Sturgis

Sturgis 2030:
A COMPREHENSIVE PLAN

RDg PLANNING • DESIGN

Kadrmas Lee & Jackson Engineers Surveyors Planners

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City of Sturgis Staff

Future Sturgis Participants

Sturgis Chamber of Commerce

Sturgis Economic Development Corporation

Meade County

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Introduction

Introduction

Sturgis is one of America's special places. The mention of the city's name brings instant recognition and often a knowing smile from coast to coast. Its association with the motorcycle and the renowned Rally produces one of the nation's most recognizable community brands – a brand that conjures up images of lifestyle, the open road, and a considerable and unique measure of magic.

But strong brands, while a blessing and a foundation, can also be limiting, and Sturgis is infinitely more than a motorcycle rally. It is a vital community full of great people with a deep attachment to their place, in a location rich in natural resources, scenic beauty, and evocative history. From its beginning over 130 years ago as a boom town supplying goods and services to soldiers at Fort Meade, Sturgis has grown into a mature city in the dynamic Black Hills region. A combination of its iconic status, history, and unique environment together can propel the town forward into this still new century. Recognition of this potential motivated community leaders to undertake the Future Sturgis process in 2008, creating a strategic outline for a new vision of Sturgis. This comprehensive plan is designed to build on this process, proposing a detailed program of specific actions and concepts that will advance the economy of the city, improve the lives of its residents, and secure its status as a regional and national destination.

WHY A PLAN?

The comprehensive plan for Sturgis has two fundamental purposes. First, the plan enables the city to manage its development by providing the legal basis for zoning and subdivision regulations. Secondly, a comprehensive plan presents a unified and compelling vision for a community, derived from the aspirations of its citizens, and defines the specific actions necessary to fulfill that vision.

The Legal Role

Communities prepare and adopt comprehensive plans for legal purposes. South Dakota State Statute 11–4–1 gives cities the ability to adopt zoning and subdivision ordinances to promote the health, safety, or general welfare of its citizens. Zoning ordinances recognize that people in a community live cooperatively and have certain responsibilities to one another. Other land use regulations, such as subdivision regulations, are based on the premise that growth should

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comply with specific standards and proceed in an economi–cally efficient, cohesive manner. Together, these ordinances help determine how land is developed within a municipality.

However, land use decisions should follow an accepted and reasonable concept of how the city should grow. Therefore, South Dakota state law requires the adoption of a comprehensive plan as a prerequisite for implementing development regulations. State Statute 11–4–3 requires a comprehensive plan to address, at a minimum:

- Land use or the planned distribution of activities and uses of land in the community
- Transportation facilities
- Community facilities, including recreation facilities, schools, public buildings, and infrastructure

The Community Building Role

A land use plan that provides a basis for zoning and subdivision regulations helps communities develop efficiently and respon–sibly. Yet, the greatest value of a comprehensive plan for Sturgis is to build on Future Sturgis to create a detailed concept for the community's future, based on the participation of residents in the planning process. Such a concept addresses both demographic and economic changes and opportunities. Beyond a vision, the plan is a working document that presents strategies for realizing the city's potential.

THE COMPREHENSIVE PLAN: APPROACH AND FORMAT

The mission of the Future Sturgis process was to "create a value–added community that provides the citizens a voice in revital–ization of the greater Sturgis area." The guiding vision of this predecessor process, developed through a committee structure that promoted extensive citizen engagement, is summarized in Chapter Five of this plan, which then uses it as a launching point for an outcome–oriented approach to city development policy.

The Sturgis Plan is organized into two parts. Part One presents a snapshot of the city, analyzing existing human, economic, and physical conditions and growth needs. Part Two establishes a plan that builds on the Future Sturgis vision and the city's opportunities for growth and enhancement. The plan weaves traditional plan elements, like land use, housing, infrastructure, and transporta–tion, into an integrated development concept that provides added dimension and strategic approaches to the results of the Future Sturgis program. A summary of the plan's organization follows.

Part One: Sturgis Today: A Snapshot of Current Conditions and Future Needs

Sturgis Today, Part One of the plan, reviews the current status of Sturgis in 2011, and provides the factual and analytical basis of the plan in four chapters:

Chapter 1: Demographic and Economic Profile, considering such variables as population characteristics, population growth forecasts, employment and income characteristics, and key housing factors.

Chapter 2: Land Use and Development, considering development and land use patterns, densities, and projections of land needs to satisfy probable growth demand.

Chapter 3: Transportation and Infrastructure, reviewing the city's framework systems, specifically its access network, water, stormwater, and sanitary sewer systems.

Chapter 4: Public Facilities and Infrastructure Profile, reviewing key community investments in Sturgis, including the transportation network, parks and recreational facilities, public buildings, and infrastructure.

Part Two: Sturgis Tomorrow: A Plan for Community Development

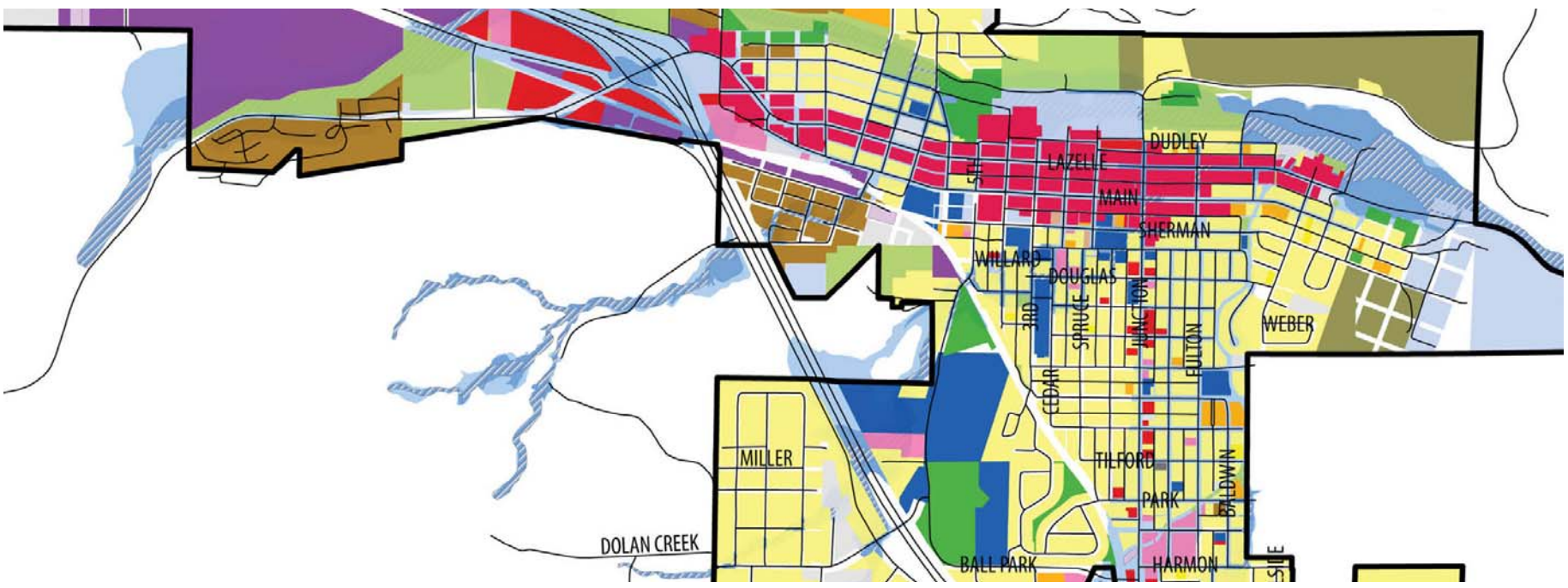
This section presents detailed strategies and recommendations that accommodate potential growth and direct development potential in ways that maximize community benefit.

Chapter 5: Future Sturgis, summarizing the goals and objectives identified by each of the Future Sturgis committees.

Chapter 6: The Development Vision, unifying land use, transportation, parks, infrastructure, and housing elements into a cohesive growth plan for Sturgis.

Chapter 7: Concepts for Sturgis' Key Districts, providing a more detailed look at the city's four pivotal development focuses, including Main Street.

Chapter 8: Implementing the Sturgis Plan, summarizing the plan's recommendations and policies, and presenting an implementation schedule with preferred time frames for executing individual projects and initiatives.



PART ONE:
Sturgis Today

1

Demographic and Economic Profile

Understanding of key characteristics and trends that affect Sturgis' people helps us plan for the city's future. This chapter presents and interprets important demographic and economic factors that have an impact on the city's physical and community development. These variables include population trends and forecasts, income, employment, and housing characteristics.

POPULATION CHARACTERISTICS

This discussion looks at Sturgis' historic population change and includes forecasts for population growth for the next twenty years. These forecasts provide the basis for calculating future land needs for residential, commercial, and industrial development.

Historic Population Change (Figure 1.1)

• *Between 1960 and 2000, Sturgis experienced steady population growth, increasing by just under 40% during that forty year period.* This represents an annual growth rate of 0.82%. Generally, a good standard for healthy growth in a mature, non–metropolitan community is an annual growth rate in the range of 1%.

• *Growth in Sturgis compares favorably with other regional cities, and is very similar to Rapid City's growth trajectory.*

• *The 2010 Census credited Sturgis with a moderate population gain of about 3%.* Because natural population change in Sturgis would have produced a small decline, a positive showing since

Figure 1.1. Population Change, Sturgis and Regional Cities, 1960–2010

	1960	1970	1980	1990	2000	2010	% Change, 1960–2010	% Change, 2000–2010
Sturgis	**4,639**	**4,536**	**5,184**	**5,330**	**6,442**	**6,627**	**42.9%**	**2.9%**
Rapid City	42,399	43,836	46,492	54,523	59,607	67,956	60.3%	14.0%
Spearfish	3,682	4,661	5,251	6,966	8,606	10,494	185.0%	21.9%
Box Elder	–	607	3,186	2,680	2,841	7,800	1185.0%	174.6%
Belle Fouche	4,087	4,236	4,692	4,335	4,565	5,594	36.9%	22.5%
Hot Springs	4,943	4,434	4,742	4,325	4,129	3,711	–24.9%	–10.1%
Lead	6,211	5,420	4,330	3,632	3,027	3,124	–49.7%	3.2%
Meade County	12,044	17,020	20,717	21,878	24,253	25,434	111.2%	4.9%

Source: US Bureau of the Census

Figure 1.2. Age Distribution in Sturgis, 1990 and 2000

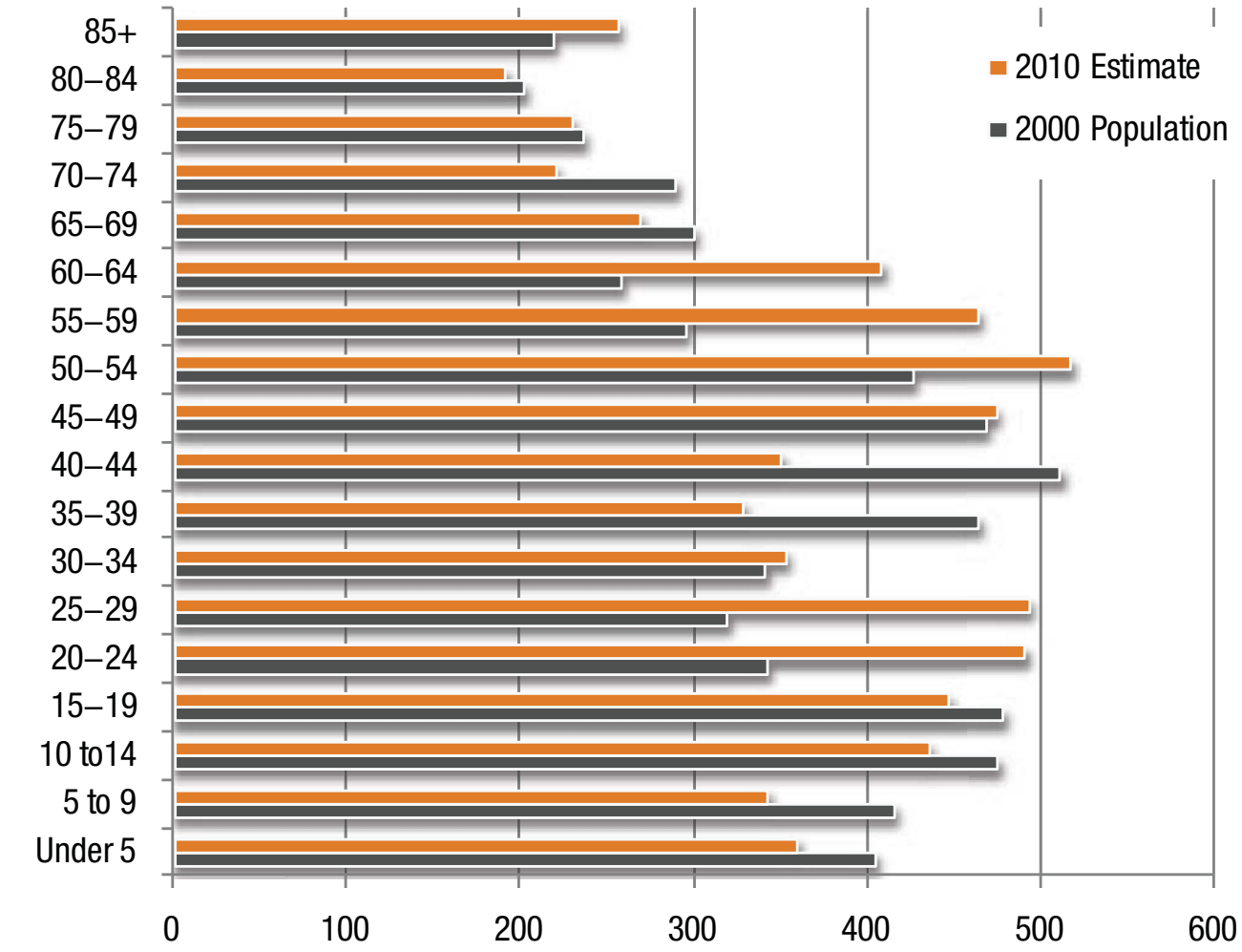


Figure 1.3. Cohort Migration, 2000–2010

Age Group (Cohort)	2000 Cohort Population	2010 Estimated Cohort Population	**Difference**	**Difference (%)**
0–5	**404**	**359**	**–45**	**–11%**
4–9	**415**	**343**	**–72**	**–17%**
10–14	**475**	**435**	**–40**	**–8%**
15–19	478	447	–31	–7%
20–24	342	491	149	43%
25–29	319	493	174	54%
30–34	341	352	11	3%
35–39	**464**	**328**	**–136**	**–29%**
40–44	**511**	**350**	**–161**	**–31%**
45–49	468	474	6	1%
50–54	426	516	90	21%
55–59	295	464	169	57%
60–64	258	408	150	58%
65–69	300	269	–31	–10%
70–74	289	220	–69	–24%
75–79	236	230	–6	–3%
80–84	202	192	–10	–5%
Over 85	219	256	37	17%
				Source: US Bureau of the Census, RDG

ABOUT POPULATION CHANGE

Three factors determine population change in cities. The first is **natural population change** – the balance of births and deaths. Cities with older populations will tend to have more deaths than births, trending toward a declining population. Those with younger families will have more births than deaths, producing a larger population. The second factor is **net migration** – are more people moving into or out of the community? The third is **annexation** – has the city expanded its boundaries to include new populated areas? Together, these three factors help us explain whether and why a city is growing.

