

**OVERVIEW: LEWIS AND CLARK COUNTY COMPREHENSIVE PLAN PROCESS  
ENVIRONMENTAL QUALITY COUNCIL PRESENTATION  
December 2, 1999**

**1. WHAT IS THE COST TO DEVELOP THE PLAN AND WHAT WERE THE SOURCES OF FUNDING?**

- The estimated costs of the Plan Update are as follows:
  - \$185,000 Consultant Fees
  - \$ 10,000 Meeting related Expenses (including public meeting and citizen advisory meeting expenses, copying charges)
  - \$30,000 Estimated Staff Time
- Sources of Funding
  - All Purpose Mill Levy
  - Planning Levy

**2. WHAT ARE THE PLANNING DISTRICTS AND WHAT IS THE PURPOSE OF DIVIDING THE COUNTY INTO PLANNING DISTRICTS?**

- There are five new planning districts with the Plan: Helena Valley; Canyon Creek/Marysville; Canyon Ferry; Wolf Creek/Craig; and Augusta (The Lincoln Area completed a Comprehensive Plan three years ago and that will be incorporated into this plan. That effort was partially funded through the US Forest Service)
- The planning area concept was initially introduced in our old plan. Although we have new planning areas, the concept was carried forward because the land use and other issues are so different in each planning area (ie the land use conflicts, need for capital facilities, environmental issues)
- It has helped each area develop an ownership in the plan

**3. PROCESS**

- The Board of County Commissioners let an RFP for the Plan and appointed the Citizen Advisory Group (CAG) to help guide the process
- The CAG has been working the County Staff and the Consultants on Draft Goals and Policies for the Plan
- County staff has also been working with Area representatives in drafting area sections and working with the Consultants in drafting Natural Environment, Transportation, Housing, Capital Facilities, Population and Demographics, etc
- Several series of public meetings have been held to identify community issues,

**Land Use/Environmental  
Trends Subcommittee  
December 2, 1999**

- review draft goals, and to provide public education
- Other public education tools included: County newsletter, County radio show, presentations to different groups, news releases
- Remaining Process will involve CAG final recommendation, Planning Board review and recommendation, and Board of County Commission hearing process

#### **4. WHAT WAS THE MOTIVATION FOR THE PLAN?**

- Our Comprehensive Plan had not been reviewed and updated in its entirety since 1983 (There was a minor update in 1989)
- The Helena Valley had seen dramatic changes since that time period. Other changes were also occurring in the other planning areas
- We wanted to have a strong/realistic capital improvements plan that was tied to comprehensive land use plan

#### **5. WHAT ARE THE EFFECTS OF SENATE BILL 97**

- All of the elements outlined in the growth policy legislation were included in the original contract with the consultant
- The implementation strategy we are currently working on will have to be further defined to meet the criteria set forth in the legislation, including a specific timetable

**CITIZEN ADVISORY COMMITTEE  
LEWIS AND CLARK COUNTY  
COMPREHENSIVE PLAN**

**By Geographical Region (9)**

**AUGUSTA**

Joe Barrett  
PO Box B  
Augusta, MT 59410  
h) 562-3584

**WOLF CREEK/CRAIG**

Pat Anderson  
PO Box 168  
Wolf Creek, MT 59648  
w) 235-4276

**CANYON CREEK**

Earl Wohlfrom  
PO Box 476  
Canyon Creek, MT 59633  
h) 368-2265

**CANYON FERRY/YORK**

Don Johnson  
3318 East Shore Drive  
Helena, MT 59602  
h) 475-3706

**HELENA VALLEY**

Jim Dusenberry  
1672 East Sierra Road  
Helena, MT 59602  
h) 458-5770; w) 443-4644

**Walter Jester**

1996 Oro Fino Gulch  
Helena, MT 59601  
h) 449-7725 w)444-6355

**EAST HELENA**

Mary Yuricic  
PO Box 1690  
East Helena, MT 59635  
h) 227-6934; w) 442-4070

**CITY OF HELENA**

Patty White  
128 South Benton Avenue  
Helena, MT 59601  
h) 449-0986

**BROADWATER COUNTY**

(ex-officio)  
Jim Hohn  
Broadwater County Commissioner  
County Courthouse  
Townsend, MT 59644  
h) 266-5454;w) 266-3315  
w) 266-3405commission

**NORTH JEFFERSON COUNTY**

(ex-officio)  
Glenna Obie  
Jefferson County Commissioner  
County Courthouse  
Boulder, MT 59632  
h) 443-7062; w) 225-4025

**Planning Board (3)**

Gary Peterson  
312 Harrison  
Helena, MT 59601

Susan Epstein, MD  
770 Franklin Mine Rd  
Helena, MT 59601  
w) 442-6410 x7506  
h) 449-4827

Guy Youngblood  
1515 Easy Road  
Helena, MT 59602  
h) 458-9861

**By Area of Interest (8)**

**HELENA BUILDING INDUSTRY ASSOCIATION**

Joe Mueller  
American Building Company  
PO Box 4545  
Helena, MT 59604  
h) 443-6023; w) 442-7178;  
f) 442-7187

**HELENA PROPERTY OWNERS ASSOCIATION**

Steve Skinner  
1718 Walnut Street  
Helena, MT 59601  
h) 443-7485; w) 442-6931

**HELENA AREA CHAMBER OF COMMERCE**

Ernie Nunn  
225 Cruse Avenue  
Helena, MT 59601  
h) 266-4287; w) 442-4120

**PLAN HELENA**

Max Milton  
P O Box 1096  
Helena, MT 59624  
h) 443-7921

**PRICKLY PEAR SPORTSMAN ASSOCIATION**

David Cole  
6040 Ferry Drive  
Helena, MT 59602  
h) 458-6240; w) 444-4481

**SCHOOLS**

Warren Morehouse  
County Superintendent of Schools  
PO Box 1725  
Helena, MT 59624  
h) 443-2732; w) 447-8343

**Rollie Fisher**

CR 30, Box 130  
Lincoln, MT 59639  
h) 362-4436

**Kathy Bramer**

843 - 8th Ave.  
Helena, MT 59601  
442-4565

**Ray Johnson**

5295 Eagleridge  
Helena MT 59602  
442-3456

# Canyon Creek/Marysville Planning Area

## DRAFT 12/98

### **1. Introduction**

Canyon Creek or Canon Creek as it is spelled on early maps, is a very old settlement on the travel route of the Piegan Indians from the plains area to the Blackfoot River Valley. The trails in this area were used by the early trappers, followed by fur companies and were later surveyed for wagons roads and railroads. The area was first settled in the 1840's by men with Blood or Piegan wives with friendly connections to the Blackfoot Indians. The valley of the Little Prickly Pear had all the elements for comfortable living for the early settlers. The cottonwood bottoms provided shelter and fuel for heat along with an abundance of wildlife for food and furs. The grassy windswept hills and hilltops provided plenty of area for livestock grazing. Many of the early settlers became hunters who supplied meat or woodchoppers who provided heating fuel to the trading posts and stage stops which sprang up in the area. In the 1860's, after gold was discovered in the bed of Silver Creek, placer mining brought thousands of men to the area and a lively camp called Silver City sprang up. In 1864, Silver City became the county seat of Edgerton County, which later became Lewis and Clark County. During that same time, Canyon Creek had settled into a rural farming community consisting of stockmen, farmers and several businesses including a blacksmith, several stores, a saloon and a Catholic Church at the head of Little Prickly Pear Creek. By 1865, Silver City and Helena had become rivals and both wanted the county seat. The dispute was settled when Colonel W.F. Sanders rode to Silver City stole the county records and spirited them back to Helena. Thereafter, Helena became the county seat and Silver City remained little more than a supply point and stage station for the Marysville mining district and the Fort Benton to Helena segment of the Mullan Trail. In 1866, a water shortage for the placer miners and the settlers of the valley began. The communities of Georgetown, Trinity and Silver City, that once had thriving businesses, folded up. Trinity was the first to go, but it left the Little Prickly Pear Valley with a public school - the Trinity School, District #4, at Canyon Creek. The Trinity School is the oldest school building still in use in the State of Montana; it has been continually used for over 100 years.

After Thomas Cruse uncovered high grade gold ore at his Drumlummon mine and other rich lodes like Gloster, Belmont, Bell Boy and Bald Butte were opened, Marysville blossomed into a prosperous settlement with a population of 5,000. During its heyday it supported four churches and two newspapers. But according to local historians, when the Drumlummon Mine ceased operation in 1910, "the down went downhill fast". Today, the communities of Canyon Creek, Marysville and Silver City have return for the most part to the pre-gold boom character. Development, except for the Marysville town site, is scattered and rural in character.

### **2 Existing Conditions**

#### **2.1. Physical Conditions**

The Canyon Creek/Marysville planning area consists of approximately 298 square miles located in the west central portion of Lewis and Clark County. The planning area boundaries generally correspond with the Continental Divide on the north and the west; the Wolf Creek/Craig planning area on the northeast; the Helena Valley Planning area on the southeast and south; and the Powell County line on the west.

#### Topography

The topography of the Canyon Creek/Marysville Planning Area is variable and typically rugged. Slopes range from the gently eastward sloping Silver Valley floor, 4,380 to 4,340 feet in elevation to; the rolling hills found in the eastern portion of the planning area; to the peaks and passes located along the Continental

Divide, 7,331 - 6,131 feet in elevation. Prominent landmarks and elevations include Mount Belmont (7,331'), Bald Butte (7,052'), Edward Mountain (6,713'), Stemple Pass (6,376'), Flesher Pass (6,131'), Marysville townsite (5,400'), Gravelly Range Lake (4,904'), Canyon Creek Community (4,380') and Silver City (4,347').

### Climate

The Canyon Creek/Marysville Planning Area is located along the eastern front of the Rocky Mountains and exhibits climatic characteristics of the modified maritime climate typical of the mountainous areas of western Montana and the continental climate of eastern Montana. Weather patterns are influenced by Pacific and Canadian fronts. Wind are predominantly out of the northwest and may have wind gusts in excess of 40 m.p.h. Average precipitation varies according to elevation, with the higher elevation along the Continental Divide receiving 25 to 30 inches per year and the Silver Valley area only receiving 10 to 12 inches per year. June is typically the wettest month and January receives the most snowfall. Daily temperatures also vary according to elevations. The annual temperatures can range from -35 degrees to 100 degrees Fahrenheit. The average growing season for the lower elevations ranges from 90 to 120 days.

### Hydrography

The headwaters of three major stream networks are located within the Canyon Creek/Marysville Planning area. The Little Prickly Pear Creek has it's headwaters in Beartrap and McQuithy Gulches on the east slope of the Continental Divide. This perennial stream trends eastward until it eventually drains into the Missouri River north of Holter Lake. It's main tributaries located within the Planning Area include: Lost Horse Creek, Marsh Creek, Piegan Creek, Trinity Creek, Canyon Creek, Willow Creek, Little Sheep and Big Sheep Creeks. The total watershed drains approximately \_\_\_\_\_ square miles.

Canyon Creek has its headwaters south of Flesher Pass. The stream trends southward until it drains into the Little Prickly Pear Creek, north of the Canyon Creek community. Its main tributaries include: Weino Creek, Specimen Creek, Big and Little Mill Creeks, Virginia Creek and Sears Creek. The watershed drains approximately \_\_\_\_\_ square miles.

Silver Creek has its headwaters south of the Marysville townsite. It trends generally in a south east direction, through the Helena Valley to discharge into Lake Helena. The stream morphology and water quality have been severely impacted by past mining practices in the area. The upper Silver Creek watershed drains approximately \_\_\_\_\_ square miles.

None of these watersheds have been mapped by the Federal Emergency Management Agency (FEMA) for the 100 or 500 year floodplains, that could be associated with these stream corridors.

The only lake found within the Planning Area is the Gravelly Range Lake located approximately 8 miles west of the community of Canyon Creek. The lake is located on private land. The lake is a naturally occurring lake, which has been enhanced to provide irrigation water for hay fields to the east. The lake is approximately 160 acres in size.

