

**Mountain Heights/RiverStone/River Bend
Area Structure Plan**

By-law No. 4977 (to replace By-law No. 4086) August 1999

Amended by By-law No. 5222, July 14, 2003

Amended by By-law No. 5817, June 24, 2013

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1. INTRODUCTION

1.1 INTRODUCTION AND CONTEXT

The westward expansion of Lethbridge across the Oldman River was recommended in the 1964 General Plan. An urbanization plan to guide future development ("The Urbanization of West Lethbridge") was prepared by the Oldman River Regional Planning Commission in 1969. The plan recommended that West Lethbridge be developed as a series of residential villages.

Development of Varsity Village, immediately west of the University of Lethbridge, commenced in 1974. Varsity Village is now almost completely developed and contains approximately 9,000 people. The rapid initial growth of Varsity Village resulted in two additional villages, Indian Battle Heights to the north and Mountain Heights to the south, opening for development by 1980. Indian Battle Heights is now over half developed, with a current population of approximately 4,600. Mountain Heights currently contains approximately 1,800 people. Other residential developments in West Lethbridge include Ridgewood Heights, Heritage Heights, and West Highlands in the north part of West Lethbridge, and Paradise Canyon in the SE corner. The current overall population of West Lethbridge is over 30,000 (see **MAPS 1 and 3**).

The Mountain Heights/Sunrise Estates/ River Bend Area Structure Plan was adopted by City Council in 1986 for an area of some 500 hectares in the south part of West Lethbridge. In September 1999 the plan was renamed the Mountain Heights/RiverStone/River Bend Area Structure Plan. In June 2013 the Mountain Heights/RiverStone/River Bend Area Structure Plan boundaries will be amended to an area of 479 hectares (see Map No. 2A

The City's Municipal Development Plan, adopted by City Council in 1995, reaffirmed that the area covered by this area structure plan will be one of the City's major future growth areas. When fully developed the plan area is projected to contain approximately 20,000 people.

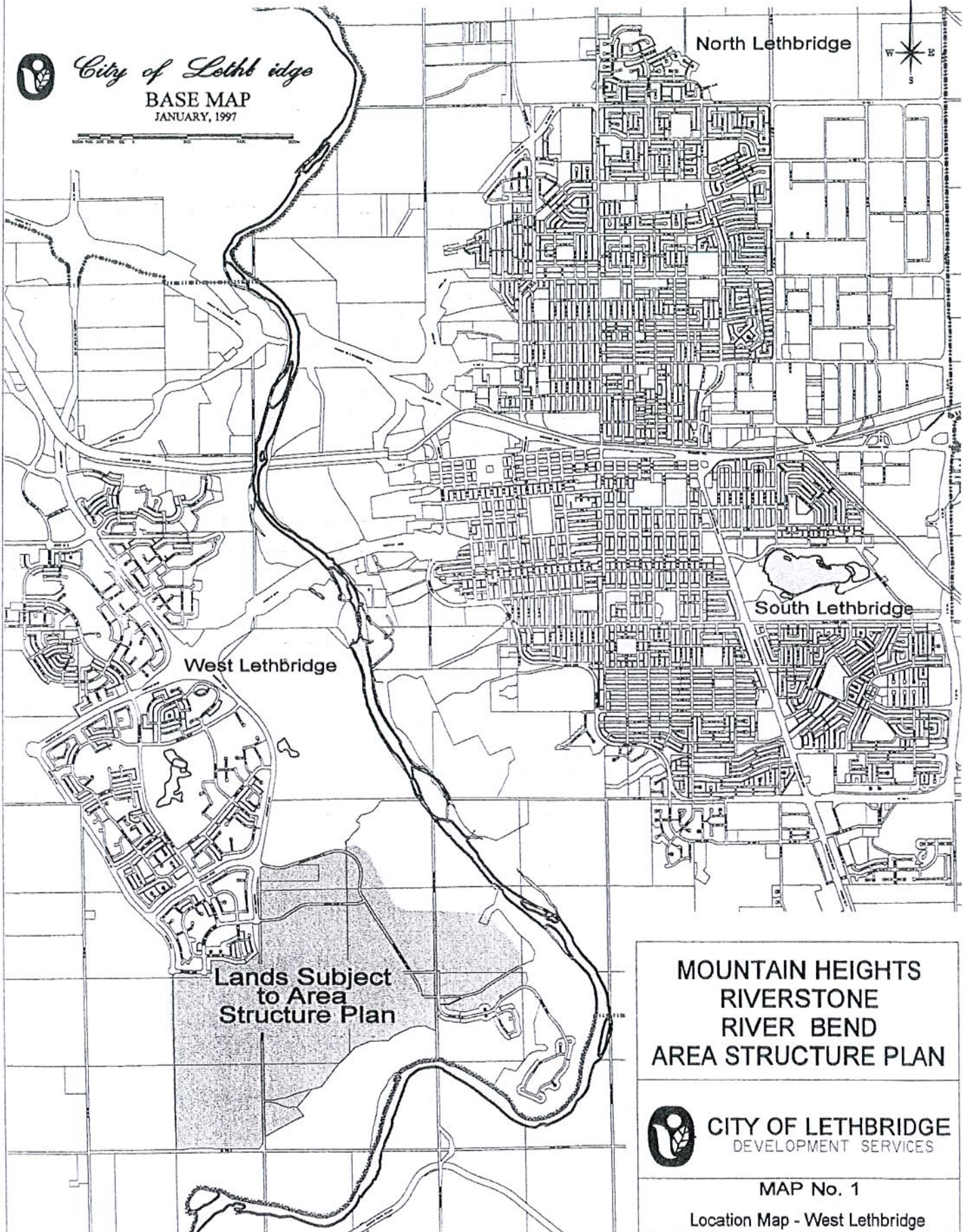
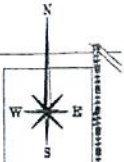
This area structure plan comprises three villages - Sunridge, RiverStone and River Bend. The villages range in size from 112 hectares (RiverStone) to 243 hectares (River Bend). The RiverStone village will likely be opened for development in 2000. Sunridge, Paradise Canyon and RiverStone are expected to absorb much of the City's residential growth over the next few years. *

Although Sunridge, RiverStone and River Bend will share some major community amenities, the three villages will each have their own identity and character. They will be physically separated from each other by the two major arterial roadways - Chinook Trail (the westerly extension of a future third bridge to West Lethbridge) and University Drive, the major north-south arterial in West Lethbridge (see **MAP 8**).

* The plan area does not include Paradise Canyon or the the Mountain Heights village. These areas are now fully developed and don't require the level of planning that an area structure plan provides. The upper bench of Paradise Canyon and the north Mountain Heights is now included in all population, density and student enrollment projections, as they will share services and facilities with the rest of the planning area.