2000 represents continued movement of people into the city. However, other regional cities, including Rapid City, Spearfish, and Belle Fouche, grew more rapidly than Sturgis.

• *Rural Meade County historically has grown at a far faster rate than Sturgis, but this differential slowed during the last decade.* In 1960, Sturgis accounted for 39% of the county's population; by 2000, this proportion dropped to 26%, despite the city's rapid growth during the 1990s.

Age Distribution and Migration (Figures 1.2, 1.3)

• During the 1990s, Sturgis' annual growth rate approached 2%, producing an increase in most age groups. This growth slowed considerably during the last decade, and age distribution estimates seem to suggest an aging population. Growth appears most rapid among baby boom age cohorts, between 50 and 64 in 2010.

• RDG estimates suggest a decline in the number of young children (under age 14) during the last decade, evidence of a slow down in the number of younger households coming into the city.

WHAT DOES MIGRATION TELL US?

A good demographic analysis goes beyond changes in total population. We can look at how well Sturgis is retaining or attracting specific age groups, such as younger families or seniors. To do this, we use a technique called **cohort survival.** This tells us how many members of specific age groups will survive to be counted at a later time. For example, if the Census counted 1000 people between the ages of 25 and 34 for a hypothetical city in the year 2000, we can predict statistically that about 985 of those would live to be counted in 2010 in the group (or cohort) between the ages of 35 and 44. If the census counts a significantly larger popula–tion over that number, we can conclude that people in that age group have tended to **migrate** to the city from outside. This helps us plan for future facility and land needs. However, If people have migrated out of the city, the community may want to address how to become more attractive to this age group. Census 2010 provides us with recent and reliable information that allows us to understand and respond to these issues.

Housing Development (Figure 1.4)

• *Recent housing development helps explain population change in Sturgis since 2000.* Between 2003 and 2009, Sturgis added 202 units, most of which were single–family homes.

• *During this period, Sturgis developed 46 multi–family units, 42 of which were in an assisted senior living development.* Assisted living units have an impact on the city's housing supply, because they free single–family homes for new occupants. As a general rule, about half of the units of such developments are occupied by people from outside the city limits.

Population Performance and Forecasts (Figures 1.5, 1.6)

Projecting future population is an essential first step toward defining Sturgis' future land use and community service needs. The previous analysis establishes the assumptions used to forecast future growth. Figure 1.5 analyzes the impact of migration on Sturgis' population between 2000 and 2010.

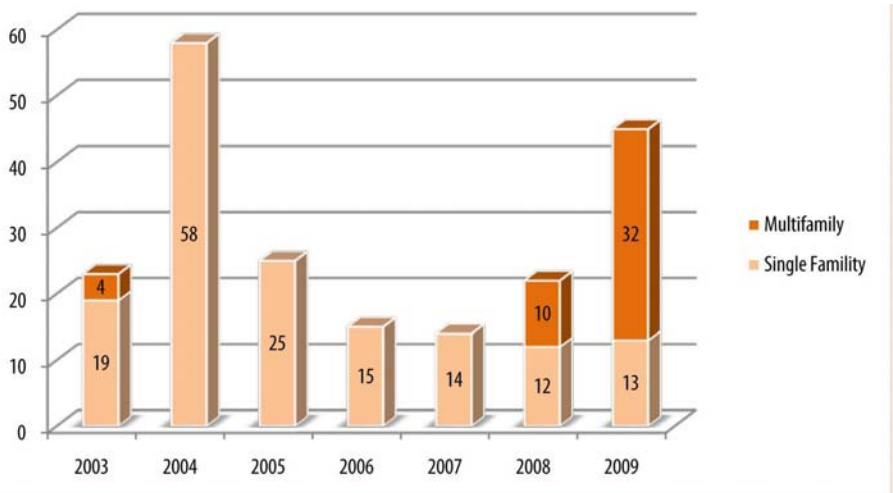
Natural population change calculated by applying the cohort survival method (see sidebar) predicted a minor decline of about 2% in Sturgis' population between 2000 and 2010. In reality, Sturgis registered a 3% population gain during that same period. This variance is the result of migration, as enough people moved into the city to counteract the slight imbalance of deaths over births among an aging population. The annual growth rate during the last ten years is below the city's historic 50–year rate of 0.8%. However, housing construction activity was at least somewhat consistent with this long–term average rate.

Based on this information, continued use of the historic growth rate of 0.8% appears to be a reasonable goal for future planning purposes. This growth rate suggests that Sturgis may not grow as quickly as its peer communities, specifically Rapid City and Spearfish, in the I–90 corridors, but will nonetheless attract a

THE HOW AND WHY OF POPULATION FORECASTS

There are several ways to forecast population, and we compare all of them before settling on a specific method. One technique is **regression analysis** – plotting past popu–lation on a graph, drawing a line or curve that best fits the points, and projecting that line out into the future. Related to this is a view of **historic growth rates**, especially appropriate if growth has been relatively steady over the long–term. Another uses an **adjusted cohort survival and migration analysis**, a sensitive technique that is most useful after a census when recent counts are available. We have used the historic growth rate technique. We must recognize, though, that all population forecasts are educated guesses, based on current assumptions. Unforeseen circumstances can change them dramatically. However, these projections do help us understand future housing, land development, park, and facility needs.

Figure 1.4. Housing Development, Sturgis, 2003–2009



proportionate share of regional growth. Clearly, the overall region continues to grow at a significant rate. These growth histories suggest the strategic importance to Sturgis of implementing policies that attract younger populations. (Figure 1.6)

ECONOMIC CHARACTERISTICS

Sturgis is both an independent economic center and part of an inter–dependent regional economy. Consequently, many Sturgis residents commute to workplaces in other regional cities, while other regional residents travel to jobs in Sturgis. Regional interde–pendence also affects consumer spending, as regional shoppers gravitate to larger, more diverse retail centers. This section explores economic characteristics that affect policy priorities for Sturgis.

Employment Characteristics (Figures 1.7, 1.8)

• *Based on 2009 estimates, over 72% of Sturgis' workforce is employed in service and sales; management, professional, and related occupations; and the service sector.* About 25% of the city's workers are employed in industrial and transportation sectors. (Figure 1.7)

• *Most jobs local to Sturgis are in the public and service sectors.* The city's six largest employers, including the Fort Meade VA Hospital and Black Hills Special Services, account for over 1,800 jobs, and have the status of regional employers. On the other hand, the largest private sector employer is a supermarket. Largest manufacturing employers include ammunitions manu–facturers and screen printing related to the Rally. (Figure 1.8)

• *The Deep Underground Science and Engineering Laboratory (DUSEL) offers significant potential for Sturgis' economy.* The laboratory, under development at the former Homestake Mine in Lead, will provide multidisciplinary research opportunities in particle physics, nuclear physics, and astrophysics, as well as associated research in biology and geology and a variety of educational programs. DUSEL will emerge as a significant employment center, with substantial benefits for Sturgis if the city

Figure 1.5. Current Population Estimates for Sturgis

	Predicted Population (based on survival & birth rates)	Actual Population
2000	6,442	6,442
2010	6,317	6,627
Change	–125	185
Percent Change	–1.9%	2.9%

Source: RDG, US Bureau of the Census

Figure 1.6. Future Population Scenarios, 2010–2030

Source	2010	2015	2020	2025	2030
Natural Change	6,317	6,310	6,303	6,258	6,169
0.7% Annual Growth	6,627	6,868	7,117	7,376	7,643
0.8% Annual Growth	**6,627**	**6,896**	**7,177**	**7,468**	**7,772**
1.9% Annual Growth	6,627	7,281	7,999	8,789	9,656

Source: RDG

Figure 1.7. Employment by Occupation, 2009 Estimate

Sector	Sturgis	Meade County
Sales & office occupations	27.52%	27.10%
Management, professional, & related occupations	23.01%	28.19%
Service occupations	22.09%	16.58%
Production, transportation, & material moving occupations	14.85%	14.80%
Construction, extraction, & maintenance occupations	11.41%	11.31%
Farming, fishing, & forestry occupations	1.11%	2.03%

Source: Claritas, Inc. 2010

Figure 1.8. Major Employers, Sturgis, 2010

Employer	Business Type	Estimated Workforce
Fort Meade Veterans Affairs	Health Care	600
Black Hills Special Services	Education	553
Meade County School District	Education	360
Sturgis Community Health	Health Care	200
Meade County	Government	137
City of Sturgis	Government	90
Lynn's Dakota Mart	Groceries	59
Dakota Arms	Manufacturer	45
Jamison International	Manufacturing	30
Corbon	Manufacturer	25

Source: Sturgis Economic Development Corporation

can attract staff members and associated research and industries.

Income Characteristics (Figure 1.9)

• *Sturgis' median household income is lower than that of Meade County, neighboring Lawrence County, or South Dakota as a whole.* About 50% of the city's earners are employed in the traditionally lower–paying sales and service sectors. Sturgis median income is about 75% of the county wide average, indicating that higher income residents tend to live outside the city limits. The city's distribution is evenly split among three ranges: less than $25,000; between $25,000 and $50,000; and over $50,000.

Commuting Patterns (Figure 1.10)

• *Workers in the Black Hills region are highly mobile and tend to move throughout the area for employment.* Average commuting time for smaller cities in the region (including Sturgis) indicate that the typical resident travels outside the city for employment.

• *Sturgis falls within a middle range for commuting time among regional communities.* The average estimated commuting time is just under 19 minutes, greater than that for Rapid City, Spearfish, or Deadwood. Deadwood has a significant number of people employed locally, indicated by the very high percentage who walk to work.

Taxable Retail Sales (Figure 1.11)

Retail sales are an important indicator of economic activity. Sales in Sturgis, uniquely, are generated from two sources: regular, year–round sales, and Rally–related sales. The importance of retailing and related services to the city's economy caused Sturgis to undertake a special study of retail gaps and opportunities.

• *Sturgis is a relatively high retail sales producer, generating over $18,000 in per capita taxable sales.* This lags behind per capita sales in the two major retail centers that flank Sturgis along Interstate 90 – Rapid City and Spearfish. The Sturgis sales statistics include the Rally.

• *Sales in Sturgis grew, but at a somewhat slower rate than comparable cities.* Vermillion, comparable to Sturgis because of proximity to metropolitan retail centers, experienced the largest proportional gain in this sample, attributable to the opening of a Walmart superstore.

• *Some of the sales lag was caused by stagnant Rally revenues during the post–2008 "Great Recession" period.* Annual Rally sales declined by about $1.25 million between 2000 and 2009. Preliminary reports from 2010 suggest a resurgence in revenues.

• *Sturgis' "routine" retail performance indicates that local consumers are doing a considerable amount of shopping outside the city, specifically in Spearfish and Rapid City.* Appropriate retail goals include retention of more local spending and attracting unique or destination retailers.

Figure 1.10. Estimated Commuting Time, Sturgis and Regional Cities, 2009 Estimates

City	Average Time to Work	% Walking to Work
Hill City	25.9	7.5
Gillette	19.6	1.63
Lead	19.2	4.8
Sturgis	**18.9**	**3.4**
Belle Fouche	18.4	1.9
Spearfish	17.7	6.7
Deadwood	17.7	20.5
Rapid City	17.5	1.8

Source: Claritas, Inc. 2010

Figure 1.9. Comparative Average Household Income, Sturgis and Counties

Community	Under $15,000	$15,000–24,999	$25,000–34,999	$35,000–49,999	$50,000–74,999	Over $75,000	2009 Median Income
Sturgis	**18.62**	**15.50**	**13.76**	**20.08**	**19.97**	**12.07**	**$36,595**
Meade County	9.65	10.38	12.21	20.71	23.81	23.24	$47,862
Lawrence County	15.58	15.22	12.87	17.66	19.62	19.06	$40,386
South Dakota	13.53	12.37	13.06	17.31	21.72	22.01	$44,568

Source: Claritas, Inc., 2010

Housing Supply Considerations (Figures 1.12–1.14)

Population change, income, and employment strongly affect a community's housing supply. Important findings about housing occupancy and value in Sturgis follow.

• *Housing development in Sturgis slowed during the last decade.* About 26% fewer units were built between 2000 and 2009 than during the 1990s. However, the 1990s were a period of unprec–edented growth for the city and may be atypical. Except for a dramatically high output in 2004, single family construction was relatively steady during the 2000s, and held its own even in the recession period after 2008 .

• *In common with national trends, Sturgis saw little non–senior rental development during the 2000s.* Federal policy and private financing practices favored owner–occupied development and easy access to mortgages, producing the artificial impression to many consumers that owning was actually less expensive than renting. The consequences of those practices became abun–dantly clear after 2008, and tighter underwriting standards will create more rental demand.

