is strongly discouraged. Non-residential uses should locate in community centers or outlying industrial parks where services are adequate. | | Limited services are required, as appropriate for approved uses |

# Exhibit 34: Preferred Growth Tiers




## Legend

- Unpaved Roads
- Paved Roads
- Railways
- Intermittent stream
- Perennial stream or river
- Water
- Parks (DNR)
- USACE Land
- Public/Semi-Public
- Incorporated Area
- Unincorporated Place
- Primary Growth Area
- Secondary Growth Area
- Future Growth Coordination Area
- Agricultural/Rural

0 0.5 1 2 3 4

Miles

PLANNING WORKS



1 inch equals 2.4 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Prefered Growth Tiers.mxd)
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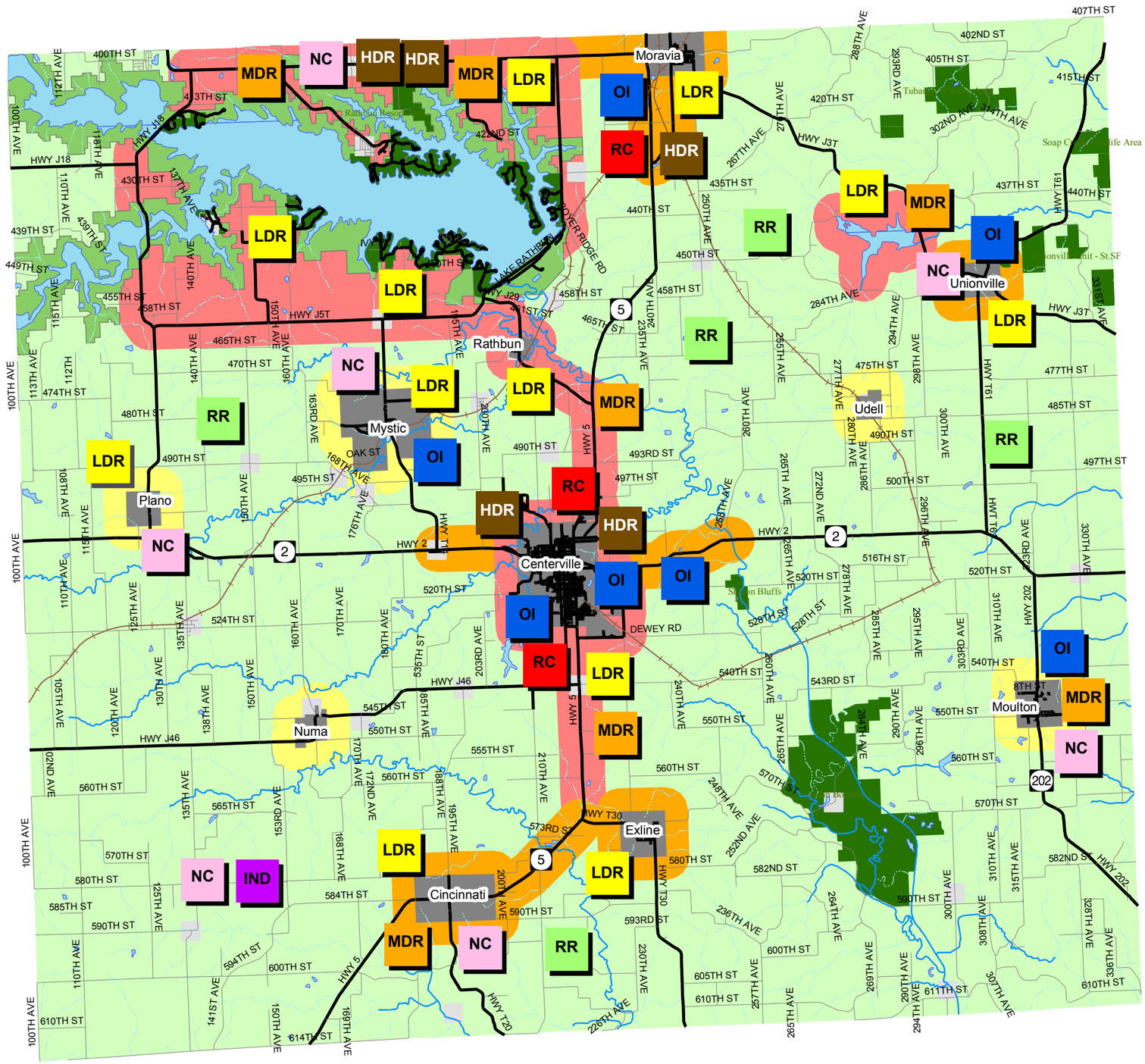
# Exhibit 35: Development Concept Map




## Legend

- Railways
- Unpaved Roads
- Paved Roads
- Unincorporated Place
- Incorporated Area

**Growth Areas**

- Primary Growth Area
- Secondary Growth Area
- Future Growth Coordination Area
- Agricultural Preservation Area

**Future Land Use Categories**

- RR — Rural Residential
- LDR — Low Density Residential
- MDR — Medium Density Residential
- HDR — High Density Residential
- OI — Office / Institutional
- NC — Neighborhood Commercial
- RC — Regional Commercial
- IND — Industrial

0 0.5 1 2 3 4
Miles

PLANNING WORKS

Please use this map as a guide and not as definitive information. The areas depicted by this map are approximate and are provided for illustrative purposes only. While every effort has been made to ensure the accuracy, completeness, correctness, and timeliness of information presented within this map, the burden for determining appropriateness for use rests solely with the user. This map is provided "as is" with no waranties, express or implied.

1 inch equals 2.5 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Future Development Concept Map2.mxd)
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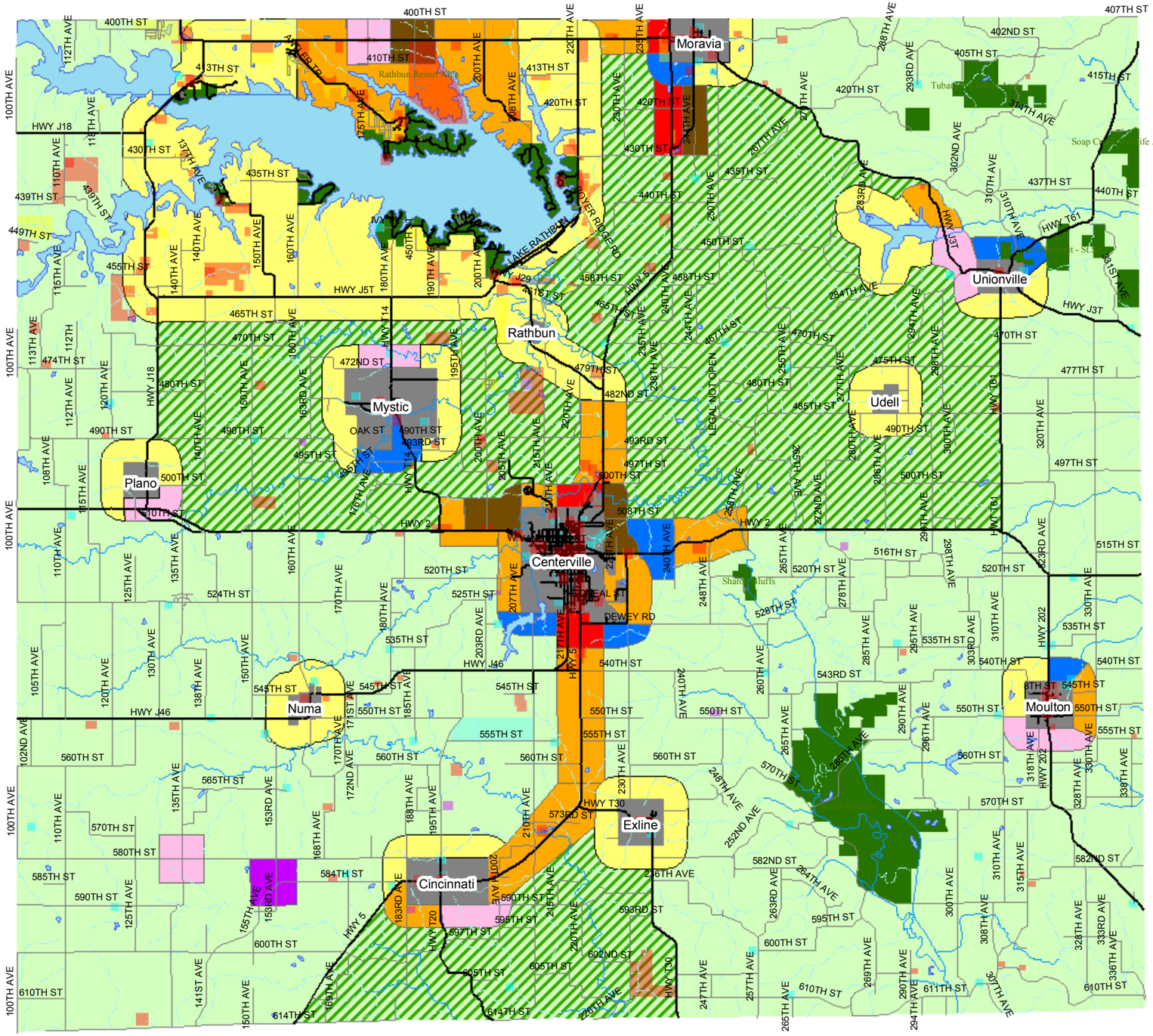
# Exhibit 36: Future Land Use Map




## Legend

- Unpaved Roads
- Paved Roads
- Intermittent stream
- Perennial stream or river
- Incorporated Area
- Rural Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential
- Office Institutional
- Neighborhood Commercial
- Regional Commercial
- Industrial
- Agricultural/Rural

0 0.5 1 2 3 4
Miles

PLANNING WORKS

Please use this map as a guide and not as definitive information. The areas depicted by this map are approximate and are provided for illustrative purposes only. While every effort has been made to ensure the accuracy, completeness, correctness, and timeliness of information presented within this map, the burden for determining appropriateness for use rests solely with the user. This map is provided "as is" with no waranties, express or implied.

1 inch equals 2.5 miles

Map Document: (C:\Clients\ArcMap Projects\Appanoose Co, IA\Resized\Future Land Use 2.mxd)
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The allocation of land among the growth tiers is shown in **Exhibit 37**, which shows that approximately 15% of the unincorporated areas is located within a growth tier. The remaining 85% of unincorporated County lands would be located within agricultural areas, most of which should be preserved from urban and suburban encroachment and premature and incompatible development patterns.

**Exhibit 37: Growth Tiers Land Allocation**

| | |
|---|---|
| Primary Growth Area | 31,997 |
| Secondary Growth Areas | 11,671 |
| Future Growth Coordination Areas | 8,780 |
| Total | 52,448 |

The **Development Concepts Map** shows the placement of "tiles" representing different land uses relative to the preferred development alternative, similar to the process used during the alternatives analysis workshop. The tiles are located on the map as arranged by community workshops and staff input. Tiles representing low density residential, medium density residential, high density residential, and neighborhood commercial were placed on the north side of Rathbun Lake, while only low density residential was placed on the south side of the lake. Tiles for low and high density residential, office and institutional, and regional commercial uses surround Centerville, with medium density residential along Highway 5 to both the north and south. Low density residential was placed near the town of Rathbun and low and medium density residential uses were placed around Sundown Lake. Moravia's growth area includes low and high density residential, regional commercial, and office and institutional uses.

The secondary growth area around Unionville includes low density residential, neighborhood commercial, and office and institutional uses. The secondary growth areas around Cincinnati and Exline include low, medium, and high density residential as well as neighborhood commercial and office and institutional uses. Low density residential and neighborhood commercial uses were placed in Plano. Low density residential, neighborhood commercial, and office and institutional uses were placed in Mystic. The coordination area surrounding Moulton includes medium density residential, neighborhood commercial, and office and institutional uses.

The **Future Land Use Map** converts the ideas of the development concepts map to show future land uses that are appropriate for various areas of the County. The land uses are shown in a conceptual way, not tied to specific properties (*i.e.*, the map is not parcel-specific).

- Agricultural/rural land uses remain a predominate use in the County, with rural residential uses focused in the central area of the County north of Highway 2 and south of Cincinnati and Exline between Highway 5 and Highway T30.

- Low density residential uses are clustered around Plano, Mystic, Numa, Cincinnati, Exline, Rathbun, Moravia, Udell, Unionville, and Moulton and around Rathbun and Sundown Lakes.

- Medium density residential uses are located on the north side of Rathbun Lake, around Centerville and adjacent portions of Highway 5, and in Cincinnati, Moulton, and at Sundown Lake.

- High density residential uses are located on the north side of Rathbun Lake and around Moravia, Centerville, and Cincinnati.

- Office and institutional uses are located around Mystic, Centerville, Unionville, Moulton, Moravia, and along Highway 5 near Cincinnati.

- Neighborhood commercial uses are located on the north side of Rathbun Lake and around Plano, Mystic, Cincinnati, and Moulton and between Sundown Lake and Unionville.

- Regional commercial uses are located in Moravia and Centerville.

- The future land use map identifies only one area for industrial development outside of the Centerville Industrial Park, west of Cincinnati.

The allocation of future land uses is shown in **Exhibit 38**, and provides an ample amount of land area to accommodate future land use demand. The Rural Residential land use category is presented as a distinct calculation because it includes large areas of prime agricultural lands which can accommodate large lot residential development that would be compatible with agricultural operations.

**Exhibit 38: Future Land Use Allocation (in acres)**

| | |
|---|---|
| Low Density Residential | 29,169 |
| Medium Density Residential | 12,296 |
| High Density Residential | 1,977 |
| Office Institutional | 2,612 |
| Neighborhood Commercial | 3,802 |
| Regional Commercial | 1,540 |
| Industrial | 629 |
| Total | 52,026 |
| | |
| Rural Residential | 69,949 |

# TRANSPORTATION ELEMENT

**Overview**
The transportation element consists of:

- Determination of future transportation system demand;
- Identification of future infrastructure needs based on the future demand;
- Estimate budgetary needs for infrastructure improvements;
- Prioritization of investment alternatives to be used for the implementation program;
- Identification of available revenue streams.

This process was used to varying degrees on each of the major transportation modes: Roadways, Bridges, Railroads, Aviation, Trails, and Transit.

System demand is estimated based on the future land uses and growth scenario developed in the planning portion of this project. As the various predicted land uses are realized over time, increased demand for transportation services will be generated. This demand is then quantified for each of the transportation modes listed above.

From the estimated future demand, infrastructure improvement projects can be identified and costs associated with those improvements are developed. Because existing revenue streams for each of the transportation modes are finite and limited, the projects must be prioritized in order of importance.

**Future Transportation System Demand**

***Roadways and Bridges.*** Determination of future traffic growth for roadways follows a general four step process:

- Generate future traffic volumes based on expected development.
- Develop the traffic distribution model for the future trips
- Assign the future traffic volumes to the roadway network based on the distribution model.
- Assemble a Future Traffic Volume map.

***Trip Generation.*** Future traffic growth projections for Appanoose County were prepared based on the Preferred Growth Scenario and the Future Land Use Map. The Preferred Growth Scenario provided the general time line of development, and the Future Land Use Map provided the location, type, and density of development. (Estimated trips are based on "Trip Generation, 7th Edition" as published by the Institute of Transportation Engineers.)

**Exhibit 39 (Parts 1 through 4)**, which summarizes land use and estimated vehicle trips by priority growth area (not including Honey Creek Destination Park) and summarizes the future land uses by the priority growth areas identified in the Preferred Growth Scenario. The Future Land Use map provided the densities of each land use type (residential dwelling units or Gross Floor Area of non-residential uses). Average daily vehicle trips were estimated for each general land use type (residential and non-residential) using "Trip Generation, 7th Edition", as published by the Institute for Transportation Engineers.

In transportation modeling, population and employments are used to develop trip productions and attractions. Areas of population (residential areas) produce vehicle commuter trips each day that are attracted to non-residential areas (commercial, office, industrial types of development). The data presented in Exhibit 39 are not exactly the same as population/employment productions and attractions but they are closely related. For purposes of this study, they are treated the same.

Referring to Exhibit 39, it can be seen that the trips associated with the non-residential uses are expected to exceed the trips produced by residential growth within Appanoose County. This result is not inconsistent with existing travel patterns in a rural setting in which an employer can attract employees from adjacent counties. Interviews with Rubbermaid, Indian Hills Community College, Moravia and Centerville School Districts, and other employers in Appanoose County indicate the vast majority of employees come from a 50 mile radius, but as much as 35% - 40% of employees come from outside Appanoose County.

**Exhibit 39, Part 1: Residential Trips**

| RESIDENTIAL (TRIP PRODUCTIONS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Time | Rural Residential* | | Low Dens. Res. | | Med. Dens. Res. | | High Dens. Res. | |
| Priority Growth Area | Horizon | DU's | Trips | DU's | Trips | DU's | Trips | DU's | Trips |
| Primary Growth Area | 0 - 10 Years | 10 | 96 | 175 | 1,675 | 125 | 733 | 100 | 672 |
| Secondary Growth Area | 5 - 20 years | 10 | 96 | 75 | 718 | 25 | 147 | 35 | 235 |
| Future Growth Coordination Area | 10 - 20 years | 35 | 335 | 55 | 526 | 35 | 205 | 0 | 0 |
| Totals | | 55 | 527 | 305 | 2,919 | 185 | 1,085 | 135 | 907 |

## Exhibit 39, Part 2: : Non-Residential Trips

| NON-RESIDENTIAL (TRIP ATTRACTIONS) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Office/Institutional | | Neighborhood Com. | | Regional Com. | | Industrial | |
| Priority Growth Area | GFA | Trips | GFA | Trips | GFA | Trips | GFA | Trips |
| Primary Growth Area | 30,000 | 343 | 10,000 | 777 | 65,000 | 2,791 | 100,000 | 697 |
| Secondary Growth Area | 20,000 | 228 | 20,000 | 1,554 | - | | 70,000 | 488 |
| Future Growth Coordination Area | 20,000 | 228 | 35,000 | 2,719 | - | | - | |
| Totals | 70,000 | 799 | 65,000 | 5,050 | 65,000 | 2,791 | 170,000 | 1,185 |

## Exhibit 39, Part 3: Summary

| SUMMARY: | |
|---|---|
| Total Residential Trips (Productions): | 5,438 |
| Total Non-Residential Trips (Attractions): | 9,825 |
| Total Dwelling Units: | 680 |
| Total Gross Floor Area (Sq Ft): | 370,000 |

## Exhibit 39, Part 4: By Time Horizon

| BY TIME HORIZON: | | | | | | |
|---|---|---|---|---|---|---|
| | | Vehicle Trips | | | Units | |
| | | Res. | Non-Res. | | DU's | GFA |
| Primary Growth Area | 0 - 10 Years | 3,176 | 4,608 | | 410 | 205,000 |
| Secondary Growth Area | 5 - 20 years | 1,196 | 2,270 | | 145 | 110,000 |
| Future Growth Area | 10 - 20 years | 1,066 | 2,947 | | 125 | 55,000 |
| | Total: | 5,438 | 9,825 | | 680 | 370,000 |

**Exhibit 40** is the estimated trip generations from the Honey Creek destination park. Because the trip characteristics for Honey Creek are very different than the projected general future development in Appanoose County, Honey Creek was evaluated separately.

**Exhibit 40: Estimated Trip Generations from the Honey Creek Destination Park**

| Land Use | Land Use Code | Miscellaneous Trip Generation | | Average Daily Traffic (ADT) | | |
|---|---|---|---|---|---|---|
| | | | | Weekday | Saturday | Sunday |
| | | Units | Quantity | (VPD) | (VPD) | (VPD) |
| Regional Park | 417 | Acres | 850 | 3,885 | 4,803 | 5,474 |
| Golf Course | 430 | Holes | 18 | 643 | 731 | 712 |
| Totals: | | | | 4,528 | 5,534 | 6,186 |

**Exhibit 41 (Parts 1 through 3)**, which summarizes land uses by geographic zones and time horizons, and further refines the data presented by splitting the land uses into geographic zones (based on the Future Land Use Map) and time horizons (based on the Preferred Growth Scenario). **Exhibit 42** graphically shows the summary information from Exhibits 40 and 41.