City of Lethbridge
BASE MAP
 JANUARY, 1997



**MOUNTAIN HEIGHTS
 RIVERSTONE
 RIVER BEND
 AREA STRUCTURE PLAN**



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MAP No. 1

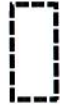
Location Map - West Lethbridge

Map No. 2A

Amended by Bylaw 5817 - June 24, 2013

Study Area West Lethbridge

Legend



Amended Area Structure Plan Area

479 Hectares

1,184 Acres

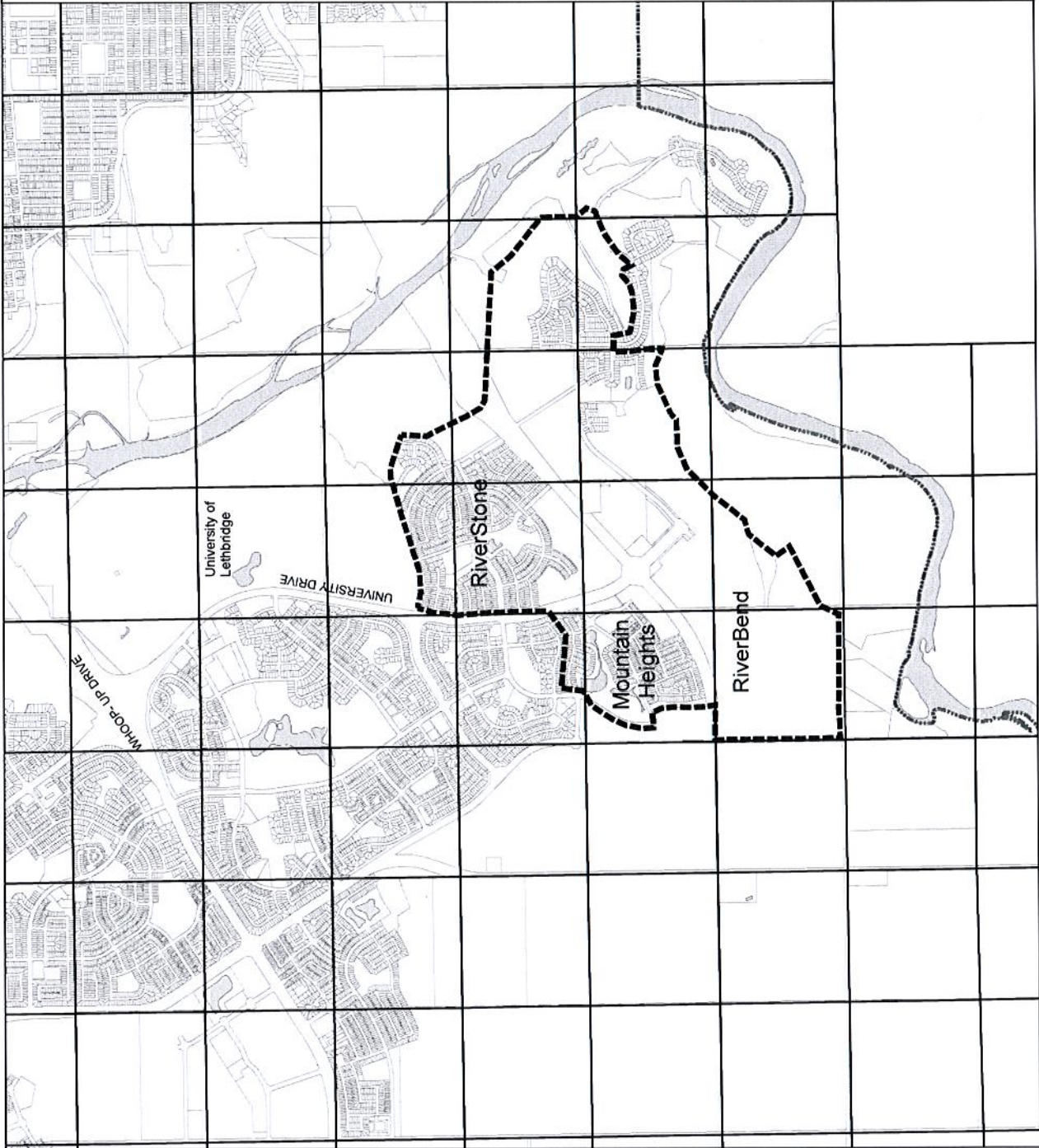
MOUNTAIN HEIGHTS RIVERSTONE RIVERBEND AREA STRUCTURE PLAN



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June 2013



MAP No. 3

**General Alignment
of Future Villages**

----- Future Arterial

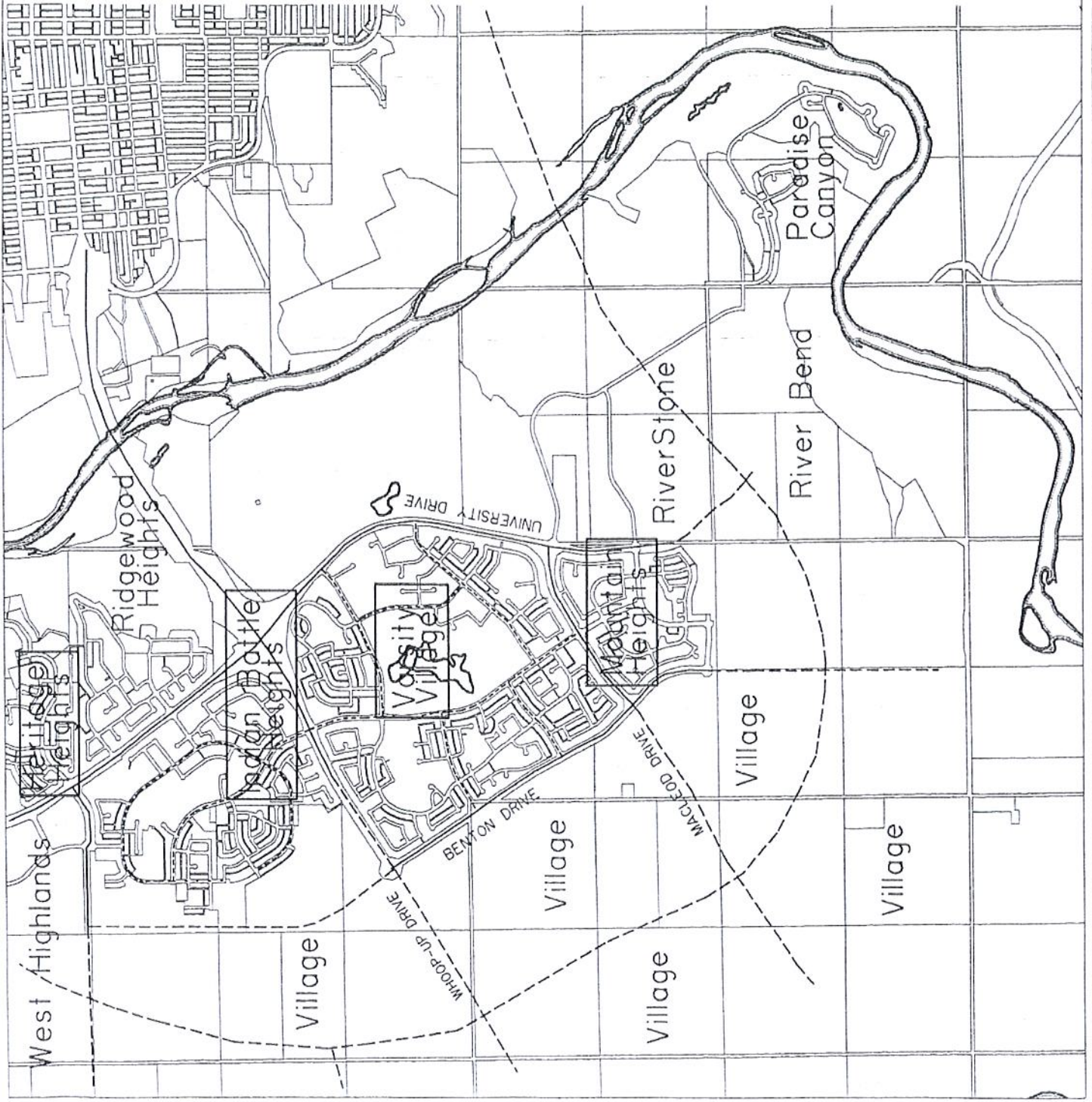
_____ Existing Arterial
R.O.W.

----- Existing Collectors

**MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN**







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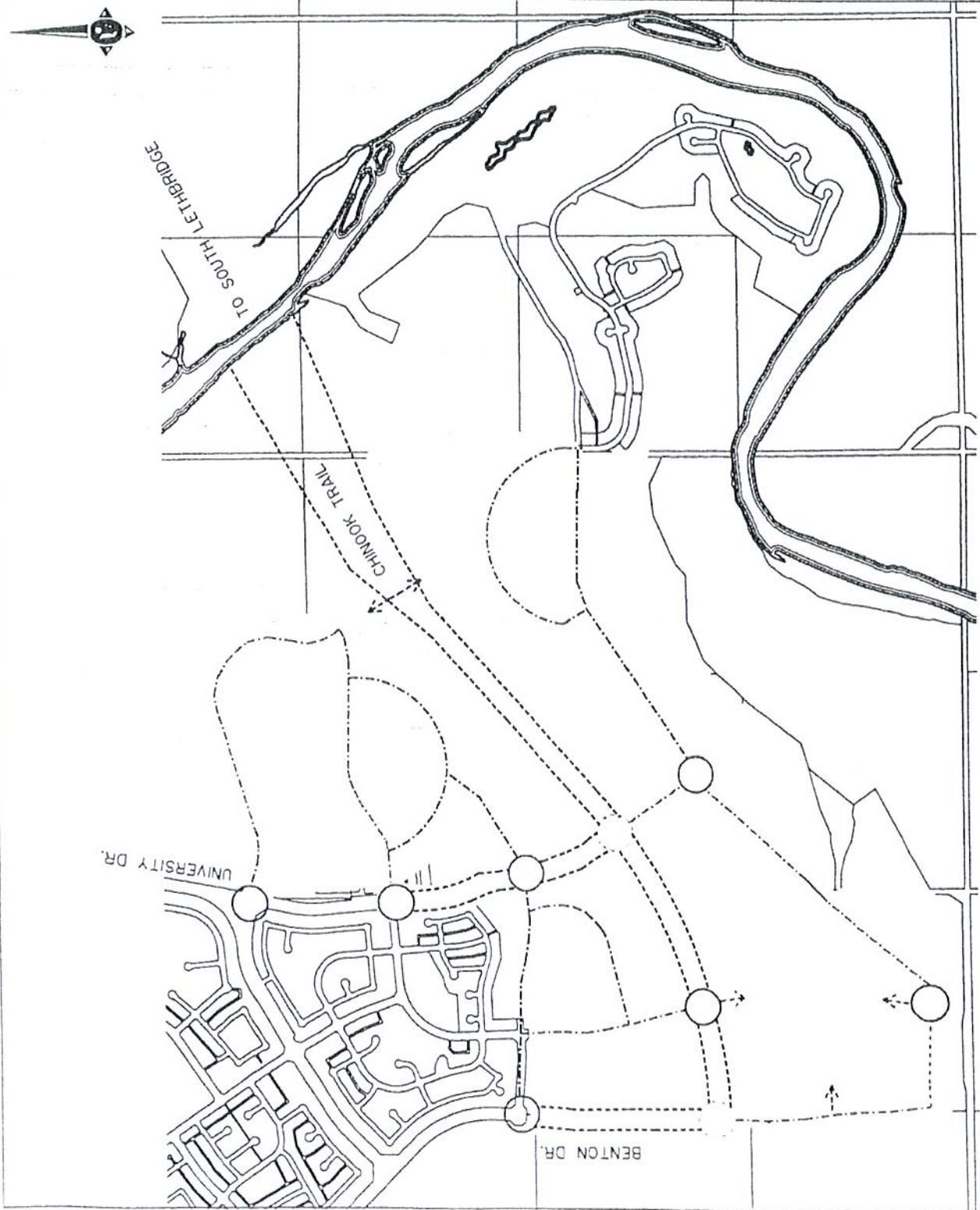


