REPORT
ON
WEST CORALVILLE LAND USE PLAN
CORALVILLE, IOWA
March, 1998

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

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CORALVILLE, IOWA

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EXECUTIVE SUMMARY

This Land Use Plan addresses planning needs for the West Coralville area, bounded by I-80 on the south, I-380 on the west, Iowa Highway 965 on the east, and Forevergreen Road on the north. The north one-quarter mile (1,320 feet) of the site is currently within the corporate limits of North Liberty. Good utility service is available. This large tract is developing now, and this Plan is an effort to structure that development in a way that will lead to a coordinated, cohesive area consisting of industrial, commercial, residential and institutional components, with recreational and business services that make for a pleasant working and living environment. Following are key points, followed by a summary of activities that need to follow.

Study Area

1. The study area consists of 2,100 acres.

2. The present land uses are industrial, commercial, agricultural, institutional and residential. The industrial and commercial development are primarily located on the southern parts, adjacent to rail lines and highways. There is an Iowa Department of Corrections facility on the east side. Residential mobile homes are located in the southern part. The bulk of the site consists of agricultural land, with some individual suburban tracts around the fringes.

3. North Liberty is located to the north and Tiffin is located a short distance to the west.

4. The University of Iowa Oakdale Research Park is adjacent to the east tract boundary.

5. All utility systems are available to the study area. Although each will need to be extended and expanded to serve the area.

6. The existing transportation network around the area is extensive, and is a major source of value to the tract as an area to be developed.

Land Use Plan

7. The land use plan is based on the following principles:
   a. Conservation design framework.
   b. Environmental resources as common space.
   c. Design with the land.
   d. Mixed use development area.
   e. Unified Community
   f. Multi-modal Transportation
8. The land use and development concepts provide for;
a. A central open space.
b. A West Coralville commons area.
c. Office and research uses
d. Residential uses.
e. Commercial development.
f. Business park development.
g. General industrial development.
h. Civic facilities.

9. The transportation concepts maximize use of the existing facilities. Major elements include;
a. Interstate highways, with new or modified interchanges.
b. Arterial streets.
c. Collector streets.
d. Local street network.

10. The value of potential development is approximately $505,950,000.

11. The projected west Coralville population is 6,519.

Utility and Infrastructure Systems

12. The Coralville Water Treatment plant has been recently expanded, and has capacity for growth for several years to come.

13. There appears to be a shortage of elevated storage to serve the target area.

14. The water distribution system would need to be modified to carry water to the study area.

15. The wastewater collection system, with the new trunk sewers under construction, appears to be adequate.

16. The wastewater treatment plant may need to be expanded at some future time.

17. New trunk sewers will need to be extended throughout the study area. Local sewers will extend on to future individual tracts.

18. Stormwater management will, of necessity, follow the existing terrain and street patterns.

19. There will be many opportunities to develop green spaces and open areas, due to the terrain. Also, bicycle and pedestrian trails can be accommodated to enhance outdoor recreational activities.
Transportation

20. The area is served by surrounding major trafficways on every side. Access to highways is excellent.

21. Future trip generation values are high, with 54,159 daily trips estimated south of Oakdale Boulevard, and 43,540 daily trips occurring north of Oakdale Boulevard.

22. The proposed arterial street network consists of Oakdale Boulevard and an unnamed street which parallels I-380, in addition to the surrounding existing major roads. The I-380 parallel street will provide improved access to interstate highways from the interior of the planning area.

23. Collector streets are planned to connect major core areas to the arterial system.

24. A network of local streets has been laid out to serve local properties.

25. Future modifications have been proposed to the intersection of I-80 and I-380 highways.

26. A new interchange is proposed for I-380 at US Highway 6 and at Forevergreen Road. Development within the West Coralville site is anticipated to occur from south to north with the US Highway 6 interchange being the first interchange to serve the area.

Implementation

27. The development value of properties within the planning area have been estimated to total almost $506 million.

28. Infrastructure costs, for the major systems have been estimated on a per acre basis and are included in Part Five, Implementation. Costs for local improvements, such as local streets and utility lines for individual developments are not included within this study.
INTRODUCTION

This Land Use Plan is an update of the Community Plan for Coralville, Iowa, Part 1 dated 1992, with Part 2 1995 Amendments. The plan update concentrates specifically on the west Coralville area, due to the area's projected rapid growth and its significant impact on population, business and industry.

The West Coralville Land Use Plan provides a master land plan for a 2,100 acre site within the corporate limits of the City of Coralville. This site enjoys strategic access to two major interstate highways and is in the path of significant development in the Coralville/Iowa City metropolitan area. The purposes of this plan are to:

- Establish a cohesive development vision for this pivotal site in the continued growth in the City of Coralville.
- Continue the policy of the City to harness considerable development energy to help create a model urban community for the twenty-first century.
- Provide guidance to property owners and developers.
- Pre-plan the transportation, open space, and infrastructure frameworks necessary to support quality development in this development area.
- Establish a program for financing improvements and implementing the concepts contained in the plan.

The West Coralville Land Use Plan is organized into the following sections:

**Part One, THE SITE,** investigates existing site conditions, including the land and its character, existing land use, patterns of property ownership, and existing transportation and utility services to the site.

**Part Two, LAND USE PLAN,** presents the land use concept, defining basic principles that should guide development, establishing a land use concept, and considering the transportation and open space frameworks to support optimal development of the area.

**Part Three, UTILITY AND INFRASTRUCTURE SYSTEMS,** investigates the infrastructure concepts necessary to support development, addressing wastewater systems, stormwater management, water distribution, and other infrastructure systems.
Part Four, TRANSPORTATION, presents details of the transportation system needed to serve the site, examining regional access, street classifications and design standards, characteristics of the street environment, and alternative transportation modes, including pedestrian, bicycle, and public transit.

Part Five, IMPLEMENTATION, addresses plan implementation, considering land use and development controls, infrastructure and public improvement financing concepts, and project phasing.

The West Coralville area provides an important opportunity for the City of Coralville. This document will help guide the way, creating an integrated and whole environment that continues Coralville’s commitment to quality urban development.

The West Coralville Land Use Plan is conceptual in nature. Project-specific and site-specific designs will be then be needed to actually produce the final products.

The preparation of this Land Use Plan is a joint effort. It is the result of numerous committee meetings and planning sessions. The Project Team members met frequently to exchange ideas. Meetings were held with City officials and land developers to assure that the final product was properly executed. This is a work-in-process, expected to span several years, so changes and refinements are expected to occur. However, this document provides a general framework to guide the future refinements.
PART ONE
THE SITE

This section describes existing conditions on the West Coralville site.

SITE DESCRIPTION AND TOPOGRAPHY

The study area incorporates a 2,100 acre parcel, mostly within the corporate limits of Coralville. The site is bounded by Iowa Highway 965 on the east, Interstate 380 on the west, Interstate 80 on the south, and Forevergreen Road on the north. The north one-quarter mile (1,320 feet) of the site is currently within the corporate limits of North Liberty.

Land forms on the site are varied, dominated by three principal drainageways. These drainage corridors flow in a generally southwesterly direction toward Clear Creek. A short, but steeply banked drainageway on the eastern part of the site marks the boundary of Heartland Industrial Park. The major drainageway runs from the north of the site to a confluence with Clear Creek north of the I-80/I-380 interchange. A smaller drainage corridor drains the southwestern part of the site. The site exhibits rolling topography with steeper slopes found adjacent to the drainage corridors. The relatively flattest parts of the development area are located in the area’s northwest and northeast corners.

In addition to drainageways, the site’s most notable environmental resource is a wooded area located near the center of the development area. This area, incorporating over 150 acres of forest, is located just east of the site’s center, and is related to the principle north-south drainage corridor.

EXISTING LAND USE

Most of the West Coralville development area is currently in open land uses, including agriculture and woodlands. Several areas on the site’s periphery are in various urban uses. These include:

- The Heartland Industrial Park, including a major truck terminal and other industrial development. This development is located in the southeastern part of the development area, adjacent to the interchange of Highway 965 and I-80.
- The Iowa Medical & Classification Center, a medium security diagnostic center, located along Highway 965 north of the Oakdale Boulevard intersection.
- A row of eight large-lot single-family homes along Forevergreen Road on the north edge of the site.
- A 281-unit mobile home park, located north of Highway 6 between the central and west drainage corridors.
- Existing industrial development along the Highway 6 and Iowa Interstate Railroad corridors on the southern edge of the development area.

The Existing Land Use Map locates these existing areas.

PROPERTY OWNERSHIP PATTERNS

Property ownerships vary across the study area. In the south, current development has redefined land parcel boundaries in accordance with the land areas required by industries, businesses and residents in the area. A large mobile home area has defined one area. Portions of land along the east area boundary are also defined by established entities. There are suburban residential tracts around much of the periphery of the study area.

The balance of the study area consists of land parcels resulting from previous agricultural development. The agricultural parcels range in size from just few acres to larger farm-size tracts. Some of these tracts are being acquired by land developers and speculators, and other ownership changes will occur in the future.

There may be a redefinition of some land ownership boundaries as development of the land progresses. The terrain may make it economically feasible for changes in ownership of small pieces of property to shift, so that tracts that are bisected by natural boundaries or would otherwise be isolated by terrain features can be developed in a meaningful way.

SITE CONTEXT: SURROUNDING DEVELOPMENT

The development area is currently surrounded by rural or open land on its south, west, and north sides. To the north, planned development in North Liberty makes residential growth along the Forevergreen corridor likely. However, surrounding growth patterns to the east place the West Coralville site squarely in the path of future urban growth. Major existing developments include:

The Coral Ridge Mall is a 1.2 million square foot regional mall located on a site bounded by I-80 on the north, Highway 965 on the west, and Highway 6 on the south, adjacent to the western edge of present development in Coralville. Major public improvements to support the mall include improvements to both Highways 965 and 6, as well as installation of streetscape and community entrance features.

Existing commercial development, featuring highway services, on the east side of Highway 965 north of the I-80 interchange.
The University of Iowa's Oakdale Research Park and Oakdale campus, located on the east side of Highway 965 at Oakdale Boulevard. The City of Coralville is extending Oakdale Boulevard as a principal civic street, featuring special design features, from 1st Avenue to Highway 965. Future easterly extension of Oakdale Boulevard is anticipated from 1st Avenue in the City of Coralville to Dubuque Road in Johnson County, north of the City of Iowa City corporate limits.

This context suggests future growth that will include:

- Commercial development in the Highway 6 and 965 corridors, extending the development precedents of Coral Ridge Mall.
- Completion of industrial development patterns in the Heartland Industrial Park and south of Highway 6.
- An extension of research and office use across Highway 965 as office development continues in the Oakdale Research Park.
- Relatively low-density, single-family development in the north part of the site, along the common boundary with North Liberty.
- Significant residential development to support adjacent commercial, industrial, and office/research uses.
- West Coralville Commons providing a mixture of commercial, office and residential development acting as a central district.

**EXISTING UTILITY SERVICES**

City sewer service is being extended to the site, approaching along the south study area boundary. These current projects are nearing completion. Part Three discusses in more detail the existing system and the future requirements.

Coralville water mains approach along the east boundary of the tract. There will need to be extensions of mains and expansion of the various system components in order to serve the study area. The capacity of the existing system and the future needs are discussed in Part Three.

Part Three also discusses in more detail the present condition and future needs for other utilities and public services, both public and private.
EXISTING TRANSPORTATION SYSTEM

The west Coralville area is bounded on all sides by major transportation facilities. The area lies at the intersection of two interstate highways, two U.S. highways, state highways and major local roadways. Interstate I-380 runs to the north, I-80 borders the tract on the south side and provides a nationwide east-west connection. U.S. Highway 6 connects to the tract, and U.S. Highway 218 runs south from the planning area. Iowa State Highway 965 borders the study area on the east side. Interstate 380 and US Highway 218 are part of the transportation system referred to as the "Avenue of the Saints" which is proposed to provide an improved transportation route from Minneapolis, Minnesota to St. Louis, Missouri. Local roads Oakdale Boulevard and Forevergreen Road connect the site to local streets. Finally, there is rail service to the study area, currently providing freight service to industries.

These major highways, streets and railroad provide excellent transportation service to the study area. There is an interchange adjacent to the study area to access the interstate highways. The existing transportation system and its interface with the study area are discussed in more detail in Part Four, Transportation.
PART TWO
LAND USE PLAN

The Land Use Plan for the West Coralville area is designed to create a comprehensively planned mixed use area at this strategic location. The concept is intended to provide a context for individual decisions by property owners and developers and to help assure that these individual decisions and developments produce a unified land development concept.

