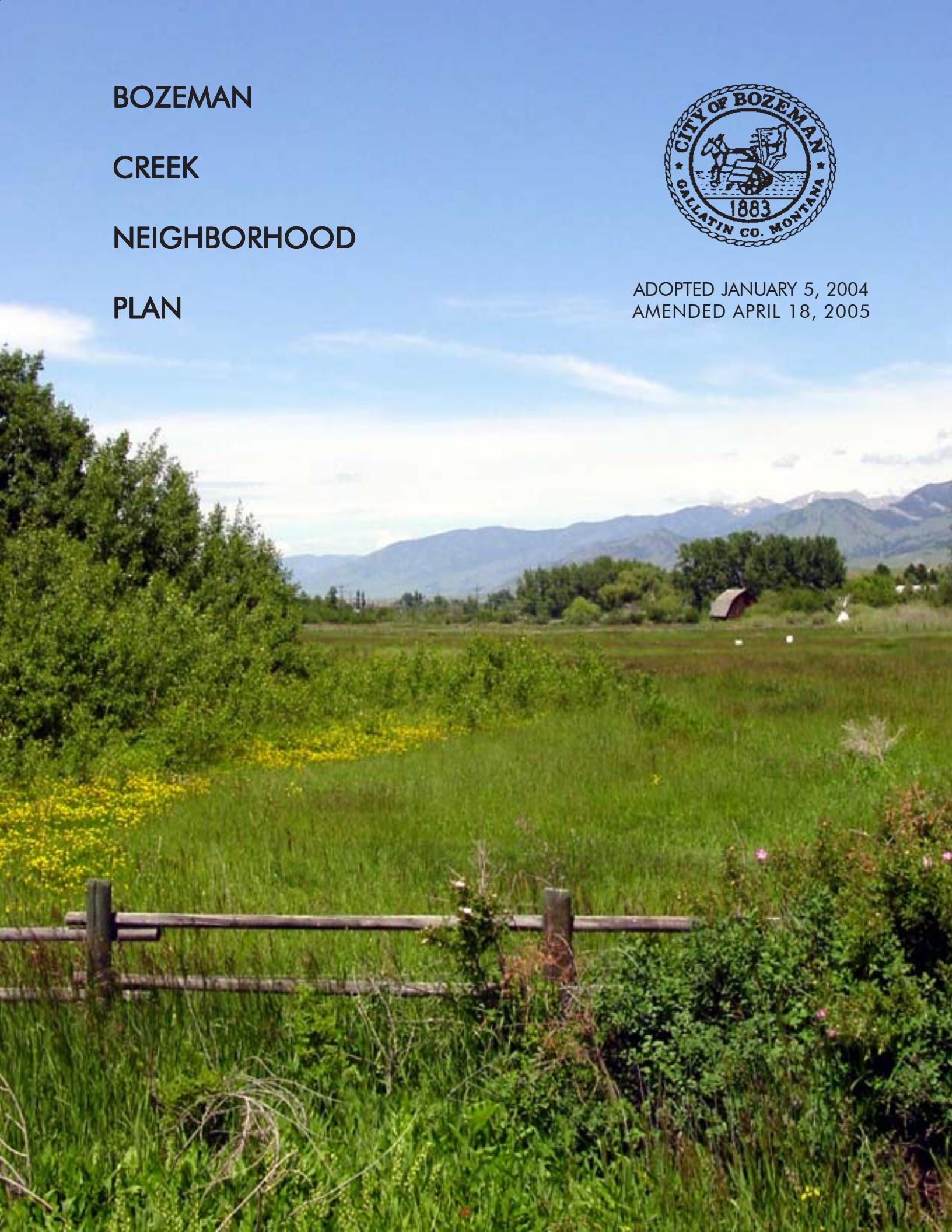
BOZEMAN CREEK NEIGHBORHOOD PLAN

ADOPTED JANUARY 5, 2004
AMENDED APRIL 18, 2005



Bozeman Creek Neighborhood Plan

This certifies that the Bozeman Creek Neighborhood Plan has been duly adopted by the Bozeman City Commission by City of Bozeman Resolution No. 3647 dated January 5, 2004, as amended by City of Bozeman Resolution No. 3786 dated April 18, 2005.

Bozeman City Commission

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Andrew Cetraro, Mayor

Steven Kirchhoff
Jeff Krauss
Lee Hietala
Marcia Youngman

Bozeman Planning Board

_____

Harry Kirschenbaum, President

Sarah Alexander
Mark Evans
Mike Hope
Dave Jarrett
Jeff Krauss
Ed Musser
JP Pomnichowski
Dave Shepard

Bozeman Creek Neighborhood Plan

Prepared for:

Bozeman City Commission
P.O. Box 1230
Bozeman, MT 59771

Prepared by:

City of Bozeman
Department of Planning and Community Development
20 East Olive Street
P.O. Box 1230
Bozeman, MT 59771

April 18, 2005

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CHAPTER 1
Introduction

1.0 INTRODUCTION

In the Fall of 2002, the Bozeman City Commission directed the Bozeman Planning Board to prepare a neighborhood plan for the area generally south of East Story Street, north of Kagy Boulevard, west of South Church Street, and east of the Gallagator Linear Trail and South Rouse Avenue (please refer to Figure 1). This area is approximately 106 acres in size, of which 61 acres are within the City of Bozeman and 45 acres are in unincorporated Gallatin County. The City Commission directed the Planning Board to prepare the neighborhood plan in response to development proposals within the study area. There was significant opposition against development proposals by current area residents. The level of concern by area residents regarding future development, combined with significant critical lands and infrastructure issues in the study area, suggest that the preparation of a neighborhood plan was appropriate. This document serves as a proactive plan to direct and shape growth and development in the subject area, and is based on a wide array of variables including input from property owners and residents within and adjacent to the study area, and the desire to protect critical lands and open spaces. This document attempts to prevent the haphazard development of this area by protecting open spaces and by encouraging well-planned infill development that is compatible with both the existing adjacent neighborhoods and the overall growth pattern of the City. This plan is not intended to legally impact the right of property owners to use their land.



A view of the study area from Kagy Boulevard

1.1 NEIGHBORHOOD PLAN JURISDICTIONAL AREA

As stated above, the study area includes land that is currently not within the City of Bozeman. It is important to note that this plan, and any recommended implementation strategies, **will apply only to land within the City of Bozeman**. This practice was established during the Bozeman 2020 Community Plan planning process; the Bozeman 2020 Community Plan plans for an area that approximates the City's 20-year sewer service boundary. There is nothing in state law that prevents a city from planning for an area outside of the city. The Plan includes areas currently outside the City only to inform owners of those properties of what they could expect if and when they ever decide to annex to the City. This increases predictability for these property owners. In addition, if and when those properties are proposed for annexation, one step of the development process – namely a Growth Policy Amendment – would be unnecessary. The best the City can do is to plan for areas that might reasonably be expected to annex to the City within the next 20 years. It is reasonable to expect that the County lands within the study area might be annexed within the next 20 years.

1.2 BOZEMAN 2020 COMMUNITY PLAN

The Bozeman 2020 Community Plan, a growth policy for the City of Bozeman, was adopted by the City Commission on October 22, 2001. The Bozeman 2020 Community Plan is a long-range plan that guides the development and public policy decisions which shape Bozeman's physical, environmental, economic, and social character. The Bozeman 2020 Community Plan includes all of the elements required by state statute, including:

- Community goals and objectives;
- Maps and text describing an inventory of the existing characteristics and features of the community;
- Projected trends for the life of the policy;
- A description of policies, regulations, and other measures to be implemented in order to achieve the goals and objectives;
- A strategy for the development, maintenance, and replacement of public infrastructure;
- A plan for implementing and updating the growth policy;
- A statement of how the governing bodies will coordinate and cooperate with other jurisdictions;
- A statement defining subdivision review criteria, and how the criteria will be applied; and
- A statement explaining how public hearings regarding proposed subdivisions will be conducted.

The 2020 Plan contains goals, objectives, and implementation policies for the following:

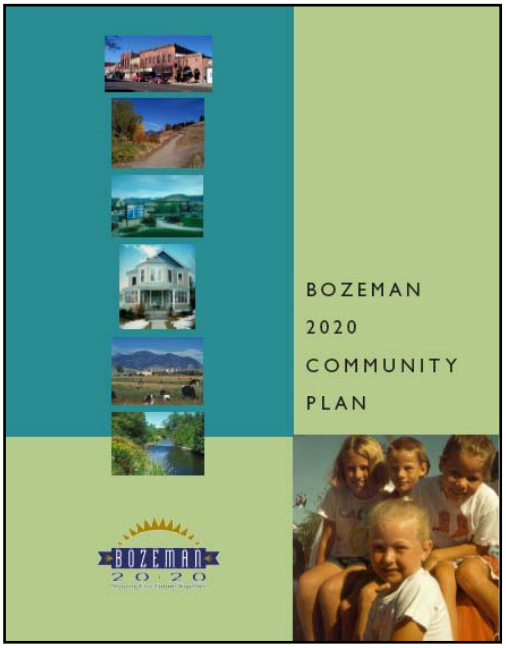
- Community quality;
- Housing;
- Land use;
- Economic development;
- Environmental quality and critical lands;
- Parks, recreation, pathways, and open space;
- Transportation; and

· Public services and facilities.

1.2.1 State Statute

Section 76-1-601(3) of the Montana Code Annotated (MCA) states that:

> A growth policy may (a) include one or more neighborhood plans…a neighborhood plan must be consistent with the growth policy, and (b) establish minimum criteria defining the jurisdictional area for a neighborhood plan.



1.2.2 Bozeman 2020 Community Plan – Neighborhood and Subarea Plans

In response to the above provision of state statute, the Bozeman 2020 Community Plan allows for and encourages the preparation of neighborhood and subarea plans. These plans are prepared for a portion of the entire community area and must be in conformance with the overall growth policy of the City. These smaller plans allow the investigation of more detailed issues which would be burdensome to examine in a community-wide planning process. Because of the difference in scale between a Citywide growth policy and the "neighborhood plans," the smaller-scale plans will rely on the basic background information prepared for the overall community growth policy such as population projections and the discussion of development trends. Therefore, it is expected that the time and effort required to prepare a neighborhood plan would be significantly less than for a community-wide plan.

Neighborhood and subarea plans allow for a greater degree of citizen participation in planning efforts which will directly influence their place of residence or work. The smaller scale of plans allows local land owners, residents, and others most affected by the finer detail of the neighborhood plan a greater autonomy than would be likely if the fine level details were determined as part of a community-wide plan. The neighborhood or subarea plan will provide a context to evaluate development proposals and the connections through them and to the surrounding community. The principal focus is expected to be on a finer-grained land use pattern, parks and trail locations, and other land use concerns rather than on substantial policy requirements. Neighborhood and subarea plans are similar in use to community-wide growth policies in that they establish guidelines for the use of land. It is recognized that there are many different specific development proposals which can comply with those guidelines.

Although the process and preparation will remain largely the same, two different terms are used in this discussion - neighborhood plan and subarea plan. The chief distinction between the two terms is that neighborhood plans refer to plans for relatively small areas which have largely been developed; over 50 percent built out as measured by the number or area of occupied developable parcels. Subarea plans refer to plans applying to largely undeveloped land; less than 50 percent built out as measured by the number or area of occupied developable parcels.

Since neighborhood plans apply to developed areas, there is less of an opportunity to alter an existing land use pattern. Therefore, the creation of neighborhood plans is optional and provides a tool for neighborhood cooperation to focus on improvements to primarily existing conditions. A subarea plan

is intended for areas where there is still a significant opportunity to shape a desired land use pattern and coordinate between existing and/or future developments. Areas of special concern for coordination are parks, trails, roadways, and utilities. A neighborhood plan should extend over an area of at least 160 acres, while a minimum area of 640 acres is preferred for subarea plans.

The preparation of a specialized plan may be initiated by the City Commission or effected landowners. By state law, the preparation of a growth policy is the responsibility of the Planning Board if the governing body has requested it. Consequently, the development of a specialized plan must involve representatives of the Planning Board. The preparation of the neighborhood and subarea plans therefore becomes a means of increasing predictability during the development review process by establishing in public documents the expectations for the area.

It is desired that mapping of natural features, such as streams, and other influences on development can be performed during the plan preparation and may be shared between interested parties to reduce duplication of effort and preparation of costly application materials. The same process of public involvement and opportunities for participation, but at a less intensive level, must be followed for specialized plans as for a community-wide growth policy. As with a community-wide growth policy, the opportunity for participation does not compel participation, nor does someone's choice to not participate inhibit the eventual adoption of an otherwise acceptable plan.

In the case of any real or perceived conflict between the Bozeman 2020 Community Plan and a neighborhood or subarea plan, the goals and other materials of the Bozeman 2020 Community Plan shall govern.

A neighborhood or subarea plan must contain the following elements:

- A map showing the reasonably simple boundaries of the specific plan, with an explanation as to why those boundaries are appropriate. Maps should terminate at easily identifiable boundaries if possible;
- A description of specific goals to be achieved by the neighborhood or subarea plan, if goals specific to the area are developed;
- An inventory of existing conditions;
- A transportation network, including non-automotive elements, that conforms with adopted facility plans, reinforces the goals and objectives of the 2020 plan, and connects the major features of the area such as parks, commercial areas, and concentrations of housing;
- Locations of parks of adequate area to represent at least sixty percent of expected parklands to be dedicated through development in the area. The parks shall be of a size and configuration which supports organized recreational activities such as soccer or baseball, as well as passive recreation; and
- Location of various land uses including commercial, public, school locations if known, and residential activities.

After the preparation of the draft neighborhood or subarea plan, the Planning Board must conduct one or more public hearings on the proposal. The Planning Board will then forward the proposed plan to the City Commission for review. The City Commission must also hold one or more public hearings, and if it believes the plan to be consistent with the Bozeman 2020 Community Plan, may adopt the plan by resolution. If sufficient flaws with the plan are found, the City Commission may return it to the Planning Board for further work and review.

Due the size of the study area (approximately 106 acres), and because the area would be characterized by infill development rather than greenfield development, this plan is a neighborhood plan – the Bozeman Creek Neighborhood Plan.

1.2.3 Applicable Bozeman 2020 Community Plan Goals and Objectives

The following goals and objectives of the Bozeman 2020 Community Plan guided the preparation of the Bozeman Creek Neighborhood Plan:

Goal 1.6.1 Growth Management - Promote the unique history and character of Bozeman by preserving, protecting, and enhancing the overall quality of life within the planning area.

Objective 1. Ensure that growth is planned, directed, and developed in an orderly manner that maintains Bozeman as a functional, pleasing, and social community.

Objective 6. Develop neighborhood plans for all appropriate areas of the City to reflect the values of each neighborhood, with consideration for local conditions, history, and neighborhood character.

Goal 4.9.1 Community Design - Create a community composed of neighborhoods designed for human scale and compatibility in which services and amenities are convenient, visually pleasing, and properly integrated and designed to encourage walking, cycling, and mass transit use.

Objective 1. Give all citizens the opportunity to participate in shaping the future of their neighborhoods.

Objective 4. Reinforce the development of functional and visually appealing neighborhoods.

Objective 6. Develop infill within the existing area of the City rather than developing land requiring expansion of the City's area.

Goal 4.9.8 Historic Preservation - Protect historically and culturally significant resources that contribute to community identity, history, and quality of life.

Goal 5.7.1 Housing - Promote an adequate supply of safe housing that is diverse in type, density, and location, with a special emphasis on maintaining neighborhood character and stability.

Objective 7. Support infill development and the preservation of existing affordable housing and encourage the construction of additional affordable housing in new infill developments.

Goal 6.6.1 Create a sense of place that varies throughout the City, efficiently provide public and private basic services and facilities in close proximity to where people live and work, and minimize sprawl.

Objective 4. Encourage citizen involvement and concern in their neighborhood and community.

Objective 6. Support infill development which respects the context of the existing development which surrounds it.

Goal 6.6.4 Natural Environment and Aesthetics - Ensure adequate review of individual and cumulative environmental and aesthetic effects of development to preserve the viewsheds, natural functions, and beauty which are a fundamental element of Bozeman's character.

Objective 1. Protect important wildlife habitats, and natural areas which provide for beneficial functions, such as floodplains.

Goal 8.14.1 Protect the health, safety, and welfare of Bozeman area residents, and protect private and public property.

Objective 1. Discourage development in areas characterized by wetlands, hydric soils, floodplain and flooding, high water table, seismic activity, steep slopes, faults, landslide hazard, and fire-dependent natural areas.

Goal 8.14.2 Identify, protect, and enhance natural resources within the planning area, and the important ecological functions these resources provide.

Objective 1. Retain and enhance the benefits wetlands provide such as groundwater and stream recharge, fish and wildlife habitat, flood control, sediment control, erosion control, and water quality.

Objective 2. Maintain and enhance floodplain capacity for conveying and storing floodwaters.

Objective 3. Protect riparian corridors to provide wildlife habitat and movement areas, and to buffer water bodies.

Goal 8.14.3 Ensure good environmental quality of water resources, air, and soils within the planning area.

Objective 1. Protect, restore, and enhance wetlands in the planning area.

Objective 2. Protect, restore, and enhance riparian corridors to protect the chemical, biological, and physical quality of water resources.

Goal 9.9 Parks & Recreation – Provide for accessible, desirable, and maintained public parks, active and passive open spaces, trail systems, and recreational facilities for residents of the community.

Objective 4. Acquire and/or preserve significant properties within the City and Planning Area.

Goal 10.8.1 Transportation System - Maintain and enhance the functionality of the transportation system.

Objective 4. Ensure that adequate interconnections are made throughout the transportation system to ensure a variety of alternatives for trip routing.

Goal 10.8.2 Ensure that a variety of travel options exist which allow safe, logical, and balanced transportation choices.

Objective 1. For the purposes of transportation and land use planning and development, non-motorized travel options and networks shall be of equal importance and consideration as motorized travel options. This balance shall ensure that a variety of

travel opportunities are available which do not require the use of automobiles for all local trips.

Objective 3. Reduce the impact of the automobile by supporting land use decisions that can decrease trip length of automobile travel and encourage trip consolidation.

Goal 10.8.4 Pathways - Establish and maintain an integrated system of transportation and recreational pathways, including bicycle and pedestrian trails, neighborhood parks, green belts and open space.

Objective 1. Coordinate development of non-motorized transportation systems in conjunction with motorized vehicular transportation systems.

Objective 2. Create and maintain an interconnected and convenient pedestrian and bicycle network for commuting and recreation as discussed and described in the transportation facility plan and in coordination with the design standards of the transportation facility plan and the Parks, Open Space, and Trails Plan.

1.3 WORK PROGRAM

The work program for preparation of the Bozeman Creek Neighborhood Plan, including tasks and a time line, is attached as Appendix A.

1.4 PUBLIC OUTREACH AND PARTICIPATION

The Bozeman Creek Neighborhood Plan planning process has included several opportunities for public participation and input. Specific events and activities include:

- **Planning Charrette – January 18, 2003**

  A charrette is a public design workshop in which designers, property owners, developers, public officials, environmentalists, citizens, and other persons or groups of people work in harmony to achieve an agreeable project. The charrette provided area residents and property owners with an opportunity to express their vision and goals for the study area early on in the planning process. The charrette also provided an opportunity to graphically translate visions and goals into land use maps. The charrette was especially helpful to City staff and the Planning Board because area residents and property owners had study area-specific knowledge - regarding things like history and the presence of unique features - they were able to share. The information collected at the charrette was used to establish a vision, goals and objectives, and implementation strategies for the Bozeman Creek Neighborhood Plan. Collected information, especially the land use maps, was used to prepare a land use map for the area. Forty-five people attended the charrette. The results of the charrette were posted on the City's web site.

- **Open Space Preservation Questionnaire – March 6, 2003**

  The questionnaire was sent to all of the property owners within the study area. The intent of questionnaire was to ascertain the level of interest property owners had in using their land for open space and trails, and if interested in providing open space, what affirmative actions property owners would be interested in taking to make open space preservation in the study area a reality. The questionnaire was a joint project between the City of Bozeman and the Gallatin Valley Land Trust (GVLT). Forty-two questionnaires were mailed and 30 were returned. The results of the questionnaire were posted on the City's web site.





Bozeman Creek Neighborhood Plan Planning Charrette – January 18, 2003

- **Meetings with Individual Property Owners – March through November 2003**

  At the beginning of March 2003, postcards were sent to all property owners within the study area inviting them to meet one-on-one with Planning staff. The purpose of the meeting was to find out what the property owners envision for the future of their own property and for the future of the study area. Individual, one-on-one meeting were held because some people are not comfortable providing suggestions and insights in a group setting.