MAP No. 8

Transportation
Concept

-  FUTURE ARTERIAL INTERSECTION
-  FUTURE COLLECTOR INTERSECTION
-  FUTURE COLLECTOR ROADWAY
-  FUTURE PEDESTRIAN/ BICYCLE OVERPASS

MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN



1.2 WHAT IS AN AREA STRUCTURE PLAN?

In the "hierarchy" of plans, area structure plans fall between the Municipal Development Plan, which covers the entire city, and more detailed plans such as outline plans and plans of subdivision. Area structure plans are generally conceptual in nature, and contain both text and maps. The text discusses development concepts and issues relating to developing and servicing the area. The maps normally show general rather than specific locations of major land uses, major roadways, utility servicing, open spaces and trail systems. Actual locations and parcel sizes are determined at the outline plan stage, which follows adoption of the area structure plan. Because the plan area is large and will take many years to develop, a number of outline plans for different parts of the overall plan area will likely be prepared.

Area structure plans are statutory planning documents, and are adopted as city by-laws. Under the Municipal Government Act public hearings must be held before Council gives final approval to an area structure plan.

Section 633 of the Municipal Government Act (1999) states:

- (1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may, by bylaw, adopt an area structure plan.
- (2) An area structure plan
 - (a) must describe
 - (i) the sequence of development proposed for the area,
 - (ii) the land uses proposed for the area, either generally or with respect to specific parts of the area,
 - (iii) the density of population proposed for the area either generally or with respect to specific parts of the area, and
 - (iv) the general location of major transportation routes and public utilities,
 - and
 - (b) may contain other matters the council considers necessary.

1.3 PLAN PHILOSOPHY - RESPONDING TO FUTURE NEEDS

With an ultimate projected population of 20,000, the Mountain Heights/RiverStone/River Bend area could take upwards of 30 years to fully develop. Over that period changing demographics (especially the aging of our population) will result in changing housing markets, recreation trends, transportation patterns, and demand for schools, recreation facilities and trail systems. The City must continue to remain flexible and responsive to changing trends and changing demands. To do so will require working together with residents, community groups and developers to continue to develop quality neighborhoods that meet the city's changing needs.

1.3.1 *Changing Housing Markets*

Meeting the community's changing housing needs is the first of the seven major planning goals outlined in the City's Municipal Development Plan.

A community's housing needs change over time due to changes in consumer preferences, technologies, economic conditions, employment and business opportunities, government policies, and demographics. The impact of the "Baby Boom" generation (people born between 1947 and 1964) on the Canadian housing market has been enormous. The 1970's saw a proliferation of both low density housing and rental accommodation as millions of Baby Boomers left home for the first time, married and started families. In the 1980's many of the Baby Boomers "moved up" to larger, more expensive homes in subdivisions like Tudor and Ridgewood Heights. The 1990's has seen a rapidly growing demand for non-traditional housing types, much of it aimed at the growing "empty nester" (parents whose children have left home) market. These non-traditional housing types have included a variety of condominium types - everything from single detached houses to apartment-style units, mobile home parks and "lifestyle" communities focused around a golf course or other amenity. Security, especially for people who like to travel, and lower maintenance have been two of the major attractions of these types of housing.

It is expected that the housing market will continue to become increasingly specialized. Rare now is the couple who buys a house at age 25 and stays there for 50 years. Increasingly peoples' choices of housing types and locations are functions of age, income levels and lifestyles.

2. SITE ANALYSIS

2.1 TOPOGRAPHY

The study area generally covers the southeast corner of the West Lethbridge peninsula tablelands. As illustrated on **MAP 4**, these tablelands exhibit an undulating or rolling landform in the western portion of the plan area, with a relatively smooth landscape sloping gradually to the coulees and river valley in the eastern part of the study area.

Tablelands rise gradually from the valley edge in the east to a ridge of high points running in an east-west orientation at a distance ranging from 180 to 360 meters from the southern valley edge.

Sloughs and poor drainage areas exist in the study area due to the undulating nature of the topography.

Dominating the landscape around the plan area are the Oldman River Valley and its tributary coulees. Adjacent to the southern and eastern boundaries of the plan area, are found slopes as deep as 90 meters from the tablelands to the valley floor area. Coulee edges are irregular and often spaced between fingers of tableland. Aside from the Paradise Canyon resort development, access, flooding and other environmental factors limit development of flat valley bottomlands.

Several locations along the valley and coulee walls exhibit slope instability and although not within the plan area, will continue to influence the proximity of residential development to the top-of- bank of the river valley.

2.2 OPPORTUNITIES AND CONSTRAINTS

Within the plan area, numerous natural and man-influenced features offer opportunities and pose constraints to development (refer to **MAP 5**). Opportunities should continue to be maximized in outline planning and subdivision design of the area. Effects of constraints should be minimized where they cannot be turned to positive advantage in the final planning or development of the area.

1. Man-Influenced Features:

Man-influenced features within the plan area and its immediate environs include the following:

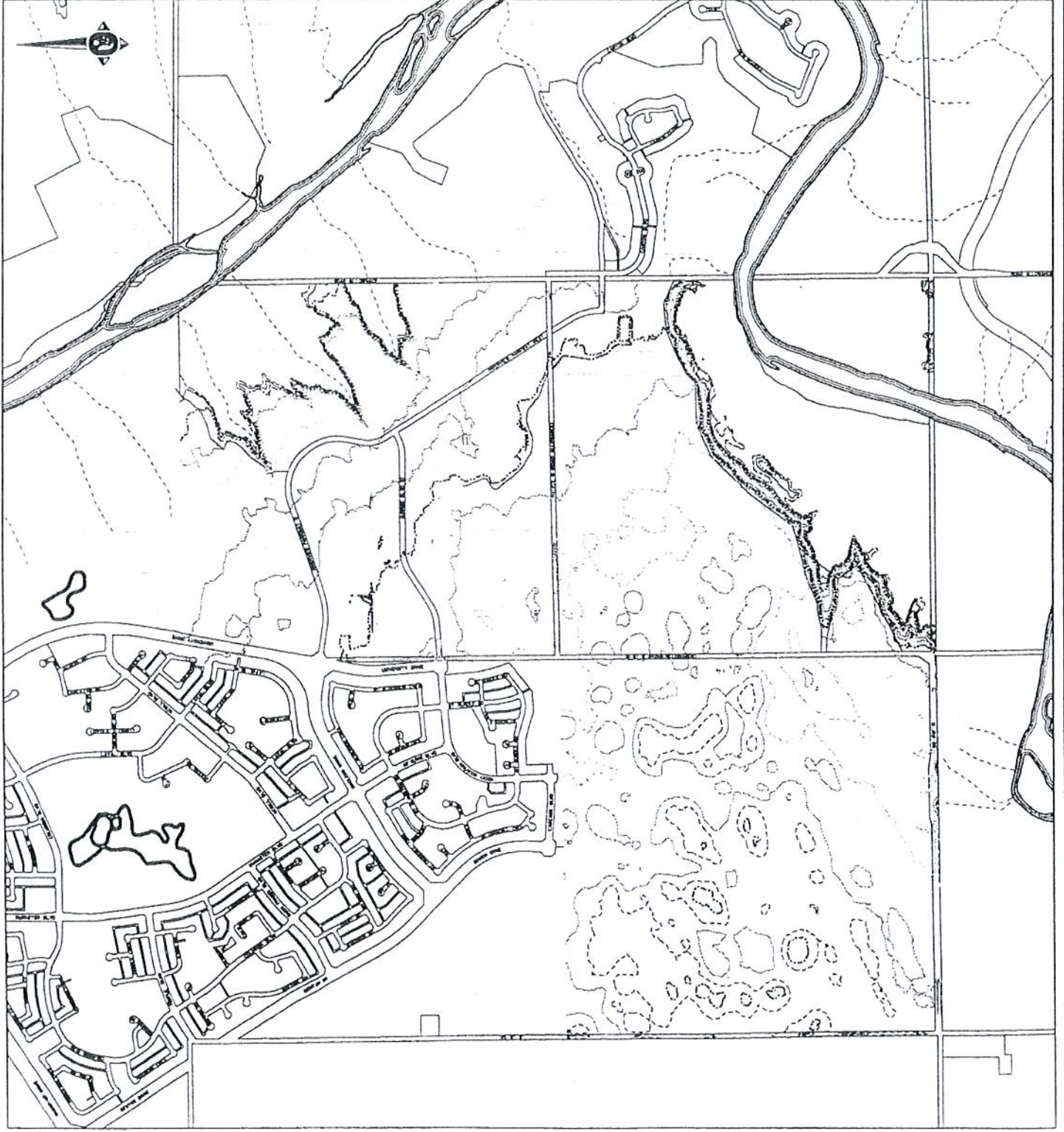
- a. Arterial roadways and fixed intersection locations between the plan area and Varsity Village, the University of Lethbridge and previously developed areas of Mountain Heights;
- b. Nicholas Sheran Park, a major urban park and attraction just north of Mountain Heights;
- c. An irrigation canal extending from the easterly portion of Mountain Heights and then traversing RiverStone area;
- d. University of Lethbridge east of Mountain Heights and north of RiverStone;