BASIC PRINCIPLES

The Land Use Plan is built upon the following basic principles:

Conservation Design Framework

Conventional development design often configures development parcels and lots across a piece of land, adapting land forms and transportation networks to conform to a geometric division of lots. The West Coralville concept instead utilizes the principle of conservation design. In this concept, major natural features, including woodlands, steep slopes, streams and drainageways, and wetlands, are defined in advance and designated for open space conservation. Development parcels are then defined in ways that take maximum advantage of these natural features. In order to compensate owners and developers for maintaining open space, conservation design permits higher net development densities on the remainder of the overall parcel. This clustering of development maintains the integrity of important environmental features, while continuing to offer property owners and developers substantial development rights and returns on their properties.

Environmental Resources as Common Space

Consistent with the concept of conservation development, the Land Use Plan proposes that major environmental features function as central open spaces for ultimate development of the site. The most significant of these features is a 150 acre area of dense woodlands and deep ravines just northeast of the center of the site. This major environmental feature becomes a central green area for the overall development concept, and helps to define the character of surrounding areas and transportation systems. The site's three major drainageways also become important greenway features. The alignment of streets on the edge of these major open space areas helps to assure their public nature, while helping to define the edge between public and private space.
Design with the Land

The topography of the West Coralville site is a major resource. The Land Use Plan proposes individual development design which follows the topography to the greatest degree practicable. There must also be accommodation of ownership boundaries and the market driven needs of developers. Elements of this principle include:

- Street alignments that follow contours and minimize steep grades whenever possible.
- Use of natural land patterns to provide site drainage, including the extensive use of retention facilities.
- Siting of buildings and development parcels to take maximum advantage of topographic features and to minimize disturbance to natural land forms.

A Mixed Use Development Area

The Land Use Plan proposes a mix of uses to take advantage of the diverse growth opportunities within the Coralville-Iowa City metropolitan area. The plan envisions a new type of urban environment, permitting people to live, work, shop, and seek active and passive recreation, often without resorting to an automobile. The plan takes advantage of the site's adjacency to the University of Iowa's Oakdale Research Campus, the nearby Coral Ridge Mall, and a location in a natural growth direction of Coralville to integrate the parallel demands of space for new housing, research and office development, retail and service growth, and industrial development.

A Unified Community

The land use plan's concept of unification relates to its mixed use character. Except in specific areas (including a proposed West Coralville Commons) uses are not physically mixed within the same buildings or development parcels. Operating and design differences between various use types (such as single-family residential and office or commercial development) may make some direct adjacencies inadvisable. However, the plan is based on the concept of close functional and aesthetic connections among diverse use types. Thus, the plan proposes transportation and open space frameworks that link specific development parcels together. Components of this concept include:

- Transportation system continuity. The transportation system is designed to connect development sites together, rather than to create isolated development "pods." The use of cul-de-sacs is discouraged or avoided, with street system design and traffic calming features used to channel heavier traffic onto designated streets.
• **Greenway system continuity.** A greenway system, with a network of recreational trails, links all parts of the study area together with all other parts. The heart of this system is defined by the West Coralville’s sites major environmental features and the relationship of surrounding development sites to these features. Thus, pedestrian and bicycle access supplements the motorized circulation system.

• **Civic streets.** The West Coralville Land Use Plan envisions many of its internal streets as "civic corridors," mixed use streets designed to provide a positive public environment. In some cases, these streets provide boundary conditions, separating various types of land use which are nevertheless oriented to the common frontage. In other cases, civic streets take on the personality of the small town "main street," connecting various districts together and changing personalities as they pass through different areas. Thus, such a unifying civic street may originate at an important public features, such as a park, public building, or church; lead though a single-family neighborhood; become the main spine of an apartment complex; and lead directly into the common area of a shopping center. Adjacent land uses are oriented toward civic streets, rather than away from them.

• **Relationships Among Land Uses and Development Parcels.** The West Coralville Land Use Plan avoids the tendency of uses in development "pods" to place their most negative effects at their outside boundaries. The conflicts at these land use junctions are then moderated by separation and vertical and horizontal screening. Instead, the plan emphasizes a more organic relationship at boundary conditions. In this way, a major path through a residential neighborhood becomes a major access way to a nearby commercial development. Landscaping and buffering are proposed when necessary, but in general, the patterns of linkages found in traditional towns are proposed.

**Multi-modal Transportation**

The West Coralville site must accommodate a number of modes of transportation successfully, including major truck and other industrial traffic, automobiles, public transportation, bicycle transit, and pedestrians. This is accomplished by creating a street hierarchy, using design, street alignments, and ease of access to channel different types of access naturally to their destinations. Local streets provide continuity, but do not permit through movements beyond neighborhoods. Collector streets provide longer linkages between land use areas, but do not provide direct access to peripheral arterials. Auto-oriented arterials provide through connections to peripheral roads, but permit only indirect access to the adjacent interstate system, while industrial arterials provide the most direct access to proposed interchanges.

Development sites within individual land use areas are also designed to facilitate public transportation service, a significant priority in Coralville. Thus, the Land Design Concept recommends clustering of office buildings around a single point, providing more convenient accommodations for transit passengers.
THE LAND USE AND LAND DEVELOPMENT CONCEPTS

The Land Use Plan presents a diagram of the location and relationships of proposed uses on the West Coralville site.

The Land Development Concept presents a schematic land design that illustrates both the land use plan and demonstrates the application of the basic principles presented above. It is important to note that the land development concept is an illustration of basic principles. The actual alignments and configurations of streets, building lots, and development sites may vary within the context of an overall development vision.

The Land Use Plan includes the following elements:

- **A central open space.** This open space, characterized by forest, relatively steep topography, and ravines, is a central organizing element for the land use plan. Preservation of this tract constitutes the core of the conservation design concept envisioned by the plan. Development sites are carved out of clearings in the forest, and are linked to one another by internal trails and a peripheral circulation ring. Major drainage ways extend this central open space to the north and southeast, providing both major amenities for the development area and marking the boundaries between various types of land use. A portion of this site should be developed as a regional detention facility, designed as a lake in the surrounding woodlands. The lake should also be designed as an amenity for the West Coralville Commons proposal immediately to the west.

- **A mixed-use West Coralville Commons,** acting as a central district for this major development site. The Commons is defined by buildable clearings in the surrounding forest, organized by a pedestrian-scale “main street” spine. The main street would be lined by commercial and office development, with residential units on upper floors, a pattern common in the Coralville/Iowa City area. Behind the “main street,” parking and low-rise office sites are proposed, providing direct views out to the surrounding central open space. The main street spine extends into other residential use areas to the north.

- **Office and research uses** are proposed around the central open space on the eastern part of the development area. This development extends the high quality office and research uses established across Highway 965 in the Oakdale Research Park. Buildings should be clustered to take best advantage of common parking facilities and facilitate transit access. Office sites are defined in multi-building configurations, providing common parking that is sheltered by building groups. Most buildings have direct relationships to surrounding streets, preventing an asphalt environment from dominating the area.

- **Oakdale Boulevard Planned Development Overlay.** This overlay district establishes standards analogous to those previously adopted by Coralville for the Oakdale corridor east of Highway 965.
A variety of residential uses. Residential development is a key part of the overall development concept. The land use plan envisions a high quality environment for diverse residential uses. These include:

- Mobile home and manufactured housing. This development would complete a current mobile home park west of the site's central drainageway. Current stub streets would be extended to link to the circulation framework of the West Coralville site.

- Medium-density residential. This use defines areas with a varying type of housing at densities generally between 6 and 16 units per acre. It may include single-family housing at higher densities, utilizing small lots and lot clustering techniques. It may also include areas of attached single-family housing and lower-density multi-family development. In these neighborhoods, buildings dominate the landscape and open space areas may be in concentrated locations. This form of residential development is proposed in the south-central part of the West Coralville site, buffered from surrounding industrial development by a major drainage corridor. This site should provide strong local street and pedestrian connections to proposed office/research development on the north and commercial growth along the Highway 6 corridor to the south.

- In addition, medium-density residential development is proposed in a mixed use neighborhood in the site's northeastern quadrant. This site may provide opportunities for townhouse development, some of which may be focused on an independent living market for seniors in the region.

- High-density residential. High-density residential uses are integrated into the structure of lower-density neighborhoods, rather than developing as independent compounds. Multi-family development serves as a transitional use between lower-density residential and non-residential uses. While high-density housing is an important component in the project, it represents a lower proportion of housing proposed by the West Coralville plan than in Coralville as a whole.

- Low-density residential. Low-density residential development, encompassing larger lot single-family housing, is proposed in the northwestern quadrant of the development site. This site borders the proposed mixed use "commons" and the central open space; and incorporates major drainageways and greenway corridors. Low-density residential development may alternatively be designed in a golf course subdivision format in this area.
The primary use in these areas is single-family detached residential, at densities of 6 units per acre or less. Two-family attached residential development may be permitted along collector or arterial streets, or to buffer higher-density residential or non-residential uses. These areas are pedestrian in character, and most parking is provided in attached garages. Housing units customarily have outdoor space in yards for the exclusive use of the occupant.

- Retirement housing. The West Coralville development area provides excellent potential sites for a continuing care retirement center (CCRC). A CCRC site generally should provide about 25 acres. Adjacency to major open spaces, such as the central open space, is generally considered desirable to these projects. The West Coralville plan provides a site adjacent to locations for independent living townhouses or duplexes.

- Commercial development. The Coral Ridge Mall, located southeast of the development site, will concentrate major commercial activity on the western side of town. Additionally, major road development will encourage significant commercial development. The West Coralville plan anticipates major commercial growth at strategic locations in the area, as opposed to "strip" commercial development along primary peripheral roads. These commercial clusters should have direct access to major arterials, but should also expedite local and pedestrian access from surrounding neighborhoods.

Major commercial development districts include:

- The Highway 6 Corridor. This highway corridor provides significant commercial development opportunities on its north side between the eastern and central drainageways; and adjacent to the existing mobile home park.

- Nodes along Highway 965. Commercial projects here should be clustered at the intersection with the extended Oakdale Boulevard; and the Evergreen Road intersection.

- Local commercial development at the intersection of an extended Oakdale Boulevard and a north-south industrial arterial roughly parallel to I-380.
• **Business park development.** Business parks combine office with light industrial and warehousing/distribution facilities, generally in an attractive, well-landscaped setting. The West Coralville land use plan proposes business park development along the Interstate 380 corridor, served by proposed interchanges at US Highway 6 and Forevergreen Road. Areas north of an extended Oakdale Boulevard anticipate larger scale projects on relatively flat or gently sloping sites. This development should orient green areas (including water features) to the periphery of the site, including the I-380 corridor, while centering parking and circulation on the interior. A preliminary plat has been filed for business park development to the south on relatively small, individual lots.

• **General Industrial Development.** The plan envisions general industrial development continuing on the south side of the US Highway 6 corridor and along Heartland Drive, extending existing land use patterns. A preliminary plat has been filed for industrial use in this area.

• **Civic facilities.** In order to promote a balanced community, the land use plan should make adequate provisions for civic facilities. These facilities include school sites, cemeteries, public facilities, parks, and sites for churches and other semi-public uses. The plan proposes a school site adjacent to the expanded mobile home park, a major generator of students, with a strong relationship to other planned residential neighborhoods and the central open space. This site is located along an extended Oakdale Boulevard, providing good access to parts of the Clear Creek School District to the west. A public facilities site is proposed as a buffer use to the state rehabilitation center. In addition, church or other civic sites are integrated into the structure of residential neighborhoods.

Parks and open spaces are similarly important to the land use concept. These are discussed below in the presentation of the open space framework.

**TRANSPORTATION FRAMEWORK**

The land use plan proposes a continuous transportation framework designed to distribute traffic effectively around and through the West Coralville development area. The framework establishes a hierarchical network of continuous streets, with function determined by the length and design of each street. In addition to efficient traffic movement, the system is designed to promote connections among various parts of the area, promoting the objective of a unified community.
Major elements of the network include:

- **Interstate highways.** The West Coralville site is bordered on two sides by Interstate highways, creating a node of maximum regional access. Interstate 380 is part of the “Avenue of the Saints,” a system of existing and proposed roadways that will link St. Paul and St. Louis. The transportation plan proposes two interchanges to serve the area, at Highway 6 and Forevergreen Road. A Highway 6 interchange would provide direct access to industrial and commercial areas along the Highway 6 corridor, reducing conflicts with local residential and commercial traffic. The Forevergreen interchange would open development to the north part of the site and to North Liberty. Development within the West Coralville site is anticipated to occur from south to north with the US Highway 6 interchange being the first interchange to serve the area.

- **Arterial system.** Arterials provide continuous movements through the development area and to the surrounding region. In the framework concept, different arterials have different functional roles. Arterials include:
  
  - Highway 965. This major road, which interchanges with I-80, defines the eastern edge of the West Coralville development area. It is under improvement in 1997 and will carry heavy, north-south mixed traffic.
  