### Geology

The Canyon Creek/Marysville Planning Area contains a diversity of geological units. The dominant geologic feature of the area adjacent to the Continental Diviner is a Tertiary stock and its surrounding metamorphic zone. The intrusive has been called quartz diorite or granodiorite. The rock is medium grained and consists of plagioclase, quartz, orthoclase, hornblende and biotite; it has a hypidiomorphic granular texture. The

width of the contact metamorphic zone suggests that the size of the intrusive increase downward. Several textural and mineralogic varieties of dikes related to the granodiorite also occur. These intrusives cut through Empire Shale and Helena Dolomite of the Belt Supergroup. Other Belt Units include the Spokane Shale, Marsh formation and the Missoula Group. Outside the metamorphic circles, the Empire Shale consists of pale-green and deep-red argillite, and fine grained quartzite. The Empire Shale is about 1,000 feet thick in some areas. Within metamorphic zones, the formations are dark cordierite hornfels with interbeds of white calcic hornfels. The Helena Dolomite is described as a buff-weathering, dark-gray Dolomite. Within the contact zones, the Helena Dolomite is light-colored diopside and tremolite-bearing skarn.

In the areas that have rolling hills, such as those surrounding the Canyon Creek and Silver Valley areas, the predominant geology consists of Pre-Tertiary rocks including Precambrian to Cretaceous sedimentary rocks and Cretaceous plutonic and volcanic rocks .

In the Silver Valley and along most of the larger water courses, one can find Holocene terraces and stream-channel deposits, and alluvial plain deposits. These deposits are comprised of gray to brown coarse sandy to cobble gravels. The degree of sorting and rounding of clasts and geomorphic forms vary widely depending upon the size and the volume of discharge in the particular drainage.

The Canyon Creek/Marysville Planning Area is located within the Intermountain Seismic Belt, a seismically active zone associated with major fault structures. A majority of the Planning Area is located in Seismic Risk Zone 2. (see map \_\_\_ F. Naehar, 1994). Major fault lines identified in the area include: the Bald Butte fault (strike-slip fault), Helena Valley Fault (strike-slip fault) and the Hoadley-Lyons Thrust Fault (see figure 3, pg 14, U.S.G.S Professional Paper 1316).

The Bald Butte Fault is named for Bald Butte, a prominent peak located along the Continental Divide southwest of Marysville. This fault seems to have been the locus of many small earthquakes in 1973 and maybe the most seismically active fracture in the area. The fault trends southeasterly through the Birdseye area, north of Fort Harrison. The fault apparently extends along the southern margin of the Helena Valley and joins another fault along the northern front of the Elkhorn Mountains. The fault extends northwesterly across the Continental Divide and reaches the northwest border of the Avon Valley. The fault then joins a major northwest trending fracture near Nevada Lake in Powell County.

The Helena Valley Fault is well exposed along the northwest margins of the Helena Valley and in the low range of hills between the Helena Valley and the Silver Valley. The fault extends along the northwestern margin of the Silver Valley, crosses the area northwest of the community of Canyon Creek and continues to the Continental Divide near Stemple Pass. The epicenter of the main shock of the Helena earthquake of 1935 and the epicenters of several small earthquakes recorded in 1973 lie near the trace of the Helena Valley fault. It seems likely that this fault is still undergoing intermittent movement and may be considered an active break.

The Hoadley-Lyons Thrust Fault originates in the area of the Lyons Creek headwaters and trends in a southerly direction, until it intersects the Helena Valley Fault northeast of Silver City. It appears it may continue south until it connects with the Silver Creek Fault in the Helena Valley. Thrust faults, in general, are situated in the Montana disturbed belt, a broad zone of intricately folded and faulted rocks that extend from the Canadian border southward along the eastern front of the northern Rocky Mountains. These types of faults are generally considered inactive.

Several smaller faults such as the Beartrap, North Fork, Granite Butte, Marsh Creek and Prickly Pear faults have also been identified in the planning area. (see map \_\_\_\_).

### Groundwater

The groundwater resources of the Canyon Creek/Marysville Planning Area have not been well studied. Most of the information available concerning groundwater in the Planning Area is a result of well logs and anecdotal reference. It appears that most of the area is underlain with bedrock aquifer systems. The productivity and quality of water from a bedrock aquifer systems is extremely variable. The variability is due to recharge rates, subsurface geomorphology and the degree of fracture and faulting. In areas that have a high degree of fracturing, the groundwater is extremely susceptible to contamination. The fractures act as conduits for contaminants, such as wastewater effluent and improperly applied or disposed of chemicals, and the groundwater. The fractures also provide an avenue for groundwater recharge from precipitation, runoff and irrigation.

In areas in which the subsurface materials have a high percentage of granitic materials, radon can be found in the groundwater. Ingesting water containing radon is considered a minor health risk. The risk may be mitigated by aeration or the use of granular activated-carbon water filtering systems.

### Vegetation

Vegetation types in the area vary from the dry, rolling sagebrush/grassland in the eastern portion of the planning area to riparian areas along the numerous creeks to coniferous forest in the western portion of the planning area.

### Wildlife and Habitat

The planning area provides for a variety of habitat types, which are utilized by a diverse group of nongame and big game species. Big game species include pronghorn, elk, mule deer, whitetail deer and black bear. Other species include red fox, badger, coyote, fisher, martin, wolverine, mountain lion and an occasional wolf and lynx along the Continental Divide. Upland birds include ruffed grouse, blue grouse and an occasional sharp tailed grouse and Hungarian partridge. Other bird species include long-billed curlew, goshawk, merlin, and a variety of owls and woodpeckers. Thirty-one species classified as Species of Special Interest or of Special Concern by the State of Montana occur within the planning area. Species included as sensitive according to the Endangered Species Act, that occur in the area include the ferruginous hawk, lynx, wolverine, flammulated owl, and boreal owl. The Continental Divide area provides critical habitat and movement corridors for many species from the Little Prickly Pear Creek area to Glacier National Park.

## **2.2. Population and population trends** (to be completed later)

## **2.3 Land Ownership**

Approximately 52 percent or 99,538 acres of land within the planning area is in private ownership. These private lands are located within the eastern two-thirds of the planning area. A majority of the private lands are held by the numerous moderate to large sized ranches. The US Forest Service owns approximately 36 percent or 68,333 acres in the western third of the area, adjacent to the Continental Divide. The Bureau of Land Management owns approximately 9 percent or 16,296 acres concentrated in the Marysville and Mount Belmont area.

## **2.4. Area economy**

The planning areas economy is dependent upon employment opportunities in Helena. Most area residents commute to Helena on a daily basis. While a majority of the land use in the area is agricultural, most of the agricultural operators are dependent upon other nonagricultural employment to supplement their income. Limited service sector income is generated from the operation of the bar/restaurant at Silver City, the bar/restaurant in Marysville and seasonally at the Great Divide Ski area. Limited industrial sector income is generated by sand and gravel operations, logging and the operation of the sawmill at Silver City.

## 2.5. Transportation

Lincoln Road, West (279) is the main travel corridor through the planning area. This road connects the Helena Valley with Highway 200 east of Lincoln. The road has a chip sealed surface and is maintained by Lewis and Clark County. The segment of Lincoln road from Flesher Pass to Stemple Pass Road was improved and resurfaced in the summer of 1997. The segment of Lincoln Road from Stemple Pass Road to the Interstate 15 Interchange is scheduled for improvements and resurfacing in the summer of 1998.

Table \_\_\_ identifies roads within the planning area which are maintained by Lewis and Clark County or some other government agency.

**Table \_\_\_  
Publicly Maintained Roads in Canyon Creek/Marysville Planning Area**

ROAD NAME	MAINTENANCE RESPONSIBILITY	ROAD CLASSIFICATION	ROAD SURFACE
Lincoln Road -West (279)	Lewis and Clark County (FED FAS)*	major collector	chip-sealed
Marysville Road	Lewis and Clark County (FED FAS)*	rural minor collector	gravel
Blossburg Road	Lewis and Clark County (not on regular basis)	rural minor collector	gravel
Hope Creek Road	U.S. Forest Service	logging/recreational	gravel
Ophir Creek Road	U.S. Forest Service	logging/recreation	gravel
Beartrap Road	U.S. Forest Service	logging/recreational	gravel
Little Picky Pear Creek Road	Lewis and Clark County	rural minor collector	gravel
Marsh Creek Road	U.S. Forest Service	rural minor collector	gravel
Canyon Creek - Gould Road	Lewis and Clark County (not on regular basis)	local	gravel
Virginia Creek - Gould Road	Lewis and Clark County (not on regular basis)	local	gravel
Stemple Pass Road	Lewis and Clark County	rural minor collector	gravel
Silver Station- Willow Creek Road	Lewis and Clark County	rural minor collector	gravel
Duffy Lane	Lewis and Clark County	rural minor collector	gravel

Empire Creek Road	Lewis and Clark County	rural minor collector	gravel
Long Gulch Road	Lewis and Clark County	rural minor Collector	gravel

\*

In the spring and summer of 1997, the County Public Works Department and their consulting engineer conducted an inventory of all bridges and culverts greater than five (5) feet in diameter located on County roads. Of the 179 structures inventoried, three (3) are located within the planning area. The structures located on Empire Creek Road and Sieben Canyon Road crossing Little Prickly Pear Creek were identified as being in critical condition. The structure on Little Prickly Pear Road crossing the irrigation ditch was identified as being in poor condition. By definition, the critical rated structures should be replaced or undergo major repairs within one (1) to two (2) years and the poor structures within five (5) years. The estimated total cost of replacement or repair for the three structures would be \$359,000.

## 2.6. Public facilities and services

### Law Enforcement

Law enforcement within the Canyon Creek/Marysville Planning area is a cooperative effort of three agencies: the Lewis and Clark County Sheriffs Department, who has primary responsibility; the Montana Highway Patrol, who is responsible for law enforcement on Lincoln Road; and Montana Department of Fish, Wildlife and Parks game wardens whose primary responsibility is to enforce fish and game regulations and to assist other law enforcement official as needed; and U.S. Forest Service, who is responsible for law enforcement on national forest land. Response times by the Lewis and Clark Sheriff's Department vary from moderate to long, due to the areas distance from Helena, variable weather conditions, substandard roads and lack of posted addresses.

### Fire Protection

The Canyon Creek Volunteer Fire Department provides both structural and wildland fire protection for approximately 80 square miles of the planning area (see exhibit \_\_\_\_ fire district map. The district's equipment is housed on private property approximately 1.5 miles north east of the Canyon Creek Store on the west side of Lincoln Road.

Structural fire protection within the Marysville townsite is provided by Marysville Volunteer Fire Department. Volunteers for each of the volunteer fire departments are contacted by the Support Service Division and have a pager system in case of fire.

The Canyon Creek and Marysville Volunteer Fire Departments are funded by a tax assessed on all properties within the respective district. Additional monies are generated by fund raisers and private donations.

Areas outside the Canyon Creek and Marysville Fire Districts fall within the jurisdiction of the Lewis and Clark County Volunteer Fire Department, which is housed on the Lewis and Clark County shop complex on Cooney Drive in Helena. By Montana statute, the Lewis and Clark County Volunteer Fire Department is only charged with fighting wildland fires. In practice, the department will attempt to suppress structural fires and prevent them from becoming wildland fires. In addition to the County volunteer fire department, wildland fire protection is provided by an interagency team consisting of personnel from the U.S. Forest Service, Department Natural Resources and Conservation, and Bureau of Land Management, and the local volunteer fire departments. Equipment and personnel from the various federal and state agencies are

dispatched from the Interagency Fire Center located at the Helena Regional Airport and local volunteer fire department are dispatched by the Support Services Division. Depending upon fire conditions and severity of the fire, response time can vary from five minutes by helicopter to thirty minutes by fire engine. Wildland fire protection is funded by a tax levied on all property and improvements.

At the present time both the Canyon Creek and Marysville fire districts are considering expanding their boundaries. In the Canyon Creek fire district, possible areas of annexation include Stemple Pass Road to the Continental Divide and the Flesher Acres area. Marysville is considering annexation of the Great Divide Ski area and along the Marysville Road east to the boundary with the Canyon Creek Fire District. The Canyon Creek Fire District is also considering the possibility of locating an additional station in the south eastern portion of the district in the Birdseye Road/Silver City area.