**Exhibit 41, Part 1: Residential Trips**

| RESIDENTIAL (TRIP PRODUCTIONS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Time | Rural Residential | | Low Dens. Res. | | Med. Dens. Res. | | High Dens. Res. | |
| Priority Growth Area | Horizon | DU's | Trips | DU's | Trips | DU's | Trips | DU's | Trips |
| Primary Growth Area | *0 - 10 Years* | *10* | *96* | *175* | *1,675* | *125* | *733* | *100* | *672* |
| Zone 1 | | | | 25 | 239 | 50 | 293 | 25 | 168 |
| Zone 2 | | 5 | 48 | 50 | 479 | | | | |
| Zone 3 | | | | 25 | 239 | | | 25 | 168 |
| Zone 4 | | 5 | 48 | 25 | 239 | 25 | 147 | | |
| Zone 5 | | | | 25 | 239 | 25 | 147 | | |
| Zone 6 | | | | 25 | 239 | 25 | 147 | 50 | 336 |
| Secondary Growth Area | *5 - 20 years* | *10* | *96* | *75* | *718* | *25* | *147* | *35* | *235* |

| RESIDENTIAL (TRIP PRODUCTIONS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Time | Rural Residential | | Low Dens. Res. | | Med. Dens. Res. | | High Dens. Res. | |
| Priority Growth Area | Horizon | DU's | Trips | DU's | Trips | DU's | Trips | DU's | Trips |
| Zone 7 | | | | 25 | 239 | | | | |
| Zone 8 | | | | 25 | 239 | 25 | 147 | 35 | 235 |
| Zone 9 | | 10 | 96 | 25 | 239 | | | | |
| Future Growth Coordination Area | *10 - 20 years* | *35* | *335* | *55* | *526* | *35* | *205* | | |
| Zone 10 | | 15 | 144 | 25 | 239 | | | | |
| Zone 11 | | 10 | 96 | 30 | 287 | | | | |
| Zone 12 | | 10 | 96 | | | 35 | 205 | | |
| Totals | | **55** | **528** | **305** | **2,918** | **185** | **1,086** | **135** | **907** |

**Exhibit 41, Part 2: Non-Residential Trips**

| NON-RESIDENTIAL (TRIP ATTRACTIONS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Time | Office/Institutional | | Neighborhood Com. | | Regional Com. | | Industrial | |
| Priority Growth Area | Horizon | GFA | Trips | GFA | Trips | GFA | Trips | GFA | Trips |
| Primary Growth Area | | *30,000* | *343* | *10,000* | *777* | *65,000* | *2,791* | *100,000* | *697* |
| Zone 1 | *0 - 10 Years* | | | 10,000 | 777 | | | | |
| Zone 2 | | | | | | | | | |
| Zone 3 | | 10,000 | 114 | | | 30,000 | 1,288 | | |
| Zone 4 | | | | | | | | | |
| Zone 5 | | | | | | | | | |

| NON-RESIDENTIAL (TRIP ATTRACTIONS) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Office/Institutional | | Neighborhood Com. | | Regional Com. | | Industrial | |
| Priority Growth Area | Time Horizon | GFA | Trips | GFA | Trips | GFA | Trips | GFA | Trips |
| Zone 6 | | 20,000 | 228 | | | 35,000 | 1,503 | 100,000 | 697 |
| Secondary Growth Area | | *20,000* | *228* | *20,000* | *1,554* | | | *70,000* | *488* |
| Zone 7 | *5 - 20 years* | 10,000 | 114 | | | | | | |
| Zone 8 | | | | 10,000 | 777 | | | 70,000 | 488 |
| Zone 9 | | 10,000 | 114 | 10,000 | 777 | | | | |
| Future Growth Coordination Area | | *20,000* | *228* | *35,000* | *2,719* | | | | |
| Zone 10 | *10 - 20 years* | | | 10,000 | 777 | | | | |
| Zone 11 | | 10,000 | 114 | 15,000 | 1,165 | | | | |
| Zone 12 | | 10,000 | 114 | 10,000 | 777 | | | | |
| Totals | | **70,000** | **799** | **65,000** | **5,050** | **65,000** | **2,791** | **170,000** | **1,185** |

**Exhibit 41, Part 3: Trip Zones and Total Trips**

| | |
|---|---|
| Zone 1 - North of Lake Rathbun | 1477 |
| Zone 2 - South of Lake Rathbun | 527 |
| Zone 3 - Moravia | 1606 |
| Zone 4 - Lake Sundown | 217 |
| Zone 5 - City of Rathbun | 193 |
| Zone 6 - Centerville | 2789 |
| Zone 7 - Exline | 234 |
| Zone 8 - Cincinnati | 1576 |
| Zone 9 - Unionville | 1059 |
| Zone 10 - Plano | 969 |
| Zone 11 - Mystic | 1471 |
| Zone 12 - Moulton | 1042 |

Based on discussions with local businesses, it was assumed 50% of generated residential trips satisfied non-residential demand within the same zone. Zones 1 and 2 were exempted from this rule because of their recreational/tourism focus.

HONEY CREEK
DESTINATION PARK
4550 DAILY TRIPS

New Traffic
Over and Above
Existing Traffic

N

N.T.S.

ZONE 1
1500
DAILY
TRIPS

MORAVIA

1610
DAILY
TRIPS
ZONE 3

RATHBUN
LAKE

ZONE 2
530
DAILY
TRIPS

RATHBUN

ZONE 5
200
DAILY
TRIPS

220
DAILY
TRIPS
ZONE 4

UNION-
VILLE

ZONE 9
1060
DAILY
TRIPS

UDELL

1480
DAILY
TRIPS
MYSTIC

ZONE 11

ZONE 10
970
DAILY
TRIPS
PLANO

ZONE 6
2800
DAILY
TRIPS

CENTERVILLE

NUMA

240
DAILY
TRIPS
EXLINE
ZONE 7

CINCINNATI
1580
DAILY
TRIPS
ZONE 8

ZONE 12
1050
DAILY
TRIPS
MOULTON

MISSOURI

TRIP DISTRUBUTIONS BY GROWTH AREA

- Primary Growth Area
- Secondary Growth Area
- Future Growth Area
- State Route
- County Route
- County Boundary

| NO. | REVISION DESCRIPTION | APPROVED | DATE |
|---|---|---|---|

Client: Chariton Valley RC&D
Iowa Department of Transportation
Planning Division

ANDERSON-BOGERT
Engineers & Surveyors, Inc.

Drawn By: JCM Approved By: JCM
Date: 10/05/04 Scale:
Project No. 204006

Appanoose County
Special Transportation Study

EXHIBIT 42
Trip Generations
Distribution Map

SHEET NO. 1 OF 1

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***Trip Distribution.*** In order to assign the trips generated by the various land uses to the roadway network, it is first necessary to develop a trip distribution model. Two separate models were developed. The first model was used for the general projected growth. The second model was used for Honey Creek Resort.

Both distribution models were broken into three components:

- Trips between the zones and origins/destinations outside Appanoose County
- Trips between zones within Appanoose County
- Trips internal to each of the individual zones

Starting with the general projected development, the trips were broken down between the above three components based on conversations with existing businesses and how their employees are distributed between internal, external, and within Appanoose County.

Referring to Exhibit 41, half of the residential trips within each zone were applied against the non-residential trips within the same zone. The trips shown in Exhibit 41, Part 3 are the total remaining trips to be distributed outside of each individual zone.

Of the remaining trips shown in Exhibit 41, 35% were allocated to origins/destinations outside of Appanoose County. The balance 65% were distributed between the zones based on pro rata shares of total trips generated by each zone and time horizon. For example, Centerville (Zone 6) produced/attracted about 45% (2,789/6,196) of the trips in the near term (Primary Growth Area). This is consistent with the fact Centerville is the largest population center within Appanoose County and would be expected to produce and attract a large share of the trips.

**Exhibit 43** shows the distributions of trips between Appanoose County and the surrounding counties. The trip distribution percentages for external trips was based on existing traffic flow patterns. For general growth in residential and non-residential development, it was assumed new trips in and out of the county would follow the same general patterns as exist today.

Honey Creek Destination Park was distributed differently than the projected general growth. A market study of Honey Creek Resort was completed in early 2004 and identified Primary, Secondary, and local markets that are expected to generate most of the tourism for the new resort. The local market was defined as the population within 50 miles of the park. The Primary market was identified in the report as the population between 50 and 130 miles of the park. The Secondary market is between 130 miles and 270 miles of the park.

Of all the trips estimated for Honey Creek, the market study appears to suggest about 85% of the traffic will come from the Primary and Secondary markets. About 15% of the trips will be within 50 miles of the park. Again, this split seems to be consistent with the general expectation of the performance of the park in drawing visitors and tourists to the area.

**Exhibit 44** and **Exhibit 45** show how the trip distributions were calculated based on the major population centers within the Primary and Secondary markets.

***Traffic Assignment.*** Based on the trip distribution models, the future traffic was assigned to the roadway network. Because the County has expressed a desire to severely limit new roadway additions to the network, and instead concentrate developments along existing roadway facilities, the future traffic was assigned to the existing roadways.

**Exhibit 46** shows the assignment of new traffic (excluding Honey Creek) to the roadway network broken down by Primary Growth (0-5 Years), Secondary Growth (5-20 Years) and Future Growth (10-20 Years).

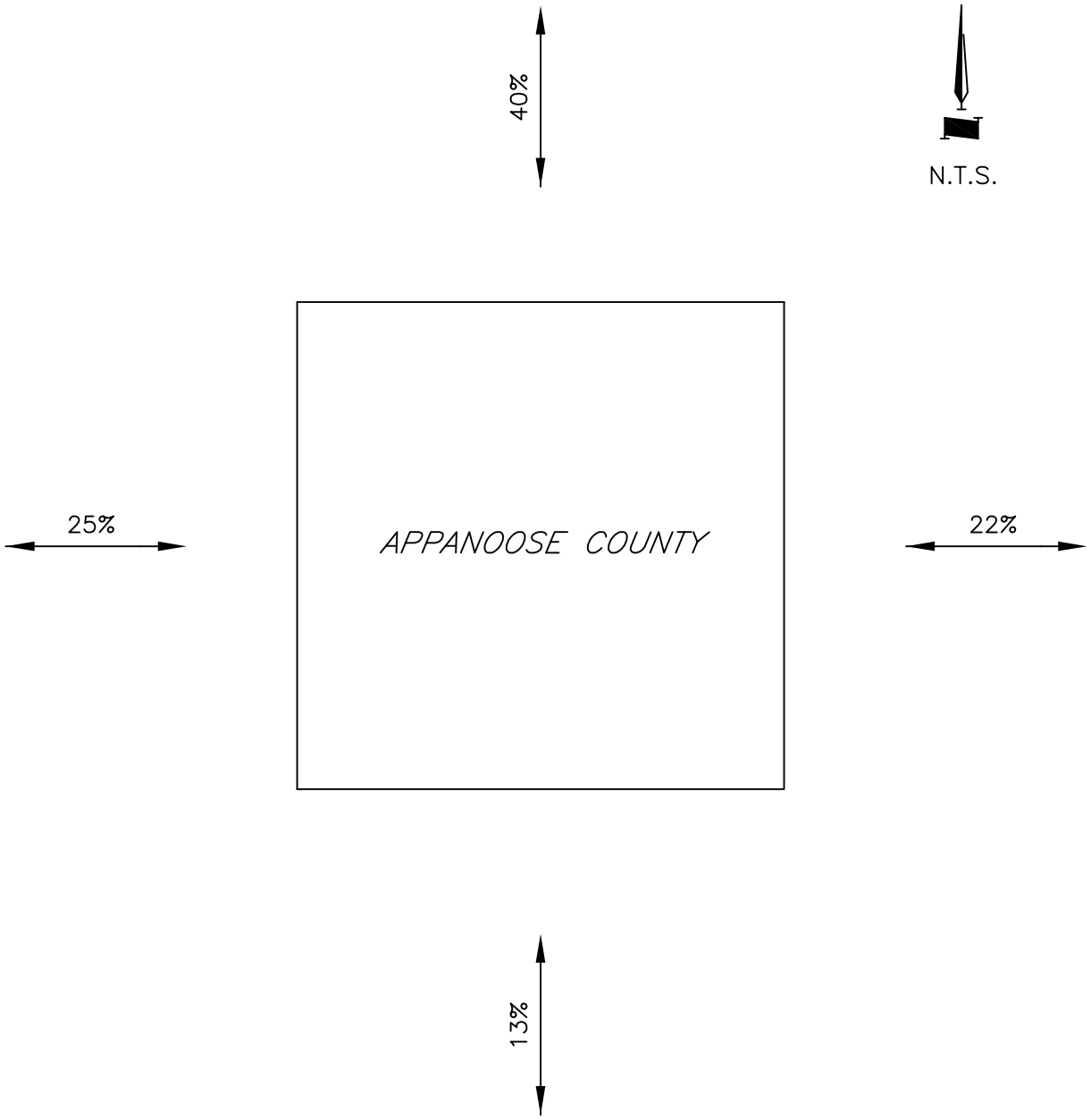



EXHIBIT 43
External Trip Distribution
Future County Growth

ANDERSON-BOGERT
Engineers & Surveyors

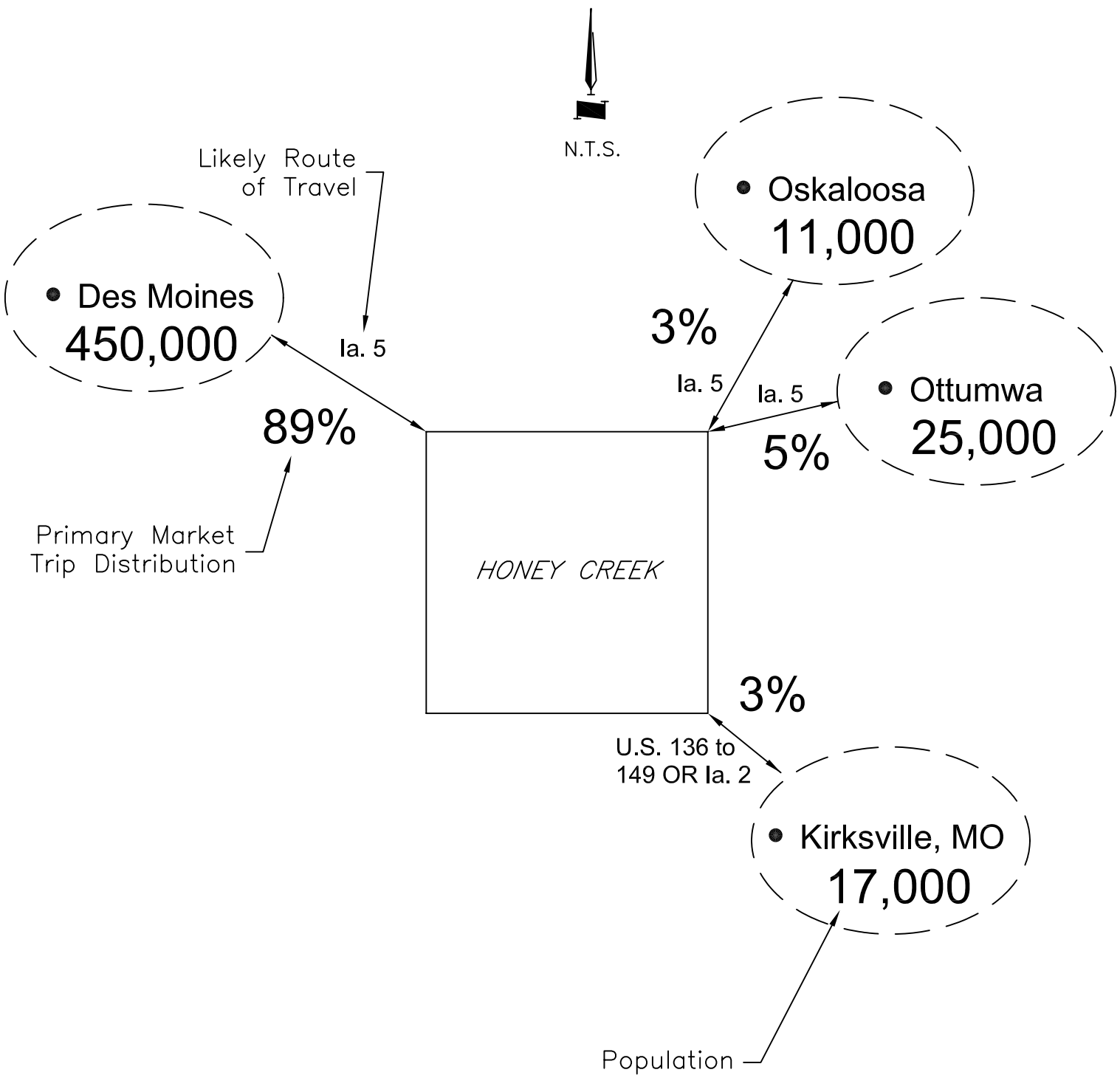



EXHIBIT 44
Primary Market Trip Distribution
Honey Creek Destination Park

ANDERSON-BOGERT
Engineers & Surveyors

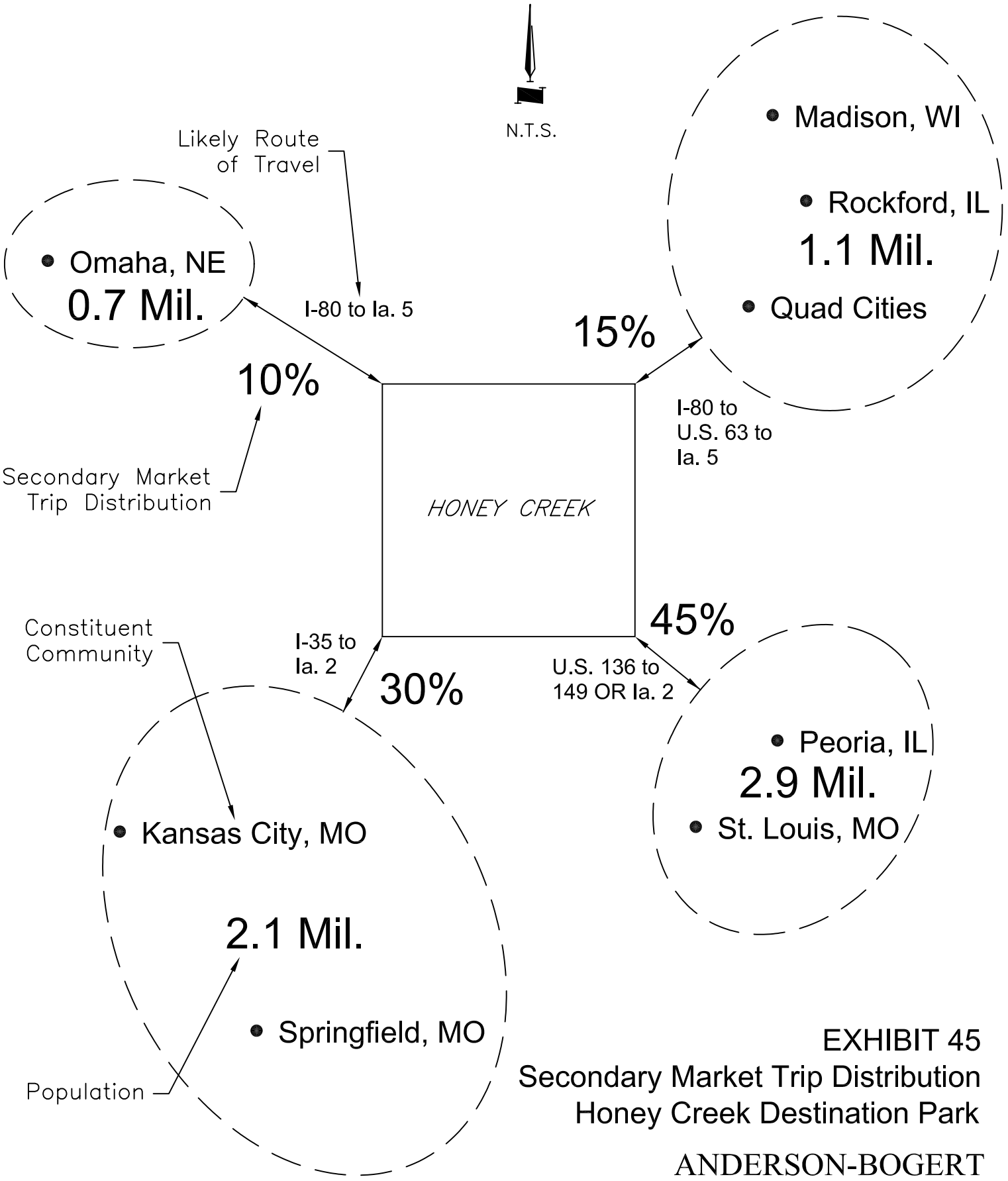
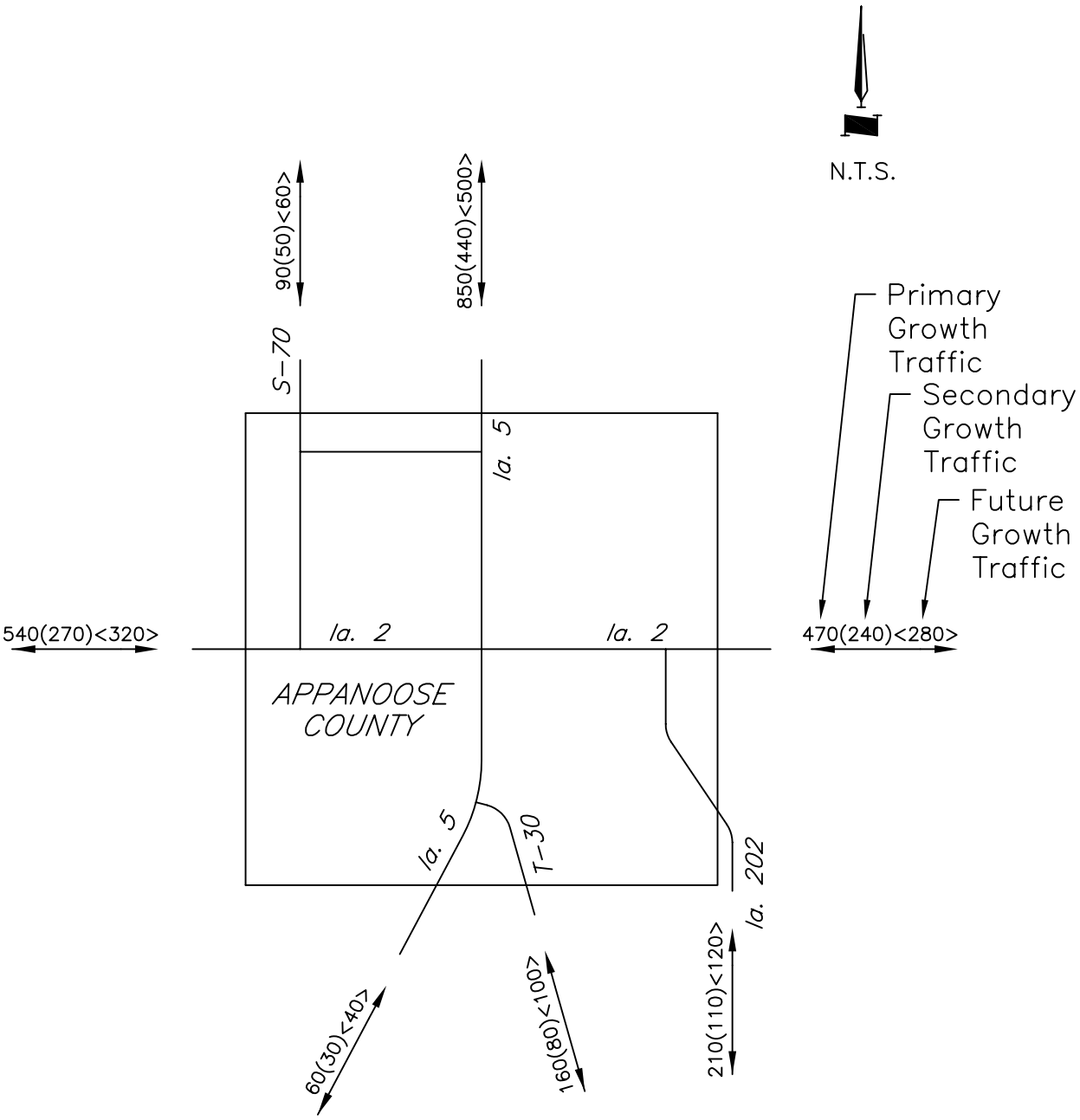