- **Land Use Alternatives Meeting – April 30, 2003**

  The Planning Board held this meeting to present the goals and objectives that had been endorsed by the Planning Board. The three land use alternatives being considered by the Planning Board were also unveiled and discussed at this meeting. Attendees were asked to complete a survey indicating which alternative they prefer. The large majority (75 percent) favored Alternative #1 – Conservation Alternative. Forty-six people attended this meeting. The results of the survey were posted on the City's web site.

- **Neighborhood Group Meeting – July 9, 2003**

  A neighborhood group for the neighborhood generally south of where the Gallagator Trail intersection South Church Avenue, north of Kagy Boulevard, east of South Tracy Avenue and west of South Church Avenue held an initial organization meeting. Planning Board members attended this meeting to inform the group about the Bozeman Creek Neighborhood Plan. The neighborhood group, the Bozeman Creek Neighborhood Association, has had several meetings since their initial organizing meeting and has been actively involved in the planning process.

- **Planning Board, Public Meetings**

  The Planning Board selected a preferred land use alternative at their regularly scheduled meeting on June 3, 2003. At that meeting, the Board allowed the public to provide comments. The Neighborhood Plan has been on many Planning Board agendas as discussion items. These meetings are always open to the public, and the Board almost always allows the public to comment at these meetings.

- **Planning Board, Public Hearing**

  The Planning Board held a public hearing on November 18, 2003. At that time, the Board voted 5-0 to recommend approval of the plan to the City Commission. Since initial adoption, the plan has been amended once. The Planning Board held a public hearing regarding the amendments on June 1, 2004 and voted 7-0 to recommend approval of the proposed amendments to the City Commission.

- **City Commission, Public Hearing**

  The City Commission held a public hearing on December 8, 2003 and voted 3-2 to adopt the plan. The City Commission voted 5-0 to approve the resolution adopting the plan on January 5, 2004. As stated above, the plan has been amended once since it was initially adopted. The City Commission held a public hearing to consider the proposed amendments on June 14, 2004 and voted 3-2 to adopt the amendments as proposed. The City Commission voted 3-2 on April 18, 2005 to approve the resolution amending the plan.

1.5 ORGANIZATION OF THE DOCUMENT

The document is organized as follows:

- Chapter 1 – Introduction
- Chapter 2 – Inventory and Analysis
- Chapter 3 – Goals and Objectives
- Chapter 4 – Land Use Alternatives
- Chapter 5 – Implementation Plan

CHAPTER 2
Inventory and Analysis

2.0 BACKGROUND INFORMATION

2.0.1 Housing Units

There are approximately 57 existing housing units within the Bozeman Creek Neighborhood Plan study area. This number is based on a windshield survey, a land use inventory, and the Department of Revenue's Montana Cadastral Mapping Project. Most of the housing units are single household residential units; however the study does contain a few duplex and triplex units as well as the 18-unit Dahlinger Court condominium complex.

2.0.2 Population

Based on the number of housing units in the study area, and the City's average household size of 2.26, the estimated current population of the study area is approximately 130 people.

2.0.3 Population and Dwelling Unit Density

The study area is 106.2 acres in size. This property can be can be broken down as follows:

- 0.55 acres (Dahlinger Court)
- 6.95 acres (Hugh Reid property)
- 2.98 acres (Boys and Girls Club)
- 2.25 acres (Martel Construction)
- 39.48 acres (100-year floodplain and/or watercourse setback)
- 0.87 acres (existing right-of-way for Ice Pond Road and Lincoln Street)
- 53.12 acres remaining
- **TOTAL** – 106.2 acres

Therefore, within the study area there is approximately 53.13 acres that could be available for infill development, subject to restrictions such as zoning, access, the supply of potable water, and the availability of sewage collection/disposal systems. The current net dwelling unit density is approximately one dwelling unit per acre (57 existing units/53.13 acres).

2.0.4 Other Demographic Indicators

Data for the study area, for the following demographic indicators, was not available. Instead, the data trends contained in the Bozeman 2020 Community Plan for the City as a whole could also be applied to the study area.

- Gender and age;
- School enrollment by decade;
- Educational attainment;

- Employment by industry; and
- Household income

2.1 EXISTING LAND USES, GROWTH POLICY DESIGNATIONS, AND ZONING CLASSIFICATIONS

2.1.1 Existing Land Uses

Study Area. The existing land uses within the study area are primarily Single Household Residential (please refer to Figure 2). The overall categories, however, also include Vacant land, Multiple Household dwelling units, and Light Manufacturing. Single Household Residential is defined as a building used for residential occupancy by one household. This category includes multiple residences that share a common wall, as long as only one dwelling unit lies upon a single lot, such as townhomes. Duplex/Triplex Household Residential is defined as a building, or a portion of a building, used for occupancy by two or three households living independently of each other, with the units completely separated by a common wall, floor, and/or ceiling and reside on one lot. This definition includes apartments and condos. Multiple Household Residential is defined as a building, or portion thereof, used for occupancy by four or more households living independently of each other, with the units completely separated by a common wall, floor, and/or ceiling. Again, this definition includes apartments and condominiums. Mixed Use is a combination of two or more categories. Light Manufacturing is defined as fabrication of and/or assembly of goods from previously prepared materials, to include storage, and mini warehousing. Vacant is defined as land that is currently unoccupied; no buildings. Note that there is an existing Northwestern Energy substation located in the middle of the study area along South Church Avenue. Northwestern Energy has received preliminary approval for a conditional use permit from the Gallatin County Commission to expand the substation.



Property owned by Hugh Reid, located at the terminus of Ice Pond Road, is used for Light Manufacturing

The following list indicates approximate land area of each of the land use categories found within the study area:

- Single Household Residential – 44.16 acres
- Duplex/Triplex Household Residential – 0.76 acres
- Multiple Household Residential – 1.47 acre
- Light Manufacturing – 13.22 acres
- Mixed Use – 9.9 acres
- Right-of-way (ROW) – 0.48 acre
- Vacant – 36.02 acres
- **TOTAL** – 106 acres

Adjacent Neighborhoods. The adjacent neighborhood to the west consists of a mix of Single Household Residential, Duplex/Triplex Household Residential, and Multiple Household Residential. Adjacent properties to the east consist of Single Household Residential and Multiple Household Residential along South Church Avenue/Sourdough Road, as well as Public Facility/Park (Burke Park/Peet's Hill). The adjacent neighborhood to the north consists of a mix of Single Household Residential, Duplex/Triplex Household Residential, and Multiple Household Residential. Finally, the adjacent properties to the south consist of land designated as Vacant, Single Household Residential, Golf Course (Valley View Golf Club), and Public Facility/Park (Hausser Park). Please refer to Figure 2.

2.1.2 Bozeman 2020 Community Plan Designations

Study Area. The Bozeman 2020 Community Plan designates the study area as being comprised of three different land use categories: Suburban Residential, Residential, and Business Park (please refer to Figure 3). The area north of Kagy Boulevard and south of the existing City limits boundary is designated as Suburban Residential. This category indicates locations generally outside of City limits but within the Planning Area where the land development pattern has already been set by rural subdivisions. Subdivisions in this area are generally characterized by lots two acres in size or less. It is probable that portions of this area may be proposed for annexation within the next 20 years. Any further development within this area should be clustered to preserve functional open space and allow for more advanced sewage disposal than individual septic tanks. If development is proposed at overall densities in excess of one dwelling per acre, and/or the development proposal lies within the City's municipal water and sewer service boundaries, annexation to the City should be completed prior to development.

The area north of the existing City limits is designated as Residential. This category designates places where the primary activity is urban density living quarters. Other uses which complement residences are also acceptable such as parks, low intensity home based occupations, fire stations, churches, and schools. The residential designation also indicates that it is expected that development will occur within municipal boundaries which may require annexation prior to development. The dwelling unit density expected within this classification varies. It is expected that areas of higher density housing would likely be located in proximity to commercial centers to facilitate the broadest range of feasible transportation options for the greatest number of individuals and support businesses within commercial centers. Low density areas should have an average minimum density of six units per net acre. Medium density areas should have an average minimum density of twelve units per net acre. High density areas should have an average minimum density of eighteen units per net acre. A variety of housing types should be blended to achieve the desired density with large areas of a single type of housing being discouraged. **In**

limited instances the strong presence of constraints and natural features such as floodplains may cause an area to be designated for development at a lower density than normally expected within this classification.

The area to the west of the Ice Pond Road terminus is designated as Business Park. This classification provides for areas typified by office uses and technology-oriented light industrial uses, although retail, services, or industrial uses may also be included in an accessory or local service role.

Adjacent Neighborhoods. The adjacent neighborhoods to the west and north are designated Residential in the Bozeman 2020 Community Plan. To the east, areas with residential development are designated Residential and Burke Park/Peet's Hill is designated as Parks, Open Space and Recreational Lands. To the south, adjacent properties are designated as Parks, Open Space and Recreational Lands (Valley View Golf Club) and Suburban Residential. Please refer to Figure 3.

2.1.3 Zoning Classifications

Study Area. The study area has a mix of City and County zoning designations (please refer to Figure 4). The southern part of the study area is primarily zoned County R-S (Residential Suburban Country Estates District). This district is comparable to the City designation of R-S (Residential Suburban). Both districts have an average lot size of one acre unless approved through the planned unit development (PUD) process. There is an area of R-2 (Residential Two-Household, Medium Density) directly north of the existing City limits line. This area bisects the County R-S zone and the City R-S zone. North of the Ice Pond Road homes there is another area of R-2. Finally, there is a small section of R-4 (Residential, High Density) in the northern-most part of the study area.

Adjacent Neighborhoods. The adjacent neighborhood to the west has City zoning designations of R-1 (Residential Single-Household, Low Density), R-2, R-3 (Residential, Medium Density), and R-4. The adjacent neighborhood to the north has a City zoning designation of R-2. The properties to the east have City zoning designations of R-S, R-1 and R-4. There is also some land with a County zoning designation of R-S to the east of the study area. Finally, the land to the south has a County zoning designation of R-S. Please refer to Figure 4.

2.2 ENVIRONMENTAL INVENTORY

The Bozeman/Creek Neighborhood Plan study area contains a variety of critical lands and environmentally sensitive features. Any development proposals in this area would likely require the preparation and submittal of detailed environmental impact information and analysis including the delineation of 100-year floodplain and wetlands, depth to groundwater monitoring data, soils analysis, topographical information, etc. Development applications would also likely have to contain proposals to mitigate impacts on critical lands and environmentally sensitive features. A general description of the critical lands and environmentally sensitive features in this area follows.

2.2.1 Floodplain

There is a fairly extensive floodplain associated with Bozeman/Sourdough Creek through the study area (please refer to Figure 5). The City's land development regulations currently require that the watercourse setback be extended to the edge of any delineated 100-year floodplain for all newly created lots and/or new site development. The presence of floodplain will make approximately 33 acres of the study area largely undevelopable if developed in the City.



There is a significant floodplain associated with Bozeman Creek in the study area

If a property owner disputes the location of the 100-year floodplain as depicted on the FEMA National Flood Insurance Program map, he/she is always welcome to have a licensed engineer or surveyor prepare a topographical survey, based on the base flood elevations, for consideration by the City Engineer. If a property owner disagrees with the floodplain map boundary based on the ground elevations, they can apply for a Letter of Map Revision from FEMA.

While land within the 100-year floodplain may not be developable, it would be possible to use this land to satisfy the open space requirement for a planned unit development. It may also be possible to receive parkland dedication credit for the provision of a constructed trail and/or open space. Finally, the City's land development regulations allow the City Commission to waive parkland dedication requirements if a "preliminary plat provides long-term protection of critical wildlife habitat; cultural, historical, or natural resources; agricultural interests; or aesthetic values; and the area of the land proposed to be subdivided, by virtue of providing long-term protection provided herein, is reduced by an amount equal to or exceeding the area of the dedication otherwise required."

The Federal Emergency Management Agency (FEMA) is jointly funding a detailed study of the floodplain through the study area. Funding partners include the State, County, and City. The purpose of the study is to examine and evaluate the flood hazard in developed areas, and areas likely to be developed, and to determine flood elevations for those areas. Flood elevations will be used by the City to carry out the floodplain management objectives of the National Flood Insurance Program. The field work for this study began in the Fall of 2003.

2.2.2 Watercourses

Bozeman/Sourdough Creek is the only watercourse within the Bozeman Creek Neighborhood Plan study area. The creek flows south to north approximately through the center of the study area (please

refer to Figure 5). The City's land development regulations currently require at least a 75-foot watercourse setback on both sides of the creek for all newly created lots and/or new site development. The Bozeman/Sourdough Creek corridor provides a variety of benefits including flood control, urban stormwater conveyance, recreation, fish and wildlife habitat, and aesthetic values. The required 75-foot watercourse setback would make approximately 6 additional acres of land, which lie beyond the 100-year floodplain, largely undevelopable if developed in the City.

While the required 75-foot watercourse setback may not be developable, it would be possible to use this land to satisfy the open space requirement for a planned unit development. It may also be possible to receive parkland dedication credit for the provision of a constructed trail and/or open space. Finally, the City's land development regulations allow the City Commission to waive parkland dedication requirements if a "preliminary plat provides long-term protection of critical wildlife habitat; cultural, historical, or natural resources; agricultural interests; or aesthetic values; and the area of the land proposed to be subdivided, by virtue of providing long-term protection provided herein, is reduced by an amount equal to or exceeding the area of the dedication otherwise required."

2.2.3 Wetlands

There are some wetlands within the study area that are associated with the Bozeman/Sourdough Creek corridor (please refer to Figure 6). The City's land development regulations require that the watercourse setback include any adjacent wetlands and that the buffer width shall be extended by the width of the wetland. This requirement would apply to all newly created lots and/or new site development. Because the wetlands are largely co-located with delineated 100-year floodplain and/or the 75-foot watercourse setback, the presence of wetlands would likely not result in any additional land being designated as undevelopable above and beyond the land already rendered undevelopable by the presence of floodplain and/or watercourse setback.



Bozeman Creek from Ice Pond Road

2.2.4 Depth to Groundwater

The depth to groundwater is as shallow as 0 to 2 feet along the section of creek in between the extension of Garfield Street and Kagy Boulevard (please refer to Figure 7). The high water table in this area will likely not impact development because this area is largely undevelopable due to the presence of delineated 100-year floodplain and wetlands.

In addition, the depth to groundwater south of the extension of Carol Place and north of Kagy Boulevard in the study area is as shallow as 0 to 3.5 feet (please refer to Figure 7). The high water table in this area would likely not preclude development, but may result in special requirements such as prohibitions on basements and/or the use of special construction methods and materials.

2.2.5 Soils

Soils classifications found within the study area, and in adjacent areas, are shown on Figure 8. Descriptions of the various soil classifications depicted on Figure 8 are provided in Appendix B. The soils within the study area include:

- Straw Loam, 0 to 4 percent slopes;
- Bandy-Riverwash-Bonebasin Complex, 0 to 2 percent slopes;
- Sudworth Silty Clam Loam, 0 to 2 percent slopes;
- Enbar-Nythar Loams, 0 to 4 percent slopes;
- Reedwest-Cabba-Bower-Comlex, 15 to 45 percent slopes; and
- Meagher-Shawmut-Bowery Complex, 15 to 45 percent slopes.

A description of the development limitations of each soil classification found within the study area is provided below.

Use Definitions.

- Shallow excavations - Trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes.
- Dwellings and small commercial buildings - Structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-household dwellings no higher than three stories.
- Local roads and streets – Facilities with an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills generally are limited to less than 6 feet.
- Lawns and landscaping – These require soils on which turf and ornamental trees and shrubs can be established and maintained.

Limitation Definitions.

- Slight - Slight limitations indicate that the soil properties and site features generally are favorable for the indicated use and limitations are minor and easily overcome.
- Moderate - Moderate limitations indicate that the soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations.

- Severe – Severe limitations indicate that the soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Straw Loam, 0 to 4 percent slopes. For building/site development, limitations for shallow excavations are slight. Limitations for dwellings with basements, dwellings without basements, and small commercial buildings are moderate due to shrink-swell factors. Street and road limitations are moderate due to shrink-swell, low strength, and frost action factors. Finally, limitations for landscaping and lawns are slight.

Bandy-Riverwash-Bonebasin Complex, 0 to 2 percent slopes. For building/site development, limitations for shallow excavations are severe with cut banks, caving, and wetness. Limitations for dwellings with basements, dwellings without basements, and small commercial buildings are severe due to flooding and wetness. Street and road limitations are severe due to flooding, wetness, and frost action. Finally, limitations for landscaping and lawns are severe due to wetness.

Sudworth Silty Clay Loam, 0 to 2 percent slopes. For building/site development, limitations for shallow excavations are severe due to cut banks and caving. Limitations for dwellings without basements are slight. Limitations for dwellings with basements are moderate due to wetness. Limitations for small commercial buildings are slight. Limitations for street and roads are moderate due to frost action. Finally, limitations for landscaping and lawns are moderate due to large stones.

Enbar-Nythar Loams, 0 to 4 percent slopes. For building/site development, limitations for shallow excavations are severe due to wetness. Limitations for dwellings without basements, dwellings with basements, and small commercial buildings are severe due to flooding and wetness. Limitations for streets and roads are severe due to wetness and frost action. Finally, limitations for lawns and landscaping are severe due to wetness.

Reedwest-Cabba-Bower Complex, 15 to 45 percent slopes. For building/site development, limitations for shallow excavations are severe due to slope. Limitations for dwellings without basements, dwellings with basements, and small commercial buildings are severe due to slope. Limitations for streets and roads are severe due to slope. Finally, limitations for lawns and landscaping are severe due to slope.

Meagher-Shawmut-Bowery Complex, 15 to 45 percent slopes. For building/site development, limitations for shallow excavations are severe due to slope. Limitations for dwellings without basements, dwellings with basements, and small commercial buildings are severe due to slope. Limitations for streets and roads are severe due to slope. Finally, limitations for lawns and landscaping are severe due to slope.

2.2.6 Topography and Slope

There is some slope in the study area. The sloping areas are largely confined to the southeast corner of the study area; just west of South Church Avenue and north of Kagy Boulevard (please refer to Figure 9). The City's land development regulations currently state that "slopes of 25 percent or greater shall be presumed unbuildable unless otherwise provided by the developer." This would apply to developments in the City.

There are also some unique rock outcroppings in this part of the study area. These rock outcroppings could present some development challenges - especially with any improvements to South Church Avenue.



Hillside in the study area

2.2.7 Wildlife Habitat and Fisheries

The reach of Bozeman Creek between Kagy Boulevard and Story Street is in relatively good condition, providing good fish and aquatic habitat except where impacted by development. The stream sustains a good population of rainbow trout, with brook trout and brown trout also present in good numbers. The key to sustaining and improving this fishery is protecting and enhancing the riparian vegetation and maintaining access for the stream to its floodplain. There have been a number of ponds built in the floodplain and dikes built along this reach that negatively impact the stream.

In addition to restricted floodplain development, property owners should be encouraged to protect and enhance healthy streamside vegetative buffers. Dense shrubby riparian vegetation shades the stream, slows floodwaters, and stabilizes banks. The tendency to remove streamside vegetation to provide better views of the stream is strong, but is not good for the health of the riparian environment. Riparian vegetation provides some of the most critical wildlife and songbird habitat in the valley. Maintaining a vegetative buffer also reduces erosion and protects structures.

The other major problem in the reach is poorly designed bridge crossings and culverts. Where bridges are too narrow or low, they affect hydrology, cause flooding and erosion, and can be fish passage barriers. Better watercourse crossings in the study area should be encouraged.

Based on interviews with area residents, the study area represents quality wildlife habitat within an urbanizing area. Residents report sightings of deer, moose, bear, beaver, and fox, as well as other more common urban wildlife such as ducks, raccoons, and birds.

2.3 COMMUNITY IMPACTS

2.3.1 Water Distribution

Municipal Water. With the exception of South Church Avenue, the majority of surrounding streets have access to City water. Please refer to Figure 10 for the location and sizing of existing water mains. The stub for the future extension of East Lincoln Street was installed at the time the South Rouse Avenue water main was installed. In addition, a 14-inch diameter water main was installed in 1983 that crosses the study area, within a water main easement that ranges in width from 30 to 36 feet, on the property currently used by Martel Construction.

The City's Water Facility Plan indicates that there is adequate pressure in the study area. However, water main extensions may be required to supply any infill development with access to City water. The sizing and location of water main extensions will depend largely on proposed development, and will be determined through the development review process. Future main extensions will be subject to capacity evaluation.