**MAP No. 4
CONTOUR ANALYSIS**

-----	904
-----	907
-----	910
-----	913
-----	916
-----	919
-----	922
-----	925
-----	928
-----	931
-----	934
-----	937
-----	940

**MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN**

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MAP No. 5

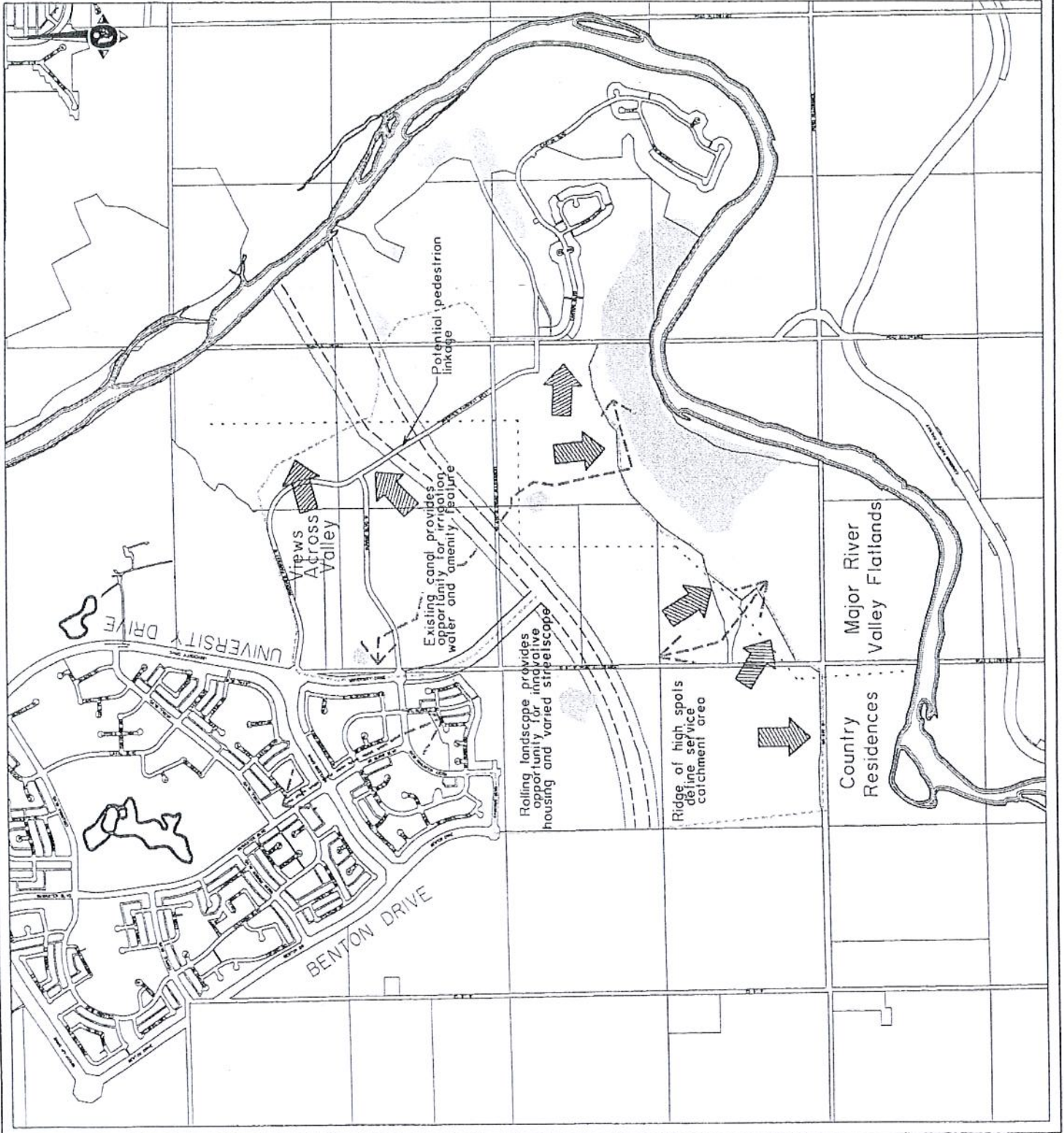
Opportunities & Constraints

- Area of Proposed Villages
- Major Slumps (Slope Instability)
- Proposed Road Alignment
- Potential Pedestrian Linkage
- Existing Transmission Lines
- Traffic Noise
- Drainage Problem Areas
- Major Views

MOUNTAIN HEIGHTS RIVERSTONE RIVER BEND AREA STRUCTURE PLAN



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- e. Power transmission lines crossing the south-east portion of the plan area;
- f. Chinook Trail right-of-way which forms the major division between RiverStone and River Bend (including Paradise Canyon) communities and which will necessitate special noise reduction measures to minimize adverse impact on these communities;
- g. The River Valley Area Redevelopment Plan (RVARP) which provides direction and guidance to development within the Oldman River valley within the City of Lethbridge;
- h. Existing country residences in the western portion of River Bend which will be incorporated into the detailed design of that community in the future.

2. Natural Features:

Natural features within the plan area and its immediate environs include the following:





- a. A visually interesting, rolling landscape in the western portion of River Bend and Mountain Heights which provides opportunities for attractive roadways, innovative housing design and diverse pedestrian and cycle pathways;
- b. Panoramic views from Mountain Heights in the south-west;
- c. Panoramic views of the east-side of the city from RiverStone and eastern portions of River Bend, particularly the upper bench of Paradise Canyon;
- d. Spectacular views of the river valley particularly from the eastern edges of RiverStone and the eastern and southern upper bench of Paradise Canyon in River Bend;
- e. Excellent pedestrian coulee and river valley access through RiverStone and River Bend communities;
- f. Flat lands in the river valley immediately adjacent to the plan area;
- g. Topography that will necessitate special requirements for sanitary and storm sewer servicing in the southern and eastern coulee edge areas.

2.3 LAND OWNERSHIP

Current land ownership within the plan area is illustrated on **MAP 6**. The City of Lethbridge owns approximately 50 % of the area with the remainder under the ownership of a few private owners.

