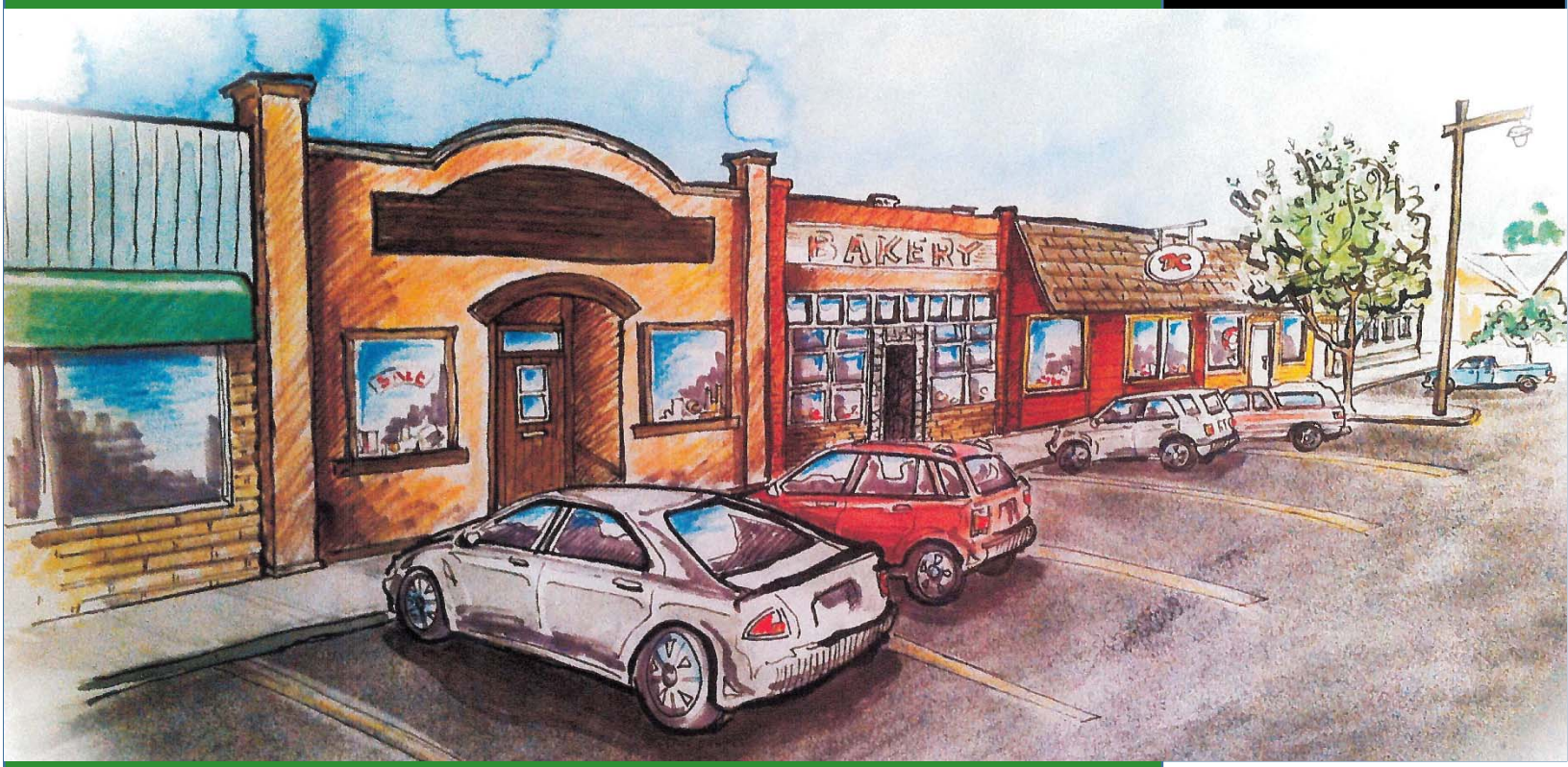
TOWN OF VULCAN

MUNICIPAL DEVELOPMENT PLAN



BYLAW NO. 1259

(Consolidated to Bylaw No. 1464-17, September 2017)

Town of Vulcan
ALBERTA

Prepared by the

OLDMAN RIVER REGIONAL SERVICES COMMISSION

November 2000

for

TOWN OF VULCAN

TOWN OF VULCAN

BY-LAW NO. 1259

BEING a bylaw of the Town of Vulcan, in the Province of Alberta, to adopt a Municipal Development Plan.

WHEREAS the Council of the Town of Vulcan wishes to replace existing Bylaw No. 970, being the General Municipal Plan adopted in March of 1983;

AND WHEREAS the Council wishes to address the requirements of Section 632 regarding Municipal Development Plans contained within the Municipal Government Act, 1994;

AND WHEREAS the purpose of the bylaw is to provide guidelines and direction for future growth within the municipality.

THEREFORE, under the authority and subject to the provisions of the Municipal Government Act, Statutes of Alberta, 1994, Chapter M-26.1, the Council duly assembled does hereby enact the following:

1. Bylaw No. 1259, a Municipal Development Plan, be adopted for those lands contained within the legal boundary of the Town of Vulcan.

2. Bylaw No. 970 the General Municipal Plan is rescinded.

3. This bylaw comes into effect upon third and final reading hereof.

READ a first time this 14th day of November, A.D., 2000.

Mayor – David Mitchell

Municipal Administrator - Wallace Sholdice

READ a second time this 27th day of November, A.D., 2000.

Mayor – David Mitchell

Municipal Administrator - Wallace Sholdice

READ a third time and finally passed this 27th day of November, A.D., 2000.

Mayor – David Mitchell

Municipal Administrator - Wallace Sholdice

Town of Vulcan Municipal Development Plan Bylaw No. 00-1259 – Amendments

Bylaw No.	Amendment Description	Legal Description	Passed
1464-17	Amendments to accommodate a general update to data, text and maps including the requirement for compliance with the South Saskatchewan Regional Plan and amendments to the Municipal Government Act		25-Sep-2017

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TOWN OF VULCAN

MUNICIPAL DEVELOPMENT PLAN
BYLAW NO. 00-1259

1. INTRODUCTION

PURPOSE

A municipal development plan is a long-range statutory planning document providing a municipality's elected officials, administration, taxpayers and developers with a framework of policies for making decisions regarding future growth and development opportunities.

CONTENT

The Municipal Government Act, Revised Statutes of Alberta 2000 (MGA), outlines what must and may, be included in a municipal development plan. Accordingly, this plan must address:

- Future land use within the municipality
- What type of development is desired and where
- Intermunicipal planning
- Transportation
- Provision of municipal services
- Land use and sour gas facilities
- School and municipal reserves

Other areas to be included are:

- Economic development
- Financial resources
- Growth Strategies and Development constraints
- Historic preservation
- South Saskatchewan Regional Plan
- Sustainability/Environmental Stewardship

The above concerns were examined in terms of background information, existing conditions, future needs, and potential issues. In response, a set of goals and corresponding policies was developed in an effort to address all concerns. The Town of Vulcan will use these policies to guide, promote, and administer land use and development in the next decade.

PROCESS

A municipal development plan is a statutory planning document, and therefore must follow the legislative process outlined in the MGA. This requires notice to the public, the adjacent municipality, and school authorities of plan intentions, with the opportunity for input into the plan before a draft document is prepared.

During the 2000 drafting of the plan, interviews were held with various government departments and agencies and an open house was held to gather information from the general public. Articles were also published in the Vulcan Advocate with the purpose of explaining and outlining the process while also encouraging input into the plan.

It had become apparent to the Town of Vulcan that their supply of land was diminishing and would start to hinder future physical and economic growth. The Town commissioned a growth study to help in determining how much growth was likely to occur and where it should be directed. The purpose of the growth study was to aid in the annexation of the required land. The Town of Vulcan Growth Strategy Report was completed in May 1998 and the information published in that report was also used in the development of this plan. The 2000 annexation fulfilled the land supply needs.

The Government of Alberta adopted the South Saskatchewan Regional Plan in September 2014 which required all municipalities to come into compliance by 2019. Vulcan Council's approach to compliance was seen as an opportunity to update the content of the plan while remaining true to its original goals. The 2017 update to the plan accomplishes this by bringing forward 2016 Census Data and revising content that acknowledges progress that has occurred within Town.

GOALS

In working through the planning process the following goals were identified:

- to continue to provide high quality services to all residents,
- to retain Vulcan's small town lifestyle,
- to continue the Town's role as the commercial and social centre of the region,
- to encourage sustained economic growth and diversification,
- to manage growth with a minimum of conflict,
- to ensure that changing housing demands are adequately met with quality developments,
- to provide directions for future growth,
- to promote cooperation and coordination between the Town and the County regarding future development policies.

2. BACKGROUND INFORMATION

LOCATION

The Town of Vulcan is located 120 kilometres south of the City of Calgary and 100 kilometres north of the City of Lethbridge in Southern Alberta (Map 1). The Town sits at the intersection of two major roads, Highway 23, running north and south, and Highway 534, running east and west. The main CPR line running north and south between Lethbridge and Calgary also goes through Vulcan, making the town the hub of a regional transportation and commercial network.

GEOGRAPHIC CHARACTERISTICS

Located on what has been called a high treeless plain, the Town of Vulcan has an elevation of 1050 metres above sea level. The plain is called the Kirkcaldy Plain, part of the Vulcan Upland physiographic district, and is in the South Saskatchewan River drainage basin. The dominant soil in the region is dark brown chernozemic, having slight moisture limitations. The precipitation of the region is approximately 40 centimetres annually, with a frost-free period of 122 days. Like most places in Southern Alberta, Vulcan receives the warm Chinook winds that blow off the eastern slopes of the Rockies. This makes for milder winters and hot summers, but because the town is further north and east it does not receive as much of the strong wind that Lethbridge and other southwest areas are subject to. The town is also located in an area where the warm westerly flow from the Rockies meets the cool southerly flow from northern Alberta. The two systems can interact to cause some major weather events such as winter blizzards, and thunderstorms in the summer, occasionally accompanied by tornadoes.

HISTORICAL BACKGROUND

Before the Europeans arrived, the Vulcan area was first a buffalo hunting ground for various aboriginal groups. At the time of first contact the groups that used the area were the Gros Ventre, Peigan, and Blackfoot. By 1883 the buffalo had disappeared and the first non-aboriginal people to settle the area were ranchers who used the land for grazing. By 1907 the homesteaders had claimed most of the available land in the Vulcan area. The nearest towns were located 25 to 65 kilometres to the west on the Calgary-Edmonton railway. Development of the Town of Vulcan did not begin until the CPR constructed the Kipp-Aldersyde rail line in 1910. The CPR selected the town's location, and it is believed that the CPR surveyor who laid out the townsite chose the town's name. The Town of Vulcan and some of the original street names were named after the Greek Gods of Mount Olympus, because the elevation of the track was said to be the highest on the Prairies. Soon after the completion of the railway, the growing of grain began to dominate the economy of the region.

Vulcan soon grew to be the commercial centre of the region. The first grain elevator was built in 1911 and Vulcan was incorporated as a village in 1913. The population steadily grew, and in 1921, Vulcan was given town status. Grain production and shipping, and all the services that revolve around those activities, remain a major industry in the region. The Town has recently seen changes in this industry, as elevators have closed within the town's boundary and relocated to the south within the County, where more suitable land was available. Although the traditional role of the Town is evolving, opportunities have arisen for the provision of services to grain production employees and truckers. As well Vulcan's reputation as a tourist destination due to the 'Star Trek' theme continues to grow. Vulcan will remain the main service centre for the region as long as it can adapt to economic changes, particularly in the agricultural sector.

The Town places a high value on heritage resources and social history, Vulcan's heritage contributes to the Town's sense of itself and influences its vision moving forward. Heritage preservation efforts have seen the designation of the AGT building on the Alberta Register of Historic Places and the Town looks to

designating significant heritage buildings into the future as an ongoing process. It will be important to work with landowners, citizens and interest groups as this process continues. The Town has also shown provincial and regional collaboration through the participation in producing an inventory document entitled *Vulcan County Heritage Survey & Inventory 2012: Thematic Framework, Context Paper & Inventory Sites and Heritage Management Plan (2014).* In pursuit of the implementation of the plan, Council passed a bylaw to join the Heritage Advisory Board Committee. This joint council committee will have membership from the various municipalities within Vulcan County.

POPULATION ANALYSIS

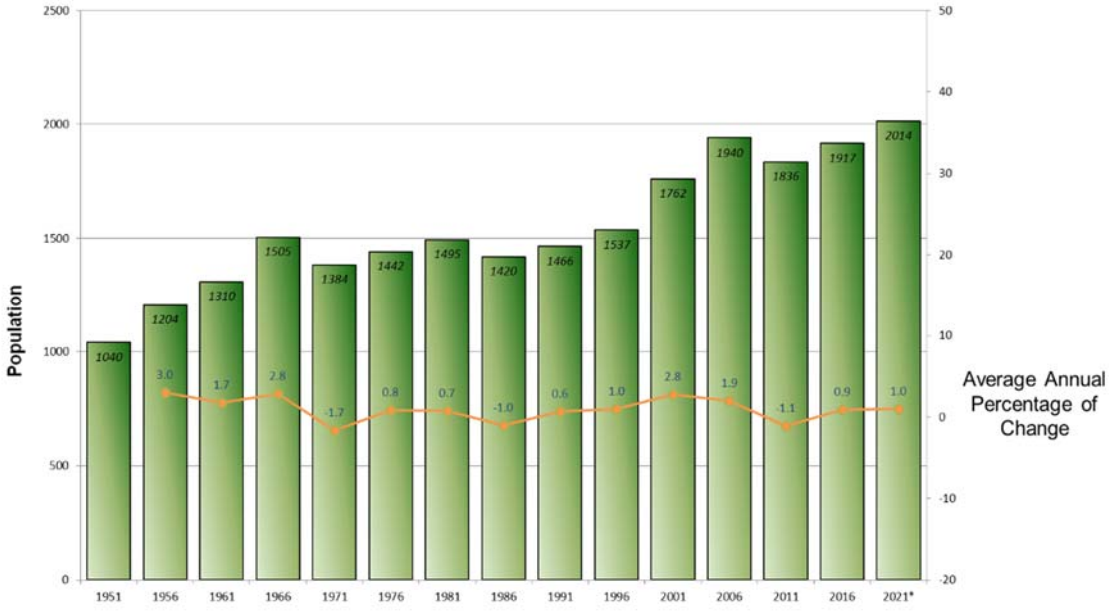
Population Statistics

The amount of land that is utilized by a community is closely tied to the population of that community. The total population as well as the population structure will have an effect on the type of land uses demanded. A large component in planning for the future land use needs of a community depends on the future population projections. A community the size of Vulcan can also experience dramatic changes in population because of economic factors. If a large employer moves into or leaves the area, the number of jobs created or lost can cause a large percentage change in population growth. This makes it difficult to project the future population with an absolute degree of certainty. Therefore, the most reliable projections are ones that are made using the changing components of population growth that are more universal. The basic components of population change that will affect a town like Vulcan are deaths, births, migration, size and composition of the local economy, and proximity to larger areas of settlement and economic activity. Three types of analysis are required on population change when doing land use planning: estimating the current population, analysis of the composition of the population, and population projections.

Past Trends

The historical growth of the population provides a basis for making population projections. Analysis of these trends can help in making informed decisions about future growth.

Table 1
TOWN OF VULCAN'S HISTORIC POPULATION (1951-2016)



Source: Statistics Canada (*Indicates ORRSC projection based on 20yr cohort)



TOWN OF VULCAN
MUNICIPAL DEVELOPMENT PLAN

REGIONAL LOCATION MAP
JULY, 2017

MAP 1

Town of Vulcan
Vulcan County
Major Highway
Minor Highway

OLDMAN RIVER REGIONAL SERVICES COMMISSION
0 2.5 5 10 15
Kilometers
N

Town of Vulcan ALBERTA

According to Table 1, the Town of Vulcan has experienced an erratic history of population growth with the population increasing by 28 percent in the last 50 years. Periods of large positive growth are interspersed with periods of dramatic negative growth. This reinforces the argument that a town the size of Vulcan is very susceptible to outside economic forces. Table 2 helps narrate this by comparing the Alberta and Canadian population growth rates to Vulcan's. Causality says when Alberta grows so does Vulcan.

Table 2
RATES OF POPULATION INCREASE

YEAR	**VULCAN POP.**	FIVE YEAR RATE OF CHANGE	CHANGE PER YEAR	**ALBERTA POP.**	FIVE YEAR RATE OF CHANGE	CHANGE PER YEAR	**CANADA POP**.	FIVE YEAR RATE OF CHANGE	CHANGE PER YEAR
1951	1,040						14,010,000		
1956	1,204	15.8%	3.2%				16,081,000	14.8%	3.0%
1961	1,310	8.8%	1.8%	1,332,000			18,238,000	13.4%	2.7%
1966	1,505	14.9%	3.0%	1,463,000	9.8%	2.0%	20,015,000	9.7%	1.9%
1971	1,384	-8.0%	-1.6%	1,628,000	11.3%	2.3%	21,568,000	7.8%	1.6%
1976	1,442	4.2%	0.8%	1,838,000	12.9%	2.6%	23,550,000	9.2%	1.8%
1981	1,495	3.7%	0.7%	2,238,000	21.8%	4.4%	24,820,000	5.4%	1.1%
1986	1,420	-5.0%	-1.0%	2,375,000	6.1%	1.2%	26,101,000	5.2%	1.0%
1991	1,466	3.2%	0.6%	2,546,000	7.2%	1.4%	28,031,000	7.4%	1.5%
1996	1,537	4.8%	1.0%	2,697,000	5.9%	1.2%	29,672,000	5.9%	1.2%
2001	1,762	14.6%	2.9%	2,974,807	10.1%	3.4%	30,007,094	1.1%	0.2%
2006	1,940	10.1%	2.0%	3,290,350	10.6%	2.12%	31,612,897	5.4%	1.1%
2011	1,836	-5.6%	-1.1%	3,645,257	10.7%	2.14%	33,476,688	5.9%	1.2%
2016	1,917	4.4%	0.9%	4,067,175	11.6%	2.32%	35,151,728	5.0%	1.0%
AVERAGE		5.1%	1.0%		9.1%	1.93%		7.4%	1.5%

Source: Compiled from data acquired from Statistics Canada.