#### Solid Waste

The planning area is located within the Scratchgravel Landfill District. The county operates a solid waste collection station approximately one-half mile south of Lincoln Road on the Marysville Road. Area residents are assessed a tax to operate the collection station in addition to the regular Scratchgravel assessment.

#### Water Supply

There are no public community water systems operating within the planning area. Water users are dependent upon individual water wells. Well depths vary greatly depending upon location. Development adjacent to the numerous creeks and water courses are served by wells which are shallow with good yields. As the distance increases from the water courses, well depths increase, and volumes and water quality decrease. In the eastern portion of the planning area, north of Lincoln Road, the groundwater has high mineral and iron content.

#### Sewage Disposal

Sewage disposal within the planing area is provided by individual on-site wastewater treatment systems. Constraints for the installation and operation of on-site systems include shallow depth to ground water along water courses, poor percolation rates in the eastern portion of the planning area, slopes and depth to bedrock in the western portions and the lack of adequate replacement areas due to small parcel size or lot configuration in the Marysville area and Stemple Pass Road. In Marysville, because of the age of many of the existing systems, small lot sizes and lack of undeveloped space, a community wastewater treatment system will need to be considered in the near future.

#### Education

The Canyon Creek/Marysville planning area and the Birdseye and Austin areas are located within District #4, Trinity Elementary School District. The District also includes portions of the Birdseye area located to the south of the planning area. The school building is located on Duffy Lane, approximately one-half mile east of Lincoln Road in Canyon Creek. Enrollment at the school varies from year to year, but averages a dozen students. Parents who live more than three miles from the school and who are not provided transportation by their own district, can choose to enroll their children in the adjacent school district, if space is available. Many parents in the school district have elected to enroll the children in School District #1 in Helena. The receiving district receives a tuition payment from District #4. Placement of the tuition students is at the receiving districts discretion, but usually District #4 students are placed in Broadwater or Hawthorne Elementary Schools. High school students from the planning area attend Capital High in Helena.

#### Utilities

Electrical power is currently provided to the planning area by Montana Power Company. Telephone service in the eastern portion of the planning area is provided by US West. In the Canyon Creek area, telephone service is provided by the Lincoln Telephone Company.

### **3. Analysis of Existing Land Use**

#### **3.1 Residential development patterns**

Within the Canyon Creek/Marysville Planning Area it is estimated that there are 246 residential dwellings. Approximately 20 percent of these dwellings are used on a seasonal basis. With the exception of the Marysville townsite, most of the residential development is scattered and rural in character. Much of the area east of Silver City and near the intersection of Birdseye Road with Lincoln Road, has been subdivided into 20 acre parcels. Development of these parcels has been slow due to the cost of extending utilities and concerns about long term water availability. However, the pace of development has picked up in recent years. Most of the more recent residential development throughout the remainder of the planning area has occurred adjacent to Canyon Creek or Little Prickly Pear Creek.

In Marysville, there are approximately 73 existing structures, approximately one-quarter of these are unoccupied due to their deteriorated condition. According to residents, there are approximately 56 full time residents in Marysville. Future development in Marysville will be constrained due to the lack of adequate area for drainfield replacement.

#### **3.2 Commercial and industrial development pattern**

There is limited commercial and industrial activity within the planning area. The Canyon Creek Store operates as a gas station, convenience store and post office. West of and adjacent to the store is a five unit trailer court. A restaurant/bar is located at the intersection of Birdseye Road with Lincoln Road. The Marysville House Restaurant and Bar is the only commercial activity within the townsite.

The Great Divide Ski area is the largest commercial enterprise within the planning area. The ski area operates a lodge/restaurant, ski lifts and approximately 60 trails for downhill skiing and snowboarding on private and Bureau of Land Management property. The operators of the ski area have submitted a proposal to BLM to expand the ski area. The proposed expansion would include approximately 700 acres, one half would be on BLM property and one-half on private property. Proposed improvements include additional ski trails and lifts, home sites, condominiums and overnight lodging facilities.

Industrial development in the planning area is limited to a sawmill which is located north of Lincoln Road and east of Birdseye Road at Silver City.

#### **3.3. Public or governmental uses**

A majority of the western portion of the planning area is managed by the US Forest Service. The area is primarily managed for recreation, wildlife, timber production and summer livestock grazing. BLM holdings are also managed for the same purposes, plus occasional mineral exploration or mining. The only County holdings within the planning area are a sand shed located west of Lincoln Road on Stemple Pass Road operated by the Lewis and Clark County Public Works Department and the Marysville solid waste collection station.

#### **3.4. Parks and open space**

The Lewis and Clark County Comprehensive Parks, Recreation and Open Space Plan, adopted in January,

1998, does not identify any parkland or proposed acquisition or improvements within the planning area.

Because of the areas rural character and the large amount of public lands in the planning area, individual recreational activities abound. The US Forest Service maintains the Continental Divide Trail along the western boundary of the planning area. The trail provides opportunities for hiking and mountain biking in the summer and cross country skiing and snowmobiling in the winter. Trailheads and facilities are maintained at Stemple Pass and Flesher Pass.

The numerous creeks found throughout the Little Prickly Pear drainage provide ample opportunity for fishing.

### **3.5 Agricultural uses**

Livestock grazing and hay production have historically been the major land use in the planning area. Recently, development pressures for retirement or seasonal homes has been seen in the area.

## **4. *Population Growth and Future Land Use Needs*** (to be completed later)

## **Lewis and Clark County Comprehensive Plan**

### **Canyon Creek/Marysville Area Advisory Committee, Planning Priorities**

The following is a suggested set of planning priorities and potential action items to implement the planning priorities. The Canyon Creek/ Marysville Area Advisory Committee may wish to review this suggested organization, and approve or modify it for incorporation into the Lewis and Clark County Comprehensive Plan.

#### **Recommended Planning Priorities**

*Citizens of the Canyon Creek/Marysville planning area feel that the issues that most need to be addressed in the short term are a continued and increased focus on the provision of basic services, maintaining agricultural lands, and reducing conflicts between residential and agricultural uses. In the one to five year period, Lewis and Clark County should focus on the following planning priorities in the Canyon Creek/Marysville Planning Area.*

#### **A. Maintain and improve the existing transportation system.**

##### **Action Items**

- Encourage improvements to Highway 279 to improve the overall safety of the highway (focus on widening and mailbox turnouts).
- Make necessary improvements on Marysville & Stemple Pass Roads to ensure the overall safety of the residents, with emphasis on maintaining culverts, turnouts and moving cattle safely
- Support improvements to the existing roads, bridges, and culverts
- Keep existing county roads in the Stemple Pass area open

#### **B. Provide adequate fire protection.**

##### **Action Items**

- Expand the Canyon Creek Fire District by annexing areas adjacent to main thoroughfares, such as Marysville, Stemple and Fletcher.
- Address the need for better equipment and/or additional training for volunteer fire fighters.
- Address the need for fire apparatus in remote and other vicinities

**C. Provide adequate police protection.**

**Action Items**

- Work with the Lewis and Clark County Sheriff's office to ensure that the Canyon Creek/Marysville area has adequate police protection.

**D. Preserve agricultural lands and minimize conflicts between agricultural and residential uses.**

**Action Items**

- New residential uses should be required to provide buffers between themselves and established agricultural uses.
- Further explore the advantages of "cluster development" to protect the quality of life in the community.
- Consider appointing a "Agricultural Representative" to the Planning Board.
- Encourage adherence to the Wildland-Residential Interface Guidelines

**E. Implement a strategy for controlling the spread and eradication of noxious weeds in the area.**

**Action Items**

- Educate citizens about the importance of noxious weed management and means to eradicating preventing the spread of infestation of noxious weeds.
- Work to enforce existing weed abatement regulations.

**F. Require new development within the Canyon Creek/Marysville Planning Area to meet minimum design guidelines and criteria.**

**Action Items**

- Develop on existing lots or parcels
- Establish minimum design standards and criteria for new development within the planning area.

Included as part of these design standards would be the following:

1. Ensure that the cost of developing and maintaining roads to serve new developments is covered by the developer/new homeowners.
2. Require roads to be constructed prior to subdivision.
3. Require minimum standards to meet fire access requirements.
4. New development should preserve and protect water quality, aesthetics, wildlife and environmental concerns of the area
5. Establish impact fees or "pay as you go fees" for services necessary to support new development.
6. Maintain the aesthetics of the community rather than encourage development

- Discourage “temporary housing” developments of more than 5 units within the planning area.

#### **H. Preserve and enhance the natural environment within the planning area.**

##### **Action Items**

- Encourage “natural buffer zones or setbacks” from drainage ways.
- Preserve water quality.
- Preserve the natural visual integrity of the planning area.
- Encourage wildlife conservation and habitat protection
- Encourage a level of logging practices that best suits the community.
- Logging should follow the DNRC “Best Management Practices” with an emphasis on maintaining the visual integrity of the timbered areas.

#### **I Monitor the impact of the proposed mine near Lincoln to identify possible implications for the Canyon Creek/Marysville Area.**

#### **J. Address concerns regarding areas of possible “community decay” and mechanisms available to eliminate or limit such development.**

#### **K. Support efforts for rural addressing in process**

#### **L. Support mine reclamation**

#### **Sub Area Concerns**

##### Marysville

- Promote a feasibility study and pursue grant money for a centralized water and sewer system
- Implement design or performance standards to keep residential development standards high and to maintain the current character of the neighborhood.
- Encourage the post office to remain in the townsite and be kept sufficiently staffed and in good condition so that it can handle the needs of the community.
- Preserve the natural visual integrity of the surrounding scenery

- Expand the “dog Ordinance” area to include the town site of Marysville
- Preserve cattle grazing rights

#### Stemple

- v Encourage annexation of neighboring fire districts with a request to have some fire apparatus in place in the vicinity
- Support the rural addressing system in process now
- Support mine reclamation

#### Flesher Acres

- This area will be the most severely impacted by increases in traffic and development along the Highway 279 corridor. Impact fees or other mechanism should be put in place to help mitigate these impacts if the proposed mine in Lincoln is established
- Future development needs to address water quality, access of emergency vehicles, and new roads detracting from the aesthetic value of the area.

#### Silver City

- The existing “junkyard” in the area is a concern and should be addressed through existing ordinances and through zoning or performance standards to limit this type of development
- Commercial development may be best suited at the intersection of Highway 279 and Birdseye Road
- v Water “quantity” is a concern in the area
- This is an area for potential development. Many parts of the area are subdivided into 20-acre tracts and other landowners have expressed an interest in subdividing other portions.

#### Prickly Pear Road

- Many of the roads in this area are impacted by logging/mining equipment and fall hunting traffic. Because of this, speed and maintenance are constant issues.

- Rural addressing would enhance the delivery of emergency services
- Preserve existing development density patterns while keeping an agricultural aspect
- Maintain aesthetics of the area rather than encourage development.

## HELENA VALLEY PLANNING AREA DRAFT #1

### 1. Introduction

The first exploration by white men in the Helena Valley or the "Valley of the Prickly Pear" was recorded in the journals of Lewis and Clark. The party of explorers passed through the Gates of the Mountain area in July, 1805. Their journals reported sighting antelope, deer, elk and goats in the area. They also reported being troubled by mosquitos and prickly pear cactus as they worked their way up river towards the three forks of the Missouri River.

During the period between the Lewis and Clark Expedition and the beginning of the gold mining era, the only white visitors to the area were fur trappers and traders. Prior to the influx of the white man, the area was controlled primarily by the Blackfoot Indians, who were noted for their fierce opposition to the white incursions into their territory.

From 1858 to 1860, Lt. John Mullan of the U.S. Army directed the construction of a military wagon road from Fort Benton, at the head of navigation on the Missouri to Fort Walla Walla in Washington. The road passed through the canyon of Little Prickly Pear Creek north of the Helena Valley, and crossed the Continental Divide at Mullan Pass. The greatest use of the road came after the discovery of gold in Montana in 1862. The eastern segment of the Mullan Road was heavily traveled after the discovery of gold in Last Chance Gulch in 1864.