The cost of water main extensions averages $30 per linear foot for an 8-inch diameter main. The cost of water services averages $15 per linear foot for a 4-inch diameter service.

Wells. Some of the property within the study area is currently within unincorporated Gallatin County and utilizes wells for potable water. If this property was to be further developed, annexation to the City and connection to the municipal water system would likely be necessary. Ultimately, it would be desirable to have all residential and commercial structures in the study area connected to municipal water supplies.

2.3.2 Sewage Collection and Disposal

Municipal Sewer. This area is part of what is designated as Drainage Zone 5 in the City's 1998 Wastewater Facility Plan. The trunk sewer main that serves this drainage zone generally follows the Rouse Avenue alignment. This trunk main has several areas that are at or over capacity according to the computer model that was completed for the facility plan. During the Fall of 2003 and the Spring of 2004, the City reconstructed and upsized the sewer main from just north of Griffin Drive to the manhole just north of Olive Street.

The area between Olive Street and Cleveland Street is currently served by an 8-inch diameter main. The computer model shows that one stretch of this main is over capacity (102 percent) and another is very near capacity (92 percent). The percentages represent the amount the existing flow constitutes when compared to the main flowing completely full. The City typically does not like mains to be completely full. In fact, the City has established a policy requiring that new mains be designed to flow no more than 75 percent full. This provides for a safety factor to ensure that backups do not occur during periods of high infiltration and inflow. There are several other sections of sewer main, between Olive Street and Cleveland Street, which are currently near or exceed the 75 percent full standard.

This section of sewer main (between Olive Street and Cleveland Street) would need to be replaced to accommodate any significant additional infill development in the study area. The facility plan calls for it

to be replaced with a 24-inch diameter trunk main to serve not only this area, but also future development to the south. Based on cost estimates in the facility plan, it would cost approximately $590,000 to replace this section of sewer main. The City's Capital Improvements Plan (CIP) has the design for this project scheduled for fiscal year 2008, but the construction is currently not scheduled. The CIP is revisited every year, so as priorities change this project could move forward or backward on the schedule. In the meantime, any developer proposing an infill project in the study area may be asked to construct this improvement themselves. The developer may be eligible for paybacks and/or impact fee credits.

The facility plan calls for the area between Cleveland Street and Kagy Boulevard to be served by a new 21-inch diameter trunk main. The plan estimates the cost of the section of main at $400,000. This main will need to be aligned fairly close to Bozeman Creek, through the study area, to serve properties on the east side of the creek. The main will need to be installed deep enough for 8-inch mains extended to the east to be able to get under the creek with adequate cover. The grade generally climbs as you head west, so the further away from the creek that the main is installed, the deeper it will become. This will result in much higher installation costs for not only the trunk main, but also the 8-inch diameter mains to serve local areas. The main could be installed within the 100-year floodplain. This would require the installation of watertight lids, and an all-weather access road along the alignment. These would be allowable uses under the City's adopted floodplain regulations, and the all-weather access could double as a trail. Ultimately, the City will have to obtain sewer main easements from all property owners whose property would be crossed by this new trunk main. Sewer main easements are typically 30 feet in width.

With the exception of South Church Avenue, the majority of the streets surrounding the study area contain City sewer. Please refer to Figure 11 for the location and size of existing sewer mains. The two sewer main stubs for the future extension of East Garfield Street and East Lincoln Street were provided at the time the South Rouse Avenue sewer main was installed.

In addition to increased capacity, sewer main extensions may be required to serve infill development within the study area with access to City sewer. The sizing and location of sewer main extensions will depend largely on proposed development, and will be determined through the development review process. The cost of sewer main extensions averages $35 per linear foot for an 8-inch diameter main. The cost of water services averages $15 per linear foot for a ¾-inch diameter service.

On-Site Septic. Some of the property within the study area is currently within unincorporated Gallatin County, and there are many existing on-site septic systems. If this property was to be developed, without annexation to the City, on-site septic systems may be necessary. If a Montana Department of Environmental Quality (DEQ) approved public collection and treatment system, such as the City's municipal sewer system, is within 200 feet of the property to be developed, and the owner of the public collection system approved the connection, then wastewater must be discharged to the public system (17.36.9 ARM).

Upon receipt of a septic installation application, the Gallatin City-County Health Department will query the applicant and contact the Bozeman Engineering Department to determine the proximity of a suitable sewer connection. If a sewer connection is within 200 feet, the applicant would be asked to connect to City services unless the applicant provides a letter from the City indicating that the City cannot provide service at this time or prove economic hardship. The ARM states that a connection is economically impractical if the cost of connection to the public system equals or exceeds three times the cost of installation of an approvable septic system on the site. In either of these cases, the Health Department would issue a septic permit for the site.

If the Health Department issues a septic permit, they require that the following minimum separation distances be maintained:

Minimum Separation Distances in Feet

	Sealed Components[a] and Other Components[b]	Secondary Treatment (Absorption System)
Wells[c]	50	100
100-year floodplain	No requirement[a] 100[b]	100[d]
Surface water[e]	50	100
Roadcuts, cliffs and banks	10[i]	25
Downgradient slopes in excess of 25 percent	10[i]	25
Property lines and easements[f]	10	10
Water lines	10	10
High groundwater/limiting layer	No requirements	4[g, h]

[a]Sealed components include sewer lines, sewer mains, septic tanks, grease traps and dosing chambers/tanks.
[b]Other components include intermittent and recirculating sand filters, package plants and evapotranspiration systems.
[c]No well of its zone of influence may be located within any mixing zone of an existing or proposed absorption/dispersal system.
[d]This requirement may be waived if the property owners/authorized agent submits evidence that the average yearly highwater mark is 50 feet from the septic and 100 feet from the absorption system, and the absorption system will be 4 feet above the 100-year flood elevation.
[e]This distance shall be measured horizontally to the average yearly highwater mark.
[f]If a variance is sought from this requirement, written permission must be obtained from the adjoining landowner(s). The 10-foot setback is recommended from an easement line and/or right-of-way line (no system component may be located within an easement or right-of-way without the holder's written permission).
[g]The distance separating high ground water, bedrock, or limiting layer from the absorption system shall be measured vertically from the bottom of the absorption system trench or bed to the upper horizontal boundary of the high ground water, bedrock, or limiting layer.
[h]For the protection of ground water, Environmental Health Services may increase this separation distance for soils having excessively fast percolation rates (less than 5 minutes/inch).

In addition to the setbacks listed above, the Health Department also requires soil test pits (to catalogue the soils and determine depth to any limiting layer such as groundwater), percolation tests and non-degradation information. They also look at factors such as number of bedrooms (which relates to the size of the system), slope of the property, well placement, floodplain delineations, etc.

The Health Department has septic permits for 21 systems within the study area. However, there are likely more systems as the Department did not start keeping records until 1966.

2.3.3 Stormwater

There is existing stormsewer in the adjacent neighborhood to the west. However, any development located in the study area would likely not tie into the stormsewer system and would therefore not impact the existing stormsewer system. Instead, any development in the study area would like rely on on-site detention or retention for stormwater management. Limited discharge to Bozeman Creek would likely be allowed if properly permitted.

2.3.4 Transportation

The transportation facilities that would be most impacted by a change in land use in the study area include South Church Avenue/Sourdough Road (South Church Avenue turns into Sourdough Road in

the 1900 block), South Willson Avenue and Kagy Boulevard. See Figure 12 for the existing street network.



Ice Pond Road



Kagy Boulevard

South Church Avenue/Sourdough Road. In the Greater Bozeman Area Transportation Plan 2001 Update, South Church Avenue/Sourdough Road is designated as an existing collector. In 1998, 2,200 to 2,900 vehicles traveled this corridor between East Main Street and Kagy Boulevard on a daily basis. These numbers are expected to increase to 2,500 to 3,000 vehicles per day by 2010 and 3,300 to 3,900 vehicles per day by 2020. A pavement survey rated the pavement as "poor" adjacent to the study area. The "poor" rating was assigned to facilities that showed heavy cracking, potholes, or rutting. The intersection of Sourdough Road and Kagy Boulevard is expected to function at a LOS of "F" by 2020.

The Transportation Plan's list of major recommended improvements includes upgrading South Church Avenue to meet urban collector standards. The cost of upgrading South Church Avenue to a two-lane urban collector is estimated at $5,742,000. The Transportation Plan identifies the Surface Transportation Program – Urban (STPU), the Community Transportation Enhancement Program (CTEP), and the City as possible funding sources. This project is currently not planned for design or construction in the CIP.

The Transportation Plan also lists several recommended transportation system management (TSM) improvements. These recommendations include improving the sight distances at the intersection of Sourdough Road and Kagy Boulevard by removing vegetation, and intersection modifications and/or traffic control installations at the same intersection.

South Willson Avenue. South Willson Avenue is designated as an existing Minor Arterial in the Greater Bozeman Area Transportation Plan 2001 Update. In 1998, 7,400 to 12,000 vehicles traveled this corridor between West Main Street and Kagy Boulevard on a daily basis. These numbers are expected to decrease to 6,200 to 11,500 vehicles per day by 2010 and then increase to 8,100 to 13,700 vehicles per day by 2020.

A pavement study rated the pavement as "good" between Story Street and Cleveland Street and between Grant Street and Kagy Boulevard, as "medium" between Main Street and Babcock Street and between Cleveland Street and Grant Street, and as "poor" between Babcock Street and Koch Street. New streets with little sign of age were rated as "good" and streets that had some cracking or other signs of aging, but still provided a good driving surface, were given a "medium" rating.

Between Main Street and Babcock Street northbound traffic moves at a speed of less than 15 MPH, while southbound traffic moves at a speed of 15 to 25 MPH. Between Olive Street and College Street northbound traffic moves at a speed of 15 to 25 MPH while southbound traffic moves at a speed of 25 to 35 MPH. Finally, between College Street and Kagy Boulevard northbound traffic travels at a speed of 25 to 35 MPH while southbound traffic moves at a speed of 15 to 25 MPH. Travel speed is defined as the speed at which a vehicle travels between two points, and includes any delays that occur.

The running speed on South Willson Avenue is 25 to 35 MPH. Running speed is defined as the actual vehicle speed while the vehicle is in motion. It does not include delay. Running speed is the travel speed minus any vehicle delay.

Along South Willson Avenue, the intersections with Babcock Street, Olive Street, and Garfield Street are identified as high accident locations. The signalized intersection of Babcock Street and South Willson Avenue has a LOS of B in the morning and C in the evening. The signalized intersection of South Willson Avenue and Kagy Boulevard has a LOS of C. By 2020, the intersection of South Willson Avenue and College Street is expected to have a LOS of "F" and the intersection of South Willson

Avenue and Kagy Boulevard is expected to have a LOS of "D". The section of South Willson Avenue between Main Street and Garfield Street is expected to have a corridor capacity problem by 2020.

The Transportation Plan contains some recommended TSM improvements for South Willson Avenue. The Plan recommends the removal of parking on the east side of the street, and the striping of two northbound lanes, between Olive Street and Main Street. The Plan also recommends intersection modifications and/or traffic control installations at the intersections with College Street and Garfield Street.

Kagy Boulevard. In the Greater Bozeman Area Transportation Plan 2001 Update, Kagy Boulevard is designated as a principal arterial. In 1998, approximately 7,600 vehicles per day traveled the segment of Kagy Boulevard between South Willson Avenue and Sourdough Road. This number is expected to increase to 10,500 by 2010 and 14,300 by 2020. A pavement survey rated the pavement along this section of road as "medium". Both the travel speed and the running speed along this segment of Kagy Boulevard was 25 to 35 MPH.

By 2020 the intersection of Kagy Boulevard and Sourdough Road is expected to have a LOS of "F" and the intersection of Kagy Boulevard and South Willson Avenue is expected to have a LOS of "D".

The Transportation Plan contains a TSM recommendation to improve the sight distances at the intersection of Kagy Boulevard and Fairway Drive by removing the vegetation.

Local Streets. Some existing local streets would likely be impacted should development occur within the study area. These streets would include: South Rouse Avenue, South Black Avenue, East Garfield Street, East Lincoln Street, East Mason Street, Hoffman Street and Ice Pond Road. Because these streets are locals, the Transportation Plan does not contain information for them.

Street Connectivity. Currently, there is demand for a street connecting South Rouse Avenue and South Church Avenue through the study area. Possible connectors include Ice Pond Road, East Garfield Street, and East Lincoln Street. If one new connector was installed, computer models estimate that there would be approximately 660 daily westbound trips and 632 daily eastbound trips on the new connecting street. If two new connectors were installed, the models estimate that there would be approximately 572 daily westbound trips and 550 daily eastbound trips on the northernmost new connecting street and approximately 391 daily westbound trips and 391 daily eastbound trips on the southernmost new connecting street.

Most of the Ice Pond Road right-of-way is already in public ownership and the County has committed to the installation of a new bridge over Bozeman Creek. The City already owns the right-of-way for the extension of East Lincoln Street through to South Church Avenue. There currently is no public right-of-way for the extension of East Garfield Street through to South Church Avenue. The Preferred Alternative shows Ice Pond Road, East Garfield Street, and East Lincoln Street as possible future connectors in case a connection is needed in the future. If the Preferred Alternative is successfully implemented, the right-of-way for Lincoln Street could be used for a trail. In addition, a trail should be installed connecting Ice Pond Road and South Rouse Avenue.

The land use pattern depicted in the Preferred Alternative, which features significant amounts of open space, represents a desired future land use pattern. However, the plan also recognizes that property owners have development rights based on current zoning, and these property owners will be allowed to develop their land if they comply with applicable City and/or County land development regulations. If

new streets are required to serve development, the streets shall be arranged as shown on Alternative 3 – Medium Density (see Figure 16).

2.3.5 Electric Transmission Infrastructure

NorthWestern Energy has a 50 KV transmission line that runs along the rear of the lots along South Rouse in the study area, turning to the east at the Lincoln Street right-of-way (see Figure 12). This transmission line terminates at a NorthWestern Energy substation located on South Church Avenue. From the substation, the transmission line continues up Peet's Hill/Burke Park to the hospital.

The NorthWestern Energy substation is located in the County and has received a conditional use permit from the County to expand the substation. As part of this expansion project, NorthWestern Energy has agreed to relocate a transmission line alignment across property owned by McRay and Delone Evans and to abandon the related easement. This transmission line alignment will be relocated to the vicinity of the Lincoln Street right-of-way.

2.3.6 Parks, Trails, Recreation, and Open Space

Parks. There are several parks in close proximity to the study area (see Figure 13). Christie Fields is located to the west of the study site. It is 6.5 acres in size and is categorized as a "specialty park" as it features baseball diamonds. Burke Park is located east of the study area. It is 40 acres in size and is considered a "community park." Burke Park features a trail system and urban open space. Finally, Hausser Park is located south of the study area. It is a 1.8 acre "neighborhood park" that features urban open space. Any residential subdivision or condominium development proposed within the study area would require the provision of additional park land to meet the needs of residents of the new development.

Trails. There are several trails in close proximity to the study area (see Figure 13). The Gallagator Trails lies to the west of the study area and is adjacent to the study area at the north end. There is also an extensive trail system in Burke Park. The Trail Map in the Bozeman 2020 Community Plan identifies the Bozeman Creek corridor through the study area as a desirable location for a future trail with connections to Burke Park and the Gallagator Trail. Within the study area, the dedication of land for trails or the provision of trail easements should be sought to establish this important trail corridor and its connection to other nearby trail systems.

In their plan for the Burke Park Trail System, the Bozeman Recreation and Parks Advisory Board indicates a desire to obtain at least three trail connections through the study area. These trails would connect Burke Park to the Gallagator Trial at the north end of the study area, to Christie Fields Park in the middle of the study area, and to the residential areas further to the south.

Recreation. The Gallagator Trail and the trail systems in Burke Park provide the greatest recreational opportunity in the Bozeman Creek Neighborhood Plan area. In addition, Bozeman Creek itself provides an important resource for recreational fishing access. Although the fishery is not well known or heavily used, it is a great place for young anglers to learn the craft. The Montana Stream Access Law allows people to wade in the stream between ordinary high water marks.

Open Space. The study site currently contains a significant amount of open space. In addition to the riparian corridor, the west side of Bozeman Creek is also largely undeveloped. All of the land use alternatives considered for this plan would have maintained the riparian corridor (approximately 40

acres) as open space. The 40 acres of riparian open space would be comprised of the 100-year floodplain as well as watercourse setbacks.

The study area is adjacent to Burke Park/Peet's Hill. This is a large area of urban open space that features a trail system.



Trail on Peet's Hill/Burke Park

2.3.7 Housing

As stated previously, there are approximately 57 existing dwelling units in the study area. Most of the housing in the study area consists of low-density, single-household, detached units. There are a few duplex and triplex units. The Dahlinger Condominiums consists of 18 condominium units.

2.3.8 Historical, Cultural, and Archeological Resources

The State Historic Preservation Office (SHPO) has documentation indicating that the potential for the presence of archeological sites along Bozeman Creek within the study area is high. The location of these sites is typically not mapped for public viewing in order to protect the sites. The City's land development regulations contain the following requirements regarding historic, cultural, paleontological, and archeological sites:

1. Affected Areas. Describe and locate on a plat overlay or sketch map any known or possible historic, paleontological, archeological, or cultural sites, structures, or objects which may be affected by the proposed development.
2. Protective Measures. Describe any plans to protect such sites or properties.
3. Describe procedures to be followed if any historic, paleontological, archeological, cultural sites, structures or object are found on site during site preparation and construction.
3. The developer shall discuss the impact of the proposed development on any historic features, and the need for inventory, study and/or preservation with the State Historic Preservation Office (SHPO). The developer shall provide written documentation from SHPO that 1) verifies

that SHPO has reviewed the proposed plat or plan, 2) lists any SHPO recommendations, 3) outlines any plans for inventory, study, and/or preservation, and 4) describes any mitigation planned to overcome any adverse impacts.

4. Information on historical sites shall be prepared by a qualified professional, including persons with a professional or educational background in history, architectural history, archeology, art history, historic preservation, anthropology and cultural resource management.

2.3.9 Schools

There are no schools in the vicinity of the study area. The Bozeman School District #7 has an open enrollment policy, and is statutorily required to educate any and all school-aged children in the district.

CHAPTER 3
Goals and Objectives

3.0 NATURAL, HISTORICAL, ARCHEOLOGICAL AND AESTHETIC RESOURCES

3.0.1 Goal

Protect and enhance the natural, historical, archeological, and aesthetic resources of the Bozeman Creek riparian corridor.

3.0.2 Relevant Bozeman 2020 Community Plan Goals

1.6.1, 4.9.8, 6.6.4, 8.14.1, 8.14.2, 8.14.3

3.0.3 Objectives

Objective 1. Protect the water quality of Bozeman Creek.

Objective 2. Preserve and enhance wildlife and fisheries habitat in the Bozeman Creek riparian corridor.

Objective 3. Preserve any historical and/or archeological structures or sites in the study area.

Objective 4. Maintain the aesthetic values of the study area, including but not limited to viewsheds, the natural beauty of the riparian area, and visual relief from built environments.

Objective 5. Discourage development in areas characterized by environmental constraints and/or natural hazards, such as wetlands, floodplain areas, unsuitable soils and steep slopes.

Objective 6. Discourage creation of new septic or wells, and encourage existing development on well/septic to hook up to City services.

3.1 OPEN SPACE

3.1.1 Goal

Preserve open space and the natural character of the Bozeman Creek Neighborhood Plan study area.

3.1.2 Relevant Bozeman 2020 Community Plan Goals

1.6.1, 6.6.4, 8.14.1, 8.14.2, 8.14.3

3.1.3 Objectives

Objective 1. Encourage cluster development in appropriate designated areas.

Objective 2. Require that residential development be of a scale, density, and mass that is compatible with surrounding neighborhoods.

Objective 3. Require development to protect the natural resources and topography of the study area.

Objective 4. Protect viewsheds.

3.2 INFILL DEVELOPMENT

3.2.1 Goal

Recognize the proximity of the study area to downtown Bozeman and the desirability of infill per the 2020 plan.

3.2.2 Relevant Bozeman 2020 Community Plan Goals

1.6.1, 4.9.1, 5.7.1, 6.6.1, 10.8.1

3.2.3 Objectives

Objective 1. Encourage urban density development where appropriate.

Objective 2. Encourage development of a variety of housing types to meet different community needs.