EXHIBIT 45
Secondary Market Trip Distribution
Honey Creek Destination Park

ANDERSON-BOGERT
Engineers & Surveyors



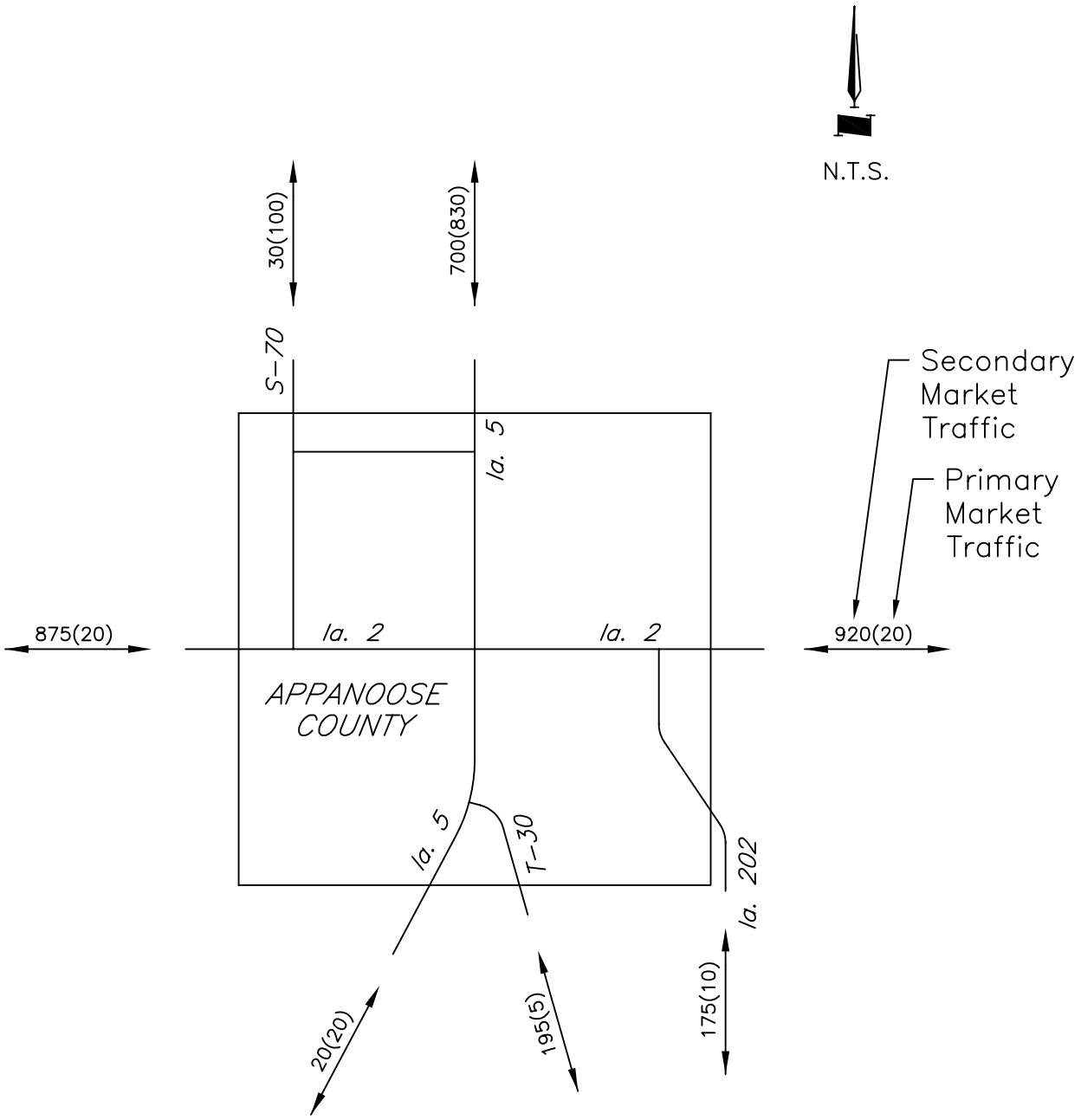

Note: Traffic Volumes are Average Daily Traffic (ADT)
(Does not include Honey Creek Destination Park)

EXHIBIT 46
Traffic Assignment
County-Wide External Traffic

ANDERSON-BOGERT
Engineers & Surveyors

**Exhibit 47** shows the assignment of Honey Creek Destination Park traffic to the roadway network broken down by the Primary and Secondary markets. Unlike the general growth, it was assumed all of the Honey Creek generated traffic will be realized within the next 5-10 years.

Trips between zones were assigned to travel routes based on the amount of future trip generation projected for each of the zones.

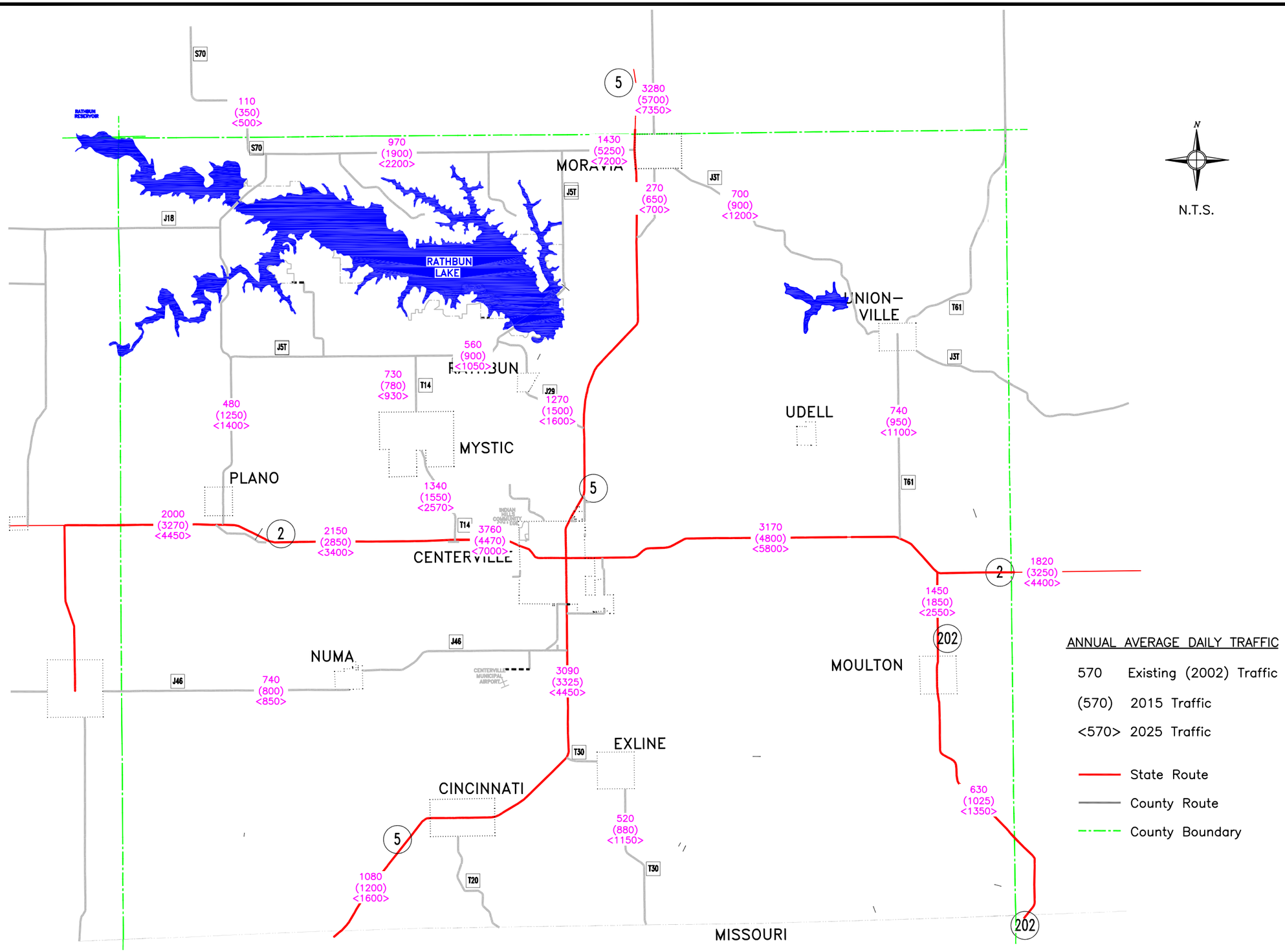



Note: Traffic Volumes are Average Daily Traffic (ADT)

EXHIBIT 47
Traffic Assignment
Honey Creek Destination Park

ANDERSON-BOGERT
Engineers & Surveyors

***Future Traffic Volume Map*.** **Exhibit 48** is the Future Traffic Volume map showing existing traffic, 10-Year projected traffic (Year 2015) and 20-Year projected traffic (Year 2025). The map was generated by adding the traffic assignments for the various growth scenarios and Honey Creek development to the existing traffic counts on the major roadway network.




| NO. | REVISION DESCRIPTION | APPROVED | DATE |
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| | | | |

Client: Chariton Valley RC&D
Iowa Department of Transportation
Planning Division

ANDERSON-BOGERT
Engineers & Surveyors, Inc.

Drawn By: JCM Approved By: JCM
Date: 10/05/04 Scale:
Project No. 204006

Appanoose County
Special Transportation Study

EXHIBIT 48
Future Traffic
Volume Map

SHEET NO. 1 OF 1

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***Rail.*** The heavy manufacturers in the Appanoose County area generate existing rail service demand for the APNC Railroad. Estimating future economic develop specific to the railroad is extremely difficult. Data from IDOT shows through rail traffic has increased steadily (2.7% annually) in Iowa over the last 10-15 years. Most of the increased rail traffic is from coal and intermodal shipments. Branchline traffic, such as on the APNC, is much more difficult to predict.

Because Iowa's branch line railroads are generally underutilized, rather than directly estimating future Branchline traffic, the Iowa Department of Transportation has instead recommended rehabilitating and strengthening the existing rail infrastructure to meet future needs. The IDOT's report "Iowa in Motion" states a priority for:

- Branchline Rehabilitation
- Spur Line Development
- Rail/Highway At-Grade Crossing Improvements
- Continued Evaluation of Rail Passenger Service Needs

Future rail traffic growth in Appanoose County will be directly tied to economic growth in the county. Discussions with APNC representatives revealed an interest on the part of the railroad to expand their trackage and service area as opportunities arise. The recent RELCO project is an example of how the APNC has worked with the Appanoose County community to try and attract new businesses and rail customers. Currently, the APNC does not handle grains, but grain hauling is a targeted market expansion area. At this time, passenger service is not anticipated.

***Aviation.*** The Centerville Airport's Airport Layout Plan (ALP) was last updated in 2000, and includes a section on forecasted aviation activity. From 2000 to 2020, the ALP projects aircraft based at the airport (Based Aircraft) to increase from 13 aircraft to 16 aircraft. Total aircraft operations (arrivals or departures) are estimated to increase from 4,486 annual operations in 2000 to 5,840 annual operations in 2020. Approximately 58% of the total operations are non-local (known to be arriving from outside a 20-mile radius from the airport).

There is no mention in the ALP of additional future traffic based on Honey Creek Destination Park. In fact, the ALP specifically states the growth projections are based on historic trends in Appanoose County and do not account for unforeseen exterior influences.

Runway capacity is sufficient for most additional traffic generated by Honey Creek Destination Park. However, depending on the type of aircraft demand generated, the runway length may be a greater issue. **Exhibit 49** is taken from the 2000 ALP for Centerville Airport and summarizes recommended runway lengths (based on Federal Aviation Administration Advisory Circular for various critical aircraft at Centerville Municipal Airport. As can be seen from Exhibit 46, if small airplane passenger demand is generated by Honey Creek Destination Park, the existing runway length may be a limiting factor in serving that demand.

**Exhibit 49: Runway Length Requirements by Aircraft Type**

| Aircraft Type | Recommended Runway Length (ft) |
|---|---|
| Small Airplanes with approach speeds less than 30 Knots | 330’ |
| Small Airplanes with approach speeds less than 50 Knots | 880’ |
| Small Airplanes with less than 10 passenger seats: | |
| 75% of these small airplanes | 2,830’ |
| 95% of these small airplanes | 3,360’ |
| 100% these small airplanes | 3,970’ |
| Small Airplanes with 10 or more passenger seats: | 4,410’ |
| Large Airplanes of 60,000 lbs. Or less: | |
| 75% of these large airplanes at 60% useful load | 5.500’ |
| 75% of these large airplanes at 90% useful load | 7,000’ |
| 100% of these large airplanes at 60% useful load | 5,610’ |
| 100% of these large airplanes at 90% useful load | 8,500' |
| Airplanes of more than 60,000 lbs. | 5,370’ |

Another concern identified in the ALP is the lack of a cross wind runway at the Centerville Airport. The existing runway meets minimum required wind coverage for the critical design aircraft (Speed between 91 and 121 knots and wingspan from 49' to 78') for a cross wind not exceeding 13 knots (15 mph). The runway does not meet wind coverage for 10.5 knot wind speeds. Because of the frequency of airport use by aircraft smaller than the design aircraft, the lack of coverage for this wind speed is a concern.

***Trails.*** Estimation of future trail demand, particularly when there is so little existing trail system in Appanoose County, is difficult. The demand estimates are qualitative and based on previous work done in the region by Chariton Valley Planning and Development and Chariton Valley Transportation Affiliation.

A comprehensive trails planning study of the seven county region including Appanoose, Clarke, Davis Decatur, Lucas, Monroe, and Wayne Counties was completed in Spring of 2000. The study employed an extensive public involvement process to identify and prioritize trail corridors in the region.

Usage demand for each of the trail corridors will depend on the destinations and opportunities along each corridor. A recurring theme in the study of the Appanoose County was the desire to establish and implement trails around Rathbun Lake and the Rathbun Lake Recreation Area. In fact that was the first priority in terms of public interest.

***Transit.*** The 10-15 transit service has seen modest growth over the last two years. It is anticipated at a minimum the growth trend will continue. Additional demand over and above baseline growth is most likely to come from two areas:

- Honey Creek Destination Park
- Local School Districts

As tourism increases in the region from the destination park, demand for shuttle service is expected to increase between the park and various attractions such as Centerville, Centerville Airport, Moravia, Albia, and other destinations as they develop.

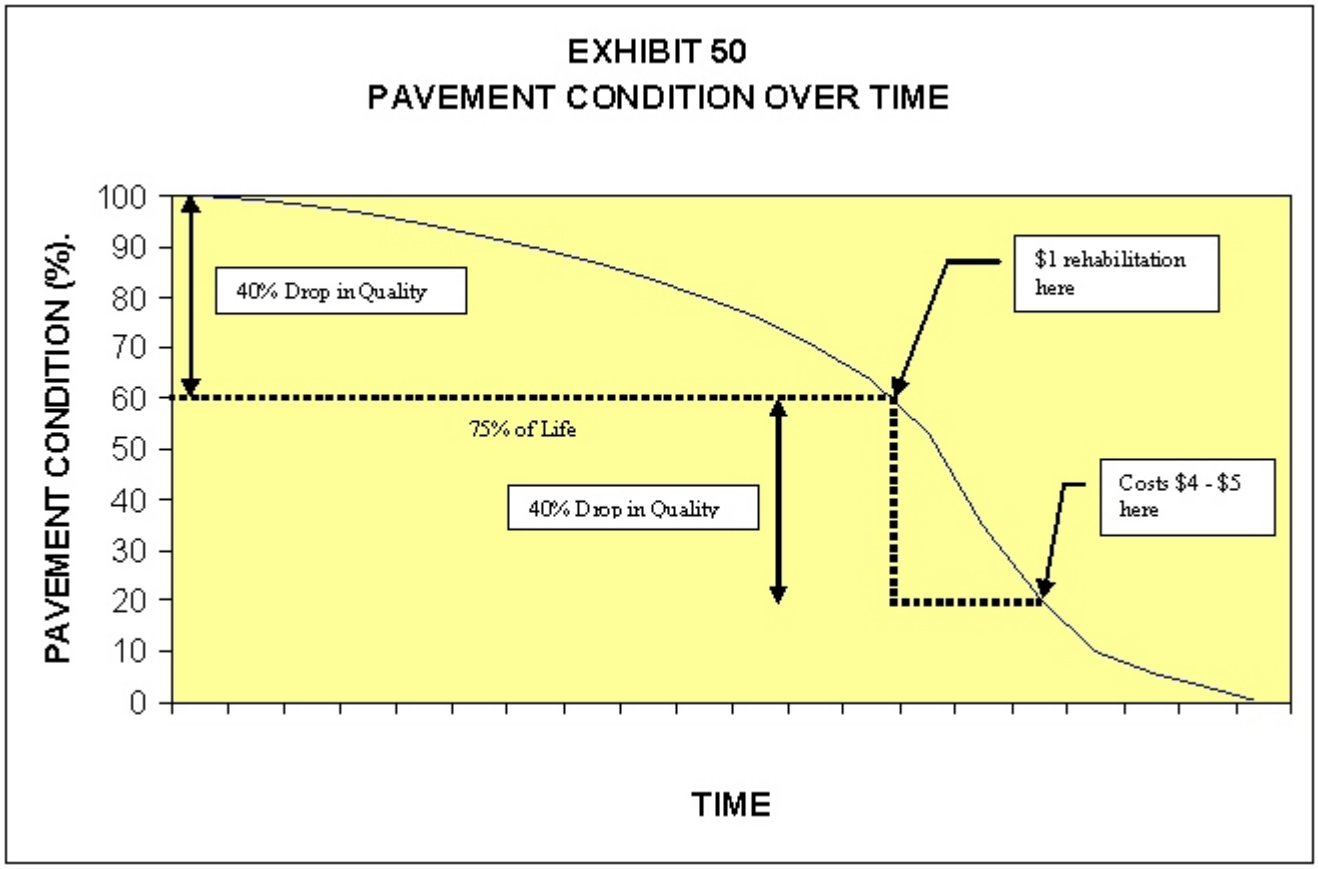
Currently, the local school districts have adequate facilities capacity for added growth. However, occasionally the 10-15 transit service provides busing on a contract basis for the school districts. Depending on the rate of population growth due to the destination park, there may be short term demand spikes for school busing.

## Future Transportation Infrastructure Needs, Budgetary Needs, and Priorities

***Roadways.*** The roadway needs are based on maintenance of existing facilities and provision of new or upgraded facilities for future demand. Current maintenance of non-paved roadways appears to be adequate based on observed conditions and from public input.

Maintenance of paved roadways is more expensive than for unpaved roadways and is critical to protect the value of the original investment. Each dollar of minor maintenance (crack sealing, seal coats, etc.) postpones rehabilitation costs which are typically 5 times minor maintenance costs. Similarly, each dollar of rehabilitation cost postpones reconstruction, which can cost 4 to 5 times as much as rehabilitation. **Exhibit 50** illustrates the classic pavement deterioration curve versus improvement expenditures.

**Exhibit 50: Pavement Deterioration/Improvement Expenditures**



## Paved Roadway Maintenance

The County performs two general maintenance activities on its paved roadways: crack sealing and pavement rehabilitation through patching and overlay.