The first record of prospecting activity in the area dates from 1862, when gold was reported to have been found along Prickly Pear Creek near the later site of the mining camp called Montana City, about four miles above the present site of East Helena. In June, 1862, Captain James Fisk led a government sponsored wagon train from Minnesota to the gold fields of Montana along the Mullan Road. According to historical records, the Fisk Expedition consisting of 123 persons camp on the future site in of Montana City. They reportedly encountered a miner named "Gold Tom" living in a tepee who was placer mining along Prickly Pear Creek. About one-half of Fisk's party wintered in the area to search for gold. They were apparently unsuccessful, since major mining development in the Helena Valley area had to wait until the Last Chance discovery by the legendary Four Georgians in July, 1864. News of their strike spread and by fall of that year tents and cabins had sprung up along the gulch. Within one year, the mining camp had over one hundred cabins.

The gold deposits in Last Chance Gulch and other rich mineral discoveries in the area spurred the growth of the City of Helena and other communities like Rimini, Unionville and East Helena. By 1867, a number of stone buildings had been erected and a land office opened in Helena. The Fort Benton to Helena stage logged 2,500 passengers between May and October, 1866, with the passengers stopping at stage stops at Silver City, Three Mile Creek, Seven Mile Creek and Tenmile Creek. Helena flourished not only as a mining camp, but also as a trade center for other camps in the region. Helena situated on the trade route between Fort Benton and Bannack and Virginia City, rapidly developed into "one of the leading commercial emporiums of the mountain country". By 1875, Helena had eclipsed Virginia City in size, population and influence and was voted the Territory's capital.

The Town of Rimini was once a trade center for a mine district, which produced gold, silver and lead. The town was originally named Young Ireland, but was renamed in the 1880's by the citizens after they had seen the drama, *Francesca da Rimini*. The town, to which a branch of the Northern Pacific railroad was built between 1885 and 1900, consisted of one long street with false-fronted frame buildings, which included at one time fourteen saloons, several hotels and "sporting houses". A second street parallel to and behind it, was filled with houses and cabins, except where mine dumps crowd close against them. At the end of the

street rises Red Mountain. Red Mountain is probably one of the oldest lead-zinc mines in Montana, with patent survey Nos. 3, 4 and 5. Lee Mountain, located to the west of the townsite, has survey No. 13 and was discovered in 1864. Lode mining on Red Mountain such as, the Nelly Grant, General Grant, Good Friday and Little Jenny lodes began before 1870 and was actively pursued until the late 1920's. In addition to lode mining, placer mining above the Rimini townsite continued on a large scale basis from the 1870's until the early 1900's.

In the 1880's James J. Hill, president of the Great Northern Railroad, founded the Red Mountain Consolidated Mining Company. Hill had hoped to build a branch of his railroad into Rimini, so shipments from the area's mines could be sent directly to the Helena and Livingston Smelting and Reduction Company smelter, located in East Helena. The project was started to be carried out after Hill's death by the Montana Lead Company. The attempt to cross tunnel through Red Mountain was stopped after a tunnel was bored 4,000 feet into the mountain because the City of Helena Water Department, which had Chessman Reservoir near Rimini, refused to permit the erection of a concentrating plant near the mines. From that time on, additional large scale mining development in the area stopped.

The real impetus to the develop the community of East Helena was the construction of the Helena and Livingston Smelter, now ASARCO, in 1888. Prior to the development of the smelter, the area around East Helena was developed as homesteads and a way station on the stagecoach route between Helena and the gold camps in the Big Belt Mountains. The Northern Pacific Railroad which had reached Helena in 1883, had its original station, named Prickly Pear Station, located at the railroad's crossing of Prickly Pear Creek. About the same time the smelter property was purchased, several local land owners subdivided portions of their property into a townsite. Local newspapers touted the new community as "the place to invest in real estate for quick returns". The town quickly became the homes of many of the plant employees. Many of the smelter's early employees came from the surrounding mining camps, later employees were recruited from the immigrant populations. The plant not only provided the primary payroll, but also played a critical role in the social, recreational, cultural and educational lives of the community. East Helena has survived its share of disaster, as have many other Montana communities. The Flood of 1908, which covered several blocks in the center of town, filled cellars with water, tore out bridges and floated houses off foundations; the fire of 1919, which destroyed the town's business district; and the infamous earthquake of 1935. The City of East Helena incorporated in August, 1927, and the following year installed a community water system. Today the City of East Helena remains a cohesive, independent, industrial community.

Another notable development, which has had a great influence on the character and the economy of the Helena Valley was the construction of Fort Harrison, approximately six miles west of the City of Helena. Fort William Henry Harrison was authorized by an act of Congress in 1892. The Fort was originally named Fort Benjamin Harrison in compliment to the then President. The name was changed in 1906 to eliminate duplication with a fort in Indiana. The military reservation was acquired by donations through the efforts of Col. C.A. Broadwater, who owned the adjoining Broadwater Hotel and Natatorium; the local Optimist Club and interested private parties. The Fort was built from 1894 to 1896. In 1895, a detachment of the Hospital Corp from the Fort Assinboine in Havre and several small military posts, which were scheduled to close in the Dakotas, began training at the post. The Montana National Guard began utilizing Fort Harrison for training in 1911, after abandoning Fort Ellis near Bozeman. Fort Harrison was abandoned and left in the charge of a caretaker by the US Army in 1913. The Montana National Guard occupied the Fort in September, 1915, beginning the development of the military post we see today. In June, 1916, the Montana National guard was notified by the War Department to mobilize to guard the US/Mexican border. The Guard was again train and mobilized in 1917 to protect major railroad and industrial facilities, until they could they were dispatch to eastern camps and eventually overseas. After World War I, the Fort became a Public Health Service Hospital and eventually a Veterans Administration medical facility (No. 72). During the first years, it was designated as a tuberculous hospital and expanded to 300 beds. In 1925, the designation was changed

to a general medical and surgical hospital. After the October, 1935 earthquake which rocked the Helena area, the hospital facility was closed and the patients transferred to facilities in Washington and Oregon. The Hospital facility was reopened in 1937. The Guard continued to use the reservation for training after the earthquake. During the Second World War the Fort, the US Army assumed control of the facility and used it for very new and distinctive military units. These included the First Special Service Force, the 474th Quartermaster Truck Regiment and the War Dog Training Center (Camp Rimini). Since 1947, the Fort has been used for training by numerous active and inactive combat, support and combat service support units. In 1999, numerous major improvements and increased training facilities are being planned for Fort Harrison.

## 2. Existing Conditions

### 2.1. Physical Conditions

The Helena Valley Planning Area is located in the southern part of Lewis and Clark County. This planning area contains approximately 400 square miles east of the Continental Divide. The area is bounded by the Marysville-Canyon Creek Planning Area on the northwest, the North Hills on the north (boundary with the Canyon Ferry Planning Area), the Missouri River, Hauser Lake, and the Spokane Hills on the east (boundary with the Canyon Ferry-York Planning Area), the County Line with Jefferson and Broadwater Counties on the south, and the Continental Divide on the west. The incorporated City of Helena is the County seat and is located in the south-central part of the Planning Area. The City of East Helena is the only other incorporated municipality in the County and is also located in the southern part of the Planning Area.

#### Topography

The topography of the Helena Valley Planning Area varies from the broad very gently sloping floor of the Helena Valley at elevations of 3650-4000 feet and containing about 75 square miles, to the mountains along the Continental Divide at elevations of ~6000-8000 feet. The North Hills form a drainage divide (~4700-5200') at the northern edge of the Area. A significant topographic feature of the Area includes the Missouri River canyon below Hauser Dam, the Missouri River valley inundated by Hauser Lake, and Devil's Elbow a feature along the Missouri River described in the Journals of Lewis and Clark. Rolling hills and bench lands are present in the eastern part of the Area, culminating in the Spokane Hills (~4600-5600'). The South Hills (the majority of which is in Jefferson County) bound the south edge of the Area and blend into the Continental Divide Range to the west; principal peaks and their elevations are Mount Ascension (5365'), Skihi Peak (6583'), Black Mountain (7149'), Colorado Mountain (7217') and Red Mountain (8150'). The Scratchgravel Hills cover about 15 square miles in the central part of the Area and rise above the Valley floor to an elevation of 5253 feet. The narrow valley of the Tenmile Creek drainage extends westward to the divide. The Seven Mile Creek drainage extends to the northwest through rolling terrain.

#### Climate

Due to topographic conditions, climatic conditions vary across the Planning Area. The western portion of the study area along the Continental Divide receives 20-30 inches of average annual precipitation, the majority as snowfall during the winter. The northeast Helena Valley between Lakeside and the Causeway is the driest part of the Area, receiving about 10 inches of average annual precipitation, the majority as rainfall in the spring. The annual range of air temperatures at the Helena Regional Airport is -35 to 100 F, with mean monthly temperatures ranging from 18 F in January to 68 F in July. Winds are generally westerly to northwesterly; the area experiences chinook winds that are associated with the east side of the Rocky Mountains. The Helena Valley is an intermontane basin subject to air inversions in the winter months.

#### Hydrography

Engineered and constructed water bodies make up approximately 2% of the Helena Valley Planning Area (see Figure ??). The major lakes are Lake Helena (located in the northeast corner of the Valley floor and covering about 3 square miles) and Hauser Lake (forming a portion of the Area's east boundary); both these lakes were established in 1911 by the construction of Hauser Dam on the Missouri River. Another significant lake is the Helena Valley Regulating Reservoir (~1 square mile), established in 1958 for the purpose providing irrigation water (Missouri River) to the Helena Valley floor and drinking water to the City of Helena. Chessman and Scott Reservoirs are storage facilities for the City of Helena drinking water supply, located in the southwest corner of the Planning Area; Chessman Reservoir (~100 acres) was constructed at the turn of the century and refurbished in the early 1990's and Scott Reservoir (~25 acres) was constructed in the early 1960's. Spring Meadow Lake is a small lake (~10 acres) just west of Helena established as a result of gravel quarrying activities. Two small private recreation lakes (~25 acres total) are located in the center of the Helena Valley floor, established in 1990. Two water bodies are associated with the ASARCO smelting facility at East Helena; a reservoir contains about 12 acres and associated wetlands, and a waste pond contains about 5.5 acres. Seven wastewater treatment lagoons are located within the Helena Valley, providing a total coverage of about ?? acres. Several small private ponds exist for stock water or minor irrigation purposes.

Several major stream networks cross the Planning Area and drain into the Missouri River system. Spokane Creek (located in the southeast corner of the Area) drains the hills, benches, and rolling terrain on the west side of the Spokane Hills. This is a perennial stream that has some utilization for irrigation. The 100-year floodplain has been approximated, but not formally mapped by FEMA.

Prickly Pear Creek has its headwaters in northern Jefferson County, enters the Planning Area south of East Helena, and drains northward to Lake Helena. This is a major perennial stream with a total watershed of approximately square miles. The stream has been significantly utilized for irrigation in the Helena Valley, although the extent of such applications is declining with the conversion of agricultural lands to other uses. The 100-year and 500-year floodplain boundaries have been mapped by FEMA (1985). The stream morphology and water quality has been adversely affected by past mining activities in the upstream reaches, industrial activities (smelting and municipal wastewater discharges), urban development, and agricultural practices.

The Tenmile Creek watershed includes the southwest portion of the Planning Area and drains northeastward toward Lake Helena. This is another major perennial stream with a total watershed of approximately square miles. The 100-year and 500-year floodplain boundaries have been mapped by FEMA (1985) downstream of the Rimini Road/Highway 12 intersection; another section of floodplain has been mapped at a reconnaissance level in the vicinity of the Rimini townsite. This stream has also been significantly utilized for irrigation in the Helena Valley; the extent of such applications is declining with the conversion of agricultural lands to other uses, but the volume of diversion may not decrease proportionately as other appropriated water rights are more fully utilized. The stream morphology and water quality has been adversely affected by past mining activities in the upstream reaches, highway construction, urban development, municipal water diversions, and agricultural practices.