  - Highway 6. Highway 6, aligned diagonally through the southern part of the site, carries substantial regional and truck traffic to area industries. Continued industrial and commercial development in this corridor, combined with the proposed I-380 interchange, will cause this road to continue to carry significant commercial and industrial traffic.
  
  - Forevergreen Road. Forevergreen Road is a minor arterial forming the northern boundary of the development area. The land use plan is designed to divert truck traffic from the Forevergreen interchange south along the I-380 corridor. Forevergreen Road east of the interchange to Highway 965 should accommodate moderate levels of residential and commercial traffic.
  
  - Oakdale Boulevard. An extended Oakdale Boulevard forms a central, east-west access through the site. This extension from the east should provide a multi-modal civic corridor, combining traffic capacity with landscaping, and parallel pedestrian and bicycle accommodations. Adjacent buildings should be oriented to Oakdale, creating the pattern of an attractive urban street. Oakdale Boulevard is proposed to have a grade separation without an interchange at I-380. Vehicular traffic should be related primarily to automobiles and transit vehicles; the design and alignment of the street should discourage truck and regional traffic.
- A north-south west industrial arterial (Kansas Avenue Extension). This corridor parallels I-380 and forms a boundary between business park development on the west and residential neighborhoods to the east. It is intended to distribute industrial and business park traffic from the proposed Forevergreen Road interchange to industrial sites on the south of the site, and continues across Highway 6 as a planned industrial circulation loop.

- A north-south east arterial (Jones Boulevard Extension), linking Highway 6 with Forevergreen Road and aligned to Jones Boulevard in North Liberty across Forevergreen Road. This provides an alternative to Highway 965 for internal traffic.

* Collector Network. A network of collector streets rings the central open space and provides a system of north-south and east-west streets that connect to the arterial system. Collectors do not cross the entire site, but link several land use areas with the major street system.

* Local Streets. Local streets are proposed on a modified grid, designed to follow site contours to the greatest degree possible. The local network provide a web of connections through individual neighborhoods, connecting to the collector system at peripheral points.

**OPEN SPACE FRAMEWORK**

The open space system is a critical feature of the West Coralville land use plan and is consistent with the City’s Parks and Trails Framework Plan. In addition to providing a linked open space system that connects all parts of the site, the open space framework includes a trail system that creates a supplementary non-motorized transportation network. Key components of the framework include:

* The central open space, encompassing about 150 acres in the heart of the development area.

* A central greenway, following the site’s principal drainage corridor from its two tributaries in the northern part of the development area, through the proposed central open space, and the south to Clear Creek north of the I-80/380 interchange. Parallel local parkways define this greenway, establishing an edge between public and private property. This greenway provides opportunities for significant park and recreational development.

* Secondary drainage corridors, including the drainageway north of Heartland Industrial Park and a western corridor between the proposed business park and expanded mobile home development.
• *East-west parkways*, providing landscaped civic streets to connect the north-south corridors created by natural drainage patterns. The most important of these is the proposed Oakdale Boulevard extension. In addition, major elements of the internal arterial and collector frameworks should accommodate pedestrian and bicycle use.

• *Open spaces*. Open spaces are designed either as nodes within the overall greenway system; or as urban squares, surrounded by houses or other development and by streets. These urban squares frequently form important features within the local neighborhoods, and are related to the structure of the local street network. Squares are proposed in each residential neighborhood within the land use plan. Open spaces also include regional detention basins, integrated into the design of the overall development area.

**POTENTIAL DEVELOPMENT YIELD AND AREA POPULATION**

The mixed use West Coralville development plan represents a dramatic growth opportunity for the city. Tables 2-1 through 2-3 below summarize the development yield of the completed project, based on the illustration contained in the Land Development Concept.
Table 2-1
West Coralville Land Use Plan: Development Summary South of Oakdale Boulevard

<table>
<thead>
<tr>
<th>Use Category</th>
<th>Units</th>
<th>Estimated Sq Ft</th>
<th>Construction Cost/Unit</th>
<th>Development Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>South of Oakdale</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
<td>426</td>
<td>$95,000</td>
<td>$40,470,000</td>
<td></td>
</tr>
<tr>
<td>Single-Family Attached</td>
<td>183</td>
<td>75,000</td>
<td>13,725,000</td>
<td></td>
</tr>
<tr>
<td>Multi-Family Low-Rise</td>
<td>400</td>
<td>45,000</td>
<td>18,000,000</td>
<td></td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>100</td>
<td>30,000</td>
<td>3,000,000</td>
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<td>Total Residential</td>
<td>1,109</td>
<td></td>
<td></td>
<td>$75,195,000</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td>770,000</td>
<td>$50</td>
<td>$38,500,000</td>
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<tr>
<td>Office</td>
<td></td>
<td>1,445,000</td>
<td>80</td>
<td>115,600,000</td>
</tr>
<tr>
<td>Business Park</td>
<td></td>
<td>468,000</td>
<td>50</td>
<td>23,400,000</td>
</tr>
<tr>
<td>Total Non-Residential</td>
<td></td>
<td>2,683,000</td>
<td></td>
<td>$177,500,000</td>
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<tr>
<td>Total South of Oakdale</td>
<td></td>
<td></td>
<td></td>
<td>$252,695,000</td>
</tr>
</tbody>
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Table 2-2
West Coralville Land Use Plan: Development Summary North of Oakdale Boulevard

<table>
<thead>
<tr>
<th>Use Category</th>
<th>Units</th>
<th>Estimated Sq Ft</th>
<th>Construction Cost/Unit</th>
<th>Development Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>North of Oakdale</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
<td>329</td>
<td></td>
<td>$135,000</td>
<td>$44,415,000</td>
</tr>
<tr>
<td>Single-Family Attached</td>
<td>88</td>
<td></td>
<td>80,000</td>
<td>7,040,000</td>
</tr>
<tr>
<td>Multi-Family Low-Rise</td>
<td>300</td>
<td></td>
<td>45,000</td>
<td>13,500,000</td>
</tr>
<tr>
<td>Multi-Family High-Rise</td>
<td>240</td>
<td></td>
<td>60,000</td>
<td>14,400,000</td>
</tr>
<tr>
<td>Retirement Center</td>
<td>180</td>
<td></td>
<td>120,000</td>
<td>21,600,000</td>
</tr>
<tr>
<td>West Coral Commons Residential</td>
<td>120</td>
<td></td>
<td>45,000</td>
<td>5,400,000</td>
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<tr>
<td><strong>Total Residential</strong></td>
<td>1,257</td>
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<tr>
<td><strong>Commercial</strong></td>
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<tr>
<td>West Coral Commons</td>
<td>170,000</td>
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<td>60,000</td>
<td>70</td>
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<tr>
<td>Office</td>
<td>1,200,000</td>
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<td>764,000</td>
<td>50</td>
<td>38,200,000</td>
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<tr>
<td><strong>Total Non-Residential</strong></td>
<td>2,194,000</td>
<td></td>
<td></td>
<td>$146,900,000</td>
</tr>
<tr>
<td><strong>Total North of Oakdale</strong></td>
<td></td>
<td></td>
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<td>$253,255,000</td>
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</table>
Table 2-3
West Coralville Land Use Plan: Development Summary - West Coralville
Development Area

<table>
<thead>
<tr>
<th>Use Category</th>
<th>Units</th>
<th>Estimated Sq Ft</th>
<th>Construction Cost/Unit</th>
<th>Development Value</th>
</tr>
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<tr>
<td>Total Area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
<td>755</td>
<td></td>
<td></td>
<td>84,885,000</td>
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<tr>
<td>Single-Family Attached</td>
<td>271</td>
<td></td>
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<td>20,765,000</td>
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<tr>
<td>Multi-Family Low-Rise</td>
<td>700</td>
<td></td>
<td></td>
<td>31,500,000</td>
</tr>
<tr>
<td>Multi-Family High-Rise</td>
<td>240</td>
<td></td>
<td></td>
<td>14,400,000</td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>100</td>
<td></td>
<td></td>
<td>3,000,000</td>
</tr>
<tr>
<td>Retirement Center</td>
<td>180</td>
<td></td>
<td></td>
<td>21,600,000</td>
</tr>
<tr>
<td>West Coral Commons Residential</td>
<td>120</td>
<td></td>
<td></td>
<td>5,400,000</td>
</tr>
<tr>
<td>Total Residential</td>
<td>2,366</td>
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<td></td>
<td>$181,550,000</td>
</tr>
<tr>
<td>Commercial</td>
<td></td>
<td>940,000</td>
<td></td>
<td>$47,000,000</td>
</tr>
<tr>
<td>West Coral Commons Commercial</td>
<td>60,000</td>
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<td></td>
<td>4,200,000</td>
</tr>
<tr>
<td>Office</td>
<td>2,645,000</td>
<td></td>
<td></td>
<td>211,600,000</td>
</tr>
<tr>
<td>Business Park</td>
<td>1,232,000</td>
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<td>61,600,000</td>
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<tr>
<td>Total Non-Residential</td>
<td>4,877,000</td>
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<td>$324,400,000</td>
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<tr>
<td>Total Combined Area</td>
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<td></td>
<td></td>
<td>$505,950,000</td>
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</table>

POPULATION PROJECTIONS

Table 2-4 below calculates potential population for the West Coralville site. The projected number of people per unit are proposed for each housing type, based on typical local and regional experience.
Table 2-4

West Coralville Development Area: Projected Population

<table>
<thead>
<tr>
<th>Residential Type</th>
<th>Units</th>
<th>Population Per Unit</th>
<th>Projected Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>South of Oakdale</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
<td>426</td>
<td>3.25</td>
<td>1,384</td>
</tr>
<tr>
<td>Single-Family Attached</td>
<td>183</td>
<td>2.50</td>
<td>458</td>
</tr>
<tr>
<td>Multi-Family Low-Rise</td>
<td>400</td>
<td>2.00</td>
<td>800</td>
</tr>
<tr>
<td>Mobile/Manufactured Homes</td>
<td>100</td>
<td>3.00</td>
<td>300</td>
</tr>
<tr>
<td>Existing Mobile/Manufactured Homes</td>
<td>281</td>
<td>3.00</td>
<td>843</td>
</tr>
<tr>
<td><strong>Total South of Oakdale</strong></td>
<td></td>
<td></td>
<td>3,785</td>
</tr>
<tr>
<td><strong>North of Oakdale</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Single-Family Detached</td>
<td>329</td>
<td>3.25</td>
<td>1,069</td>
</tr>
<tr>
<td>Existing Single-Family Detached</td>
<td>9</td>
<td>3.25</td>
<td>29</td>
</tr>
<tr>
<td>Single-Family Attached</td>
<td>88</td>
<td>2.50</td>
<td>220</td>
</tr>
<tr>
<td>Multi-Family Low-Rise</td>
<td>300</td>
<td>2.00</td>
<td>600</td>
</tr>
<tr>
<td>Multi-Family High-Rise</td>
<td>240</td>
<td>1.75</td>
<td>420</td>
</tr>
<tr>
<td>Retirement Center</td>
<td>180</td>
<td>1.20</td>
<td>216</td>
</tr>
<tr>
<td>West Coral Commons Residential</td>
<td>120</td>
<td>1.50</td>
<td>180</td>
</tr>
<tr>
<td><strong>Total North of Oakdale</strong></td>
<td></td>
<td></td>
<td>2,734</td>
</tr>
<tr>
<td><strong>Total Area Population from New Development</strong></td>
<td></td>
<td></td>
<td>5,647</td>
</tr>
<tr>
<td>Existing Population</td>
<td></td>
<td></td>
<td>872</td>
</tr>
<tr>
<td><strong>Total Development Area Population</strong></td>
<td></td>
<td></td>
<td>6,519</td>
</tr>
</tbody>
</table>
SUMMARY

Based on the Land development Concept, the West Coralville Development Area yields approximately $506,000,000 of total development in 1997 dollars. The project includes:

- 2,366 new housing units and 290 existing units in rural density single-family housing and mobile/manufactured housing. In new development:
  - 1,026 units (43%) are proposed in single-family attached or detached housing types. Single-family attached includes duplex and townhouse development.
  - 1,060 units (45%) are proposed in multi-family housing, including low-rise, high-rise, and apartments over commercial variations.
  - 180 units (8%) are proposed for a continuing care retirement center.
  - 100 units (4%) are proposed additional mobile home units, permitted under current development permission.

- Approximately 2.6 million square feet of office space, primarily in low-rise “office park” settings and 1.2 million square feet of business park space, incorporating office and light industrial/distribution uses. Office uses account for an estimated average of 20%, or 240,000 square feet.

- About 1,000,000 square feet of commercial space, including retail and service areas.

- A total area population estimated at 6,519.