Figure 1.11. Taxable Retail Sales, Sturgis and Other South Dakota Communities

Community	2000	2005	2009	Change 2000–2009	Per Capita Taxable Sales
Rapid City	$1,527,485,385	$1,944,962,421	$2,122,896,125	39.0%	31,239
Spearfish	167,999,342	234,258,011	267,278,719	59.1%	25,470
Madison	90,226,629	109,963,915	138,138,456	53.1%	20,914
Sturgis	**102,366,617**	**131,354,622**	**121,312,260**	**18.5%**	**18,306**
Vermillion	69,972,603	89,329,747	125,868,756	79.9%	12,083

Source: South Dakota Department of Revenue and Regulation

• *Median housing value in Sturgis has more than doubled during the past twenty years.* Rapid population growth during the 1990s produced a 56% increase in median value during that decade. Appreciation continued during the 2000s: the median value increased by about the same amount as during the 1990s, although the percentage increase decreased somewhat, based on 2009 estimates. These data will be updated with the release of the 2010 Census. (Figure 1.11)

• Median contract rent in Sturgis has grown slowly and will probably remain below the level necessary to make new construction feasible. Median monthly contract rents were flat at just below $300 through the 1990s, a decade of rapid community growth that should have produced significant increases. Available sources indicate that typical rents are in the range of $350 to $400 in 2010. This rent level is too low to support the cost of new rental development. (Figure 1.14)

• Sturgis has a relatively good balance of owner and renter–occupied units. About two–thirds of the city's housing units are owner–occupied. However, construction activity during the last twenty years substantially increased the ownership component of the housing supply, from 58% in 1990 to an estimated 65% in 2010. (Figures 1.12,1.14)

• Housing in Sturgis is relatively affordable in comparison with other regional cities. A traditional measure of affordability is a home price equal to a maximum of three times individual income. Figure 1.13 extrapolates this standard to a community–wide

comparison of median income and value. In general, a value to income ratio over 3.00 indicates a concern about citywide afford–ability; 2.50 to 3.00 is an optimum target; and a ratio below 2.50 suggests an undervalued market. With a ratio of 2.80, Sturgis appears to have a good balance of values high enough to sustain new development, but low enough to remain relatively affordable. (Figure 1.13)

Figure 1.12. Housing Occupancy, Sturgis and Regional Cities, 2009

City	% Owner Occupied	% Renter–Occupied
Hill City	78	22
Gillette	70	30
Lead	68	32
Belle Fouche	66	34
Sturgis	**65**	**35**
Rapid City	60	40
Deadwood	57	43
Spearfish	49	51

Source: Claritas, Inc. 2010

Figure 1.13. Value/Income Ratio, Sturgis and Regional Cities, 2009

City	Median HH Income	Median House Value	I/V Ratio
Spearfish	33,816	119,733	3.54
Rapid City	43,621	144,779	3.32
Deadwood	44,326	141,146	3.18
Hill City	55,511	176,639	3.18
Sturgis	**36,594**	**102,326**	**2.80**
Gillette	69,809	$184,931	2.65
Lead	36,733	79,533	2.17
Belle Fouche	37,318	70,116	1.88

Source: Claritas, Inc. 2010

Figure 1.14. Changes in Key Housing Occupancy Indicators, 1990–2010

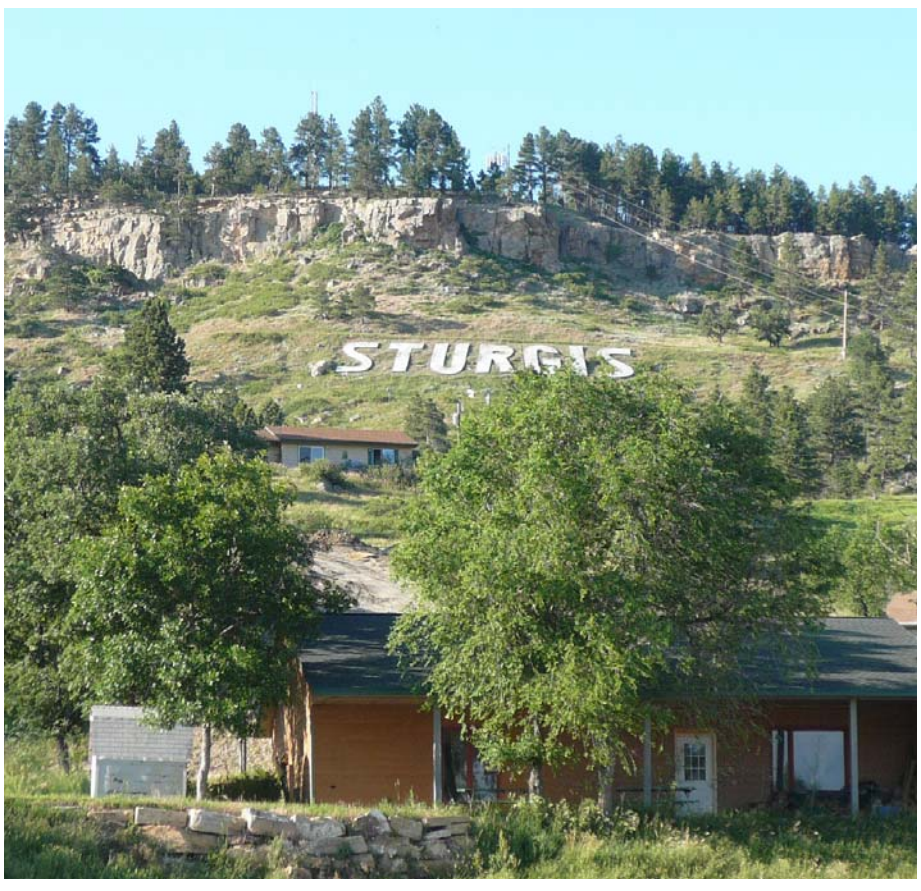
	1990	2000	2010	Change, 1990–2000	Change, 2000–2010	% Change, 1990–2000	% Change, 2000–2010
Total Housing Units	2,358	2,989	3,154	631	165	26.8%	**5.52%**
Owner–Occupied Units	1,280	1,744	1,895*	464	151	36.3%	8.66%
% Owner–Occupied	58%	64%	65%*				
Renter–Occupied Units	912	994	1,021*	82	27	9.0%	2.72%
% Renter–Occupied	42%	36%	35%*				
Vacant Units	166	251	238	85	(13)	51.2%	(5.18%)
Vacancy Rate	7.0%	8.4%	7.5%				
Seasonal Vacancy	0.21%	1.47%	––				
Median House Value	$47,400	$74,200	$102,326*	26,800	28,126*	56.5%	37.91%
Median Contract Rent	$289	$294		5		1.7%	

*Estimates *Source: US Bureau of the Census, 2010*

2

Land Use and Development Patterns

Land use is the central element of the traditional comprehensive plan, establishing the physical configuration of the city – the mix and location of uses and the nature of community systems that support them. Because the land use plan is a statement of policy, public and private decision makers depend on it to guide individual actions such as land purchases, project design, and the review and approval process. This chapter considers existing development patterns in Sturgis and the influence of its natural environment. It concludes by calculating future land use needs, providing a basis for the future development plan in Part Two.



THE NATURAL SETTING

The experience of Sturgis is irrevocably tied to its Black Hills environment, both a critical resource and a major determinant of the city's form and character. While this comprehensive plan addresses elements of urbanization – growth, community development, transportation, parks, and economics – it must do so with respect for the almost mystical quality of its natural context. Furthermore, major environmental assets such as Bear Butte and its surrounding state park, Bear Butte Creek, and the Black Hills National Forest have great economic potential to diversify the attraction of Sturgis beyond the Rally. Figure 2.1 illustrates some of Sturgis' natural features and places the developed city in its physical context. Key form–giving characteristics follow.

• *Sturgis developed in a bowl between two ranges of hills running from northwest to southeast.* These hills, which form the northern edge of the Black Hills in this area, became a transportation corridor initially used by the Fremont, Elkhorn & Missouri Valley Railroad, now the Dakota, Minnesota & Eastern, and later by Interstate 90. The hills created Sturgis' urban form, which narrows to the northwest and broadens with the widening of the bowl to the southeast.

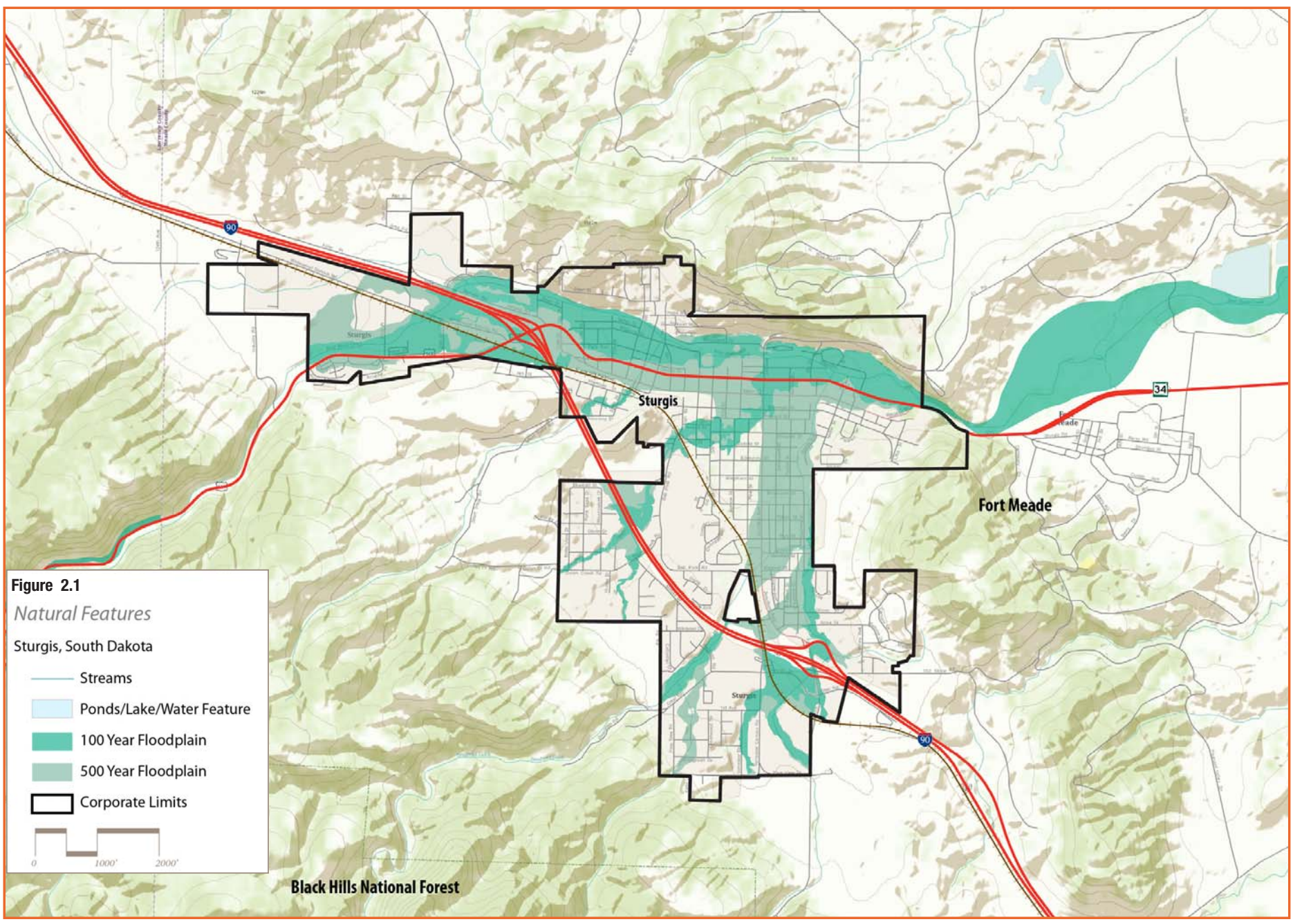
• *The Black Hills and the Natural Forest form the southern edge of the city's urban area.* Sturgis' water supply was once provided by a chain of five crystal clear ponds above Vanocker Canyon south of the city. Vanocker Canyon Road runs along the floor of this scenic Black Hills canyon. Reuse possibilities for the City Lakes are discussed in Chapter Seven of this plan.

• *Bear Butte Creek forms the northern boundary of the city.* The creek is prone to flash floods, and its flood plain constrains development along or near its banks. Tributary streams run down from the hills out of Boulder Canyon along US 14A from the southwest and from the south. A major stormwater management project included a drainage canal that extends from Ballpark Drive to the Creek. This structure reduced flood risk on the east side of the city.

Land Use and Development Patterns

Features of the Natural Setting. Above: Drainage canal on Bear Butte Creek tributary; Right: Bear Butte

• Bear Butte rises from surrounding tableland northeast of the city. The Butte is sacred to many native peoples, including the Lakota Sioux and Cheyennes. Religious ceremonies take place during the year on the mountain which is regarded as a place of meditation and peace. The surrounding state park includes a campsite with horseback riding, fishing, and boating; a buffalo herd; and a visitor center and summit trail.



LAND USE PATTERNS IN STURGIS

The original Sturgis town site was laid out in 1878 and the city officially incorporated in 1888. The original city grid was platted in an east–west corridor paralleling Bear Butte Creek west of Fort Meade, and initially grew south from the creek. The hills to the north helped direct growth to the south, and the city gradually developed along two crossing corridors – Lazelle Street and Junction Avenue. These corridors eventually emerged as the city's principal arterials and attracted a mix of commercial and residential land uses. In common with many towns, the major Lazelle arterial developed one block north of the traditional Main Street district, in itself becoming an early bypass that ultimately attracted auto–oriented commercial development.

By the 1970s, Interstate 90 replaced previous highways as the primary regional traffic corridor, and defined the edge of Sturgis development on the west and south. The city's principal I–90 interchanges were at Lazelle and Junction, on the west and south sides of town respectively, producing a cluster of traveler services at those locations. A new interchange at Junction Avenue/ Vanocker Road is producing new commercial opportunities at that location. During the last twenty years, development has increasingly taken place south of I–90.

Figure 2.3 is the Existing Land Use Map, displaying Sturgis' existing land use patterns. Figures 2.2, 2.4, and 2.5 inventory land use in the city and, for interpretive purposes, compare land use distribution and development intensity with other communi–ties in RDG's database.

Residential Uses

• *Residential land use makes up the largest single land use category in Sturgis, accounting for just under 40% of the city's urbanized area.* Most traditional residential neighborhoods crossed the topographic bowl defined by surrounding hills, generally extending about ½ mile east and west of the Junction Avenue. A shallower development corridor follows the Lazelle corridor and is limited by Bear Butte Creek. Recent residential growth diverged from these crossroads corridors, focusing on the eastern edge of town north of I–90 and in newer neighborhoods south of the interstate.

• *About 83% of Sturgis' residential land is single–family.* The city's 33 acres of multi–family land accommodates an estimated 400 housing units at an average net density of 12 units per acre. This suggests that about 60% of the city's rental housing is in single–family structures.

• *Sturgis displays the relatively low–density development pattern typical of hilly settings.* Challenging topography, a preference for

Figure 2.2: Land Use in Sturgis, 2010

Land Use Category	City Total (Acres)	Percent	Acres per 100 People
Residential	**809.93**	**37.8%**	12.22
Single–Family	669.33	31.2%	10.10
2–4 Family	3.77	0.2%	0.06
Multi–Family	29.01	1.4%	0.44
Mobile Home	107.82	5.0%	1.63
Commercial	**162.82**	**7.6%**	2.46
Office	34.72	1.6%	0.52
Retail	96.26	4.5%	1.45
Parking	3.04	0.1%	0.05
Commercial Rec.	28.79	1.3%	0.43
Industrial	**210.97**	**9.8%**	3.18
General Industrial	179.81	8.4%	2.71
Lt. Industrial/Warehousing	31.16	1.5%	0.47
Civic	362.15	16.9%	5.46
Public–Semi Public	117.00	5.5%	1.77
Civic	110.45	5.2%	1.67
Parks & Rec.	134.70	6.3%	2.03
Transportation	598.53	27.9%	9.03
Total Developed Land	2,144.39	100.0%	32.36
Agriculture and Open Space	237.59		3.59
Vacant Urban Land	189.02		2.85
Total Area	2,571.00		38.80

Source: RDG Planning & Design, 2010

WHY COMPARE WITH OTHER CITIES?