Tributary to Tenmile Creek is Seven Mile Creek, a perennial stream with a watershed area of approximately square miles which drains the northwestern portion of the Planning Area. The only section of the stream which has been mapped for the 100-year floodplain (FEMA, 1985) is two miles above its confluence with Tenmile Creek. Some irrigation diversions are utilized in the lower reaches of the stream. The stream morphology and water quality has been adversely affected by past mining activities in some reaches, railroad construction, and agricultural practices.

The headwaters of Silver Creek are located in the Marysville-Canyon Creek Planning Area; the lower sections of the stream drain eastward across the Helena Valley floor toward Lake Helena. Silver Creek is intermittent due to the porous nature of the Valley floor, limited precipitation in the watershed, and irrigation diversions. Approximately square miles of the watershed are located within the Helena Valley Planning Area. The stream reach east of Green Meadow Drive has been mapped for the 100-year and 500-year floodplains (FEMA, 1985); the 100-year floodplain boundaries have been approximated for an additional five miles of stream section west of Green Meadow Drive, but not formally mapped by FEMA. The stream morphology and water quality has been adversely affected by past mining activities in the upstream reaches, railroad and highway construction, urban development, and agricultural practices.

The Helena Valley Irrigation District operates a major irrigation canal that encircles most of the Helena Valley floor, providing irrigation water from the Missouri River to about 20,000 acres of agricultural land.

The Water Quality Protection District is charged with on-going monitoring, research, and public education on the surface water systems. The District is governed by an appointed Board and its activities are funded by fees on each property within the District (\$5/year in the unincorporated areas and \$2.50 in the municipalities) and by grants. The extent of the District is shown on Figure ??.

#### Geology

The Helena Valley Planning Area contains a diversity of geologic units and landforms. Very old, dense, fractured sedimentary rocks are found across the Area, principally along the northern and eastern boundaries and in the western portion. The northern extent of the Boulder Batholith is found in the south part of the Area; much of the mineral development in the region is associated with this igneous body. The Scratchgravel Hills are also an igneous intrusion. The region was the subject of significant crustal deformation establishing the Overthrust Belt; due to the rock types involved, some potential for oil and gas resources exists. The Helena Valley is a fault-bounded structural basin that is filled with younger sedimentary units eroded from the surrounding mountains or deposited as a result of nearby volcanic activity. The youngest sediments are found on the floor of the Helena Valley. During the last glacial period, the Missouri River was dammed by the continental ice sheet, creating a large lake that extended into the Helena Valley area; related deposits are observed near White Sandy.

The Helena Valley is located within the Intermountain Seismic Belt, a seismically active zone associated with major geologic fault structures. The Valley is located at the north end of Seismic Zone 3. The Helena area has a long history of seismic activity; the earliest recorded earthquake was in 1869, and the most severe recorded earthquakes occurred in 1935 (measuring up to 6.3 Richter). Geologic investigations conducted by the MT Bureau of Mines and Geology (1981, 1988) indicate that a probable earthquake of magnitude 7.5 Richter could occur, subjecting the Helena Valley to severe ground shaking and liquefaction. A geologic map indicates the general location of potentially active faults, based upon available geologic data; other faults may exist, but their locations are speculative at this time. A large part of the Valley floor is underlain with partially consolidated sediments saturated with groundwater which are susceptible to liquefaction. Such conditions affect the probability and magnitude of ground failure and structural damage in a seismic event. In 1993, the County participated with the Bureau and MT State University to further evaluate the risk for liquefaction in the Valley. Based upon the physical characteristics of geologic materials and degree of saturation, a map of liquefaction potential was developed. Areas were classified with very low to high susceptibility for liquefaction; development in these areas should provide for appropriate mitigation measures to reduce the associated risks.

Some rock types in the Area contain minerals subject to radioactive decay and the production of radon gas. The MT Occupational Health Bureau has collected data in the Area for the last ten years which indicates a potential for radon gas in the Helena Valley Planning Area. Currently there is not enough statistical data to define more specific areas of concern. Some uranium leasing and exploration has occurred in the Helena Valley, but no development or extraction has taken place.

There do not appear to be significant areas of unstable slopes related to particular geologic rock types within the Helena Valley Planning Area; however, several erosive soil types have been characterized. Expansive soils are not common, but some bentonitic materials are present in some areas.

#### Groundwater

The groundwater resources of the Helena Valley Planning Area are quite variable and not completely understood at this time. However, considerable research has been conducted in an effort to characterize the aquifer systems. A major alluvial aquifer underlies the Helena Valley floor, which supplies drinking water for most of the population outside the municipal service areas. This is a very productive aquifer system, but is vulnerable to contamination. The remainder of the Planning Area contains bedrock aquifer systems with varying characteristics; in some areas these systems have limited production and recharge and are also vulnerable to contamination, which are constraints to development. Continued urban development in the Planning Area could result in additional contaminant load to parts of these aquifer systems from wastewater treatment, industrial discharges, stormwater runoff, and accidental spills.

The Helena Valley-fill alluvial aquifer system has been the subject of research for many years; the most recent and most comprehensive study was completed in 1992. The Valley-fill aquifer covers about 65 square miles and is sustained by stream infiltration (15%), irrigation infiltration (39%), and bedrock groundwater contributions (46%). It provides the sole source of drinking water for more than 13,000 residents relying upon individual and community wells. Many of these wells are less than 70 feet deep and seasonal fluctuations in static water levels have been observed in these shallow wells. The upper portion of the sedimentary fill is fine- to coarse-grained sediments that are not laterally continuous. This allows for both vertical and horizontal movement of groundwater in the system. Groundwater flow is generally from the margins of the Valley toward Lake Helena where the system discharges its flow. Water quality analyses indicate that the overall condition of the groundwater is good. None of the sampling for hydrocarbons or pesticides indicated any significant contamination by organic compounds; removal of underground storage tanks continues and sites are remediated and/or monitored. Nitrate analyses (conducted in three studies of the alluvial-fill aquifer) identified several areas where levels were slightly elevated. There appears to be an association between the age and density of septic systems and nitrate levels in the shallow groundwater.

In 1995 the City of Helena was granted a significant groundwater reservation in the Valley-fill alluvial aquifer for future municipal water supply. This reservation was based upon deep drilling of the aquifer and the identified potential of substantial amounts of unappropriated groundwater. The City's Water Master Plan was updated in 1997; a principal direction of the Plan was to investigate the development of this groundwater reservation. This was determined to be a more cost-efficient option for meeting the projected needs of the municipality; the other principal option was reconstruction of the Missouri River Water Treatment Plant and continued use of surface water. The first phase of this effort has been initiated and test wells have been drilled. Results of this analysis will be available by mid-1998. The demand projections are based on increased population and some expansion of the City water service area, resulting in a maximum day demand of 18 mgd in year 2020.

The bedrock aquifer systems are complex, due to the variety of rock types and the degree of fracture and faulting. In general, groundwater flow is more restricted and the well yields are not as productive as the alluvial aquifer system. Recharge is more dependent upon precipitation and there is a higher potential for over withdrawal of groundwater. The County is presently cooperating with the US Geological Survey on an evaluation of the bedrock aquifers surrounding the Helena Valley; results of this study should be available in the Fall of 1998.

The Water Quality Protection District is charged with on-going monitoring, research, and public education on the aquifer systems. The District is governed by an appointed Board and its activities are funded by fees on each property within the District (\$5/year in the unincorporated areas and \$2.50 in the municipalities) and by grants. The extent of the District is shown on Figure ??.

### Vegetation

Vegetation in the planning area consists of several vegetative classes. Grasslands/rangelands are predominant in the northern, eastern, and western portions of the Planning Area, and in pockets throughout the Area. Shrublands are found in foothill areas transitional between grassland vegetation and forest vegetation and along drainages, though not necessarily riparian in nature. Coniferous forest is predominant in the western half of the Planning Area, and includes pine and fir types. Forest is also present in the Scratchgravel Hills and along the eastern boundary of the Area; these are principally pine types. Riparian vegetation is found adjacent to many water courses in the area including Sevenmile Creek, Tennile Creek, Prickly Pear Creek, Spokane Creek, and Silver Creek. Significant riparian zones exist around and south of Lake Helena; portions of these zones are influenced by irrigation activities and naturally occurring high groundwater conditions.

Agricultural land vegetation types include dryland grainfields and improved pasture, predominant in the eastern part of the Area. Irrigated cropland (principally hay) is predominant on the Helena Valley floor and associated with perennial stream drainages elsewhere in the Area.

### Wildlife and Habitat

The Helena Valley Planning Area includes habitat for a broad range of wildlife species. The Area is located along a major North American flyway for migratory birds, raptors, and waterfowl. It is also associated with the Northern Rocky Mountain ecosystem.

Several ungulate species utilize available habitat and are managed as big-game species by the MT Dept. of Fish, Wildlife and Parks. Whitetail deer are found along the riparian corridors of perennial streams. Mule deer are found throughout the Area and critical winter range for mule deer has been identified near the base of MacDonald Pass. Antelope are found in several parts of the Planning Area, principally in the southeastern corner, the North Hills area, and the western part of the Scratchgravel Hills. Critical elk winter range has been identified along the Tennile Creek drainage west of Helena; elk utilize most of the southwest portion of the Area. Moose are also found in the western portion of the Area. Mountain goats and mountain sheep are not usually found in the Planning Area, though have been observed to the north in the Sleeping Giant area.

Coyote may range throughout the Planning Area, but generally do not inhabit the densely developed portions of the Area. Fox species can also be found throughout the Area, even in small areas of habitat close to urban development. Grey wolf, an endangered species, has been observed in the western portion of the Area, along the Continental Divide; this population is a result of natural expansion of the species into the region from Canada.

Other large mammal species found within the Planning Area include mountain lion, black bear, and ???.

Avian species include a large number of resident and migratory species. Local census figures from the Last Chance Audubon Society account for ?? species, of which ?? are rare, threatened, or endangered.

### Waterfowl??

Bald Eagles utilize the Missouri River-Hauser Lake corridor, including the Lake Helena area. Spring migratory bald eagles generally move through the area quickly, while the duration of the Fall migration is governed by weather and available food supply. The spawning of kokanee salmon can provide a significant food source and have attracted up to ??? eagles at the peak period in November. (Total and peak numbers appear to fluctuate with the availability of the salmon.) The highest concentrations are usually below Canyon Ferry Dam and Hauser Dam and at the mouths of tributary streams. Eagles may also utilize other water bodies in the Planning Area. Wintering bald eagles have been observed at Lake Helena.

Other raptors are observed within the Planning Area, including rough-legged hawks, red-tailed hawks, marsh hawks, ferruginous hawks, golden eagles, and peregrine falcons.

## 2.2. Population and Population Trends

The population trends of the Planning Area reflect those of the County, outlined in Section ?? The Helena Valley was relatively agricultural until the 1970's, but has since accommodated the largest percentage of growth the County. Based upon well log filings and septic system permits, the unincorporated area experienced two significant periods of growth. The last half of the 1970's saw the first real expansion of suburban development into the Valley. This was followed by a period of much slower growth in the 1980's. The first half of the 1990's witnessed a larger expansion that is still continuing at this time.

Missouri River. However, the area is attractive for year-round living due to the recreational amenities and rural lifestyle. Additional development in the area can be expected.

## 2.3. Landownership

Lands held in private ownership comprise approximately 66% of the Helena Valley Planning Area. Some of this private land is held in moderate to large size ranches and farms, including Seiben, Running W, McMaster, Diehl, and RV ranches. Numerous ranchettes (5-25 acres) have been established in the areas of Birdseye, Sweeney Creek, Colorado Gulch, the Helena Valley, North Hill, and the Spokane Bench. Smaller private parcels have been created throughout the Area, but concentrations of higher density development (outside of municipalities) are principally found on the west side of Helena, the west Helena Valley, and the southeast Helena Valley.