Based on current local development rates and potential office and business park absorption rates in the Coralville/Iowa City area, the West Coralville Development Area represents a build-out period of approximately 20 years. This anticipates development in the area of approximately 100 housing units annually (or about one-third of Coralville’s current development rate), and average annual absorption of about 100,000 square feet of office space and 50,000 square feet of commercial space.
PART THREE
UTILITY AND INFRASTRUCTURE SYSTEMS

This section of the Plan addresses the physical systems and services required to make a land area suitable and convenient for habitation and as a location for businesses and industry. These systems and services fall into two groups, commonly referred to as Public Works and Other Utility Services. The following topics are covered in the subsections.

Public Works

- Water System
  - Source
  - Treatment and High Service Pumping
  - Water Storage, Distribution and Fire Protection
  - Future Interurban Connections
- Wastewater System
  - Collection System
  - Waste Treatment
- Stormwater Management
  - Storm Sewers
  - Detention
- Public Buildings and Lands
- Parks and Recreation
- Sanitation Collection and Landfill
  - Collection Services
  - Landfill Operations

Other Utility Services

For the purposes of this document, the Other Utility Services title refers to utility systems and services that normally fall outside the purview of Public Works, and are provided by private companies. These systems merit consideration because they are vital components in the development of an area. Included are;

- Electrical Service
- Natural Gas Distribution
Communication Services
  - Cable Television
  - Telephone Service
  - Emergency Technologies such as Fiber Optics.

WATER SYSTEM

Water use in the City of Coralville currently averages 1.4 Million Gallons per Day (MGD), reaches 2.0 Million Gallons (MG) during a peak use day, and is expected to rise over time and with the completion of the west Coralville development area. The water system, consisting of the source, treatment, storage, pumping, distribution system is a complex system, with several interdependencies. The system provides water for domestic, commercial and industrial consumption, as well as for land irrigation and fire protection.

A separate study is currently under way to analyze the complete Coralville water system, to identify its present and future needs, and to develop a list of system needs to assure its ability to meet future demands. The study is not yet complete. Assumptions have been made in this Land Use Plan as necessary, based on available information.

Source

The source of water for Coralville consists of wells. The well system has been developed to meet previous estimates of water needs, so additional sources will be needed in the future. The City may consider expansion of its well fields or the development of other sources.

The Iowa Medical & Classification Center draws water from the Jordan aquifer at a depth of 1,700 feet. The capacity of the well is 0.86 MGD.

The University of Iowa Oakdale Campus has two wells. One is drilled into the Jordan aquifer. This well produces about 0.29 MGD. The second well is a shallow well drilled into the Silurian aquifer, and has a capacity of about 0.08 MGD.

With the capacity of the Iowa Medical & Classification Center's Jordan well higher than the University of Iowa Oakdale Campus Jordan well and the close proximity of the two Jordan wells, consideration should be given to converting the Iowa Medical & Classification Center's Jordan well to public service, provided there is surplus capacity above the centers needs. An appraisal of the net advantage to the City of Coralville, if any, would have to be made.
Treatment and High Service Pumping

Water treatment and high service pumping are provided by the Coralville Water Treatment Plant. The facility has a design capacity of 3,000 gallons per minute (gpm), and is currently producing approximately 2,000 gpm on peak days. The recently expanded plant will have adequate capacity for several years into the future.

High service pumping facilities are an integral part of the treatment plant. They are sized similar to the treatment plant, except that the peak use demands are addressed differently. As demand increases and the treatment plant is expanded, the high service pumping facilities will require similar expansion.

Coralville raw water is treated at the Coralville Water Treatment Plant using an iron removal process consisting of aeration and filtration. The filters are gravity units. Chlorination is applied for prophylaxis.

Water from the University of Iowa Oakdale Campus wells is not treated for water quality. The waters are blended to optimize natural water quality, then chlorinated. Chemicals are added for corrosion control.

The Iowa Medical & Classification Center water is treated by an iron removal system involving aeration and filtration, followed by chlorination. If there is available capacity, this water may be usable in its present finished form. It is likely that additional treatment for water quality would be required to have a water that is similar to that provided at the Coralville Water Treatment Plant.

There are options for the treatment of the existing well water that need to be reviewed:

1. The water could be transported to the Coralville Water Treatment Plant for treatment. Taking the water to the Coralville Water Treatment Plant, treating it and returning it to the use area would require extensive raw water lines, larger water mains, enlargement of the treatment plant, and considerable pumping costs.

2. An additional treatment plant could be constructed to serve the area. This location would have the advantages of providing water in an area that needs the supply and of being well positioned in elevation.

3. The existing treatment facilities at Iowa Medical & Classification Center might be adapted for use at its present location. This would have the same advantages as option 2, above.
4. Consideration may be given to using the water from the Iowa Medical & Classification Center in its present form, relying on blending it with Coralville water to achieve an acceptable quality at minimal expense. There would need to be some means set up to achieve the blending. This could occur in a storage tank or by putting the water directly into a major water line with a carefully controlled feed system. The suitability of these actions needs to be examined carefully to avoid introducing turbidity, colored water or corrosion problems.

**Water Storage, Distribution and Fire Protection**

- **Storage**

The elevated storage system for Coralville consists of two elevated tanks and two ground storage reservoirs. The west elevated tank, closest to the west Coralville study area contains 400,000 gallons. The second elevated tank is located at the treatment plant and contains 750,000 gallons. The two ground storage reservoirs are located at the Coralville treatment plant and have a combined capacity of 1.3 Million Gallons (MG). A separate study has identified the need for an additional 1.5 MG to 2.0 MG of storage to serve the North Coralville area including the west Coralville study area.

The total water storage needs for the planning area will be proportional to the demands of businesses, industries and residences to be served. Water storage for the west Coralville planning area will need to be coordinated with the total North Coralville service area. Additional elevated storage serving the study area should be situated so as to also serves the existing North Coralville area. This will maximize the use of resources and minimize total costs.

It may be advisable to plan for water supply inter-connecting pipelines between Coralville and the cities of Tiffin and North Liberty. These connections would provide the best use of resources for the cities, by adding redundancy for fire flows and protection from main breaks.

- **Distribution**

There are two major components to the water main system. First, there are the transmission lines that transport water from the treatment plant and storage tanks to the water use area. These large lines form an outline or structure that provides water to localized areas. Second, within the localized areas there are smaller water mains that deliver water to the points of use. Hydraulic modeling will quantify the adequacy of existing transmission lines and mains, identify probable problem areas, and facilitate recommendations for system improvements both in the existing Coralville service area and the west Coralville planning area.
Water distribution mains within the west Coralville planning area will need to be developed to accommodate new growth. The proposed pattern of the water main development is shown on the Infrastructure Map, and it generally follows the anticipated street network. The layout includes larger water mains to form a basic network to deliver water to all parts of the area, and arrangements of smaller mains to deliver the water to localized areas and users.

- **Fire Protection**

The capacity needed for fire protection water flows must be included in the planning for future water treatment plant capacity, storage tanks, high service pumping and water mains. The network of large water lines and local water mains mentioned above are a key part of the fire protection scheme, necessary to deliver the water to the point of use at a high rate of flow. Water for fire protection must be stored and available as needed, impacting the sizes of storage tanks. High service pumping is impacted, because much of the stored water is in ground reservoirs and must be pumped on demand.

Water for fire protection can be stored in two ways. Elevated tanks may be used. In this case, the tanks must have adequate volume to satisfy fire demands. The elevated tanks also provide the pressure necessary to deliver the water to the point of use. An alternative for the planning area would be a pumped system, with ground reservoirs and high capacity fire pumps with alternative power sources.

**Future Interurban Connection**

Some provision for future connections between Coralville, North Liberty and Tiffin may serve the interests of the citizens of all the cities and should be considered. One city might be able to aid another in the event of a major fire or system failure, if the connections have been installed. Future city growth patterns might also be influenced and enhanced by such connections. The existing pipe networks would accommodate much of the line capacity needed. Some lines would have to be constructed to make the actual connections.

**WASTEWATER SYSTEM**

**Collection System**

- **Off-site Sewers**

Trunk sanitary sewers to serve the west Coralville development area have been designed and are under construction at the time of this writing. These offsite sewers are known as the Oakdale Trunk Sewers, and they will convey sewage from the study area to the Coralville Wastewater Treatment Plant. Portions of the Oakdale Trunk Sewers close to the study area are shown in the Infrastructure Map.
On-site Sewers

A system of trunk sanitary sewers for the west Coralville planning area has been proposed in accordance with Iowa Department of Natural Resources (IDNR) design standards, and is shown in the Infrastructure Map, and consists generally of the following:

Table 3-1
West Coralville Land Use Plan: On-site Trunk Sewer Mains

<table>
<thead>
<tr>
<th>Sewer Main Diameter</th>
<th>Length of Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-inch pipe</td>
<td>7,700 linear feet</td>
</tr>
<tr>
<td>10-inch pipe</td>
<td>6,700 linear feet</td>
</tr>
<tr>
<td>12-inch pipe</td>
<td>15,475 linear feet</td>
</tr>
<tr>
<td>15-inch pipe</td>
<td>4,450 linear feet</td>
</tr>
<tr>
<td>18-inch pipe</td>
<td>9,450 linear feet</td>
</tr>
<tr>
<td>27-inch pipe</td>
<td>4,650 linear feet</td>
</tr>
</tbody>
</table>

Other items needed for the sewer system include manholes, roadway and railroad crossings, stream crossings, easements, and other items.

The sewer systems within the west Coralville planning area generally follow the natural topographic drainage to avoid the costs of very deep sewers and costs of pumping. The sewers should be constructed in logical sequences to avoid the capital and operational costs of pumping stations or subsequent parallel sewers. Over-sizing of the mains lying at lower elevations will be needed to accommodate flows from areas located in the upper reaches of the drainage basins.

Waste Treatment

No separate waste treatment facilities are envisioned for the west Coralville planning area. Waste treatment will be provided at the Coralville Wastewater Treatment Plant. The sewage contributed by the study area will be quite significant, so the capacity of the plant may need to be increased periodically as the increased flow is brought on line. There will need to be appropriate planning for future plant capacity, due to the lead time needed for funding, planning and constructing waste treatment facilities.
STORMWATER MANAGEMENT

Stormwater management will be rather straightforward due to the natural terrain relief that will minimize the need for complex storm drainage piping systems. The proposed street pattern will allow for good drainage from properties. As required by design criteria, flows in gutters must be periodically reduced, using inlets to take runoff into storm sewers or to other outlets. This will require the installation of storm sewers or the release of storm flows to natural drainage.

Stormwater detention structures should be provided on a regional basis. The regional approach will reduce the need for small localized facilities with their typically greater maintenance costs. Some of the regional structures may be lakes or ponds. Probable locations are shown on the Infrastructure Map. The final locations will be coordinated with roadway planning, so that regional detention structures may be used for roadways across drainage courses in lieu of bridges where appropriate. There may need to be on-site detention where large impervious areas are to be constructed, such as large building roofs and parking lots. This practice will help reduce the ultimate size of storm sewer components.

The downstream portions of the storm drainage piping systems need to be large enough to accommodate runoff from upper areas. However, the stormwater detention structures will allow minimization of the pipe sizes and system costs. Costs for on-site detention to reduce the size of storm sewer components would be the property owner's. Costs for the storm sewers and regional detention structures located in public rights of way and on public lands would be distributed to developers according to city ordinances.

Please refer to the Infrastructure Map for more information regarding stormwater management facilities.

PUBLIC BUILDINGS AND LANDS

For the west Coralville planning area, no additional public buildings are initially planned. Municipal services would be carried out from existing city facilities. If there are needs for public buildings in the future, it probably would be possible to utilize some public lands initially intended for other purposes, such as drainage corridors, with proper planning and accommodation of the initial purpose.

There is one tract designated for "School/Civic" on the planning map. This 21.2 acre parcel might be used for a school, a civic facility such as a recreation center, or a combination facility for multiple functions.
PARKS AND RECREATION

Due to the terrain relief, there is considerable land area most suitable for drainage corridors and for "green spaces." In addition, one large contiguous area of over 150 acres is proposed as a central open space. These spaces will provide substantial area for public use such as hiking and biking trails and for outdoor recreational activities.

Land for drainage corridors and green spaces will be provided by developers, in accordance with City ordinances. Small, marginally usable parcels that would be contributed by individual developers will not be accepted. Cost of land intended for the central open space will be the City of Coralville's. Costs for site improvements and construction on the lands for public parks and recreation facilities would be carried by the City of Coralville through its park planning and development process.

SOLID WASTE SERVICES

Solid waste services may be provided to the west Coralville planning area as an extension of the present Coralville system. There is no perceived need for waste transfer facilities, landfills or special waste transportation systems.

OTHER UTILITY SERVICES

This section addresses the following public services. The capital system costs will be funded by the service provider.