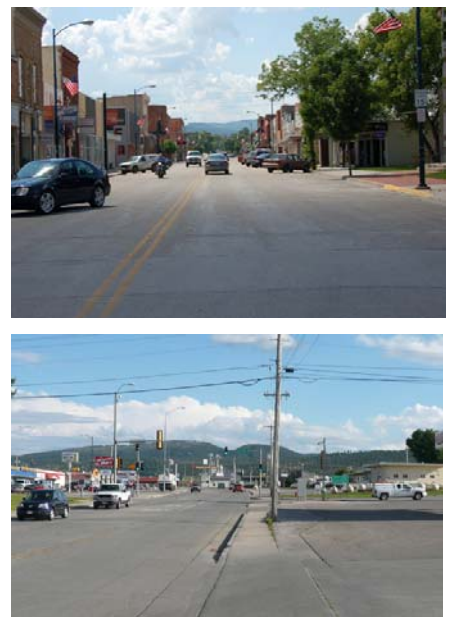
Comparing land use from city to city puts numbers in context and helps us interpret their meaning. For example, we have found that towns with less than 1 acre of commercial land per 100 residents in many cases should concentrate on attracting more retail development. (The exception to this are towns with very strong central business districts and no auto–oriented development). Towns with more than 10 acres of residential land per 100 people are comparatively dispersed. We often find this low density in places with challenging topography like Sturgis. We can also measure industrialization by comparing intensities.

large lots, and relatively small amount of higher–density, multi–family housing contributes to this pattern. Sturgis devotes about 12.2 acres of land per 100 residents, compared with a range between seven and ten acres per 100 people displayed by other similarly–sized communities in a sample in RDG's database of midwestern and western towns. Lower–density cities typically have a higher per capita cost of services because of additional linear feet of road, sewer, and utility lines needed to serve a fixed number of housing units. Because of limited availability of land in and around Sturgis, new development should use land more efficiently, while still maintaining the open character of the landscape so much a part of the Black Hills area.

Commercial Uses

• Commercial uses in Sturgis are concentrated in several settings, each with somewhat different roles. These include the traditional Main Street district, the Lazelle and Junction Avenue corridors, and commercial and visitor service clusters oriented to the I–90 interchanges.

• *The Main Street district,* between Middle and 4th Streets, includes specialty retailers, entertainment and hospitality



Commercial Districts. From top: Main Street, South Junction/Vanocker Canyon, and Junction Avenue.

Figure 2.4: Comparative Land Use by Percentage of Developed Area

	Sturgis	Yankton, SD	Gillette, WY	Plattsmouth, NE	Pella, IA	37 City Average
Residential	37.8%	25.3%	34.8%	**47.0%**	26.8%	36.2%
Commercial	7.6%	6.2%	**14.7%**	5.0%	4.3%	6.7%
Industrial	9.8%	7.1%	13.4%	2.0%	**18.0%**	7.5%
Civic	10.6%	**29.4%**	7.5%	10.0%	26.2%	15.1%
Parks	5.0%	**14.1%**	8.4%	7.0%	5.1%	9.3%
Transportation	**29.2%**	17.9%	21.2%	**29.0%**	19.6%	25.4%
Total Developed Area	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: RDG Planning & Design, 2010

Figure 2.5: Comparative Land Use by Acres per 100 People

	Sturgis	Yankton, SD	Gillette, WY	Plattsmouth, NE	Pella, IA	37 City Average
Residential	12.22	**7.5**	8.27	9.13	9.75	9.04
Commercial	**2.46**	1.83	1.68	0.98	1.56	1.49
Industrial	3.18	2.12	3.18	0.47	**6.53**	2.31
Civic	3.43	8.71	1.77	1.91	**9.37**	4.17
Parks	2.03	**4.16**	1.99	1.46	2.01	2.75
Transportation	9.03	5.29	**5.04**	5.62	7.12	6.37
Total Developed Area	38.80	29.61	23.76	**19.57**	36.34	26.41

Source: RDG Planning & Design, 2010

uses, offices, and financial institutions. City Hall and the Meade County courthouse and offices are just one block off Main Street. A number of Main Street buildings and sites are used during the Rally period only, and are vacant or used for storage during much of the year. Some Main Street retailers are replaced by Rally–oriented businesses during the tourist season.

• *The Lazelle corridor,* between Middle Street and 14th Street, exhibits a mix of commercial, civic, residential, and some industrial uses. Commercial uses, including large format establishments, are typically in detached structures with their own parking. Lazelle businesses serve the Sturgis–area market, but the corridor also has large open areas or parking lots used intensively only during the Rally.

• *The Junction Avenue corridor,* between Lazelle and Harmon, is a mixed use urban corridor with small–scale local busi–nesses, often in converted houses, mixed with residential uses. This use mix creates an attractive community corridor, with a residential scale that contrasts with the more conven–tional Lazelle strip.

• *Exit 30 (US 14A).* This cluster, from about 14th Street west, straddles Interstate 90 and includes lodging, restaurants, and commercial strip centers oriented to both local use and visitor services. US 14A, which extends Lazelle Street west, is the principal access from I–90 to Boulder Canyon and Deadwood.

• *Exit 32 (Vanocker Canyon Road).* This cluster, on Junction Avenue/Vanocker Canyon south of Harmon Street, includes both locally–oriented commercial uses and visitor services in detached or strip commercial buildings. The construction of a new interchange east of the previous Vanocker Canyon Road interchange, opens new development opportunities south of I–90.

• *Sturgis has a large amount of commercial land relative to its population.* Significant regional commercial centers generally have between 1.5 and 2.0 acres of commercial land for each 100 residents, while places that have unusually low amounts of commercial land fall below 1.00 acres per 100 people. In contrast, Sturgis has almost 2.4 acres per 100 people, a high proportion given the city's relative lag behind Rapid City and Spearfish in per capita taxable sales. Commercial land in full use only during the Rally accounts for much of this anomaly.

• *Sturgis' nearness to Rapid City and Spearfish affects the city's commercial environment.* These regional centers attract consumer dollars, complicating the city's efforts to attract year–round retailers.

Commercial Districts. Lazelle Street during Rally Week.

Industrial Uses

• Older industrial development in Sturgis followed the railroad corridor. The Sturgis Industrial Park, served both by the railroad and US 14A, is now the city's largest industrial concentration. Contemporary industrial development has occurred in this park where firearms–related industries make up some of the city's largest industrial employers.

Public and Semi–Public Uses

• *Sturgis' civic and public uses include school sites, parks, city and county government facilities, the National Guard Armory, and the cemetery.* The city does not have a large campus or public institution within its corporate limits, but Fort Meade just east of Sturgis covers over 200 acres and includes facilities open to the general public.

• *Park land, the largest single public use, is well above the traditional standard of 10 acres per 1,000 residents.* The largest concentrations of green space, the Bear Butte Creek corridor and the Ballpark complex, are both north of I–90. Chapter Three provides a more detailed analysis of the city's park system.

• *While not included in the inventory of land in public use within Sturgis' corporate limits, other important public lands require consideration.* These include property now owned by the US Forest Service southwest of Elk Road on the south side of the city, and the City Lakes off Vanocker Canyon Road, surrounded by the National Forest. Chapter Seven discusses use concepts for these sites.

Land for potential public use. Above: City Lakes; right: US Forest Service property southwest of Elk Drive.

• *Transportation uses, including streets, interstate right–of–way, and the railroad, account for about 28% of the city's developed land, second only to residential uses.* As such, street right–of–ways represent one of the city's major public spaces, and their character should be considered appropriately.

FUTURE LAND USE NEEDS

Population and development projections identify land needs for urban uses during the planning period. Chapter One proposed a population growth scenario based on an historic annual growth rate of 0.8%, producing a 2030 population of about 8,000 people. This section uses that scenario to calculate the amount of land needed for development during this period, providing the basis for the land use plan presented in Chapter Six.

Residential Land Use Projection

A 20 year housing demand model shows the number of housing units needed to accommodate the projected 2030 population. This is then converted to a land requirement, based on a mix of housing types and target densities. This method is based on the following assumptions and methods:

• Average people per household will remain constant at 2.29 during the next twenty years. Nationally, household size has been declining steadily with an aging population. However, a large cohort of households of child–bearing age is likely to reverse this decline.

• Households generate housing demand. Unit demand is calculated by dividing the number of people living in households (excluding people living in group quarters) by the average number of people per household. This household count equals the projected number of occupied housing units.

• The city's vacancy rate remains constant during the next twenty years. A vacancy rate is necessary to provide choice in the housing market. The number of required housing units is the sum of household demand and the projected number of vacant units.

• Some units will leave the housing supply because of change in use or demolition. Replacement need for these units is factored into the demand calculation.

• Cumulative need shows the number of total units needed between the base year of 2010 and the year indicated at the end of the period.

Figure 2.6 displays this calculation of need, and indicates a cumulative demand for 605 housing units in Sturgis between 2010 and 2030, based upon the projected population growth.

Residential Land Needs

Sustainable community development will involve ongoing housing improvement (including replacement of substandard housing) and moderate, managed growth. Figure 2.6 calculates residen–tial land demand based on the following factors:

• New construction is be based on the following distribution: 65% single–family detached; 15% single–family attached or townhome; and 20% multi–family.

• Gross residential density assumptions used for these calcu–lations are:
  – 3 units/acre for single–family detached housing;
  – 6 units/acre for medium–density types, including single–family attached, duplexes, or townhomes;
  – 12 units/acre for higher–density multifamily development.

• Land designated for residential development in the land use plan should be about twice the "hard land demand" (the area actually needed for construction. This makes the plan flexible

enough to respond to land availability issues, provides market choice and prevents artificially inflating land values.

This calculation indicates a twenty–year "hard demand" for about 156 acres of new residential land between 2010 and 2030. At two times the "hard demand," the land use plan should designate about 300 acres of possible residential development over the next 20 years. The development concept presented in Chapter Six shows how this new residential area should be distributed in the Sturgis planning jurisdiction.

Development Program

Figure 2.8 distributes housing needs among different price and rent ranges, based on affordability matched to the current income distribution of households in Sturgis. Housing cost ranges are in current (2011) dollars and help inform both density assumptions used in this section and citywide housing goals. The develop–ment program is based on the following assumptions:

- New development in Sturgis will be about 65% owner–occu–pied and 35% renter–occupied housing, consistent with the city's current mix. This includes development of a substantial amount of new, high–quality rental housing.

Figure 2.6: Projected Housing Development Demand

	2010	2015	2020	2025	2030	Total
Population at the End of Period	6,627	6,896	7,177	7,468	7,772	
Household Population at End of Period	6,448	6,710	6,983	7,267	7,562	
Average People/Household	2.21	2.21	2.21	2.21	2.21	
Household demand at End of Period	2,916	3,035	3,158	3,286	3,420	
Projected Vacancy Rate	7.50%	7.50%	7.50%	7.50%	7.50%	
Unit Needs at End of Period	3,152	3,281	3,414	3,553	3,697	
Replacement Need		15	15	15	15	60
Cumulative Need		143	148	154	159	605
Average Annual Construction		29	30	31	32	30

Source: RDG Planning & Design, 2010

Table 2.7: Required Residential Land 2011–2030

2011–2020	% of Demand	Units	Gross Density (du/A)	Land Needs (Acres)	Designated Land (x2)
Single Family Detached	65%	190	3	63.2	126
Single Family Attached	15%	44	6	7.3	15
Multi–family	20%	58	12	4.9	10
Total	**100%**	**292**		**75.3**	**151**
2020–2030					
Single Family Detached	65%	204	3	67.9	136
Single Family Attached	15%	47	6	7.8	16
Multi–family	20%	63	12	5.2	10
Total	**100%**	**313**		**80.9**	**162**
Total 2008–2030		**605**		**156.3**	**313**

Source: RDG Planning & Design, 2010

? WHAT DOES HOUSING AFFORDABILITY MEAN?

The housing development program presented here and summarized in Figure 2.8 is based on "affordability." We define housing as "affordable" if the resident household pays 30% or less of its adjusted gross income for housing. This is the federal standard and was traditionally used as a private underwriting standard in more prudent times. While the term "affordable housing" is often used as a synonym for low– and moderate income development, it is in fact a relative thing and means different home or rent costs for different income groups. Table 2.8 matches price points to incomes, using the 30% standard. The challenge for local housing policy is how to help the private homebuilding and development industry satisfy these targets.

• The proposed demand for different price ranges of owner–occupied housing is based on the income distribution of house–holds who are candidates for homeownership. This method indicates a demand for some owner–occupied housing at prices that the new construction market cannot produce. This market may be taken up by use or upgrading of existing housing, innova–tive programs like rent–to–own development, second mortgage programs that use blended sources of financing to reduce monthly mortgage payments, or construction of market rate rentals.

• Primary markets for rental development include people who prefer renting to owning at a specific stage of life, are transi–tioning to residency in Sturgis, cannot get mortgage financing under tightened underwriting standards, or cannot afford to own a home.

The analysis indicates:
• A need for new housing across all income ranges.

• A 20–year need for approximately 100 owner–occupied units with prices below $140,000 and 73 units with effective rents (direct costs paid by renters) below $750 in current dollars, a total of 173 “affordable” units.

Housing policy for Sturgis should help the private market meet demand for various income groups and housing prices. Providing higher–cost or market rate development requires designating land for residential purposes and building infrastructure to support new development. However, moderately–priced housing is more difficult, because the private market alone is rarely able to build it. Moderately–priced housing can be produced indirectly. For example, a new housing development that meets the needs of high–income, empty–nester households may encourage them to sell current homes to a moderate–income families. Other approaches include new land use policies such as mixed use development, small–lot single–family, and other innovations that reduce development cost per unit; and occupancy and financing approaches that offers new residents a gateway into the city. These approaches are discussed in Chapter Seven.

Figure 2.8: Ten Year Pricing and Development Program

	2010–2014	2015–2020	Total
Total Need	**143**	**148**	**291**
Total Owner Occupied Units	**93**	**96**	**189**
Affordable Low: $60,000–100,000	20	21	41
Affordable Moderate: $100–130,000	29	30	59
Moderate Market: $130–200,000	29	30	59
High Market: Over $200,000	15	15	30
Total Renter Occupied Units	**50**	**52**	**102**
Low: Less than $450	19	20	40
Affordable: $450–700	16	17	33
Market: Over $700	14	15	29

Source: RDG Planning & Design, 2010

Commercial and Industrial Land Needs

A growing population creates demand for new commercial devel–opment, and retail growth is an element of Sturgis’ economic development strategy. While a comprehensive plan does not include a retail market analysis, it does identify adequate space to meet population demands and future growth potential.

In Sturgis, new commercial development falls into two categories: projects that serve the local consumer market, and projects that take advantage of the Sturgis brand and Black Hills location to attract business from outside the immediate market area. For example, a national, big–box or specialty retailer could consume much more commercial land then necessary to support service needs of local residents.

On the other hand, demand for future industrial land is linked to opportunity and recruitment, rather than exclusively to popu–lation growth. A single major corporate decision can dramati–cally increase (or decrease) the projected industrial demand in a community.

Despite these differences, similar projection methods are used to predict future commercial and industrial land needs. These methods include:

• *Population proportion.* This method relates land needs to population projections. It assumes that the absolute amount of commercial or industrial land per 100 people will remain rela–tively constant and that new development will grow in proportion to population growth.