Publicly owned lands comprise approximately 31% of the land area in this planning area, which constitutes a smaller percentage of public land than is found in the other rural areas of the County. The U.S. Forest Service (Helena National Forest) manages 22% of the land area which is located in the southwest and western portions of the Area. These lands are the headwaters of the Tenmile, Sevenmile, and Threemile Creek drainages, generally located north of the drainage divide with Jefferson County and along the eastern slopes of the Continental Divide. These lands are generally managed for grazing, timber production, recreation, wildlife, and watershed resources.

The U.S. Bureau of Land Management (Headwaters Resource Area) manages approximately 7% of the land area made of several parcels scattered within the Planning Area. The largest block of BLM ownership is in the Scratchgravel Hills and south of Austin Road in the Birdseye area. Other blocks

of ownership are located in the North Hills east of Interstate 15 and in the vicinity of Hauser Lake. BLM lands are generally managed for grazing, timber production, recreation, wildlife, and mineral resources.

The State of Montana oversees about 2.4 % of the Planning Area. The State controls a number of parcels scattered throughout the Area, some of which are school trust lands. The primary uses of these lands are livestock grazing and wildlife habitat.

Public lands along the Missouri River corridor are primarily managed for public access for water-based recreation activities.

The remaining 2% of the area within the Planning Area is comprised of water bodies.

## 2.4 Area Economy

Government (State, Federal, local), Schools (local, Carroll), ASARCO, BC/BS, Fort Harrison, Medical, Farming/Ranching, Recreational activities. The Planning area includes the Missouri River which is an attraction for trout fishing. Hauser Lake provides numerous recreational activities and attracts summer home residents.

## 2.5. Transportation

Interstate 15, the major north-south highway through west central Montana, passes through the center of the Helena Valley Planning Area and serves as the primary link between Great Falls and Butte. It is functionally classified as an interstate, is part of the National Highway System and is maintained by the MT Department of Transportation. Two interchanges (Capitol and Cedar Street) serve the urban area and one interchange (Lincoln Road) serves the north part of the Area. A fourth interchange (Forestvale) is scheduled for construction in the central Valley in 2000.

Highway 12, the major east-west route through the central part of the state, traverses across the southern part of the Area and serves as the primary link to Missoula. It is functionally classified as an arterial highway, is part of the National Highway System and is maintained by the MT Department of Transportation. It is a two-lane highway east of East Helena, and a four-lane highway westward to MacDonald Pass on the Continental Divide.

North Montana Avenue is a north-south arterial road that is the principal conduit for traffic between the City of Helena and the Valley. The Frontage Road (east of the Interstate) is another north-south collector road providing access to the Valley. Both these roads are maintained by the MT Department of Transportation.

Other major collector roads within the Helena Valley Planning Area include Lincoln Road, York Road, Canyon Ferry Road, Birdseye Road, Green Meadow Drive, and Spokane Creek Road. All these roads (with the exception of Birdseye Road) are part of the State Secondary Roads system and are eligible for funding from State and Federal sources. These roads are maintained by the County Public Works Department.

Minor collector roads include Head Lane, McHugh Lane, Applegate Drive, Floweree Drive, Wylie Drive, Valley Drive and Lake Helena Drive, John G. Mine Road, Sierra Road, Forestvale Road, Mill Road, and Franklin Mine Road. Some of these road segments have bituminous surfaces and some have gravel surfaces. These roads are all maintained by the County Public Works Department.

Local roads in the Planning Area range from asphalt surfaced urban sections with curb and gutter to gravel surfaced rural sections with borrow ditches. Maintenance of these roads may be performed through the County Public Works Department, Rural Improvement Districts (administered through the County), private homeowner associations, or in some cases, private individuals.

Lewis and Clark County, the City of Helena, and the MT Department of Transportation cooperatively developed the Helena Area Transportation Plan Update in 1993. This document provides guidance for addressing the transportation needs of the urban/suburban portion of the Planning Area. Major improvements within the Urban Limits are coordinated and prioritized by the Transportation Coordinating Committee, a body representing the City, County, State, and Federal transportation entities, and includes local citizen members.

Current major projects within the Planning Area include: the Canyon Ferry Road safety project (between York Road and Prickly Pear Creek east of Helena); the North Main reconstruction and widening project (between Lyndale Avenue and North Montana Avenue in Helena); the Euclid Avenue overlay project (between Williams Street and Dearborn Street on the westside of Helena); and the I-15/Forestvale interchange in the central Valley). Due to inefficiencies associated with the Forestvale Interchange project, a package of more effective alternative projects (based on the Transportation Plan) was developed by technical staff (during 1997) and supported by the City of Helena and Lewis and Clark County. The Montana Transportation Commission denied this alternatives package and the interchange project is proceeding at this time.

The Helena Area Regional Airport is located within the City of Helena in the south-central part of the Planning Area. Passenger service is currently provided by one major airline (Delta) and two regional airlines (Horizon, Sky West). Air passenger and air freight traffic have been steadily increasing for several years. The Airport property also contains a National Guard helicopter battalion, a fire training facility, a fire dispatch facility, some Federal offices, and facilities for private planes. The Airport is governed by the Airport Authority Board, an autonomous board of members appointed by the City of Helena and Lewis and Clark County governing bodies. Noise influence area

Two railroad lines cross the Planning Area, providing freight services to the Helena area. A major east-west line roughly parallels Highway 12 (but crosses the Continental Divide at the Mullan Tunnel) and is operated by Montana Rail Link. Current rail traffic on this line is about ?? trains/day. A north-south line extends northward to Great Falls and is operated by Burlington Northern Santa Fe. Current rail traffic on this line is about ?? trains/day.

## 2.6 Public Facilities and Services

### Law Enforcement

Law enforcement within the Helena Valley Planning Area is provided by several agencies. The municipalities of Helena and East Helena maintain their own police forces that respond within those jurisdictions. The Lewis and Clark County Sheriff's Office provides services to the unincorporated portions of the Area. The Montana Highway Patrol provides law enforcement on Interstate 15 and U.S. Highway 12. Game wardens for the Montana Department of Fish, Wildlife and Parks enforce fish, game and boating regulations and assist other law enforcement officials as needed. Law enforcement on Federal lands is provided by personnel from the US Forest Service, the US Bureau of Land Management, or the US Bureau of Reclamation. The County Sheriff's Department maintains a force of ?? patrol officers and ?? support staff. Law enforcement services are greatly enhanced by the Sheriff's Reserve, a body of ?? volunteer deputies that assist officers. Dispatch of emergency service providers is conducted by the Support Services Division, a cooperative effort between the

City of Helena and Lewis and Clark County. A 911 dispatch system was implemented in 1977; initial planning and preparations are now being conducted to implement an Enhanced 911 program.

The Law Enforcement Center is located in the City of Helena in the south-central part of the Planning Area. Due to distances across the Area, response times can vary, depending upon the location of patrols at the time of dispatch. Response times are also affected by the number of available patrol officers, substandard road conditions, and incomplete posting of road names and addresses in the rural areas.

The expansion of rural-suburban residential development within the Planning Area over the past 20 years has led to increasing constraints on the provision of law enforcement services. The increasing population results in a proportionate demand for services; however, this is compounded by the rural distribution and physical location of residences. The time spent per response has increased, thus reducing the overall level of service in the Area. In addition, the property tax freeze (since 1986) has limited the ability to maintain the same level of service.

#### Fire Protection

Fire protection services are provided by several entities in the Helena Valley Planning Area. The City of Helena has a paid professional fire department that serves the municipal jurisdiction. The City of East Helena has a volunteer force that serves its jurisdiction. The remaining portions of the Planning Area are served by rural volunteer fire departments, including formal Fire Districts, Fire Service Areas, and Lewis and Clark County. Due to the State and Federal ownerships in the region, these entities also provide response to wildland fires.

A unique organization of local fire departments is the Lewis and Clark Rural Fire Council. This body provides for inter-jurisdictional communication, coordination of training opportunities, and other activities. The Council also provides a focus for the mutual-aid agreements that have been developed between the participating fire protection entities. These agreements have proven essential to increasing the level of service provided to the constituents of the area. The mutual-aid structure provides for assistance between fire departments, thus expanding the equipment and personnel resources available to respond to an incident. This mechanism allows for increased utilization of the expensive capital equipment that is necessary for fire protection service and achieves a higher level of service in the Planning Area than could be achieved by any one fire protection entity.

The Westside Fire Service Area is located on the northwest edge of the City of Helena and contains about 3 square miles. Properties within the Service Area are presently assessed an annual fee (\$variable) for services. These services are provided by the City of Helena Fire Department under a contractual agreement with the Service Area.

The Baxendale Fire District provides structural and wildland fire protection to about 91 square miles in the southwest portion of the Area. Properties within the District are assessed a tax levy (34.91 mills) for services. The District has one station centrally located at the intersection of Blue Cloud Road and Highway 12 West; it has recently been negotiating for additional ground to expand its station and related facilities.

The Birdseye Fire District provides structural and wildfire protection to about 26 square miles in the northwest portion of the Planning Area. Properties within the District are assessed a tax levy (9.38 mills) for services. The District has one station centrally located near the intersection of Eagle Ridge Road and the Birdseye Road. In recent years the District has requested voter approval for temporary assessment increases for specific proposes.

The West Helena Valley Fire District provides structural and wildfire protection to about 38 square miles in the west-central portion of the Planning Area. Properties within the District are presently assessed a tax levy (16.70 mills) for services. The District presently maintains two stations, one near the intersection of Forestvale Road and North Montana Avenue and one at the intersection of Valley View Road and North Montana Avenue. Voters approved a tax increase in 1996 to provide funds for construction of a new Valley station to replace the present one; property on Forestvale Road has been acquired and construction is planned in 1998. Several neighborhoods (about 10 square miles) adjacent to the District are in the process of petitioning for annexation.

The East Valley Fire District provides structural and wildfire protection to the central portion (about 33 square miles) of the Planning Area. Properties within the District are presently assessed a tax levy (25.36 mills) for services. The District has one station centrally located at the intersection of Tizer Drive and Old York Road. Several neighborhoods were recently annexed into the District for fire protection services.

The Lakeside Fire Service Area provides structural and wildfire protection to about 65 square miles of the eastern portion of the Planning Area. Properties within the Service Area are presently assessed an annual fee (\$91.20) for services. The Service Area presently maintains three stations, one near the intersection of Lincoln Road East and Hauser Dam Road, one at Lakeside, and one south of the intersection of Canyon Ferry Road and Spokane Creek Road. Two neighborhoods were recently annexed into the Service Area for fire protection services.

The Eastgate Fire District provides structural fire protection to a six square mile area in the southeast portion of the Planning Area. Properties within the District are presently assessed a tax levy (42.56 mills) for services. The District has one station centrally located in the Eastgate Subdivision. Several neighborhoods were recently annexed into the District for fire protection services.

The Fort Harrison Veterans Administration facility maintains a small paid professional fire department that responds to incidents at the VA hospital and on the military reservation. There is current discussion about a cooperative agreement between the Fort and the County relating to coverage on the reservation and in the vicinity.

The Lewis and Clark County Volunteer Fire Department is charged with responding to wildland fires on private lands in those portions of the County not within a formal fire district or service area. It has limited ability to respond to structural fires due to insufficient equipment and personnel training. The Department houses its equipment at the County Shop complex on Cooney Drive.

Fire response on rural Federal and State lands is coordinated through the Interagency Fire Dispatch Center, located at the Helena Regional Airport. This is a cooperative effort involving the US Forest Service, US Bureau of Land Management, and the MT Department of Natural Resources and Conservation. Response may include personnel and equipment from these agencies, as well as the Lewis and Clark County Volunteer Fire Department and the local volunteer fire departments.

The Helena Regional Airport has specially trained personnel and special foaming equipment used in response to aircraft accidents. A training facility was recently constructed on the Airport property.

In the past 15 years, the Helena area has witnessed a number of wildfires that have destroyed property, and affected wildlife habitat, scenic resources, and air quality. The most dramatic of these fires were in the North Hills (1984), Squaw Gulch (1988), and the Spokane Bench area (199??). The Tri-County Fire Group was established in 198?? for the purposes of research and public education

about residential/wildland interface areas. The Group has sponsored public displays, lectures, and workshops on the subject. A recent product is the creation of fire hazard rating maps which classify the susceptibility of an area to wildfire hazard, based upon slope and vegetative fuel conditions. Most of the Helena Valley Planning Area has been mapped, with the exception of the western 1/3 of the Area. High fire hazard areas exist in several areas including the South Hills, the Scratchgravel Hills, the North Hills, and the Spokane Hills. Any development in these areas should provide for mitigation measures to reduce the associated risks.