- Electrical and Natural Gas Distribution
- Communication Services

ELECTRICAL AND NATURAL GAS DISTRIBUTION

Electrical service is provided to this area of Coralville under franchise with Linn County REC. Natural gas service is provided to this area of Coralville under franchise with MidAmerican Energy. These services will be extended into the west Coralville planning area by the provider. Street corridors will normally be used for the distribution networks, with easements where necessary.
COMMUNICATION SERVICES

City ordinances and design standards need to be reviewed for adequate and appropriate accommodation of present and future utility needs. Normally, standard or typical trench assignments are provided for use by developers and utility companies. The assignments protect a path to be used by City-owned services, and promote order and continuity among private utilities.

Trench assignments normally fall within dedicated street rights of way. Where utility easements are needed, the cost of the land will be the developers'. Costs for telephone, cellular telephone and cable television services will be paid by the service provider and, ultimately, the customers.

Telephone service, both wired and cellular, will be extended into the planning area by the service providers. Cellular telephone service antennae and equipment placement would be governed by local ordinance.

Cable television service would be extended into the planning area by the provider.

Fiber optic services should be planned for in the development of utility corridors. The installation of facilities, however, will be provided by the service company.
PART FOUR
TRANSPORTATION

Part Four provides an overview of transportation requirements within the West Coralville Study Area.

Figure 4-1 - Existing Roadway Facilities
TRIP GENERATION

Based on the Land Use Plan presented in Part Two, an estimate of vehicle trips generated within the West Coralville Study Area was developed. The Study Area was divided into two parts.

- South of Oakdale Boulevard
- North of Oakdale Boulevard

The mixed use development is expected to generate nearly 100,000 daily trips when the area is at full build out. Approximately 55 percent will be generated within the area south of Oakdale Boulevard. The remaining 45 percent will be generated within the area between Oakdale Boulevard and Forevergreen Road.

A summary of trips generated by land use category is summarized in Table 4-1 and Table 4-2. The estimates were developed using the Institute of Traffic Engineers *Trip Generation Manual, 5th Edition*. In addition to daily trips, P.M. peak hour trips were also estimated.

Table 4-1
Trip Generation ¹ South of Oakdale Boulevard Extended

<table>
<thead>
<tr>
<th>ITE Code</th>
<th>Land Use</th>
<th>Number of Units/GLA</th>
<th>Daily Trips</th>
<th>P.M. Peak Hour Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Trips</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Exit</td>
</tr>
<tr>
<td>210</td>
<td>Single Family - detached</td>
<td>329 Units</td>
<td>3,921</td>
<td>399</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>259</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>140</td>
</tr>
<tr>
<td>230</td>
<td>Residential Condo/Townhouse</td>
<td>33 Units</td>
<td>254</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>220</td>
<td>Apartment</td>
<td>400 Units</td>
<td>2,554</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>157</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>74</td>
</tr>
<tr>
<td>240</td>
<td>Mobile Park</td>
<td>250 Units</td>
<td>1,183</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>84</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>51</td>
</tr>
<tr>
<td>820</td>
<td>Shopping Center</td>
<td>770,000 Sq. Ft.</td>
<td>26,335</td>
<td>2,454</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,227</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,227</td>
</tr>
<tr>
<td>750</td>
<td>Office Park</td>
<td>1,445,000 Sq. Ft.</td>
<td>13,499</td>
<td>1,670</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>251</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,420</td>
</tr>
<tr>
<td>770</td>
<td>Business Park</td>
<td>468,000 Sq. Ft.</td>
<td>6,413</td>
<td>645</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>142</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>503</td>
</tr>
<tr>
<td></td>
<td><strong>Total Trips</strong></td>
<td></td>
<td>54,159</td>
<td>5,559</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,136</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,423</td>
</tr>
</tbody>
</table>

¹ Data was compiled using ITE Trip Generation manual, 5th Edition
<table>
<thead>
<tr>
<th>ITE Code</th>
<th>Land Use</th>
<th>Number of Units/GLA</th>
<th>Daily Trips</th>
<th>P.M. Peak Hour Trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Enter</td>
</tr>
<tr>
<td>210</td>
<td>Single Family - detached</td>
<td>329 Units</td>
<td>3,091</td>
<td>316</td>
</tr>
<tr>
<td>230</td>
<td>Residential Condo/Townhouse</td>
<td>88 Units</td>
<td>584</td>
<td>56</td>
</tr>
<tr>
<td>221</td>
<td>Low-Rise Apartment</td>
<td>300 Units</td>
<td>1,960</td>
<td>174</td>
</tr>
<tr>
<td>222</td>
<td>High-Rise Apartment</td>
<td>240 Units</td>
<td>1,077</td>
<td>85</td>
</tr>
<tr>
<td>253</td>
<td>Elderly Housing - attached</td>
<td>180 Units</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>253</td>
<td>Elderly Housing - attached</td>
<td>120 Units</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>820</td>
<td>Shopping Center</td>
<td>170,000 Sq. Ft.</td>
<td>9,847</td>
<td>920</td>
</tr>
<tr>
<td>820</td>
<td>Shopping Center</td>
<td>60,000 Sq. Ft.</td>
<td>5,136</td>
<td>474</td>
</tr>
<tr>
<td>750</td>
<td>Office Park</td>
<td>1,200,000 Sq. Ft.</td>
<td>11,559</td>
<td>1,433</td>
</tr>
<tr>
<td>770</td>
<td>Business Park</td>
<td>764,000 Sq. Ft.</td>
<td>10,286</td>
<td>982</td>
</tr>
<tr>
<td></td>
<td>Total Trips</td>
<td></td>
<td>43,540</td>
<td>4,464</td>
</tr>
</tbody>
</table>

2 Data Unavailable
ROADWAY CAPACITY ANALYSIS

The Level of Services (LOS) criterion is a qualitative measure that incorporates the collective factors of speed, travel, time, traffic interruptions, freedom of maneuver, safety, driving comfort and convenience, and operating costs provided by a roadway facility under a particular traffic volume condition. The descriptions of operating conditions for the various levels of service are summarized in the following table.

Table 4-3
Roadway Level of Service Descriptions

<table>
<thead>
<tr>
<th>Level of Service (LOS)</th>
<th>Description of Roadway Operation</th>
<th>Description of Intersection</th>
<th>Volume/Capacity Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Free-flow conditions, vehicles almost completely unimpeded in ability to maneuver, provides motorist with high level of physical and psychological comfort, effects of minor incidents and breakdowns easily absorbed.</td>
<td>Good, light to moderate traffic on approach, stable queues, little additional delay.</td>
<td>0 to 0.60</td>
</tr>
<tr>
<td>B</td>
<td>Free-flow conditions, ability to maneuver slightly restricted, provides high level of physical and psychological comfort.</td>
<td>Same as above.</td>
<td>0.61 to 0.70</td>
</tr>
<tr>
<td>C</td>
<td>Stable conditions, small increases in flow cause substantial deterioration in service, minor incidents may still be absorbed, but substantial local deterioration in service.</td>
<td>Fair, moderately heavy traffic on approach, longer but stable queues, moderate but acceptable delay.</td>
<td>0.71 to 0.80</td>
</tr>
<tr>
<td>D</td>
<td>Borders on unstable conditions, small increases in flow cause substantial deterioration in service, freedom to maneuver severely limited, driver experiences drastically reduced physical and psychological comfort levels.</td>
<td>Poor, heavy traffic on approach, long unstable queues, occasional excessive delays.</td>
<td>0.81 to 0.90</td>
</tr>
<tr>
<td>E</td>
<td>Operation at capacity, extremely unstable, virtually no usable gaps in traffic stream.</td>
<td>Critical, heavily congested traffic conditions, excessive delays.</td>
<td>0.91 to 1.00</td>
</tr>
<tr>
<td>F</td>
<td>Forced or breakdown flow, generally exists with queues forming behind breakdown points.</td>
<td>Failure, more demand than capacity.</td>
<td>Not meaningful</td>
</tr>
</tbody>
</table>
The *Highway Capacity Manual*, published in 1985 by the Transportation Research Board, outlines a detailed procedure for determining the level of service of a segment of an urban arterial based on average travel speed.

A design speed exceeding 35 mile per hour is desired on the following major arterial street systems:

- Iowa Highway 965
- US Highway 6

Due to the multi-modal character of Oakdale Boulevard, Kansas Avenue Extension, Jones Boulevard Extension and Forevergreen Road, a design speed of 45 miles per hour will be required with a posted speed of 35 miles per hour.

The *Transportation and Traffic Engineering Handbook*, published in 1982 by the Institute of Transportation Engineers, indicates that the capacity of an urban arterial is approximately 675 vehicles per hour per lane. Typically the peak hour contains 10% of the average daily traffic. Therefore, the daily capacity of an urban arterial is approximately 6750 vehicles per day (vpd) per lane. This extrapolates to a capacity of approximately 13,500 vpd for a two-lane facility and 27,000 vpd for a four-lane facility. The addition of separate left-turn lanes can increase the capacity of a roadway by approximately 2000 vpd.

The *Arterial Street Plan*, 1991 prepared by the Johnson County Council of Governments for the Iowa City urbanized area set forth minimum design standards for arterial streets as well as a basis to evaluate the arterial street system. "A level of service (LOS C) was adopted as the typical design standard for assessing delay for a proposed facility." The following table summarizes average daily traffic (ADT) given the number of lanes and access condition.
### Table 4-4
Service Level "C" Average Daily Traffic

<table>
<thead>
<tr>
<th>Number of Lanes</th>
<th>Access Condition (side friction)</th>
<th>Minimal</th>
<th>Light (residential)</th>
<th>Moderate (mixed zoning)</th>
<th>Heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Lanes Undivided</td>
<td>Without turn lanes</td>
<td>8,000</td>
<td>7,000</td>
<td>6,000</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>With left turn lanes</td>
<td>1,000</td>
<td>10,000</td>
<td>8,000</td>
<td>7,000</td>
</tr>
<tr>
<td>4 Lanes Undivided</td>
<td>Without turn lanes</td>
<td>20,000</td>
<td>19,000</td>
<td>18,000</td>
<td>17,000</td>
</tr>
<tr>
<td></td>
<td>With left turn lanes</td>
<td>24,000</td>
<td>23,000</td>
<td>22,000</td>
<td>21,000</td>
</tr>
<tr>
<td>4 Lanes Divided</td>
<td>Without turn lanes</td>
<td>24,000</td>
<td>23,000</td>
<td>22,000</td>
<td>21,000</td>
</tr>
<tr>
<td></td>
<td>With left turn lanes</td>
<td>28,000</td>
<td>27,000</td>
<td>26,000</td>
<td>25,000</td>
</tr>
<tr>
<td></td>
<td>With left &amp; right turn lanes</td>
<td>30,000</td>
<td>29,000</td>
<td>28,000</td>
<td>27,000</td>
</tr>
<tr>
<td>6 Lanes Divided</td>
<td>Without turn lanes</td>
<td>36,000</td>
<td>35,000</td>
<td>34,000</td>
<td>33,000</td>
</tr>
<tr>
<td></td>
<td>With left turn lanes</td>
<td>40,000</td>
<td>39,000</td>
<td>38,000</td>
<td>37,000</td>
</tr>
<tr>
<td></td>
<td>With left &amp; right turn lanes</td>
<td>42,000</td>
<td>41,000</td>
<td>40,000</td>
<td>39,000</td>
</tr>
<tr>
<td>One-Way Pair</td>
<td>Without turn lanes</td>
<td>16,000</td>
<td>15,000</td>
<td>14,000</td>
<td>13,000</td>
</tr>
<tr>
<td>4 Lane Freeway</td>
<td>Controlled Access</td>
<td>LOS C</td>
<td>LOS D</td>
<td>LOS E</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>46,500</td>
<td>55,900</td>
<td>67,000</td>
<td></td>
</tr>
<tr>
<td>6 Lane Freeway</td>
<td>Controlled Access</td>
<td>LOS C</td>
<td>LOS D</td>
<td>LOS E</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>73,600</td>
<td>82,900</td>
<td>101,500</td>
<td></td>
</tr>
</tbody>
</table>


The West Coralville Study Area is expected to have a "build out" period that may extend through year 2015. Consequently, the roadway improvements may be constructed initially within the corridor when the volume to capacity (V/C ratio) approaches 0.8. Where the volume of traffic exceeds the roadway capacity, the level of service will decrease.

Roadway capacity and level of service is further illustrated on the following chart.
Figure 4-2 - Roadway Capacity/Level of Service
FUNCTIONAL STREET CLASSIFICATION

Part Three discussed various components of the infrastructure required to support the land development concept. The roadway system consists of a hierarchy of streets designed to facilitate the movement of traffic to, from, and through the West Coralville Study Area. Roadways within the Study Area are grouped by function. Together they create a network to provide for movement within the site as well as access to the interstate system.