3.3 CONNECTIVITY

3.3.1 Goal

Increase connectivity of Bozeman Creek corridor to surrounding neighborhoods, existing trail systems, and downtown Bozeman.

3.3.2 Relevant Bozeman 2020 Community Plan Goals

1.6.1, 4.9.1, 10.8.1, 10.8.2, 10.8.4

3.3.3 Objectives

Objective 1. Promote public access to and enjoyment of Bozeman Creek corridor.

Objective 2. Develop public trails that provide transportation alternatives and recreational opportunities.

Objective 3. Prioritize new public trail systems that connect with the existing trail systems including, but not limited to, the Galligator and Peet's Hill trails.

Objective 4. Prioritize new public trails that connect with existing neighborhood parks such as Christie Park, Burke Park, Bogert Park, and Lindley Park.

Objective 5. Establish new park land, preferably in larger tracts.

Objective 6. Promote educational and cultural uses of designated public open space areas (i.e. birding areas, public gardens, etc.)

3.4 COMMERCIAL DEVELOPMENT

3.4.1 Goal

Allow for the establishment of appropriate commercial uses while remaining sensitive to the environment as well as to existing and proposed neighborhoods.

3.4.2 Relevant Bozeman 2020 Community Plan Goals

1.6.1, 4.9.1, 6.6.1, 6.6.4

3.4.3 Objectives

Objective 1. Provide adequate transportation networks for uses appropriate in the designated Business Park area.

Objective 2. Require that commercial development be of a scale, density, and mass that is compatible with surrounding neighborhoods.

Objective 3. Require that commercial development be designed to protect the natural resources and topography of the study area.

3.5 PUBLIC FACILITIES AND SERVICES

3.5.1 Goal

Provide for public facilities and services which will accommodate future growth and development in the study area.

3.5.2 Relevant Bozeman 2020 Community Plan Goals

1.6.1, 4.9.1, 6.6.1, 10.8.1, 10.8.2, 10.8.4

3.5.3 Objectives

Objective 1. Promote concurrent development of water, sewer, and street improvements.

Objective 2. Establish east-west transportation connections through the development of new streets.

Objective 3. Improve South Church for safer bike/pedestrian use while retaining rural character of road.

CHAPTER 4
Land Use Alternatives

4.0 OVERVIEW

Three land use alternatives were considered as part of the Bozeman Neighborhood Plan planning process. These alternatives include:

- Alternative 1 – Conservation Alternative (Preferred Alternative)
- Alternative 2 – Low Density Alternative
- Alternative 3 – Medium Density Alternative

4.0.1 Land Uses

The land uses depicted on the three land use alternative maps represent a future land use pattern. These designations do not necessarily represent a specific Bozeman 2020 Community Plan land use designation or a specific zoning designation. Instead, these designations represent desirable future uses of land within the study area. The designations will be used, through the implementation of the Bozeman Creek Neighborhood Plan, to determine whether any amendments to the Bozeman 2020 Community Plan Future Land Use Map or the Bozeman Official Zoning Map are necessary.

The following land use designations were used in the three land use alternatives:

- Residential – Density 1 (4 units per acre)
- Residential – Density 2 (6 units per acre)
- Residential – Density 3 (8 units per acre)
- Business Park
- Community Center
- Industrial/Commercial
- Park
- Open Space

4.0.2 Land Use Designation Definitions

The land use designations in the Bozeman Creek Neighborhood Plan are defined as follows:

Residential. This category designates places where the primary activity is urban density living quarters. Other uses which complement residences are also acceptable such as parks, low intensity home based occupations, fire stations, churches, and schools. The residential designation also indicates that it is expected that development will occur within municipal boundaries which may require annexation prior to development. The dwelling unit density expected within this classification varies. It is expected that areas of higher density housing would be likely to be located in proximity to commercial centers to facilitate the broadest range of feasible transportation options for the greatest number of individuals and support businesses within commercial centers. Low density areas should have an average minimum

density of six units per net acre. Medium density areas should have an average minimum density of twelve units per net acre. High density areas should have an average minimum density of eighteen units per net acre. A variety of housing types should be blended to achieve the desired density with large areas of single type housing being discouraged. In limited instances the strong presence of constraints and natural features such as floodplains may cause an area to be designated for development at a lower density than normally expected within this classification.

All residential housing should be arranged with consideration given to the existing character of adjacent development, any natural constraints such as steep slopes, and in a fashion which advances the overall goals of the Bozeman 2020 Community Plan. The residential designation is intended to provide the principal locations for additional housing within the Planning Area.

For the Bozeman Creek Neighborhood Plan, three different density classifications were used for residential infill. Residential – Density 1 would result in approximately 4 dwelling units per acre, Residential – Density 2 would result in approximately 6 dwelling units per acre, and Residential – Density 3 would result in approximately 8 dwelling units per acre. This density is less than that contemplated by the Bozeman 2020 Community Plan. The 2020 Plan recommends minimum residential densities within the City from 6 to 18 units per acre. The residential densities considered for the study area were lower because the area is subject to a wide variety of development constraints, including significant critical lands, access, and infrastructure issues.

Business Park. This classification provides for areas typified by office uses and technology-oriented light industrial uses, although retail, services, or industrial uses may also be included in an accessory or local service role.

Community Center. This classification describes areas used for not-for-profit cultural, educational, recreational, religious, or social activities which are open to the public or a designated part of the public, usually owned and operated by a public or nonprofit group or agency. Examples of community centers are schools, churches, Boys and Girls Clubs, and similar uses. Community center does not include fraternities, lodges, or similar uses.

Industrial/Commercial. Commercial activities represent the basic employment and services necessary for a vibrant community. A broad range of functions including retail, education, professional and personal services, offices, residences, and general service activities typify this designation. The density of development is expected to be higher than currently seen in most commercial areas in Bozeman and should include multi-story buildings. It is considered desirable to have residences on upper floors in some circumstances.

Industrial provides areas for uses which support an urban environment such as manufacturing, warehousing, and utility hubs. Although use in these areas can be intensive, these areas are part of the larger community and should meet standards for landscaping and other site design issues and be integrated with the larger community.

Park. Parks include all publicly owned park lands.

Open Space. Private or public land or water area devoid of buildings and other physical structures except where accessory to the provision of recreation, including but not limited to benches, picnic tables and interpretive signage.

4.0.2 Open Space

All three options would preserve a significant corridor of open space through the study area. This green space would consist of the Bozeman Creek riparian area, the 100-year floodplain, wetlands, and the required 75-foot watercourse setback.

4.1 ALTERNATIVE 1 – CONSERVATION ALTERNATIVE

Alternative 1 (please refer to Figure 14) is a conservation alternative for the study area and, with some modifications, became the Preferred Alternative. This alternative features the preservation of open space west of Bozeman Creek within the study area. This alternative would result in some limited pockets of Residential Density 3 infill development north of the lots along Ice Pond Road and north of Kagy Boulevard. It would also allow for Residential Density 1 infill development for the properties on the north side of Ice Pond Road and east of Bozeman Creek. If efforts to preserve open space under this alternative are not fully realized, regular land use regulations shall apply.

4.1.0 Acreage Allocation by Land Use

Build Out Designation	**Acres**
Density 1 (4 units per acre)	18.06
Density 2 (6 units per acre)	0.00
Density 3 (8 units per acre)	5.79
Business Park	7.19
Community Center	2.98
Industrial	3.55
Open Space	28.94
Park	0.00
Right-of-way	0.22
100-year Floodplain/Watercourse setback	39.48
TOTAL	106.21

4.1.1 Plan Statistics

Alternative 1 – Conservation Alternative: Plan Statistics		
Statistic	**Value**	**Calculations and Notes**
Additional dwelling units at full build out	66	Calculations: 1. 18.06 acres of Density 1 multiplied by 4 units/acre = 72.24 dwelling units subtracted by 30 existing dwelling units = 42.24 2. 5.79 acres of Density 3 multiplied by 8 units/acre = 46.32 dwelling units subtracted by 23 existing dwelling units = 23.32

		3. Total: 42.24 + 23.32 = 65.56 Note: No right-of-way (ROW) subtracted because no new ROW needed for this infill development.
Total dwelling units at full build out	123	Calculation: 57 existing dwelling units + 65.56 new dwelling units = 122.56
Additional population at full build out	148	Calculation: 65.56 new dwelling units multiplied by 2.26 people per household = 148.17
Total population at full build out	277	Calculation: 128.82 existing population + 148.17 additional population = 276.99
Net dwelling unit density at full build out	5.14	Calculation: 122.56 total dwelling units divided by 23.85 (net acres available for residential development) = 5.14

4.1.2 Costs

The most significant cost associated with Alternative 1 would be purchasing the development rights for the land to be protected and purchasing easements on land not protected. This amount would be based on appraised value so the actual cost is unknown at this time. The land proposed for limited infill development in Alternative 1 already has access to City water and sewer mains and streets. Therefore, significant water, sewer, and street improvements would likely not be needed. Trail development and trail parking lot development would result in some costs.

4.1.3 Benefits

Alternative 1 would eliminate expenditures by a developer to eliminate downstream sewer bottlenecks. This would be a savings of $590,000. This alternative would also eliminate expenditures to provide water, sewer, and street infrastructure in protected areas. These costs are as follows:

- $157/linear foot street;
- $35/linear foot 8-inch sewer main;
- $30/linear foot 8-inch water main;
- $20/4-inch sewer service; and
- $15/¾-inch water service.

With Alternative 1, connecting streets between South Rouse and South Church may not be needed, depending upon development proposal inside and outside of the study area. If connecting streets were determined to be needed, the installation costs would be approximately $157 per linear foot. Bridges would also be needed which would cost approximately $129,000 for a pre-cast concrete bridge or $153,000 for a steel bridge. However, Gallatin County will be paying to replace the bridge on Ice Pond Road.

4.1.4 Other Considerations

Public access to protected open space would need to be provided because it would be critical for community financial support. A trail system would need to be provided through the protected open space to provide public access. The trail locations shown in Figure 14 are conceptual. The existing Lincoln Street right-of-way could be used for a trail, with a parking lot off of Church Street, if done in a manner that would not preclude the future use of the right-of-way for a street. Additional parking could be provided near the end of the Garfield Street right-of-way.

4.2 ALTERNATIVE 2 – LOW DENSITY ALTERNATIVE

This alternative features low density infill throughout the study area while still protecting the Bozeman Creek riparian corridor. Please refer to Figure 15. This alternative also features a formal City park just south of the Boys and Girls Club property and west of Bozeman Creek.

4.2.0 Acreage Allocation by Land Use

Build Out Designation	Acres
Density 1 (4 units per acre)	26.73
Density 2 (6 units per acre)	8.61
Density 3 (8 units per acre)	0.55
Business Park	7.19
Community Center	2.98
Industrial	3.55
Open Space	12.45
Park	3.80
Right-of-way	0.86
100-year Floodplain/Watercourse setback	39.48
TOTAL	106.21

4.2.1 Plan Statistics

Alternative 2 – Low Density Alternative: Plan Statistics		
Statistic	**Value**	**Calculations and Notes**
Additional dwelling units at full build out	94	Calculations: 1. 26.73 acres of Density 1 subtracted by 2.13 acres new ROW multiplied by 4 units/acre = 98.40 dwelling units subtracted by 33 existing dwelling units = 65.40 2. 8.61 acres of Density 2 subtracted by 0.81 acres new ROW multiplied by 6 units/acre = 46.80 dwelling units subtracted by 5 existing dwelling units = 41.80

		3. 0.55 acres of Density 3 multiplied by 8 units/acre = 4.4 dwelling units subtracted by 18 existing dwelling units = -13.6 4. Total: 65.40 + 41.80 – 13.6 = 93.60
Total dwelling units at full build out	151	Calculation: 57 existing dwelling units + 93.60 new dwelling units = 150.60
Additional population at full build out	212	Calculation: 93.60 new dwelling units multiplied by 2.26 people per household = 211.54
Total population at full build out	340	Calculation: 128.82 existing population + 211.54 additional population = 340.36
Net dwelling unit density at full build out	4.20	Calculation: 150.60 total dwelling units divided by 35.89 (net acres available for residential development) = 4.20

4.2.2 Costs

If a developer did not want to wait for the City to pay for improvements to eliminate downstream sewer bottlenecks, the developer would have to cover these costs. This would cost approximately $590,000. Approximate costs to provide water, sewer, and street infrastructure in new development are as follows:

- $157/linear foot street;
- $35/linear foot 8-inch sewer main;
- $30/linear foot 8-inch water main;
- $20/4-inch sewer service; and
- $15/¾-inch water service.

The north-south portion of any new sewer constructed west of Bozeman Creek may need to be constructed as a 21-inch main. The City's sewer plan shows a future 21-inch trunk main extending through the study area to service urbanizing areas south of Kagy Boulevard. The cost per linear foot of a 21-inch main is $100; however the developer would likely be eligible for paybacks and/or impact fee credits for oversizing.

This alternative would likely require the installation of at least one connecting street between South Rouse and South Church. The installation of new streets costs approximately $157 per linear foot. Bridges would also be needed which would cost approximately $129,000 for a pre-cast concrete bridge or $153,000 for a steel bridge. However, Gallatin County will be paying to replace the bridge on Ice Pond Road.

4.2.3 Other Considerations

In Figure 15, the location of the trail system is conceptual. The location of the new north-south street is also conceptual because the actual alignment will depend on development proposals and critical lands. The new north-south street would require a City standard right-of-way of 60 feet. The constructed width (back of curb to back of curb) of the new north-south street could be less than a City standard of 31, 33 or 35 feet (as allowed for by the City's development regulations) which would cost less than $157.00/linear foot to build. Development in the study area could be required to do off-site parkland dedication to the designated park for approximately 2.8 acres. (Calculation: 93.60 new dwelling units multiplied by 0.03 acres per dwelling unit park land dedication requirement = 2.81 acres of park).

4.3 ALTERNATIVE 3 – MEDIUM DENSITY ALTERNATIVE

This alternative features medium density infill throughout the study area while still protecting the Bozeman Creek riparian corridor. Please refer to Figure 16. As in Alternative 2, this alternative also features a formal City park just south of the Boys and Girls Club property and west of Bozeman Creek.

4.3.0 Acreage Allocation by Land Use

Build Out Designation	**Acres**
Density 1 (4 units per acre)	15.90
Density 2 (6 units per acre)	10.85
Density 3 (8 units per acre)	9.16
Business Park	7.19
Community Center	2.98
Industrial	3.55
Open Space	12.45
Park	3.80
Right-of-way	0.86
100-year Floodplain/Watercourse setback	39.48
TOTAL	106.21

4.3.1 Plan Statistics

Alternative 3 – Medium Density Alternative: Plan Statistics		
Statistic	**Value**	**Calculations and Notes**
Additional dwelling units at full build out	127	Calculations: 1. 15.90 acres of Density 1 multiplied by 4 units/acre = 63.60 dwelling units subtracted by 25 existing units = 38.60

		2. 10.85 acres of Density 2 subtracted by 2.13 acres of new right-of-way multiplied by 6 units/acre = 55.32 dwelling units subtracted by 8 existing dwelling units = 44.32 3. 9.16 acres of Density 3 subtracted by 0.81 acres of new right-of-way multiplied by 8 units/acre = 66.80 dwelling units subtracted by 23 existing units = 43.80 4. Total: 38.60 + 44.32 + 43.80 = 126.72
Total dwelling units at full build out	184	Calculation: 57 existing dwelling units + 126.72 new dwelling units = 183.72
Additional population at full build out	287	Calculation: 126.72 new dwelling units multiplied by 2.26 people per household = 286.39
Total population at full build out	415	Calculation: 128.82 existing population + 286.39 additional population = 415.21
Net dwelling unit density at full build out	5.12	Calculation: 183.72 dwelling units divided by 35.91 (net acres available for residential development) = 5.12

4.3.2 Costs

If a developer did not want to wait for the City to pay for improvements to eliminate downstream sewer bottlenecks, the developer would have to cover these costs. This would cost approximately $590,000. Approximate costs to provide water, sewer, and street infrastructure in new development are as follows:

- $157/linear foot street;
- $35/linear foot 8-inch sewer main;
- $30/linear foot 8-inch water main;
- $20/4-inch sewer service; and
- $15/¾-inch water service.

The north-south portion of any new sewer constructed west of Bozeman Creek may need to be constructed as a 21-inch main. The City's sewer plan shows a future 21-inch trunk main extending through the study area to service urbanizing areas south of Kagy Boulevard. The cost per linear foot of a 21-inch main is $100; however the developer would likely be eligible for paybacks and/or impact fee credits for oversizing.

This alternative would likely require the installation of at least two connecting streets between South Rouse and South Church. The installation of new streets costs approximately $157 per linear foot.

Bridges would also be needed which would cost approximately $129,000 for a pre-cast concrete bridge or $153,000 for a steel bridge. However, Gallatin County will be paying to replace the bridge on Ice Pond Road.

4.3.3 Other Considerations

In Figure 15, the location of the trail system is conceptual. The location of the new north-south street is also conceptual because the actual alignment will depend on development proposals and critical lands. The new north-south street would require a City standard right-of-way of 60 feet. The constructed width (back of curb to back of curb) of the new north-south street could be less than a City standard of 31, 33 or 35 feet (as allowed for in the City's land development regulations) which would cost less than $157.00/linear foot to build. Development in the study area could be required to do off-site parkland dedication to the designated park for approximately 3.8 acres. (Calculation: 126.72 new dwelling units multiplied by 0.03 acres per dwelling unit park land dedication requirement = 3.80 acres of park).

CHAPTER 5
Plan Implementation

5.0 IMPLEMENTATION OVERVIEW

The Bozeman Creek Neighborhood Plan, as depicted in the Preferred Alternative (see Figure 17), contains a vision for the future of the study area. The Preferred Alternative is similar to Alternative 1, but shows Ice Pond Road, East Garfield Street, and East Lincoln Street as potential future connector streets between South Rouse Avenue and South Church Avenue. The Preferred Alternative also shows existing City and County zoning designations as of the date of this plan.

Like all visions, someone must undertake actions to implement the vision if change is to be realized. Private individuals in the advancement of their own interests will initiate many of the required actions. The construction of new homes and businesses, and the upkeep and reinvestment in existing areas of the study area, will actually carry out many of the elements of the community vision on the ground.

The City of Bozeman may also undertake a variety of actions that will advance the goals and objectives of this plan. The City has a variety of tools available that can help influence the future of the City and guide public and private actions. However, the full realization of the vision of this plan will only be achieved through years of diligent work by public/private partnerships.

5.1 PLAN ELEMENT OVERVIEW

5.1.1 Land Use

The land use pattern depicted in the preferred alternative, which features significant amounts of open space, represents a desired future land use pattern. However, this plan is not intended to impact the right to legally use land; the plan recognizes that property owners have development rights based on current zoning, and these property owners will be allowed to develop their land if they comply with applicable City and/or County land development regulations. If new streets are required to serve development, the streets shall be arranged as shown on Alternative 3 – Medium Density (see Figure 16).

As the desired land uses depicted in Figure 17 are successfully put in place, the Bozeman 2020 Community Plan Future Land Use map and the Bozeman Official Zoning Map should be revised as appropriate.

5.1.2 Parks and Trails

The Preferred Alternative does not contain a formal, developed park. Instead, the Preferred Alternative contains a network of trails that would connect existing parks together, such as Burke Park and Christie Fields. The final location of trails will depend largely on the availability of easements, critical lands, proximity to homes and access. The all weather access road that will be required to provide access to the future 21-inch truck main could double as a trail.

5.1.3 Open Space

The Preferred Alternative features a significant amount of open space. If the development rights in the targeted open space protection areas are successfully secured, provisions for the maintenance and management of the open space area will need to be made.

5.1.4 Transportation

The Preferred Alternative will not result in a large increase in vehicle traffic. However, South Church Avenue/Sourdough Road should be improved to an urban collector standard as soon as funding as available to provide a safe and functional roadway to serve the whole area. The Preferred Alternative does not require the installation of any connecting streets between South Rouse Avenue and South Church Avenue. However, the plan depicts the possibility that one or more connectors may be needed in the future based on development in and around the study area. Streets that connect South Rouse Avenue to South Church Avenue, at Ice Pond Road, East Garfield Street and East Lincoln Street, should only be installed after South Church Avenue has been improved to a collector standard established in the Greater Bozeman Area Transportation Plan 2001 Update, at a minimum in the vicinity of the intersections themselves.

5.1.5 Water and Sewer Infrastructure

There is a serious sewer capacity situation in the study area. The Preferred Alternative provides an alternative to development that would require significant and costly upgrades in the sewer system. A long-term goal of connecting all homes and businesses in the study area to municipal water and sewer systems should be pursued.