#### Emergency Medical Services

In 1998 the Board of County Commissioners established a County-wide Ambulance District to address the coordinated provision of such service in the County; the County will authorize an ambulance service provider in the near future. Presently, ambulance service in the Helena Valley Planning Area is provided from Saint Peter's Hospital and Ambulance Service, located on the southeast side of Helena. Due to distances across the Area, response times can vary. Response times are also affected by traffic congestion in the vicinity of the hospital, substandard road conditions in some areas, and incomplete posting of road names and addresses in the rural areas.

Emergency medical response is available from most of the local volunteer fire departments. A major component of the West Helena Valley Fire Dept. dispatches are emergency medical responses. Other fire companies with the ability to be first responders are Baxendale, East Valley, Lakeside, Eastgate, East Helena, and Helena. These companies can respond and provide emergency medical service on-site, but they are not authorized to transport victims. Due to distance from the hospital and access conditions, such service by the fire companies is essential to improve response time and the associated level of service.

#### Water Supply

Outside the municipal water service areas of Helena and East Helena, the population of the Planning Area relies upon groundwater as a drinking water supply. The major source of groundwater in the Helena Valley is the Valley-fill alluvial aquifer; beyond the limits of this aquifer, water supplies are obtained from more limited bedrock aquifer systems or small alluvial aquifer systems associated with stream courses.

There are over 50 public or community water facilities located in the Planning Area. The major facilities are the Cities of Helena and East Helena which serve about 60% of the population. Other systems serve the major subdivision areas of Treasure State Acres, Tenmile Creek Estates, Pleasant Valley, Forestvale North and South, Ranchview Estates, Townview Estates, Mountain Heritage, Leisure Village, Homestead Valley, Eastgate Village, and La Casa Grande; several smaller subdivisions and mobile home parks are also served by central systems. These subdivision systems are governed by some local body such as a homeowners association, water users association, or water district. The MT Dept. of Environmental Quality has regulatory control over the systems and requires periodic sampling and reporting. The provision of central water systems can provide opportunities for higher density land use patterns. Wellhead protection for these water supplies is also an issue of concern.

Water supply for the lower density suburban and rural development is generally provided by individual on-site wells. Current design standards require minimum well depths, well production, and separations. However, there is no analysis of cumulative effects of development on the quantity or quality of the water supply. There are several locations in the West Helena Valley where older subdivision development provided for individual wells and/or individual wastewater treatment systems on small lots, where wells are located in a shallow aquifer zone, and where soils have some

constraints for treatment of effluent. These locations may have a higher potential for contamination of water supplies from domestic uses; increased nitrate levels have been measured and monitoring continues by the Water Quality Protection District.

The City of Helena utilizes several water resources to supply the daily needs of the community. The principal resource is the Tenmile Creek watershed, Chessman and Scott Reservoirs, and the Tenmile Water Treatment Plant (located about 8 miles west of the City); this system produces 8 mgd, or about 90% of the average daily use and 60% of the maximum daily use. The other principal resource is the Missouri River which is used to meet peak demands in the summer. The Missouri River Water Treatment Plant processes 4 mgd, or about 30% of the maximum daily use; however, this facility is in poor condition. The City of Helena Water Master Plan was updated in 1997. The demand projections are based on increased population and some expansion of the City water service area, resulting in a maximum day demand of 18 mgd in year 2020. A principal direction of this plan was to investigate the development of the City's groundwater reservation of the Helena Valley-fill alluvial aquifer. This was determined to be a more cost-efficient option for meeting the projected needs of the municipality; the other principal option was reconstruction of the Missouri River Water Treatment Plant and continued use of surface water. The first phase of this effort has been initiated and one test well has been drilled. Results of this investigation will be available in the spring of 1998. Other aspects of the Plan include improvements in the distribution system, a water conservation element, and construction of an eastside reservoir (4 mg) which would expand the potential service area on the east side of the community.

The City of East Helena utilizes two sources of water to meet its needs. A collection gallery located on McClellan Creek (about 3 miles south of the City) captures surface/groundwater that is piped into the community system; this system meets 100% of the average daily demand (0.62 mgd) of the community. A well field located north of the City along Wylie Drive produces groundwater from the Valley-fill alluvial aquifer; this system provides supplemental water to meet the maximum daily demand of 1.43 mgd. The City completed a Water Master Plan in 1995 which identified storage capacity constraints (related to maintaining fire flows) that limit its ability to expand its water service area. The City is currently considering replacement, relocation, and expansion of its storage facility to meet community needs. The City is also examining options for metering water use.

#### Sewage Disposal

Wastewater treatment in the Planning Area is provided by central treatment systems and individual on-site treatment systems. The City of Helena operates a mechanical treatment plant located at the north edge of the City, which treats the municipal wastewater, about 60% of the Area's wastewater. There are 7 lagoon systems located in the Helena Valley which treat about 10% of the wastewater generated in the Area. The remaining 30% of wastewater is treated through individual on-site treatment systems. Lewis and Clark County adopted the Helena Area Wastewater Treatment Facility Plan in 1998, which addresses wastewater issues in the Helena Valley (this study is adjunct to the City of Helena Wastewater Facility Plan). The Plan recommends continued groundwater monitoring to identify contamination related to wastewater, upgrades or replacement of poorly performing treatment systems (lagoons and individual systems), and development or expansion of central systems (where feasible) to accommodate additional development.

The City of Helena updated its Wastewater Treatment Facility Plan in 1997. A component of this study was an analysis of regional wastewater treatment alternatives. The Plan recommends improvements at the existing treatment plant in order to provide capacity to meet projected demands and to operate in compliance with regulatory standards (the plant discharges into Prickly Pear Creek). The demand projections are based on increased population and some expansion of the City

wastewater service area, resulting in a maximum daily flow of 5 mgd in year 2020. The Plan also identifies other improvements in the collection system to improve efficiency in the system. A portion of the Custer Avenue interceptor line is near capacity; expansion may be necessary to accommodate additional development on the westside of Helena.

The City of East Helena operates a central collection system and a 3-cell aerated lagoon facility located about 1/4 mile north of the City. The treatment facility was constructed in 1982, has a design capacity of 0.63 mgd, is in good condition, and has a permit for discharge into Prickly Pear Creek. Operational improvements are being pursued.

Fort Harrison operates a 2-cell lagoon facility located on Head Lane near Sevenmile Creek. This facility appears to have leakage problems and the Fort is investigating alternatives for treatment of its wastewater. One option under consideration is extension to the City of Helena; locating and sizing this line could influence development patterns in the vicinity and accommodate additional development on the westside of Helena.

Areas of higher density development served by individual on-site wastewater treatment systems include: Forestvale Subdivision, Big Sky Subdivision, Homestead Valley Subdivision, Sunny Lane Subdivision, La Casa Grande Subdivision, Motsiff Road, and portions of the westside of Helena.

#### Solid Waste

The majority of the Helena Valley Planning Area is included in Scratchgravel Landfill District. The purpose of the District is to provide for landfill facilities for disposal of solid waste. The District operates a Class 2 landfill located in the northeast Helena Valley. This facility was licensed in 1994 and has an available life of 47 years, based upon projections. The landfill is operated by the County Public Works Department, overseen by the Scratchgravel Solid Waste Board, and is governed by the Board of County Commissioners. The landfill also serves as the repository for solid waste for the City of Helena and the City of East Helena, pursuant to interlocal agreements. The landfill is not open to the public; all local waste received at the landfill is routed through the City of Helena transfer station for the purpose of controlling the deposit of hazardous or other wastes that do not conform with the Class 2 license and to reduce traffic to the landfill. All real property with improvements valued over \$5,000 and all mobile homes within the District are assessed an annual fee. The current assessment is \$81.60/ year for the transfer station and landfill services. A partial fee may be assessed for properties documented as seasonal occupancies; commercial rates are currently under consideration. The landfill is also permitted to receive regional waste from Broadwater and Jefferson Counties; currently, only waste from northern Jefferson County is received on a contractual basis.

There is no governmental collection of solid waste outside of the two municipalities in the Planning Area. Landowners either haul their own waste to the transfer station, or contract with a local collection firm for such service.

Recycling is conducted through a partnership between the City of Helena and Lewis and Clark County. Each ton of waste received at the Transfer Station is assessed a surcharge (\$4.62) to fund a recycling program. Commodities accepted for recycling include aluminum and steel cans, glass, certain plastics, newsprint, magazines, corrugated cardboard, white goods, tires, batteries, waste oil, antifreeze, and yard and wood wastes. There were 4,116 tons of such materials diverted from the landfill in FY-97, constituting approximately 10% of the total waste stream. Most commodities are processed through local private sector recyclers; glass is processed at a local cement company and waste oil is used as heating fuel at the City Shop.

Municipal and County green waste composting has been available since 1994 through a private contractor. Such wastes may be separated at the transfer station and transported to the compost facility near the landfill. The City of Helena will soon issue a request for proposals to address bio-composting of green waste and municipal sewage sludge (which is currently landfilled).

There is a need for a Class 3 or Class 4 landfill in the Planning Area. Due to the lack of such a facility, demolition, construction, and other qualifying wastes are disposed of at the Scratchgravel Class 2 site, thereby reducing its capacity and life. Such a facility would also provide a more economical means for disposal of such wastes.

#### Utilities

Electrical power is generated and distributed in the Planning Area by Montana Power Company (MPC). Hauser Dam, located on the Missouri River in the northeast corner of the Area, was constructed in 1911. This is a run-of-the-river hydropower facility with a generating capacity of 16.5 MW; flows are governed by operations at Canyon Ferry Dam, which is controlled by the US Bureau of Reclamation. The FERC license (50 years) for the Hauser Dam facility is up for renewal and MPC has applied for a new license. Currently, MPC is planning to sell all its generating facilities, but retain its distribution system. The City of Helena and Lewis and Clark County are investigating the potential for purchase of this and other hydropower facilities on the Missouri River proposed for sale. The electrical demands of the Area exceed the available locally generated capacity; additional power resources are imported from BPA and other sources.

Several major transmission lines cross the eastern half of the Area. These range from 69-100 KV and are operated by MPC or WAPA. The remainder of the electrical distribution system is operated by MPC. Generally, there are no major capacity constraints in the system; however, some rural locations may have specific distribution constraints. The recent growth in the 1990's and related demand has been accommodated by the system, although extensions for new services can get backlogged at times.

Telephone services in the Area are provided by a number of entities. US West has historically been the principal provider, and maintains a network of lines (principally underground). The recent growth in the 1990's and related demand has been accommodated by the system; however, US West experienced significant delays in providing extensions for new services. Since deregulation of the industry and advancements in fiber optic and cellular communications technology, other providers are also providing services in the Area. Several communications towers have been sited in the Area, some of which have been controversial due to visual and/or other impacts.

Natural gas is also distributed in the Planning Area by Montana Power Company. The extent of the distribution system is generally confined to the Helena Valley. Some major supply lines and pump stations were installed in the Valley in 1990's to increase the service area and the capacity of the distribution system.

The Yellowstone Pipeline maintains three major petroleum product transmission lines in the Planning Area. These are related to the bulk storage facility located at the east edge of the City of Helena. A rupture and spill occurred in the East Valley in the 1970's, the effects of which have been mitigated.

#### Education

There are four elementary school districts within the Planning Area: District #1 (Helena), District #2 (Kessler), District #4 (Canyon Creek), and District #9 (East Helena). All these Districts are included in the Helena High School District.