Age Structure

Population pyramids for the Town of Vulcan illustrate the population structure by breaking it down into its various age groups, known as cohorts. Chart 1 shows population age structure for the last four census periods. The pyramid for 2016 shows the age structure for the most recent census period. The age structure for selected age groups within other regional municipalities, as well as for the province and country, are shown on Table 3. In analysing the current population structure some important features are revealed:

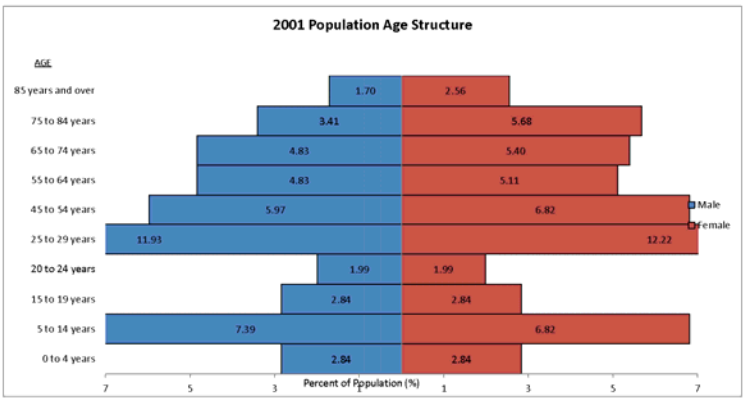
- The population of children aged 4 years and under is 4.4 percent of the population. This is lower than the average of 5.8 percent for other communities in the region.
- The number of people aged 19 and under is 18.4 percent of the Town's total population, slightly lower than the average for other communities in the region. The regional average is 22.8 percent.
- At 7.5 percent, the 20 to 29 age group is also the lowest in the region, the regional average being 9.9 percent.

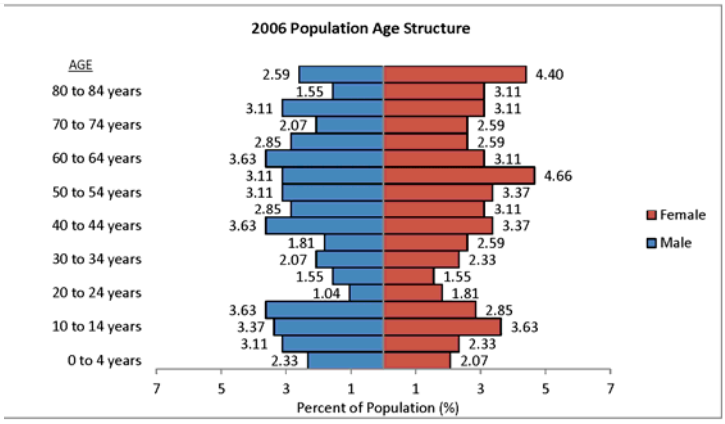
- The number of females in the childbearing years (20 to 44) is an important age group to consider because of the implications for future population growth. The percentage in this category is 10.3 percent, which is 4.0 percent lower than the regional average and almost 8 percent lower than the provincial average.
- The 30 to 64 age group is 3.0 percent lower than the regional average and almost 6 percent lower than the provincial average.at 41.3 percent.
- Senior citizens make up the single largest group based on percentages in the Town of Vulcan. At 32.8 percent of the total population this is the highest in the region, and 10% higher than the average.

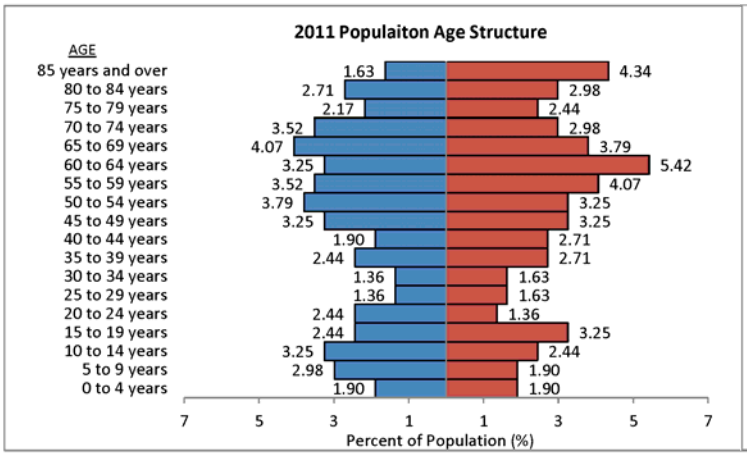
Based on the past and existing age structures, it is possible to make projections of what the structure may look like in the future.

Chart 1: Population Age Structure

(Source: Statistics Canada Census Years 2001, 2006, 2011, 2016)







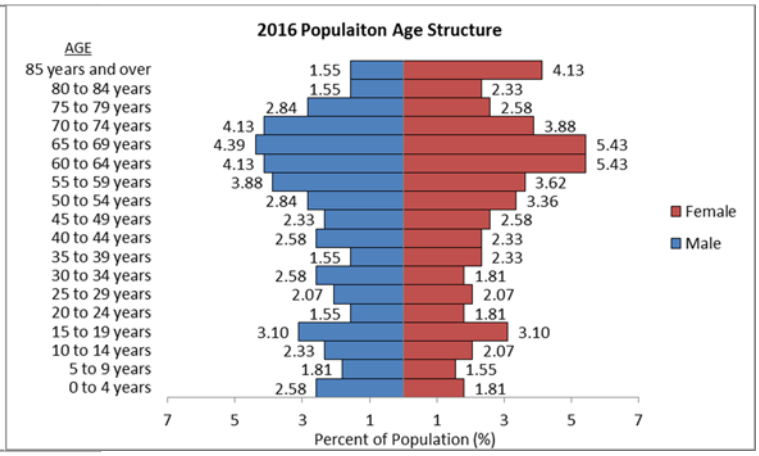


Table 3
COMPARISON OF SELECTED AGE GROUPS FOR VARIOUS MUNICIPALITIES
(shown as a percentage of the total for the specific community)

AGE GROUP	**TOWN OF VULCAN**	VULCAN COUNTY	TOWN OF NANTON	TOWN OF CLARESHOLM	TOWN OF CARSTAIRS	TOWN OF CHAMPION	CITY OF LETHBRIDGE	ALBERTA	CANADA
4 & UNDER	**4.4**	7.9	5.2	3.8	7.1	4.7	6.1	6.5	5.4
19 & UNDER	**18.4**	30.4	18.3	17.2	27.6	15.9	23.1	25.1	22.3
20-29	**7.5**	9.5	6.8	8.3	10.3	7.9	16.4	14.1	12.9
30-64	**41.3**	46.2	44.8	42.1	48.6	47.6	44.1	48.5	47.8
SENIORS 65+	**32.8**	14.2	29.8	32.5	13.5	30.1	16.3	12.3	16.9
FEMALES 20-44	**10.3**	13.3	11.3	10.4	16.3	14.3	17.9	18.1	16.3

Source: Compiled from data acquired from Statistics Canada 2016 Census.

Population Projections

Using past population structures and trends, future population projections are calculated. There are several different methods of doing population projections. Chart 2 shows the results of various mathematical modelling techniques. There is a trend for rural communities to stop declining and to actually start to grow. Several factors are responsible for, and contribute to, this trend.

- Transportation costs are decreasing. This affects both industrial location as well as commuter location.
- The substitution of communication for physical movement, 'Telecommuting'.
- Services available in rural communities are starting to match those available in urban centres.
- Rural communities, which are relatively close to urban centres, are becoming increasingly attractive to people wishing to get away from urban influences while still being in commuter and service-user-range.
- The change in the composition of the labour force from goods producing activities to more service producing activities.

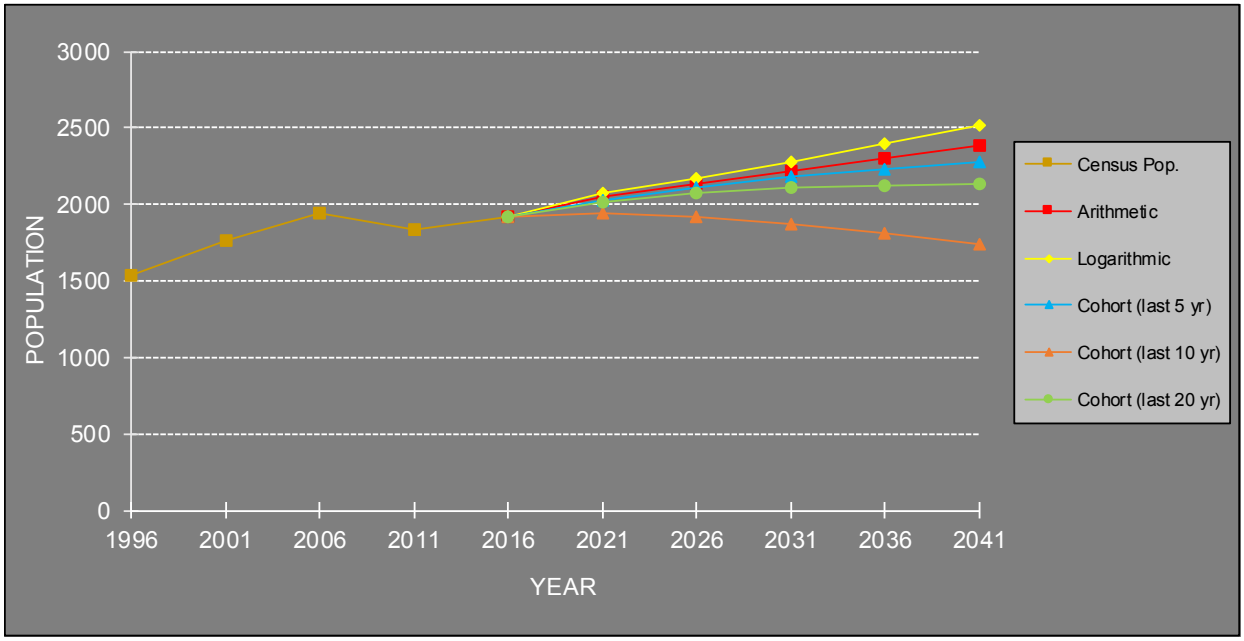
Using the mathematical models and taking the previous points into consideration, it is possible to make some projections for the future population of the Town of Vulcan.

All but one of the mathematical models for population growth for Vulcan show an increase in population for the future (Chart 2). These models do not accurately portray the considerable influence that the City of Calgary may have on the Town of Vulcan. If it is assumed that the Town's population will indeed continue to grow, then the models reflecting this must be chosen. Historically the population of Vulcan has not grown at a smooth pace (Table 1). There have been some negative growth periods, but overall the population has increased an average of 1.0 percent per year for the last 50 years.

Chart 2: Town of Vulcan Population Projections

VULCAN

Year	Census Pop.	Arithmetic	Logarithmic	Cohort (last 5 yr)	Cohort (last 10 yr)	Cohort (last 20 yr)
1996	1537					
2001	1762					
2006	1940					
2011	1836					
2016	1917	1917	1917	1917	1917	1917
2021		2049	2072	2029	1937	2014
2026		2132	2174	2111	1917	2071
2031		2215	2282	2177	1872	2106
2036		2299	2395	2234	1812	2127
2041		2382	2513	2280	1737	2137



Cohort-component projections are more reliable because they break down the components of the changing population. In Chart 2 there are three cohort component projections; 5-year, 10-year; and 20-year. The 10-year projection shows a population decrease of approximately 0.5 percent per year while the 5-year shows a 0.7% increase which is lower than the historic average. As the Town's historical growth rate is approximately 1.0 percent per year, the arithmetic projection being closest to this growth rate will be used to calculate future growth requirements in this document. The 20-year cohort component projection will also be used for comparison because it was the most accurate projection from the 2011 to 2016 Censuses. This is not to say that the other projections will not or cannot take place, as there are many factors that can affect population growth.

The 20-year cohort projection shown on Chart 2 is broken down into varying age groups and is shown in Table 4. In analysing the data some important points are to be noted:

- The number of seniors (65+) shows the most rapid growth of any of the age groups over the next 20 years. This is to be expected as it is the national trend and is the result of the 'baby boomers' moving through the national age structure.
- The increasing number of seniors is also due to the fact that people are retiring to Vulcan from the County. This trend holds true for other small communities such as Claresholm, Nanton, and Champion (Table 3).
- At approximately 2.6 percent per year growth, the number of seniors will maintain its position as the largest single age group in the population structure.

The projections that are being used show slow to moderate growth rates for Vulcan. The trend for rural communities shows one of continued growth. How fast the Town of Vulcan grows depends on many variables, some of which cannot be forecasted or projected. If events occur that affect future growth it may be necessary to make another set of projections at some time in the future to allow for unforeseen variables.

Table 4

VULCAN POPULATION POJECTIONS
SHOWING PERCENTAGE POPULATION OF VARYING AGE GROUPS
(20-Year Cohort Survival)

POPULATION PROJECTION: COHORT SURVIVAL - 20 YEAR

Municipality: **VULCAN**

AGE GROUP	2016 BASE POPULATION		2021 PROJECTION		2026 PROJECTION		2031 PROJECTION		2036 PROJECTION		2041 PROJECTION	
(cohort)	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0-4	50	35	36	35	36	35	36	34	36	35	34	33
5-9	35	30	57	38	43	38	43	38	42	38	43	38
10-14	45	40	44	30	65	38	52	38	52	38	51	38
15-19	60	60	47	47	46	38	68	46	54	46	54	45
20-24	30	35	54	62	41	50	40	40	62	48	48	48
25-29	40	40	8	16	31	44	19	31	18	21	39	29
30-34	50	35	42	45	10	21	34	49	21	36	20	26
35-39	30	45	56	41	49	51	16	28	40	55	28	42
40-44	50	45	32	50	59	46	51	56	19	33	42	60
45-49	45	50	55	46	37	51	64	47	56	57	24	34
50-54	55	65	46	52	56	49	39	54	65	50	57	60
55-59	75	70	62	67	54	55	64	51	46	56	72	52
60-64	80	105	81	84	68	81	60	69	70	65	52	70
65-69	85	105	92	120	93	98	81	96	72	83	82	80
70+	195	250	249	317	301	385	345	419	370	444	383	452
TOTAL	915	1000	962	1052	990	1080	1010	1096	1023	1105	1030	1107
TOTAL	1917		2014		2071		2106		2127		2137	

ECONOMIC ACTIVITY AND GROWTH

Overview

Until 2014 Alberta's economy had shown the strongest growth of any province in Canada, an average real rate of growth of 3.8 percent per year. Most communities in the province have benefited from this positive growth, Vulcan being no exception. The growth is driven by the energy and agricultural sectors of the economy which have had a large effect on the town. Two full service grain facilities are located just south of the town which, when coupled with the closure of many CPR branch lines, enhances the town's reputation as an important grain shipping point. There has also been increased oil and gas activity in the area.

Along with substantial growth, the structure of the provincial economy has changed in the last 10 years, becoming less dependent on the traditional industries. Retail trade has become an important part of the economy of Alberta, and as a trading centre for the surrounding region, the Town of Vulcan will continue to show growth in this sector in the future. The town has also shown creative ways of using its unique name and 'Star Trek' theme to develop and benefit from an ever-increasing tourism industry. It is reported that Vulcan had over 12,000-17,000 visitors stop at the tourist information centre each year.

Industry and Labour Characteristics

From the 2011 Town of Vulcan: Economic Development Community Profile the total number of people in the labour force, persons over the age of 15 years, was approximately 1,010. Table 5 shows the breakdown of the local labour force into the industry divisions.

In examining the Town of Vulcan's labour characteristics, Table 5 illustrates the following points. At 21.2 percent of the working population, the largest number of people is employed in the retail trade division. This is a trend that is prevalent in the modernizing Western World. The second largest amount of the labour force, 10.6 percent, is employed in the agricultural and related services sector. Construction and education round out the top three, each with 9.3 percent of the labour force. Table 5 shows a labour force which is diverse and spread out over a variety of sectors.

The industry divisions shown in Table 5 can also be grouped into the three more general categories of classifying types of industries: primary, secondary, and tertiary. Table 6 shows a comparison of how the labour force of the Town of Vulcan compares to others in the region when grouped in these categories. Vulcan has 18.60 percent of its labour force engaged in primary industries, 55 percent of that in agriculture and 45 percent in the oil industry. The 19 percent is much higher than the provincial average of 11.60 percent for industries of this type. Primary industries are important because they can create important spin-off industries that foster more opportunities in an area. The problem with having a large percentage of the labour force engaged in primary industries is that the area becomes more susceptible to economic downturns in these industries, which in turn can cause large swings in the local economy.

Where the labour force resides and where they work is also an important indicator to consider when planning future needs. Table 7 shows how the labour force is divided up with respect to where they work. Approximately 69 percent of the town's total labour force does not travel outside the Census Subdivision to their usual place of work. The issue of long distance commuters has not become apparent yet, but it may become so as Calgary's influence continues to grow into surrounding rural areas.

Table 5

TOWN OF VULCAN
TOTAL LABOUR FORCE BY LABOUR TYPE

Total labour force 15 years and over by industry divisions	1010
Industry – Not applicable	0
Agricultural and related service industries	161
Fishing and trapping industries	0
Logging and forestry industries	0
Mining (including milling), quarrying and oil well industries	61
Manufacturing industries	50
Construction & Transportation and storage industries	141
Communication and other utility industries	0
Retail trade & Wholesale trade industries	141
Finance, real estate and insurance industries	40
Professional, scientific, Management, waste remediation	81
Educational & Health service industries	141
Arts, Recreation & Accommodation	71
Other industries	111

All information is based on Town of Vulcan: Economic Development Community Profile

Table 6

INDUSTRY CHARACTERISTICS OF THE POPULATION
AGED 15 YEARS AND OVER

Region	Primary (%)	Secondary (%)	Tertiary (%)
Alberta	11.60	15.20	73.20
Vulcan	18.60	14.70	66.70
Crowsnest Pass	21.90	16.60	61.40
Taber	17.00	16.60	66.40
Pincher Creek	10.20	13.40	76.10
Claresholm	9.10	11.30	79.50
Cardston	5.30	5.00	89.60
City of Lethbridge	3.20	15.40	81.50
AVERAGE	12.11	13.53	74.30

Primary Industry – refers to those industries such as resource activities (mining, milling), agricultural production, fishing, oil and gas extraction, etc.