MAP No. 6

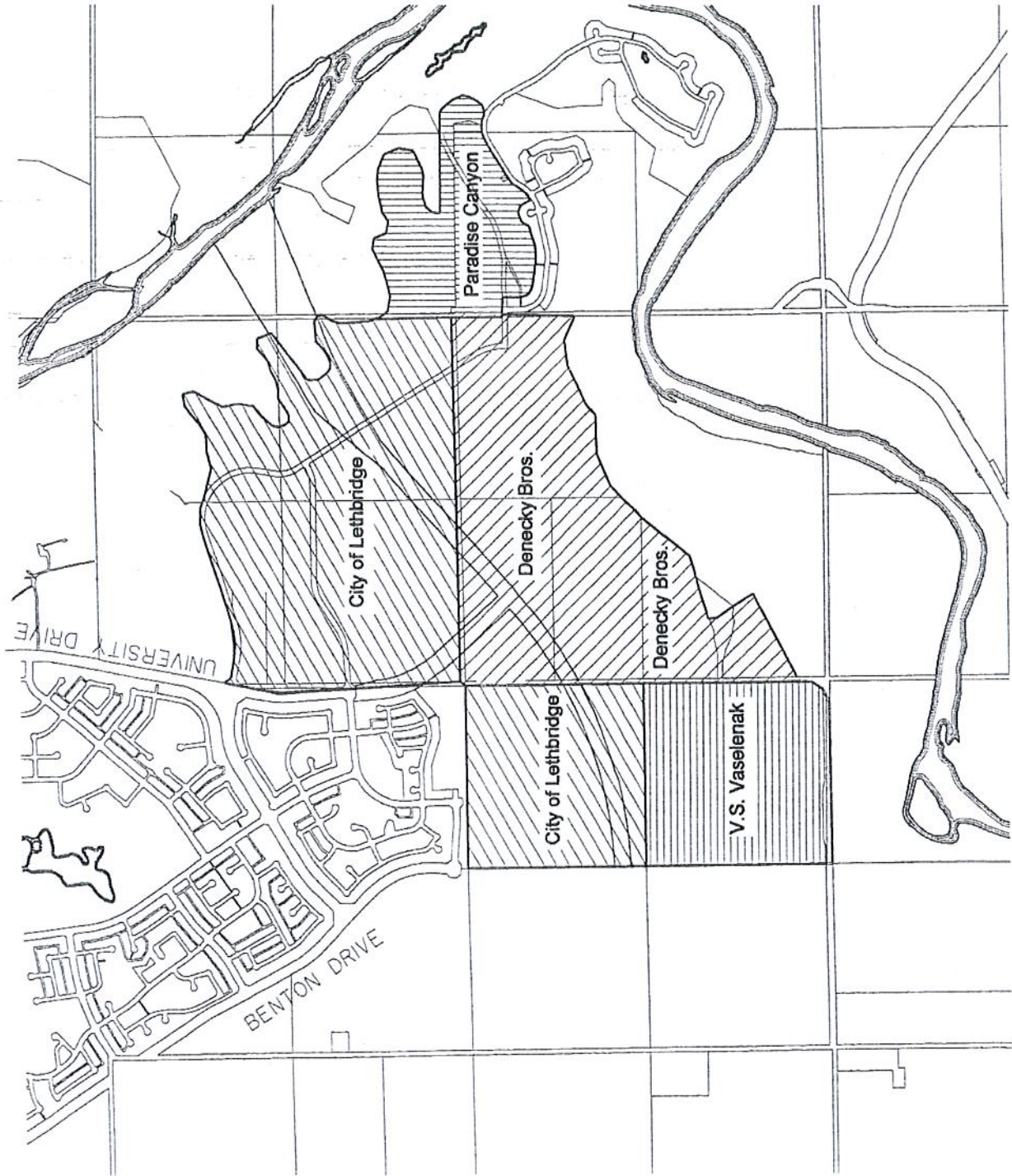
Ownership

-  City of Lethbridge
-  Paradise Canyon
-  Denecky Bros.
-  V.S. Vaselenak

**MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
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3. MAJOR LAND USES

3.1 OVERVIEW OF LAND USES

MAP 7 outlines the general arrangement of land uses in the Mountain Heights, RiverStone and River Bend villages.

The adoption of the City's Municipal Development Plan in 1995 resulted in a new approach to commercial development in West Lethbridge. A 1996 amendment to the Plan to help create a 16 hectare commercial site in the West Highlands area reinforced the idea that West Lethbridge will be most effectively served by large "service centres" near both the north and south ends of University Drive. As a result no "village" sized or local commercial sites are proposed within the planning area. Instead a multi-village commercial site is shown in the River Bend village at the intersection of Chinook Trail and University Drive.

Medium and higher density residential sites have been provided near major intersections and near school sites. The overall housing mix will reflect a trend toward increasing home ownership and single detached housing.

The number of school sites proposed allows for flexibility while recognizing that overall school populations are unlikely to grow as our population ages. Where the need for schools remains unresolved, sites are identified as "possible" school sites, but usually form a major component of the open space system. One public junior high site is proposed in Mountain Heights to serve the entire planning area.

The open space system provides a trail along the top of the river valley and preserves a natural grassland area on the eastern edge of RiverStone. An irrigation canal presently operated by the Lethbridge Northern Irrigation District will be used to create ponds and a creek as a central part of the open space system.

Projected population for RiverStone is 4,350; for Mountain Heights 5,700; and for River Bend 9,900, for a total of almost 20,000.

3.2 RESIDENTIAL DEVELOPMENT

Housing development to date in West Lethbridge has taken advantage of the spectacular 90 metre Oldman River valley, with its lush valley floor flanked by undulating ridges and coulees. The most expensive and exclusive housing in West Lethbridge is located immediately above the valley in Ridgewood Heights, Heritage Heights and Paradise Canyon, as well as in the valley itself in the Paradise Canyon golf course resort community.

As housing moves west, it generally becomes more affordable. For the most part, the subdivisions east of University Drive offer little "starter" or multi-unit housing. The notable exception is Paradise Canyon, which contains a significant amount of upscale multi-unit housing. The villages west of University Drive - Varsity Village, Indian Battle Heights and Mountain Heights, offer a wider range of housing styles, densities and prices, aimed at a broader range of income levels. Varsity Village offers the greatest variety in housing, including a substantial amount of student-oriented rental accommodation.

MAP No. 7

General Land Use

- Medium Density Residential (MD)
- High Density Residential (HD)
- Medium / High Density Residential (MD/HD)
- Park Area (P)
- Park / Separate Elementary School (P/SS)
- Park / Public Elementary School (P/PS)
- Public Building (PB)
- Future Accesses (indicated by arrows)
- Future River Valley Access (indicated by double arrows)

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AMENDED JULY 14, 2003



It is expected that this general east-west pattern will continue in the plan area. The existing parts of Paradise Canyon are upscale developments. As Paradise Canyon moves west however it will likely offer more affordable housing. The east edge of RiverStone also offers spectacular river valley views, and is expected to contain exclusive housing. Toward University Drive, RiverStone will offer more mid-range housing, although the lots next to the central open space feature may be more expensive. Mountain Heights is more like Indian Battle Heights, offering a mix of low density and medium density multi-unit housing, without the amount of higher density housing Varsity Village offers close to the university.

The RiverStone village will be predominantly low density residential, with some small medium density sites for adult housing interspersed throughout the village. Two medium density parcels of approximately three hectares each are shown at next to the Chinook Trail- University Drive intersection. The average overall density for the RiverStone village is projected to be 13 housing units per gross hectare. It is projected that ultimately RiverStone will contain some 1,450 housing units and 4,350 people (see **Table 1**).

The south half of Mountain Heights will be mostly low density residential, with some small medium density sites and perhaps higher density sites located along collector and arterial roadways. When fully developed the Mountain Heights village will probably contain some 1,900 housing units and 5,700 people.

River Bend is a long, linear village running east-west configuration between the future Chinook Trail and the top of the river valley. Paradise Canyon is at the extreme east end of River Bend. Paradise Canyon will continue to develop to the north and west, primarily as a low density residential area. The west half of River Bend will likely be the last area to be developed, and more detailed planning for this area may be many years away. At this point it is projected that densities will ultimately be somewhere between those projected for RiverStone and Mountain Heights, or about 13.5 housing units per hectare. This would give River Bend some 3,300 housing units and 9,900 people.

TABLE 1

SUMMARY OF HOUSING AND POPULATION PROJECTIONS FOR DEVELOPED AND PLANNED VILLAGES IN WEST LETHBRIDGE

	GROSS AREA Hectares	UNITS	POPULATION	AVERAGE P.P.U.	AVERAGE U.P.G.HA.	AVERAGE P.P.G.HA.
Varsity Village*	249	3270	8930	2.73	13.1	35.9
Ridgewood Heights*	53	533	1802	3.38	10.1	34.0
Indian Battle Heights	211	2750	8250	3.0	13.0	39.1
Heritage Heights	84	1050	3150	3.0	12.5	37.5
Mountain Heights	135	1900	5700	3.0	14.0	42.2
RiverStone	112	1450	4350	3.0	13.0	38.8
RiverBend	243	3300	9900	3.0	13.5	40.7

* using 1999 City of Lethbridge census data

3.3 COMMERCIAL DEVELOPMENT

A large commercial site will be located in the area, possibly at the intersection of Chinook Trail and University Drive. As discussed in the Municipal Development Plan, this will be one of two large service centres located along University Drive (the other is now partially developed in West Highlands in the north end of West Lethbridge). The site will serve all three villages, and eventually additional villages that may develop to the west of the plan area.

The anticipated size of the commercial site is between five and ten hectares. Actual size and location will be determined at the outline planning stage and will reflect existing and anticipated market conditions at the time.

No smaller commercial sites are shown at this point in the plan. The City would however be willing to consider small commercial developments in appropriate locations, such as the intersection of collector roadways.