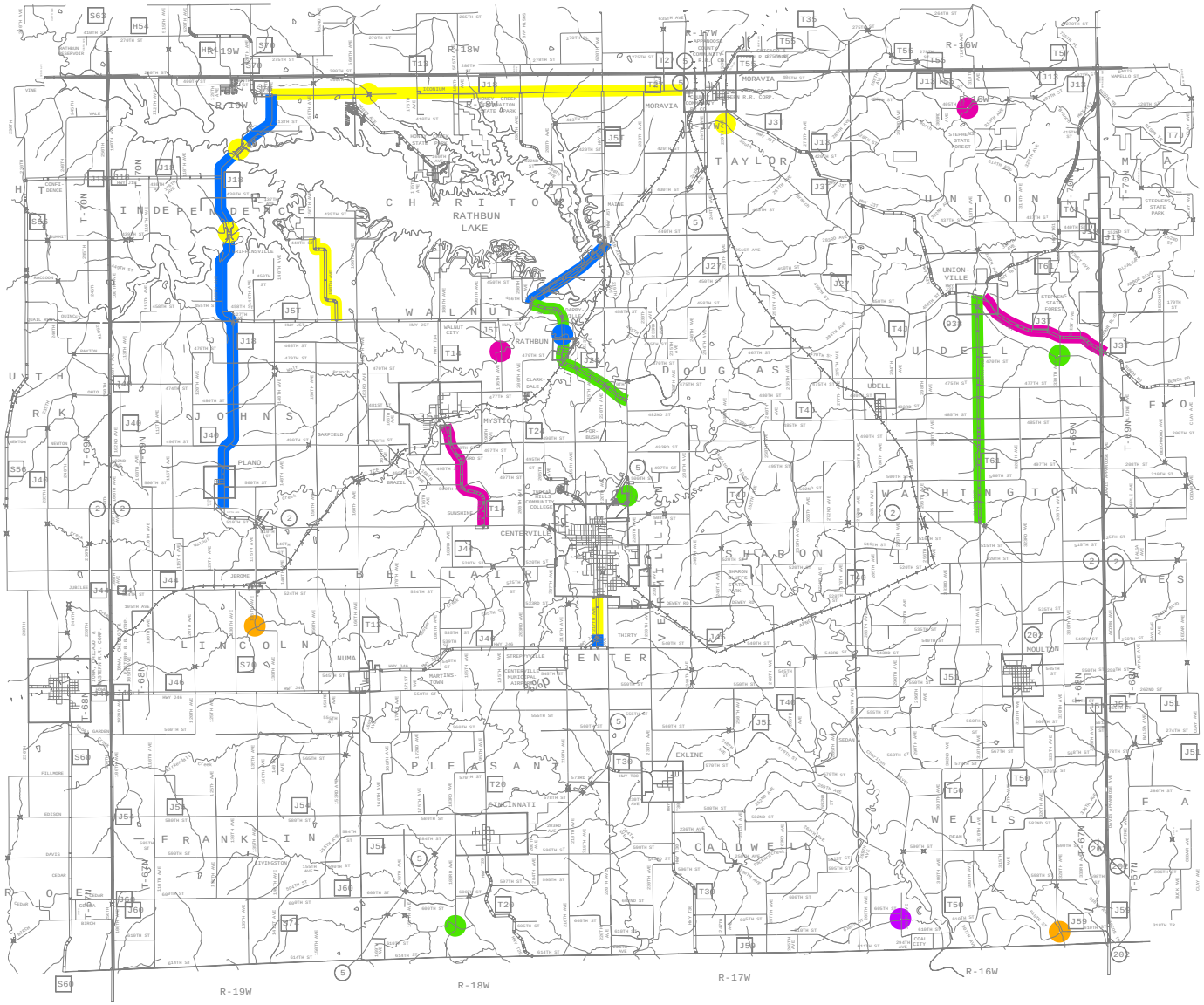
***Crack Sealing.*** The annual crack sealing program is designed to repair or fill cracks in the pavement to prevent water intrusion into the roadway subgrade, which accelerates pavement deterioration. Currently, the county spends about $50,000 annually in crack sealing, which covers about 10 miles of roadway.

Crack sealing repairs typically last about 2 to 3 years before the maintenance should be repeated. The county currently has about 110 miles of existing paved roadways. To cover the entire paved system on a 3 year rotation requires about 40 miles per year to be crack sealed. Therefore, the crack sealing budget should be approximately $200,000 annually to start, and re-evaluated during the second rotation.

***Pavement Rehabilitation.*** The County uses Farm-to-market funding for most of its paved roadway rehabilitation. In general, the projects have consisted of 3" structural asphalt overlays, with patching as needed. To qualify for Farm-to-market funding, the County must submit a five-year plan showing estimated costs, project location, brief description of improvements, and fiscal year of the planned improvements.

**Exhibit 51** shows the County's 5-Year program for 2005 through 2010. The plan includes Farm-to-Market roadway rehabilitation projects as well as bridge replacement projects.

# APPANOOSE COUNTY CURRENT FIVE YEAR PLAN




**EXISTING COUNTY 5-YEAR PLAN**

<all other values>

**YEAR**

- FY 05
- FY 06
- FY 07
- FY 08
- FY 09
- FY 10

EXHIBIT 51
APPANOOSE COUNTY
CURRENT 5-YEAR PLAN

N

ANDERSON-BOGERT
Engineers & Surveyors

**Exhibit 52** is excerpted from the 5-Year plan and summarizes the estimated expenditures, broken down by funding source.

**Exhibit 52: Five-year Secondary Roads Construction Summary (in thousands of dollars)**

| Year | Local | Farm-Mkt | Special* | Federal | Total |
|---|---|---|---|---|---|
| 2005 | $895 | $416 | $1,600 | $180 | $3,091 |
| 2006 | $263 | $1,800 | $0 | $1,055 | $3,118 |
| 2007 | $500 | $628 | $1,750 | $512 | $3,390 |
| 2008 | $62 | $898 | $0 | $439 | $1,399 |
| 2009 | $0 | $46 | $0 | $184 | $230 |
| 2010 | $48 | $67 | $0 | $458 | $573 |
| **TOTAL** | $,168 | $3,855 | $3,350 | $2,828 | $11,801 |

* Special Funds include grants for special impoundment structure and participation by Corps of Engineers in joint jurisdiction paving project and IDOT funds from Transfer of Jurisdiction of Hwy. 142..

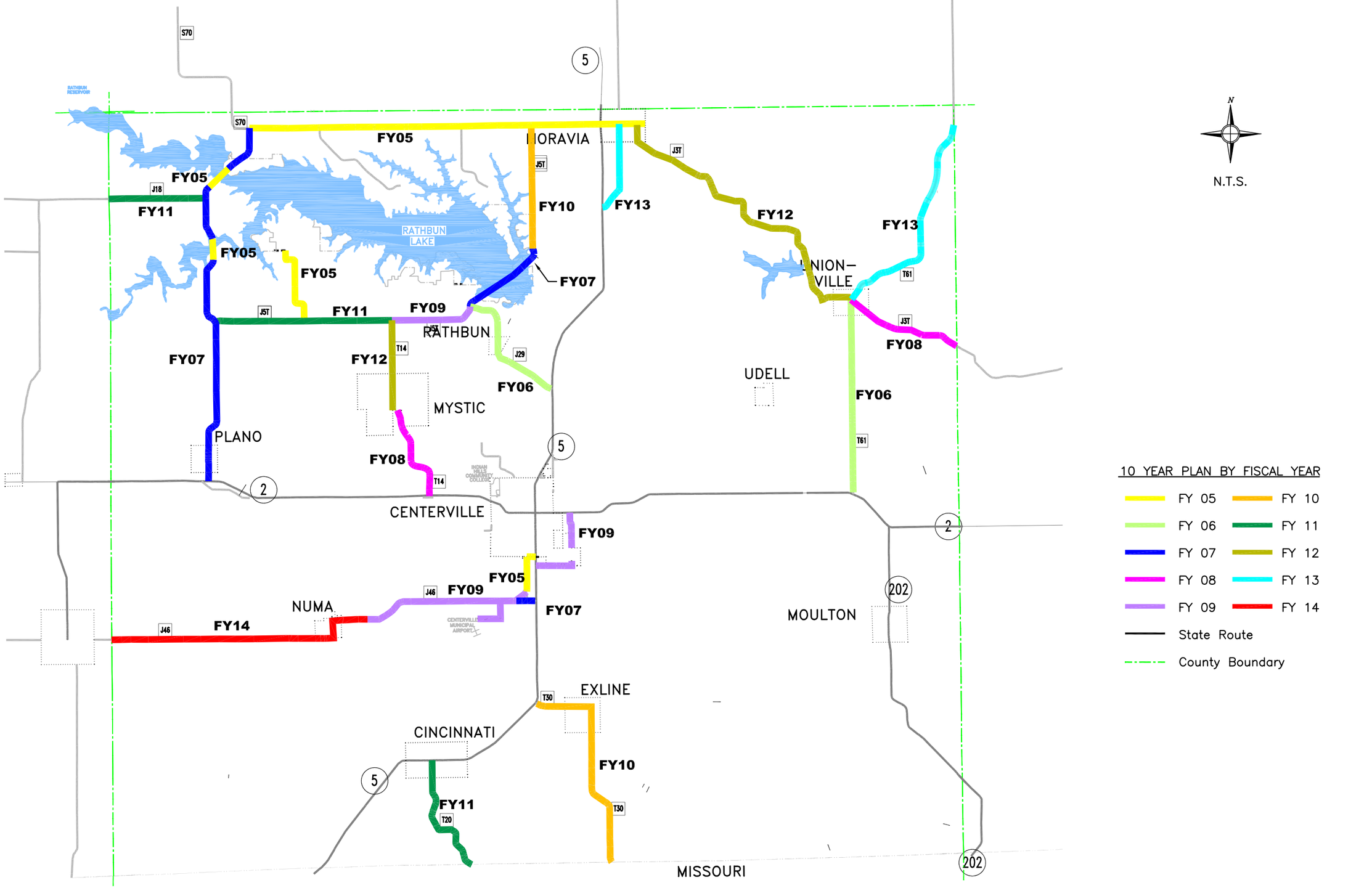
The local dollars are the local matching funds for the federal aid grants. All of the Federal Aid dollars are through the bridge replacement program.

Major rehabilitation projects (hot mix asphalt overlays and pavement patching) generally can be expected to have a 10-year life span. Looking at fiscal years 2005 through 2008, the average Farm-to-Market funds programming averages about $940,000 per year. **Exhibit 53** breaks down all of the paved roads in Appanoose County into rehabilitation projects, and prioritizes them by fiscal year based on the pavement condition rating data presented in Section 3 of this report.

**Exhibit 53** follows the County's 5-Year paving plan and prioritizes the remaining paved roads through fiscal year 2014.

**Exhibit 54** structures the rehabilitation projects in a 10 year time frame such that the pavement rehabilitation projects are revisited at about the life expectancy of the rehabilitation improvements. Project costs were estimated, including inflation, and show the Farm-to-Market funding requirements needed each year.

Project costs were generally estimated at $100,000 per mile of roadway, which includes a 3" thick asphalt overlay. Certain projects were assigned somewhat higher costs based on observation of existing conditions. For example, Dewey Road/230$^{th}$ Avenue was estimated at $133,000 per mile due to the presence of heavy truck traffic which may require either additional patching or additional overlay thickness. Similarly, Highway T30 carries heavy truck traffic from Missouri into Appanoose County, and was therefore estimated at $125,000 per mile.

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| NO. | REVISION DESCRIPTION | APPROVED | DATE |
|---|---|---|---|
| | | | |

Client: Chariton Valley RC&D
Iowa Department of Transportation
Planning Division

ANDERSON-BOGERT
Engineers & Surveyors, Inc.

Drawn By: JCM Approved By: JCM
Date: 10/05/04 Scale:
Project No. 204006

Appanoose County
Special Transportation Study

EXHIBIT 53
Recommended 10 Year
Pavement Rehab. Program

SHEET NO. 1 OF 1

## EXHIBIT 54 – RECOMMENDED 10 YEAR PAVEMENT MAINTENANCE PROGRAM

| Location | From | To | Length (Miles) | 2002 ADT | Priority Area | Cost ($1,000's) | PROGRAM FISCAL YEAR | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | FY05 | FY06 | FY07 | FY08 | FY09 | FY10 | FY11 | FY12 | FY13 | FY14 |
| 150th Avenue | Hwy. J5T | 137th Avenue | 2.4 | 150 | Primary | $ 416 | $ 416 | | | | | | | | | |
| 217th Avenue | Hwy. J46 | Hwy. 5 | 1 | 620 | Primary | $ 200 | $ 200 | | | | | | | | | |
| Hwy. J18 Bridge Decks | S70 | J5T | 1 | 480 | Primary | $ 650 | $ 650 | | | | | | | | | |
| Hwy J18 | S70 | Moravia | 10 | 1430 | Primary | $ 1,600 | $ 1,600 | | | | | | | | | |
| Hwy. T61 | Unionville | Hwy. 2 | 5.1 | 710 | Secondary | $ 650 | | $ 650 | | | | | | | | |
| Hwy. J29 | Rathbun | Hwy. 5 | 3.5 | 1280 | Primary | $ 450 | | $ 450 | | | | | | | | |
| Hwy. J18/S70 | S70 | Hwy. 2 | 8.5 | 480 | Primary | $ 1,500 | | | $ 1,500 | | | | | | | |
| 217th Ave. & Salebarn Rd. | | | 1 | 620 | Primary | $ 500 | | | $ 500 | | | | | | | |
| Hwy. J5T | Hwy. J29 | N. End of Dam | 2.5 | 1120 | Primary | $ 750 | | | $ 750 | | | | | | | |
| Hwy. J3T | Unionville | County Line | 3.5 | 430 | Secondary | $ 400 | | | | $ 400 | | | | | | |
| Hwy. T14 | Mystic | Hwy. 2 | 3.3 | 1450 | Future | $ 450 | | | | $ 450 | | | | | | |
| Hwy. J5T | Hwy. T14 | Hwy. J29 | 3 | 560 | Primary | $ 300 | | | | | $ 300 | | | | | |
| Hwy. J46 & 270th Ave to Airport | 171st Avenue | 210th Avenue | 5.5 | 1300 | Primary | $ 500 | | | | | $ 500 | | | | | |
| Dewey Road/230th Avenue | Hwy. 5 | Hwy. 2 | 3 | 600 | Primary | $ 400 | | | | | $ 400 | | | | | |
| Hwy. J5T | N. End of Dam | Old 142 | 4 | 150 | Primary | $ 400 | | | | | | $ 400 | | | | |
| Hwy. T30 | Hwy. 5 | State Line | 6 | 820 | Secondary | $ 750 | | | | | | $ 750 | | | | |
| Hwy. J5T | Old 142 | Hwy. T14 | 5 | 540 | Primary | $ 500 | | | | | | | $ 500 | | | |
| Hwy. T20 | Cincinnati | State Line | 3 | 370 | Secondary | $ 350 | | | | | | | $ 350 | | | |
| Hwy. J18 | County Line | Old 142 | 3 | 450 | Future | $ 350 | | | | | | | $ 350 | | | |
| Hwy. J3T | Moravia | Unionville | 8 | 700 | Secondary | $ 1,000 | | | | | | | | $ 1,000 | | |
| Hwy. T14 | Hwy. J5T | Mystic | 2 | 580 | Secondary | $ 200 | | | | | | | | $ 200 | | |
| Hwy. T61 | Unionville | County Line | 6 | 530 | Secondary | $ 750 | | | | | | | | | $ 750 | |
| 243rd Ave/244th Ave. | Hwy. 5 | Moravia | 3 | 270 | Primary | $ 300 | | | | | | | | | $ 300 | |
| Hwy. J46 | County Line | 171st Avenue | 6 | 740 | Future | $ 650 | | | | | | | | | | $ 650 |
| Miscellaneous Paved Roads | | | 8.7 | - | - | $ 750 | | | | | | | | | | |
| **Sub-Totals** | | | 108 | | | $14,766 | $ 2,866 | $ 1,100 | $ 2,750 | $ 850 | $ 1,200 | $ 1,150 | $ 1,200 | $ 1,200 | $ 1,050 | $ 650 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Inflation @ 4% Annually** | $ 2,187 | $ - | $ 44 | $ 224 | $ 106 | $ 204 | $ 249 | $ 318 | $ 379 | $ 387 | $ 275 |
| **Totals** | $16,953 | $ 2,866 | $ 1,144 | $ 2,974 | $ 956 | $ 1,404 | $ 1,399 | $ 1,518 | $ 1,579 | $ 1,437 | $ 925 |
| **Less Special Funds*** | $ (3,350) | $(1,600) | | $(1,750) | | | | | | | |
| **Road Maintenance Budget** | $13,603 | $ 1,266 | $ 1,144 | $ 1,224 | $ 956 | $ 1,404 | $ 1,399 | $ 1,518 | $ 1,579 | $ 1,437 | $ 925 |

Highway J3T from Moravia to Unionville was estimated at a higher unit cost to account for necessary curve and superelevation improvements.

**Roadway Upgrades**

In addition to the annual roadway maintenance, certain roadway upgrade projects were identified. The following is a list of special projects and costs, over and above the maintenance costs.

- ***Intersection Improvements at Highway 5 and Highway J18.*** The Honey Creek Destination Park development will significantly add to the traffic using the intersection of Highway 5 and Highway J18. At full operation, Honey Creek will probably generate enough traffic to warrant a traffic signal at this intersection. Cost: $150,000.

- ***Intersection Improvements on Highway J18 at Honey Creek Destination Park Access.*** To accommodate heavy turning traffic into an out of the park, separate left turn and right turn bays should be constructed on Highway J18. Additionally, the access road should have separate left and right turn lanes. Minimum vehicle storage lengths should be 250' (to accommodate longer recreational vehicles). Also, due to higher speeds on Hwy J18/S70 proper deceleration lengths should be included. The intersection will probably operate adequately under stop sign control, however, more detailed traffic analyses should be performed in conjunction with the development. Cost: $300,000.

- ***Intersection Improvements on Highway 5 at T30.*** Pending the results of a detailed safety study of the intersection of Highway 5 and T30, roadway alignment improvements may be necessary. Most likely improvements are to increase the horizontal curve radius (flatten the curve) on Highway 5 and provide a longer level area on T30 at the intersection. Cost: $500,000

- ***Intersection Improvements on Highway T14 North of Mystic.*** Pending the results of a detailed safety study of the intersection of T14 with 470$^{th}$ Street, a vertical adjustment of Highway T14 may be necessary to improve intersection sight distance. Cost: $200,000

- ***Intersection Improvements on Highway 2 and T14.*** Pending the results of a detailed safety study of the intersection sight distance at T14 and Highway 2, vertical adjustment of Highway 2, may be necessary. Cost: $350,000

- ***Intersection Improvements at Dewey Road and Highway 5 .*** Commercial/Industrial truck traffic from the industrial park on the south side of Centerville has increased to the point that a separate left turn lane on Highway 5 is necessary. The existing roadway may be wide enough to accommodate the additional turn lane simply by restriping the roadway. Cost: $25,000

- ***Highway 2 Reconstruction East of Centerville.*** Although this route is under IDOT jurisdiction, there was significant interest in restoring funding to the project for safety and economic reasons. The construction costs for Highway 2 from about 266th Avenue to about ½ mile east of the APNC Railroad crossing is about $6 Million. The construction cost to continue east, through the Moulton corner, and to Acorn Avenue in Davis County is an additional $5.5 Million.

- ***Intersection Improvements on Highway 2 and 5.*** Highway 2 in Centerville is number 186 in the IDOT statewide listing of top 200 Safety Improvement Candidate Locations. Pending the results of a detailed safety study of the intersection Highway 2 and 5, and the Highway 2 corridor, improvements may be necessary.

- ***Highway 202 from Highway 2 to the East County Line.*** This roadway is in poor condition and requires rehabilitation. An estimated cost for patching and overlay of this roughly 8 mile long segments is $1,250,000.

***Bridges.*** The total replacement value of the existing bridges is approximately $90 Million. From the latest bridge inventory data, the cost to repair or replace all bridges needing work is about $20 Million (or nearly 25% of the rough asset value).

Referring back to Exhibit 51 and Exhibit 52, the County 5-Year plan identifies several bridges for replacement. The total value of the replacements in the 5-Year plan is about $3.5 Million ($2,828,000 Federal Aid plus $707,000 local matching funds). This amount averages about $590,000 per year. (Note the 5-year plan includes current year, so it is actually six funding years.)

The bridges were prioritized for rehabilitation/replacement based on several criteria:

- Bridge Sufficiency Rating (50 Points)

- Remaining Estimated Bridge Life (10 Points)

- Roadway Classifications – Paved vs. Unpaved AND Farm-Market versus Local (5 Points)

- Load Posting – Greater than 9 tons ( allows school bus and emergency vehicles) or less than 9 tons (5 Points)

- Length of Detour (5 Points)

- Priority Growth Area – Is the bridge located in a Primary, Secondary, or Future Growth Area as identified on the Preferred Development Scenario (25 Points)

The weighted ranking was calculated as follows:

Bridge Sufficiency Rating as a percentage of 100 x 50 Points = Bridge Criteria Value
Remaining Life as a percentage of 50 years x 10 Points = Life Criteria Value

Classification Value = 0 if Roadway is classified Farm-Market and is Paved;
Classification Value = 2.5 if Roadway is classified Farm-Market and is not Paved;
Classification Value = 5 for all other Roadway classifications.