Secondary Industry – refers to activities based on the additional manufacturing of primary based goods, such as automobile manufacturing, metal fabrication, food processing, construction industry, etc.

Tertiary Industry – refers to activities related to service type industries such as banking, financing, insurance, retail services, hospitality and tourism, etc.

Source: Statistics Canada 1996 Census

Table 7
TOWN OF VULCAN
TOTAL EMPLOYED LABOUR FORCE BY PLACE OF EMPLOYMENT

Total Employed Labour force 15 years and over by place of work status (20% sample)	MALES	FEMALES	TOTAL	(%) PERCENT
Total employed labour force	495	400	895	100.0
Reporting to a usual place of work	295	280	575	64.2
In CSD of residence	205	240	445	49.7
In different CSD	35	30	65	7.2
In same CSD	50	10	60	6.7
At home	55	60	115	12.8
Outside Canada	0	0	0	0.0
No fixed workplace	140	40	180	20.1

All information is based on Statistics Canada 2006 Census

It should also be noted that 12.8 percent of the labour force work at home. According to a recent home occupation study for towns in the region, Vulcan has no negative concerns regarding home occupations. Often, certain types of home-based businesses will expand and eventually relocate into a commercial or industrial space which better suits their needs.

Labour Force Employment

According to the 2006 census, the Town of Vulcan has an extremely low unemployment rate. Sitting at 2.2 percent, the rate is almost 1/2 lower than the provincial rate of 4.3 percent during the same period. The unemployment rate for the province risen with the downturn in the economy was at 7.1 percent, the same rate as the national average. The labour force participation rate for the same period was 65.2 percent, which is 7.2 percent lower than the participation rate for the province. In comparing the unemployment rate to the participation rate, it may be concluded that those who wanted to participate in the labour force either had opportunities to do so, or had to leave to find them.

Construction Activity

Table 8 shows the value of building permits issued for construction within the Town of Vulcan within the last sixteen years. According to the information, residential construction has been the largest component of the construction industry over that time period. The slowest year was 1995 when it only made up approximately 20 percent of the value for that year. The best years for housing were in 2005 and 2007. There were 10 and 34 houses built each year respectively, with a value of approximately $17 and $10 million for each year respectively, accounting for almost 97 and 87 percent of the total construction value in those years respectively. Some years have been slow in residential construction, as was the case in 2010 through 2013, but overall it has been the largest contributor to the construction industry. Residential construction has accounted for an average of 71.2 percent of the annual total for the last sixteen years.

The second highest amount of construction was in the Institutional sector, with an average of 14.4 percent annually. The new Elementary School in 2004 accounted just over half of the institutional construction during the period. Commercial construction was third at 12.4 percent and industrial construction was the lowest with an annual average of 2.0 percent. Although some years have been lower in different sectors, construction values have stayed fairly constant over the last seven years. When averaged out, there has been almost $3.3 million worth of building permits issued each year for the period covered in Table 8.

Table 8

TOWN OF VULCAN

BUILDING PERMITS By USE (2000-2016)

YEAR	Residential Construction	Residential	Commercial	Industrial	Public	Total Investment/Year
2001	4 Houses	$606,000				
	4 Accessory Bldgs	$17,500				
	2 Manufactured Homes	$127,000				
	8 Reno/Additions	$44,113				
	11 Condos (18 Units)	$1,544,850				
		$2,339,463	$197,560	$120,000	$98,000	$2,755,023
		84.90%	7.20%	4.40%	3.60%	100.00%
2002	3 Houses	$444,000				
	4 Accessory Bldgs	$505,000				
	5 Reno/Additions	$7,765				
	14 Condos (22 units)	$1,972,950				
		$2,929,715	$1,092,840	$27,740	$1,784,505	$5,834,800
		50.20%	18.70%	0.50%	30.60%	100.00%
2003	9 New Residences	$1,264,475				
	7 Res Accessory Bldgs	$57,500				
	16 Reno/Additions	$194,350				
		$1,516,325	$1,178,100	$53,763	$178,500	$2,926,688
		51.80%	40.30%	1.80%	6.10%	100.00%
2004	12 New Residence	$1,365,120				
	4 Res Accessory Bldg	$36,450				
	10 Reno/Additions	$53,700				
	1 Moved in Bldg	$25,000				
	1 Duplex	$247,200				
		$1,727,470	$1,878,500		$6,512,466	$10,118,436
		17.10%	18.60%	0.00%	64.40%	100.00%
2005	10 New Residence	$17,000,000				
	4 Res Accessory Bldgs	$42,000				
	4 Reno/Additions	$4,600				
		$17,046,600	$308,000	$10,000	$154,500	$17,519,100
		97.30%	1.80%	0.10%	0.90%	100.00%
2006	12 New Res	$2,523,125				
	1 Duplex	$320,000				
	5 Reno/Additions	$38,950				
	3 Res Accessory Bldgs	$49,000				
		$2,931,075		$320,000		$3,251,075
		90.20%	0.00%	9.80%	0.00%	100.00%
2007	34 New Res	$8,095,000				
	2 Manufactured Homes	$182,000				
	4 Res Accessory	$52,000				
	3 Condo - 8 units	$1,360,000				
	6 Reno Additions	$416,000				
		$10,105,000	$1,059,000	$335,000		$11,499,000
		87.90%	9.20%	2.90%	0.00%	100.00%

YEAR	Residential Construction	Residential	Commercial	Industrial	Public	Total Investment/Year
2008	10 New Res	$3,084,800				
	5 Res Accessory	$84,000				
		$3,168,800	$90,000	$96,000	$98,000	$3,452,800
		91.80%	2.60%	2.70%	2.80%	100.00%
2009	7 New Res	$2,098,000				
	1 Condo/3units	$350,000				
	13 Reno/Additions	$209,940				
		$2,657,940		$40,000	$232,492	$2,930,432
		90.70%	0.00%	1.40%	7.90%	100.00%
2010	2 New Res	$472,222				
	9 Reno/Additions	$99,000				
	7 Res Accessory	$71,200				
	1 Duplex	$250,000				
		$892,422	$624,300		$234,000	$1,750,722
		51.00%	35.70%	0.00%	13.40%	100.00%
2011	1 New Res	$185,000				
	7 Reno/Additions	$59,000				
	2 Accessory Bldgs Res	$32,000				
		$276,000		$30,000	$418,125	$724,125
		38.10%	0.00%	4.10%	57.70%	100.00%
2012	3 New Res	$925,000				
	6 Accessory Bldgs Res	$109,587				
	6 Reno/Additions Res	$80,000				
		$1,114,587		$80,000	$150,000	$1,344,587
		82.90%	0.00%	5.90%	11.20%	100.00%
2013	1 New Res	$420,000				
	1 Manufactured Home	$180,000				
	1 Reno/Additions	$25,000				
	3 Accessory Bldgs Res	$18,000				
	1 Moved in Pre-Occupied Bldg	$180,000				
		$823,000	$2,085,000	$61,000	$226,000	$3,195,000
		25.80%	65.30%	1.90%	7.10%	100.00%
2014	5 New Res	$1,100,000				
	5 Moved in Pre-Occupied Bldg	$539,000				
	7 Accessory Bldgs Res	$85,000				
	9 Reno/Additions Res	$216,332				
		$1,940,332	$442,600	$69,400	$527,500	$2,979,832
		65.10%	14.90%	2.30%	17.70%	100.00%
2015	6 New Res	$1,740,567				
	2 Moved in Pre-Occupied Bldg	$250,000				
	3 Accessory Bldgs	$30,000				
	7 Reno/Additions Res	$42,300				
		$2,062,867	$263,000		$37,000	$2,362,867
		87.30%	11.10%	0.00%	1.60%	100.00%

YEAR	Residential Construction	Residential	Commercial	Industrial	Public	Total Investment/Year
2016	3 new res	$1,220,968				
	1 Modular home	$170,000				
	4 reno	$79,050				
	3 decks	$24,500				
	6 Accessory Bldgs	$106,000				
		$1,600,518	$6,000	$250,000	$105,156	$1,961,674
		81.60%	0.30%	12.70%	5.30%	100.00%
	16 Year Totals per Use	**$53,132,114**	**$9,224,900**	**$1,492,903**	**$10,756,244**	**$74,606,161**
	% of yearly average	**71.22%**	**12.36%**	**2.00%**	**14.42%**	**100.00%**
	Average per year	**$3,320,757**	**$576,556**	**$93,306**	**$672,265**	**$4,662,885**

Subdivision and Development Activity

The amount and type of subdivision activity over the last 16 years that has taken place in the Town of Vulcan is displayed on Table 9. On average, there has been 29.8 lots created per year. As can be seen in Table 9, in some years there was a large amount of lots created while in others there was none. Residential lots accounted for 95.5 percent of the total lots created over the study period and most during the boom period prior to the 2008 economic collapse in the United States. In 1985 the industrial park was developed and 45 lots were created, as this area continues to develop no new lots were created in the reporting period shown in Table 9.

Table 9

TOWN OF VULCAN
SUBDIVISION ACTIVITY – 16-YEAR OVERVIEW

Town of Vulcan Subdivision Activity 2000 - 2015

Year	Number of Applications	Proposed Use of Lots						Total Lots
		Residential	Country Residential	Institutional	Commercial	Industrial	Recreational	
2015	1	1						**1**
2014	2	2			3			**5**
2013	0							**0**
2012	5	4		4				**8**
2011	0							**0**
2010	1				1			**1**
2009	2	1	3					**4**
2008	3	5						**5**
2007	7	11	3		1			**15**
2006	4	75	2		1			**78**
2005	3	113			2			**115**
2004	4	7	1				2	**10**
2003	6	132						**132**
2002	0							**0**
2001	4	34	2					**36**
2000	5	29	2		6			**37**
Total	**47**	**414**	**13**	**4**	**14**	**0**	**2**	**447**

Municipal Assessment

Table 10 shows the Year 2017 Equalized Tax Assessment Report for various municipalities in Southern Alberta. The structure of a municipality's tax assessment affects how they allocate the tax burden through the community. As commercial and industrial assessments generate higher taxes than residences, a community with a well-balanced assessment base equates to one with lower residential taxes. From Table 10 it can be seen that the closer a community is to a larger centre, it starts to take on 'bedroom community' qualities. The ratio of residential to non-residential tax assessment increases.

Coaldale has an assessment ratio of approximately 9:1, while Coalhurst, which is closer to Lethbridge, has a ratio of approximately 16:1. When towns such as these are omitted from the comparison, then the average tax assessment ratio becomes approximately 3.5:1. The Town of Vulcan, because of its distance from a major centre, reflects a ratio that is closer to the average. In fact, Vulcan's tax assessment ratio is approximately 2.8:1, which is lower than the average. This tax structure does not leave a heavier tax burden on one particular group and gives the town more options when faced with compensating for revenue shortfalls.

Table 10: 2017 Equalized Assessment

Municipality	2016 Census Population	Residential	Farmland	Non-Residential (Non-Regulated)	NR Linear Property	NR Railway
Lethbridge	92,729	9,756,593,786	2,571,200	2,280,749,592	213,355,270	1,073,400
Cardston	3,585	279,697,120	68,000	39,455,671	4,792,700	5,320
Coaldale	8,215	760,598,551	90,580	80,554,828	8,166,550	256,630
Coalhurst	2,668	217,919,840	45,740	8,118,540	2,155,660	432,570
Magrath	2,374	183,905,707	37,970	9,560,586	2,326,460	0
Picture Butte	1,810	138,275,647	54,800	26,212,376	2,143,370	0
Pincher Creek	3,642	317,206,752	203,640	98,634,250	6,081,190	0
Taber	8,428	697,687,331	194,400	211,624,285	14,438,920	411,280
Vauxhall	1,222	62,334,504	71,340	11,269,629	1,956,190	0
Vulcan	**1,917**	171,257,251	111,720	34,211,650	3,103,600	87,790

Municipality	NR Co-gen M&E	Machinery and Equipment	Grand Total	% Residential	% Non-Residential	% Other
Lethbridge	0	203,764,000	12,458,107,248	78.3%	18.3%	3.4%
Cardston	0	254,140	324,272,951	86.3%	12.2%	1.6%
Coaldale	0	1,846,840	851,513,979	89.3%	9.5%	1.2%
Coalhurst	0	17,450	228,689,800	95.3%	3.6%	1.1%
Magrath	0	1,353,980	197,184,703	93.3%	4.9%	1.9%
Picture Butte	0	2,089,580	168,775,773	81.9%	15.6%	2.5%
Pincher Creek	0	194,760	422,320,592	75.1%	23.4%	1.5%
Taber	542,120	63,607,960	988,506,296	70.6%	21.4%	8.0%
Vauxhall	0	1,280,100	76,911,763	81.0%	14.7%	4.2%
Vulcan	0	663,130	209,435,141	**81.8%**	**16.4%**	**1.8%**
			Average:	83.3%	14.0%	2.7%

Source: Alberta Municipal Affairs

Integrated Community Sustainability Plan

The Town of Vulcan developed an *Integrated Community Sustainability Plan* in March 2010. This document is meant to ensure a sustainable future and focuses on capital expenditure with an emphasis on cleaner air, water and the reduction of greenhouse gases. It is structured around the key topic headings of Economic/Financial, Environmental, Social and Governance. Certain actions are set out amongst the topic areas which should be reviewed, augmented and updated through time and as implemented.

Summary

The Town of Vulcan has a very active work force participating in a growing and diversifying economy. As Alberta's economy evolves, Vulcan's can be expected to parallel it. The economy of the town depends greatly on agriculture and energy, and is therefore susceptible to the swings that can occur in these sectors. A diverse economy is less likely to be as adversely affected by market forces. Through proper management and continued promotion by the town and county's Economic Development initiatives, the future economic growth in the town should reflect that of the region.

TRANSPORTATION

The Town of Vulcan sits at the centre of a regional transportation hub. The Town is located at an intersection point of three major transportation routes: Highway 23, running north and south; Highway 534, running east and west; and the main CPR railway line joining Lethbridge and Calgary. The Town and County jointly own the local airport, which has been annexed into the Town.

Local Road Network

The efficient flow of traffic is important for all aspects of a community. From industry to tourism, all sectors of the economy will benefit from a good road system. The road pattern in the town is that of the traditional grid system (Map 2). The grid was laid out southwest of the railway and parallel to it, with the largest proportion of the local streets being part of the grid. In the subdivisions south of Hwy 534 the street pattern was designed with curvilinear characteristics featuring crescents and cul-de-sacs.

In 2013 Council adopted by resolution a Transportation Policy for the Town. The document and associated Road Hierarchy (Truck Route) map provide Level of Service, Street Capacity and Access Management policy for the community's road network (See Map 2 and Appendix A for the complete policy).

Alberta Transportation Highway Access Management and Traffic Volume

There are two highways passing through town: Highway 23 and Highway 534. Any subdivision or development activity that is adjacent to either highway will have to be approved by Alberta Transportation. Service Road and access to Highway 23/534 are governed by Alberta Transportation Vulcan Access Management Study (2004). For complete understanding, the original document should be referenced.

Traffic volumes on the two highways peaked in the 2006-2008 boom period and have since levelled off (Appendix B). The future of land use in Vulcan will be affected to a great extent by the amount and type of traffic that will be going through the town. Increased traffic on a roadway or railway has a direct effect on what kind of barrier these rights-of-way will become to development and sense of a cohesive community.

The 2016 Traffic Volume, Vehicle Classification Data for Highway 23 (Appendix B) show 73.6% as private vehicles and 22.7% commercial vehicles. The numbers are similar for Highway 534 at 74.5% private vehicles and 21.5% commercial vehicles. Both show similar RV traffic numbers at approximately 4%. Highway 23 will continue to be the main link for Vulcan with other trade centres and it is the preferable corridor for any adjacent highway commercial development.

Railway

Presently three to five Canadian Pacific Railway trains pass through Vulcan daily on no set schedule, some over a mile long. There is a single track that passes through town and there are two crossings located on it. If a long train had to stop it would block both crossings, as they are not sufficiently far apart. In case of an emergency there are uncontrolled crossings at short distances, both north and south of town.

There are 3 rail siding locations associated with the grain terminals:

- the Pioneer site in town with 75 car spots on one parallel siding
- the Parrish & Heimbecker south of town with 56 car spots on one parallel siding
- the Pioneer site south of town with 112 car spots on five parallel sidings

Airport

As a result of Vulcan's annexation in 2000, the airport is within the town boundary. The airport is jointly owned by the Town and Vulcan County and is operated by an airport commission consisting of representatives from both municipal councils and the public at large. The airport is certified as a public use airport by Transport Canada and consists of one paved 3000' runway and one turf runway. Present development consists of seven hangars and a few storage buildings. The potential exists for more development to occur at the airport, possibly of an industrial nature. However, all proposals would need to be evaluated by Transport Canada to ensure federal requirements are met.

UTILITIES

Water

The Town purchases water from and is part of the Twin Valley Regional Water Commission. Water is currently pumped through a pipeline to town from a point on the Twin Valley Dam and Reservoir, some 16.9 kilometres to the west. The water is stored in two storage lagoons located to the southwest of town. The water is then treated in a facility capable of treating 4,164 litres per minute

In Alberta, total per capita water use in 2009 was 395 l/c/d, and residential water use 209 l/c/d. In comparison, the Canadian average for these same measures was 510 l/c/d and 274 l/c/d, respectively (Environment Canada, 2011). Alberta's per capita water use was (and continues to be) well below the Canadian average — a reflection of the success of municipal programs and efforts to date and of the commitment of this province's water users to achieve water savings. By comparison, Vulcan's average per capital residential water use is 322.70 l/c/d and 370.91 l/c/d total per capita use.