5.2 IMPLEMENTATION STRATEGIES

The goals and objectives of the Bozeman Creek Neighborhood Plan cover a wide range of issues. Often an implementation policy taken to advance one goal may also apply to others. In order to facilitate comparison and review of the policies, all of the implementation policies have been gathered into this chapter. They are organized by number and by topic. In Chapter 3 the implementation policies that will carry out each goal and objective have been identified and are listed and referenced by the numbers shown below.

5.2.1 Managing Development

1. Encourage Gallatin County to adopt the Bozeman Creek Neighborhood Plan as part of its Bozeman Area Neighborhood Plan.
2. Encourage Gallatin County to adopt provisions in their Bozeman Area Zoning District Zoning Ordinance that would implement the Bozeman Creek Neighborhood Plan.
3. The City of Bozeman Planning Board and the City Commission will recognize the Preferred Alternative when evaluating the neighborhood compatibility of development proposals per the growth policy (Bozeman 2020 Community Plan).
4. Zoning
    a. City of Bozeman and Gallatin County will strictly enforce current zoning designations with the study area.

b. City of Bozeman will discourage and give low priority to any zoning emendations that *increase* density where the Preferred Alternative plan indicates a preference for open space, parkland, or trail easements.

5. Encourage new wetlands and/or other natural or naturally built features for the control and management of stormwater runoff of any new development or construction in the area. To promote this, the City should be willing to participate with regulatory incentives, money, and engineering.

5.2.2 Creating Open Space and Trails

6. Donated Land

7. Donated Conservation Easements

8. Donated Trail Easements

9. PDR Program (Purchase of Development Rights)

   a. Purchased trail easements

   b. Purchased conservation easements

10. Fee Title Acquisition

   a. City of Bozeman should work with the neighborhood to identify key parcels within the study area that would be appropriate for Fee Title Acquisition in order to provide public parkland, parking areas, rights-of-way, and public access points.

   b. City of Bozeman should actively pursue the acquisition of trail easements and open space through the development approval process.

   c. City of Bozeman should set up a Parkland Dedication District within the Bozeman Creek area for the transfer of parkland dedication from other developments.

   d. Property Swaps

      - City-initiated: City of Bozeman should identify and consider potential land swap properties in order to establish City ownership of key parcels of land within the study area to provide possible public parkland, parking areas, rights-of-way, and public access points.
      - County initiated
      - Non-governmental

11. TDR Program (Transfer of Development Rights)

   a. City of Bozeman should designate a City/County, multi-interest task force to formulate and institute a TDR program for the Bozeman Creek Neighborhood, designating Bozeman Creek as a *sending* site only.

   b. City of Bozeman should identify viable receiving parcels within the city. (County is presently studying TDR districts and identifying receiving parcels within its domain.)

   c. City of Bozeman should pursue an inter-local agreement with Gallatin County regarding its TDR program, designating the County-portion of Bozeman Creek as a *sending* site only.

5.2.3 Generating Funding

12. Special Improvement Districts (SIDs)
    a. City of Bozeman should consider a special improvement district in a to-be-determined Bozeman Creek neighborhood area to help fund public improvements and access to conservation area.
13. Bozeman Creek Neighborhood Association (BCNA) should initiate a community-wide capital campaign to raise contributions to assist with land and/or development rights acquisition, public access infrastructure development, and natural resource protection.
14. BCNA should investigate and pursue possible outside funding sources/fund matching programs such as:
    a. Gallatin County Open Space Grants Program
    b. Gallatin County Park Development Disbursement Funds
    c. Federal Land and Water Conservation Fund
    d. Mitigation Funds – Northwestern Energy, MT Department of Transportation, etc.
    e. Wetland and Riparian Restoration Funds
    f. Urban renewal or preservation funds (ref. City Grants Coordinator)
    g. Montana Fish, Wildlife, and Parks

5.2.4 Building Public Awareness and Support

15. BCNA should organize and facilitate the cleanup of the Bozeman Creek riparian corridor and coordinate with Bozeman Cleanup Day.
16. BCNA and the City Neighborhood Coordinator should work with local media sources to generate positive publicity about the Bozeman Creek Neighborhood Plan.

5.2.5 Ongoing Land Resource Conservation

17. Work with the Gallatin County Planning Department and the Environmental Health Department to encourage connection to municipal water and wastewater systems.
18. Work with the Local Water Quality District to educate residents within and adjacent to the study area about the proper use, storage, and disposal of household hazardous wastes and other home and yard chemicals.
19. Educate residents within and adjacent to the study area regarding City and County animal control ordinances and enforce as required. (BCNA and City Neighborhood Coordinator)
20. Work with Montana Fish Wildlife and Parks to enhance the fisheries and wildlife habitat within the study area.
21. In order to maintain the natural drainage system with the study area, the City of Bozeman should restrict the placement of fill, soil removal, vegetation removal, streambed disturbance, etc.
22. Pursue possible outside funding sources/fund matching programs such as:
    a. Mitigation Funds – Northwestern Energy, MT Department of Transportation, etc.
    b. Wetland and Riparian Restoration

5.2.6 Ongoing Public Awareness/Appreciation

23. Work with local conservation groups and local schools to install educational signage regarding wildlife, wildlife habitat, and control of domestic pets.

24. Construct and maintain parking lots and trailheads to provide public access to trails and public open space areas.

25. Consider establishing designated park/picnic areas at key sites along trail corridor.

26. Install disabled-accessible trails, walkways, and fishing ramps where appropriate.

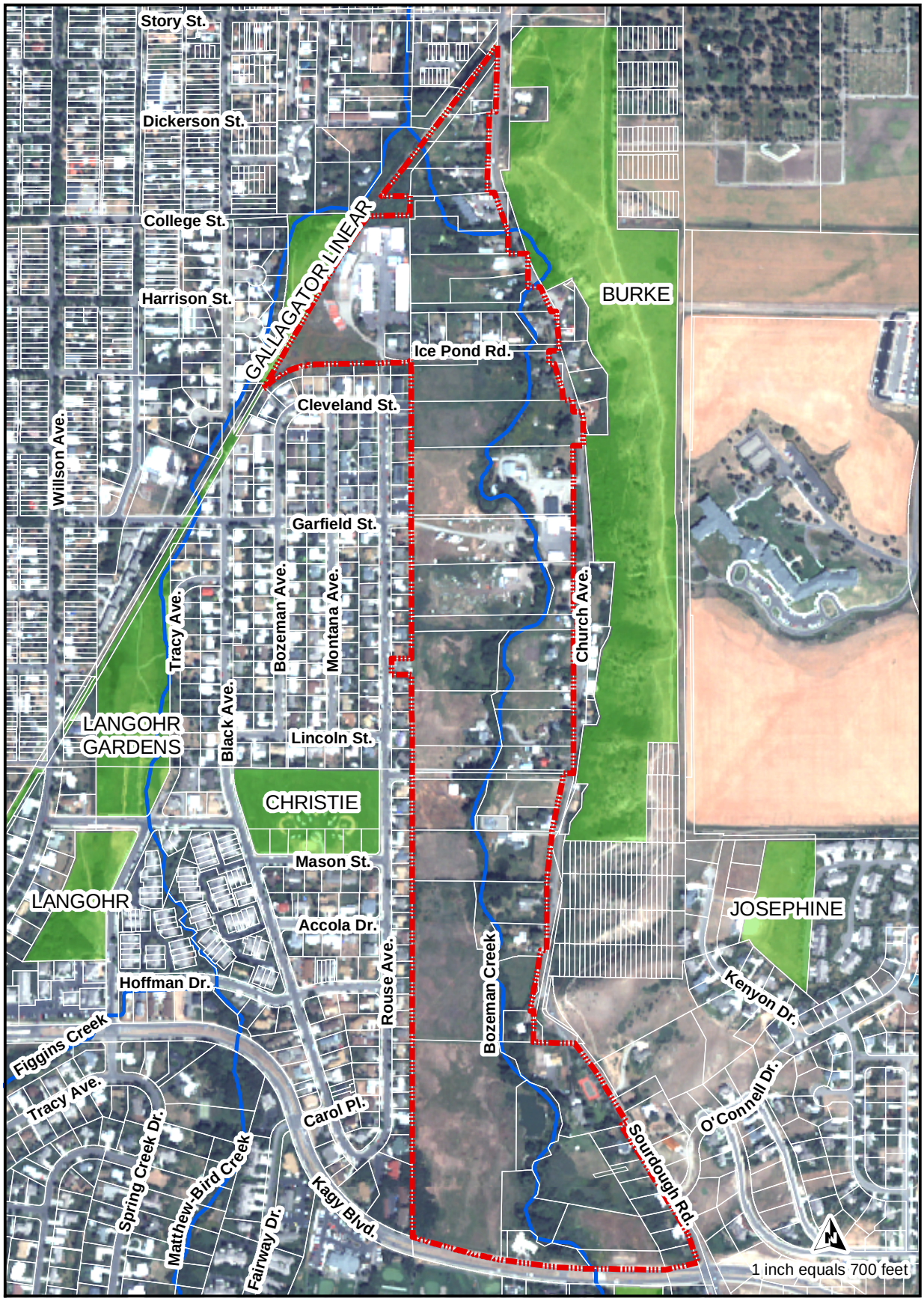
5.2.7 Long-term Infrastructure Support (City of Bozeman)

27. If the planned 21-inch sewer trunk is installed along Bozeman Creek, place it in a location that minimizes negative impacts to riparian habitat and vegetation.

28. If the planned 21-inch sewer trunk is installed along Bozeman Creek, provide incentives for property owners east of the creek to connect to the City wastewater system (for instance, no-charge hookup or no sewer billing for some period of time).

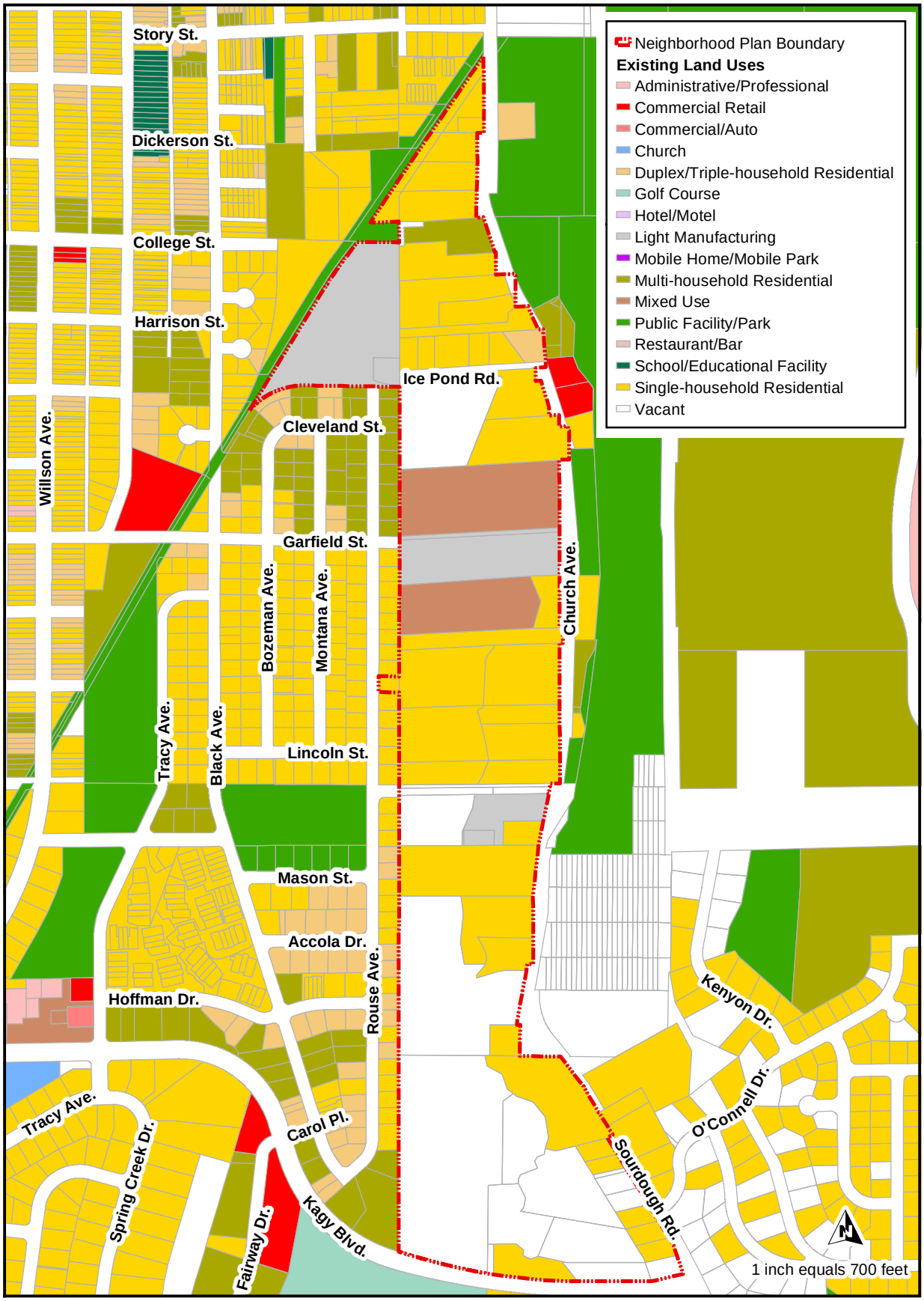
29. City of Bozeman should aim to acquire the rights-of-way, and reconcile other impediments, towards bringing South Church into compliance with safe and legal street standards.

30. Provide new streets/improve existing streets *as and if needed* in compliance with adopted facility plans, zoning and subdivision regulations, and other City codes.



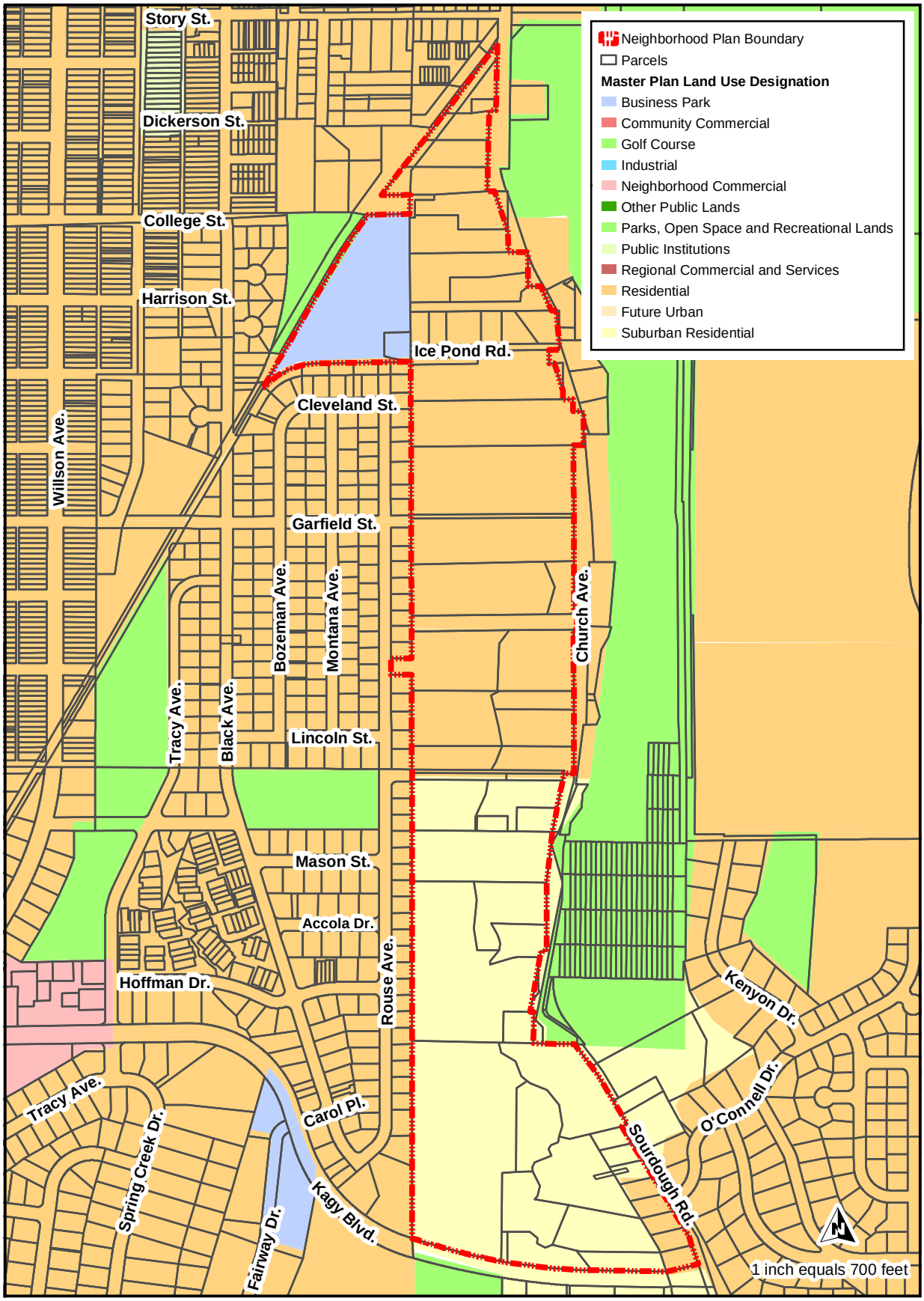
Bozeman Creek Neighborhood Plan
Vicinity Map