3.4 PUBLIC BUILDING AREAS

Public building areas permit construction of churches, community centres, private clubs, day care centres, social or recreational centres, and public service institutions within the community.

Recent years have seen a decrease in demand for public building parcels in suburban areas, and inquiries by owners of these parcels to rezone them to allow other uses. As a result the plan shows only two sites as public building, one in Mountain Heights, one in River Bend. As with local commercial however, the City will be willing to consider proposals for public building development in other locations considered to be suitable. Normally public building uses are located on or close to public transit routes and at locations that are highly visible.

3.5 SCHOOL SITES

The Municipal Government Act allows municipalities to take up to 10% of the gross area of new residential subdivisions as municipal reserve, to be used as parks, playgrounds and school sites. School authorities work together with the municipality to try to ensure that school sites are designated in locations that will effectively meet the needs of new residential neighborhoods and the city overall.

In terms of school locations, it is extremely difficult to match supply and demand. Demand for schools is normally high in new areas, and keeps shifting further outward as new suburbs are built. Meanwhile, older schools sit in neighborhoods that now have very few children. The Province of Alberta has chosen to deal with this problem not just by building more new schools, but also by bussing students from new areas to older schools with excess capacity.

When selecting school sites it is important to try to find locations that will serve a fairly large population, so that there will be a steady student yield for a number of years. It appears that this will be an even greater challenge in years to come. Projected demographic changes, i.e. the aging of our population, indicate that though the City is expected to maintain a steady population growth, especially in the suburbs, overall numbers of school age children will likely remain at

about their current levels. Thus we can probably expect continued high generation of students in new areas of the city, but lower generation levels in older neighborhoods, even those that contained many children only a few years ago.

Projected future school enrollments based on demographic data and projected numbers of housing units have been made to help determine future school requirements. These projections are outlined in **Table 2**. The projections indicate that in addition to the existing public elementary school (Gerald Probe School in the north part of Mountain Heights) the following additional schools may be required throughout the planning area to meet future needs:

- Two more public elementary schools
- One public junior high school
- One or two separate elementary schools

The potential school sites shown on **MAP 7** are possible sites only. Schools will only be built there if local school authorities and the provincial government both agree that a school is required in that location.

School sites normally provide the major open spaces and play areas in new neighborhoods. As such they are large enough to ensure that adequate play field areas and facilities can be provided, and are used not only by the schools but by the community at large, and, through a "joint use" agreement with the City of Lethbridge, function as integral parts of the City's recreation infrastructure (see Section 3.6.2 (d)).

TABLE 2
SCHOOL ENROLMENT PROJECTIONS

	ESTIMATED NO. STUDENTS PER DWELLING UNIT *	PROJECTED NUMBER OF STUDENTS				TOTAL
		Mountain Heights (total units-1900)	Sunrise Estates (A) (total units-1450)	RiverBend (total units-3300)		
Public Elementary (ECS to 6)	.22	420	320	725	1425	
Public Junior High (7 to 9)	.10	190	145	330	665	
Public Senior High (10 to 12)	.10	190	145	330	665	
Separate Elementary (ECS to 6)	.10	190	145	330	665	
Separate Junior High (7 to 9)	.04	75	60	130	265	
Separate Senior High (10 to 12)	.04	75	60	130	265	

* Based on 1999 actual ratios for West Lethbridge

3.6 OPEN SPACE SYSTEM

3.6.1 *Statutory and Municipal Requirements*

The open space system for the Mountain Heights, River Stone and River Bend villages incorporates concepts and standards developed by the Community Services Department of the City of Lethbridge. In addition, municipal, school and environmental reserve lands will be set aside as required by the Municipal Government Act.

3.6.2 *General Open Space Concepts*

Various open space configurations utilized in existing development in Mountain Heights will continue to be employed in the remaining development lands in the Mountain Heights, RiverStone and River Bend communities. Joint-use school-community park sites will incorporate large playing fields and accommodate a number of larger-scale active recreation uses. Smaller block parks and elementary school sites not part of a community park will provide convenient open space within easy walking distance of neighbourhood residents. Trails and open space linkage systems will accommodate linear recreation activities such as walking, jogging and cycling.

Much of the open space planning for the area will focus on existing features and amenities, in particular the river valley and the irrigation canal which runs through the RiverStone village.

a) Exterior Trail Systems and Linkages

The plan attempts to create opportunities for residents to enjoy the open space and views along the top of the river valley. A trail will be developed along the east edge of RiverStone and the south edge of River Bend. The trail will be built above the top of the valley and will be for the general public's use and enjoyment. No houses will be permitted between the trail and the top of the river valley, and developers will be required to provide access points from adjacent roadways to the trail.

The City's multi-purpose regional trail system will eventually be extended south along University Drive to Chinook Trail, and along Chinook Trail. Developers will also be required to ensure non-vehicular access from inside their subdivisions to the regional trail system. Access locations to both the river valley trail and regional trail will be determined at outline plan stage.

b) Canal Open Space Linkage

Existing irrigation works located in the RiverStone development area should be retained as a source of irrigation water for designated park areas in the three villages. In selected locations where it can be left at the surface, rather than piped underground, the canal can also serve as a distinctive amenity feature.

Ensuring an adequate flow of water in the canal throughout most of the year will require one or more reservoirs to release water into the canal system. Water can also be pumped from

reservoirs to the various park areas within the villages. The recreation potential of reservoirs should also be evaluated within outline planning stages of development.

Canal alignments, whether above or below ground should be used to enhance the open space and walkway systems throughout the three villages. Outline planning of RiverStone is currently about to commence and will provide both active and passive recreation areas consisting of: river valley environmental reserve lands; two centrally located multi-functional feature parks which may also include school sites; creeks and pond enhancement along the existing irrigation channel that meanders through the development area. All of the open space elements will be connected by pathways and walkways.

c) Block Parks

Block parks are small parks ranging in size from 0.6 to 2.8 hectares which are intended for general neighbourhood use. These parks are designed to serve an average population of 1500 or a service radius of approximately 540 meters. Centrally located for easy access, policing and supervision, these parks should be visible from at least one street frontage. Elementary school sites may serve the same function as a block park but would also include a sportsfield. Several small parks have been allocated in the Mountain Heights and River Bend villages.

d) Joint-Use School-Community Parks

These parks are intended to be constructed in conjunction with schools. Ranging between 4 and 5 hectares, these parks will include areas suitable for sportsfields and will be connected to other open space and residential areas through the open space linkage system.

e) Neighbourhood Linkage and Pedestrian-Bicycle System

The neighbourhood linkage system may consist of easements on private property, separately dedicated open space walkways, or a combination of sidewalk and boulevard. The aim of the system is to provide safe pedestrian access to the City's regional trail system and community facilities. With a minimum width of 3 meters, alignment of the open space walkways may vary depending upon location, design and intended use. These linkages will provide a circulation system between major activity nodes such as community parks, schools and commercial areas.

The pedestrian-bicycle linkage system will be developed in conjunction with the proposed collector road way adjacent to the coulees unless demand and resources allow the system to be constructed independently.

4. TRANSPORTATION

4.1 ROADWAY SYSTEM

West Lethbridge uses a hierarchical road system consisting of arterial roadways, major and minor collectors, and local residential roads. A conceptual road network for the planning area showing arterials and some collectors is shown on **MAP 8**. Actual alignment of collector roadways is often not finalized until outline plan stage. Because parts of the planning area will not be developed for many years, e.g. the west part of River Bend, collector road networks have not yet been designed. **MAP 8** shows existing and proposed collector roads in parts of the planning area; in other areas only where collectors might intersect with the arterials.

4.1.1 Arterial Roadways

Arterial roads are designed to move high traffic volumes from one sector of the City to another. There are two major arterials in the planning area - University Drive (north-south) and Chinook Trail, the westward extension of the proposed bridge from 24th Avenue South to the south part of West Lethbridge. These two arterial roads form the boundaries of the three villages and separate them from one another.

The future Chinook Trail bridge will act as an east/west alternative to Whoop-Up Drive. It will not be built until considerably more development occurs in the planning area. Four “at-grade” and one over-pass link are provided along Chinook Trail within the planning area.

Arterial roadways in new residential area normally have a 75 metre right-of-way. This allows for four lanes and a 26 metre buffer zone. The buffer zone provides room for trails and landscaping, and also provides separation distance from traffic noise. The buffer zone is also wide enough to allow for construction of a berm should additional sound attenuation be required. Anticipated traffic volumes on the Trail coupled with proposed adjacent residential land uses, necessitate provision for noise alternation in the design. Sufficient right-of-way will be provided at the outline plan stay for this purpose.

The University and Benton Drive arterials will effectively terminate when they intersect with Chinook Trail, though they will continue as collectors when they enter the River Bend village.