As a Water for Life strategy, AUMA suggests that the Alberta's urban municipal sector will achieve an average per capita residential water use of 195 litres/person/day and a total per capita water use of 341 litres/person/day (30% below reported water use 2001-2006) by 2020.

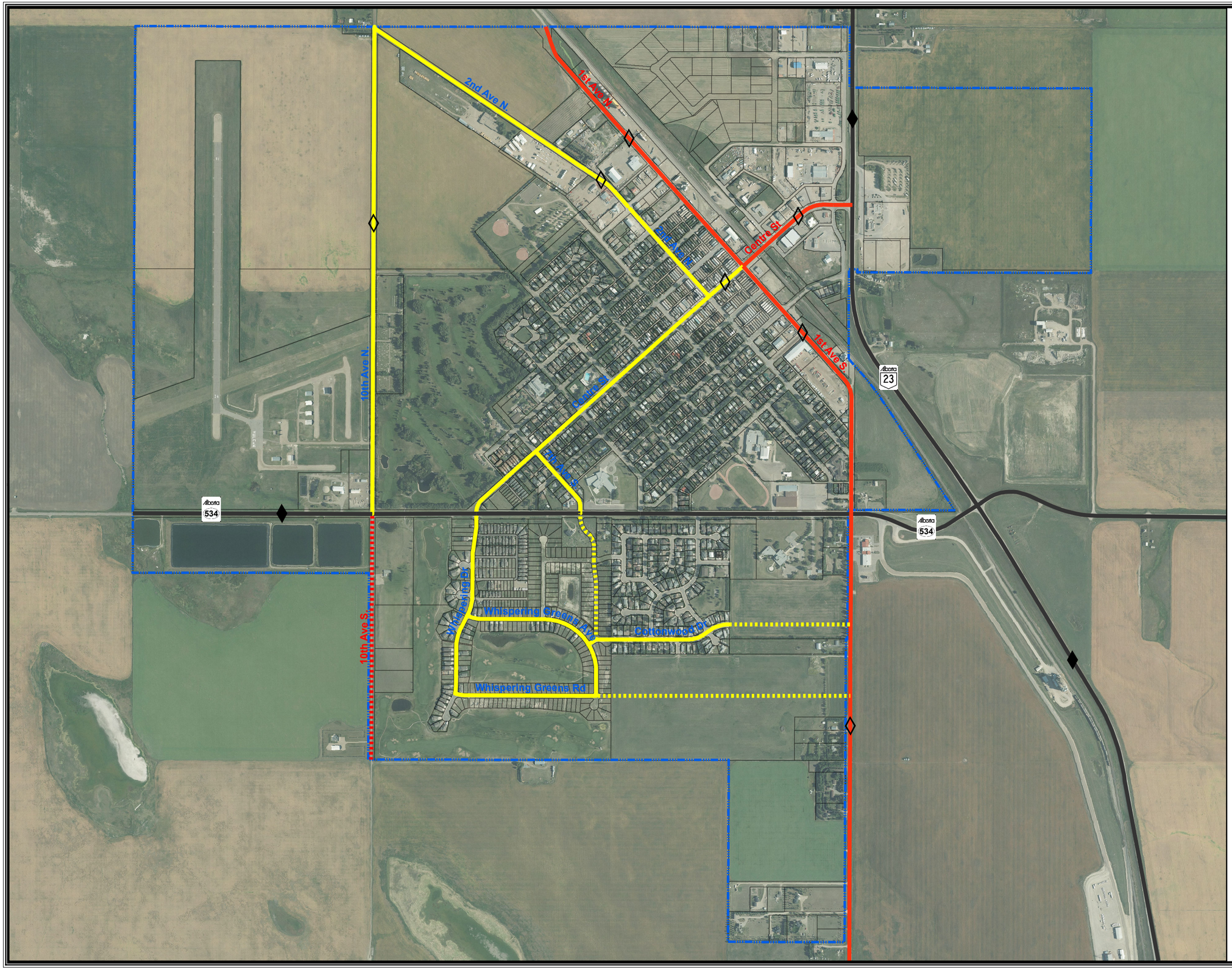
The Town of Vulcan's Utility Bylaw encourages the replacement of high consumption fixtures with more efficient products. The bylaw also placed the Town on a watering rotation to lower summer consumption. In 2009, the Town replaced all water meters with new meters with leak detection capabilities.

Sanitary Sewer

The sanitary sewer lagoons are built for an approximate population of 3,800 people, which would work out to ±1,727 residences (based on 2.2 average persons per household; Stats Canada 2016 Census). Sewage collection is accomplished by approximately 20.8 kilometres of sanitary sewer lines. The town's topography and physical layout require the use of three lift stations to transport sewage to the treatment facilities on the north side of Highway 534 within NW6 17-23 W4M, about 6.84 km (4.25 miles) outside the town boundary.

TOWN OF VULCAN
ROAD HIERARCHY

Town of Vulcan
ALBERTA



Vulcan Municipal Boundary

Road Hierarchy

- Highway
- Major Collector (Existing)
- Major Collector (Proposed)
- Minor Collector (Existing)
- Minor Collector (Proposed)

Truck Route

- Highway Truck Traffic
- Local Truck Traffic

MAP 2

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 120 240 480

Meters

N

July, 2017

Storm Sewer

The Town of Vulcan has implemented effective flood control measures as part of an efficient storm sewerage system. Storm water is collected in 7.4 kilometres of underground lines and is then directed to catchment areas to hold it until it can effectively drain. There are two catchment sites incorporated into the golf course to help handle storm runoff. Storm runoff from Vulcan is directed east and under Highway 23 through a culvert where it is then channelled to the former sanitary sewage site. The storm water then runs into a coulee, which is a natural drainage course that eventually drains into McGregor Lake.

Solid Waste

Solid waste removal services is contracted to the Vulcan District & Waste Commission. Solid waste is collected in town and taken to a waste transfer station east of Town north of Highway 534. The waste is then transported by truck to the Lethbridge Waste Recycling Centre operated by the City of Lethbridge and located to the north of the city's boundary. The Town is also a member of Sothern Alberta Energy from Waste Association (SAEWA) whose work may lead to alternative sources of waste management service.

Gas

Atco Gas provides natural gas to the community. Gas service has been in use in Vulcan since 1952. Atco has no reservations about providing gas service to new lots, as long as the lots are within the town boundary and have water.

Electricity

Fortis Alberta provides electrical distribution and supply to the Town. Billing and customer assistance is handled from a regional office in Calgary.

Telecommunications

Wi-Fi and fibre optics ***internet*** providers include Axia, Wild Rose Internet, Telus, Platinum Communications, Rogers, Explornet and True Solutions.

ISSUES

- Increased traffic flow on Highway 23 and Highway 534.
- Increased truck traffic on Elizabeth Street (Highway 534).
- Service road and access to Highway 23/534 are governed by Alberta Transportation Vulcan Access Management Study (2004).
- Increase of rail traffic through town with two rail crossings.
- High cost of supplying new infrastructure to developing areas.

3. LAND USE

OVERVIEW

In the planning of a community, the location, quality, and quantity of the different land uses determines the shape and character of that community. Matching Vulcan's land use needs to the supply of land is important in managing future growth. The role of land use planning is to manage growth with a minimum of conflict. Conflict arises when incompatible land uses affect each other in an adverse way. Vulcan, like all communities, has specific issues that shape development in the community. These issues and the manner in which they are dealt with will determine how well growth is managed for the future of the community and its residents.

Patterns of land use will start to emerge as a municipality grows. In Vulcan there is a well-established commercial downtown area and industrial development has remained in the northern parts of town, predominately north of the railway (Map 3). Residential development has remained south of the railway and continues to move in that direction, to the south of Highway 534.

RESIDENTIAL

Overview of Existing Development

As stated earlier, existing residential development within Vulcan has taken place on the south side of the railway. The largest percentage of that development has been on the original grid street pattern that was established by the CPR. Some of the more recent subdivisions have started to use crescents, cul-de-sacs, and curvilinear road networks. Housing types include single family dwellings, multi-family units, duplexes, condominiums and mobile homes.

Single unit dwellings including 2-unit and prefabricated dwellings are allowed in the R-1 residential district as either permitted or discretionary uses. Manufactured homes require a separate zoning to the R-2 Manufactured home district. To date, manufactured home development has been clustered in the southeast corner of Allen Acres and on 3rd Street North between 4th and 5th Avenues (Map 3). The 2015 Land Use Bylaw also separated Multi-unit residential into the R-4 district. This district includes all dwelling types of 3 units or more.

As a result of the 2000 annexation Vulcan has inherited a number of country residential acreages as shown on Map 3 which are designated as Country Residential R-3 in the Land Use bylaw. With a minimum lot size of 1 acre, these estate style sites are not conceived to be the desired housing development density for the community rather a housing option that can accommodate secondary uses such as home occupations and market gardens.

There also exists the possibility for several of these parcels to be subdivided into smaller acreages any further subdivision will need to address municipal servicing, drainage and be accompanied by an area structure plan or where appropriate an outline plan.

Table 11
TOWN OF VULCAN
LAND INVENTORY (May 2016)

LAND USE	Developed Hectares	Vacant Zoned Hectares	Vacancy Rate	Total Hectares	% of Total
Residential	73.57	19.18	4.84%	92.75	7.75%
Commercial	22.5	4.00	15.09%	26.50	2.22%
Industrial	39.2	17.62	31.01%	56.82	4.75%
Parks & Open Space	202.9			202.9	16.96%
Public Institutional	106.5	6.75	5.96%	113.25	9.47%
Utilities and Parking	5.3			5.3	0.44%
Agricultural	495.9			495.9	41.46%
Roads and Lanes	202.71			202.71	16.95%
Total	1148.58	47.55	3.97%	1196.13	100.00%

Table 12 shows various dwelling and population data for Vulcan and nine other municipalities around Southern Alberta. When the data for Vulcan is compared to that of the other communities, the values for Vulcan closely reflect the average of all the communities. The percentage of dwellings classified as single detached homes are lower than the regional averages, which indicates a better than average mix in housing types. This could indicate that there may be an opportunity for other types of dwellings in the marketplace. The average cost of a dwelling is approximately $2,000 less than the regional average, while the average family income is approximately $2,200 less than the regional average.

Table 13 shows when the private dwellings in town were constructed. Over 50 percent of the private dwellings were constructed since 1970, giving the town a good mix of house styles, with the majority being more modern. A mix of newer and older homes helps to fill specific market niches, as homebuyers are looking for character homes or those requiring less maintenance and upkeep.

According to Table 14, 39 percent of private households in Vulcan are single-person households. This is 7 percent higher than the regional average and a full 3 percent higher than the provincial average. As a percentage of the total number of households, the number for two-person households is also much higher than the regional and provincial averages. This may be due to Vulcan's high percentage of seniors whom reside in town. Three-person, four-person, and the five person percentages are all lower than regional and provincial averages.

TOWN OF VULCAN
EXISTING LAND USE

Town of Vulcan
ALBERTA

Vulcan Town Boundary

Highway

Existing Land Use 2016

- Residential R1 (120.19±ac)
- Residential Mobile Home R2 (7.32±ac)
- Country Residential R3 (40.40±ac)
- Residential R4 (12.74±ac)
- Commercial Retail (29.52±ac)
- Commercial Highway (26.09±ac)
- Industrial (39.15±ac)
- Public Institutional P1(106.53±ac)
- Parks Open Space P2 (202.95±ac)
- Agricultural A (495.85±ac)
- Airport Rail (144.08±ac)
- Parking & Utilities U (5.29±ac)
- Vacant (116.71±ac)

MAP 3

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 120 240 480

Meters

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July, 2017

Table 12

COMPARISON OF VARIOUS SOUTHERN ALBERTA COMMUNITIES
DWELLINGS AND POPULATION CHARACTERISTICS

Structural Type *(as percentage of dwelling stock)*	***Vulcan***	***Crowsnest Pass***	***Pincher Creek***	***Claresholm***	***Fort Macleod***
Single detached house	**78.3**	84.4	79.5	75.6	78.4
Semi-detached house	**4.8**	0.3	3.3	4.2	2.4
Row house	**4.8**	2.1	4.6	3.3	2.4
Apartment, detached duplex	**1.2**	0.7	0.0	2.7	1.2
Apartment building, five or more storeys	**0**	0.0	0	0	1.6
Apartment building, less than five storeys	**4.2**	4.2	3.7	9.1	3.7
Other single attached house	**0.6**	0.3	0.3	0.6	0
Movable dwelling	**4.8**	7.6	8.0	4.2	10.6
Other Dwelling Status Information					
2006 Percentage Owned	**85.0**	85.7	81.9	71.7	78.7
2006 Percentage Rented	**15.0**	14.3	18.1	28.3	21.3
Average number of persons per dwelling	**2.2**	2.1	2.3	2.1	2.3
2006 Average value of dwelling: $	**152,108**	171,511	128,949	159,870	124,667
Population Characteristics					
2005 Median family income: $	**59,448**	60,356	55,629	57,868	56,149
2006 unemployment rate	**2.2**	5.7	3.8	2.4	4.7
Average age of the population	**49.7**	46.1	44.3	49.4	43.0

Structural Type *(as percentage of dwelling stock)*	***Nanton***	***Coaldale***	***Cardston***	***Picture Butte***	***Magrath***
Single detached house	85.4	77.2	90.6	79.1	89.4
Semi-detached house	4.3	3.9	2.1	3.7	2.6
Row house	3.8	3.8	5.1	3.0	0
Apartment, detached duplex	0	1.7	0.8	3.0	0.6
Apartment building, five or more storeys	0	0	0	0	0
Apartment building, less than five storeys	3.8	4.3	1.3	1.5	2.6
Other single attached house	0.5	0	0	1.5	0.6
Movable dwelling	2.1	8.9	0	8.9	3.9
Other Dwelling Status Information					
2006 Percentage Owned	86	83.7	83.9	74.5	88.4
2006 Percentage Rented	14	16.3	16.1	25.5	11.6
Average number of persons per dwelling	2.2	2.7	2.9	2.6	3.0
2006 Average value of dwelling: $	196,650	161,857	146,419	134,780	166,069
Population Characteristics					
2005 Average family income: $	55,033	62,115	55,972	53,540	56,376
2006 unemployment rate	1.9	3.3	2.3	2.6	5.8
Median age of the population	48.3	37.7	42.1	37.5	37.8

** All data has been obtained from Statistics Canada 2016 Census information and 2006 Census information where indicated.*

Table 13
TOWN OF VULCAN
PRIVATE DWELLINGS – PERIOD OF CONSTRUCTION

Period of Construction	*Number*
Before 1946	130
1946-1960	130
1961-1970	65
1971-1980	125
1981-1990	115
1991-2000	98
2001-2010	143
2011-2016	29

Source: Statistics Canada Census Data

Table 14
TOWN OF VULCAN
TOTAL NUMBER OF PRIVATE HOUSEHOLDS BY HOUSEHOLD SIZE

Household Size	*Number*	*Percentage*	*Regional*	*Provincial*
1 person	245	29.5%	24.0%	24.0%
2 person	380	45.8%	39.0%	34.3%
3 person	95	11.4%	13.9%	16.0%
4 person	65	7.8%	13.0%	15.3%
5 or more persons	45	5.5%	10.1%	10.4%
TOTAL	830	100%	100%	100%

Source: Statistics Canada 2016 Census

Future Growth Requirements

As the population of the Town of Vulcan increases the town will need more land for residential development. The amount required is dependent upon present consumption and future population growth. Presently, the population density for all types of residential land uses in Vulcan is 11.7 housing units per hectare. Table 15 shows land area requirements for two population projections over the next 20 years.

The land requirements for future residential growth are calculated by using the Arithmetic population projection model as the high rate of population growth, and 20-year cohort as the low rate. The number of persons per dwelling has also been varied, as this may also change with time. The density of dwellings is held constant at 11.7 units per hectare, Vulcan's present density. According to the analysis, the town will require a high of 27.4 hectares at 2.0 persons per dwelling over the next 20 years. Using 2.2 persons per dwelling, the current average then the high estimate for the next 20 years is 18.3 hectares and the low is 11.7 hectares. This analysis does not take into consideration existing vacant land or lots that could be used for infill development. As a result of the 2000 annexation Vulcan will have more than an adequate supply of land within its town boundaries for residential use for the next several decades.

As shown on Map 3, those lands to the south of Highway 534 are the most practical to direct future residential use in terms of ease of servicing and proximity to schools, existing residences, and parks.

The existing country residential acreages pose some constraints into the future in terms of locating roadways and services relative to existing development. There may also be a number of land owners that may end up being involved in the development process. As a result, the town has decided to limit the further fragmentation of these acreages in order to provide for typical urban development akin to that of the Allan subdivision to expand westerly as the opportunities present themselves. The directions of growth map (Map 5) also illustrates the vision the municipality has for development south of Highway 534.

Table 15

TOWN OF VULCAN
RESIDENTIAL LAND REQUIREMENTS WITH POPULATION INCREASE

Year	*Population Level*		*Assumed Persons Per Dwelling Unit*	*Total Required Dwelling Units*		*Existing Dwelling Units*	*New Dwelling Units Needed*		*Land Area Required (hectares)*	
	HIGH	*LOW*		*HIGH*	*LOW*		*HIGH*	*LOW*	*HIGH*	*LOW*
2021	2049	2014	2.4	854	839	830	24	9	2.0	0.0
			2.2	931	915	830	101	85	8.6	7.3
			2.0	1025	1007	830	195	177	16.7	15.1
2026	2132	2071	2.4	888	863	830	58	33	4.9	2.8
			2.2	969	941	830	139	111	11.9	9.5
			2.0	1066	1036	830	236	206	20.1	17.6
2031	2215	2106	2.4	923	877	830	93	47	7.9	4.0
			2.2	1007	957	830	177	127	15.1	10.8
			2.0	1107	1053	830	277	223	23.7	19.0
2036	2299	2127	2.4	958	886	830	128	56	10.9	4.8
			2.2	1045	967	830	215	137	18.3	11.7
			2.0	1150	1064	830	320	234	27.4	20.0

As economic opportunities expand, Vulcan will continue to grow and attract new residents that will require a variety of housing types to accommodate differing income levels. In addition, as rural residents retire, Vulcan will be the place to reside. They can be close to family, friends and a familiar and comfortable lifestyle. As long as services can keep pace with the demands of an increasing population of seniors, the need for senior specific housing will also grow. Opportunities maybe created through infill lots for seniors to be located closer to the shopping and services they require.