Figure 1



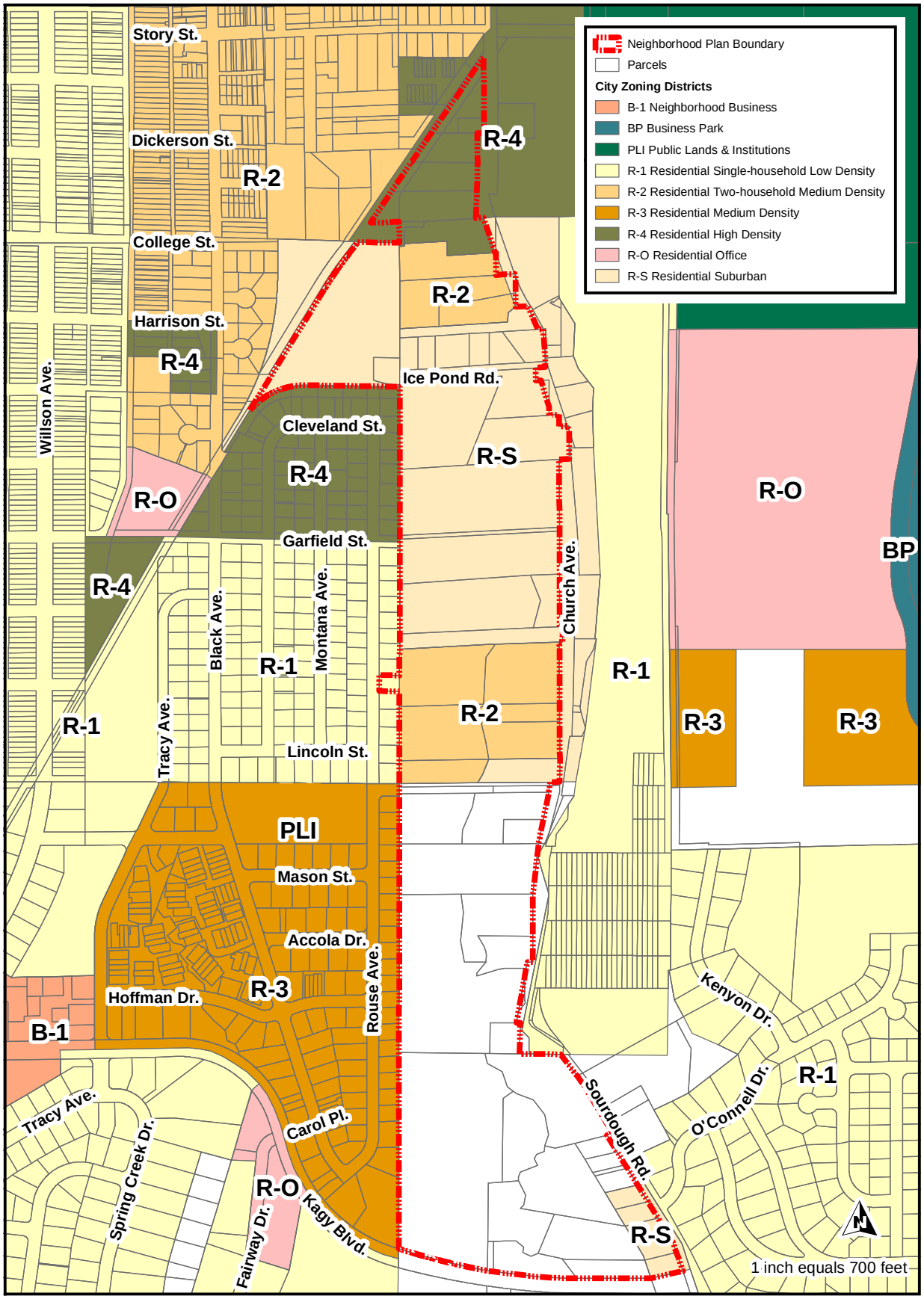
Existing Land Use

Figure 2



Bozeman 2020 Community Plan
Future Land Use Designations

Figure 3



City of Bozeman Zoning Districts

Figure 4



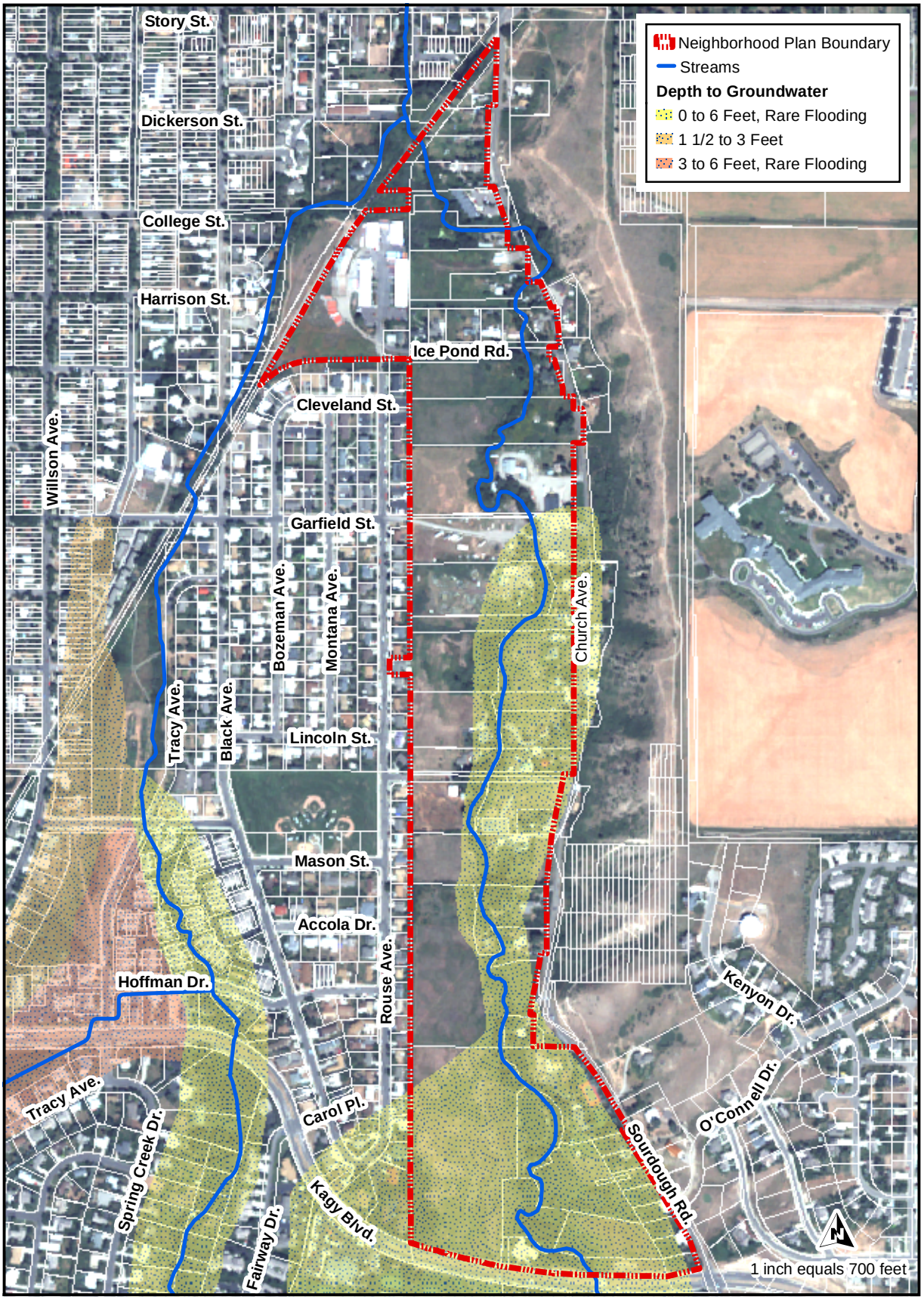
Floodplain Map

Figure 5



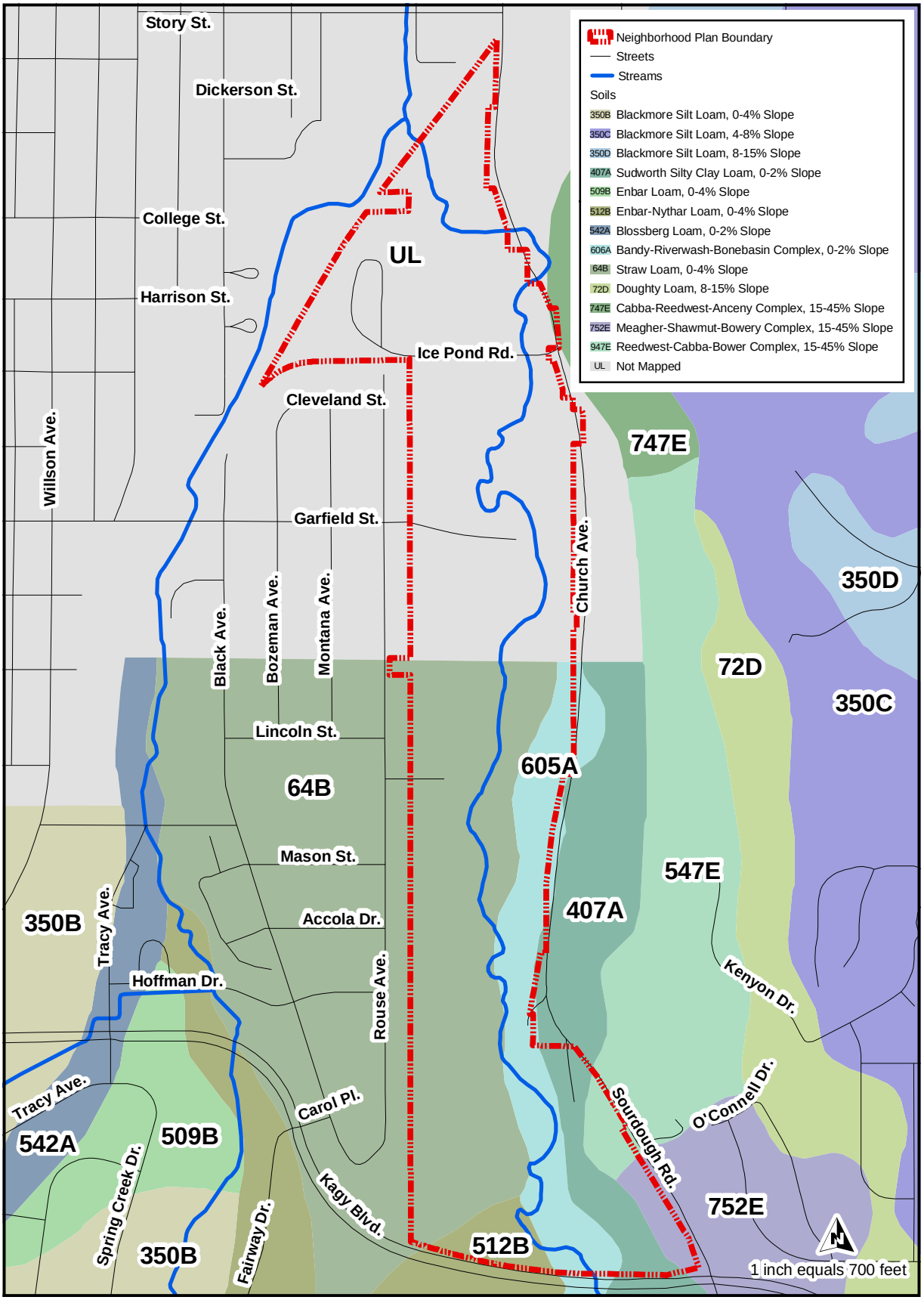
Wetland & Riparian Area Map

Figure 6



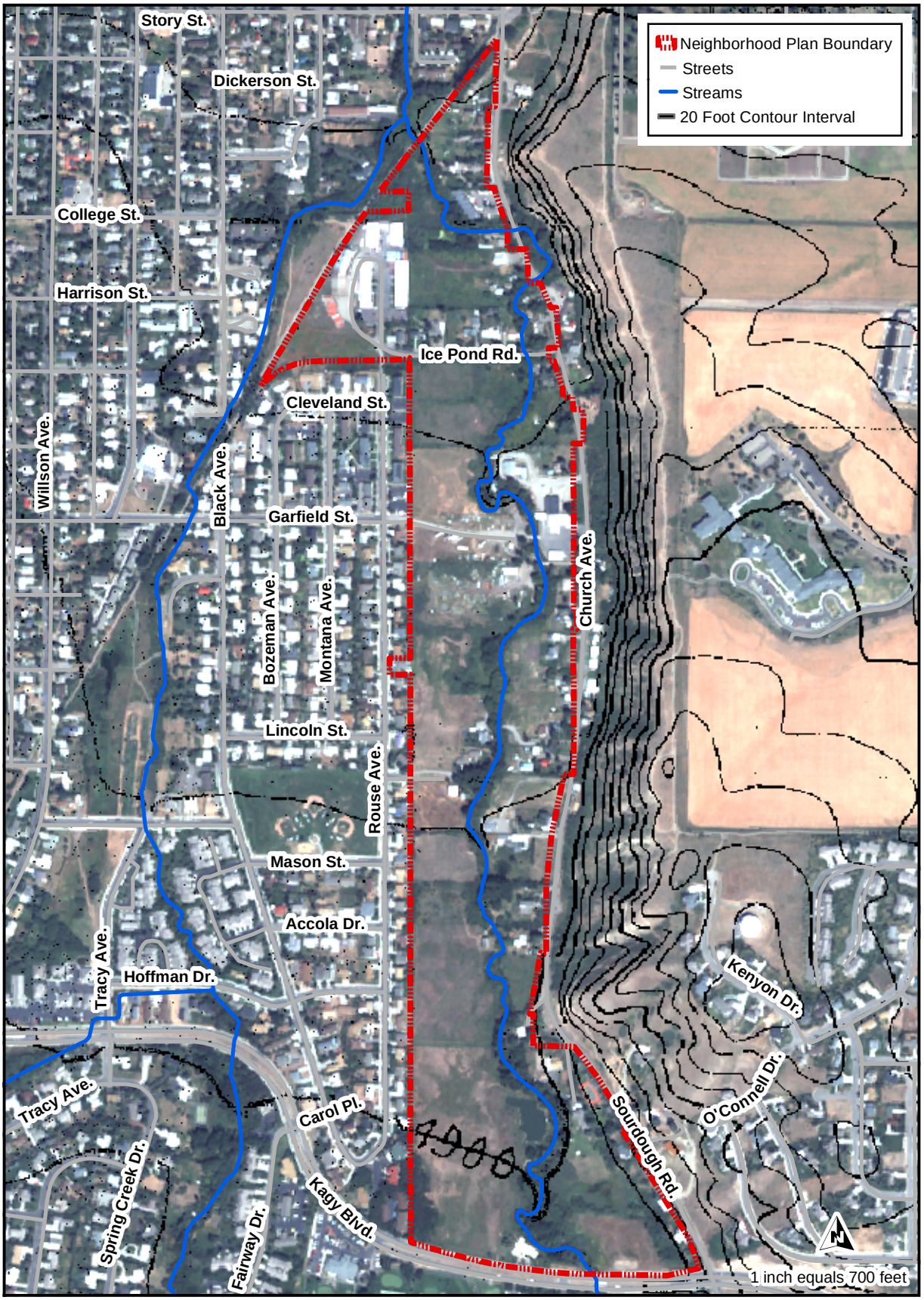
Depth to Groundwater

Figure 7



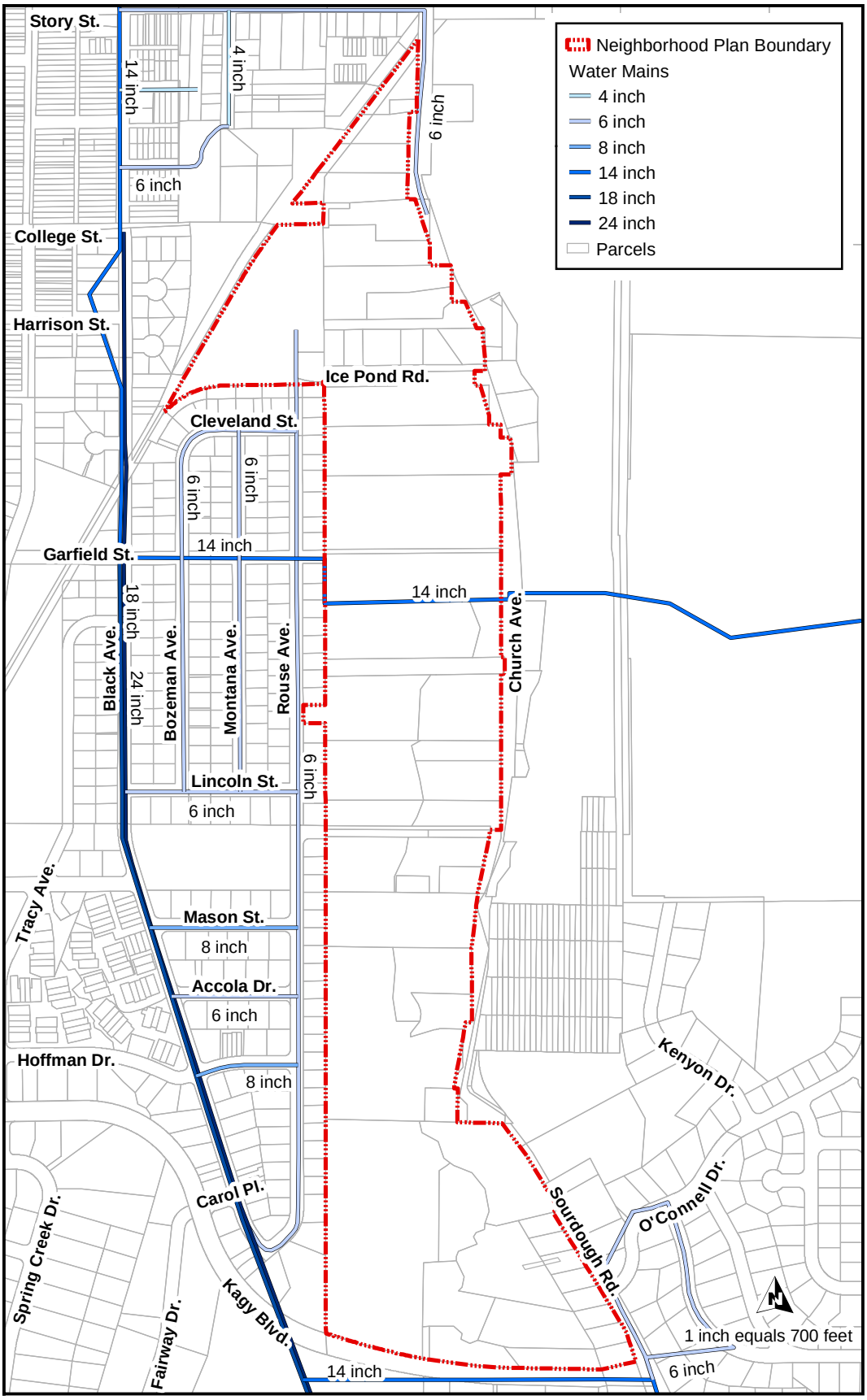
Soils Map

Figure 8



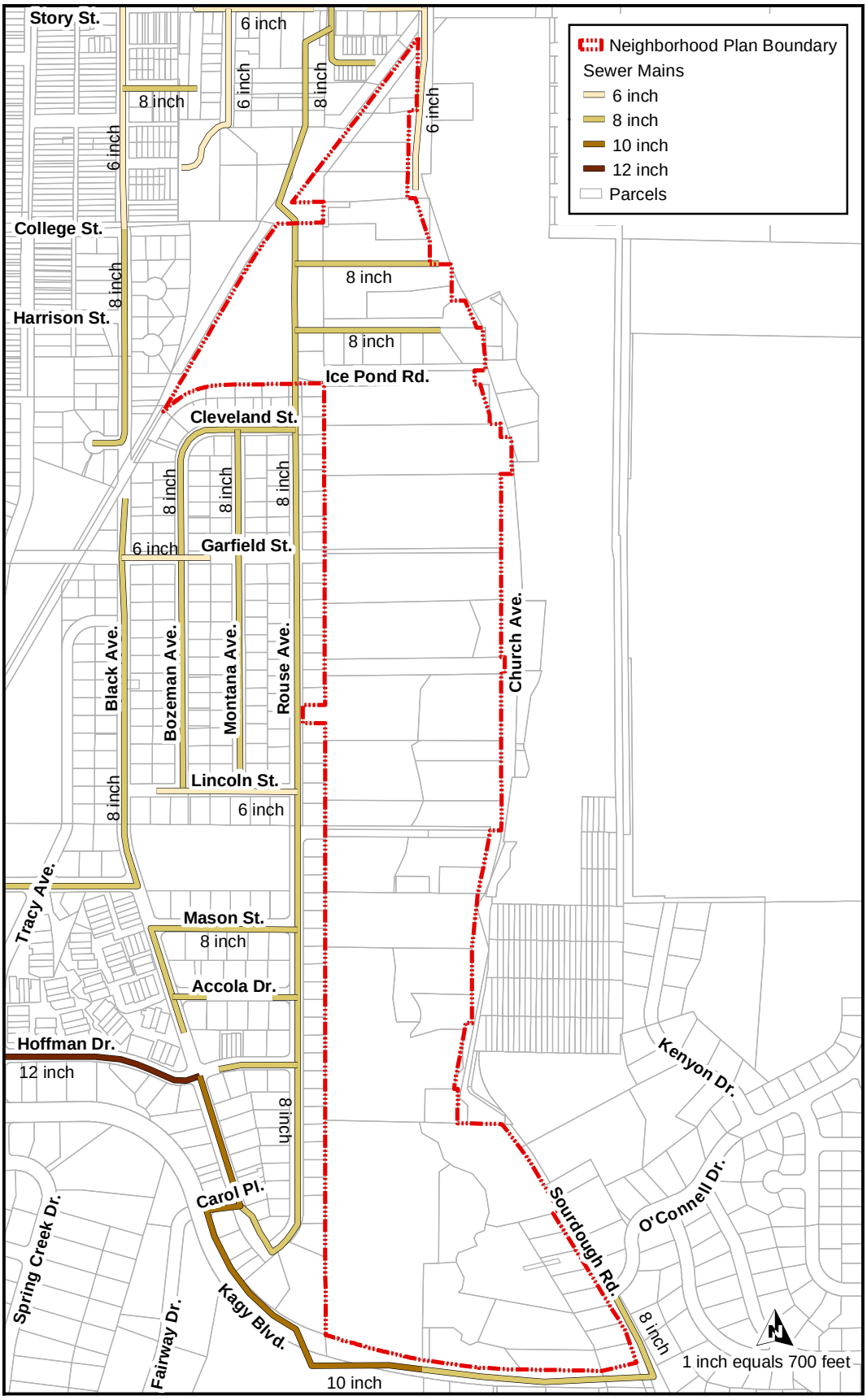
Topography and Slope