• *Residential use proportion.* This assumes a constant relationship between the amount of land used for residential and commercial or industrial purposes, thereby relating commercial and industrial growth rates to residential development rates.

Figures 2.9 and 2.10 use these methods to estimate commercial and industrial land needs. The land designated for each use in the Future Land Use Plan should be about 1.5 times the hard demand

or conversion need for commercial and 3 times the need for industrial. Like the approach used in the residential model above, this provides market choice and prevents artificial inflation of land cost. Using the largest of the alternative projections suggests designating:

• about 47 acres of additional land to support local demand (1.5 times hard demand). Combined with Sturgis' 163 acres of existing land in commercial use, this designates 210 total acres of commercial land. The plan should identify additional land to accommodate a large national retailer.

• about 122 acres of additional industrial land (3 times the hard demand). Combined with Sturgis' 211 acres of existing land in industrial use, this designates 333 total acres of industrial land. Again, the plan should include the flexibility to accommodate a very large industry not anticipated by this model.

Figure 2.9: Required Commercial Land, 2011–2030

	2010	2020	2030	Additional Hard Demand	New Designated Land (x1.5)	Total Designated Land (Existing + Planned)
Population Proportion Method						
Projected Population	6,627	7,177	7,772			
Commercial Use/100 res.	2.46	2.46	2.46			
Projected Commercial Use (acres)	162.82	176.32	190.94	28.13	42.19	204.49
Residential Use Proportion Method						
Residential Land (acres)	809.93	885.26	966.20			
Commercial/Residential Ratio	0.20	0.20	0.20			
Projected Commercial Use (acres)	162.82	177.96	194.23	31.42	**47.12**	**209.94**

Figure 2.10: Required Industrial/Business Park Land, 2011–2030

	2010	2020	2030	Additional Hard Demand	New Designated Land (x1.5)	Total Designated Land (Existing + Planned)
Population Proportion Method						
Projected Population	6,627	7,177	7,772			
Industrial Use/100 res.	3.18	3.18	3.18			
Projected Industrial Use (acres)	210.97	228.22	247.15	36.18	108.53	320.31
Residential Use Proportion Method						
Residential Land (acres)	809.93	885.22	966.12			
Industrial/Residential Ratio	0.26	0.26	0.26			
Projected Industrial Use (acres)	210.97	230.58	251.66	40.69	122.06	**333.09**

Transportation and Infrastructure

3

Transportation and Infrastructure

Sturgis' transportation and infrastructure systems form the fundamental framework of the community, both sustaining present development and supporting future growth. The access system includes the street network and the city's evolving pathway network, while infrastructure includes the water, stormwater management, wastewater, and private utility systems.

TRANSPORTATION AND STREETS

This section addresses Sturgis' transportation system, providing a basis for developing future policies and projects. It considers the structure of the city's street system and the roles of its individual parts components. Sturgis is unusual for the extraordinary short–term traffic load placed on the system during the Rally period in August, when the city welcomes up to 100,000 daily visitors. The system's "level of service," an engineering standard that generally measures speed and smooth operation, understandably falls dramatically during this event. However, the congestion and processional quality of motorcycle and conventional traffic is fully expected and is indeed part of the ambience of the event. On an overall basis, Sturgis' network should:

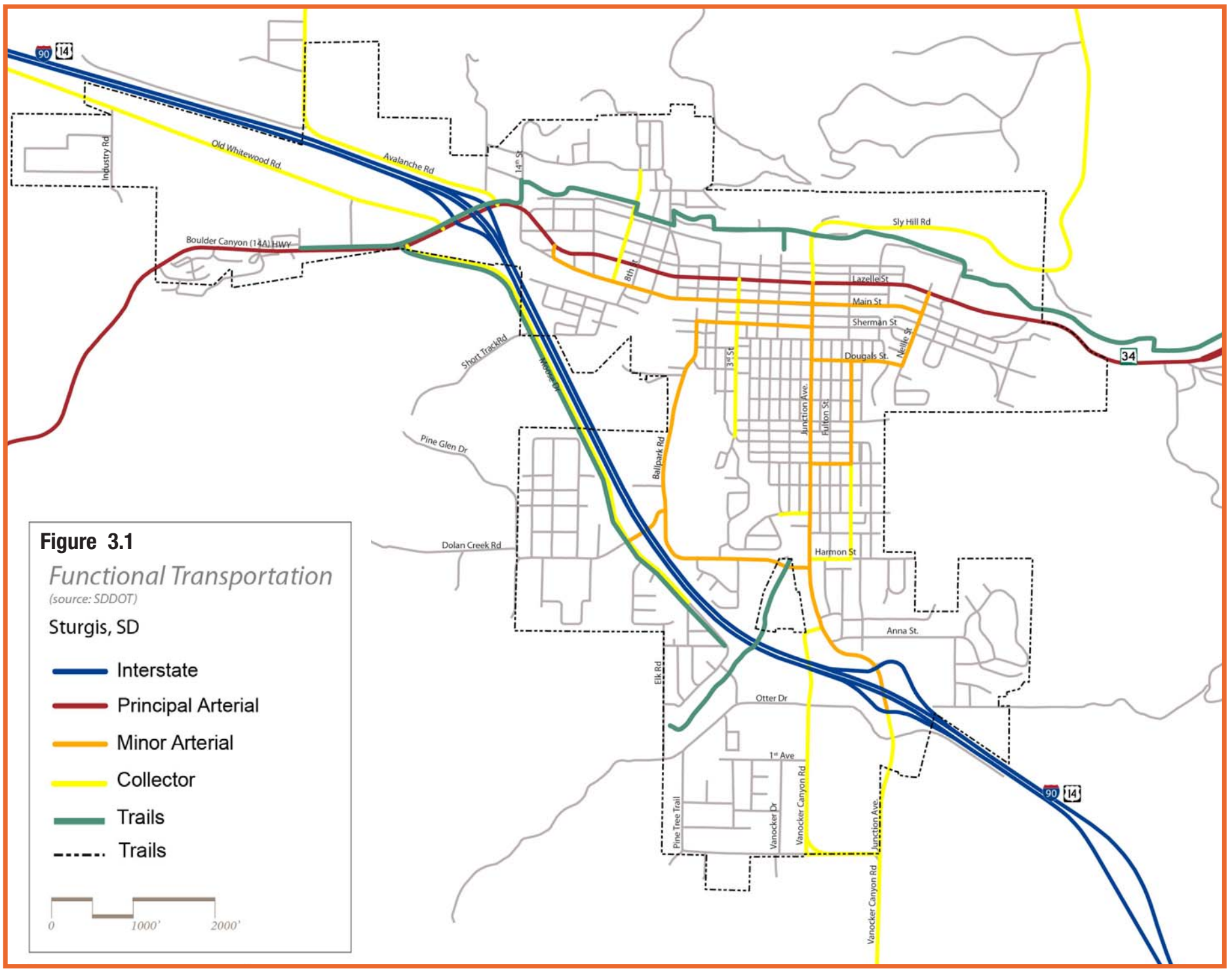
- Provide safe, convenient, and smooth access to Sturgis' residents, businesses, and visitors during the basic year.
- Accommodate the Rally's seasonal load by providing enough mobility to ensure public safety and reasonable access without attempting to achieve a normal year–round level of service standard during unique events.
- Promote active transportation, including pedestrian and bicycle access as an alternative to motor vehicles for short, local trips.

Existing Street Network

The Street Classification Map (Figure 3.1) displays the city's current Functional Classifications as established by the South Dakota Department of Transportation. A street segment must be designated part of the Federal Aid system to be eligible for federal funding when implementing major improvements.

In addition to Interstate 90, the SDDOT classifies the Sturgis network as follows:

Transportation and Infrastructure



Principal Arterials serve regional needs and connect major activity centers, and often carry state and/or federal highway designations. Sturgis' principal arterials include:

- Lazelle Street (SD 34)
- U.S. Highway 14A (Boulder Canyon Road).

Lazelle is a four– to five–lane facility through the Sturgis jurisdiction. Boulder Canyon Road (US 14) narrows to a two– to three–lane facility with paved shoulders as it leaves the city on the way to Boulder Canyon and Deadwood.

Minor Urban Arterials connect with and complement principal arterials by serving activity centers and linking various parts of the city. In Sturgis, some minor arterials owe their status to the destinations that they serve rather than their traffic volumes. Most of these facilities are two– to three–lane facilities. Minor arterials in the state classification system for Sturgis include:

- Junction Avenue (SD 79), I–90 to Lazelle Street (SD 34)
- 11th Street/Main Street from 11th Street and SD 34 (Lazelle Street) south to Main Street, then east to Nellie Street
- The Ball Park Road/5th Street/Sherman Street system, an inner loop of streets extending from SD 79 and Ball Park Road, northeast to 5th Street, then to Sherman Street, the east to Junction Avenue.
- Fulton Street from Deadwood Street to Douglas Street.
- Dolan Creek Road from Ball Park Road to Moose Drive.
- Sherman Street, 9th Street to Junction Avenue.
- Douglas Street, Junction to Nellie
- Nellie Street, from Douglas to Lazelle

Urban Collector Streets link neighborhoods together, and connect them to arterials and activity centers. Collectors are usually two–lane facilities with substantial system connectivity, often with on–street parking, designed for relatively low speeds (35 miles per hour or less). The state classification includes the

Steps in the Functional Hierarchy. Top: Lazelle (principal arterial) during the Sturgis Rally. Middle: Junction Avenue, recently improved as a three–lane minor arterial. Bottom: Harmon Street, a collector linking Junction Avenue to neighborhoods on the east side of town.

following streets in the city's– collector network.

- Sly Hill Road from the intersection of Junction Avenue and Dudley Street north over Sly Hill
- Avalanche Road from Lazelle Street to the city landfill
- Whitewood Service Road
- 9th Street, Main to Ellen
- 3rd Street, Lazelle to Boulevard
- Harmon Street from SD 79 (Junction Avenue) to Fulton Street
- Park Street from the DM&E railroad tracks to SD 79 (Junction Avenue)
- Fulton Street from Harmon Street to Deadwood Street
- Moose Drive, US 14A to approximately Whitetail Drive
- Old Vanocker Canyon Road from Junction Avenue to Pine View, and Pine View between Old and New Vanocker Canyon.
- New Vanocker Canyon Road (SD 79) from the I–90 inter–change south.

The Sturgis Major Street Plan

In June, 2008, the City of Sturgis adopted a Major Street Plan, required under state statute for approval and acceptance of subdivision plats. This major street plan is a local planning and programming document that differs in some cases from the state classification system, but responds specifically to local needs and the individual roles of different facilities.

Specific differences include:

Addition of Junction Avenue (SD 79) as a principal arterial.

Classification of Whitewood Service Road, Sly Hill Road, and Avalanche Road as "rural minor arterials." The state system classifies these roads as collectors.

Addition of the following streets as minor arterials:

- Deadwood from Junction to Fulton, not classified in the state network.
- 1st Street from Sherman to Lazelle, not classified in the state network.
- 2nd Street from Sherman Street to Lazelle, not classified in the state network.
- Moose Drive from US 14A to Dolan Creek Road, classified as a collector in the state network.

Addition of the following streets as part of the city–adopted system of collectors:

- William Street from SD 34 (Lazelle Street) to 9th Street
- Sherman Street from Junction Avenue to Nellie Street
- Douglas Street from 3rd Street to Junction Avenue.
- Dakota Street from 3rd Street to Junction Avenue.
- Deadwood Street from Spruce Street to Junction Avenue.

- Spruce Street from Deadwood Street to Sherman Street
- Marshall Street from SD 79 (Junction Avenue) to Fulton Street
- Sherman Street/8th Street from 10th Street to Main Street

Future Collectors

The 2008 Sturgis Major Street Plan anticipates changes in devel–opment patterns that could require new collector streets. Some of these segments are already included in the SDDOT federal aid network, while others represent new system additions. Additional candidate segments listed in the Major Street Plan included:

- Moose Drive from Dolan Creek Road to Raccoon Road.
- Raccoon Road from Moose Drive to Otter Road.
- Otter Road from Raccoon Road to Vanocker Road.
- Cedar Street from Douglas Street to Dakota Street.
- Douglas Street from Cedar Street to Junction Avenue.
- Dakota Street from Junction Street to Cedar Street.
- Anna Street from Junction Avenue to the City boundary.

Traffic Capacity Analysis (LOS)

Level of Service (LOS) analysis, based on the ratio of average traffic volume (V) on a street segment or intersection with the design capacity (C) of the facility, is the traditional measure of street performance. LOS focuses on speed and smoothness of traffic flow under specific volume conditions. The V/C ratio corre–sponds to an LOS "grade" for the facility, that in turn describes the performance of the street. LOS categories are described as follows:

LOS A: Free–flowing operation. Vehicles face few impediments to maneuvering. The driver has a high level of physical and psychological comfort. Minor accidents or breakdowns cause little interruption in the traffic stream. LOS A corresponds to a V/C ratio of 0 – 0.60.

LOS B: A reasonably free–flowing operation. Maneuvering ability is slightly restricted, but ease of movement remains high. LOS B corresponds to a volume–capacity (V/C) score of 0.60 – 0.70.

LOS C: Stable operation. Traffic flows approach the range in which traffic increases will degrade service. Minor incidents can be absorbed, but a local slowdown will result. LOS C . to a V/C score of 0.70 – 0.80.

LOS D: Borders on unstable traffic flow. Small traffic increases produce substantial service deterioration. Maneuverability is limited and comfort reduced. LOS D represents a V/C score of 0.80 – 0.90.

LOS E: Typical operation at full design capacity of street. Operations are unstable because there is little margin of error in the traffic system. LOS E corresponds to a V/C score of 0.90 – 1.00.

LOS F: A breakdown in the system. Such conditions exist when queues form behind a breakdown or congestion point. This condition occurs when traffic exceeds the design capacity of the street.

Figure 3.2 presents the capacity of various street sections at LOS D, the point at which congestion problems begin to appear.

Figure 3.3 displays the application of LOS methodology to key street segments in Sturgis under both normal and Rally traffic conditions.

Evaluation

The LOS review shows that existing streets deliver a LOS of A

Top: Dolan Creek Road and sidepath, linking southside neighborhoods with the ballpark area. Above: US 14A south of I–90, a major concentration of visitor and commercial services.

? WHAT ARE THE LIMITS OF "LEVEL OF SERVICE?"