ISSUES

- Future residential growth is somewhat constrained by the railway, highways, and the airport to the west of town.
- The next 20 years will see a dramatic increase in the senior citizen population whose changing housing needs and desire to be near required services will have to be addressed.
- Commercial traffic will continue to increase on Highway 534, which passes through residential areas, school and hospital zones.
- Continued growth of the City of Calgary will exert some pressure on residential development in towns that may be within commuting distance.

- There is a need for increased variety in housing types and affordable housing alternatives.
- There may be a need for additional areas to accommodate manufactured homes.
- Existing subdivisions within annexed lands may act as a constraint for future growth.
- Incremental subdivision and development in annexed lands should be avoided and Area Structure Plans or Conceptual Design Schemes should be utilized.

COMMERCIAL

Overview of Existing Development

The Town of Vulcan's commercial activity is based largely on providing services for the agricultural sector. Areas of large growth and change in commercial activity have occurred in areas directly related to agriculture and the oil and gas industry, while retail commercial services have concerned themselves with meeting the day-to-day requirements of a small town. The growth of the commercial district in Vulcan has reflected the slow and steady growth in the population of the town, with the majority of the businesses located in the downtown area between 1st Street North and 1st Street South. As in many small towns, the downtown faces several challenges as the population is far more mobile than it once was, with people travelling to larger centres such as Calgary to make a number of their purchases. In addition retail needs are also changing, many businesses particularly national franchises, require larger sites than what the downtown with its twenty five foot lots may be able to accommodate.

Lands that are currently being used for commercial purposes amount to 22.5 hectares (55.6acres), or 2.22 percent of the total developed land within the town (Table 11). This percentage is lower than the North American average of 3.23 percent. Prior to the 2000 annexation the percentage of developable land that was dedicated to commercial uses was 5.8 percent, quite a bit higher than the North American average. The addition of both airport and associated agricultural land account for the drop.

Of the 26.5 hectares (65.48 acres) of land designated for commercial use, 22.5 hectares are developed, which gives a vacancy of 15.1 percent. Vulcan divides its commercial land into two different land use districts: C-1, Retail / Commercial; and C-2, Highway Commercial. For the purpose of this plan, commercial land use will be analyzed in just two separate uses, Highway Commercial and Retail Commercial.

Highway Commercial

Highway Commercial areas often include such commercial activities as service stations, drive-in restaurants, convenience stores, and motels and hotels. By their nature, highway commercial uses require sites with high visibility, ready access, and larger lot sizes to accommodate drive-in services for semi-trailer, recreational vehicles, and parking. Highway commercial use should cater to the travelling public, and should not be aimed solely at the local market. All highway commercial activity takes place adjacent to Highway 23. Vulcan's 2000 annexation of a large portion of the NW¼ Sec. 4, Twp. 17, Rge. 23, W4M brought 48.6 hectares (120 acres) adjacent to Highway 23 on the east into the town's limits which is slated for future highway commercial development (See Map 3). There is no land designated for commercial use adjacent to Highway 534.

Table 16

COMPARISON OF HIGHWAY COMMERCIAL LAND USE AREAS FOR SELECTED MUNICIPALITIES IN SOUTHERN ALBERTA (Based on Designated Land Use)

MUNICIPALITY	HWY Commercial Area in Hectares	Hectares per 1000 (population)	Percentage of Developable Land
Vulcan	***16.0***	***8.71***	***2.62***
Claresholm	12.99	3.46	1.66
Nanton	11.48	5.38	2.39
Pincher Creek	32.25	8.75	3.19
Coaldale	7.66	1.02	0.95
Picture Butte	2.35	1.42	8.60
Average	**13.78**	**4.79**	**1.47**

Table 16 shows that Vulcan has the third highest percentage of developable land designated as highway commercial for various communities in Southern Alberta. There are some reasons why this number may be higher. Firstly, the lots are large in size, and secondly, Vulcan's role as a service centre increases the likelihood that those businesses are serving the larger region.

Future growth and development of highway commercial activity is more closely related to increased traffic on the highway rather than actual population growth in the town itself. Highway traffic volumes have been steadily increasing over the last 10 years and will continue to do so in the future, thus creating more demand for highway commercial services.

Retail Commercial

Retail Commercial contains the remaining designated commercial land use other than Highway Commercial. The amount of land designated for this commercial use is the highest as a ratio of hectares per 1000 population, as compared to most towns of similar size in Southern Alberta according to Table 17.

Table 17

COMPARISON OF RETAIL COMMERCIAL LAND USE AREAS FOR SELECTED MUNICIPALITIES IN SOUTHERN ALBERTA (Based on Designated Land Use)

MUNICIPALITY	Commercial Area in Hectares	Hectares per 1000 (population)	Percentage of Developable Land
Vulcan	***8.0***	***4.35***	***1.30***
Claresholm	6.7	1.78	0.85
Nanton	8.9	4.17	1.85
Pincher Creek	5.1	1.38	0.50
Coaldale	7.9	1.05	0.98
Picture Butte	4.6	2.78	1.60
Average	**6.86**	**2.58**	**1.18**

Vulcan has a well-developed downtown, with businesses located on either side of Centre Street going southwest from the railway tracks to 3rd Avenue (Map 3). Commercial enterprises are also located to the north along 1st Street North and to the south as far as 2nd Street South. There are also commercial land uses on large parcels located to the northwest along 2nd Avenue, which are not within the downtown.

Centre Street within the Downtown Core has generally been built out with little opportunity of infill development. Commercial development has started to take place north and south of Centre Street on the south side of 1st Avenue. Expansion of the downtown to the north is constrained by the existing industrial and residential land uses.

The town wishes to retain and develop the present downtown as the main retail and service centre of the community. Making the downtown more pedestrian oriented and friendly will help to keep the people in the area for longer periods. This can be partially accomplished by utilizing public benches, sidewalk design modifications, and special lighting to make a more attractive downtown area. Pedestrian traffic can also be encouraged by limiting vehicles to a degree and providing for off street parking close to the downtown core on public lots when land becomes available. In addition, a mixture of uses including retail, personal services, restaurants, public uses such as medical offices and the post office, as well as some higher density residential development aimed at seniors, perhaps ensures people are making multiple stops for longer than the traditional 9 to 5 time frame.

Future Growth Requirements

According to the averages for both highway commercial and Retail commercial, the Town of Vulcan has a larger developed commercial area per 1000 people than most of the municipalities in the region. What is important to note is that Vulcan also acts as a service centre for a larger region than most of the other municipalities as the 2016 Census population for Vulcan County was 3,984, and there are no similar-sized municipalities in the area. By their nature, highway commercial uses need to develop along the highway. The 2000 annexation provides the town with enough suitable land for some time. As well-designed access to the highway is important, the development of this area should be done with an overall plan in mind and with the consultation of Alberta Transportation. The growth of the downtown area is somewhat physically constrained by the existing industrial and single family residential uses to the north. The relocation of these uses in the future may provide a growth opportunity and in the meantime the infill of a few vacant buildings and perhaps expansion with a second storey may be options.

Using the population projections and the current rates of consumption, some projections about future land requirements can be made. Vulcan presently has 16.0 hectares of land designated as highway commercial, of which 8.22 hectares is developed. This amounts to a current rate of consumption of 4.9 hectares per 1,000 people. Using a high population projection of 2136 and a low of 1986, at the present rate of consumption the town will require between 10.5 and 9.7 hectares of highway commercial land in the next 20 years.

With 11.04 hectares of the 12.25 designated as other commercial, the present rate of consumption of other commercial land is 6.58 hectares per 1,000 people. Using the high and low population projections and the current rate of usage, Vulcan will require between 14.1 and 13.1 hectares of land for commercial uses other than highway commercial.

ISSUES

- Good access to and from the highway is required by highway commercial land uses.
- Allowing traditional downtown development in highway commercial areas can harm the downtown by drawing the public away.
- There is a desire to keep the downtown core as the main commercial area in town.

- The downtown is becoming somewhat constricted and there is very little space for new development.
- Existing industrial uses generate truck traffic on Centre Street that does not mix with other vehicular and pedestrian traffic.

INDUSTRIAL

Overview of Existing Development

Industrial activity in any community is essential for the growth and prosperity of that community. Industries supply employment for residents as well as much needed tax revenue to help provide the services residents have come to expect. Associated with these economic benefits is the task of protecting other land use activities from any negative externalities associated with certain types of industry. Vulcan is fortunate as the railway acts as a barrier to separate most industrial land uses from the residential areas. There are some industrial land uses on the south side of the railway and on the south side of 1st Avenue and many are non-conforming. These areas existed before the new industrial park was developed in 1986 and were crucial for Vulcan's economic well-being. This area is still very valuable to the economy of the town, as it is the location of some farm services, a trucking firm, and some other important industries. Unfortunately this brings large truck traffic into and through a portion of the downtown area.

Table 18

COMPARISON OF INDUSTRIAL LAND USE AREAS
FOR SELECTED MUNICIPALITIES IN SOUTHERN ALBERTA
(Based on designated Land Use)

MUNICIPALITY	Industrial Area in Hectares	Hectares per 1000 (population)	Percentage of Developable Land
Vulcan	***35.46***	***19.31***	***5.80***
Claresholm	36.72	9.77	4.70
Nanton	26.63	12.49	5.54
Pincher Creek	43.06	11.68	4.26
Coaldale	72.56	9.68	9.46
Picture Butte	26.94	16.32	9.86
Average	**40.22**	**13.20**	**6.60**

There are 35.46 hectares of land designated for industrial use within Vulcan's town boundary, of which the town presently has 22.78hectares developed. Table 18 shows a comparison of designated industrial land for various communities in Southern Alberta. When compared to other communities, Vulcan has the largest amount of industrial land per capita.

The average sizing standard for gross land for industry is approximately 4-5 hectares per 1000 people. At 19.31 hectares per 1000 people, Vulcan's amount of industrial land is approximately four times the North American standard.

The amount of industrial land that is currently vacant in Vulcan is 15.86 hectares, which amounts to approximately 44 percent of the total. Therefore there is no need to designate more land for industrial use in Vulcan. It is often difficult to determine future land requirements for industrial use as some industries will require different land bases than others. As a result the availability of vacant land should be monitored closely.

Future Growth Requirements

There are several factors to consider when selecting areas for future expansion. Firstly, industrial areas experience more truck traffic, which for safety reasons should be segregated as much as possible from pedestrian and smaller vehicle traffic. Secondly, due to the noises, odours, dust and external storage often involved with industrial uses, they should be physically separated from other types of development as well. Currently Vulcan has a large amount of vacant industrial land located to the east of the railway and west of Highway 23. Once this land is utilized, further expansion into lands to the north should be considered. Land at the airport could also be used for industrial development, providing the operations of the airport are not compromised.

ISSUES

- Increased industrial development will increase the tax base while supplying more employment opportunities.
- Supplying infrastructure to new development is expensive.
- Industrial areas require good access to an efficient transportation system designed to handle the specific types and volumes of industrial traffic.
- Industrial areas require an adequate area for material and product storage.
- Industrial areas can become unkept and unattractive, which can deter new development.

PARKS, RECREATION, AND OPEN SPACE

Overview of Existing Development

According to the most recent land use analysis, Vulcan has 82.11 hectares of land designated as parks and open space. When the golf course is included this amounts to 8.2 percent of the town's developable land. For a town of its size, Vulcan has a good amount of park and open space per resident (Table 19). The golf course comprises a large area, 92.5 hectares, and when removed from the area for parks and open space, the ratio of land to 1000 people is 12.9 hectares. This is still good compared to the North American standard, which is between 4 and 12 hectares per 1000 people.

Table 19

COMPARISON OF PARKS AND OPEN SPACE LAND USE AREAS FOR SELECTED MUNICIPALITIES IN SOUTHERN ALBERTA

MUNICIPALITY	Area in hectares	Hectares Per 1000 population	Percentage of developable Land
Vulcan	82.11	44.72	13.44
Claresholm	138.31	36.80	17.72
Pincher Creek	117.67	31.93	11.66
Coaldale	102.4	17.9	12.8
Nanton	175.23	82.19	3.65
Picture Butte	11.51	6.97	4.21
Average	**104.5**	**36.6**	**10.6**

There are a wide variety of recreation opportunities in Vulcan for the residents of the town and surrounding area. The town supplies the majority of indoor and outdoor recreation facilities to the region.

Outdoor facilities include:

- 4 baseball diamonds
- 3 soccer pitches
- beach volleyball courts
- Arena Municipal Campground
- 400 m shale track
- Fish and Game fish pond
- Skate board park Seasonal water park rodeo grounds
- outdoor skating arenas
- Vulcan Golf and Country Club
- Vulcan Lions Swimming Pool
- Kinette Walking Path and exercise park

Indoor facilities include:

- Iceplex Arena
- Curling Club
- Municipal Library
- Museum
- Bodyworks Fitness Centre
- County Central High School
- Prairieview Elementary School
- Cultural Recreation Centre
- Seniors Drop-In Centre
- Youth Drop-In Centre
- Vulcan Lodge Hall

Land designated for parks and open space use can be put into two categories. Firstly, there is the land that contains structures and facilities that are designed for a specific use, such as the golf course, rodeo grounds, swimming pool, arena, and campgrounds. Secondly, there are open spaces that function as buffer strips or transition zones along major transportation routes, as small green areas in residential districts or have been taken as municipal reserve during the subdivision process but are not developed as parks. Open spaces and green areas enhance and beautify the town while softening the impact of buildings and structures. Examples of the above include the two parcels located on the north and south sides of Centre Street at the intersection of Highway 23, the green area in the centre of Chinook Drive and the triangular Municipal Reserve parcel in the northwest corner of the industrial park.

The land that is designated for recreational use by the town is only a portion of the total that is used by residents for recreational purposes. Public and Institutional land can contain a large number of recreational facilities as well. There are ball diamonds, soccer pitches and playgrounds located at Prairieview Elementary School and County Central High School. In addition to providing outdoor facilities, these institutions contain gymnasiums, meeting facilities, and stage and performance facilities, which are maintained by the Palliser Regional Schools and serve to enhance life in the community.

Future Growth Requirements

For a town of its size, Vulcan has a large supply of recreation facilities for the community and the surrounding region. The future development of parks will have to meet the changing demands for different types of recreation choices. By their nature, recreation facilities are costly to build and maintain.

In the past, park and open space development was not considered as much of a priority as it is today. This has resulted in a lack of park and open space in the areas of town that were first developed. As the population structure changes, the demands for such activities as walking, bird watching, and lawn bowling are increasing. The Kinettes have initiated a walking path that could be expanded as new areas of the town are developed.

The feat of balancing the cost, necessity, and demand for adequate facilities is a difficult one that all communities face. There is no question that recreation facilities, including parks and open space, are essential for the well-being of any community and need to be strongly considered when reviewing future development.

In pursuit of service delivery, recreational programming, and infrastructure needs the Town has developed a Regional Recreation Strategic Plan (2015). This plan should be referenced in all processes that include recreation and open space planning and implementation.

ISSUES

- Varied recreation opportunities enhance the quality of life in a community.
- New and existing recreation facilities are costly to build and maintain.
- As the population ages there is an increasing demand for recreation facilities and opportunities directed towards seniors.
- Some residential areas are not equally served by park space.
- Schools provide important recreational opportunities and facilities to communities.
- Vulcan supplies the recreation programs and facilities for a large region outside the town.

PUBLIC AND INSTITUTIONAL

Public and institutional land uses comprise such things as health and protective services, and educational and cultural facilities. In Vulcan this includes uses such as the hospital, seniors' facilities, fire hall/library, Town Office, churches, schools and other public service land uses. The quality of life enjoyed by the citizens of a community is often a reflection of the quantity and quality of these services. According to Vulcan's existing land inventory, Table 11, approximately 8 percent of the total land is comprised of public and institutional land uses. This is close to the average for developed urban areas within Canada.

Market forces primarily drive the growth in development, as it is the private sector that will develop the land required. As the town grows, the demand for municipal and human services will grow also and the town will have to acquire land to supply those services. As municipalities cannot afford to purchase all the land that they would need to supply the services required, the Municipal Government Act (MGA) has provisions in it that allow municipalities to acquire land in the form of municipal and school reserves. Under certain circumstances the MGA requires that the subdivision and development authority address municipal and/or school reserve at the time a subdivision decision is rendered. The MGA also requires that these reserves be allocated in conjunction with the affected school authorities. The maximum amount of reserve land, or money in lieu of reserve land or a combination of land and money that the subdivision authority may require for reserve is covered under Part 17, Divisions 8 and 9 of the MGA.

There are some land uses that fall into the public and institutional category that will require more land in the future and are unable to reserve land in the same fashion that the town and school authorities can. Churches and community service groups provide a valuable service to the community that they belong to. The question arises as to which land use district these particular uses should be relocated to. In communities around southern Alberta there are churches located in residential neighbourhoods, commercial areas, industrial parks, and in the fringe area around communities. When towns and villages started to develop, the church was an integral part of community life and church sites can be found in the downtown and areas surrounding the downtown. Institutional land uses of all kinds are part of how a community defines itself and their particular future land use needs need to be addressed.

Health Services

Healthcare in the Town of Vulcan is administrated through the Calgary Health Region. The hospital in Vulcan is a modern facility and is 34 years old. There are presently three physicians in the community with a health and wellness mandated goal for the equivalent of 4 physicians. The hospital has 8 acute care

beds; 15 long-term care beds, and an emergency department. There is a helicopter-landing pad located on site and the STARS air ambulance services the area.

The hospital acts as a community health centre, with the health clinic located in the same building. This may be appropriate at present, but if the population grows as is expected, the hospital has indicated that they will need more space. The Town of Vulcan, Vulcan County and the community at large have invested in a hospital expansion.