4.1.2 Collector Roadways

The collector roadway system moves traffic from local residential roads to the arterial roadways. The system set out in this plan has been determined by the location of the arterials, the proximity of the river valley and the ongoing development of Mountain Heights and Paradise Canyon.

The collector roadways are internal, i.e. they are contained within each of the villages, but they also link the villages to each other and provide the vehicle and pedestrian crossing points between villages. Where possible collectors leaving one village will line up directly across from those entering the next village.

MAP No. 8

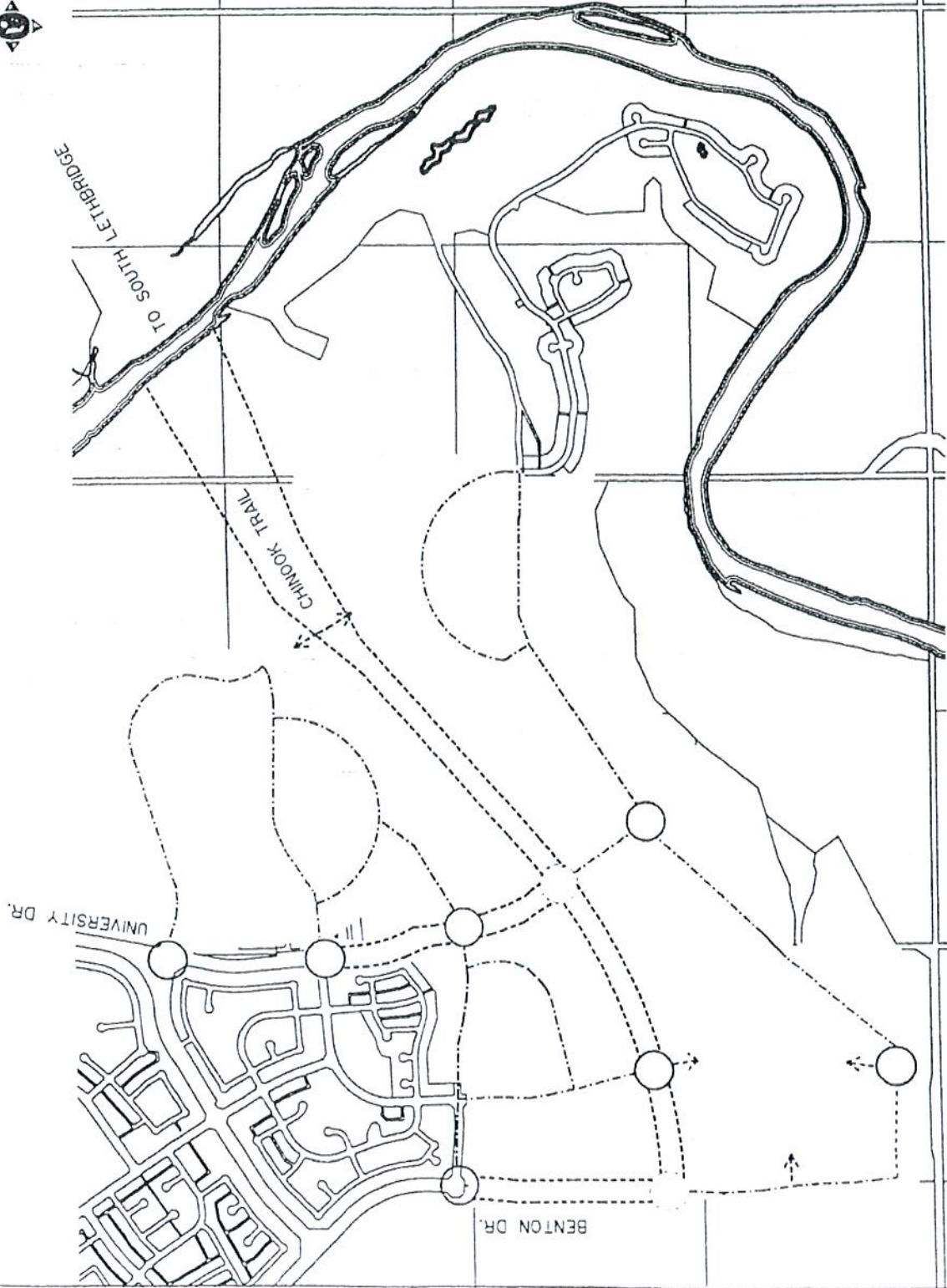
Transportation Concept

-  FUTURE ARTERIAL INTERSECTION
-  FUTURE COLLECTOR INTERSECTION
-  FUTURE COLLECTOR ROADWAY
-  FUTURE PEDESTRIAN/ BICYCLE OVERPASS

MOUNTAIN HEIGHTS RIVERSTONE RIVER BEND AREA STRUCTURE PLAN



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A collector roadway in the RiverStone village and another in River Bend will provide physical access to the exterior trail system and vistas of the river valley as well as access to residential areas. It is proposed that the two collectors be linked by a pedestrian/bicycle overpass over Chinook Trail.

Where possible, direct access from individual residential properties on to collectors will be avoided, for example by the provision of residential lots with lane access.

4.1.3 Local Roadways

Local roads function primarily as access roads to properties within the community. Local roads intersect with collector roads but not with arterials. Actual alignment and configuration of local roads will be determined at the Outline Plan stages.

4.2 PUBLIC TRANSIT

The City of Lethbridge uses a public transit servicing standard that provides public transit access within 400 m of at least 95% of all residences, commercial service and public service facilities. In accord with the City's subdivision standards, designated public transit routes will be designed to follow collector roadways.

5. UTILITIES

5.1 SEWER AND WATER

5.1.1 The Underground Infrastructure Master Plan

Existing services in West Lethbridge were originally designed in consideration of capacity to accommodate a population of 30,000. As the population of West Lethbridge neared 20,000 people, however, certain infrastructure bottlenecks became evident. In 1997, the City commissioned an Underground Infrastructure Master Plan Study to address these restrictions posed by existing pipes and develop both remedial measures and plans for future growth. The resulting Master Plan addresses the growth of West Lethbridge out to a population horizon of 55,000. As a result of its dynamic responsiveness and the detailed nature of its component modeling tools, the Underground Infrastructure Master Plan will dictate the timing and nature of the implementation of services in the Mountain Heights, RiverStone, and River Bend developments. In addition, the Levels of Service defined and approved by City Council during the course of the Underground Infrastructure Master Plan Study shall apply to all new developments. Nevertheless, the following general comments apply to the servicing of these areas (also see **MAP 9**).

5.1.2 Water Supply System

The Underground Infrastructure Master Plan confirmed the future West Lethbridge water distribution system layout, which relies on 500 mm diameter water feeder mains running south along University Drive and Chinook Trail to supply the study area. Early stages of development within the study area will be serviced by extending 300-m waterlines south from existing boundary areas.

5.1.3 Storm Sewer System

The storm sewer system for the majority of the study area will generally follow the street system and will be gravity fed to existing outfall W-4, north of Chinook Trail. As growth occurs, construction of planned detention storage facilities will eliminate the need for a second storm outfall from the area, which would be discharging into the Oldman River upstream of the water treatment plant intake. The major and minor components of the storm drainage system are to be designed to accommodate storms with return periods of 5 and 100 years respectively, using the design parameters outlined in the Underground Infrastructure Master Plan.