Level of Service basically measures how fast traffic can move. However, fast traffic is not always a good thing. Overcapacity causes traffic to move too fast, creating safety problems. Traffic should follow a "Goldilocks" principle: not too fast, not too slow, just about right. Also, LOS measures one variable and does not consider other important values, such as street connectivity, neigh–borhood preservation, envi–ronment, design and visual quality, sustainability, bicycle and pedestrian access, and economic development. Unlike school, a grade of "A" is not necessarily desirable and may indicate too much street. A grade of "C" or "D" maybe more desirable, representing a street appropriately sized for its context. If the desirable and safe speed for a street is 30 mph, the street's design or width should not encourage motorists to drive at 50.

and B under normal circumstances. Traffic volume can grow considerably before a capacity problem begins to appear. As one would expect, the system functions very differently during the Rally. The city has used portable stop signs and parking restricting traffic movement to manage the traffic load, and these techniques generally have worked effectively. Making expensive capital changes to improve traffic flow during the Rally is unnecessary and can have unintended consequences, such as increasing speeding during the rest of the year. Most people know that traffic may move slowly through Sturgis and off I–90 for one week in August and, in some ways, the volume and processional quality of traffic is part of the Sturgis experience. Additional low–cost techniques such as directional signage can keep unwanted traffic out of residential neighborhoods during Rally Week. In addition, creating alternative routes that serve major year–round needs and has economic development benefits can also reduce congestion during special events.

Figure 3.2: Typical Traffic Capacity by Facility Type

	Capacity at LOS D (VPD)		
	2–Lane	3–Lane	4–Lane
Minimal Access	12,500	16,500	25,400
Residential	12,300	16,250	25,300
Mixed Zoning	11,200	14,850	23,600
Central Business District	9,400	12,650	20,500

Other Systemic Issues

While Sturgis' streets have more than enough capacity to meet normal traffic demands, this does not mean that the system is problem–free. Street network issues that help frame a system improvement agenda for the city include the following:

• *Southwest street connectivity within I–90.* Sherman, 5th Street, and Ball Park Road form a continuous inner–loop that helps distribute traffic around the city. However, this loop directs all traffic back to busy areas along Junction Avenue and lacks an outlet across the railroad to Lazelle Street on the west side of town. A grade separation under the DM&E at 8th Street does not connect to any part of the street system. Improved connectivity from the ball park area to the west side of town would both improve the network and open development opportunities.

• *Neighborhood short–cutting.* Motorists use streets like Douglas Street to Nellie or Deadwood Street to 3rd to avoid the Junction/Main and Junction/Lazelle intersections. Overuse of these routes can affect neighborhoods and place structural stress on local streets.

• *The Lazelle Corridor.* City transportation policy, established in the 2008 Major Street Plan, rightly calls for diverting truck traffic accessing Sturgis from Junction Avenue to Lazelle Street. However, a lack of local streets north of Lazelle between Junction

Figure 3.3: Performance of Key Street Segments.

Street Name	Location	Capacity (VPD)	2009 Volume	V/C Ratio	2009 LOS	2010 Rally (carried through)	Rally LOS
Junction Ave.	Vanocker Canyon Road to Glover St.	14,850	9,814	0.66	B	18,119	F
Junction Ave.	Harmon St. to Marshall St.	14,850	10227	0.69	B	18,119	F
Junction Ave.	Main St. to Lazelle	12,650	8324	0.66	B	18,119	F
Main St.	Junction Ave. to Middle St.	9,400	1471	0.16	A	Closed	NA
Main St.	3rd Street to 4th Street	9,400	1598	0.17	A	Closed	NA
Sly Hill Road	Dudley St. to W. Woodland Dr.	12,300	742	0.06	A	NA	NA
US 14A	South of I–90	25,300	5,258	0.21	A	42,000	F
Lazelle Street	I–90 to Junction	23,600	10,940	0.46	A/B	42,000	F
Lazelle Street	Junction to City Limits	23,600	9,106	0.39	A	42,000	F
SD 34	Between Sturgis and Ft. Meade	25,300	4,510	0.18	A	42,000	F
Ball Park Road	Junction to 5th Street	12,300	2,460	0.20	A	NA	NA
Moose Drive	At Dolan Creek Road	12,300	1,324	0.11	A	NA	NA
Harmon Street	Junction to Fulton	11,200	1,138	0.10	A	NA	NA
Fulton Street	Deadwood to Lazelle	12,300	565	0.05	A	NA	NA

and 6th Street also causes most local traffic bound for commer–cial and community destinations and the community center to depend on Lazelle. As a result, conflicts occur between local and regional traffic, and local access is particularly difficult during the Rally. Truck traffic also adds to the traffic friction: trucks make up about 5% of average daily traffic (ADT) on Lazelle between I–90 and Junction, compared with about 2% east of Junction.

• *Main Street Connection to Westside.* Main Street is both a major visitor destination and a significant community street. However, its western connection to Lazelle is awkward and difficult to find, partially because of the geometry of the intersection. An improved Main and Lazelle intersection point would encourage Main Street bound motorists entering town from Exit 30 and US 14A to use Main rather than Lazelle for access, relieving traffic on Lazelle and providing a development catalyst along Main.

• *Exit 30 and Avalanche Road Intersection.* The Lazelle inter–change with I–90 (Exit 30), and the Lazelle/Avalanche Road and Lazelle/14th Street intersections are very closely spaced, and with other driveway cuts, creates traffic conflicts and traveler confusion. In addition, both the interchange ramps and the Avalanche Road intersection are signalized, creating stacking and traffic flow problems and some inconvenience for travelers who think that Avalanche is the entrance ramp to I–90. The sidepath connecting visitor and commercial services south of I–90 to the Bear Butte Trail also must negotiate this gauntlet of crossings, challenging pedestrians and bicyclists. Rationalizing these inter–sections would greatly improve safety and ease and comfort of access.

• *Junction and Ball Park Road.* Ball Park Road, the key link in the city's inner loop system, is the city's third busiest street, behind Lazelle and Junction. Its signalized terminus at Junction Avenue is about 150 feet south of Harmon Street, another important street that provides primary access to the hospital. This close spacing, combined with traffic volumes, the center left–turn lane on Junction, and adjacent curb cuts, creates a confusing and potentially hazardous condition at a key intersection.

• *Collector Access South of I–90.* Much of Sturgis' new residen–tial development has occurred south of I–90, requiring improved collector street service. Improvement of Moose Drive provides a good collector corridor between US 14A and Whitetail Drive, but continued access to the Vanocker Canyon interchange is an indirect route requiring turns on Raccoon and Otter Drives. New development should include a more efficient connection south of I–90 to the interchange area, a focus of additional mixed use development.

Trails and Pathways

While Sturgis is identified with "bikes" with motors, it also has built a growing system for the non–motorized variety. The rela–tively short distance between major destinations in Sturgis makes bicycle and pedestrian transportation a good option for many trips. Pathway facilities in Sturgis include:

- *Bear Butte Trail,* the city's primary east–west trail, extending about 3 miles from Sturgis High School and the Fort Meade area to 7th Street. This trail connects many of the city's major parks along the creek.

- *Bear Butte/US 14A Extension.* This trail connects the Bear Butte Trail to the commercial corridor along Boulder Creek Road (US 14A) south of I–90. The path crosses the creek on the 7th Street bridge, follows William Street between 7th and 9th Street, follows the creek again between 9th and 14th, and links back to a sidepath along US 14A and through the I–90 interchange, ending at Adair Avenue.

- *Moose Drive Sidepath.* This roadside path connects US 14A

Looking south on Junction toward the Ball Park Road intersection. This key intersec–tion is complicated by offset streets, a free center left–turn lane, and adjacent curb cuts. Access control and improved align–ments would provide safer operations.

to Elk Road, and intersects with a pathway spur on Dolan Creek Road.

- *Dolan Creek Path.* This short spur link the Moose Drive Sidepath to the ballpark area.

- South Drainageway, a new trail under construction along the Bear Butte Creek tributary from Ball Park Road and under I–90, eventually to Elk Drive, under construction in 2010.

Many of Sturgis' streets are also relatively friendly to bicycle use. However, the city does not have designated bicycle routes or lanes. While many consider bicycle facilities to be recreational, they are important to an integrated, sustainable transportation system. Chapter Seven presents a concept for such a multi–modal system in Sturgis

A Transportation Agenda

Based on this analysis of the Sturgis system, an agenda for future transportation planning includes:

• Adopting standards and specifications for street pavement widths, parking, boulevard width, and minimum right–of–way dedications.

Multi–Modalism in Sturgis. Left top: Sidepath along Moose Drive. Left bottom: New trail construction along south drainageway in 2010. Above: Motorcycles, bicycle, cars and even helicopters near Bear Butte.

• Updating the functional classification map to bring the state land local major street system into harmony.

• Continuing to perfect traffic management techniques during the Rally.

• Improving the street network to provide alternative routes to major development areas and destinations and greater connec–tivity to improve both Rally and year–round circulation.

• Realigning and improving critical intersections such as the Exit 30/Avalanche Road areas, westside connectivity of Main and Lazelle Streets, and the Ball Park/Junction/Harmon area.

• Improving collector access south of I–90 to serve continued residential development and new regional commercial growth possibilities.

• Improving pathway connectivity and adapting strategic street links to create a fully connected, active transportation system.

•Establishing a community–wide, visitor–oriented wayfinding system to Main Street and other key community destinations.

WATER SUPPLY

The Sturgis Water Department is responsible for providing water that is safe, high in quality, and in adequate quantity to meet domestic, commercial, industrial and fire suppression require–ments. A three member Utilities Board, appointed by the Mayor, governs the Department, whose administrative offices are located in City Hall at 1040 2nd Street. The Department manages several properties throughout the city that make up the water supply system. Those properties include six pump houses, a shop and garage, a well house, and three reservoirs.

Capacity Scenarios

The Department serves a population of more than 6,442 customers with average use of 945,500 gallons per day (gpd), and maintains 2,869 residential and 365 commercial accounts as of January, 2011. Peak demand is 2,750,000 gallons per day. The city maintains seven wells and three storage reser–voirs. If all seven wells are operational, the 24–hour production capacity is 3,600,000 gpd. Wells 1 through 4 are old facilities with operating issues, and three wells have water quality issues. The production of the remaining wells over a 24–hour period is 1,764,000 gpd. This range represents the theoretical best and worst case scenarios. For planning purposes, it is reasonable to use a scenario in which the most vulnerable and the highest producing wells are simultaneously out of service. This scenario has a 24–hour production of 2,196,000 gallons.

Under optimum conditions, the system has excess capacity of 850,000 gpd over a 24–hour period. However, good manage–ment practice cannot depend on optimum conditions, and must consider operational safety factors. A potential non–operational situation produces a deficit of 554,000 gallons during peak day demand. This would reduce fire suppression capacity, deplete reserves, and possibly interrupt service.

Water Rates

Administrative provisions allow the Department to provide water to properties outside the corporate limits. The rates for accounts outside the city are 1.5 times higher than those inside the city. At the time of this report there were only eight accounts served outside the corporate limits. Those properties served outside the corporate limits must agree to waiving protests to annexation should the city elect to annex the served area.

The Department is an Enterprise Funded entity that derives its revenue from charges to the water customers. A demand charge is based on meter size. Rates are normally reviewed and adjusted every three years. Commercial and residential proper–ties are charged at different rates, with rate differences based on an historical rationale. As of this date, charges are scheduled to increase for residential accounts by $0.15 per 1000 gallons per year through 2012. For commercial properties charges are scheduled to increase by $0.25 per 1000 gallons per year through 2012. Figure 3.4 summarizes water rates as of January, 2011.

Figure 3.4: Water Rates Summary

	2010	2011	2012
Residential (2,869 customers)			
$/1,000 gallons	$2.15	$2.30	$2.45
Base Minimum	$12.00	$12.50	$13.00
Commercial (365 customers)			
$/1,000 gallons	$2.25	$2.50	$2.75
Base Minimum			
¾" to 1"	$12.00	$12.50	$13.00
1 ¼"	$22.00	$22.50	$23.00
1 ½"	$32.00	$32.50	$33.00
2"	$42.00	$42.50	$43.00
3"	$62.00	$62.50	$63.00
4"	$82.00	$82.50	$83.00

Capital Project Needs

Necessary projects are generated by four specific needs:

- The ability to respond to emergency situations, most notably fire suppression.
- Provision of adequate water supply and service to the existing and future customer base.
- Capacity to plan for and accommodate new growth through annexation.
- The unusual peak demands created by the population bubble generated by the Sturgis Rally.

The water system depends on two major capital components: supply and distribution systems. The supply system, in turn, is composed of the water source (wells) and storage (reservoirs). In addition to the steady demand of regular customers, fire suppression requires delivery of large volumes of water over a short period of time. Physical and population growth also factors into future needs. The 2009 *Study of Municipal Water System for City of Sturgis, South Dakota* identified five areas to be consid–ered for potential future annexation into the city. Should all of the identified areas be annexed and developed, the peak flow demand during the Rally is projected to more than double to 6.2 million gallons per day.

Water mains throughout the city range from 4 to 12 inches in diameter, with undersized 4–inch mains located throughout the city. Many of the mains are very old and have met or exceeded their design life. The Department will extend water mains to most locations within its service area as requested. At the discretion of the Municipal Utility Board, the cost of any water main extension may be covered by the Department. Potential growth and expected revenue are primary factors impacting the extension of new mains.