The Health Region has indicated that their main concern in the future will be to provide proper services to the growing population of seniors. Seniors' needs are being met in various facilities located throughout Vulcan. Extendicare is a private accredited company that provides 46 bed home with 24 hour nursing and supportive care a block away from the hospital. The Peter Dawson Lodge is a seniors' housing facility adjacent to the golf course and administered by the Marquis Foundation. They are a 46-bed facility, with 18 additional units of self-contained housing right behind the lodge. There is a minimum admittance age of 65 years, and first priority is given to seniors from the immediate region. They have limited space and there is a waiting list. With the projected growth in the population of seniors in the next 20 years, all of the above facilities will have to expand or other facilities built to meet present and projected demands.

The town also has the services of a chiropractor, dentist, and an optometrist.

Protective Services

Under Alberta Health Services, the Vulcan emergency medical services department serves both the town and Vulcan County. They are a modern department outfitted with two ambulances, two full-time and six casual attendants. At present they are able to provide basic life support and are hoping to provide advanced life support in the near future. The transportation routes and road system do not impede response time to date. The railway has not caused any problems due to the crossings both north and south of the town.

Fire protection services are provided by a 20-person fully-volunteer fire department. They provide service to the Town of Vulcan as well as a large portion of the surrounding county. The department has three pumper trucks; capable of supplying a combined 10,000 litres per minute of water when needed. The fire department is housed in the Tri-Services building. The department also has safety concerns with increasing traffic on highways and railways as well as ensuring municipal infrastructure is adequate for fire protection.

The town has a fully-coordinated disaster plan in place because of their close proximity to major transportation routes, such as Highway 23 and the CPR rail line.

Police services are provided by the local detachment of the Royal Canadian Mounted Police. The detachment is made up of four full-time officers and one auxiliary constable. From the Tri-Services building, they provide services to the town as well as Vulcan County, an area of approximately 5,433 km^2. They are involved with community policing and maintain a good rapport with councillors to keep aware of the community's needs. The Town's Community Peace Officer augments these services by providing bylaw and municipal enforcement duties.

Educational Services

There are two schools in the Town of Vulcan, Prairieview Elementary School (pre-school & K-6) and County Central High School (7-12). Vulcan serves as the largest educational setting for students residing in the northern area of Palliser Regional Schools. As well, Vulcan Outreach School (8-12) offers online courses across the division and co-ordinates the international student program. The outreach model has resulted in teaching staff being available to support students in person and online.

Palliser continues to experience enrolment decline in the Vulcan area. For example, in 2010- 2011, County Central had a student population of 289 students in grades 7-12. In 2015-2016, that has fallen to 246. At

Vulcan Prairieview Elementary School, the 2010-2011 enrolment was 260. That stands at 197 in September 2015.

Schools not only serve as an educational facility, they also serve as a community centre. They provide the community with meeting, recreational, and cultural facilities. Cooperation agreements between the schools, towns, and recreation boards ensure and facilitate the continued sharing and integrating of school and town resources for the benefit of the entire community.

Education is a life-long activity, and in recognizing this, the Vulcan County Adult Learning Council endeavours to provide continuing education opportunities.

Cultural and Churches

There are numerous cultural facilities and activities in Vulcan serving the residents of the town and surrounding area. In 1992 the Cultural Recreation Centre was constructed adjacent to the County Central High School. The facility is a multi-use centre equipped with a stage and pullout platform. The Vulcan Municipal Library is well stocked and is part of the Chinook Arch Regional Library System, centred in Lethbridge. Patrons can access and loan material from any member library. Other facilities include the museum that is operated by the Historical Society, the senior citizens drop-in centre adjoining the Municipal Library, and the Vulcan Tourism and Trek Station located near the entrance to the town.

Along with these facilities, there are numerous groups and organizations that help to enhance the cultural well-being of the region. Service clubs such as the Lions, Kinsmen, 4-H Clubs, Agricultural Society and others, provide cultural activities, opportunities and awareness as they involve the community and its members.

There are presently nine churches within Vulcan. Not unlike other facilities, these churches serve the surrounding county as well as the citizens of the town.

Future Growth Requirements

As new development occurs and the population grows, the need for the expansion of these facilities will undoubtedly take place.

ISSUES

- The growing population of seniors will increase the demand for the services that they require.
- The present long-term care facilities have limited capacity and keeping up with the growing demand will be a challenge.
- Concerns of the fire department include:
    - undersized water mains within town which are under a 25-yr replacement program,
    - safety concerns regarding railway crossings,
    - increasing volumes of truck traffic on Highway 534,
    - if traffic volumes continue to increase on Highway 534, a ring road may need to be considered on the south end of the town.
- Schools provide valuable cultural facilities to their community.
- 'Sweat Equity' helps to reduce the cost of building and maintaining programs and facilities.
- It is difficult to forecast the land requirements for future public and institutional uses.

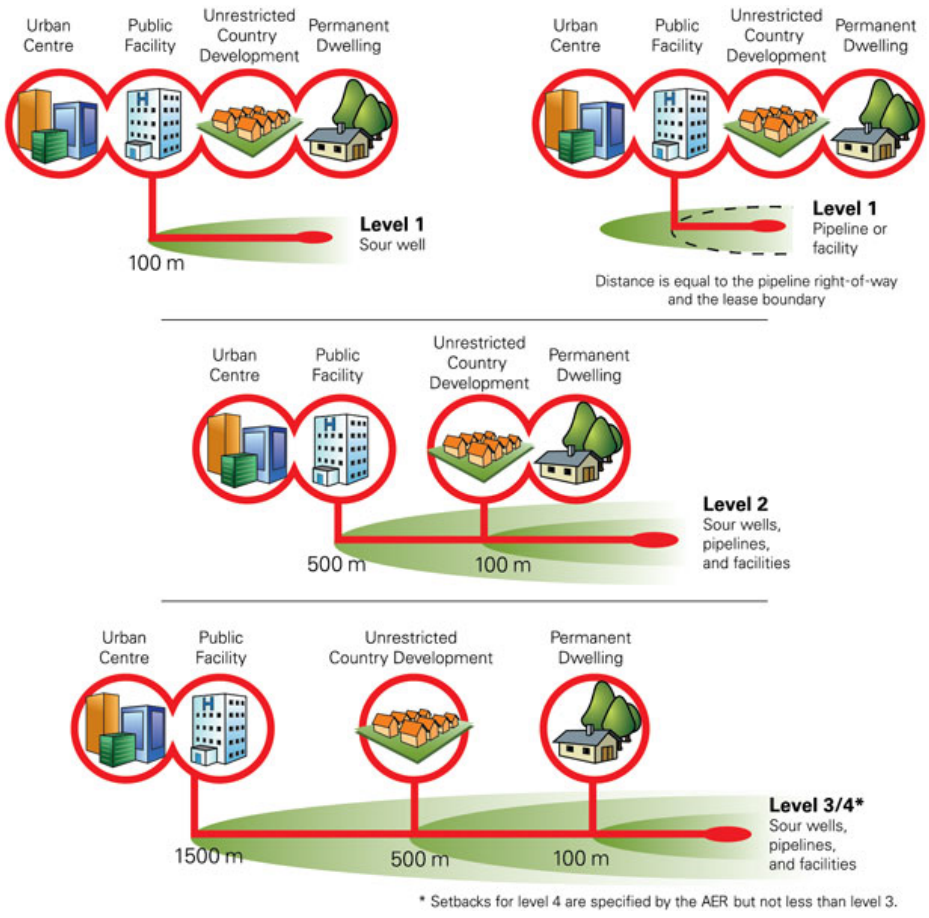
EXTENSIVE AGRICULTURE

The Town of Vulcan has a large percentage of land within its municipal boundaries currently used for agricultural pursuits. The protection of agricultural operations and practices requires both urban and rural municipalities to include policies consistent with the Municipal Government Act and the South Saskatchewan Regional Plan. In addition to allowing existing agricultural operations the ability to function as they have in the past, notice must be given to all landowners adjacent to such operations that informs the landowners that agricultural operations are in the vicinity and there may be noises, traffic, smells, etc. as a result. The definition of adjacent is meant to be as broad as possible, therefore, in a small urban area that could be construed to mean every landowner. It is also important to note that in an urban municipality agricultural lands are usually considered an interim land use until they are needed for the orderly growth and development of the municipality.

SOUR GAS FACILITIES

As oil field development is exempted from the planning provisions of the MGA, pursuant to section 618(1), the MGA requires a Municipal Development Plan (MDP) to contain policies compatible with the Subdivision and Development Regulation to provide guidance on the type and location of land uses adjacent to sour gas facilities. Section 9 of the Subdivision and Development Regulation outlines the setback requirements for subdivisions or developments in proximity to sour gas facilities.

Figure1



Currently there are no sour gas facilities within the Town of Vulcan or its urban fringe within Vulcan County. If such facilities are established in the future, the setback distances as shown on Figure 1 and as outlined in Section 9 shall be applied to future subdivisions and developments if applicable. Recent events in the oil and gas industry surrounding sour gas well emissions and facility safety issues have many citizens of Alberta concerned.

The citizens of Vulcan realize that oil and gas development is a vital component to their economy, but they also have concerns regarding their health and safety. The town has expressed an interest in restricting sour gas development within 5 miles (8 kilometres) of Vulcan. Strong communication between all parties involved will be a step toward reducing any conflicts and improving understanding of all the issues.

VULCAN FRINGE AREA

The Town of Vulcan has a variety of different land uses in its fringe area. The fringe area for Vulcan is shown on Map 4 and 5, comprising an area 1.6 kilometres (1 miles) on the outskirts of the town boundary. This area is in Vulcan County, is zoned Urban Fringe and comprises approximately 7600 acres. The land is primarily agricultural and the largest single land use in the area is for residential purposes, accounting for 61 percent of the total number of land uses (Table 20). Of the total number of residential uses, 76 percent are for farmsteads and are spread fairly evenly around the fringe area. While there are some country residences in the outlying areas, the majority of them are located south and east within a kilometre and a half of the town. The 2000 annexation brought the town shop, water treatment plant reservoir, and airport into the town. However, the sewage treatment facilities and waste transfer station are located to the east of Highway 23, within Vulcan County.

Table 20

TOWN OF VULCAN
FRINGE AREA LAND USES

Fringe Area Land Use Comparison - 2000 to 2010

Type of Land Use		Study Area	
		2000	2010
Residential:	Country Residence	13	26
	Farmstead	28	24
	Ancillary Farm Residence	2	1
	Abandoned Farmstead	3	3
	Farm Building	18	19
	Total:	**64**	**73**
Commercial:	Automotive	2	0
	Other	2	1
Industrial:	Elevator	2	2
	Other	1	2
Public:	Tri-Services	0	1
	Airport	1	0
Utilities:	Waste Disposal Facility	1	1
	Lagoon, Water Reservoir	2	1
	Other	1	1
Miscellaneous:		1	0
Gas:	Wells	3*	49*
TOTAL:		**77**	**82**

* data not used in total calculations due to limited data availability in 2000.

Source: ORRSC

Fringe areas can create problems for both urban and rural municipalities. The growth of country residential subdivisions in the fringe impairs the urban municipality's ability to develop land in an orderly fashion. The location of noxious land uses and intensive livestock operations in the fringe can cause conflicts if expansion is necessary or the urban area expands towards them. As growth occurs in an urban municipality, transportation patterns may also change or need to be changed. The growth of Vulcan to the south will continue to have an effect on Highway 534 (Elizabeth Street), while growth to the north will affect Highway 23.

ISSUES

- Vulcan is surrounded by good agricultural land.
- The fragmentation of land in the fringe area due to country residential subdivision can impair the town's ability to develop land in an orderly fashion.
- The coordination of land use matters with Vulcan County includes issues of minimizing conflicts, urban and rural growth, shared infrastructure and transportation patterns.
- Development pressures in the Fringe have created a need for a statutory Intermunicipal Development Plan to be adopted by the Town and MD.
- Opportunities exist to work on joint projects with Vulcan County.

TOWN OF VULCAN
FRINGE AREA EXISTING LAND USE

Town of Vulcan
ALBERTA

17 - 25 - W4
17 - 24 - W4
16 - 25 - W4
16 - 24 - W4

- Town of Vulcan Boundary
- 2010 Study Area
- Urban Fringe
- Highways

Existing Landuse

- Farmstead
- Farm Building
- Ancilliary Farm Residence
- Abandoned Farmstead
- Country Residence
- Commercial
- Municipal Facility
- Industrial
- Oil/Gas Well
- Utilities

MAP 4

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 0.5 1 2

Kilometers

N

July, 2017

TOWN OF VULCAN
DIRECTIONS OF GROWTH

Town of Vulcan
ALBERTA

AIRPORT

INDUSTRIAL

HIGHWAY COMMERICAL/ PUBLIC UTILITY

RESIDENTIAL

COMMERCIAL/ INDUSTRIAL

12 7 8 9 10

1 6 4 3

36 31 32 33 34

25 30 29 28 27

Alberta 23

Alberta 534

Alberta 534

Alberta 23

- Town of Vulcan Boundary
- Urban Fringe
- Highways
- Town of Vulcan Proposed Expansion Area

MAP 5

OLDMAN RIVER REGIONAL SERVICES COMMISSION

0 0.5 1 2

Kilometers

July, 2017

N

5. POLICIES

GENERAL

1. That the Government of Alberta document entitled *Efficient Use of Land Implementation Tools Compendium* may be utilized as a guide in reviewing subdivision and development proposals and in the development of Area Structure Plans, conceptual design schemes, Area Redevelopment Plans and other planning documents as council or the development authority see fit.

2. The Town commits to working with its economic development partners in furthering local and regional development and investment.

3. The Town will be fiscally responsible by ensuring expenditures are matched to sustainable revenue sources. Further to this commitment the Town will review, augment and update the Integrated Community Sustainability Plan when appropriate.

4. The Town will promote the efficient use of resources, so that the cost of providing effective services at reasonable levels can be minimized, while still ensuring the needs of residents, business and other stakeholders are met.

5. That the Town of Vulcan recognises its membership in the Oldman River Regional Services Commission for planning and geographic information system services.

6. The Town is concerned about brownfield sites and may seek solutions to having these sites reintegrated into the community.

7. In pursuit of service delivery, recreational programming, and infrastructure needs the Town has developed a Regional Recreation Strategic Plan (2015). This plan should be referenced in all processes that include recreation and open space planning and implementation.

8. The Town will use as a reference the documents entitled *Vulcan County Heritage Survey & Inventory 2012: Thematic Framework, Context Paper & Inventory Sites, and Heritage Management Plan (2014).*

MUNICIPAL SERVICES

9. In partnership with Alberta Transportation and in accordance with Alberta Transportation Vulcan Access Management Study (2004), the Town should continually monitor traffic flows, vehicle access, and speed limits, and take any changes into consideration when dealing with new development.

10. The Town of Vulcan Transportation Policy (Appendix A) shall be referred to and referenced in all proposed Area Structure Plans, an Intermunicipal Development Plan with Vulcan County, and any development proposal adjoining a highway or major collector. All development adjoining a minor collector or local street is encouraged to refer to the document in the context of the proposal.

11. All roadways in new areas shall conform to development standards as adopted by council.

12. In partnership with Alberta Transportation and new developers, the Town should ensure safe and efficient crossings for both pedestrian and vehicular traffic across Elizabeth Street (Highway 534).

13. All new subdivision and development activity adjacent to a highway will be sent to Alberta Transportation for comment and approval.

14. In partnership with Canadian Pacific Railway, the town should monitor railway crossings within the Town to ensure vehicular and pedestrian traffic flow is not impeded and safety concerns regarding resident evacuation are addressed.

15. The Town should monitor the capacities for water and sewage treatment to ensure they are able to handle potential growth in the municipality. In this pursuit, it is recognized that the Town supports its membership in the Twin Valley Regional Water Commission along with its partners Vulcan County, the Village of Carmangay and the Village of Champion. The Commission is in charge of the provision of potable water to these communities.

16. It is recognized that the Town, along with Vulcan County, the Villages of Arrowwood, Carmangay, Champion, Lomond, and Milo, supports its membership in the Vulcan District & Waste Commission.

RESIDENTIAL

17. Future residential growth should occur in those areas identified on Map 5 with typical urban sized lots occurring in the NE¼ and NW¼ of Section 32 and future country residential subdivision only allowed in the SE¼ of Section 32.

18. Area structure plans or outline plans should be provided for future areas proposed for residential development and should include areas set aside for parks, open spaces, and institutional uses. The design of these area structure plans or outline plans should coordinate as closely as possible with the future desired road locations and land uses as delineated in Maps 2 and 5.

19. Proposed area structure plans should be circulated to the school districts, Alberta Transportation and any other applicable agencies for comments.

20. When making decisions on future residential subdivisions, either for typical urban lots or country residential parcels, the Subdivision and Development Authority shall take into consideration the following:

    (a) how the proposed subdivision corresponds to the future land uses as prescribed by Map 5 and in policy 17;

    (b) if the road network servicing the proposed subdivision will complement that as proposed on Map 2;

    (c) if municipal services can be accessed in a cost effective and practical manner;

    (d) that storm water management issues can be mitigated by the developer.

21. The Town should encourage developers of new areas to provide a variety of dwelling units and densities to serve the needs of different social, age and income groups.

22. The Town shall require high design standards for all residential development.

23. Seniors' housing should be located close to health care, recreation and commercial facilities, wherever possible.

24. Infill development shall be encouraged in neighbourhoods with older housing stock or oversized lots.

25. The development of lots designed to accommodate manufactured homes should take place adjacent to and contiguous with the existing development of that type and where approved by Area Structure Plan or redesignation. Future residential development shall be located pursuant to any setbacks

contained within the Subdivision and Development Regulation or any subsequent provincial legislation.

26. The Town should attempt to increase local awareness of historical preservation grants available for residents to restore and improve houses that may be classified as historical.

COMMERCIAL

27. The Town shall limit the type and size of retail uses in highway commercial areas to minimize the impacts on the retail focus of the downtown.

28. A high standard of appearance is desired on highway commercial businesses to give a positive visual image of Vulcan to the motoring public.