Load Posting Value = 5 if either the bridge isn't load posted or the posted load rating is at least 9 Tons (School Bus/Emergency Vehicle loading); Load Posting Value = 0 if the posting load rating is less than 9 Tons.

Length of Detour Value = 5 if the detour length (for bridge closure) is less than 5 miles. Length of Detour Value = 0 if the detour length (for bridge closure) is more than 10 miles. Length of Detour Value = 2.5 if the detour length is at least 5 miles but no more than 10 miles.

Priority growth areas are defined in the recommended future land use map. Based on the map: Priority Growth Value = 0 if the bridge is in a Priority Growth Area. Priority Growth Value = 12.5 if the bridge is in a Secondary Growth Area. Priority Growth Value = 25 if the bridge is in a Future Growth Area.

The above points for each criteria are summed to provide a Composite Ranking.

The criteria were selected and weighted to achieve two objectives:

- Preserve the original investment in existing bridge infrastructure
- Focus bridge replacement dollars around the higher priority areas

A composite score for each bridge in the inventory was computed based on the above criteria and weights. **Exhibit 55** summarizes the list of bridge projects and their priority ranking based on the composite score. Bridges that are currently closed were included in the priority rankings to see where they would fall. However, none of the closed bridges were included in the recommended 10 Year Bridge Replacement Program as clearly the County is currently doing without those bridges, and there are plenty of bridges in use that should have higher priority.

**Exhibit 56** summarizes the bridges in order of their ranking from Exhibit 55. The bridges listed in Exhibit 56 were assigned to program fiscal years to achieve a replacement schedule similar, budget wise (about $600,000 annually), to what is programmed in the 5-Year plan. Exhibit 57 shows the 10-Year plan graphically, with the bridges color coded by program year.

| EXHIBIT 55 – Composite Priority Ranking for All Bridges | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRIDGE DATA | | | | | | | | | | BRIDGE PRIORITY CALCULATION | | | | | | | |
| FHWA Number | Facility Carried | Sufficiency Rating | Posted Load | Open/Closed | Remaining Life (Yrs) | Detour Length (miles) | Type | Corridor Priority | Classification | 50 Sufficiency | 10 Life | 5 Classification | 5 Load | 5 Detour | 25 Priority | Composite Total |
| 065330 | ST JOSEPHS | 16 | 20 | | 3 | 2 | ASPH | Primary | L | 8 | 0.6 | 5 | 5 | 5 | 0 | 23.6 |
| 066040 | 250TH AVE | 20 | 20 | | 2 | 4 | GRAV | Primary | L | 10 | 0.4 | 5 | 5 | 5 | 0 | 25.4 |
| 065385 | 213TH AVE | 22 | 11 | | 5 | 2 | GRAV | Primary | L | 11 | 1 | 5 | 5 | 5 | 0 | 27.0 |
| 065390 | J29 | 39 | N/A | | 14 | 2 | ASPH | Primary | FM | 19.5 | 2.8 | 0 | 5 | 5 | 0 | 32.3 |
| 065410 | 195TH AVE | 34 | 10 | | 15 | 5.5 | GRAV | Primary | L | 17 | 3 | 5 | 5 | 2.5 | 0 | 32.5 |
| 066130 | 160TH AVE | 45 | 21 | | 8 | 2.5 | GRAV | Primary | L | 22.5 | 1.6 | 5 | 5 | 5 | 0 | 39.1 |
| 063630 | 611TH ST | 20 | 3 | Closed | 0 | N/A | UNIMP | Future | L | 10 | 0 | 5 | 0 | 0 | 25 | 40.0 |
| 064836 | 120TH AVE | 100 | N/A | | 50 | 6.5 | GRAV | Future | L | 50 | 10 | 5 | 5 | 2.5 | 25 | 97.5 |
| 065861 | 310TH AVE | 21 | 6 | | 2 | N/A | GRAV | Future | L | 10.5 | 0.4 | 5 | 0 | 0 | 25 | 40.9 |
| 064260 | 315TH AVE | 23 | 7 | | 8 | N/A | UNIMP | Future | L | 11.5 | 1.6 | 5 | 0 | 0 | 25 | 43.1 |
| 066110 | 458TH ST | 59 | N/A | | 10 | 7 | GRAV | Primary | L | 29.5 | 2 | 5 | 5 | 2.5 | 0 | 44.0 |
| 065990 | 450TH ST | 64 | 25 | | 18 | 8 | GRAV | Primary | FM | 32 | 3.6 | 2.5 | 5 | 2.5 | 0 | 45.6 |
| 063760 | 605TH ST | 21 | 3 | | 1 | 2.5 | GRAV | Future | L | 10.5 | 0.2 | 5 | 0 | 5 | 25 | 45.7 |
| 065220 | 482ND ST | 22 | 0 | Closed | 0 | 4 | GRAV | Future | L | 11 | 0 | 5 | 0 | 5 | 25 | 46.0 |
| 065820 | 405TH ST | 22 | 11 | | 5 | 7 | GRAV | Future | FM | 11 | 1 | 2.5 | 5 | 2.5 | 25 | 47.0 |
| 064380 | 543RD ST | 23 | N/A | | 20 | 11.5 | GRAV | Future | FM | 11.5 | 4 | 2.5 | 5 | 0 | 25 | 48.0 |
| 064480 | 250TH AVE | 19 | 14 | | 6 | 6 | GRAV | Future | L | 9.5 | 1.2 | 5 | 5 | 2.5 | 25 | 48.2 |
| 065571 | 210TH AVE | 74 | N/A | | 8 | N/A | GRAV | Primary | L | 37 | 1.6 | 5 | 5 | 0 | 0 | 48.6 |
| 065320 | 508TH ST | 69 | N/A | | 8 | 6 | GRAV | Primary | L | 34.5 | 1.6 | 5 | 5 | 2.5 | 0 | 48.6 |
| 066170 | 219TH AVE | 64 | N/A | | 8 | 2 | GRAV | Primary | L | 32 | 1.6 | 5 | 5 | 5 | 0 | 48.6 |
| 063660 | 307TH AVE | 26 | 14 | | 5 | N/A | GRAV | Future | L | 13 | 1 | 5 | 5 | 0 | 25 | 49.0 |
| 064050 | 614TH ST | 23 | 15 | | 4 | 7 | GRAV | Future | L | 11.5 | 0.8 | 5 | 5 | 2.5 | 25 | 49.8 |
| 066225 | T27 | 80 | N/A | | 15 | 25 | ASPH | Primary | FM | 40 | 3 | 2.5 | 5 | 0 | 0 | 50.5 |
| 063720 | 264TH AVE | 31 | 6 | Closed | 1 | 4 | GRAV | Future | L | 15.5 | 0.2 | 5 | 0 | 5 | 25 | 50.7 |
| 603380 | 510TH ST | 31 | 6 | | 2 | 1 | CONC | Future | L | 15.5 | 0.4 | 5 | 0 | 5 | 25 | 50.9 |
| 066255 | T27 | 81 | N/A | | 15 | 25 | ASPH | Primary | FM | 40.5 | 3 | 2.5 | 5 | 0 | 0 | 51.0 |
| 065310 | 508TH ST | 74 | N/A | | 9 | 6 | GRAV | Primary | L | 37 | 1.8 | 5 | 5 | 2.5 | 0 | 51.3 |
| 065850 | 302ND AVE | 27 | 14 | | 5 | 5.5 | GRAV | Future | L | 13.5 | 1 | 5 | 5 | 2.5 | 25 | 52.0 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 064800 | 130TH AVE | 34 | 18 | 8 | 6.5 | GRAV | Future | FM | 17 | 1.6 | 2.5 | 5 | 2.5 | 25 | 53.6 |
| 063810 | 210TH AVE | 49 | 13 | 8 | 3 | GRAV | Secondary | L | 24.5 | 1.6 | 5 | 5 | 5 | 12.5 | 53.6 |
| 064790 | 120TH AVE | 30 | 26 | 7 | 6.5 | GRAV | Future | L | 15 | 1.4 | 5 | 5 | 2.5 | 25 | 53.9 |
| 063860 | 183RD AVE | 33 | 9 | 4 | 5.5 | GRAV | Future | L | 16.5 | 0.8 | 5 | 5 | 2.5 | 25 | 54.8 |
| 065000 | 477TH ST | 33 | 20 | 6 | 6 | GRAV | Future | L | 16.5 | 1.2 | 5 | 5 | 2.5 | 25 | 55.2 |
| 064625 | 185TH AVE | 39 | 15 | 4 | N/A | GRAV | Future | L | 19.5 | 0.8 | 5 | 5 | 0 | 25 | 55.3 |
| 063450 | 269TH AVE | 40 | 20 | 3 | 7.5 | GRAV | Future | FM | 20 | 0.6 | 2.5 | 5 | 2.5 | 25 | 55.6 |
| 065660 | 150TH AVE | 35 | 20 | 3 | 5.5 | GRAV | Future | L | 17.5 | 0.6 | 5 | 5 | 2.5 | 25 | 55.6 |
| 065620 | 470TH ST | 29 | 9 | 8 | 3 | GRAV | Future | L | 14.5 | 1.6 | 5 | 5 | 5 | 25 | 56.1 |
| 063480 | 590TH ST | 37 | 17 | 3 | 5.5 | GRAV | Future | L | 18.5 | 0.6 | 5 | 5 | 2.5 | 25 | 56.6 |
| 066140 | T27 | 83 | N/A | 15 | 3 | ASPH | Primary | FM | 41.5 | 3 | 2.5 | 5 | 5 | 0 | 57.0 |
| 063800 | 610TH ST | 43 | 20 | 5 | 7 | GRAV | Future | FM | 21.5 | 1 | 2.5 | 5 | 2.5 | 25 | 57.5 |
| 063610 | 290TH AVE | 47 | 20 | 8 | 14 | GRAV | Future | FM | 23.5 | 1.6 | 2.5 | 5 | 0 | 25 | 57.6 |
| 063670 | 610TH ST | 42 | 19 | 8 | 9 | GRAV | Future | FM | 21 | 1.6 | 2.5 | 5 | 2.5 | 25 | 57.6 |
| 064060 | 330TH AVE | 35 | 10 | 3 | 4 | GRAV | Future | L | 17.5 | 0.6 | 5 | 5 | 5 | 25 | 58.1 |
| 064580 | 180TH AVE | 34 | N/A | 25 | 7 | GRAV | Future | L | 17 | 5 | 5 | 5 | 2.5 | 25 | 59.5 |
| 064770 | 105TH AVE | 38 | 20 | 3 | 3.5 | GRAV | Future | L | 19 | 0.6 | 5 | 5 | 5 | 25 | 59.6 |
| 065981 | 284TH AVE | 86 | N/A | 35 | N/A | GRAV | Primary | L | 43 | 7 | 5 | 5 | 0 | 0 | 60.0 |
| 065240 | 493RD ST | 48 | N/A | 6 | 12 | GRAV | Future | L | 24 | 1.2 | 5 | 5 | 0 | 25 | 60.2 |
| 065140 | 465TH ST | 40 | N/A | 4 | 2 | GRAV | Future | L | 20 | 0.8 | 5 | 5 | 5 | 25 | 60.8 |
| 065040 | 485TH ST | 45 | 14 | 6 | 3 | GRAV | Future | FM | 22.5 | 1.2 | 2.5 | 5 | 5 | 25 | 61.2 |
| 014010 | J29 | 47 | N/A | 5 | 3 | ASPH | Future | FM | 23.5 | 1 | 2.5 | 5 | 5 | 25 | 62.0 |
| 065950 | J3T | 95 | N/A | 30 | 5 | ASPH | Primary | FM | 47.5 | 6 | 0 | 5 | 5 | 0 | 63.5 |
| 064100 | 285TH AVE | 55 | 20 | 6 | 9 | GRAV | Future | FM | 27.5 | 1.2 | 2.5 | 5 | 2.5 | 25 | 63.7 |
| 065370 | 272ND AVE | 49 | N/A | 10 | 4 | GRAV | Future | FM | 24.5 | 2 | 2.5 | 5 | 5 | 25 | 64.0 |
| 065430 | 470TH ST | 55 | 24 | 8 | 6 | GRAV | Future | FM | 27.5 | 1.6 | 2.5 | 5 | 2.5 | 25 | 64.1 |
| 064810 | 135TH AVE | 45 | 12 | 8 | 5 | GRAV | Future | L | 22.5 | 1.6 | 5 | 5 | 5 | 25 | 64.1 |
| 065450 | 200TH AVE | 53 | 25 | 15 | 6 | GRAV | Future | FM | 26.5 | 3 | 2.5 | 5 | 2.5 | 25 | 64.5 |
| 064130 | 540TH ST | 52 | N/A | 6 | 4.5 | GRAV | Future | FM | 26 | 1.2 | 2.5 | 5 | 5 | 25 | 64.7 |
| 064350 | 540TH ST | 51 | N/A | 9 | 5 | GRAV | Future | FM | 25.5 | 1.8 | 2.5 | 5 | 5 | 25 | 64.8 |
| 065160 | 470TH ST | 48 | N/A | 5 | 2 | GRAV | Future | L | 24 | 1 | 5 | 5 | 5 | 25 | 65.0 |
| 065290 | 265TH AVE | 48 | 20 | 5 | 3.5 | GRAV | Future | L | 24 | 1 | 5 | 5 | 5 | 25 | 65.0 |
| 065551 | 205TH AVE | 88 | N/A | 30 | 3 | CONC | Primary | L | 44 | 6 | 5 | 5 | 5 | 0 | 65.0 |
| 065760 | 110TH AVE | 52 | 20 | 8 | 3.5 | GRAV | Future | FM | 26 | 1.6 | 2.5 | 5 | 5 | 25 | 65.1 |
| 065010 | 330TH AVE | 51 | 10 | 2 | 3 | GRAV | Future | L | 25.5 | 0.4 | 5 | 5 | 5 | 25 | 65.9 |
| 063690 | 269TH AVE | 51 | 25 | 15 | 4 | GRAV | Future | FM | 25.5 | 3 | 2.5 | 5 | 5 | 25 | 66.0 |
| 065870 | 437TH ST | 54 | N/A | 8 | 6 | GRAV | Future | L | 27 | 1.6 | 5 | 5 | 2.5 | 25 | 66.1 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 063710 | 263RD AVE | 49 | N/A | 8 | 4.5 | GRAV | Future | L | 24.5 | 1.6 | 5 | 5 | 5 | 25 | 66.1 |
| 063750 | 256TH AVE | 55 | N/A | 6 | 7.5 | GRAV | Future | L | 27.5 | 1.2 | 5 | 5 | 2.5 | 25 | 66.2 |
| 065770 | 115TH AVE | 48 | 28 | 12 | 3.5 | GRAV | Future | L | 24 | 2.4 | 5 | 5 | 5 | 25 | 66.4 |
| 014050 | T61 | 79 | N/A | 10 | 5 | CONC | Secondary | FM | 39.5 | 2 | 2.5 | 5 | 5 | 12.5 | 66.5 |
| 066151 | 413TH ST | 92 | N/A | 40 | 6.5 | GRAV | Primary | L | 46 | 8 | 5 | 5 | 2.5 | 0 | 66.5 |
| 066181 | 150TH AVE | 88 | N/A | 38 | 3 | GRAV | Primary | L | 44 | 7.6 | 5 | 5 | 5 | 0 | 66.6 |
| 014030 | T61 | 67 | N/A | 5 | 5.5 | ASPH | Future | FM | 33.5 | 1 | 0 | 5 | 2.5 | 25 | 67.0 |
| 064920 | 565TH ST | 53 | 16 | 15 | 6 | GRAV | Future | L | 26.5 | 3 | 5 | 5 | 2.5 | 25 | 67.0 |
| 064415 | 550TH ST | 58 | 20 | 4 | 5.5 | GRAV | Future | L | 29 | 0.8 | 5 | 5 | 2.5 | 25 | 67.3 |
| 063530 | 598TH ST | 62 | N/A | 8 | N/A | GRAV | Future | L | 31 | 1.6 | 5 | 5 | 0 | 25 | 67.6 |
| 063500 | 308TH AVE | 52 | 20 | 8 | 2 | GRAV | Future | L | 26 | 1.6 | 5 | 5 | 5 | 25 | 67.6 |
| 014040 | T61 | 63 | 26 | 6 | 3 | CONC | Future | FM | 31.5 | 1.2 | 0 | 5 | 5 | 25 | 67.7 |
| 065151 | 465TH ST | 62 | 30 | 10 | N/A | GRAV | Future | L | 31 | 2 | 5 | 5 | 0 | 25 | 68.0 |
| 064370 | 260TH AVE | 53 | 25 | 20 | 5.5 | GRAV | Future | L | 26.5 | 4 | 5 | 5 | 2.5 | 25 | 68.0 |
| 064450 | 285TH AVE | 58 | 26 | 20 | 7 | GRAV | Future | FM | 29 | 4 | 2.5 | 5 | 2.5 | 25 | 68.0 |
| 063550 | 336TH AVE | 52 | 21 | 12 | 4 | UNIMP | Future | L | 26 | 2.4 | 5 | 5 | 5 | 25 | 68.4 |
| 063680 | 582ND ST | 56 | N/A | 3 | 5 | GRAV | Future | L | 28 | 0.6 | 5 | 5 | 5 | 25 | 68.6 |
| 064390 | 543RD ST | 65 | N/A | 20 | 11.5 | GRAV | Future | FM | 32.5 | 4 | 2.5 | 5 | 0 | 25 | 69.0 |
| 064090 | 285TH AVE | 65 | N/A | 10 | 9 | GRAV | Future | FM | 32.5 | 2 | 2.5 | 5 | 2.5 | 25 | 69.5 |
| 064510 | 570TH ST | 65 | N/A | 10 | 7 | GRAV | Future | FM | 32.5 | 2 | 2.5 | 5 | 2.5 | 25 | 69.5 |
| 063871 | 169TH AVE | 53 | 22 | 15 | 3 | UNIMP | Future | L | 26.5 | 3 | 5 | 5 | 5 | 25 | 69.5 |
| 064691 | 560TH ST | 74 | 19 | 30 | 4.5 | GRAV | Secondary | L | 37 | 6 | 5 | 5 | 5 | 12.5 | 70.5 |
| 063650 | 610TH ST | 64 | N/A | 18 | 8 | GRAV | Future | FM | 32 | 3.6 | 2.5 | 5 | 2.5 | 25 | 70.6 |
| 064560 | 525TH ST | 64 | N/A | 6 | 7 | GRAV | Future | L | 32 | 1.2 | 5 | 5 | 2.5 | 25 | 70.7 |
| 064850 | 110TH AVE | 64 | 26 | 6 | 4 | GRAV | Future | FM | 32 | 1.2 | 2.5 | 5 | 5 | 25 | 70.7 |
| 064445 | 285TH AVE | 69 | N/A | 7 | 7 | GRAV | Future | FM | 34.5 | 1.4 | 2.5 | 5 | 2.5 | 25 | 70.9 |
| 063920 | 580TH ST | 66 | N/A | 15 | 6 | GRAV | Future | FM | 33 | 3 | 2.5 | 5 | 2.5 | 25 | 71.0 |
| 064611 | 170TH ST | 57 | 24 | 15 | 2.5 | GRAV | Future | L | 28.5 | 3 | 5 | 5 | 5 | 25 | 71.5 |
| 066101 | BOYER RIDGE RD | 100 | N/A | 45 | 7.5 | GRAV | Primary | L | 50 | 9 | 5 | 5 | 2.5 | 0 | 71.5 |
| 065561 | 205TH AVE | 95 | N/A | 46 | 3 | CONC | Primary | L | 47.5 | 9.2 | 5 | 5 | 5 | 0 | 71.7 |
| 064340 | DEWEY RD | 64 | 25 | 12 | 8 | GRAV | Future | L | 32 | 2.4 | 5 | 5 | 2.5 | 25 | 71.9 |
| 064270 | 272ND AVE | 60 | 14 | 10 | 2 | UNIMP | Future | L | 30 | 2 | 5 | 5 | 5 | 25 | 72.0 |
| 063620 | 610TH ST | 72 | N/A | 6 | 8 | GRAV | Future | FM | 36 | 1.2 | 2.5 | 5 | 2.5 | 25 | 72.2 |
| 063430 | 310TH AVE | 60 | N/A | 12 | 5 | GRAV | Future | L | 30 | 2.4 | 5 | 5 | 5 | 25 | 72.4 |
| 064360 | DEWEY RD | 66 | 25 | 10 | 8 | GRAV | Future | L | 33 | 2 | 5 | 5 | 2.5 | 25 | 72.5 |
| 065961 | 283RD AVE | 100 | N/A | 50 | 8 | GRAV | Primary | L | 50 | 10 | 5 | 5 | 2.5 | 0 | 72.5 |
| 063476 | 590TH ST | 78 | N/A | 8 | N/A | GRAV | Future | FM | 39 | 1.6 | 2.5 | 5 | 0 | 25 | 73.1 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 063910 | 580TH ST | 66 | N/A | 15 | 5 | GRAV | Future | FM | 33 | 3 | 2.5 | 5 | 5 | 25 | 73.5 |
| 064570 | 160TH AVE | 60 | 25 | 30 | 5 | GRAV | Future | FM | 30 | 6 | 2.5 | 5 | 5 | 25 | 73.5 |
| 066200 | 400TH ST | 65 | N/A | 5 | 4 | GRAV | Future | L | 32.5 | 1 | 5 | 5 | 5 | 25 | 73.5 |
| 063791 | 226TH AVE | 66 | 26 | 30 | N/A | GRAV | Future | L | 33 | 6 | 5 | 5 | 0 | 25 | 74.0 |
| 064440 | 285TH AVE | 70 | N/A | 20 | 7 | GRAV | Future | FM | 35 | 4 | 2.5 | 5 | 2.5 | 25 | 74.0 |
| 064516 | 210TH AVE | 100 | N/A | 45 | 4 | GRAV | Primary | L | 50 | 9 | 5 | 5 | 5 | 0 | 74.0 |
| 065110 | 310TH AVE | 65 | 26 | 8 | 2.5 | GRAV | Future | L | 32.5 | 1.6 | 5 | 5 | 5 | 25 | 74.1 |
| 065580 | 200TH AVE | 70 | N/A | 10 | 4 | GRAV | Future | FM | 35 | 2 | 2.5 | 5 | 5 | 25 | 74.5 |
| 063560 | 610TH ST | 72 | N/A | 20 | 8 | GRAV | Future | FM | 36 | 4 | 2.5 | 5 | 2.5 | 25 | 75.0 |
| 065500 | 168TH AVE | 65 | 22 | 25 | 6 | GRAV | Future | L | 32.5 | 5 | 5 | 5 | 2.5 | 25 | 75.0 |
| 064780 | 110TH AVE | 71 | N/A | 10 | 4 | GRAV | Future | FM | 35.5 | 2 | 2.5 | 5 | 5 | 25 | 75.0 |
| 065381 | 461ST ST | 100 | N/A | 50 | 2 | GRAV | Primary | L | 50 | 10 | 5 | 5 | 5 | 0 | 75.0 |
| 064170 | 550TH ST | 78 | N/A | 7 | 6 | GRAV | Future | FM | 39 | 1.4 | 2.5 | 5 | 2.5 | 25 | 75.4 |
| 013991 | T14 | 79 | N/A | 20 | 6 | CONC | Future | FM | 39.5 | 4 | 0 | 5 | 2.5 | 25 | 76.0 |
| 014020 | T61 | 78 | N/A | 10 | 4 | ASPH | Future | FM | 39 | 2 | 0 | 5 | 5 | 25 | 76.0 |
| 064710 | 560TH ST | 76 | N/A | 5 | 5.5 | GRAV | Future | L | 38 | 1 | 5 | 5 | 2.5 | 25 | 76.5 |
| 064880 | 135TH AVE | 71 | N/A | 18 | 6.5 | GRAV | Future | L | 35.5 | 3.6 | 5 | 5 | 2.5 | 25 | 76.6 |
| 065125 | 323RD AVE | 66 | 23 | 18 | 1 | GRAV | Future | L | 33 | 3.6 | 5 | 5 | 5 | 25 | 76.6 |
| 063900 | 210TH AVE | 73 | N/A | 15 | 6.5 | GRAV | Future | L | 36.5 | 3 | 5 | 5 | 2.5 | 25 | 77.0 |
| 064991 | 298TH AVE | 62 | 23 | 30 | 3 | GRAV | Future | L | 31 | 6 | 5 | 5 | 5 | 25 | 77.0 |
| 065790 | UNKNOWN | 72 | N/A | 20 | | GRAV | Future | FM | 36 | 4 | 2.5 | 5 | 5 | 25 | 77.5 |
| 064041 | 614TH ST | 76 | 20 | 15 | 7 | GRAV | Future | L | 38 | 3 | 5 | 5 | 2.5 | 25 | 78.5 |
| 064930 | 135TH AVE | 72 | 25 | 30 | 6.5 | GRAV | Future | L | 36 | 6 | 5 | 5 | 2.5 | 25 | 79.5 |
| 066271 | 439TH ST | 71 | N/A | 20 | 5 | GRAV | Future | L | 35.5 | 4 | 5 | 5 | 5 | 25 | 79.5 |
| 065830 | T61 | 86 | N/A | 23 | 10 | CONC | Future | FM | 43 | 4.6 | 0 | 5 | 2.5 | 25 | 80.1 |
| 063740 | 220TH AVE | 75 | N/A | 13 | 4 | GRAV | Future | L | 37.5 | 2.6 | 5 | 5 | 5 | 25 | 80.1 |
| 063771 | 602ND ST | 69 | N/A | 28 | 5 | GRAV | Future | L | 34.5 | 5.6 | 5 | 5 | 5 | 25 | 80.1 |
| 064751 | 210TH AVE | 90 | N/A | 45 | 2 | GRAV | Secondary | L | 45 | 9 | 5 | 5 | 5 | 12.5 | 81.5 |
| 065720 | 140TH AVE | 81 | N/A | 6 | 4 | GRAV | Future | L | 40.5 | 1.2 | 5 | 5 | 5 | 25 | 81.7 |
| 065461 | 160TH AVE | 79 | N/A | 25 | 5 | GRAV | Future | FM | 39.5 | 5 | 2.5 | 5 | 5 | 25 | 82.0 |
| 065731 | 150TH AVE | 78 | N/A | 15 | 5 | GRAV | Future | L | 39 | 3 | 5 | 5 | 5 | 25 | 82.0 |
| 065440 | T14 | 92 | N/A | 19 | 6 | ASPH | Future | FM | 46 | 3.8 | 0 | 5 | 2.5 | 25 | 82.3 |
| 065261 | 495TH ST | 76 | N/A | 23 | 4.5 | GRAV | Future | L | 38 | 4.6 | 5 | 5 | 5 | 25 | 82.6 |
| 063990 | 155TH AVE | 88 | N/A | 20 | 5.5 | GRAV | Future | FM | 44 | 4 | 2.5 | 5 | 2.5 | 25 | 83.0 |
| 065351 | 248TH AVE | 81 | N/A | 25 | 6.5 | GRAV | Future | L | 40.5 | 5 | 5 | 5 | 2.5 | 25 | 83.0 |
| 066055 | UNKNOWN | 84 | 14 | 5 | | GRAV | Future | L | 42 | 1 | 5 | 5 | 5 | 25 | 83.0 |
| 065650 | 150TH AVE | 88 | N/A | 8 | 5.5 | GRAV | Future | L | 44 | 1.6 | 5 | 5 | 2.5 | 25 | 83.1 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 066051 | 267TH AVE | 82 | N/A | 25 | 6 | GRAV | Future | L | 41 | 5 | 5 | 5 | 2.5 | 25 | 83.5 |
| 064110 | 330TH AVE | 84 | N/A | 10 | 4.5 | GRAV | Future | L | 42 | 2 | 5 | 5 | 5 | 25 | 84.0 |
| 063490 | 300TH AVE | 91 | N/A | 18 | 5.5 | GRAV | Future | FM | 45.5 | 3.6 | 2.5 | 5 | 2.5 | 25 | 84.1 |
| 064471 | 265TH AVE | 85 | N/A | 35 | 6.5 | GRAV | Future | FM | 42.5 | 7 | 2.5 | 5 | 2.5 | 25 | 84.5 |
| 065281 | 502ND ST | 72 | 25 | 43 | 2 | GRAV | Future | L | 36 | 8.6 | 5 | 5 | 5 | 25 | 84.6 |
| 065051 | 330TH AVE | 82 | N/A | 20 | 4 | GRAV | Future | L | 41 | 4 | 5 | 5 | 5 | 25 | 85.0 |
| 363640 | 565TH ST | 85 | N/A | 30 | 6 | GRAV | Future | L | 42.5 | 6 | 5 | 5 | 2.5 | 25 | 86.0 |
| 064981 | 570TH ST | 78 | N/A | 35 | 4.5 | GRAV | Future | L | 39 | 7 | 5 | 5 | 5 | 25 | 86.0 |
| 064971 | 100TH AVE | 83 | N/A | 25 | 5 | GRAV | Future | L | 41.5 | 5 | 5 | 5 | 5 | 25 | 86.5 |
| 065070 | 320TH AVE | 89 | N/A | 10 | 4 | GRAV | Future | L | 44.5 | 2 | 5 | 5 | 5 | 25 | 86.5 |
| 064741 | 210TH AVE | 100 | N/A | 45 | 2 | GRAV | Secondary | L | 50 | 9 | 5 | 5 | 5 | 12.5 | 86.5 |
| 063440 | 300TH AVE | 96 | N/A | 18 | 5.5 | GRAV | Future | FM | 48 | 3.6 | 2.5 | 5 | 2.5 | 25 | 86.6 |
| 066011 | 405TH ST | 96 | N/A | 18 | 9 | GRAV | Future | FM | 48 | 3.6 | 2.5 | 5 | 2.5 | 25 | 86.6 |
| 064965 | 100TH AVE | 79 | N/A | 36 | 5 | GRAV | Future | L | 39.5 | 7.2 | 5 | 5 | 5 | 25 | 86.7 |
| 065842 | 420TH ST | 84 | N/A | 50 | N/A | GRAV | Future | L | 42 | 10 | 5 | 5 | 0 | 25 | 87.0 |
| 064411 | 240TH AVE | 82 | N/A | 30 | 5 | GRAV | Future | L | 41 | 6 | 5 | 5 | 5 | 25 | 87.0 |
| 065811 | 293RD AVE | 87 | N/A | 45 | N/A | GRAV | Future | L | 43.5 | 9 | 5 | 5 | 0 | 25 | 87.5 |
| 063540 | 328TH AVE | 84 | N/A | 40 | 9 | GRAV | Future | L | 42 | 8 | 5 | 5 | 2.5 | 25 | 87.5 |
| 008476 | MYSTIC | 79 | N/A | 40 | 4 | ASPH | Future | L | 39.5 | 8 | 5 | 5 | 5 | 25 | 87.5 |
| 064401 | 240TH AVE | 84 | N/A | 28 | 5 | GRAV | Future | L | 42 | 5.6 | 5 | 5 | 5 | 25 | 87.6 |
| 064941 | 110TH AVE | 91 | N/A | 25 | 5 | GRAV | Future | FM | 45.5 | 5 | 2.5 | 5 | 5 | 25 | 88.0 |
| 362130 | 439TH ST | 88 | N/A | 20 | 5 | GRAV | Future | L | 44 | 4 | 5 | 5 | 5 | 25 | 88.0 |
| 064961 | 100TH AVE | 89 | N/A | 20 | 5 | GRAV | Future | L | 44.5 | 4 | 5 | 5 | 5 | 25 | 88.5 |
| 362895 | 250TH AVE | 84 | N/A | 46 | 7.5 | GRAV | Future | L | 42 | 9.2 | 5 | 5 | 2.5 | 25 | 88.7 |
| 065211 | 493RD ST | 93 | N/A | 40 | 12 | GRAV | Future | L | 46.5 | 8 | 5 | 5 | 0 | 25 | 89.5 |
| 008477 | 481ST ST | 89 | N/A | 30 | 4.5 | GRAV | Future | L | 44.5 | 6 | 5 | 5 | 5 | 25 | 90.5 |
| 065611 | 474TH ST | 89 | N/A | 30 | 4 | GRAV | Future | L | 44.5 | 6 | 5 | 5 | 5 | 25 | 90.5 |
| 065901 | T61 | 100 | N/A | 43 | 6 | CONC | Future | FM | 50 | 8.6 | 0 | 5 | 2.5 | 25 | 91.1 |
| 064831 | 150TH AVE | 96 | N/A | 32 | 5.5 | GRAV | Future | L | 48 | 6.4 | 5 | 5 | 2.5 | 25 | 91.9 |
| 064311 | 520TH ST | 92 | N/A | 30 | 4 | GRAV | Future | L | 46 | 6 | 5 | 5 | 5 | 25 | 92.0 |
| 064601 | 160TH AVE | 90 | N/A | 35 | 3 | GRAV | Future | L | 45 | 7 | 5 | 5 | 5 | 25 | 92.0 |
| 063841 | 600TH ST | 90 | N/A | 36 | 4.5 | GRAV | Future | L | 45 | 7.2 | 5 | 5 | 5 | 25 | 92.2 |
| 064681 | 195TH AVE | 100 | N/A | 40 | 6 | GRAV | Future | FM | 50 | 8 | 2.5 | 5 | 2.5 | 25 | 93.0 |
| 063730 | 590TH ST | 98 | N/A | 33 | 4.5 | GRAV | Future | FM | 49 | 6.6 | 2.5 | 5 | 5 | 25 | 93.1 |
| 064201 | 560TH ST | 88 | N/A | 48 | 3 | GRAV | Future | L | 44 | 9.6 | 5 | 5 | 5 | 25 | 93.6 |
| 064541 | 520TH ST | 100 | N/A | 50 | 7 | GRAV | Future | FM | 50 | 10 | 2.5 | 5 | 2.5 | 25 | 95.0 |
| 064900 | 153RD AVE | 100 | N/A | 50 | 6 | GRAV | Future | FM | 50 | 10 | 2.5 | 5 | 2.5 | 25 | 95.0 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 065710 | 490TH ST | 100 | N/A | 50 | 6 | GRAV | Future | FM | 50 | 10 | 2.5 | 5 | 2.5 | 25 | 95.0 |
| 065591 | 470TH ST | 96 | N/A | 35 | 3 | GRAV | Future | L | 48 | 7 | 5 | 5 | 5 | 25 | 95.0 |
| 063781 | 610TH ST | 100 | N/A | 38 | 7 | GRAV | Future | L | 50 | 7.6 | 5 | 5 | 2.5 | 25 | 95.1 |
| 064181 | 338TH AVE | 100 | N/A | 35 | 3.5 | GRAV | Future | L | 50 | 7 | 5 | 5 | 5 | 25 | 97.0 |
| 065091 | 330TH AVE | 100 | N/A | 35 | 5 | GRAV | Future | L | 50 | 7 | 5 | 5 | 5 | 25 | 97.0 |
| 065931 | 310TH AVE | 100 | N/A | 50 | 6 | GRAV | Future | L | 50 | 10 | 5 | 5 | 2.5 | 25 | 97.5 |
| 065741 | 135TH AVE | 100 | N/A | 50 | 4 | GRAV | Future | FM | 50 | 10 | 2.5 | 5 | 5 | 25 | 97.5 |
| 065781 | UNKNOWN | 100 | N/A | 50 | | GRAV | Future | FM | 50 | 10 | 2.5 | 5 | 5 | 25 | 97.5 |
| 065101 | 323RD AVE | 100 | N/A | 40 | 4.5 | GRAV | Future | L | 50 | 8 | 5 | 5 | 5 | 25 | 98.0 |
| 063851 | 183RD AVE | 100 | N/A | 48 | 4 | GRAV | Future | L | 50 | 9.6 | 5 | 5 | 5 | 25 | 99.6 |
| 065630 | 140TH AVE | 100 | N/A | 50 | 3 | GRAV | Future | L | 50 | 10 | 5 | 5 | 5 | 25 | 100.0 |
| 065640 | UNKNOWN | 100 | N/A | 50 | | GRAV | Future | L | 50 | 10 | 5 | 5 | 5 | 25 | 100.0 |