The "Water System Facilities Plan for Drinking Water State Revolving Fund Program" (January 1, 2011) for the City of Sturgis identifies the total project budget and respective priority projects for the Department. The total project budget is based on current State Revolving Fund (SRF) loan rates and terms. The total project budget was determined to be $2,600,000. The projects funded by this budget include the following:

Current Recommended Projects

- Well #1 Removal and Replacement
- Well #3 Well House Improvements and Booster Pump
- Pine Acres Booster Water Main
- Hospital Area Water Main Replacement: Marshall St. from Davenport to Fulton

Probable Cost: $2,595,824

Future Recommended Projects

Wells

- Well #7 Booster Pump System Upgrade
- Well #4 Upgrades
- Well #5 Upgrades

Water Mains

- Glover St. from Junction to Fulton
- Marshall St. from Fulton to Baldwin
- Baldwin St. from Marshall to Harmon
- Fulton St. from Harmon to Marshall
- Davenport St. from Park to Marshall
- Shepard St. from Junction to Fulton
- Fulton St. from Shepard to Edmunds
- Douglas St. from Junction to Drainage Channel
- Edmunds St. from Fulton to Drainage Channel
- Pine Acres Fire Hydrants
- Lazelle St.
- Main St.
- Davenport St. from Howard to Deadwood
- Fulton St. from Harmon to Park and Celia to Glover

Tank, Pressure Reducing Valve (PRV) and Telemetry (SCADA)

- North Steel Tank Upgrades
- South Steel Tank Upgrades
- North Concrete Tank Upgrades
- Pressure Reducing Valve Stations (5)
- SCADA System Upgrades

Probable Cost: $2,883,383

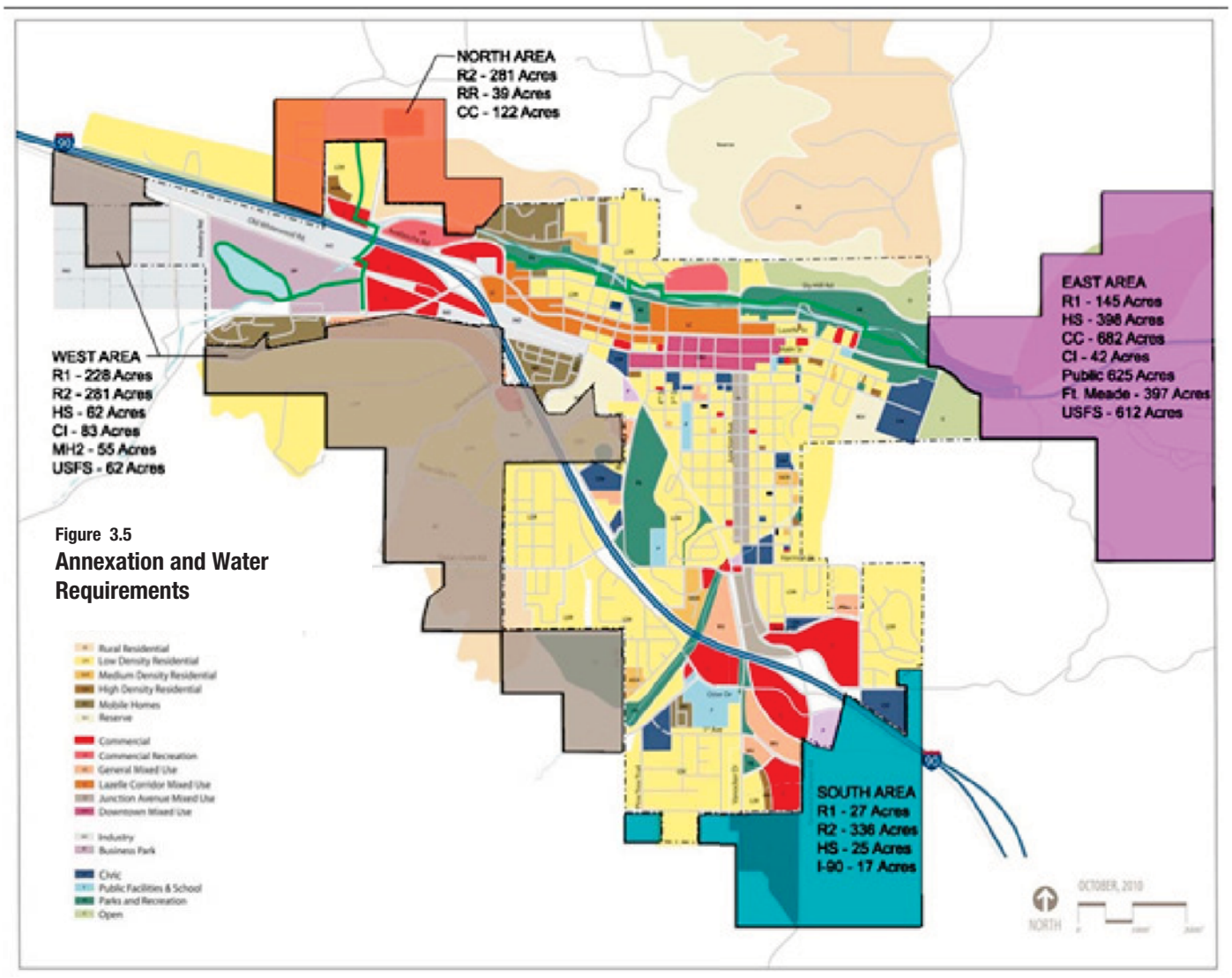


Figure 3.5
Annexation and Water Requirements

Figure 3.6: Projected Water Demand for Growth Areas

Area	Peak Demand (gallons/day)	
	Normal	Rally
East	400,120	1,207,320
South	824,300	824,600
West	173,600	235,600
North	191,800	265,00

Funding options for these improvements include the South Dakota State Revolving Loan Fund, U.S. Department of Agriculture loan fund, and Community Development or Rural Development Grants.

Community Growth

Economic development and city growth both depend on water supply. A Sturgis ordinance prohibits new private water systems within one mile of the corporate limits. Consequently, any devel–opment within or immediately outside of the city must be served by the City Water Department. The 2009 water study identified four major areas that would be considered for annexation into the city, as displayed in Figure 3.5.

Figure 3.6 shows the demand for water generated by full devel–opment of these potential growth areas, which are coordinated with the city development concept discussed in Chapter Seven. Rally–related peak water demand is roughly 3 times greater for most of the proposed annexation area. This places unusual demands on the water system that require careful management both during the extreme peak demand period and to serve future development.

Another unusual condition related to service beyond the current city limits involves service to the Fort Meade campus. The City of Sturgis currently provides a 4" water supply pipeline connection to the Fort Meade water system. This allows the City to supple–ment or replace the current level of water supply demand to the Fort Meade water supply tanks. The *Study of Municipal Water System for City of Sturgis* (August, 2009) concludes that the City can provide reliable water service to the Fort Meade area if the two systems are integrated.

Water System Evaluation

The Sturgis Water Department currently provides good quality water and adequate volume to meet the current domestic and commercial needs of the community. Although volumes under total operating conditions are adequate for fire suppression, lack of redundancy and restrictions in the distribution system leave some areas of the City vulnerable. The Water Department has identified its needs and recognizes that improvements will be made to the system to maintain or improve the current level of service. Improvements are needed in supply, storage and distri–bution. A rate structure has been adopted to meet the operating costs of the system.

Rates appear to be based on historical practice that has evolved over time to cover operating expenses and maintain existing facilities. Commercial and industrial rates are higher per unit than rates for the same unit for residential users.

Major improvement projects presently do not have funding secured. Funding mechanisms beyond normal operation and repair and maintenance are not identified. One new well was scheduled for construction in 2010 but was not completed.

Sturgis meets the peak Rally demand, but this taxes the system and leaves little room for contingencies. For example, if the highest producing well failed during the Rally, the city would have difficulty meeting domestic and commercial needs. There is also a reasonable expectation that an adequate water supply would not be available to fight a significant fire.

A number of major older mains, such as those on Lazelle Street and on Main Street in the downtown district are inadequate in either size or condition. This inadequacy, combined with the age and construction type of Main Street buildings may create a fire suppression risk, exacerbated by the additional local water demand caused by the number of people at the Rally. Mains in some older parts of the community are undersized, beyond their design life, or simply non–existent. Service reliability and fire protection are below standard in these areas.

Improvements are being made to the system; however, it will take several years and a considerable investment to bring the existing system into standard condition. Meanwhile, other parts of the system continue to age and will require attention. Plans are in place to both increase current well production, where possible, and replace inefficient wells.

Consumption rates for residential users will have risen by 23% from 2009–2012 with the base rate rising by 30%. Commercial base rates will increase by 35.5% from 2009–2012. The consumption rates will increase from 3.8% for the largest users to 30% for the smaller commercial users; all over the period from 2009–2012. The cost of public utilities is a local decision. The impact of rates versus level of service requires careful consider–ation by the community.

Recommendations

• A rate study was recently completed for the Municipal Utilities Board. Rates through 2012 were based on operational and

improvements costs through that year. A combination of grant funding, loans and the adopted rate adjustments are required to fund improvements. As of February, 2011, necessary loans and grants have not yet been secured. The rate study concludes that a deficit will occur in 2012. The rate structure will need to be re–considered on or before that date. At that time, the rationale for the difference between residential and commercial rates should also be reviewed.

• Additional storage components, including compartmentalized storage tanks and new tanks, should be considered to address the peak demand required during the Rally.

• Redundancy in the system should be improved.

• Separate, independent bodies administer the water system and the remaining public works services of the city. The city's Capital Improvements Plan should be adopted by both the Municipal Utility Board and the City Council to ensure that improvements are compatible.

• Water system improvements are recommended in the Facilities Plan through 2012. A long term (10 – 20 years) water system improvement plan, including schedule and funding, should be established.

WASTEWATER TREATMENT

Wastewater is treated by an open lagoon system owned and operated by the City. The lagoon is located about 1.25 miles northeast of the city. Effluent from the lagoon system is discharged by irrigation to agricultural ground. Discharges to Bear Butte Creek are not authorized. Bear Butte Creek is designated as a cold water fishery.

The lagoons have a capacity of 180 days. In order to provide storage over the winter, 150 to 160 million gallons of treated effluent per year must be applied to the ground, most of which is now applied to 167 acres of hay ground. The 20–year contract for land application expired in January, 2011. In addition to the City of Sturgis, the lagoons serve the Sturgis–Brown High School, National Guard complex, and Fort Meade. These extra–territorial service areas are all located east of the city limits.

The city's sanitary sewer collection system uses clay and pvc pipe, maintained and monitored with a city–owned sewer jet and camera system. The clay sewers were grouted approximately twelve years ago. Inflow and infiltration affects the volume of flow and the capacity of the treatment system.

Evaluation

Sturgis generally enjoys good sanitary sewer and wastewater management service, but additional capital investment is needed to maintain acceptable service. A high percentage of the sewer collection system has reached and exceeded its useful life. As a result, pipe failures resulting in blockages, and extraneous flow are occurring and will become more frequent with time.

The operation of the lagoon system is limited by non–discharge authorization to the Bear Butte Creek, the lack of a current agri–cultural discharge agreement on private property, and inflow and infiltration that affects lagoon capacity.

Recommendations:

- Develop an incremental sanitary sewer replacement program.
- Complete an inflow/infiltration study and sewer assessment report.
- Extend operation of the lagoon by meeting requirements and obtaining a discharge permit for lagoon and negotiating a long–term right to irrigate with lagoon effluent.
- Develop maps of the collection system with sufficient detail to be useful to the city and developers.

STORM WATER MANAGEMENT

Storm water management affects the quality of life of the residents of Sturgis and has a major influence on the city's ability to grow. Good stormwater management protects the life and property of the city's residents. It also establishes the basis by which residential and commercial developers properly address drainage issues and advance development plans.

Regulatory Environment

The City of Sturgis has met the requirement of coverage under the Storm Water Discharge for Small Municipal Separate Storm Sewer Systems (MS4) permit, granted by the South Dakota Department of Environment and Natural Resources. The permit's main requirement is the development and implementation of a Stormwater Management Program. Federal and State regula–tions require that City of Sturgis' program address each of the following program components:

- Public Education & Outreach
- Public Involvement
- Illicit Discharge Detection and Elimination
- Construction Site Runoff Control
- Post–Construction Runoff Control

• Pollution Prevention/Good Housekeeping for Municipal Operation

State regulations require that MS4 operators develop, implement, and enforce a storm water management program designed to reduce discharge of pollutants from the MS4 to the maximum extent practicable. The City must develop procedures to meet the six requirements listed above. All six components must be completed within ten years of the permit issuance.

Physical Drainage Patterns and Floodplains

Drainage in Sturgis runs from the surrounding hills into the Bear Butte Creek basin, with the predominant flow direction being from the southwest to northeast. Most of the Bear Butte Creek flood–plain has been maintained as open space, although some struc–tures, including the city's public works yard, encroach somewhat into this area. A major drainage canal increased capacity of a tributary stream and serves as an efficient stormwater conduit for neighborhoods on the east side of the city. Additional improve–ments are being made to this drainage corridor south of Interstate 90. Some residential areas east of Junction and north of I–90, served by the canal, remain in the 500–year floodplain, as does the Lazelle Street commercial corridor and part of the Main Street district.

While most of the city's most flood–prone areas are largely open, some sites with significant commercial development or potential are located within the 100–year zone. These include the triangle formed by US 14A and the Whitewood Service Road, and the southwest quadrant of Exit 32.

Eastside Drainage Canal.
This structure efficiently conducts stormwater to Bear Butte Creek and away from the developed part of the city. Downstream, the creek is primarily a green corridor, lined by city parks and open space.

Evaluation

The City of Sturgis has met several of the goals outlined in the city's Stormwater Management Program. The 2009 Annual Report lists the goals met and not yet met. Complete implementation of the six minimum measures is required within five years of adoption of the program. A report has not been completed since 2009.

Stormwater management is mandated as part of the Federal Clean Water Act. Each regulated community must meet the conditions of the program adopted by the city. The program's progress is to be reviewed annually in the city's Stormwater Management Program Report.

Recommendations

• Submit annual reports to the South Dakota Department of Environment and Natural Resources as required. The annual reports must be brought up–to–date and delivered to the State to meet the permit requirements and to avoid enforcement action.

• Implement and complete the goals adopted by the city's Stormwater Management Program.

• Use conservation development design techniques and project–specific practices such as wetland and retention areas to reduce drainage outflow from newly developing areas. Establish a no net flow rate increase standard for major new developments to prevent overloading existing drainage corridors.

• Remove trash and sediment from storm sewers and Bear Butte Creek.

• Improve the environmental and visual quality of the Bear Butte Creek corridor, particularly west of Junction Avenue.

• Develop uplands open spaces on key properties to reduce flows into the city basin.

• Develop detailed system maps for utilization by the city and developers.

4

Parks and Community Facilities

If transportation and infrastructure are the framework of the city, parks and community facilities are the public features that bring the city to life and protect and serve its citizens. Sturgis has built an enviable array of resources that have served the city well in the past and form the basis for excellent service in the future. This chapter considers Sturgis' existing park and recreation facilities and community resources, including all city–owned and operated recreation areas and other parks with public access.

THE STURGIS PARK SYSTEM

Sturgis' residents enjoy a variety of open space, parks and recre–ation opportunities within and immediately surrounding the city. Because parks and recreational facilities are a fundamental part of community life, Sturgis must provide additional facilities as the community grows to maintain the level of service that its citizens expect. This analysis of existing city–owned and operated recre–ation areas and other parks with public access considers:

- Current levels of service in the existing system.
- Service coverage to identify park and facility development needs.
- Condition inventory of existing parks.

Park Service Evaluation

Park service adequacy is evaluated in three ways:

- *Facilities by Classification.* Parks are classified into different categories to determine the level and area they serve.
- *Facilities by Geographic Distribution.* The service radius of each facility is analyzed to identify geographical gaps in service.
- *Facilities in Relation to Population Service Standards.* National standards for the provision of park and recreation facilities are applied to Sturgis' present system.

Facilities by Classification

The Sturgis planning area includes about 104 acres of parkland. Traditional park area standards set by the National Recreation and Park Association (NRPA) suggest 10 acres of park land per 1,000 residents. At present, Sturgis contains approximately 17.33 acres per 1,000 residents, meeting this traditional, if somewhat outdated rule–of–thumb. Contemporary evaluation uses a level of service standard, measuring local satisfaction with the current level of open space and making necessary additions as the community moves forward.

Parks and Community Facilities

This analysis uses an NRPA–developed park classification system to classify Sturgis' facilities. Figure 4.1 lists Sturgis' park facili–ties by category with amenities described. The categories of this hierarchy include miniparks, neighborhood parks, school parks, and community parks.

• *Miniparks.* Miniparks generally address specific recreation or open space functions. These parks typically cover less than one acre and have a service radius of less than a quarter of a mile. Because of maintenance difficulties with multiple smaller sites and their small service area, most cities discourage the devel–opment of miniparks. Sturgis currently has seven miniparks: Centennial Park, Harmon Street Park, Hillview Park, Meade Avenue Park, Rose Park, Starline Park and Willow Park. The city should avoid future minipark development except for unique areas or special use open spaces. Parks of less than three acres provide limited services and numerous miniparks create higher maintenance costs for the Parks Department.