29. Highway commercial development should be directed to those areas as indicated on Map 5.

30. Future proposals for highway commercial development shall be accompanied by an area structure plan or outline plan.

31. Proposed area structure plans for lands adjacent to a highway shall be circulated to Alberta Transportation for comments.

32. The Town should promote the relocation of non-conforming uses to areas in which they conform in order to facilitate downtown expansion.

33. The pedestrian oriented design of the downtown should be continued to help create a more active, people oriented commercial centre.

34. The Town should promote more off-street parking of the traffic accessing and using the downtown core.

35. Commercial buildings in the downtown should be encouraged to expand upward to make fuller use of the building footprint.

36. The preservation and restoration of historic buildings and sites important to the development, character, and identity of the Town of Vulcan should be encouraged.

INDUSTRIAL

37. The Town should promote new industrial developments as well as the expansion of existing ones.

38. The Town should ensure there is an adequate land supply for future industrial expansion.

39. Developers will have to pay the cost of supplying services to new developments.

40. The addition of another access to the industrial park should be considered if there is further expansion.

41. The Town should discourage further industrial development on the west side of 1st Avenue and encourage existing industrial developments to relocate to designated industrial areas.

42. Non-conforming uses should be encouraged to relocate to properly designated areas.

43. The Town should require high development standards in the industrial areas.

PARKS, RECREATION AND OPEN SPACE

44. The Town should ensure that recreation opportunities are available for all ages and lifestyles.

45. The Town should investigate funding alternatives to avoid the increasing cost of park maintenance, especially with new developments.

46. The Town should encourage green spaces in new developments to complement and to extend the Kinette walkway throughout Vulcan.

47. The Town should continue to support joint use agreements with the school authority for provision of open space, playgrounds and sports fields.

48. Area structure plans and subdivisions should be circulated to the school authority for comments.

49. Recreation facilities should be annually reviewed to ensure they are running efficiently and are being widely used by the public.

PUBLIC AND INSTITUTIONAL

50. The Town should monitor the demographic makeup of the residents to ensure needs and concerns within Council's mandate are addressed.

51. In partnership with Alberta Transportation and Vulcan County, the relocation of Highway 534 to the south may need to be considered in the future if traffic volumes and safety considerations warrant it.

52. In 2010 Vulcan County built a "Tri-Service" building on the outskirts of Vulcan. This building houses the RCMP, Fire Department and Ambulance Service. Existing community services and facilities should be monitored to ensure that local requirements are being met.

53. The Town should continue to support joint use agreements with the school authority in the provision of open space, playground areas, and to encourage community and social activities within school facilities.

54. Continue to recognize service clubs, community groups, and other volunteer organizations for the valuable contributions they make to the community.

55. The Town should require that reserve sites be designed into future developments to aid in the provision of land for public and institutional uses such as schools, halls, churches and other such uses.

EXTENSIVE AGRICULTURE

56. In order to address the requirements of Section 632(3)(f) of the Municipal Government Act, 2000, the Town of Vulcan shall provide written notice to all municipal landowners biannually either through the tax notice, utility bills and/or an ad in the local newspaper.

57. The Town of Vulcan respects the intent of Section 632(3)(f) to allow agricultural operations to continue to function in an urban environment while noting agricultural lands within an urban municipality are usually future growth nodes.

58. That lands in close proximity to the airport runways may not be conducive to development and should remain agriculturally oriented in the near future.

59. Land designated as Transitional Agriculture in the Land Use Bylaw shall be encouraged to submit an area structure plan prior to the approval of subdivision so as to preserve agricultural land and ensure prudent transition to more intensive urban development.

SOUR GAS FACILITY DEVELOPMENT

60. The Town shall advise the Alberta Energy Regulator that the Town of Vulcan would like to be notified of future development of a sour gas facility which is within five miles of the town boundary.

61. All development initiatives shall undergo a process to conform to the Alberta Subdivision and Development Regulation with respect to sour gas facilities and oil and gas wells.

62. Developments with the potential of locating adjacent to existing oil and gas facilities should undergo a process to conform to the Advisory Land Use Planning Notes on abandoned well sites in consultation with the Alberta Energy Regulator (AER). Developments adjacent to existing oil and facilities will also be referred to the AER for comment prior to development approval.

INTERMUNICIPAL PLANNING

63. The Town of Vulcan and Vulcan County should continue to work in a positive and cooperative manner to ensure proposed subdivisions and developments do not impede the future growth of either municipality.

64. Future industrial or commercial subdivisions and developments proposed for the newly annexed areas or joint development areas should be referred to Vulcan County for comments in accordance with an adopted Intermunicipal Development Plan.

65. The Town of Vulcan, Vulcan County, and Alberta Transportation should monitor the vehicle traffic on Highway 3 and 534 to ensure safety concerns are addressed.

66. The Town and County shall coordinate the continued development of the Vulcan Airport through an adopted Intermunicipal Development Plan.

67. The Town and County shall through an adopted Intermunicipal Development Plan come to agreement on the preservation of wetlands and measures for watershed management.

68. The Town will maintain membership in the joint committee for the Heritage Advisory Board.

6. IMPLEMENTATION AND PROCEDURAL ISSUES

COMPLIANCE

Provincial Legislation

The provincial government makes changes to it legislation from time to time. When such changes occur, a review of the municipal development plan as well as other planning documents will be necessary to ensure conformity.

South Saskatchewan Regional Plan Conformance

The Alberta Land Use Framework, implemented by the Provincial Government in 2008 provides a blueprint for land-use management and decision-making that addresses Alberta's growth pressures. The Land Use Framework established seven new land-use regions and requires the development of a regional plan for each. The Town of Vulcan is located with the geographical area of the ***South Saskatchewan Regional Plan (SSRP)*** which was effective the fall of 2014. The SSRP lays out a number of key desired outcomes and strategic directions relating to the region's economy, people, environment, and resources.

All statutory plans and relevant documents must comply with the SSRP by no later than September 1, 2019. Compliance can be achieved by updating relevant statutory and other relevant documents, and filing a statutory declaration declaring compliance with the province. The timing of the 2017 update of this Municipal Development Plan is convenient, providing an opportunity for Vulcan to align its highest level statutory planning document with the SSRP. However, ongoing consideration of what alignment means is recommended, as the implications of the SSRP continue to be determined and realized at all levels of government in Alberta.

The following excerpts from the SSRP relevant to the Municipal Development Plan are identified and the most pertinent MDP policies highlighted.

Section 1: Use Land Efficiently

1. All land use planner and decision-makers responsible for land-use decisions are encouraged to consider the efficient use of land principle in land-use planning and decision making. (SSRP Implementation Plan Section 5.1)

1.1 Reduce the rate at which land is converted from an undeveloped state into permanent, built environment.

Relevant MDP Policy: 1

1.2 Utilize the minimum amount of land necessary for new development and build at a higher density than current practices.

Relevant MDP Policy: 1, 14, 21

1.3 Increase the proportion of new development that takes place within already developed or disturbed lands either through infill, redevelopment and/or shared use, relative to new development that takes place on previously undeveloped lands.

Relevant MDP Policy: 24

1.4 Plan, design and locate new development in a manner that best utilizes existing infrastructure and minimizes the need for new or expanded infrastructure.

Relevant MDP Policy: 20(b)

1.5. Reclaim and/or convert previously developed lands that are no longer required in a progressive and timely manner.

Relevant MDP Policy: 6

1.6 Provide decision-makers, land users and individuals the information they need to make decisions and choices that support efficient land use.

Relevant MDP Policy: 1

2. Build awareness and understanding of the efficient use of land principle and the application of land–use planning tools that reduce the footprint of the built environment, how they might be applied and how their effectiveness would be measured over time with municipalities, land-use decisions-makers and land users, on both public and private lands. (SSRP Implementation Plan Section 5.2)

Relevant MDP Policy: 1

Section 2: Planning Cooperation and Integration

When making land-use decisions, municipalities, provincial departments, boards and agencies and other partners are expected to:

1. Work together to achieve the shared environmental, economic and social outcomes in the South Saskatchewan Regional Plan and minimize negative environmental cumulative effects. (SSRP Implementation Plan Section 8.1)

Relevant MDP Policy: 1-7, 59, 62-66

2. Address common planning issues, especially where valued natural features and historic resource are of interest to more than one stakeholder and where the possible effect of development transcends jurisdictional boundaries. (SSRP Implementation Plan Section 8.2)

Relevant MDP Policy: 7-9, 67, 68

3. Coordinate and work with each other in their respective planning activities (such as in the development of plans and policies) and development approval processes to address issues of mutual interest. (SSRP Implementation Plan Section 8.3)

Relevant MDP Policy: 43, 49

4. Work together to anticipate, plan and set aside adequate land with the physical infrastructure and services required to accommodate future population growth and accompanying community development needs. (SSRP Implementation Plan Section 8.4)

Relevant MDP Policy: 1, 9, 10, 55-59

5. Build awareness regarding the application of land-use planning tools that reduce the impact of residential, commercial and industrial developments on the land, including approaches and best practices for promoting the efficient use of private and public lands. (SSRP Implementation Plan Section 8.5)

Relevant MDP Policy: 1

6. **Pursue joint use agreements, regional services commissions and any other joint cooperative arrangements that contribute specially to Intermunicipal land use planning. (SSRP Implementation Plan Section 8.6)**

   Relevant MDP Policy: 2, 5, 15, 16, 47, 69

7. **Consider the value of intermunicipal development planning to address land use on fringe areas, airport vicinity protection plans or other areas of mutual interest. (SSRP Implementation Plan Section 8.7)**

   Relevant MDP Policy: 59, 64-68

8. **Coordinate land use planning activities with First Nations, irrigation districts, school boards, health authorities and other agencies on areas of mutual interest. (SSRP Implementation Plan Section 8.8)**

   Relevant MDP Policy: 47, 48, 55-57

Section 3: Building Sustainable Communities

Municipalities are expected to establish land-use patterns which:

1. **Provide an appropriate mix of agricultural, residential, commercial, industrial, institutional, public and recreational land uses; developed in an orderly, efficient, compatible, safe and economical manner. (SSRP Implementation Plan Section 8.11)**

   Relevant MDP Policy: 1, 18, 21, 27, 32, 38-43, 44, 45, 50, 56

2. **Contribute to a healthy environment, healthy economy, and a high quality of life. (SSRP Implementation Plan Section 8.12)**

   Relevant MDP Policy: 2-4, 7, 50, 53

3. **Provide a wide range of economic development opportunities, stimulate local employment growth and promote a healthy and stable economy. Municipalities are also expected to complement regional and provincial economic development initiatives. (SSRP Implementation Plan Section 8.13)**

   Relevant MDP Policy: 2

4. **Feature innovative housing design, range of densities and housing types such as mixed use, cluster development, secondary suites, seniors' centres and affordable housing. Provide the opportunity for the variety of residential environments which feature innovative designs and densities and which make efficient use of existing facilities, infrastructure and public transportation. (SSRP Implementation Plan Section 8.14)**

   Relevant MDP Policy: 17-26

5. **Minimize potential conflict of land uses adjacent to natural resource extraction, manufacturing and other industrial developments. (SSRP Implementation Plan Section 8.15)**

   Relevant MDP Policy: 41, 42

6. **Minimize potential conflict of land uses within and adjacent to areas prone to flooding, erosion, subsidence, or wildfire. (SSRP Implementation Plan Section 8.16)**

   Relevant MDP Policy: The Town contains no significant areas prone to flooding, erosion, subsidence, or wildfire within its current town boundary and has determined that no policy is necessary to address this section of the SSRP.

7. **Complement their municipal financial management strategies, whereby land use decisions contribute to the financial sustainability of the municipality. (SSRP Implementation Plan Section 8.17)**

    Relevant MDP Policy: 3, 4

8. **Locate schools and health facilities, transportation and transit and other amenities appropriately, to meet increased demand from a growing population. (SSRP Implementation Plan Section 8.18)**

    Relevant MDP Policy: 50-56

Section 4: Agriculture

Municipalities are expected to:

Identify areas where agricultural activities, including extensive and intensive agricultural and associated activities, should be the primary land use in the region. (SSRP Implementation Plan Section 8.19)

Relevant MDP Policy: 57-60

Limit the fragmentation of agricultural lands and their premature conversion to other, non-agricultural uses, especially within areas where agriculture has been identified as a primary land use in the region. Municipal planning, policies and tools that promote the efficient use of land should be used where appropriate to support this strategy. (SSRP Implementation Plan Section 8.20)

Relevant MDP Policy: 1, 58, 60

Employ appropriate planning tools to direct non-agricultural subdivision and development to areas where such development will not constrain agricultural activities, or to areas of lower- quality agricultural lands. (SSRP Implementation Plan Section 8.21)

Relevant MDP Policy: 58-60, 64, 65

Minimize conflicts between intensive agricultural operations and incompatible land use by using appropriate planning tools, setback distances and other mitigating measures. (SSRP Implementation Plan Section 8.22)

Relevant MDP Policy: 1, 57

Section 5: Water and Watersheds

Municipalities are expected to:

Utilize or incorporate measure which minimize or mitigate possible negative impacts on important water resources or risks to health, public safety and loss to property damage due to hazards associated with water, such as flooding, erosion and subsidence due to bank stability issues, etc., within the scope of their jurisdiction. (SSRP Implementation Plan Section 8.23)

Relevant MDP Policy: The Town contains no significant water resources within its current town boundary and has determined that no policy is necessary to address this section of the SSRP.

Incorporate measures in future land-use planning decisions to mitigate the impact of floods through appropriate flood hazard area management and emergency response planning for floods. (SSRP Implementation Plan Section 8.24)

Relevant MDP Policy: The Town boundary does not contain a flood hazard area and is only prone to isolated event flooding and has therefore determined that no policy is necessary to address this section of the SSRP.

Prohibit unauthorized future use or development of land in the floodway in accordance with the Flood Recovery Reconstruction Act and the Floodway Development Regulation under development, which will control, regulate or prohibit use of development of land that is located in a floodway and define authorized uses. (SSRP Implementation Plan Section 8.25)

Relevant MDP Policy: The Town boundary does not contain a floodway and is only prone to isolated event flooding and has therefore determined that no policy is necessary to address this section of the SSRP.

Identify and consider, based on available information including information from the Government of Alberta, the values of significant water resources and other water features, such as ravines, valleys, riparian lands, stream corridors, lakeshores, wetlands, and unique environmentally significant landscapes within their boundaries. (SSRP Implementation Plan Section 8.26)

Relevant MDP Policy: The Town boundary does contain wetlands according to the wetland repository but the data occurs in areas previously developed and it has therefore determined that no policy is necessary to address this section of the SSRP.

Determine appropriate land-use patterns in the vicinity of these significant water resources and other water features. (SSRP Implementation Plan Section 8.27)

Relevant MDP Policy: The Town boundary does contain wetlands according to the wetland repository but the data occurs in areas previously developed and it has therefore determined that no policy is necessary to address this section of the SSRP.

Consider local impacts as well as impacts on the entire watershed. (SSRP Implementation Plan Section 8.28)

Relevant MDP Policy: 68

Consider a range of approaches to facilitate the conservation, protection or restoration of these water features and the protection of sensitive aquatic habitat and other aquatic resources. (SSRP Implementation Plan Section 8.29)

Relevant MDP Policy: 68

Establish appropriate setbacks from waterbodies to maintain water quality, flood water conveyance and storage, bank stability and habitat. (SSRP Implementation Plan Section 8.30)

Relevant MDP Policy: 68

Assess existing developments located within flood hazard areas for long-term opportunities for redevelopment to reduce risk associated with flooding, including human safety, property damage, infrastructure and economic loss. (SSRP Implementation Plan Section 8.31)

Relevant MDP Policy: The Town boundary does not contain a flood hazard area and is only prone to isolated event flooding and has therefore determined that no policy is necessary to address this section of the SSRP.

Facilitate public access and enjoyment of water features, to the extent possible. (SSRP Implementation Plan Section 8.32)

Relevant MDP Policy: 68

Use available guidance, where appropriate, from water and watershed planning initiatives in support of municipal planning. (SSRP Implementation Plan Section 8.33)

Relevant MDP Policy: 68

Section 6: Historic Resources

Municipalities, in consultation with the Minister responsible for the *Historical Resources Act*, are expected to:

Identify significant historic resources to foster their preservation and enhancement for the use and enjoyment by present and future generations. (SSRP Implementation Plan Section 8.34)

Relevant MDP Policy: 26, 36, 69

Work toward the designation of Municipal Historic Resources to preserve municipally significant historic places. (SSRP Implementation Plan Section 8.35)

Relevant MDP Policy: 8, 69

Formulate agreements with the Ministry for development referrals to assist in the identification and protection of historic resources within the scope of their jurisdiction. (SSRP Implementation Plan Section 8.36)

Relevant MDP Policy: 8, 69

Section 7: Transportation

Municipalities, in consultation with the Minister responsible for the *Highways Development and Protection Act*, are expected to:

Identify the location, nature and purpose of key provincial transportation corridors and related facilities. (SSRP Implementation Plan Section 8.37)

Relevant MDP Policy: 1, 11-13

Work with the Ministry to minimized negative interactions between the transportation corridors and related facilities identified in accordance with strategy 8.37 above and the surrounding areas and land uses through the establishment of compatible land-use patterns. (SSRP Implementation Plan Section 8.38)

Relevant MDP Policy: 4, 19, 20(a)(b), 31, 66

Enter into highway vicinity agreements with the Ministry and employ appropriate setback distances and other mitigating measures relating to noise, air pollution and safety to limit access if subdivision and development is to be approved in the vicinity of the areas identified in accordance with 8.37 above. (SSRP Implementation Plan Section 8.39)

Relevant MDP Policy: 1

Other Planning Documents

The municipal development plan policies regarding redesignation, subdivision, and development, will need to be reflected in the Land Use Bylaw also. In addition, all definitions from the land use bylaw are applicable for this plan as well.

REVIEW

Along with the ongoing annual review of the budget, the municipal development plan should be reviewed also. This will ensure that the plan is being followed, and to also ensure that the plan is current and relevant to the economic needs of the community.