## Exhibit 56: Recommended Bridge Priorities and Estimated Costs

| FHWA Number | Facility Carried | Recommended Treatment | Recommended Plan Year | Composite Total | Estimated Budget (2005) |
|---|---|---|---|---|---|
| *065330* | *ST JOSEPHS* | *REPLACE* | *FY06* | *23.6* | *$740,000* |
| *066040* | *250TH AVE* | *REPLACE* | *FY045* | *25.4* | *$225,000* |
| 065385 | 213TH AVE | REPLACE | FY07 | 27.0 | $135,000 |
| *065390* | *J29* | *REPAIR* | *FY08* | *32.3* | *$640,000* |
| *065410* | *195TH AVE* | *REPLACE* | *FY08* | *32.5* | *$309,000* |
| 066130 | 160TH AVE | REPLACE | FY11 | 39.1 | $163,000 |
| 063630 | 611TH ST | CLOSE | CLOSED | 40.0 | $146,000 |
| 064836 | 120TH AVE | MAINTENANCE | FY11 | 97.5 | $22,000 |
| 065861 | 310TH AVE | REPLACE | FY11 | 40.9 | $236,000 |
| 064260 | 315TH AVE | REPLACE | FY12 | 43.1 | $156,000 |
| 066110 | 458TH ST | MAINTENANCE | FY12 | 44.0 | $266,000 |
| 065990 | 450TH ST | MAINTENANCE | FY12 | 45.6 | $302,000 |
| 063760 | 605TH ST | REPLACE | FY13 | 45.7 | $159,000 |
| 065220 | 482ND ST | CLOSE | CLOSED | 46.0 | $579,000 |
| *065820* | *405TH ST* | *REPLACE* | *FY08* | *47.0* | *$240,000* |
| 064380 | 543RD ST | REPLACE | FY14 | 48.0 | $906,000 |
| 064480 | 250TH AVE | REPLACE | FY13 | 48.2 | $238,000 |
| 065571 | 210TH AVE | REPLACE | FY13 | 48.6 | $118,000 |
| 065320 | 508TH ST | REPLACE | | 48.6 | $82,000 |
| 066170 | 219TH AVE | REPLACE | | 48.6 | $280,000 |
| 063660 | 307TH AVE | REPLACE | | 49.0 | $88,000 |
| 064050 | 614TH ST | REPLACE | | 49.8 | $158,000 |
| 066225 | T27 | MAINTENANCE | | 50.5 | $11,000 |
| 063720 | 264TH AVE | REPLACE | | 50.7 | $284,000 |
| 603380 | 510TH ST | REPLACE | | 50.9 | $195,000 |
| 066255 | T27 | MAINTENANCE | | 51.0 | $11,000 |
| 065310 | 508TH ST | REPLACE | | 51.3 | $122,000 |
| 065850 | 302ND AVE | REPLACE | | 52.0 | $154,000 |
| 064800 | 130TH AVE | REPLACE | | 53.6 | $196,000 |
| 063810 | 210TH AVE | REPLACE | | 53.6 | $102,000 |
| 064790 | 120TH AVE | REPLACE | | 53.9 | $159,000 |

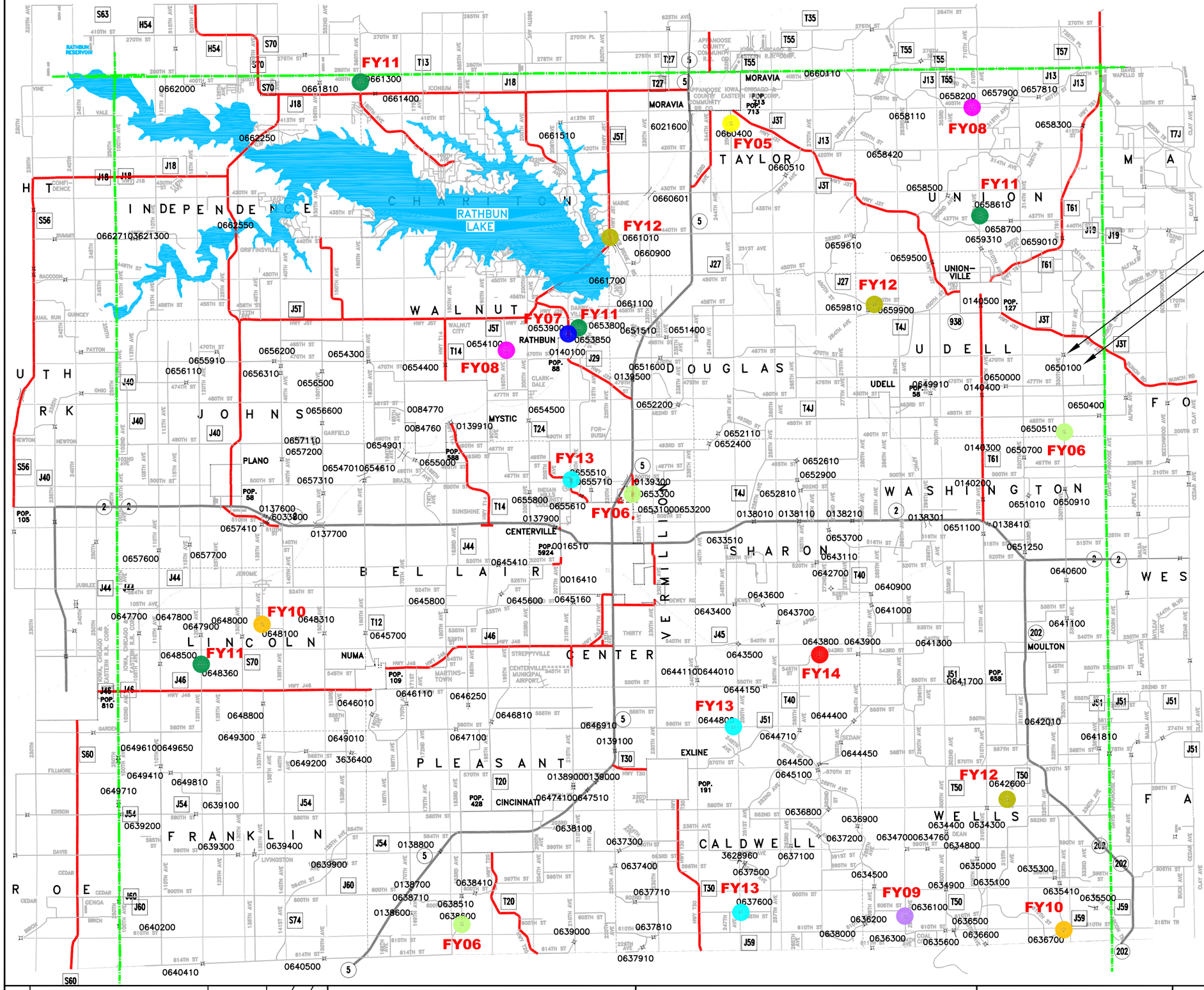
| FHWA Number | Facility Carried | Recommended Treatment | Recommended Plan Year | Composite Total | Estimated Budget (2005) |
|---|---|---|---|---|---|
| *063860* | *183RD AVE* | *REPLACE* | *FY06* | *54.8* | *$266,000* |
| 065000 | 477TH ST | REPLACE | | 55.2 | $106,000 |
| 064625 | 185TH AVE | REPLACE | | 55.3 | $93,000 |
| 063450 | 269TH AVE | REPLACE | | 55.6 | $186,000 |
| 065660 | 150TH AVE | REPLACE | | 55.6 | $208,000 |
| 065620 | 470TH ST | REPLACE | | 56.1 | $78,000 |
| 063480 | 590TH ST | REPLACE | | 56.6 | $140,000 |
| 066140 | T27 | REPAIR | | 57.0 | $69,000 |
| 063800 | 610TH ST | REPLACE | | 57.5 | $140,000 |
| *063610* | *290TH AVE* | *REPLACE* | *FY09* | *57.6* | *$230,000* |
| *063670* | *610TH ST* | *REPLACE* | *FY10* | *57.6* | *$333,000* |
| 064060 | 330TH AVE | REPLACE | | 58.1 | $121,000 |
| 064580 | 180TH AVE | MAINTENANCE | | 59.5 | $3,000 |
| 064770 | 105TH AVE | REPLACE | | 59.6 | $129,000 |
| 065981 | 284TH AVE | MAINTENANCE | | 60.0 | $2,000 |
| 065240 | 493RD ST | REPLACE | | 60.2 | $230,000 |
| 065140 | 465TH ST | REPLACE | | 60.8 | $124,000 |
| 065040 | 485TH ST | REPLACE | | 61.2 | $100,000 |
| 014010 | J29 | REPLACE | | 62.0 | $946,000 |
| 065950 | J3T | MAINTENANCE | | 63.5 | $5,000 |
| 064100 | 285TH AVE | REPLACE | | 63.7 | $180,000 |
| 065370 | 272ND AVE | REPLACE | | 64.0 | $228,000 |
| 065430 | 470TH ST | REPLACE | | 64.1 | $255,000 |
| *064810* | *135TH AVE* | *REPLACE* | *FY10* | *64.1* | *$240,000* |
| 065450 | 200TH AVE | REPAIR | | 64.5 | $46,000 |
| 064130 | 540TH ST | REPLACE | | 64.7 | $83,000 |
| 064350 | 540TH ST | REPLACE | | 64.8 | $657,000 |
| 065160 | 470TH ST | REPLACE | | 65.0 | $128,000 |
| 065290 | 265TH AVE | REPLACE | | 65.0 | $285,000 |
| 065551 | 205TH AVE | MAINTENANCE | | 65.0 | $ - |
| 065760 | 110TH AVE | REPLACE | | 65.1 | $258,000 |
| *065010* | *330TH AVE* | *REPLACE* | *FY06* | *65.9* | *$312,000* |