Figure 9



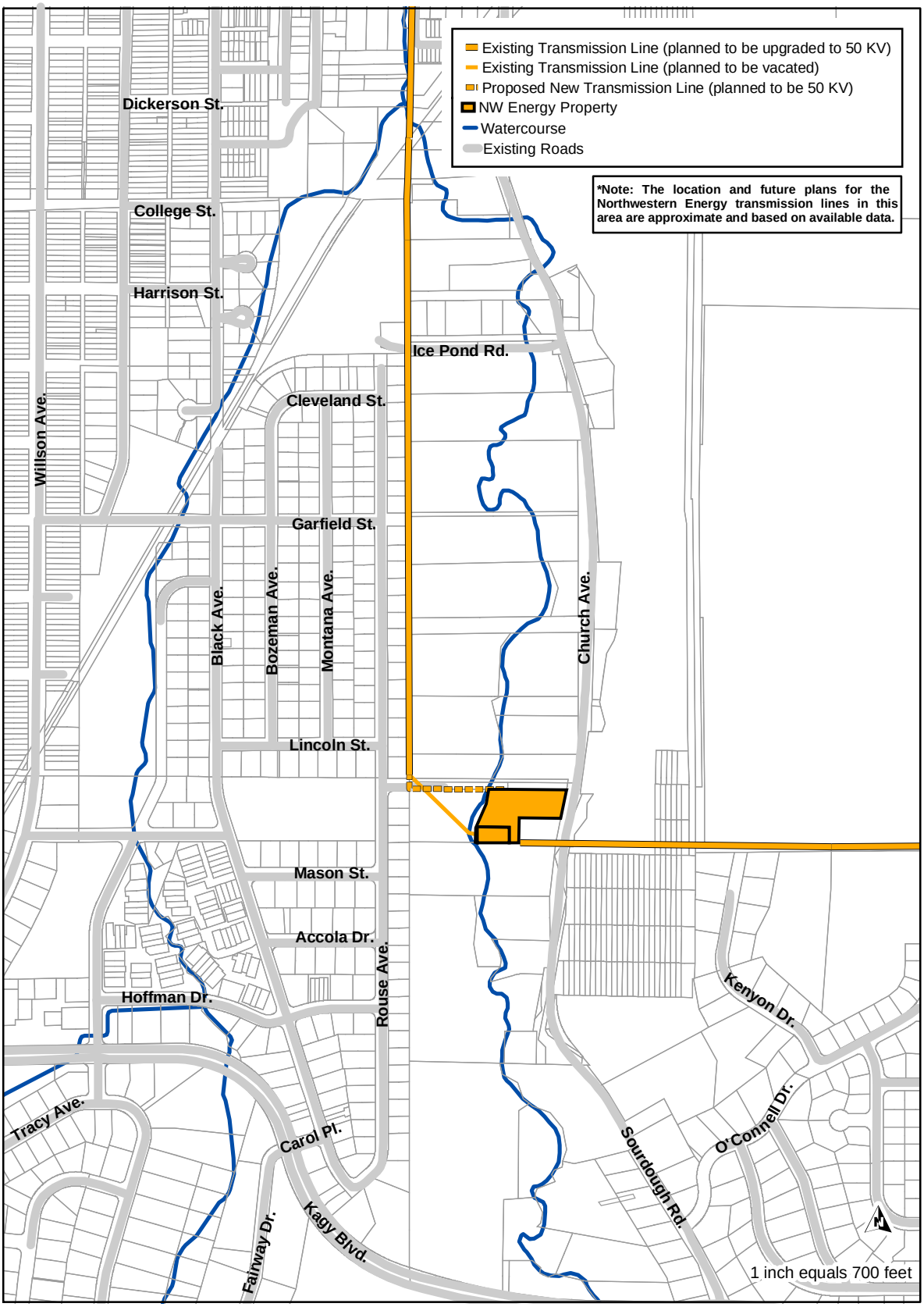
Water Mains

Figure 10



Sewer Mains

Figure 11



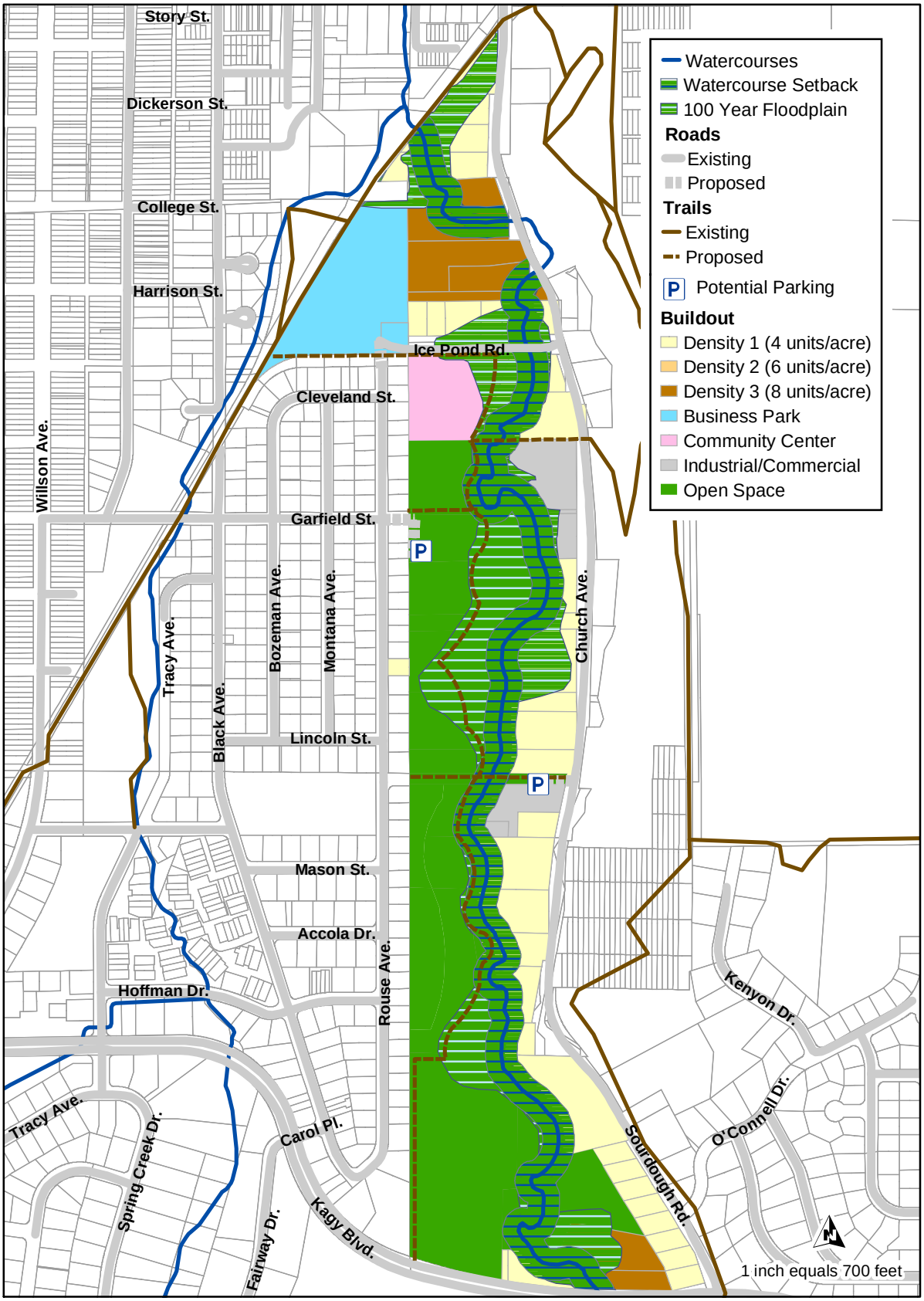
Northwestern Energy
50 KV Transmission Line

Figure 12



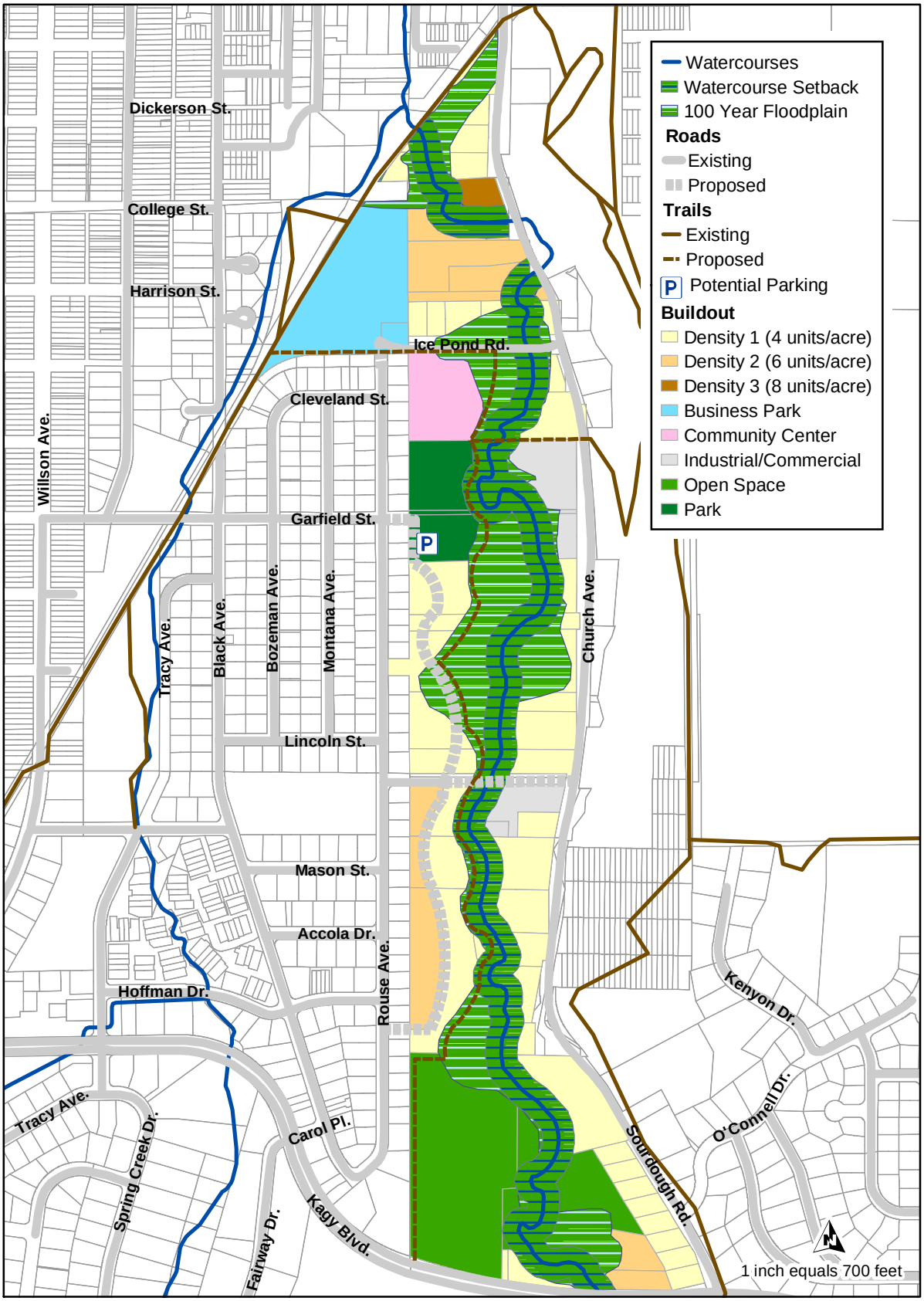
Parks & Trails

Figure 13



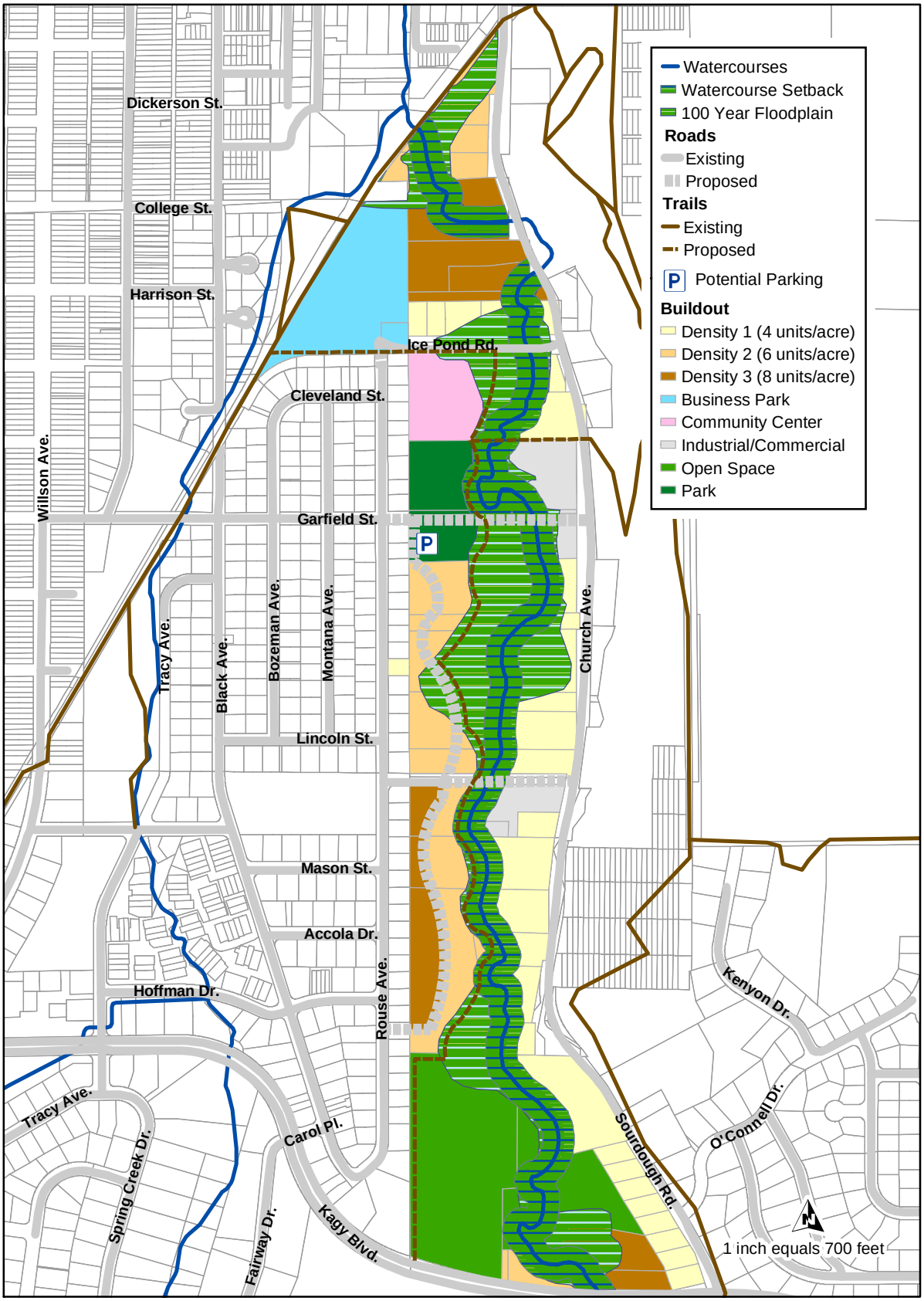
Alternative 1
Conservation Alternative

Figure 14



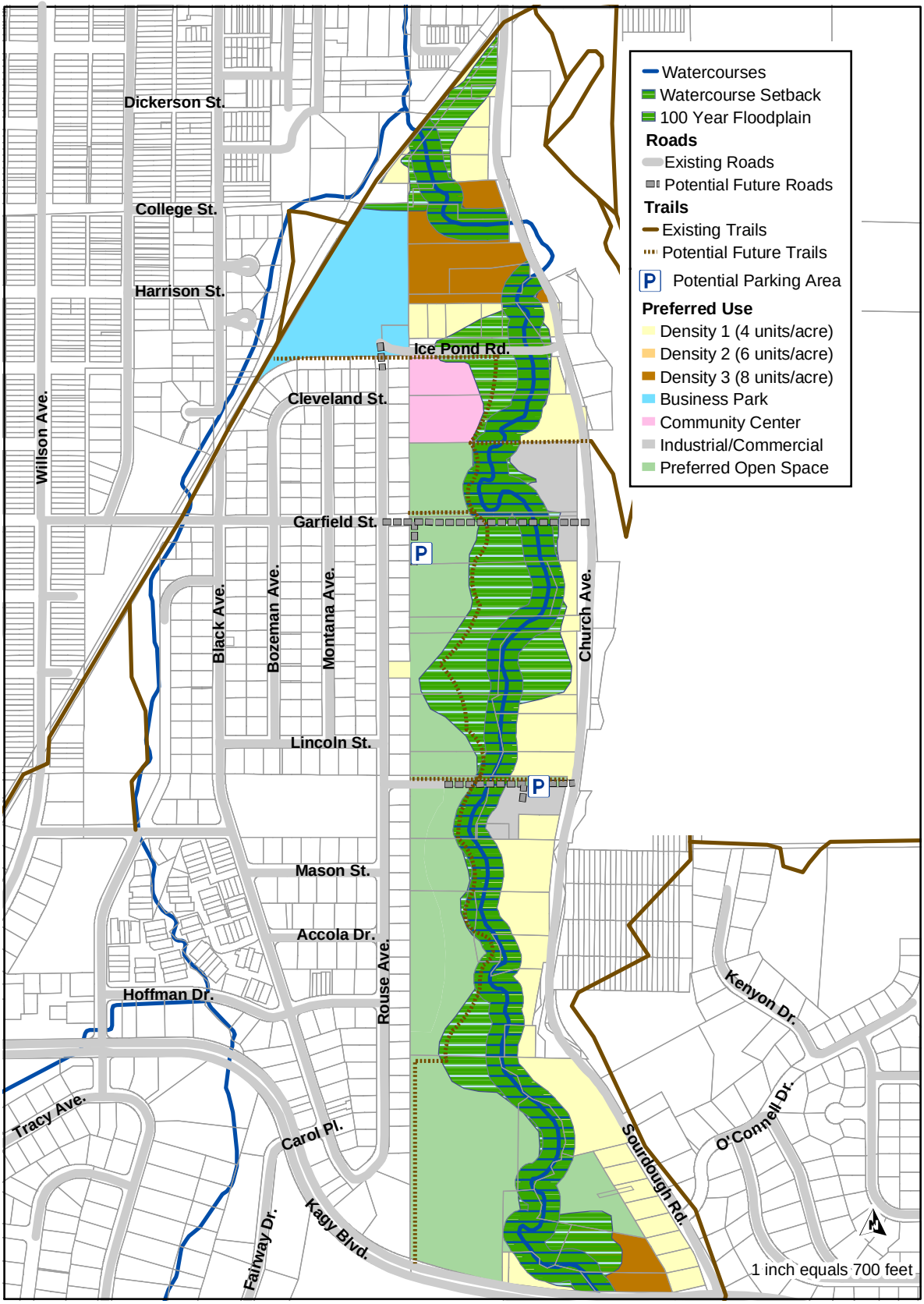
Alternative 2
Low Density Alternative

Figure 15



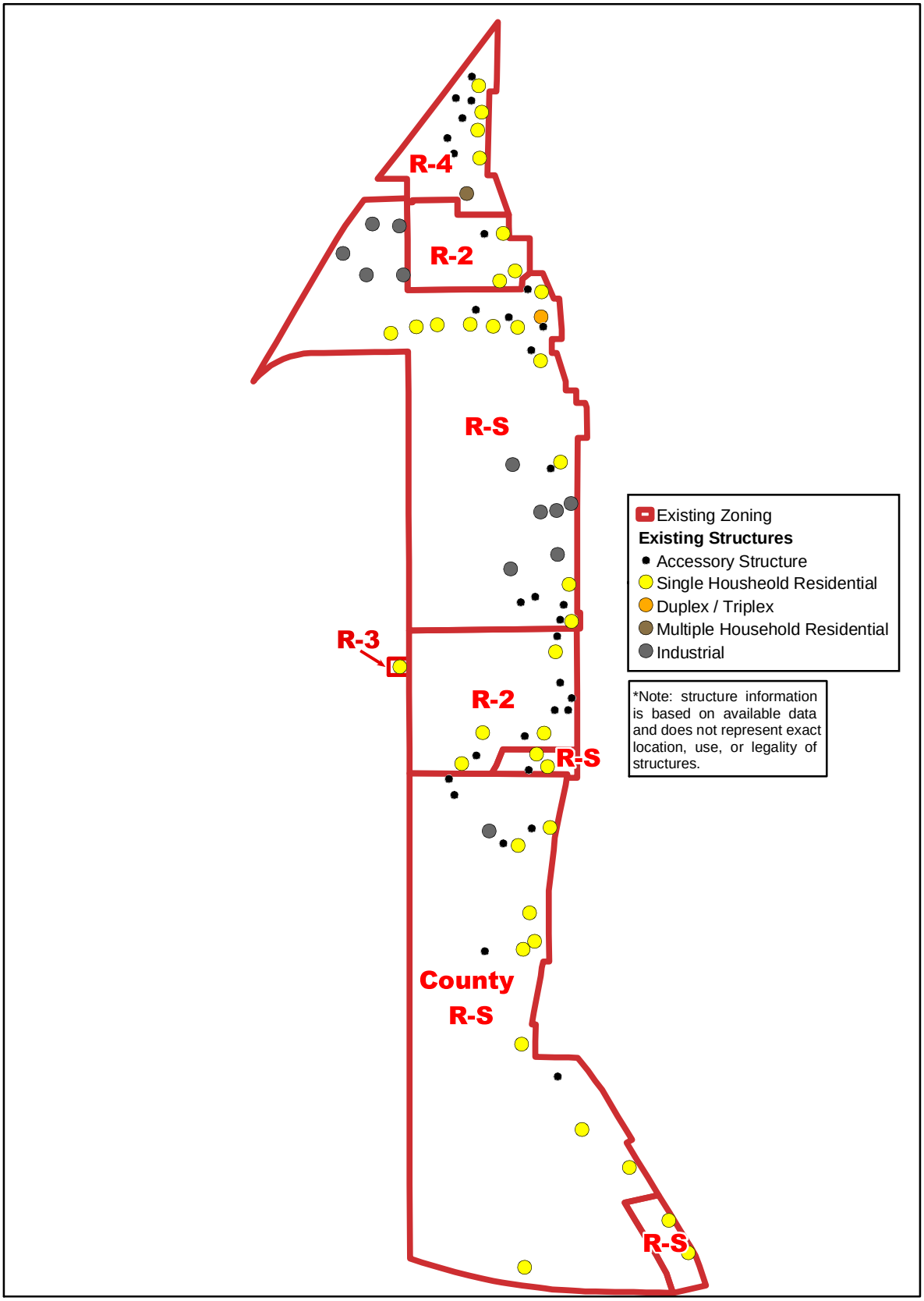
Alternative 3
Medium Density Alternative