The Subdivision Regulations, Part 5 - Streets defines the functional use of streets within the City of Coralville as follows:

- **Arterial Streets** provide a continuous route for the expeditious movement of large volumes of all types of through-traffic across and beyond the city and between high traffic generation points. The geometric design and traffic-control measures are used to facilitate the safe movement of through traffic. Local street access to arterial streets will be limited. Direct access from abutting properties may be permitted at higher traffic generation points.

- **Collector Streets** provide for the movement of traffic between arterial routes and local streets as well as providing limited direct access to abutting property. Moderate traffic volume (≤ 2500 VPD) and low speed (≤ 25 mph) traffic, including bus traffic, may be carried on collector streets.

- **Local Streets** serve as a means of access to abutting property. They are intended to be a low speed (≤ 25 mph) and short trip routes, with usually less than 500 vehicles per day.

- **Industrial Streets** are intended to carry commercial and industrial traffic.

The City of Coralville may consider an amendment to the Subdivision Regulations to include a definition for Freeways/Expressways. The following is offered for consideration:

- Freeways and expressways are selected for arterial corridors that are intended to provide high levels of safety and efficiency in the movement of high volumes of traffic at high speeds. Full control of access to the freeway/expressway is provided.

Function roadways within the West Coralville Study Area include a hierarchy of local, collector, industrial, and arterial streets. Interstate Highway 80 extends along the south edge of the study area while I-380 defines the west edge. The north boundary of the study area is defined by Forevergreen Road which is classified as an arterial street and extends beyond the City as a rural arterial. US Highway 6 extends in an east/west direction diagonally through the south part of the site.
An interchange at Forevergreen Road and I-380 as well as US Highway 6 and I-380 are recommended for consideration. Development of the West Coralville area is anticipated to occur from south to north, the interchange of US Highway 6 is to be considered first with the interchange of Forevergreen Road and I-380 to follow as development in the north part of the area increases.

Iowa Highway 965 extends along the east boundary of the study area; providing movement between North Liberty, Coralville, Iowa City, and access to I-80.

Roadways (existing or proposed) have been assigned to the following functional street classifications. These assignments are consistent with the transportation framework described in Part Two - Land Use Plan.

**Table 4-5**

**Functional Street Classification**

<table>
<thead>
<tr>
<th>Freeways/Expressways</th>
<th>Collector Streets</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-80</td>
<td>Inner Circumferential</td>
</tr>
<tr>
<td>I-380</td>
<td>Connector from US Highway 6 to Inner Circumferential</td>
</tr>
<tr>
<td></td>
<td>Connector from Forevergreen Road to Inner Circumferential (Jones Boulevard Extension)</td>
</tr>
<tr>
<td>Arterial Streets</td>
<td>Local Streets</td>
</tr>
<tr>
<td>US Highway 6</td>
<td>All other streets</td>
</tr>
<tr>
<td>Iowa Highway 965</td>
<td></td>
</tr>
<tr>
<td>Forevergreen Road</td>
<td></td>
</tr>
<tr>
<td>Oakdale Boulevard Extended</td>
<td></td>
</tr>
<tr>
<td>Industrial Arterial Streets</td>
<td></td>
</tr>
<tr>
<td>Parallel to and east of I-380</td>
<td></td>
</tr>
<tr>
<td>(Kansas Avenue Extension)</td>
<td></td>
</tr>
</tbody>
</table>
INTERSTATE ACCESS/INTERCHANGE LOCATIONS

Access from the West Coralville Study Area is currently provided to I-80 from Iowa Highway 965. Access to I-380 is provided via I-80 and/or Iowa Highway 965.

Based on the land use plan discussed in Part Two, consideration was given to the need to provide additional access to I-380. Three interchange locations with I-380 were examined.

• US Highway 6
• Oakdale Boulevard extended
• Forevergreen Road

Interchanges at US Highway 6 and Forevergreen Road were selected as the preferred locations. An interchange at Oakdale Boulevard and I-380 was eliminated from further consideration. An interchange location at Oakdale Boulevard would preclude construction of interchanges at US Highway 6 and Forevergreen Road due to the ramp spacing requirements between the two interchanges for weave and merge movements.

The area within which an interchange at US Highway 6 would be constructed has a number of constraints that must be considered. US Highway 6 extends in a northwesterly direction under I-380. The Iowa Interstate Railroad right-of-way is located south and parallel to US Highway 6. Clear Creek and associated flood plain is located south of the railroad right-of-way.

Figure 4-3 - Conceptual Layout US Highway 6 Interchange
The location of the Iowa Interstate Railroad south of US Highway 6 precludes the construction of a full clover. Proposed is the construction of a partial clover north of US Highway 6 for full access to US Highway 6 and I-380. At this location, I-380 extends over US Highway 6. The proposed partial clover would require the widening of the two existing bridges on I-380 so as to accommodate the horizontal transition to the inner loops of the ramps.

Access rights along US Highway 6 would be prohibited for a minimum distance of 600 feet beyond the point of ramp bifurcation. In a built-up area, local public roads shall be relocated to a connecting point a minimum of 300 feet beyond the point of ramp bifurcation.

A diamond interchange is proposed at I-380 and Forevergreen Road. An existing two-lane bridge currently extends over I-380. It is expected that the existing bridge will provide an adequate level of service until such time the West Coralville Study Area approaches 50 percent build out.

Figure 4-4 - Conceptual Layout Forevergreen Interchange
The following table summarizes design elements considered for each location as well as a modification to the existing I-380/I-80 interchange.

**Table 4-6**  
Summary of Interchange Concepts

<table>
<thead>
<tr>
<th>CONSIDERATIONS</th>
<th>INTERCHANGE LOCATION AND TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FOREVER GREEN RD./DIAMOND INTCHG.</td>
</tr>
<tr>
<td>HORIZONTAL</td>
<td>Railroad tracks to south prohibit full clover.</td>
</tr>
<tr>
<td>Radius</td>
<td>Geometry is similar to diamond at North Liberty interchange. (2 miles north)</td>
</tr>
<tr>
<td>Exist. operating speed</td>
<td></td>
</tr>
<tr>
<td>Prop. operating speed</td>
<td></td>
</tr>
<tr>
<td>Radius</td>
<td></td>
</tr>
<tr>
<td>Exist. operating speed</td>
<td></td>
</tr>
<tr>
<td>Prop. operating speed</td>
<td></td>
</tr>
<tr>
<td>VERTICAL Grades</td>
<td>1% to 2%</td>
</tr>
<tr>
<td>Grades</td>
<td>Longer ramps: 2 to 4%</td>
</tr>
<tr>
<td>BRIDGES</td>
<td>Exist. bridge for Forever Green goes over I380. Likely use existing bridge.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>RETAINING WALLS</td>
<td>None</td>
</tr>
<tr>
<td>MERGING/WEAVING</td>
<td>To be evaluated: depends upon traffic projections.</td>
</tr>
<tr>
<td>LAND USE</td>
<td>The layout is minimal use of land for interchange.</td>
</tr>
<tr>
<td>OTHER</td>
<td>An auxiliary lane on I380 northbound and / or southbound could be constructed if the traffic projections/merging review indicates the need.</td>
</tr>
</tbody>
</table>

4-12
A modification to the I-380/I-80 may also be required as the Iowa City/Cedar Rapids Corridor continues to develop. Consideration may be given to the elimination of the southbound I-380 to eastbound I-80 loop ramp. Eliminating the loop ramp will reduce the merging/wearing accident potential between the entrance and exit ramps. A flyover from I-380 to I-80 is proposed and would require the construction of two new bridges.

Figure 4-5 - I-80/I-380 Modifications
DESIGN STANDARDS

Part 5 - Streets of the Subdivision Regulations adopted by the City of Coralville set forth minimum design standards for the construction of local, collector, and arterial streets. The minimum standards may be modified based in part on function, capacity requirements and other objectives.

The arterial street network for purpose of identification and preparing estimates of probable cost are referenced as follows:

<table>
<thead>
<tr>
<th>Location</th>
<th>Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highway 965 (Holiday to Forevergreen)</td>
<td>8,200</td>
</tr>
<tr>
<td>Highway 6 (I-380 ramp bifurcation to North I-80)</td>
<td>6,200</td>
</tr>
<tr>
<td>Parallel I-380 (Kansas Avenue Extension)</td>
<td>7,200</td>
</tr>
<tr>
<td>Forevergreen Road (I-380 Ramp bifurcation to Highway 965)</td>
<td>8,800</td>
</tr>
<tr>
<td>Oakdale Boulevard extended (east right-of-way of I-380 to Highway 965)</td>
<td>9,600</td>
</tr>
</tbody>
</table>

The City of Coralville adopted design standards and guidelines for development along Oakdale Boulevard extending east from Iowa Highway 965. So as to provide continuity over the entire length of the Oakdale Boulevard Corridor, it is recommended that the design standards be applied.

Figure 4-6 - Oakdale Boulevard
The proposed collector network consisting of eight segments provides access to and from the arterial system:

**Table 4-8**

Proposed Collector Streets

<table>
<thead>
<tr>
<th>Location</th>
<th>Length (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jones Boulevard Extension</td>
<td>11,200</td>
</tr>
<tr>
<td>Inner circumferential located north of Oakdale Boulevard extended (Highway 965 to Oakdale Boulevard).</td>
<td>7,800</td>
</tr>
<tr>
<td>West parkway extending from Inner circumferential to Forevergreen Road.</td>
<td>2,200</td>
</tr>
<tr>
<td>East parkway extending from Inner circumferential to Forevergreen Road.</td>
<td>2,200</td>
</tr>
<tr>
<td>Inner circumferential located south of Oakdale Boulevard extended (Jones Boulevard Extension to Kansas Avenue Extension).</td>
<td>7,000</td>
</tr>
<tr>
<td>Connector extending from Oakdale Boulevard south to the Inner circumferential street.</td>
<td>1,400</td>
</tr>
<tr>
<td>Connector extending from US Highway 6 to Oakdale Boulevard.</td>
<td>3,400</td>
</tr>
<tr>
<td>Connector along Industrial Park extending from US Highway 6 east to Heartland Drive.</td>
<td>7,000</td>
</tr>
</tbody>
</table>
PART FIVE
IMPLEMENTATION

LAND USE REGULATIONS: ZONING AND SUBDIVISION ISSUES AND RECOMMENDATIONS

The West Coralville Land Use Plan envisions a comprehensively planned community that, when fully developed, represents a new type of mixed use urban development. Such projects are difficult enough to implement when their sites are under unitary ownership; in the case of the West Coralville development site, land is held by a number of different owners, each of whom is most interested in individual parcels. As a result, development could very likely follow individual imperatives, with relatively little concern for the connections and relationships among parts that are required to produce an excellent community. Indeed, contemporary development is marked by efficient but piecemeal development of individual parcels, causing developing areas to be more a patchwork of separate development “pods” than a symphony of inter-related neighborhoods.

One important goal of this plan is to define the framework of land uses, open spaces, transportation, and infrastructure systems that form the basis of overall community development. Defining these basic systems, and providing a method to finance their acquisition and development, will help to guide development in the ways anticipated by this plan. However, the additional tool of land use regulations can further assure that individual development actions over the long time work together to realize the city's growth objectives for this strategic area.

Land use regulations for the West Coralville development area should include the following components:

- Oakdale Boulevard Planned Development Overlay, establishing standards for the Oakdale corridor west of Highway 965. The Oakdale Boulevard Planned Development Overlay adopts design standards and guidelines for development along and abutting the Oakdale Boulevard right-of-way. These include:
  - Street right-of-way requirements.
  - Trail and sidewalk widths and locations.
  - Residential and commercial building setbacks.
  - Parking setback.
  - Sign and screening regulations.

- I-380 Business Park Planned Development District, establishing permitted uses, conditional uses, accessory uses, and design and planning guidelines for development along and abutting I-380 right-of-way and the north-south arterial (Kansas Avenue Extension).
• A Mixed Use District, permitting the development of projects that combine residential, commercial, and office uses in certain locations, such as the proposed West Coralville Commons.

• Subdivision regulations and flexibility to encourage developments consistent with plan concepts.

These individual regulatory features are considered below.

**Oakdale Boulevard Planned Development Overlay**

Development regulations for the West Coralville Development Area should include an Oakdale Boulevard Planned Development Overlay district. This overlay district establishes standards analogous to those previously adopted by Coralville for the Oakdale corridor east of Highway 965. The following standards are proposed for this area:

**Oakdale Boulevard Planned Development Overlay:** Adopt design standards and guidelines for development along and abutting the Oakdale Boulevard right-of-way.