AMENDMENT

If and when the council determines an amendment to the municipal development plan is required, the procedures outlined in the Municipal Government Act for the amendment of statutory plans shall be followed.

APPENDIX A: Transportation Policy

TRANSPORTATION POLICY

Introduction

The purpose of this policy document is to designate controlled streets within the Town of Vulcan. The efficient flow of traffic is important for all aspects of a community. From industry to tourism, all sectors of the economy benefit from a good transportation system. Land use in Vulcan will be affected to a great extent by the amount and type of traffic that will be travelling within, around and through the community.

Transportation Goals

The following goals should be reviewed and considered with every proposal.

1. Improve safety on all streets.
2. Preserve peace and quiet in residential areas.
3. Provide a framework for making decisions on access to Town streets.
4. Provide pleasant and safe systems for pedestrians and bicyclists.
5. Create an efficient system of streets for the movement of vehicles through Town and for the circulation of vehicles within the Town.

Local Roads Context

At the local road network level, the road pattern in the Town is arranged in a traditional grid system with the exception of the residential subdivisions south of Highway 534 that includes crescents and cul-de-sacs. Five crossings across Highway 534 provide access between the north and south halves of Town.

The development south of Highway 534 has been developed following modern trends of street pattern. This area and subsequent annexation areas will for the most part use a non-grid street pattern. Non-grid street patterns have to be reviewed with different development criteria. A grid pattern for the most part separates traffic across the pattern and allows driver's choices for reaching destinations. Modified grid patterns and curvilinear street patterns require an identified hierarchy of streets generally broken into the following categories: highways, arterials (major collectors), minor collectors, and local streets.

As the Town grows, increased traffic on the street system will follow. There is a need to balance growth and accommodate additional traffic with the goal of maintaining the rural character of the community and the safety of the public. The Level of Service and the volume- to-capacity (V/C) ratio need study and will require additional attention as the Town grows.

Level of Service (LOS) is a scale that measures the operating capacity likely to be encountered on a roadway or at the intersection of roadways, based on a volume-to-capacity ratio, with levels ranging from A to F, with A representing the lowest volume-to-capacity ratio and the highest Level of Service. Volume-to-Capacity Ratio is the ratio of demand flow rate to capacity for a traffic facility.

- Level-of-Service A represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. The general level of comfort and convenience provided to the motorist or passenger is excellent.

- Level-of-Service B is in the range of stable flow, but the presence of other users in the traffic stream begins to be noticeable. There is a slight decline in the freedom to maneuver within the traffic stream. The level of comfort and convenience provided is somewhat less than at LOS A, because the presence of others in the traffic stream begins to affect individual behavior.

- Level-of-Service C is in the range of stable flow but marks the beginning of the range of flow in which the operation of individual users becomes affected by interactions with others in the traffic stream. Maneuvering within the traffic stream requires vigilance on the part of the user. The general level of comfort and convenience declines at this level.

- Level-of-Service D represents high-density but stable flow. Freedom to maneuver is severely restricted, and the driver experiences a generally poor level of comfort and convenience. Small increases in traffic flow will generally cause operational problems at this level.

- Level-of-Service E represents operating conditions at or near the capacity level. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accommodate such maneuvers. Comfort and convenience levels are extremely poor, and driver frustration is generally high. Operations at this level are usually unstable, because small increases in flow or minor disturbances within the traffic stream will cause breakdowns.

- Level-of-Service F is used to define forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations with the queue are characterized by stop-and-go waves, and they are extremely unstable. Vehicles may progress at reasonable speeds for several hundred feet or more, and then be required to stop in a cyclic fashion.

Highways Context

Vulcan is located at an intersection point of two Alberta Highways: Highway 23, running north and south; and Highway 534, running east and west. Highway 23, a two-lane highway, acts as an alternate to Highway 2 for north-south traffic. Highway 23 also links Vulcan to the City of Calgary in the north and the City of Lethbridge in the south. As seen in Map 1, Highway 23 acts as a physical barrier separating the main residential area to the southwest from the annexed portion of highway commercial and undeveloped land to the east.

Access management policy for those portions of Highways 23 and 534 running through Town is outlined in the *Vulcan Access Management Study Highway 23 and Highway 534 Final Report* completed for Alberta Transportation by Urban Systems in November 2004. It is recognized that solutions for access control on the Highways directly impacts the local street network. Therefore, the Town of Vulcan will take an active role in discussing options and solutions with Alberta Transportation.

Street Capacity

The street capacity policies attempt to retain Vulcan's small town lifestyle by defining for builders and developers criteria to consider with each proposal. The following policies do not fully define the engineering standards, but give general guidance for reviewing projects.

Street Capacity Policies and Programs

1. Level of Service C, as defined above with no individual movement lower than the Level of Service D to E, is the desired standard for the Vulcan Street system. New Local and Collector streets shall be designed to operate at that level.

2. Town streets shall be classified according to function, as defined in Map 1 and as follows:
    - Local Streets shall be low-speed, low-volume facilities which are used primarily to access property.

- Minor Collector Streets shall be moderate-speed, low-to medium-volume facilities which serve to collect traffic from local streets and distribute to the arterial system. Collector streets also provide for direct property access, but their role of serving traffic is equally important.
- Major Collectors are designed to move traffic efficiently. Property access is deemphasized, whereas traffic movement is emphasized.

Engineering standards for volume thresholds can be obtained from the Town's Engineer.

3. Existing collector streets or intersections, operating below Level of Service C may continue to operate at the lower level. New development shall not cause collector streets to degrade to a lower Level of Service.

4. The Town shall have the right to review and approve internal circulation plans for all new developments.

5. All new private streets shall meet minimum Town engineering standards.

6. Traffic studies shall be required for all major development proposals and may be required at the discretion of the Town under other circumstances where there may be significant effects on the street system overall. A major development may include, but is not limited to the following:
   - an Area Structure Plan (ASP), or
   - commercial development proposals, or
   - industrial development proposals, or
   - multi-unit residential development proposals, or
   - tentative subdivision maps, or
   - when any proposal would potentially increase a Level of Service.

7. All transportation studies shall be completed at the sole expense of the developer. Traffic studies shall identify:
   (a) the amount of traffic to be added to the system by the proposed development;
   (b) other known planned projects and their effects on the street system;
   (c) the direct, indirect and cumulative adverse impacts of project traffic on street system operations, safety, and access to the downtown;
   (d) mitigation measures necessary to provide for project traffic while maintaining Town level-of-service standards;
   (e) the responsibility of the developer to provide improvements;
   (f) the timing of all improvements;
   (g) and any other information deemed necessary by MPC or council.

Access Management

Roadways are identified and grouped by the character of service they provide, using concepts of mobility and access. Mobility refers to the potential for movement and access refers to the entry of vehicles to and from a roadway. Vehicles need to access a roadway, but they also interrupt the flow of traffic. Access management controls the amount of interruptions, in a manner appropriate to the adjacent land uses and traffic volumes. Access management standardizes the need for access in concert with the maintenance of traffic flow.

Freeways and principle arterials logically provide the greatest mobility, carry the highest volumes of traffic, and therefore need limited access. Collector roadways and neighborhood streets provide a high degree of access but, due to speed and design needs, offer limited mobility. Generally speaking, the more access management, the greater number of vehicles can be moved on a roadway.

The following access management policies are to be augmented with the guidelines in Appendix A to achieve the best solution for each proposal. For the purposes of this section arterial shall equal major collector.

Access Management Policies

Major Collectors

1. For the purposes of access management of Vulcan's collector system intersection spacing shall be 120 m for all right of ways. Spacing between two major collectors can be found in subsection 5 below. Driveway and alley accesses should also be limited and where allowed should be right turn in and right turn out only.

2. Vulcan County landowners' access onto Town controlled roads requires the landowner to enter into a Servicing Agreement with the Town and adhere to all engineering requirements and other access control policies.

3. Offset driveway locations should be avoided whenever possible.

4. Where the street frontage is proposed to be improved, all abandoned driveways shall be removed and the curbing and side walk to be restored to Town standards.

5. The continued use of pre-existing driveways may be prohibited with the redevelopment of a site.

6. Driveways providing access onto major collector streets may be denied if alternate access is available or if the Town identifies potential safety issues.

7. For the purposes of major collectors, residential driveways shall not face the street, which means garages must be located in the rear of properties and accessed via alleys. All other uses shall have limited access and take advantage of shared access driveways. Turning movements may be limited to right in and right out.

8. Access control on arterial [major collector] roadways should be uniformly applied and maintained in urban areas to reduce congestion and traffic delay, and to encourage safety and economy of the transportation system. *(Source: Alberta Transportation)*

9. Access control should address the varying needs and functions of each arterial [major collector] roadway section, which will depend on: abutting land use type, existing and proposed development, density of development, and relative urban location. For example, more frequent intersection spacing with some direct access will likely be necessary in central business areas (due to existing development), whereas in outlying residential areas, there should be no direct access and [major collector] intersections should be spaced at least 400 m apart. *(Source: Alberta Transportation)*

10. All functional planning and preliminary design of arterial [major collector] roadways should assess the ramifications of access accommodation to all abutting property parcels and developments (existing and proposed), in conjunction with projected traffic volumes and operating speed. *(Source: Alberta Transportation)*

11. To overcome operational problems on existing arterial [major collector] roadways, access control should be exercised following an assessment of existing and potential accident rates and vehicle delay, and prediction of the effects of access control techniques. *(Source: Alberta Transportation)*

12. The Town of Vulcan will exercise its authority to control access on arterial [major collector] roadways. Such control can be applied and maintained by adopting set standards, by making developers and planners aware of arterial [major collector] roadway standards, and by working with the private sector to ensure suitable land access. *(Source: Alberta Transportation)*

Minor Collectors

13. Vulcan County landowners' access onto Town controlled roads requires the applicant to enter into a Servicing Agreement with the Town and adhere to all engineering requirements and other access control policies.

14. Where the street frontage is proposed to be improved, all abandoned driveways shall be removed and the curbing and side walk to be restored to Town standards.

15. The continued use of pre-existing driveways may be prohibited with the redevelopment of a site.

Truck Route

16. The Truck Route through Town is Highway 23 and Highway 534.

17. The internal truck route for access to commercial and industrial business includes Centre Street, 1st Avenue, 2nd Avenue N and 10th Avenue N. For the complete route see Map 1.

Pedestrians

18. All major and minor collector roads shall have a sidewalk on both sides of the street.

19. Trails shall not have midblock crossings on major collectors and should be avoided on minor collectors. All crossings on these street categories should be at intersections for pedestrian safety and free flow of traffic. Any approved midblock crossings shall be designed with pedestrian safety features.

TRANSPORTATION POLICY APPENDIX A

Guidelines and Techniques for Partial Access Control (Alberta Transportation)

Intersection Spacing	Intersections of all types (i.e. four leg or three leg) which involve a median break on arterial streets and expressways should be placed ideally 400 meters apart. T-intersections, permitting right-in/right-out turning movements only (no median break), may be located a minimum distance of 100 meters away from the nearest all-directional intersection. In restricted areas of "existing" development only, it may be necessary to reduce the spacing of intersections on arterial streets to a minimum of 200 meters.
Raised Median Treatment	to limit the conflict caused by left-turning traffic exiting or entering an arterial roadway, raised median treatment is recommended. At intersections, medians should be of sufficient width to accommodate left-turn bays which provide shelter areas and storage for left-turning traffic.
Median Openings	median openings are allowed only at public roadways and major traffic generators (such as shopping centres), subject to the recommended intersection spacing criteria. If direct access is provided to a major traffic generator, the internal roadway must be of sufficient length to avoid interference of exiting traffic with through traffic on the arterial roadway.
Frontage/Service Roads	development of frontage roads (service roads) is recommended for replacement of existing direct accesses, as in the case of strip commercial development. In newly developing areas, the subdivision layout should make provision for adequate indirect access from an internal roadway system.
Access Removal through Redevelopment	when redevelopment of property abutting an arterial roadway occurs, the municipality should make every possible effort to remove existing direct access.
Auxiliary Lanes	when direct accesses exist, and the construction of a service road is impractical, an auxiliary lane should be constructed to serve for acceleration and deceleration movements associated with exit and entry to and from the direct access point locations.
New Development Access	direct access to new private or commercial development should not be permitted, except in cases where alternate indirect access is not feasible at a reasonable cost. If direct access is deemed necessary, only right-in/right-out access should be allowed. Otherwise, access should be gained from collector or local streets intersecting the arterial roadway.
Conflicting Movement Reduction	direct access in the vicinity of left-turn or right turn storage bays at intersections should not be permitted for safety and capacity reasons in order to eliminate the conflicting impact of local traffic on through traffic movements.
Common Access Point	where two (2) adjacent properties require direct access, a common access point should be provided to accommodate the needs of both properties.
Parking Restrictions	in order to maximize roadway capacity and safety, parking on major arterial roadways should be discouraged, especially during the peak-hour traffic periods.
Geometric Design Features	where direct access is provided (near intersections, lanes, private driveways, etc.), the geometric design features chosen (turning radii, access width, profile, sight distance) should be thoroughly checked to ensure that they will adequately handle the vehicle types known to be the major users at these access locations. Such design encourages efficient exit and entrance movements, thereby minimizing the impact of local traffic on through traffic.

Legal Aspects With Respect to Roadway Access

Although the owner of property abutting a street normally has right to access from streets, that access does not necessarily mean direct access between the street and the abutting property.

With this in mind, an urban municipality may designate (per the Public Highways Development Act, Part 2, Section 23-37 inclusive**)** controlled streets and make bylaws to control access to and from such streets or roadways. The authority for subdivision and development regulation adjacent to streets (building setbacks, offset, right-of-way dedication etc.) is granted under the Municipal Government Act.

APPENDIX B: Alberta Transportation Traffic Volume

ALBERTA HIGHWAYS 23 and 534

TRAFFIC VOLUME HISTORY 2007 - 2016

Alberta Transportation

Strategy and Policy Branch

Produced: 17-Feb-2017 By CornerStone Solutions Inc.

					2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
Hwy	CS	TCS	Muni	From	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	AADT	ASDT
23	6	8	Vulc	S OF 534 SE OF VULCAN	2740	2580	2520	2550	2590	2630	2420	2360	2380	2340	2590
23	6	12	Vulc	N OF 534 SE OF VULCAN	2910	2910	2770	2780	2820	2800	2760	2700	2720	2680	2970
23	6	12	Vulc	S OF CENTRE ST IN VULCAN	2730	2500	2380	2390	2430	2410	2600	2520	2560	2520	2790
23	6	12	Vulc	N OF CENTRE ST IN VULCAN	2570	2600	2460	2470	2510	2490	2500	2300	2340	2300	2540
534	2	4	Vulc	W OF 23 SE OF VULCAN	1220	1180	1120	1120	1120	1100	1140	1100	1140	1140	1250
534	2	8	Vulc	E OF 23 SE OF VULCAN	990	990	970	970	970	970	960	960	960	960	1060

AADT Average Annual Daily Traffic. The average daily two-way traffic volume at a point on the highway expressed as vehicles per day for the period of January 1 to December 31 (365 or 366 days).

ASDT Average Summer Daily Traffic. The average daily two-way traffic volume at a point on the highway expressed as vehicles per day for the period of May 1 to September 30 (153 days).

ALBERTA HIGHWAYS 23 and 534

TRAFFIC VOLUME, VEHICLE CLASSIFICATION, TRAVEL and ESAL STATISTICS REPORT

2016

Alberta Transportation

Strategy and Policy Branch

Produced: 02-Mar-2017 By CornerStone Solutions Inc.

						From	To	Length	Volume		Classifications						Travel MVKM		ESAL / Day / Dir		
Hwy	CS	TCS	Muni	From	To	Km	Km	in Km	WAADT	WASDT	%PV	%RV	%BU	%SU	%TT	%CM	Annual	Summer	SU	TC	Total
23	6	8	Vulc	N OF 529 NW OF CHAMPION	S OF 534 SE OF VULCAN	13.931	31.711	17.780	2450	2650	73.6	3.7	0.2	5.6	16.9	22.7	15.9	7.2	60.4	429.2	489.6
23	6	12	Vulc	W OF 534 SE OF VULCAN	E OF 24 N OF VULCAN	31.711	51.258	19.547	2290	2540	77.5	3.1	0.3	4.6	14.5	19.4	16.4	7.6	46.4	344.2	390.6
534	2	8	Vulc	E OF 23 SE OF VULCAN	W OF 842 E OF VULCAN WJ	18.310	40.563	22.253	720	790	74.5	4.0	0.1	10.0	11.4	21.5	5.9	2.7	31.7	85.1	116.8
534	2	12	Vulc	E OF 842 E OF VULCAN WJ	W OF 842 E OF VULCAN EJ	40.563	43.759	3.196	500	560	69.7	4.7	0.1	10.0	15.5	25.6	0.6	0.3	22.0	80.3	102.3

WAADT (Weighted Average Annual Daily Traffic). The average daily two-way traffic volume for a section of highway expressed as vehicles per day for the period of January 1 to December 31 (365 or 366 days).

WASDT (Weighted Average Summer Daily Traffic). The average daily two-way traffic volume for a section of highway expressed as vehicles per day for the period of May 1 to September 30 (153 days).

CLASSIFICATIONS

%PV Percentage of traffic volume classified as Passenger Vehicle (Cars, Pickup Trucks, Sport Utility Vehicles, Vans, Motorcycles)

%RV Percentage of traffic volume classified as Recreation Vehicles (Cars or Pickup Trucks with Trailers, Campers)

%BU Percentage of traffic volume classified as Buses (School, Inter City, Transit, Disabled Transportation)

%SU Percentage of traffic volume classified as Single Unit Trucks (Single non-articulated trucks greater than 3 tonnes in weight)

%TT Percentage of traffic volume classified as Tractor Trailer Combinations (Articulated Tractor and Trailer Combinations)

%CM Percentage of traffic volume classified as Commercial Vehicles (BU + SU + TT)

ESAL / DAY / DIR (Equivalent Single Axle Load per Day per Direction) An Equivalent Single Axle Load is defined as an application of an 80 kiloNewton single axle dual tire load. (80 kiloNewtons = 18,000 lbs force or 8100 kilograms)