MAP No. 9a

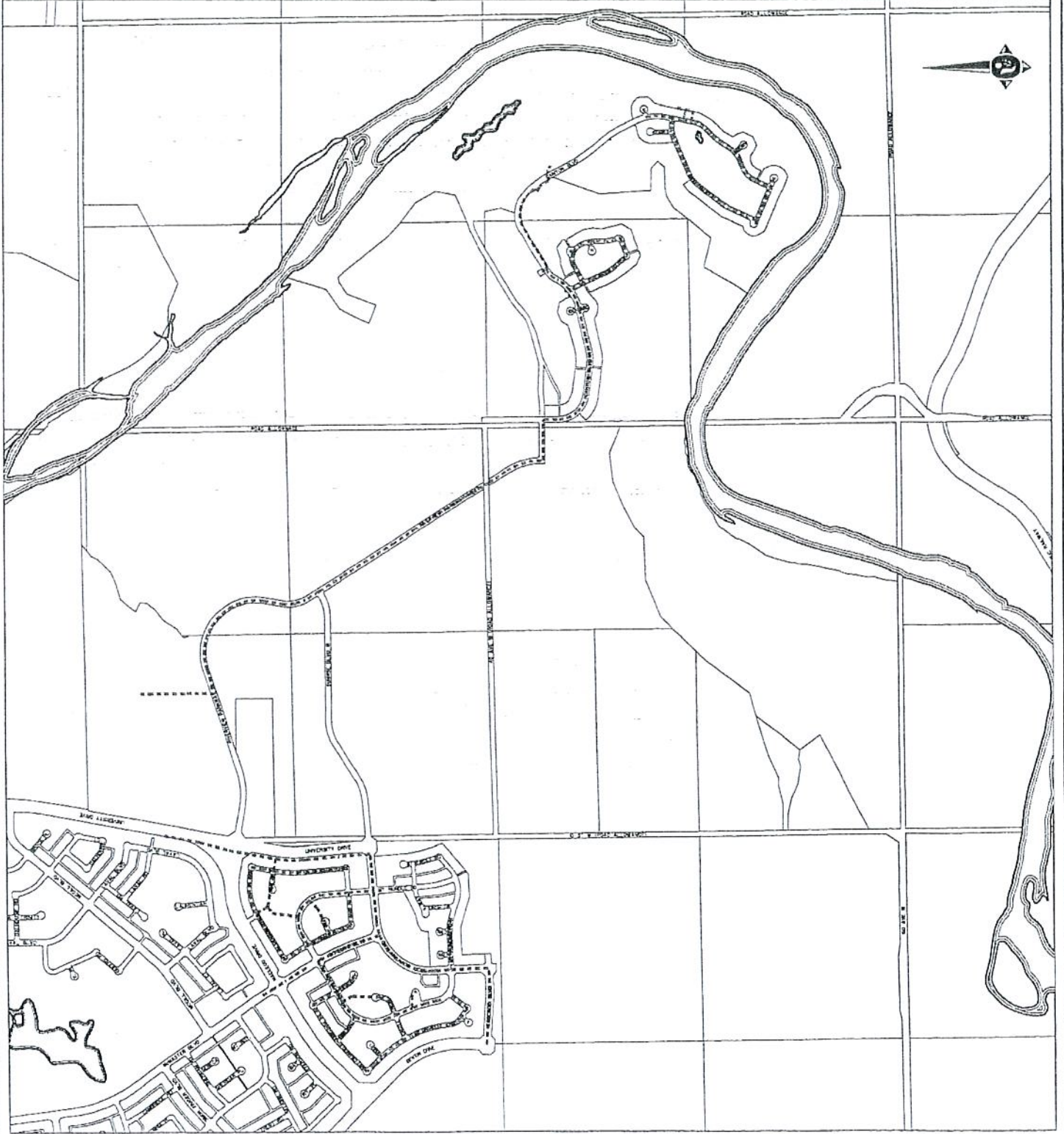
Sanitary Sewer Servicing

Existing

--- Sanitary Sewer

MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN

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MAP No. 9b

Storm Sewer Servicing

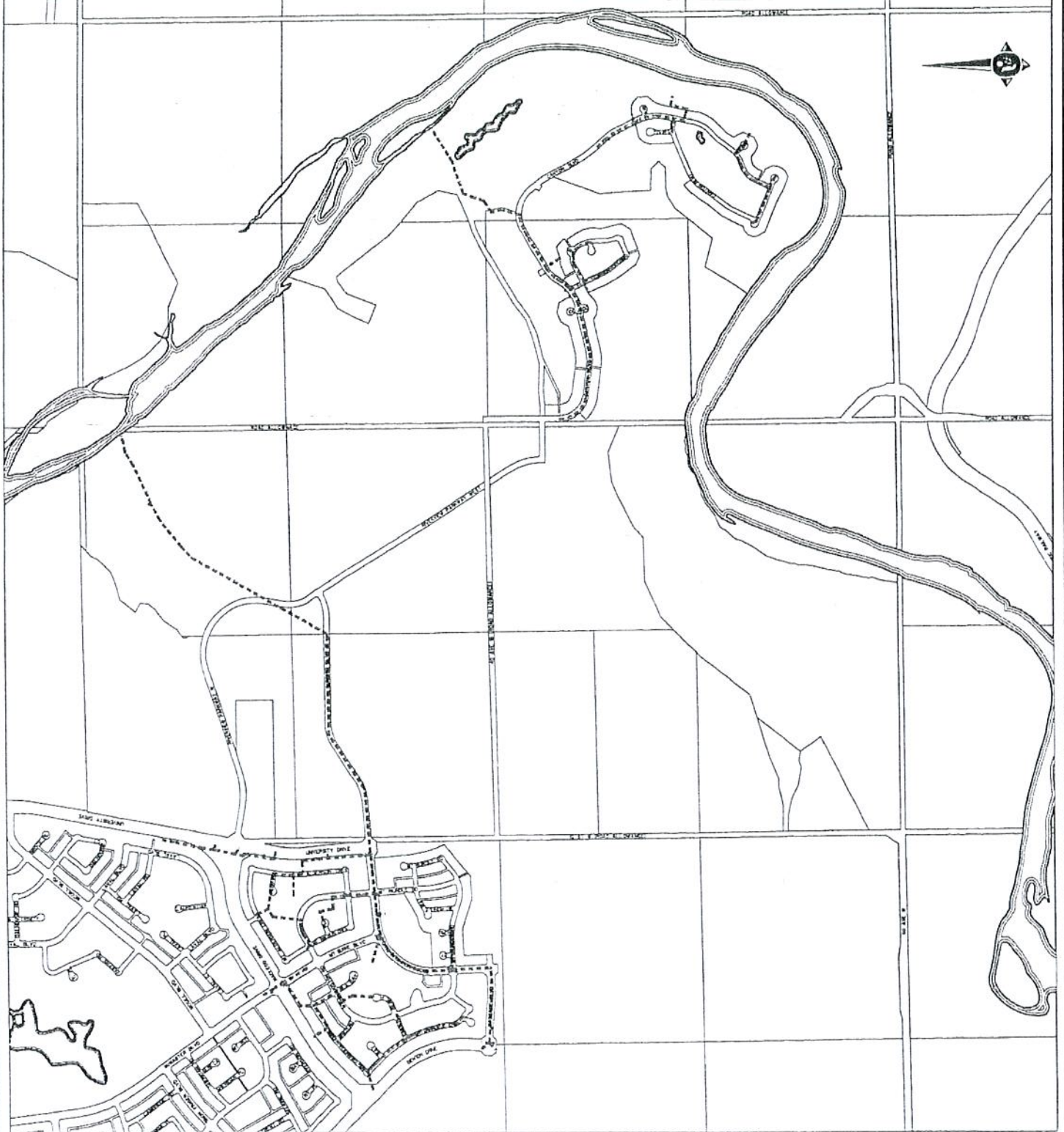
Existing

Storm Sewer

MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN



CITY OF LETHBRIDGE
DEVELOPMENT SERVICES



MAP No. 9C

Water & Electric Servicing

Existing

Water Main

138 kv



MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN



CITY OF LETHBRIDGE
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5.1.4 Sanitary Sewer System

The early stages of development within the study area will be serviced by a gravity-flow sanitary sewer system feeding into existing sanitary sewer trunks along University Drive which flow north before crossing the Oldman River valley through the West Lethbridge sanitary sewer syphon. The Underground Infrastructure Master Plan has determined that the river valley siphon system represents a bottleneck to growth in South and West Lethbridge and must be upgraded to facilitate the transmission of Lethbridge's high wet-weather flows to the wastewater treatment plant. Design of the sanitary sewer system must utilize the revised sewage generation rates and other engineering parameters contained within the Underground Infrastructure Master Plan. The servicing of the remainder of the study area shall be dictated by the version of the Master Plan in place at the time of development.

5.2 OTHER UTILITIES

Other services, including electrical services, telephone and cable television will be located in trenches between the roadway and the property line. These services may also be placed underground in the rear lanes where these are designated in the final subdivision plan. Natural gas will generally be accommodated by easements on private property.

An existing TransAlta Utilities 138 kV transmission line Crosses River Bend to the south of the Chinook Trail (see **MAP 9**). The 138 kV line, which traverses the study area, is currently within a right-of-way, which varies in width from 9.2 to 12.2 m.

A utility corridor on the north side of the established alignment of Chinook Trail has been provided to accommodate the 138 kV transmission line. The powerline would follow Chinook Trail to Benton Drive, where it would then swing south. This will minimize the amount of river valley view lots, however, more new line would have to be constructed.

6. SEQUENCE OF DEVELOPMENT

A staging sequence at the area structure plan level helps ensure that services are extended in an orderly and efficient fashion. The sequence shown in **MAP 10** reflects the existing development of the northern portion of Mountain Heights, the ongoing development of the Paradise Canyon area in River Bend, and the existing servicing availability in RiverStone. The "skip" development that resulted in the Paradise Canyon project has created an area of serviced vacant land in the RiverStone area, making RiverStone a logical area for early phasing. The sequence also recognizes ongoing development plans for Paradise Canyon and the long-term need to complete the Mountain Heights village.

The staging sequence is only a guideline, It will be modified over time to reflect market conditions, rather than adhered to rigidly. Simultaneous development of different phases can be expected to occur.

MAP No. 10

Staging

MOUNTAIN HEIGHTS
RIVERSTONE
RIVER BEND
AREA STRUCTURE PLAN



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