| FHWA Number | Facility Carried | Recommended Treatment | Recommended Plan Year | Composite Total | Estimated Budget (2005) |
|---|---|---|---|---|---|
| 063690 | 269TH AVE | REPAIR | | 66.0 | $31,000 |
| 065870 | 437TH ST | REPLACE | | 66.1 | $189,000 |
| 063710 | 263RD AVE | REPLACE | | 66.1 | $166,000 |
| 063750 | 256TH AVE | REPLACE | | 66.2 | $132,000 |
| 065770 | 115TH AVE | REPAIR | | 66.4 | $22,000 |
| 014050 | T61 | REPLACE | | 66.5 | $192,000 |
| 066151 | 413TH ST | MAINTENANCE | | 66.5 | $ - |
| 066181 | 150TH AVE | MAINTENANCE | | 66.6 | $ - |
| 014030 | T61 | REPLACE | | 67.0 | $180,000 |
| 064920 | 565TH ST | REPAIR | | 67.0 | $7,000 |
| 064415 | 550TH ST | REPLACE | | 67.3 | $178,000 |
| 063530 | 598TH ST | REPLACE | | 67.6 | $105,000 |
| 063500 | 308TH AVE | REPLACE | | 67.6 | $254,000 |
| 014040 | T61 | REPLACE | | 67.7 | $181,000 |
| 065151 | 465TH ST | REPLACE | | 68.0 | $98,000 |
| 064370 | 260TH AVE | MAINTENANCE | | 68.0 | $2,000 |
| 064450 | 285TH AVE | MAINTENANCE | | 68.0 | $3,000 |
| 063550 | 336TH AVE | REPAIR | | 68.4 | $6,000 |
| 063680 | 582ND ST | REPLACE | | 68.6 | $101,000 |
| 064390 | 543RD ST | MAINTENANCE | | 69.0 | $2,000 |
| 064090 | 285TH AVE | REPLACE | | 69.5 | $580,000 |
| 064510 | 570TH ST | REPLACE | | 69.5 | $128,000 |
| 063871 | 169TH AVE | REPAIR | | 69.5 | $8,000 |
| 064691 | 560TH ST | MAINTENANCE | | 70.5 | $1,000 |
| 063650 | 610TH ST | REPAIR | | 70.6 | $38,000 |
| 064560 | 525TH ST | REPLACE | | 70.7 | $104,000 |
| 064850 | 110TH AVE | REPLACE | | 70.7 | $100,000 |
| 064445 | 285TH AVE | REPLACE | | 70.9 | $245,000 |
| 063920 | 580TH ST | REPAIR | | 71.0 | $10,000 |
| 064611 | 170TH ST | REPAIR | | 71.5 | $ 29,000 |
| 066101 | BOYER RIDGE RD | MAINTENANCE | | 71.5 | $ - |
| 065561 | 205TH AVE | MAINTENANCE | | 71.7 | $4,000 |

| FHWA Number | Facility Carried | Recommended Treatment | Recommended Plan Year | Composite Total | Estimated Budget (2005) |
|---|---|---|---|---|---|
| 064340 | DEWEY RD | REPAIR | | 71.9 | $9,000 |
| 064270 | 272ND AVE | REPLACE | | 72.0 | $102,000 |
| 063620 | 610TH ST | REPLACE | | 72.2 | $166,000 |
| 063430 | 310TH AVE | REPAIR | | 72.4 | $7,000 |
| 064360 | DEWEY RD | REPLACE | | 72.5 | $208,000 |
| 065961 | 283RD AVE | MAINTENANCE | | 72.5 | $2,000 |
| 063476 | 590TH ST | REPLACE | | 73.1 | $115,000 |
| 063910 | 580TH ST | REPAIR | | 73.5 | $10,000 |
| 064570 | 160TH AVE | MAINTENANCE | | 73.5 | $2,000 |
| 066200 | 400TH ST | REPLACE | | 73.5 | $130,000 |
| 063791 | 226TH AVE | MAINTENANCE | | 74.0 | $2,000 |
| 064440 | 285TH AVE | MAINTENANCE | | 74.0 | $5,000 |
| 064516 | 210TH AVE | MAINTENANCE | | 74.0 | $1,000 |
| 065110 | 310TH AVE | REPLACE | | 74.1 | $89,000 |
| 065580 | 200TH AVE | REPLACE | | 74.5 | $168,000 |
| 063560 | 610TH ST | MAINTENANCE | | 75.0 | $6,000 |
| 065500 | 168TH AVE | MAINTENANCE | | 75.0 | $3,000 |
| 064780 | 110TH AVE | REPLACE | | 75.0 | $168,000 |
| 065381 | 461ST ST | MAINTENANCE | | 75.0 | $4,000 |
| 064170 | 550TH ST | REPLACE | | 75.4 | $105,000 |
| 013991 | T14 | MAINTENANCE | | 76.0 | $12,000 |
| 014020 | T61 | REPLACE | | 76.0 | $180,000 |
| 064710 | 560TH ST | REPLACE | | 76.5 | $122,000 |
| 064880 | 135TH AVE | REPAIR | | 76.6 | $8,000 |
| 065125 | 323RD AVE | REPAIR | | 76.6 | $6,000 |
| 063900 | 210TH AVE | REPAIR | | 77.0 | $11,000 |
| 064991 | 298TH AVE | MAINTENANCE | | 77.0 | $1,000 |
| 065790 | UNKNOWN | MAINTENANCE | | 77.5 | $4,000 |
| 064041 | 614TH ST | REPAIR | | 78.5 | $12,000 |
| 064930 | 135TH AVE | MAINTENANCE | | 79.5 | $2,000 |
| 066271 | 439TH ST | MAINTENANCE | | 79.5 | $1,000 |
| 065830 | T61 | MAINTENANCE | | 80.1 | $5,000 |

| FHWA Number | Facility Carried | Recommended Treatment | Recommended Plan Year | Composite Total | Estimated Budget (2005) |
|---|---|---|---|---|---|
| 063740 | 220TH AVE | REPAIR | | 80.1 | $9,000 |
| 063771 | 602ND ST | MAINTENANCE | | 80.1 | $1,000 |
| 064751 | 210TH AVE | MAINTENANCE | | 81.5 | $3,000 |
| 065720 | 140TH AVE | REPLACE | | 81.7 | $105,000 |
| 065461 | 160TH AVE | MAINTENANCE | | 82.0 | $2,000 |
| 065731 | 150TH AVE | REPAIR | | 82.0 | $29,000 |
| 065440 | T14 | REPAIR | | 82.3 | $54,000 |
| 065261 | 495TH ST | MAINTENANCE | | 82.6 | $1,000 |
| 063990 | 155TH AVE | MAINTENANCE | | 83.0 | $1,000 |
| 065351 | 248TH AVE | MAINTENANCE | | 83.0 | $1,000 |
| 066055 | UNKNOWN | REPLACE | | 83.0 | $166,000 |
| 065650 | 150TH AVE | REPLACE | | 83.1 | $110,000 |
| 066051 | 267TH AVE | MAINTENANCE | | 83.5 | $ - |
| 064110 | 330TH AVE | REPLACE | | 84.0 | $181,000 |
| 063490 | 300TH AVE | REPAIR | | 84.1 | $33,000 |
| 064471 | 265TH AVE | MAINTENANCE | | 84.5 | $3,000 |
| 065281 | 502ND ST | MAINTENANCE | | 84.6 | $1,000 |
| 065051 | 330TH AVE | MAINTENANCE | | 85.0 | $ - |
| 363640 | 565TH ST | MAINTENANCE | | 86.0 | $ - |
| 064981 | 570TH ST | MAINTENANCE | | 86.0 | $ - |
| 064971 | 100TH AVE | MAINTENANCE | | 86.5 | $1,000 |
| 065070 | 320TH AVE | REPLACE | | 86.5 | $175,000 |
| 064741 | 210TH AVE | MAINTENANCE | | 86.5 | $ - |
| 063440 | 300TH AVE | REPAIR | | 86.6 | $14,000 |
| 066011 | 405TH ST | REPAIR | | 86.6 | $12,000 |
| 064965 | 100TH AVE | MAINTENANCE | | 86.7 | $1,000 |
| 065842 | 420TH ST | MAINTENANCE | | 87.0 | $1,000 |
| 064411 | 240TH AVE | MAINTENANCE | | 87.0 | $1,000 |
| 065811 | 293RD AVE | MAINTENANCE | | 87.5 | $ - |
| 063540 | 328TH AVE | MAINTENANCE | | 87.5 | $1,000 |
| 008476 | MYSTIC | MAINTENANCE | | 87.5 | $1,000 |
| 064401 | 240TH AVE | MAINTENANCE | | 87.6 | $ - |

| FHWA Number | Facility Carried | Recommended Treatment | Recommended Plan Year | Composite Total | Estimated Budget (2005) |
|---|---|---|---|---|---|
| 064941 | 110TH AVE | MAINTENANCE | | 88.0 | $2,000 |
| 362130 | 439TH ST | MAINTENANCE | | 88.0 | $1,000 |
| 064961 | 100TH AVE | MAINTENANCE | | 88.5 | $1,000 |
| 362895 | 250TH AVE | MAINTENANCE | | 88.7 | $1,000 |
| 065211 | 493RD ST | MAINTENANCE | | 89.5 | $4,000 |
| 008477 | 481ST ST | MAINTENANCE | | 90.5 | $ - |
| 065611 | 474TH ST | MAINTENANCE | | 90.5 | $ - |
| 065901 | T61 | MAINTENANCE | | 91.1 | $5,000 |
| 064831 | 150TH AVE | MAINTENANCE | | 91.9 | $3,000 |
| 064311 | 520TH ST | MAINTENANCE | | 92.0 | $ - |
| 064601 | 160TH AVE | MAINTENANCE | | 92.0 | $4,000 |
| 063841 | 600TH ST | MAINTENANCE | | 92.2 | $1,000 |
| 064681 | 195TH AVE | MAINTENANCE | | 93.0 | $4,000 |
| 063730 | 590TH ST | MAINTENANCE | | 93.1 | $3,000 |
| 064201 | 560TH ST | MAINTENANCE | | 93.6 | $1,000 |
| 064541 | 520TH ST | MAINTENANCE | | 95.0 | $3,000 |
| 064900 | 153RD AVE | MAINTENANCE | | 95.0 | $3,000 |
| 065710 | 490TH ST | MAINTENANCE | | 95.0 | $1,000 |
| 065591 | 470TH ST | MAINTENANCE | | 95.0 | $1,000 |
| 063781 | 610TH ST | MAINTENANCE | | 95.1 | $4,000 |
| 064181 | 338TH AVE | MAINTENANCE | | 97.0 | $ - |
| 065091 | 330TH AVE | MAINTENANCE | | 97.0 | $3,000 |
| 065931 | 310TH AVE | MAINTENANCE | | 97.5 | $2,000 |
| 065741 | 135TH AVE | MAINTENANCE | | 97.5 | $2,000 |
| 065781 | UNKNOWN | MAINTENANCE | | 97.5 | $2,000 |
| 065101 | 323RD AVE | MAINTENANCE | | 98.0 | $ - |
| 063851 | 183RD AVE | MAINTENANCE | | 99.6 | $2,000 |
| 065630 | 140TH AVE | MAINTENANCE | | 100.0 | $ - |
| 065640 | UNKNOWN | MAINTENANCE | | 100.0 | $ - |




N.T.S.

Bridge

Federal Highway Administration Bridge Number

10 YEAR PLAN BY FISCAL YEAR

- FY 05
- FY 06
- FY 07
- FY 08
- FY 09
- FY 10
- FY 11
- FY 12
- FY 13
- FY 14
- State Route
- County Boundary

| NO. | REVISION DESCRIPTION | APPROVED | DATE |
|---|---|---|---|

Client: Chariton Valley RC&D
Iowa Department of Transportation
Planning Division

ANDERSON-BOGERT
Engineers & Surveyors, Inc.

Drawn By: JCM
Date: 10/05/04
Project No. 204006
Approved By: JCM
Scale:

Appanoose County
Special Transportation Study

EXHIBIT 57
Recommended 10 Year
Bridge Priorities Program

SHEET NO. 1 OF 1

**Rail.** The APNC has a 10-Year improvements priority plan. **Exhibit 58** summarizes the improvements and their associated costs. As can be seen from the table, APNC has identified major infrastructure improvements for their branchline railroad. These improvements are consistent with the goals stated by the Iowa DOT in the "Iowa In Motion Rail System Plan". These goals included increasing track strength to 112 lb or heavier continuous welded steel track, cross tie replacement to achieve at least 75% non-defective ties per mile, and minimum 6" of clean ballast for positive support of the continuous welded rail.

**Exhibit 58: APNC Prioritized Future Projects**

| Project | Estimated Cost |
|---|---|
| FY04 – Repair/Replace Bridge #5 | $ 150,000 |
| FY05 – Repair/Replace Bridge #6 | $ 150,000 |
| FY06 – Repair/Replace Bridge #9 | $ 150,000 |
| FY07 – Repair/Replace Bridge #10 | $ 100,000 |
| FY07 – Build new switching with IC&E at Moravia | $ 100,000 |
| 1-5 Years: Repair/Replace Culverts | $ 100,000 |
| 1-5 Years: Recover ballast & Salvage at Moulton Jct. | $ 20,000 |
| 5-10 Years: Major tie replacement | $1,200,000 |
| 5-10 Years: Major Ballast Project | $2,000,000 |
| 5-10 Years: Create new intermodal site for local shippers | $ 300,000 |
| 5-10 Years: Replace/overhaul locomotive | $ 120,000 |
| 5-10 Years: Convert rail on 10 Mile Section to Continuous Weld | $1,000,000 |
| TOTAL 10 YEAR INFRASTRUCTURE INVESTMENT | **$5,390,000** |

***Aviation.*** The 2000 ALP identified prioritized development phases for the Centerville Airport. **Exhibit 59** is taken from the ALP, and summarizes the phased developments and costs. The costs reported in Exhibit 52 are in 1999 dollars and should be increased by about 20% to account for inflation over the past 5 years.

No specific time frame was identified in the ALP for the listed improvements. None of the improvements have been made to date. In talking with airport operations staff, there may be a change in priority between the cross wind runway and the main runway extension. It appears extending the main runway to 5,000' to meet existing service demand by local businesses may have higher priority. Also, mentioned is a desire to install an Automated Weather Observing System (AWOS), which was not included in the 2000 ALP.

The Centerville Airport is in the process of updating their ALP. As such, more up to date information will be available when that process is completed.

**Exhibit 59: Centerville Airport Capital Improvement Program (2000 ALP)**

| | FAA | IDOT | Local | Total |
|---|---|---|---|---|
| **Phase I Improvements** | | | | |
| 2,500' Cross Wind Runway Grading & Drainage | $0 | $342,500 | $342,500 | $685,000 |
| T-Hangar (10 Units) | | $0 | $300,000 | $300,000 |
| Phase I Total | $0 | $342,500 | $642,500 | $985,000 |
| **Stage II Developments** | | | | |
| Land Acquisition for 900' Main Runway Extension | $243,000 | $0 | $27,000 | $270,000 |
| Land Acquisition for Cross Wind Runway Extension from 2,500' to 4000' | $435,600 | $0 | $48,400 | $484,000 |
| Grade and pave Main Runway Extension | $504,000 | $0 | $56,000 | $560,000 |
| Phase 2 Total | $1,182,600 | $0 | $131,400 | $1,314,000 |
| **Stage III Developments** | | | | |
| Grade and pave parallel taxiway for main runway | $1,200,000 | $0 | $140,000 | $1,400,000 |
| Pave 2,500' Cross Wind Runway | $1,021,500 | $0 | $113,500 | $1,135,000 |
| Grade and pave Cross Wind Runway Extension | 1233000 | $0 | $137,000 | $1,370,000 |
| Grade and pave parallel taxiway for | $540,000 | $0 | $60,000 | $600,000 |

| | FAA | IDOT | Local | Total |
|---|---|---|---|---|
| Cross Wind Runway | | | | |
| T-Hangars (20 Units) | $0 | $0 | $300,000 | $300,000 |
| Phase 3 Total | $4,054,400 | $0 | $750,500 | $4,805,000 |
| **TOTAL PROGRAM COSTS** | $5,237,100 | $342.500 | $1,524,400 | $7,104,000 |

***Trails.*** The Appanoose County trails program is in the very early stages of planning. The Iowa Department of Transportation report "Trails 2000" is a resource document providing conceptual trail alignments for a statewide, interconnected trail system. The Statewide Trails Vision Map from the Trails 2000 document identifies the trails around Lake Rathbun extending southeasterly to Sedan Bottoms as a Vision Corridor. The Vision Map also identifies a corridor along Highway 2.

The trail route along Highway 2 represents about 25 miles of trail. The trail from the southeasterly limit of Lake Rathbun to the Sedan Bottoms and Iowa/Missouri border is also roughly 25 miles. These two trail corridors are similar to the secondary preferences identified in the Chariton Valley Transportation Affiliation Plan.

For purposes of this study, it is assumed the trails around Lake Rathbun, and the Lake Rathbun recreation areas will be funded and constructed by the Corps of Engineers and private funding (Honey Creek Destination Park, private developers, local trails groups).

The corridors in the Trails 2000 plan are estimated to cost about $5.5 Million for initial construction cost of the entire 50 miles. Priority should be extending the trails southeasterly from Lake Rathbun toward Centerville. Second priority should be from Centerville to Sedan Bottoms, and finally, the corridors along Highway 2, phased in conjunction with Highway 2 reconstruction.

***Transit.*** The transit system is operated primarily outside the County, by a separate entity. Discussions with representatives of the 10-15 Transit system indicate they are fairly aggressive in pursuing transit opportunities if it can be shown how the revenues will justify the costs. At this time, on-demand transit service should be sufficient for the immediate term. Longer term, as opportunities develop with Honey Creek Destination Park, or along the corridor between Centerville and Albia, fixed transit infrastructure (such as park-and-ride parking facility at Honey Creek) may be justified.

**Available Revenue Streams for Transportation System Infrastructure Improvements**

Transportation infrastructure costs typically include maintenance of existing facilities, and investment in new facilities.