**A. Purpose:**
Establish design standards and guidelines for development along the Oakdale Boulevard corridor to protect the public’s health, safety, and welfare, to minimize the impact of the boulevard on the surrounding residential neighborhoods, and to insure the physical and visual resources and aesthetics of the neighborhood are preserved and enhanced.

**B. Design Standards:**
The following standards apply to the development of Oakdale Boulevard and to all development abutting the right-of-way of the boulevard:

1. A minimum 100' boulevard right-of-way for the four (4) lane undivided section. Divided sections require 120 foot minimum right-of-way.
2. A minimum 8' wide sidewalk/trail along the north side of the boulevard, between the Oakdale Research Park and I-380.
3. A minimum 4' wide sidewalk along the south side of the boulevard, between the Oakdale Research Park and I-380.
4. A minimum 50' residential building setback from the boulevard right-of-way.
5. A minimum 35' commercial building setback from the boulevard right-of-way.
6. A minimum 25' parking setback from the boulevard right-of-way for all development.
7. A minimum 25' fence or screen wall setback from the boulevard right-of-way.
8. A minimum 25' sign setback from the boulevard right-of-way.
9. Boulevard access shall be limited to public streets serving residential neighborhoods and private drives serving commercial and residential developments not less than five (5) acres in size.
10. No boulevard access shall be closer than 250' to an intersection curb line.
11. Where arterial and collector streets intersect the boulevard, raised, landscaped medians shall be constructed in both intersection streets to facilitate safe conveyance of vehicular and pedestrian traffic. A left-hand turn lane shall be provided in arterial streets.

C. Design and Planning Guidelines:
The following design and planning guidelines are intended to facilitate the orderly planning and consideration of proposals to develop along the boulevard right-of-way.

1. Where residential development abuts the boulevard right-of-way, every attempt shall be made to site and orient buildings to maximize safety, privacy, and aesthetics.

2. Parking and service areas shall be screened from view. In both residential and commercial areas, screening shall be accomplished using a combination of landscaping, earth berms, and architectural screening. Architectural screens shall be compatible in detail and material with the associated architecture.

3. The boulevard right-of-way should be perceived as a part of the community open space system. Pedestrian connections from residential open spaces to parks and to walks and trails along the boulevard should be encouraged.

4. Street and pedestrian lighting, signage, pavement materials, and other detailed treatments of public improvements along the boulevard shall express a consistent and unified design theme.

Planned Low Density Residential Development Requirements

A. Purpose:

The "planned low-density residential" land use category has been created to facilitate planned development of more diverse opportunities for housing in residential districts proximate to arterial and collector streets and neighborhood commercial development. "Planned low density residential" land use will allow for a mix of detached and attached (common wall) dwellings at a maximum gross density of eight (8) dwelling units per acre. "Planned low density residential" land use is further intended to provide for the following:

1. Creative and innovative residential design.
2. Conservation of existing natural resources and landscape features.
3. Buffering of low density single family residential development from commercial development and arterial and collector streets.
4. Opportunities for variety in the architectural form of single family housing.
5. Opportunities for increased diversity of neighborhood demographics and aesthetics.

B. Principal Requirements:

The principal requirements of the "planned low density residential" land use category are as follows:

1. Gross development density may not exceed eight (8) dwelling units per acre.
2. Housing types may range from one (1) family detached to a maximum of six (6) family, attached structures (vertical stacking is not permitted).
3. All dwelling units will have attached garages.
4. All dwelling units will have a private first floor, exterior door as the principal entrance.
5. Development of land classified as “planned low density residential” must comply with the design guidelines established for Oakdale Boulevard and other arterial, collector and local streets.

C. Design and Planning Guidelines:

The following design and planning guidelines are intended to facilitate the orderly planning and consideration of proposals to develop “planned low density residential” land use:

1. Development of land classified as “planned low density residential” shall provide for buffering of adjacent land developed with “low density” single family detached housing. Buffering can be accomplished with a tier of “low density” single family detached houses or a minimum 100’ wide landscape buffer yard.
2. Development plans for land classified as “planned low density residential” for a use other than that permitted by the current zoning district shall be submitted and considered under the Planned Unit Development District, Section 165.31 of the Coralville Code of Ordinances.

Planned Limited Commercial Development Requirements

A. Purpose:

The “planned limited commercial” land use category has been created to facilitate planned development of neighborhood commercial centers oriented to providing a limited range of products and services. “Planned limited commercial” land use is intended to provide varied opportunities for meeting the personal services needs of residents of a neighborhood and to provide opportunities for commerce and social interchange at a neighborhood scale. “Planned limited commercial” land use is further intended to provide for the following:

1. A marketplace focus for a neighborhood.
2. Economies of scale and convenience.
3. Opportunities for neighborhood based business.
4. Enhancement of neighborhood image and sense of community.

B. Principal Requirements:

The principal requirements of the “planned limited commercial” land use category are as follows:

1. Limited uses: personal service retail business and professional offices.
2. Limited hours of operation: 6:00 AM to 10:30 PM.
3. Residential scale architecture with pitched roofs compatible with the styles and forms of surrounding residential architecture.

4. One and two story construction.

5. Development of all land classified as “planned limited commercial” must comply with the design guidelines established for Oakdale Boulevard and other arterial, collector and local streets.

C. Design and Planning Guidelines:

The following design and planning guidelines are intended to facilitate the orderly planning and consideration of proposals to develop “planned limited commercial” land use:

1. The service area for “planned limited commercial” land use should be a one (1) to two (2) mile radius neighborhood service area.

2. “planned limited commercial” land use areas shall be located along arterial and collector streets.

3. Principal vehicular access shall be from arterial or collector streets. Accesses shall be no closer than 250 feet to the intersection of an arterial street.

4. Site design shall emphasize pedestrian access to public ways and residential areas.

5. Individual “planned limited commercial” areas should range in size from five (5) to fifteen (15) acres.

6. In order to maintain a neighborhood scale of Development, to maintain the mixed use aesthetics of a neighborhood, and to maintain a safer vehicular and pedestrian interchange between commercial and residential land use, no more than 2 corners of a street intersection shall be developed for “limited commercial” land use.

7. Identification of buildings and businesses shall be accomplished with “monument style” ground signs and building signs. The design of the signs and associated graphics shall be compatible with the architectural style and form of the building(s).

8. Residential scaled building design shall be emphasized. Building roofs shall be gable, pitched forms compatible with residential roof forms. One story buildings should have roof heights that give the illusion of two-story construction. Building materials shall be predominantly unit masonry. Roof and building materials and material colors shall be compatible with the residential structures.

9. Hours for delivery and service vehicle traffic shall be limited to minimize conflicts with neighborhood vehicular and pedestrian traffic.

10. Landscaping, berming, and transitional yards shall be planned to minimize the potential impacts of noise, light glare and service operations.

11. Development plans for land classified as “planned limited commercial” shall be submitted and considered under the Planned Unit Development district, Section 165.31, of the Coralville Code of Ordinances.
D. Recommended Potential Uses:

The following is a comprehensive list of personal service retail and office uses that would be appropriate for "planned limited commercial" areas:

1. Banking, including ATM and drive-through banking.
2. Professional and medical offices.
3. Commercial photography, art and graphics studios.
4. Blueprinting and photocopying services.
5. Art and graphic supplies store.
7. Business and professional membership association offices.
8. Civic, social and fraternal association offices.
9. Convenience stores with limited gasoline sales (maximum 2 sales stations that permit 4 automobiles to be served at once and no detached canopies).
10. Meat and seafood markets (no slaughtering or carcass meats).
11. Fruit and vegetable markets (no outdoor display, sales or storage).
12. Candy, nut and confectionery stores.
13. Dairy product stores (retail over-the-counter sales only).
15. Health food stores.
17. Pharmacies and drug stores.
18. Beauty and barber shops.
19. Tailor shops.
20. Shoe repair shops.
22. Laundry pick-up stations.
23. Restaurants (limited seating capacity and no drive-ups).
24. Sandwich shops and delicatessens (limited seating capacity and no drive-ups).
25. Hardware stores.
26. Specialty clothing shops.
27. Sporting goods and bicycle shops (no motorized vehicle sales).
28. Hobby, toy and game shops.
29. Camera, photographic supplies and photo finishing services store.
30. Gift, novelty and souvenir shops.
31. Card shops.
32. Florist shops.
33. Newsstands.
34. Video rental stores.
35. Computer hardware and software stores.
36. Optical shops.
37. Antique furniture and gift shops.
38. Music and dance studios.
40. Child care facilities.
41. Post office substations.
School Site Preservation

The Community Plan will create a public land use category to allow for the development of an elementary school affiliated with the appropriate school district.

I-380 Business Park Planned Development District

Development regulations for the West Coralville Development Area should include an I-380 Business Park Planned Development District. This district establishes standards adopted by Coralville for the development along and abutting I-380 right-of-way and the north-south arterial (Kansas Avenue Extension). The following standards are proposed for this area:

I-380 Business Park Planned Development District: Adopt permitted uses, conditional uses, accessory uses, and design and planning guidelines for development along and abutting I-380 right-of-way and the north-south arterial (Kansas Avenue Extension).

A. Purpose:
The I-380 Business Park Planned Development District establishes special standards to guide the formation of Planned Unit Developments along Interstate 380 on the western edge of the West Coralville Development Area. The purpose of these standards is to maintain high quality development along this regional corridor that provides a positive initial impression of the city and discourages and screens operations with major visual impacts.

B. Permitted Uses:
The I-380 Business Park Planned Development District is intended to provide a high quality environment for business uses. It is not intended to be a retail commercial district, although retail or service commercial uses may be permitted as accessory uses. Permitted primary uses within the district include:

Civic Use Types
Public Administration offices.
Recreational or social clubs.
Colleges, universities, or vocational schools.
Cultural facilities.
Day care facilities.
Health care facilities.
Parks and recreation.
Postal facilities.
Public safety services.

Office Use Types
Corporate headquarters offices.
General administrative offices.
Financial services.
Medical offices.
Research offices and services.
Commercial Use Types

Business support services, including copy services, printers, business supply sales, and building maintenance services.
Communication services.
Lodging.
Personal services.
Full-service restaurants.

Industrial Use Types

Light industry, defined as industrial operations that are completely contained within buildings and produce no discernable environmental effects beyond the walls of the primary building.

C. Conditional Uses

The following uses are permitted by Conditional Use Permit:

Public maintenance facilities.
Public utility installations.
Transportation services, including truck terminals.

D. Accessory Uses

General retail services may be permitted as an accessory use if they comprise no more than 20% of the total building area of the proposed project.

E. Design and Planning Guidelines

1. Setbacks. All development shall maintain a minimum landscaped setback of 75 feet along Interstate 380 and 35 feet along the proposed north-south arterial (Kansas Avenue Extension) bordering the I-380 Business Park Planned Development District on the east.

2. Site Coverage. Maximum building coverage of any development within the district shall be 50%. Maximum impervious coverage of any development shall be 80%.

3. Landscape Treatment. Each development shall submit a landscaping plan defining location, size, and species of landscape materials. As a general guideline, projects should provide one tree of 2-inch or greater caliper for every 1,000 square feet of required landscaped setback along Interstate 380 and one tree of 2-inch of greater caliper for every 500 square feet of required landscaped setback along the proposed north-south arterial (Kansas Avenue Extension).

4. Loading Areas. Loading docks and other truck loading areas shall be screened from direct view from Interstate 380 or the north-south arterial (Kansas Avenue Extension). Screening may be accomplished using a combination of landscaping, earth berming, and architectural screening. Architectural screening shall be compatible in detail and material with the associated buildings.

5. Signs. All signage visible from Interstate 380 and the north-south arterial (Kansas Avenue Extension) shall be either detached monument or ground signs or attached to building facades. Permitted maximum sign area along these corridors shall be 1.0 times the frontage of the property.

   a. A minimum 8-foot wide sidewalk trail should be provided along the east side of the north-south arterial (Kansas Avenue Extension) and a minimum 4-foot wide sidewalk shall be provided along the west side.
   b. Development within the I-380 Business Park Planned Development District shall provide a continuous pedestrian system serving all development within the district and connecting to the proposed trail system in the West Coralville Development Area.

7. Outdoor Storage. Outdoor storage of materials or products is prohibited within the I-380 Business Park Planned Development District.
8. Planned Unit Development Requirement. All development proposed within the I-380 Business Park Planned Development District shall be approved through the City of Coralville's Planned Unit Development district review and approval process.

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**West Coralville Commons Mixed Use District**

A mixed use district applies to the West Coralville Commons area in the central of the development district. This special district adopts the same special regulations governing Coralville’s 12th Avenue Town Center District and should include:

- "Main Street" development with one or two levels of apartments over commercial/office space on the central spine. Buildings on this street should be developed along the street property line.
- All parking is located to the back of these buildings.
- Other development forms, primarily office/research uses, are permitted between the Main Street environment and the central open space.