District #1 has the largest student population (5,156) of all the elementary districts in the County. It serves the majority of the City of Helena and the majority of the Helena Valley. It operates 12 elementary schools, each providing Kindergarten through 5th Grade curricula. Three schools are located in the Helena Valley: Warren School is centrally located in the Valley and has a current census of 270 students; Jim Darcy School is located in the northwest Valley and has a current census of 260 students; Rossiter School is located in the west Valley and has a current census of 450 students. The District also operates two middle schools, both of which are located in the City of Helena. These schools provide Grades 6th-8th curricula and currently serve 1,926 students.

District #2 is located in the southwest part of the Area and operates the Kessler Elementary School, located on the west edge of the Helena urban area. This facility provides for Kindergarten through 6th Grade curricula and currently serves 310 students. Students in 7th and 8th Grades attend middle school in District #1 on a tuition basis. Due to growing student population and limited expansion, consideration is being given to annexation of District #2 into District #1. Similar circumstances in the 1980's led to the annexation of a suburban school district (#3) into District #1, providing more flexibility in the use of facilities.

The southern portion of District #4 is located in the northwest corner of the Helena Planning Area. The District operates the Canyon Creek School which provides K-4th curricula and serves 10 - students at this time. The students from the Birdseye area attend classes in either District #2 or #1 on a tuition basis.

District #9 operates two elementary schools and one middle school in the East Helena area. Eastgate School is located in the County and provides K-5th curricula and serves approximately 350 students. The District recently purchased a site east of and adjacent to East Helena and has requested annexation of the site for municipal services.

The high school district of District #1 covers the entire Planning Area; it operates 2 high schools in Helena which presently provide 9th-12th Grade curricula and serve about 3,000 students. Each school is undergoing expansion to accommodate anticipated student population.

School transportation is an important factor in the Planning Area. State statutes require districts to provide transportation for any students located more than three miles from a school facility. This policy was established in the 1920's in an effort to provide equal educational opportunities for agricultural-based students. The suburban land use patterns established in the Planning Area during the last three decades has created an increased transportation burden. Where local elementary facilities reach capacity, additional students are bused into schools that are below capacity.

annexation issue??

### **3. Analysis of Existing Land Use**

#### **3.1 Residential Development Patterns**

The townsites of Wolf Creek and Craig create concentrations of residential development in a mixture of housing styles from mobile homes to site-built construction. Most residential development consists of single-family dwellings. Outside of the townsites, residential development tends to be rural in nature. With the exception of the Missouri River Corridor, residences tend to be spread out among the numerous ranches that comprise the bulk of the Planning Area. Smaller concentrations of development can be found in the Lyons

Creek drainage south of Wolf Creek and on the Missouri River Tracts, the former Buchanan Ranch east of Craig. Second home and recreational home development concentrations are located along the Missouri River-Holter Lake Corridor including both seasonal and year-round residences.

Conflicts between residential development and recreational users along the Missouri River-Holter Lake corridor may increase as development continues.

### 3.2 Commercial Development Patterns

Commercial development within the Planning Area is primarily limited to the townsites of Wolf Creek and Craig and Holter Lake. Wolf Creek includes several restaurants and bars, two motels, a gas/convenience store and several recreational outfitters and guide services. Commercial services at Holter Lake include two marinas and a bar/restaurant. Commercial development in Craig includes one store, two bar/restaurants, and two recreational outfitters and guide services. The rural portion of the Planning Area includes bed and breakfast operations as well as recreational outfitters and guide services. The Planning area does not include any full-service grocery stores or other retail stores. Residents must travel to Helena or Great Falls for traditional commercial amenities found in larger towns.

### 3.3 Industrial Development Patterns

The principal industrial developments within the Planning Area include the ASARCo smelting facility at East Helena, the petroleum product bulk storage facility just east of Helena and related transmission lines, Hauser Dam and hydroelectric facilities, rail lines and switching yard, several gravel quarry operations, and several wastewater treatment facilities.

### 3.4 Public or Governmental Uses

### 3.5 Parks and Open Spaces

The Planning Area does not contain any County owned park facilities. The State of Montana maintains several waysides, fishing access points, and campgrounds that primarily serve the recreational needs of travelers along the Recreation Road and fishing and boating activities on the Missouri River-Holter Lake Corridor.

The Lewis and Clark County Voluntary Agricultural Land Conservation Program identifies significant open space and recreational values within the Planning Area. Recreational values are primarily associated with river corridors including the Missouri River-Holter Lake area, Little Prickly Pear Creek, Little Wolf Creek, and the Dearborn River. "High Quality Scenic Areas" as identified in the Program include the Wolf Creek Canyon along the Recreation Road and Interstate 15 and along the Missouri River-Holter Lake corridor. Highway 287, the Recreation Road, and Interstate 15 provide travelers with outstanding views of the rural open spaces. The relative lack of billboard advertising and other road signs enhances the roadway corridors. The large expanses of open ranch lands contribute to the unique open space nature of the Planning Area.

### 3.6 Agricultural Uses

#### 4. Population Growth and Future Land Use Needs

The absence of job opportunities and distance from commercial amenities has served to discourage new persons from moving into the area. Population increases are general due to second home and recreational home development along the Missouri River-Holter Lake Corridor.

Topographical constraints, high groundwater, and floodplain in the Wolf Creek townsite severely restricts the townsite's ability to expand.

Development pressures in the Missouri River-Holter Lake corridor can be expected to increase which in turn creates more demand for public services.

# Helena Valley Planning Area Priorities

The following planning priorities have been identified through the stakeholder interviews, public workshops, and the work of the Lewis and Clark County Comprehensive Plan Citizens Advisory Group. They represent the issues that have been emphasized in these forums and therefore have been identified as priorities in the short term (five years). The focus on these issues is not intended to exclude the broader framework of the Countywide goals and policies. Rather they are intended to focus the effort of Lewis and Clark County in the Helena Valley Planning Area.

## Planning Priorities

The Helena Valley is facing considerable growth and development pressure. Citizens of the Helena Valley planning area have many separate and interconnected concerns related to land use, transportation and the natural environment. In the Helena Valley Planning Area Lewis and Clark County should focus its resources on the action items outlined below:

A. Opportunities for all types of development must be made available, while at the same time assuring that adverse impacts related to this development is minimized. ~~Establishing preferred development areas (PDA's)~~ Identifying those areas where growth will occur can help to direct the location and design of new development, to create a more cohesive community, and to minimize initial and future costs to taxpayers is a way to address these growth related issues.

### Action Items:

Identify areas that may be classified as the following ~~be included in the preferred development areas,~~ using the following criteria:

1. Areas already developing in an urban pattern and that have existing public facilities and service capacities,; and
2. Areas already characterized by an urban pattern that will be served efficiently by public facilities in the near future (five years) should to be designated as Urban Growth Areas; and
3. Areas that will be served efficiently by public facilities in the five to twenty year period.

~~Once established, preferred development areas should be amended no more often than once per year.~~

- New development should be encouraged to connect to public services whenever practical and provide the future opportunity for connections when not.
- New development should be encouraged to be contiguous to existing development in order to avoid the long term cost to tax payers of providing services to an inefficient development pattern.
- Encourage subdivision design in the preferred development areas in a fashion that can be converted to higher densities if urban services become available, including cluster design.

B. Development should be encouraged in areas without environmental restraints.

### Action Items

- Allow development in areas that do not have development constraints, such as areas with steep slopes,

within the 100 year flood plain, critical wildlife corridors, wildlife habitat.

C. Improve the level of service of the existing transportation system and establish and maintain an efficient intermodal transportation network.

**Action Items**

- Develop a prioritized maintenance plan related to the Transportation Plan with funding sources identified.
- Repair York Road from Prickly Pear into Helena and the intersection of York Road and Canyon Ferry.
- Encourage alternatives to single occupancy vehicles.
- Provide for connecting streets among neighborhoods

D. Provide a safe pedestrian and bicycle circulation network in the Helena Valley .

**Action Items**

- Consider pedestrian/bicycle needs when planning and designing new roads.
- Provide for improvement and dedication of bikeways and pedestrian paths through developing areas.
- Provide widened shoulders where possible to accommodate pedestrians/bicycles on existing roadways as appropriate, with a preference for physical separation between motorized and non-motorized traffic.
- Encourage mixed use development that integrates compatible residential, office, and commercial uses to reduce the need for automobile trips.

E. Encourage the continuation of viable farming and ranching opportunities.

**Action Items**

- Use the Lewis and Clark County Voluntary Agricultural Land Preservation Program
- Update the Lewis and Clark County Voluntary Agricultural Land Preservation Program
- Convene a task force to study ways to manage rural land changes in the Helena Valley.

F. Work to reduce conflicts between agricultural and residential uses.

**Action Items**

- New residential uses should be required to provide buffers between themselves and conflicting agricultural uses.
- New agricultural uses that conflict with urban development should provide mitigation.
- Educate citizens about the importance of noxious weed management and means to eradicating preventing the spread of infestation of noxious weeds
- Enforce existing weed abatement regulations.

G. Preserve access to public and recreational lands.

### Action Items

- Use the Lewis and Clark County Comprehensive Parks, Recreation and Open Space Plan to guide the siting of new facilities.
- Identify, and when appropriate purchase, rights-of-way providing access to key public and recreational lands.
- Abandonment of public right of ways should be prohibited unless shown to be in the public interest.

### H. Protect and improve water quality and quantity of the Helena Valley watersheds.

#### Action Items

- Adopt the recommendations of the Helena Area Wastewater Study.
- Protect and improve water quality and quantity along Ten Mile Creek.
- Consider extending the water quality district to include the Spokane Bench and Lakeside area.
- Make information about water quality and quantity available, particularly to prospective land buyers.

### I. With increasing population growth, the air quality of the Helena Valley is threatened.

#### Action Items

- Encourage activities that ensure that County and Federal air quality standards are upheld.
- Design and locate new development in ways that minimize additional automobile traffic.
- Encourage the use of alternative cleaner burning fuels.
- Work to mitigate dust from traffic on dirt and gravel roads.
- Develop and implement TDM strategies pursuant to the Transportation Development Plan.
- Examine opportunities for transit, car pooling and other transportation management strategies.
- Promote an integrated street network.
- Conduct public education on what individuals can do to preserve good air quality.

### J. Coordination between the County, Cities of Helena and East Helena in Lewis and Clark County is necessary in order to ensure that land use goals are reached.

#### Action Items

- Establish an agreement between Lewis and Clark County, Jefferson County and the cities of Helena and East Helena for better coordination of growth in preferred development areas.
- Define areas of "city influence" to contain the immediate five year growth projections and negotiate inter-local agreements with the cities of Helena and East Helena for development review.
- Within the inter-local agreements with the cities of Helena and East Helena, establish common development standards, coordinated land use planning, urban service boundary areas and service area amendment processes.

**K.** Planning and design can assist in the development of a sense of community in existing settlement and developing areas of the Helena Valley.

**Action Items**

- Encourage the preservation and protection of existing residential areas and plan future development in a manner which promotes neighborhood settings and environments.
- Provide land use buffers between residential neighborhoods and incompatible land uses.
- Minimize the encroachment of business and/or industrial development on existing neighborhoods.
- Design subdivisions, planned residential developments, multifamily units or other residential projects in a manner which encourages neighborhood environments.
- Provide for integration of individual subdivisions through transportation linkages.
- Encourage the preservation and enhancement of neighborhoods in existing residential areas.
- Plan future development which promotes neighborhood cohesion and pedestrian-friendly environments.
- Encourage mixed use development that integrates compatible residential, office, and commercial uses to reduce need for automobile trips.

**L.** Adequate opportunity for commercial growth and development in the Helena Valley needs to be maintained to meet the needs of a growing population and market place demands.

**Action Items**

- Encourage commercial and office development to locate in cities and within preferred development areas whenever possible.
- Encourage commercial development, such as neighborhood commercial services, in areas that are currently under serviced, when adequate market area population is present.
- Encourage mixed use development that integrates compatible residential, office, and commercial uses to reduce need for automobile trips.
- Encourage cluster commercial development over strip commercial development.
- Large commercial and office developments should be encouraged only in areas served by a major street and where adequate public services can be provided.

**M.** Ensure that all parts of the Helena Valley have adequate fire protection.

**Action Items**

- Ensure that roads can accommodate fire trucks.
- Develop a process to attract more volunteers.