Figure 16



Preferred Alternative

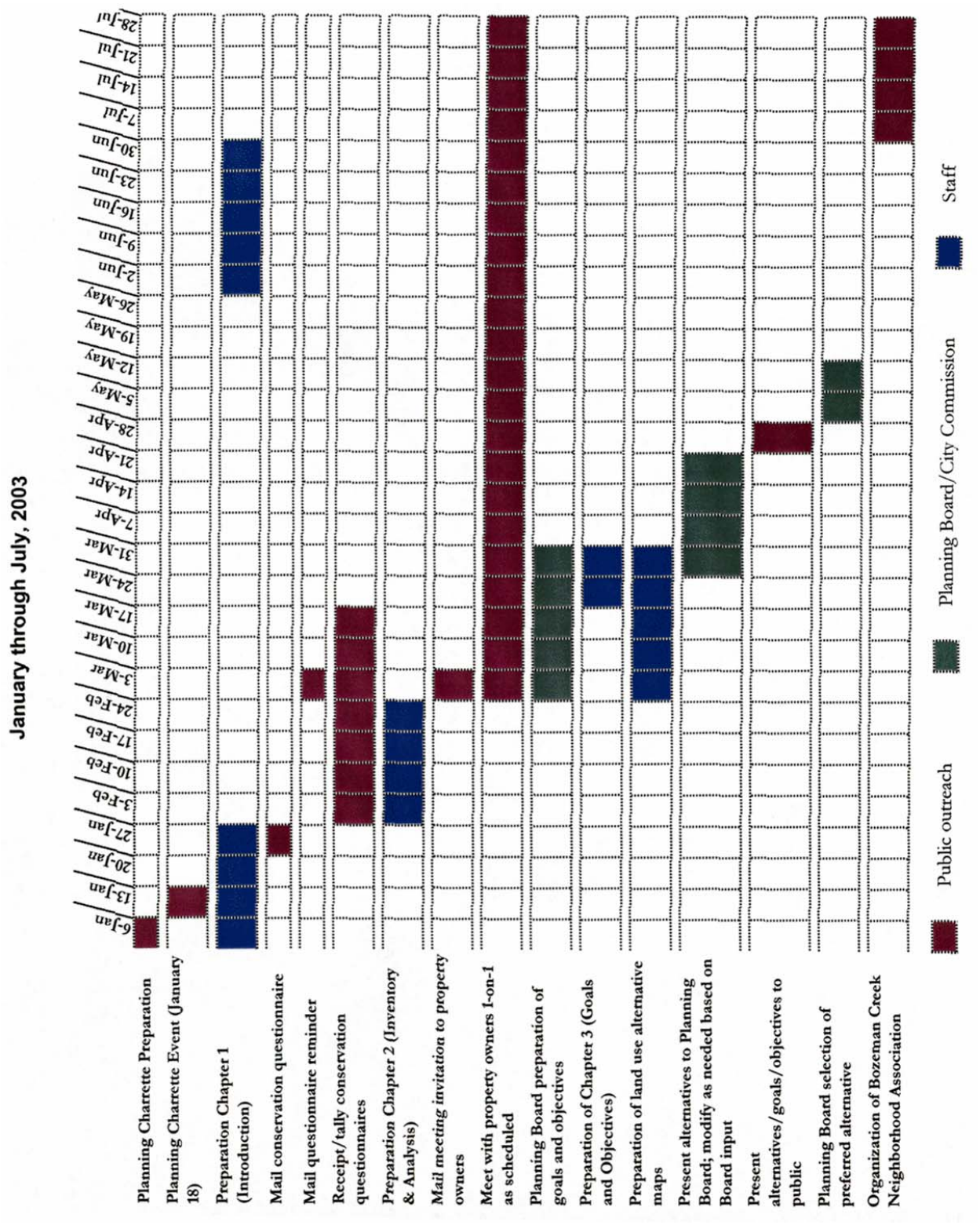
Figure 17

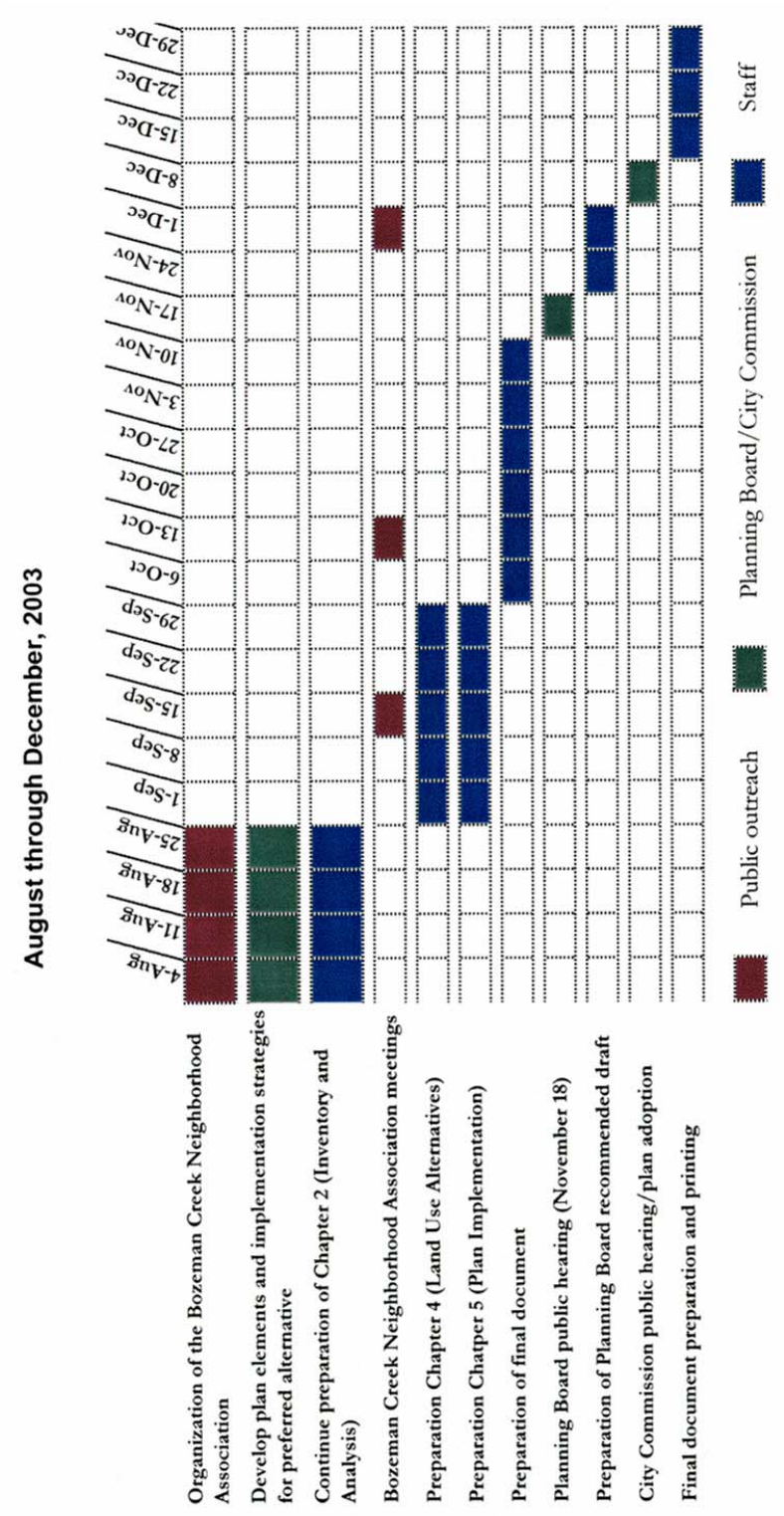


Existing Zoning & Structure Overlay

(as of effective date of plan)

APPENDIX A
Work Program




August through December, 2003
4-Aug
11-Aug
18-Aug
25-Aug
1-Sep
8-Sep
15-Sep
22-Sep
29-Sep
6-Oct
13-Oct
20-Oct
27-Oct
3-Nov
10-Nov
17-Nov
24-Nov
1-Dec
8-Dec
15-Dec
22-Dec
29-Dec
Organization of the Bozeman Creek Neighborhood Association
Develop plan elements and implementation strategies for preferred alternative
Continue preparation of Chapter 2 (Inventory and Analysis)
Bozeman Creek Neighborhood Association meetings
Preparation Chapter 4 (Land Use Alternatives)
Preparation Chatper 5 (Plan Implementation)
Preparation of final document
Planning Board public hearing (November 18)
Preparation of Planning Board recommended draft
City Commission public hearing/plan adoption
Final document preparation and printing
Public outreach
Planning Board/City Commission
Staff

APPENDIX B
Soils Description and Information

A.0 SOIL DESCRIPTIONS

350B—Blackmore silt loam, 0 to 4 percent slopes

Setting
Landform: Relict stream terraces
Slope: 0 to 4 percent
Elevation: 4,850 to 5,550 feet
Mean annual precipitation: 18 to 22 inches
Frost-free period: 80 to 95 days

Composition
Major Components
Blackmore and similar soils: 90 percent
Minor Components
Bowery loam: 0 to 5 percent
Brodyk silt loam: 0 to 2 percent
Slopes more than 4 percent: 0 to 3 percent

Major Component Description
Surface layer texture: Silt loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Loess
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 11.3 inches

Management
Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

350C—Blackmore silt loam, 4 to 8 percent slopes

Setting
Landform: Relict stream terraces
Slope: 4 to 8 percent
Elevation: 4,750 to 5,600 feet
Mean annual precipitation: 18 to 22 inches
Frost-free period: 80 to 95 days

Composition
Major Components
Blackmore and similar soils: 90 percent
Minor Components
Bowery loam: 0 to 4 percent
Doughty cobbly loam: 0 to 3 percent
Brodyk silt loam: 0 to 3 percent

Major Component Description
Surface layer texture: Silt loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Loess
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 11.3 inches

Management
Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

350D—Blackmore silt loam, 8 to 15 percent slopes

Setting
Landform: Relict stream terraces
Slope: 8 to 15 percent
Elevation: 4,700 to 5,550 feet
Mean annual precipitation: 18 to 22 inches
Frost-free period: 80 to 95 days

Composition
Major Components
Blackmore and similar soils: 90 percent
Minor Components
Bowery loam: 0 to 5 percent
Doughty cobbly loam: 0 to 3 percent
Brodyk silt loam: 0 to 2 percent

Major Component Description
Surface layer texture: Silt loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Loess
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 11.3 inches

Management
Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

307A—Sudworth silty clay loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Slope: 0 to 2 percent
Elevation: 4,400 to 4,650 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days

Composition

Major Components
Sudworth and similar soils: 85 percent
Minor Components
Enbar loam: 0 to 5 percent
Nesda loam: 0 to 5 percent
Turner loam: 0 to 5 percent

Major Component Description

Surface layer texture: Silty clay loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: None
Water table: Apparent
Available water capacity: Mainly 6.8 inches

Management

Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

509B—Enbar loam, 0 to 4 percent slopes

Setting

Landform: Flood plains
Slope: 0 to 4 percent
Elevation: 4,400 to 6,000 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days

Composition

Major Components
Enbar and similar soils: 85 percent
Minor Components
Straw loam: 0 to 5 percent
Nythar loam: 0 to 10 percent

Major Component Description

Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: Rare
Water table: Apparent
Available water capacity: Mainly 8.8 inches

Management

Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

512B—Enbar-Nythar loams, 0 to 4 percent slopes

Setting

Landform:
• Enbar—Flood plains
• Nythar—Flood plains
Slope:
• Enbar—0 to 4 percent
• Nythar—0 to 4 percent
Elevation: 4,300 to 6,100 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days

Composition

Major Components
Enbar and similar soils: 60 percent
Nythar and similar soils: 30 percent
Minor Components
Straw loam: 0 to 5 percent
Blossburg loam: 0 to 5 percent

Major Component Description

Enbar
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Somewhat poorly drained
Dominant parent material: Alluvium
Native plant cover type: Forest land
Flooding: Rare
Water table: Apparent
Available water capacity: Mainly 8.8 inches
Nythar
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Very poorly drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: Rare
Water table: Apparent
Available water capacity: Mainly 9.7 inches

Management

Major uses:
• "Range" section
• "Forest Land" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

542A—Blossberg loam, 0 to 2 percent slopes

Setting

Landform: Stream terraces
Slope: 0 to 2 percent
Elevation: 4,200 to 5,550 feet
Mean annual precipitation: 12 to 18 inches
Frost-free period: 90 to 110 days

Composition
Major Components
Blossberg and similar soils: 85 percent
Minor Components
Meadowcreek loam: 0 to 5 percent
Bonebasin loam: 0 to 10 percent
Major Component Description
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: None
Water table: Apparent
Available water capacity: Mainly 5.2 inches
Management
Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

606A—Bandy-Riverwash-Bonebasin complex, 0 to 2 percent slopes
Setting
Landform:
• Bandy—Flood plains
• Riverwash—Flood plains
• Bonebasin—Flood plains
Slope:
• Bandy—0 to 2 percent
• Bonebasin—0 to 2 percent
Elevation: 4,200 to 5,800 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days
Composition
Major Components
Bandy and similar soils: 50 percent
Riverwash: 25 percent
Bonebasin and similar soils: 10 percent
Minor Components
Water: 0 to 5 percent
Blossburg loam: 0 to 5 percent
Nesda cobbly loam: 0 to 5 percent
Major Component Description
Bandy
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Poorly drained
Dominant parent material: Alluvium
Native plant cover type: Forest land
Flooding: Occasional
Water table: Apparent
Available water capacity: Mainly 3.1 inches
Riverwash
Definition: Unstable areas of sandy, gravelly or cobbly sediments, frequently flooded, and support little or no vegetation.
Dominant parent material: Alluvium
Flooding: Frequent
Bonebasin
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Very poorly drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: Occasional
Water table: Apparent
Available water capacity: Mainly 6.0 inches
Management
Major uses:
• "Range" section
• "Forest Land" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

64B—Straw loam, 0 to 4 percent slopes
Setting
Landform: Stream terraces
Slope: 0 to 4 percent
Elevation: 4,350 to 6,150 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days
Composition
Major Components
Straw and similar soils: 90 percent
Minor Components
Enbar loam: 0 to 5 percent
Sudworth loam: 0 to 3 percent
Straw clay loam: 0 to 2 percent
Major Component Description
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 10.6 inches
Management
Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

72D—Doughty loam, 8 to 15 percent slopes
Setting
Landform: Relict stream terraces and alluvial fans
Slope: 8 to 15 percent
Elevation: 4,850 to 5,300 feet

Mean annual precipitation: 18 to 22 inches
Frost-free period: 80 to 95 days

Composition

Major Components
Doughty and similar soils: 90 percent
Minor Components
Doughty cobbly loam: 0 to 5 percent
Anceny cobbly loam: 0 to 3 percent
Slopes more than 15 percent: 0 to 2 percent

Major Component Description

Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 5.8 inches

Management

Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

747E—Cabba-Reedwest-Anceney complex, 15 to 45 percent slopes

Setting

Landform:
• Cabba—Escarpments
• Reedwest—Escarpments
• Anceney—Escarpments
Slope:
• Cabba—25 to 45 percent
• Reedwest—15 to 35 percent
• Anceney—15 to 45 percent
Elevation: 4,500 to 6,100 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days

Composition

Major Components
Cabba and similar soils: 35 percent
Reedwest and similar soils: 30 percent
Anceney and similar soils: 25 percent
Minor Components
Bowery loam: 0 to 5 percent
Rock outcrop: 0 to 2 percent
Slopes more than 45 percent: 0 to 3 percent

Major Component Description

Cabba
Surface layer texture: Cobbly loam
Depth class: Shallow (10 to 20 inches)
Drainage class: Well drained
Dominant parent material: Semiconsolidated, loamy sedimentary beds
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 2.7 inches

Reedwest
Surface layer texture: Loam
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Dominant parent material: Semiconsolidated, loamy sedimentary beds
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 4.3 inches
Anceney
Surface layer texture: Cobbly loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium or colluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 5.0 inches

Management

Major uses:
• "Range" section
• "Agronomy" section
• "Recreation" section
• "Wildlife Habitat" section
• "Engineering" and "Soil Properties" sections

752E—Meagher-Shawmut-Bowery complex, 15 to 45 percent slopes

Setting

Landform:
• Meagher—Escarpments
• Shawmut—Escarpments
• Bowery—Escarpments
Slope:
• Meagher—15 to 35 percent
• Shawmut—15 to 45 percent
• Bowery—15 to 35 percent
Elevation: 4,600 to 6,150 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days

Composition

Major Components
Meagher and similar soils: 45 percent
Shawmut and similar soils: 35 percent
Bowery and similar soils: 10 percent
Minor Components
Shawmut stony loam: 0 to 5 percent
Slopes more than 45 percent: 0 to 5 percent

Major Component Description

Meagher
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium or colluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 6.4 inches
Shawmut
Surface layer texture: Cobbly loam

Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium or colluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 4.0 inches

Bowery
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium or colluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 11.2 inches

Management

Major uses:
- "Range" section
- "Agronomy" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections

947E—Reedwest-Cabba-Bowery complex, 15 to 45 percent slopes

Setting

Landform:
- Reedwest—Escarpments
- Cabba—Escarpments
- Bowery—Escarpments

Slope:
- Reedwest—15 to 35 percent
- Cabba—15 to 45 percent
- Bowery—15 to 45 percent

Elevation: 4,550 to 6,050 feet
Mean annual precipitation: 15 to 19 inches
Frost-free period: 90 to 110 days

Composition

Major Components

Reedwest and similar soils: 40 percent
Cabba and similar soils: 35 percent
Bowery and similar soils: 15 percent

Minor Components

Rock outcrop: 0 to 2 percent
Anceny cobbly loam: 0 to 8 percent

Major Component Description

Reedwest
Surface layer texture: Loam
Depth class: Moderately deep (20 to 40 inches)
Drainage class: Well drained
Dominant parent material: Semiconsolidated, loamy sedimentary beds
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 4.3 inches

Cabba
Surface layer texture: Cobbly clay loam
Depth class: Shallow (10 to 20 inches)
Drainage class: Well drained
Dominant parent material: Semiconsolidated, loamy sedimentary beds
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 2.6 inches

Bowery
Surface layer texture: Loam
Depth class: Very deep (more than 60 inches)
Drainage class: Well drained
Dominant parent material: Alluvium or colluvium
Native plant cover type: Rangeland
Flooding: None
Available water capacity: Mainly 11.2 inches

Management

Major uses:
- "Range" section
- "Agronomy" section
- "Recreation" section
- "Wildlife Habitat" section
- "Engineering" and "Soil Properties" sections