Other mixed use projects, including those in commercial areas, should be addressed through Coralville’s planned unit development ordinances, now undergoing revision.

**Subdivision Regulations**

Subdivision regulations should be adopted to assure that developments are consistent with the overall concepts of the Land Use Plan and have strong relationships to one another. This can be addressed through two mechanisms -- conventional regulations that assure open ended street and pedestrian linkages and maintenance of mature land features; and incorporation of new design tools into the City’s subdivision ordinances.

- Conventional Regulations. Special subdivision regulations for the West Coralville district should require:
  - Development of open-ended internal street systems which connect with each other and with the circulation framework identified in this plan. Similar internal systems for pedestrian and bicycle movement (which may include designated "share the road" routes for bicycles and other vehicles instead of separated trails in all cases) should be established through subdivision design. Cul-de-sacs should generally be avoided in the West Coralville area in favor of other design techniques that discourage through traffic but maintain street continuity and ease of public safety access. Some of these techniques include loops with two entrances, bulbs or circles off of continuous streets, and establishing a hierarchy of street lengths in the overall network.
- Minimize land disturbing activities and preserving important natural features. To the greatest degree possible, site grading should preserve natural land forms and contours. In addition, natural drainage patterns and drainage should be preserved within subdivision design.

- Innovative Subdivision Design

Land development regulations should incorporate provisions for innovative subdivision design, created to implement the concepts of the Land Use Plan. These designs include conservation subdivisions, which permit clustering of smaller than normal lots in return for preservation of large, environmentally significant open spaces; and traditional neighborhood districts, which promote developments which adhere to traditional town planning principles.

**Conservation Subdivision**

This is appropriate for projects which incorporate all or part of major preserve areas identified in the Land Use Plan (such as the woodlands preserve, major drainage ways, and identified greenways). This land use plan uses conservation design principles to guide the overall concept plan. These principles require a land design process that:

- Identifies major environmental features for preservation.
- Defines building sites that take best advantage of these features.
- Designs the circulation system necessary to serve these building sites.
- Draws parcel lines around the resulting lots.

Regulatory features within conservation subdivisions include the following:

- The overall density of subdivision complies with the zoning district that contains the final subdivision.
- Individual lot size dimensions, including lot width, may be reduced from requirements of the zoning district. Any savings on lot size shall be devoted to common open space or other approved community facilities.
- Lot setbacks may be varied from those otherwise specified for the zoning district. Setback limits must be established on the preliminary and final plat.
- Street or right-of-way widths may be varied within for local streets within Conservation Subdivisions, subject to the sole discretion of the approving authorities.
Park Dedications

The park and open spaces envisioned by the West Coralville Land Use Plan include areas that meet needs specifically generated by development in the study area. Based on traditional park service standards, the projected population of the West Coralville Development Area provides a residential demand for approximately 65 acres of parks and open spaces. In addition, commercial and office development generate some incremental need for open space. However, the development plan also envisions using the natural resource of wooded areas and scenic topography to meet community-wide needs.

PROPERTY DEVELOPMENT ESTIMATE

The costs for development of the properties within the planning area have been estimated, using estimates for the number of units of various types of structures, facilities and homes and estimated costs per unit. This estimate is for the cost of structures only. This estimate does not include costs for land, permits, fees for services, infrastructure costs, interest or miscellaneous cost components.

The costs for principal roadways and major utility lines are addressed in the section, Infrastructure Cost Estimates.
<table>
<thead>
<tr>
<th>Use Category</th>
<th>Units</th>
<th>Estimated Sq Ft</th>
<th>Construction</th>
<th>Development Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOUTH OF OAKDALE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
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<tr>
<td>Multi-Family Low-Rise</td>
<td>400</td>
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<td>Mobile Homes</td>
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<td><strong>Total Residential</strong></td>
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<td>Commercial</td>
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<td>Office</td>
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<td>50</td>
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<td><strong>Total Non-Residential</strong></td>
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<td>$177,500,000</td>
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<td><strong>NORTH OF OAKDALE</strong></td>
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<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
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<td>Multi-Family High-Rise</td>
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<td>Retirement Center</td>
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<td>120,000</td>
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<td>21,600,000</td>
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<td>West Coral Commons</td>
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<td>45,000</td>
<td></td>
<td>5,400,000</td>
</tr>
<tr>
<td><strong>Total Residential</strong></td>
<td>1,257</td>
<td></td>
<td></td>
<td>$106,355,000</td>
</tr>
<tr>
<td>Commercial</td>
<td>170,000</td>
<td>$50</td>
<td></td>
<td>$8,500,000</td>
</tr>
<tr>
<td>West Coral Commons</td>
<td>60,000</td>
<td>70</td>
<td></td>
<td>4,200,000</td>
</tr>
<tr>
<td>Office</td>
<td>1,200,000</td>
<td>80</td>
<td></td>
<td>96,000,000</td>
</tr>
<tr>
<td>Business Park</td>
<td>764,000</td>
<td>50</td>
<td></td>
<td>38,200,000</td>
</tr>
<tr>
<td><strong>Total Non-Residential</strong></td>
<td>2,194,000</td>
<td></td>
<td></td>
<td>$146,900,000</td>
</tr>
<tr>
<td><strong>TOTAL AREA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Detached</td>
<td>755</td>
<td></td>
<td></td>
<td>84,885,000</td>
</tr>
<tr>
<td>Single-Family Attached</td>
<td>271</td>
<td></td>
<td></td>
<td>20,765,000</td>
</tr>
<tr>
<td>Multi-Family Low-Rise</td>
<td>700</td>
<td></td>
<td></td>
<td>31,500,000</td>
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<tr>
<td>Multi-Family High-Rise</td>
<td>240</td>
<td></td>
<td></td>
<td>14,400,000</td>
</tr>
<tr>
<td>Mobile Homes</td>
<td>100</td>
<td></td>
<td></td>
<td>3,000,000</td>
</tr>
<tr>
<td>Retirement Center</td>
<td>180</td>
<td></td>
<td></td>
<td>21,600,000</td>
</tr>
<tr>
<td>West Coral Commons</td>
<td>120</td>
<td></td>
<td></td>
<td>5,400,000</td>
</tr>
<tr>
<td><strong>Total Residential</strong></td>
<td>2,366</td>
<td></td>
<td></td>
<td>$181,550,000</td>
</tr>
<tr>
<td>Commercial</td>
<td>940,000</td>
<td></td>
<td></td>
<td>$47,000,000</td>
</tr>
<tr>
<td>West Coral Commons</td>
<td>60,000</td>
<td></td>
<td></td>
<td>4,200,000</td>
</tr>
<tr>
<td>Office</td>
<td>2,645,000</td>
<td></td>
<td></td>
<td>211,600,000</td>
</tr>
<tr>
<td>Business Park</td>
<td>1,232,000</td>
<td></td>
<td></td>
<td>61,600,000</td>
</tr>
<tr>
<td><strong>Total Non-Residential</strong></td>
<td>4,877,000</td>
<td></td>
<td></td>
<td>$324,400,000</td>
</tr>
<tr>
<td><strong>Total Development Value</strong></td>
<td></td>
<td></td>
<td></td>
<td>$565,950,000</td>
</tr>
</tbody>
</table>
INFRASTRUCTURE COST ESTIMATES

Infrastructure system costs have been prepared using estimated quantities based on the land use development plan and current unit costs. The cost summary relevant improvements both for on-site facilities and off-site improvements that directly benefit the study area. It is important to note that the estimates are limited to the major elements of each system; for example, the major streets, sewers and water mains are included, but the local facilities within a neighborhood area are not shown. Please refer to the Infrastructure Map or Transportation Map for identification of improvements that are included.

<table>
<thead>
<tr>
<th>Utility</th>
<th>Service Area</th>
<th>Total Estimated Cost</th>
<th>Area Served (Acres)</th>
<th>Estimated Cost per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanitary Sewers</td>
<td>Oakdale Trunk Sewer, Segment 2</td>
<td>$890,000</td>
<td>4,980</td>
<td>$180</td>
</tr>
<tr>
<td></td>
<td>West Land Use Area</td>
<td>$7,526,103</td>
<td>1,450</td>
<td>$5,200</td>
</tr>
<tr>
<td>Water System</td>
<td>Water Storage and Distribution</td>
<td>$1,250,000</td>
<td>1,620</td>
<td>$775</td>
</tr>
<tr>
<td>Stormwater and Runoff Management</td>
<td>Impoundments</td>
<td>$3,368,000</td>
<td>1,330</td>
<td>$3,210</td>
</tr>
<tr>
<td></td>
<td>Structures</td>
<td>$4,340,000</td>
<td>1,330</td>
<td>$3,265</td>
</tr>
</tbody>
</table>

Infrastructure estimated per acre costs shown reflect January 1, 1998 costs. The Engineering News Record (ENR) Cost Index shall be used to review the infrastructure estimated per acre costs on an annual basis. The ENR Cost Index shall be used to compare the infrastructure estimated per acre costs between the two periods in time and to apply the percentage increase or decrease to adjust the infrastructure estimated per acre costs for the appropriate period in time.

Oakdale Trunk Sewer, Segment 2 provides sanitary trunk sewer service to the western and northern parts of the City of Coralville including the West Land Use area.

West Land Use Area segments provide sanitary sewer service to the West Land Use areas that do not currently have sanitary sewer service.
Water Storage and Distribution provides water storage to the West Land Use areas that do not currently have water service from the City of Coralville. Water Storage and Distribution estimated costs also provides for an incremental increase in cost to provide an 18-inch water main in lieu of a 12-inch water main where shown on the Infrastructure Map for those West Land Use areas that do not have water service from the City of Coralville. Water distribution improvements 12-inch in diameter and smaller that are required for the West Land Use area will be provided by the developers.

Stormwater Impoundments and Structures provide stormwater and runoff management for the West Land Use areas that are currently undeveloped.

Payment of any area-wide improvement costs or fees established to pay the costs of sanitary sewers, water storage and distribution, and stormwater and runoff management will be based on final plat gross acreage and paid to the City at the time of final plat approval.

<table>
<thead>
<tr>
<th>Infrastructure</th>
<th>Total Length (Feet)</th>
<th>Total Estimated Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads and Streets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Highway Interchanges, complete</td>
<td></td>
<td>$5,597,500</td>
</tr>
<tr>
<td>Arterial Streets, including roadways, culverts, bridges, right of way, landscaping and recreational trails</td>
<td>40,000</td>
<td>$9,855,000</td>
</tr>
<tr>
<td>Collector Streets, including roadways, bridges, culverts and railroad signals</td>
<td>42,200</td>
<td>$11,780,500</td>
</tr>
</tbody>
</table>

Total Estimated Costs for Highway Interchanges, Arterial Streets and Collector Streets shown are for reference only. Responsibility of the developers to construct Arterial and Collector Streets shall be in accordance with the City of Coralville's policy on arterial and collector streets.

Corridors for arterial and collector streets shall remain as shown on the Transportation Map. Final alignment of arterial and collector streets shown shall be within 100-200 feet of the location shown on the Transportation Map.

Local roadway improvements shown on the Transportation Map are not included in the cost estimates above.
Out-of-Sequence Development

The West Coralville Development Area is most efficiently and economically developed in an orderly, incremental manner. Generally, this suggests a south to north development pattern, providing for incremental extensions of water mains, sanitary sewers, streets, and other public service systems. Incremental extensions assure that the most development is served at the lowest marginal cost, and discourages construction of long infrastructure lines through undeveloped areas.

On the other hand, a property owner or developer may choose to develop a parcel within the development area that cannot be served by an incremental, south-to-north policy. Developers who wish to develop properties that require out-of-sequence extensions or cannot be economically served by utilities at the desired time of development shall be subject to the following policies:

1. The developer is obligated to pay any area-wide improvement costs or fees established to pay the costs of sanitary sewers, water storage and distribution, and stormwater and runoff management based on final plat gross acreage at the time of final plat approval.

2. The developer shall pay the cost of any short-term solutions that provide interim service to the site. An example may be the cost of a lift station and force main necessary to provide access to an existing sanitary sewer line.

3. A developer may provide front-end financing for public improvements consistent with this plan. The developer may be reimbursed by subsequent payments of fees paid by the other developers, subject to a development agreement with the City of Coralville.

4. The City of Coralville may at their discretion assist in the extension of public improvements that will benefit the developer and surrounding undeveloped properties.
WEST CORALVILLE
LAND USE PLAN
Transportation Map

Veenstra & Kimm, Inc.
ADG Cross Gardner Shukert, Inc.
Snyder & Associates, Inc.
March, 1998
West Coralville
Land Use Plan

Veenstra & Kinn, Inc.
RDG Creve Gardner Shulert, Inc.
Snyder & Associates, Inc.
March, 1998