The main sources of County revenues to fund these improvements are:

- Local Taxes (Property taxes and local option sales taxes)

- Road Use Taxes (Collected by the State through taxes on fuels, sales tax on vehicles, vehicle registrations, etc.)

- Bridge Replacement Funds (State and Federal funds for bridge replacement)

- Farm-to-Market Road Funds (Special set-aside from the state Road Use Taxes for roadway improvements on the Farm-to-Market system)

- Traffic Safety Funds (The State's Traffic Safety Improvement Program funded through a 1% set-aside from the State Road Use Tax)

- Revitalize Iowa's Sound Economy (RISE) Fund (A special economic development program used to fund roadway improvements that are tied to a direct creation of new jobs in Iowa – Typically tied to a specific new business development)

- Federal Aid Funds (Federal funds administered through the Regional Planning Organization for use on Federal Aid eligible routes).

- Other funds (Minor State and Federal funds, and special funds that are available from time to time).

Other forms of funding public improvements projects include:

- ***Special Assessments.*** Benefit districts are created for a particular improvement, and the property owners within that district are assessed the cost (or some share of the cost) of the improvement on a pro rata basis. Properties that are in agricultural land use can file for an exemption from the assessment, which means the assessment is deferred until such time as the land changes use from agricultural land use. The local tax assessor makes the determination as to the current land use.

  Special assessments can be effective, but also can be very unpopular. If the majority of property owners are not in favor of the improvement to the point they are willing to pay a share of the cost, the project will typically fail. However, various forms of special assessment exist in Appanoose County, such as new driveway culverts and dust control, in which the County and benefitted property owner share in the cost of the improvement. That particular case would be termed a "petitioned assessment" where the property owner asks to be assessed for their share of the improvement.

- ***Tax Increment Financing (TIF).*** A district is defined for the TIF in which future property taxes generated by the land within the district is used to repay loans taken to make infrastructure improvements. TIF has been used in Appanoose County with mixed results.

- ***Private Funding of Public Improvements.*** Private land developers can be required to make public improvements to the adjacent transportation system on which their proposed development will have impact. For example, the developer of a subdivision may be required to pave the adjacent public roadway from their development to the nearest paved roadway. They may also be required to provide storm water detention or at least pipe crossing upgrades to accommodate additional storm water runoff from the new development. Other improvements might include adding turn lanes on the public roads to serve their development, grading and building in whole, or in part, a trail through the property, etc.

***Roadways.*** Paved roadway maintenance is approximately $13,600,000 over the next 10 years (including inflation) for major rehabilitation. Minor maintenance such as crack sealing and minor patching should be roughly $200,000. This averages to about $1.25 Million annually that should be spent on the existing paved roadway system. Based on the County's 5-Year plan, the current Farm-to-Market monies average about $940,000 per year, which is about two-thirds of the annual maintenance need.

Another $20,000 should be budgeted annually for intersection safety improvements. The potential candidates for intersection safety upgrades total about $1,000,000. Assuming half of the candidates actually warrant safety improvements, and qualify for Traffic Safety Funding, the local match would be roughly 20% of $500,000. Spread over 5-years, the $100,000 in matching funds equates to $20,000 per year. Even though there are only three likely safety candidates identified in the study, as traffic grows in the County through development, additional safety issues will no doubt arise.

At this time, it is not recommended that the County build new paved roadways because of the additional maintenance costs. Further, the County should not accept new roadways from private development unless they meet County roadway standards. Maintenance costs for the new roadways can be estimated at about $5,000/mile. Assuming an average of 5 new miles per years corresponds to $25,000 in future roadway maintenance needs. It should be noted that the new roadways from development are unlikely to be on Farm-to-Market routes, and therefore will not be eligible for Farm-to-Market funding. As such it is critical that these roadways be constructed to County standards prior to acceptance.

Special projects, such as intersection improvements related to Honey Creek, should be built into the development projects. The County should try to partner with local groups to cost share in specific improvements. For example, the improvements to Dewey Road for truck turning movements into the industrial park could be cost shared between the County, City of Centerville, and the private users. Similarly, the County may want to consider cost sharing with IDOT for the Highway 2 improvements in order to increase the priority of the funding for Highway 2. If the County offers some local match money on a project that would normally be entirely at IDOT expense, that would give more incentive for the State to accelerate the funding for the project.

Not all cost sharing needs to be monetary. For example, bridge and roadway projects could include right-of-way donations, relocation of fencing, or other "in-kind" donations by land owners who receive direct benefit from the widening.

In total, the estimated paved roadway needs are roughly $1.4 Million annually.

***Bridges.*** Similar to the roadway program, the 10-Year recommended bridge program identifies about $1.25 Million in local match dollars for bridge replacements. The County's 5-year plan shows an annual average of $515,000 in Federal Aid bridge funds. The recommended 10-Year program averages about $600,000 in Federal Aid per year (it is assumed the federal aid will be indexed for inflation). Whether the Federal Aid funding will be available in the future years depends on the funding and authorizations passed at the national level. Assuming only the current average funding level of $515,000 (excluding inflation) annually in Federal Funds is maintained, there is a shortfall of about $850,000 per year. The $850,000 represents a higher percentage of cost share in the Federal funding to stretch the dollars over all the bridges in the recommended 10-Year program.

It should be noted that the above funding levels are still inadequate to keep up with the deterioration of the existing overall bridge system. This initial funding estimate is intended to continue existing maintenance practices, focusing on the higher priority growth areas.

***Rail.*** The APNC Railroad has identified several maintenance and infrastructure upgrade projects. IDOT has also stated an emphasis on rebuilding Iowa's branchline railroad system. Funding of the projects listed in Exhibit 58 will have to be a combination of quasi-private (APNC) funding and State funding. However, one major infrastructure cost item not addressed is the railroad bridge over Highway 2. Replacement of this bridge to facilitate the Highway 2 project may be an excellent opportunity for the County, APNC, and IDOT to partner and cost share to solve the problem.

***Aviation.*** The Centerville Airport has used entitlement funding ($150,000 annually), fuel sales and operations revenues, and local funding (City) for operations and infrastructure improvements. The major improvements shown in Exhibit 59 are significantly higher than the current revenue stream, considering all sources.

Currently, there are three main alternatives:

- Continue with current operations and capital improvements plans, as updated in the forthcoming ALP update.

- Look at strategic partnering with Albia Airport and Chariton Airport to relocate and combine all three airports into one regional airport centrally located in the Rathbun Lake area.

- Obtain additional funding through combined City/County participation and possibly private participation.

Brief conversations with airport staff, and with Rubbermaid did not find much support for Alternative 2. However, no contact was made with the other two airports as part of this project to determine initial feasibility of a regional airport facility. Alternative 3 could involve a partnership with City/County/Rubbermaid funding to get the runway extension for the main runway completed. Rubbermaid has indicated they might fly into Centerville 6 times per year if the runway were extended.

***Trails.*** The primary public funding source for trails is Federal Enhancement funds. These funds are very competitive and require at least a 20% local match. If a 10-Year goal were to complete the trail from Lake Rathbun, southeast to Centerville, a ballpark cost for that improvement would be about $1,000,000. Assuming a 20% match yields a County need of $200,000. As such, the County should budget about $25,000 per year (including future maintenance funds) to fund the project in the next 10 years.

A second method of building a trail system is to require developers to set aside easements, and perform grading for a trail through each residential or commercial development. Generally, these easements are along creeks, ditches, and other undevelopable areas. Therefore it doesn't present an undue burden on the developer to dedicate a trail easement. The easement should be at least 20' wide. The County should also consider partnering with local utilities that might favor an all-weather access to their utility lines that can serve dual function as a pedestrian/bicycle trail. Often times the utility easement is already cleared of brush and obstacle for line maintenance. For a reasonable price, the County can do minor grading improvements and surfacing.

***Transit.*** No immediate transit needs involving County funding have been identified other than general roadway and bridge improvements that are used by the transit service for access to users and destinations.

# GOALS

## A Vision for the Future

Appanoose County's Transportation / Land Use Plan is intended to define a long-term vision for the future that is shared by its residents and guide public and private actions to help achieve that vision. The following growth issues were refined during the planning process and are addressed by Plan goals.

***Plan for growth and development.*** Though Appanoose County has experienced minimal growth over the last decade, the County is expecting to receive a significant amount of new development in coming years. Much of this new development is due in large part to the construction of Honey Creek Park, redevelopment of the Sundown Lake area and increased economic development opportunities for southern Iowa. This has emphasized the importance of planning for, and effectively managing, growth through a growth management process that:

- Results in predictable and equitable development decisions;
- Involves stakeholders in decisions early in the planning and development process - at times when they can have the most significant impact on development patterns; and
- Facilitates effective development and enforcement of development regulations and building codes.

***Protect valuable resources.*** While Appanoose County is largely rural today, growth pressures promise additional development of large areas of the County. To retain the quality of life that attracts residents and business owners to Appanoose County, the Plan should describe the resources to be protected and potential strategies to protect those resources, including:

- Protection and conservation of prime agricultural land;
- Protection of lakes, rivers, streams and wetlands;
- Protection of woodland areas and heritage trees;
- Preservation of historical resources; and
- Retention of meaningful green spaces.

***Ensure land use compatibility.*** Land use compatibility is essential to protect the viability of agricultural operations, the integrity of residential neighborhoods, the desirability of commercial centers and the functionality of industrial areas. To these ends, the Plan should identify effective strategies to:

- Protect neighborhoods from encroachment of incompatible uses - This does not mean that all neighborhoods will be homogenous; it means that a combination of buffers, design features and limited segregation through zoning will ensure that transitions between

different land uses will mitigate potential off-site impacts (noise, traffic, glare) that would infringe on neighbors.

- Protect and enhance gateways and entry corridors - As mentioned above, the State highways that provide access to and through the County shape visitors' and residents' opinions of the County. Ensuring that land uses are compatible with the desired character of the corridor, as well as with other uses in the corridor will make the County a more attractive place to live, work and conduct business.

- Protecting industrial and agricultural areas from encroachment - Appanoose County's emphases on economic development and retention of agri-business mandate the protection of industrial and agricultural areas from encroachment by uses that would interfere with industrial and agricultural operations. These uses frequently generate noise, glare, truck traffic and odors that are undesirable to adjacent residents. By designating areas intended for these operations and protecting those areas from residential encroachment, the County can increase the long-term viability of these vital economic engines.

***Ensuring a balanced land-use mix.*** Appanoose County encompasses urban, suburban and rural areas that are under pressure for residential development. Much of this demand is for starter homes that generate greater fiscal burdens than benefits for the County. The County's fiscal and economic health depends on balancing the mix of residential and non-residential land uses as well increasing the proportion of up-scale housing.

***Coordinate growth decisions with other jurisdictions.*** Appanoose County is one of many service providers involved in making decisions affecting the timing and location of growth. Coordination is essential to ensure that decisions of each service provider support county-wide growth goals, resulting in more efficient use of taxes and fees. The County's Plan must be coordinated with the plans of its communities to ensure that it supports long-term community growth needs and fosters community vitality. The Plan should address land use patterns and infrastructure at the edges of communities and provide a template for coordinated decision-making in these areas.

***Coordinate growth with provision of adequate public facilities and services.*** One of the greatest growth management challenges is coordinating the efficient development of infrastructure with the development of land uses that create demands for that infrastructure. The Plan should provide a framework for coordinating the public investments by indicating the location, use, intensity and timing of development.

***Ensure the provision of adequate water and wastewater facilities.*** Water is generally available throughout the County, though there are concerns regarding water pressure for everyday needs and fire suppression. Wastewater service availability is one of the key limitations to urban and suburban intensity growth. Without centralized service, residential densities and non-residential development potential are limited. The key wastewater issues that the Plan needs to address are

ensuring that new development is adequately served; providing for safe and efficient service; and coordinating municipal and community systems so they can be integrated in the future.

***Coordinating with other service providers.*** To provide cost-effective services, the Appanoose County Water Authority and other public service providers need to know the location, intensity, timing and amount of new development. The plan should provide guidance on all of these aspects of development.

***Implement a coordinated county-wide economic development program.*** Work towards a coordinated economic development program that will improve employment opportunities for all County residents and improve the fiscal capabilities of the cities and the County to provide public facilities and services. To achieve this end, support existing employers and attract more high quality employers. To attract better jobs, the County needs to ensure that there are competitive locations for employers and there is a high quality workforce available to fill the jobs. Improving the quality of Appanoose County's work force is a high priority.

***Support agricultural industry.*** Agriculture is an important sector of the County's economy. While the County desires to increase local employment and housing opportunities, the timing, location and design of development will affect the long-term viability of agricultural operations. In addition to the loss of agricultural land when new development occurs, residential encroachment into agricultural areas can interfere with agricultural operations if residences are located downwind of poultry or cattle operations or are adjacent to farms. The Plan should identify prime agricultural lands and identify equitable strategies to support the long-term retention of viable agricultural operations.

***Develop a Land Evaluation and Site Assessment System (LESA).*** Land Evaluation and Site Assessment systems were originally devised in 1981 by the Soil Conservation Service to assist in the evaluation of land for suitability for agriculture use. Many local jurisdictions (predominately Counties) have implemented LESA systems as part of the development review process. Most locally adopted LESA systems are used to evaluate agricultural suitability and conversely a property's likelihood of conversion to non-agricultural use. Most systems include an evaluation based on the soil's capability to produce food and fiber (land evaluation) and a review of non-soil variables that affect the property's use (site assessment). Non-soil variables would include:

- The level of public services available;
- Adjacent land use;
- Land base fragmentation;
- Planned land use and zoning;
- Proximity to city jurisdictions and Urban Service Areas (USA's); and
- Floodplains, and other factors.

A point system is devised which can be weighted to provide emphasis on local concerns. For instance, if a community's primary goal is to protect the best prime soils, the soil rating would be a large part of the overall total points. If the community is concerned with directing rural residential growth to areas served by adequate public facilities, service availability and quality would be a highly weighed variables.

***Developing more diversified housing mix.*** Appanoose County has experienced strong demand for manufactured homes and starter homes. While the Rathbun Lake and Sundown Lake development opportunities represent a more upscale market, the majority of new residential development is geared to more modest market segments. In addition, alternative development approaches also should be encouraged, such as conservation subdivisions which allow developers to build homes on smaller lots if they leave a portion of the land undisturbed as protected open space.

***Maintain an adequate transportation network.*** The transportation system affects most citizens' quality of life on a daily basis. To ensure that the transportation system continues to effectively serve the needs of residents and businesses, the Plan should guide public investments and development decisions in ways that:

- Maintain adequate road capacity and minimize delays due to traffic congestion;

- Maintain road safety, so that roads are safe for drivers, pedestrians and bicyclists, as well as the residents and businesses located along the roads;

- Protect primary road corridors from inappropriate development patterns. Emerging development patterns illustrate the inadequacy of existing development regulations to protect the function and appearance of these key entry corridors. Better access control is needed to ensure to minimize future losses in roadway safety and capacity. Better appearance codes (*e.g.*, landscaping and building design standards) are needed to protect the long-term viability of the corridor and to prevent future blight; and

- Protect scenic road corridors from clearing and encroachment of development. Appanoose County has numerous State Highways that exemplify the rural character that makes the County such a desirable place to live and visit. Scattered development along these roadways illustrates the vulnerability of this rural character. Protecting the scenic beauty of these corridors through buffers, setbacks and strict driveway spacing standards will help retain an asset that will pay dividends to future residents by protecting roadway capacity, providing an attractive environment for residents and economic development prospects.

– ***Roadways.*** The goals for roadways in Appanoose County are to provide safe, efficient transportation for the mobility of people and goods within the County. The roadway system is the economic backbone of the transportation system. As such, primary importance is upgrade of existing spot locations that have safety deficiencies, maintenance of the existing system,

upgrades of existing spot locations that have capacity deficiencies, and provision for maintenance of future roadways.

– ***Bridges.*** At least for the short term, the County's goal with respect to bridges should include an attitude of "survival". There are not sufficient funds available to correct all of the bridge deficiencies on a schedule that will allow the County to stay ahead of expected bridge deterioration. With a focus of bridge replacements in the primary growth areas, the intent is to generate an investment return that can be later used for other bridge needs in the Secondary and Future growth priority areas.

– ***Rail.*** With a renewed emphasis on railroad infrastructure investment, the Iowa DOT provides the most encouraging picture for potential additional outside funding. However, much of the railroad funding is dependent on Iowa's general economy. As such, IDOT assistance can't be solely relied upon, requiring continued joint cooperation between the APNC Railroad, Appanoose County, and IDOT to help attract state dollars toward mutually beneficial projects.

– ***Aviation.*** The Centerville Airport infrastructure is in good condition. That makes the decision to look at a regional airport facility much more difficult. However, in order to be more competitive with the Ottumwa airport, combining resources with the Albia Airport and Chariton Airport may be a more economically feasible alternative. By combining the FAA entitlement monies from each airport over a three to 5 year period would generate as much as $1.3 Million to $2.25 Million. Proceeds from sales of the land of the existing three airports might net an additional $750,000. Depending on the level of participation, a joint airport commission covering at least Appanoose, Monroe, and Lucas Counties, as well as the Cities of Chariton, Albia, and Centerville could be formed to share the maintenance funding for the new regional facility. It may also be possible to get participation from Wayne County and Corydon, which currently have no air service.

– ***Trails.*** Because the County's trail system is still emerging, implementation of a new trail system in Appanoose County will require significant intergovernmental coordination, along with the participation of utility service and the development community. The implementation of the trail system will be a long term process that may not show much progress initially.

– ***Transit.*** Opportunities to expand the transit system are most prevalent in conjunction with the development of the Honey Creek Destination Park. Not only will the destination park generate tourism and demand to go from the park to the adjacent communities, but it is anticipated the destination park will generate additional jobs and promote population growth. The population expansion will precipitate increased demand for school services/school bussing.

***Ensure adequate future roadway funding.*** In general, the County's best alternative to raise funds for public transportation infrastructure improvement projects is through a local option sales tax. The new Honey Creek Destination Park provides an opportunity unique to Appanoose County to shift the burden of some of the cost onto the visitors/tourist using the destination park and creating a significant demand for services. The exact nature of State ownership of the Destination Park is unclear at this time. As such, it is questionable whether property tax

revenues will be generated from the site itself. However, property taxes will be generated as anticipated ancillary development around the destination park occurs.

***Maintain fiscal integrity.*** The quality of life in Appanoose County is contingent on the County's continued ability to provide quality services at a reasonable cost to taxpayers. To achieve these ends, the Plan should describe the County's strategies to:

- Enhance the local property and sales tax bases more rapidly than the fiscal obligations for capital facilities, operations and maintenance;
- Ensure that new development funds the costs of capital facilities required to serve that new development;
- Ensure that facilities and services are planned in a way that allows ongoing operations without significant increases in the costs to residents and businesses; and
- Target capital investments to areas that will best achieve the types of growth desired by the County.

**Recommended Goals**

The goals and strategies of this plan have been developed to describe how Appanoose County will meet the challenge of preparing for future development. There are three principles that should be considered when interpreting and implementing each goal or policy as it applies to public decisions:

- ***Suitability*** of the project for the site on which it is located, which recognizes that different activities have different site needs and that the appropriateness of a use depends on many aspects of the natural and built environment;
- ***Compatibility*** of the project with adjacent development, which ensures the enjoyment and use of one's property against encroachment from neighboring activities; and
- ***Sustainability***, which ensures that today's public and private developments will not sacrifice the quality of life for tomorrow's residents.

The goals for this Plan were developed from input received from the Citizen's Advisory Committee, Board of Supervisors, Planning Commission, stakeholder groups, staff and the community at large. This policy hierarchy forms Appanoose County's statement of public purpose and intent regarding land use, infrastructure, services, and fiscal impacts of growth.

The following recommended goals are generally applicable throughout unincorporated areas of the County, and presume that development regulations will be adopted in the future. However, they do not obligate the County to, or guarantee that the County will, adopt development regulations.

## Land Use, Generally

**Goal 1:** **To maintain a balanced, sustainable land use pattern that accommodates projected growth while fostering community vitality, improving the quality of the built environment and protecting the integrity of the natural environment.**

## Growth Coordination

**Goal 2:** **To coordinate the timing, location and intensity of growth with the provision of adequate public facilities and the implementation of equitable funding strategies.**

## Public Facilities and Services

**Goal 3:** **Provide for adequate public facilities and services for existing and future residents and businesses and to allocate growth-related development costs in an equitable and cost-effective manner.**

## Agricultural and Rural Areas

**Goal 4:** **To maintain the rural character of the countryside and preserve viable agricultural operations.**

## Economic Development

**Goal 5:** **To develop a more diversified local economy that provides a stable economic base, greater employment opportunities for all segments of the local population and the fiscal resources to provide high quality public services to all residents while retaining relatively low tax rates.**

## Housing

**Goal 6:** **Create a more diverse housing stock that provides adequate and attainable housing for the diverse shelter needs of Appanoose County's residents in a manner that creates stable, viable neighborhoods and enables the County to adequately fund public facilities and services.**

## Transportation

**Goal 7:** **Provide a convenient and cost effective transportation system that emphasizes connectivity, safety, choices of modes and harmony between transportation modes and land uses.**

## Natural Resources

**Goal 8: To preserve and protect resources essential to sustain a healthy environment, including the County's Lakes, river and stream corridors, woodland habitats and agricultural areas.**