• *Neighborhood Parks.* Neighborhood parks are the basic unit of a community's park system and provide a recreational and social focus for residential areas. These parks provide space for informal active and passive recreational activities. The typical service radius for neighborhood parks is between ¼ and ½ mile to provide for comfortable and safe pedestrian access. Neighborhood parks adequate in size to accommodate the requisite facilities should contain at least 5 acres.

The Sturgis planning area contains four parks in this category, including:

- 6th Street Complex
- City Municipal Park
- Woodland Park
- Lions Park

Traditional NRPA standards call for about two acres of neighborhood parkland per 1,000 residents. Sturgis currently has about 26.5 acres of neighborhood parks, which translates into 4.4 acres per 1,000 residents which meets the NRPA standard. In addition, larger community parks also fill neighborhood park functions.

• *School Parks.* School park facilities can help to meet neighbor–hood park needs, particularly when located in areas not served by a neighborhood park. The grounds of the Bear Butte Elementary School serve as a neighborhood park and this playground fills a service gap in the center of town. The Sturgis Elementary School playground includes several different styles of playground equipment, full–size basketball court and open play areas.

• *Community Parks.* These typically include areas of diverse use and environmental quality. Such parks meet community–based recreation needs, may preserve significant natural areas and often include areas suited for intense recreation facilities.
Typical criteria for community parks include:

- Adequate size to accommodate activities associated with neighborhood parks, but with space for additional activity.
- A special attraction that draws people from a larger area, such as a swimming pool, pond or lake, ice skating rink, trails, special environmental or cultural features, or specialized sports complexes.

Community parks generally contain between 30 and 50 acres and serve a variety of needs. The typical service radius of a community park is approximately ½ mile to 3 miles. Traditional NRPA guidelines for community park areas call for 5 to 8 acres per 1,000 residents. Sturgis' community parks include Owens Field Complex (Girls Softball), Little League/Strong Field Complex, Fort Meade Softball Complex and Sturgis Fairgrounds. Together, these parks cover approximately 82 acres. Athletic facilities

A Hierarchy of Parks. From left on facing page: Meade Avenue Park (minipark), Woodland Park (neighborhood park), Sturgis Elementary School (school park), Strong Field (community park)

associated with the city's high school and middle schools such as Woodle Field also function as community parks but are not included in the area to population analysis.

At about 13.8 acres per 1,000 residents, Sturgis currently meets the NRPA standard for community parks. As Sturgis continues to grow, additional space for a new community park should be identified.

Figure 4.1: Park System Analysis

Facility	Location	Total Acres	Playground Areas	Play Fields	Courts	Special Amenities
Community Parks						
Little League Complex Strong Field	1918 Ball Park Rd. 1930 Ball Park Rd.	19.00	N/A	1 American Legion, 1 Pony League, 4 Little League	N/A	Concessions/restrooms, off–street parking, bleachers
Sturgis Fairgrounds	1802 Ball Park Rd.	20.00	N/A	N/A	N/A	Rodeo grounds
Owens Field (Girls Softball Complex)	1510 Ball Park Rd.	5.24	N/A	3 Game, 1 Practice	N/A	Concessions/restrooms, off–street parking (limited),
Hills and Plains Park	Blanche & Lazelle St.	25.00	N/A	Soccer Fields (1 large or 2 small); practice field (the "deer field" to north)	N/A	Concessions; restrooms; grandstand seating; lighted fields; off–street parking (~60 spaces); Colonel Sturgis statue; Freedom Site Memorial; BMX jump park (east side of site, temporary)
Fort Meade Softball Complex	Fort Meade	13.33	N/A	3 softball fields (2 lighted, 1 unlighted); also used for youth football fields	N/A	Concessions/restrooms, bleacher seating

Figure 4.1: Park System Analysis (cont.)

Facility	Location	Total Acres	Playground Areas	Play Fields	Courts	Special Amenities
Neighborhood parks						
6th Street Complex	830 Sixth St.	4.00	N/A	N/A	Tennis Courts (6); Half Court Basketball (1)	Tennis court lighting; off–street parking (40 spaces); restrooms
City Municipal Park	780 Sly St.	5.50	Large playground, swings (6 belt, 2 bucket), spring riders, several specialty play components, rock climbing wall	N/A	Sand Volleyball Court (1)	4 Shelters (Old Stone Shelter with fireplace, Stock Shelter, L–Shelter, Log Shelter – south side of creek); restroom facilities; off–street parking; picnic tables; park benches; grills; chess tables; donor plaza; drinking fountain; bike/pedestrian trail connection; performance stage
Woodland Park	781 Sly St.	6.00	Small, modern component play–ground structure, spring riders (3); sand digger (1); swings (4 belt, 2 bucket)	N/A	N/A	Woodland Shelter/restroom facility; large grill; disc golf course; bike/ pedestrian trail connection; picnic tables; park benches
Lions Club Park	590 Lazelle St.	8.0	Timber playground structure, swings (4–belt, 2 bucket), spring riders (2), sand digger (1), merry–go–round	N/A	N/A	Ice skating pond; large pavilion (upper level); log shelter (lower level); water feature pond with fountain; restroom facilities; drinking fountain; off street parking (40 spaces –upper level, 10 gravel surface spaces – lower level); picnic tables; park benches; grills (7); bike rack

Figure 4.1: Park System Analysis (cont.)

Facility	Location	Total Acres	Playground Areas	Play Fields	Courts	Special Amenities
Mini Parks						
Centennial Park	14th St.	0.50	Slide, swings (2 belt, 2 bucket), merry–go–round, sand play area	N/A	N/A	Bike/pedestrian trail connection, picnic tables, bike racks, park benches
Harmon Street Park	Harmon St.	0.25	N/A	N/A	N/A	Undeveloped open space as part of Hillview Development
Hillview Park	Colorado Ave.	1.00	N/A	N/A	N/A	Undeveloped open space as part of Hillview Development
Meade Avenue Park	Meade Ave. & Douglas St.	0.33	Slide, swings (2 belt, 2 bucket), climber, merry–go–round	N/A	Half–court Basketball (1)	Picnic table, unstructured open lawn area
Willow Park (Pine Acres)	1st Ave.	0.33	Slide, swings (4 belt), merry–go–round, sand digger, spring rider	N/A	Half–court Basketball (1)	Horseshoe court (1), picnic table (1)
Rose Street Park	Sherman St. & Rose St.	0.25	Infant maze play structure, steel slide, swings (4 belt, 2 bucket), climber, spring riders (3), sand digger (1), merry–go–round	N/A	N/A	Picnic table, unstructured open lawn area
Starline Park	Starline Ave. & Oak Grove Court	0.33	N/A	N/A	N/A	Picnic table, unstructured open lawn area
School Sites/Other Public Use Sites						
Nolin Monument Site	Junction Ave. & Harmon St.	.35	N/A	N/A	N/A	Historic Nolin Monument, open lawn area
Sturgis Elementary School	1121 Ball Park Rd.	5.5	Component play structures (3 total), climbers (2), swings (14 belt)	A portion of the little league fields are located on north half of property	Half–court Basketball (1), Full Court Basketball (1)	Benches
Sturgis Middle School	Douglas St.	.5	N/A	N/A	N/A	Open lawn area at south end of site
Woodle Field	Blanche St.	8.0	N/A	Football Field, Running Track	N/A	Sports lighting, stadium seating, running track renovation currently underway; concessions; restrooms

Facilities by Geographic Distribution

As previously noted, neighborhood parks comprise the basic unit of a park system. A standard ¼ and ½ mile service radius, corresponding to comfortable walking distance, can be used to evaluate neighborhood park distribution. Because large community parks serve much larger areas, they often attract users beyond walking distance requiring bicycle or automobile access. Figure 4.2 illustrates the distribution of Sturgis' park facilities and their respective service areas.

North of Interstate 90, some newer development areas and established parts of central Sturgis lack easy access to parks. South of the Interstate, Willow Park, a minipark of about 1/3 acre, is the sole existing park, a major service deficiency. New park development and improved trail access to existing parks are necessary to meet the city's growing park and recreation needs, particularly for growth areas south of I–90.

Facilities in Relation to Population Service Standards

The population analysis in Chapter One projects a potential 2030 city population of 7,975. Figure 4.3 identifies the future park needs associated with this future population based on current community standards. This analysis assesses park land needs based on a ratio of existing service levels to a projected 2030

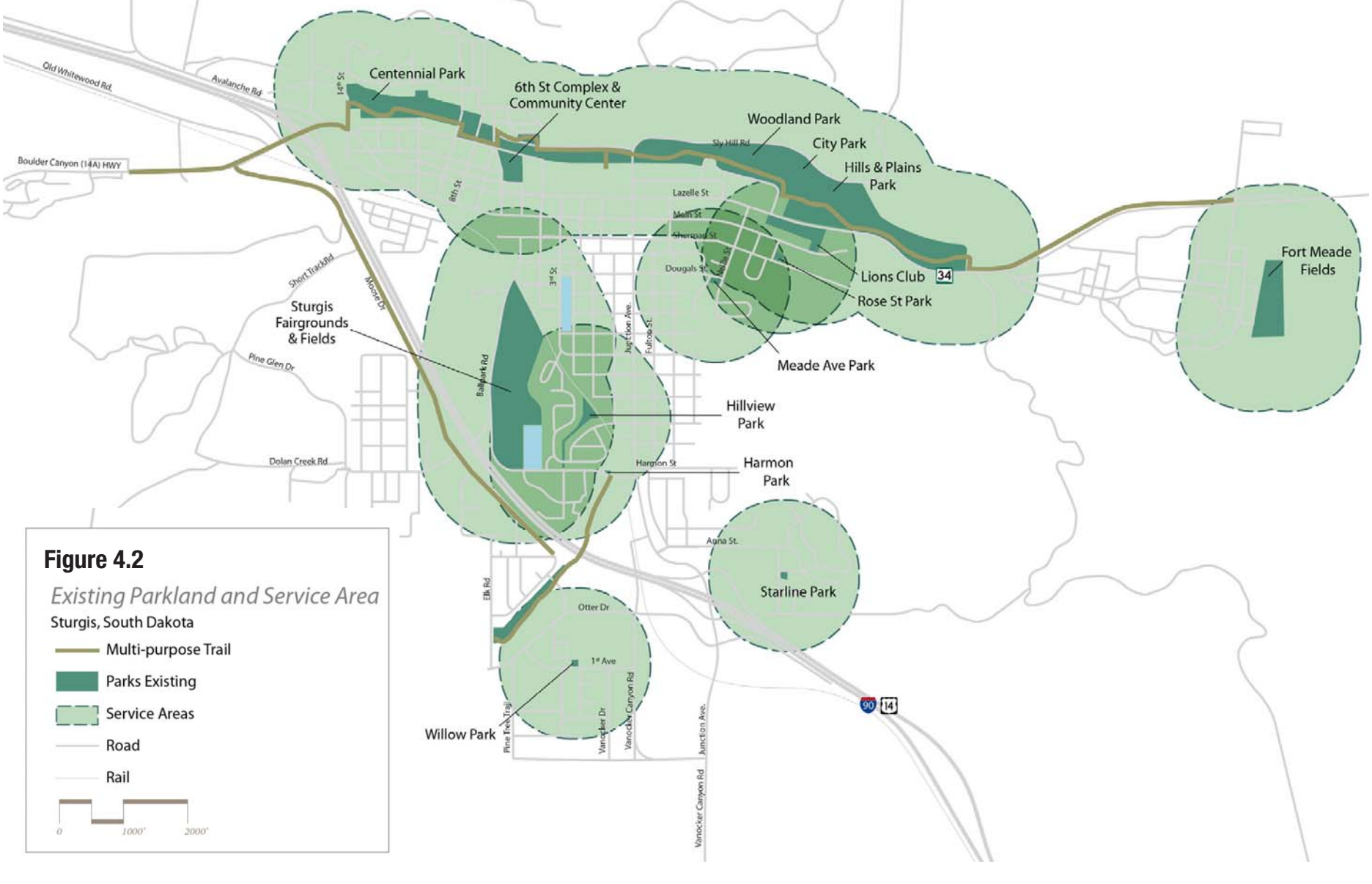


Figure 4.3: Future Parkland Needs

Park Type	Existing Acreage	Existing Acres per 1,000 Residents	2030 Total Parkland Needed	Additional Parkland Needed
Neighborhood Parks	22.8	3.4	26.8	3.9
Community Parks	111.3	16.4	130.6	19.2
Mini & Specialty Parks	0.5	0.1	0.6	
Total Park & Recreation Area	**134.7**	**19.8**	**158.0**	**23.3**

Source: RDG Planning & Design

population. This methodology suggests a need for an additional 23 acres of park land by 2030, with a critical need south of I–90. This should be seen as a minimum amount of additional park land. Future park sites should provide quality park spaces that have adequate access for residents.

Park Site Evaluation and Recommendations

Centennial Park

This park is located east of 14th Street along the south side of Bear Butte Creek. It contains picnic facilities, grills, limited play–ground equipment and good trail connections. The park lacks off–street parking; as a result, park patrons use commercial parking lots to the south in the Lazelle corridor.

Recommendations:

- Provide off–street parking.
- Improve trail continuity and route clarity from both the east and west.
- Provide routine maintenance to remove weeds from play–ground surfacing and add surfacing to provide proper depth.
- Improve playground facilities and provide additional uses within existing park

City Park

City Park is located on Sly Hill Road along Bear Butte Creek. City Park is one of Sturgis' signature parks, with excellent main–tenance, a distinctive playground facility, and four shelters. Restroom facilities are available on the east side of the site and at Stock Shelter. The Bear Butte Creek Trail runs through the park, linking it to other parts of the city. A portion of City Park lies south of Bear Butte Creek and contains a small log shelter, chess tables and unstructured open space.

Recommendations:

- Improve drainage from City Park to Bear Butte Creek to improve overall conditions, and reduce yearly maintenance of park and sand volleyball courts.
- Restore and maintain the Old Stone Shelter
- Provide additional sand volleyball courts to encourage a new sand volleyball league for residents.
- Improve Sly Hill Road crossing at Bear Butte Creek.
- Provide parking at log shelter south of Bear Butte Creek.
- Improve small stage to encourage small concerts and other events within the park.
- Provide adequate safety surfacing under spring riders in lawn areas.

Harmon Street Park

This park is an undeveloped portion of the Hillview Addition located north of Ball Park Road adjacent the drainage canal. The park lacks amenities but has space for a small playground or play court.

Centennial Park Playground. This area should be improved to provide additional features for active play.

Old Stone Shelter at City Park. This historic structure provides great atmosphere but needs restoration and continued maintenance.

Recommendations:

- Meet with neighborhood residents to determine best use for park and identify possible improvements.

Hills and Plains Park

Hills and Plains Park is located on the north side of Lazelle Street east of Blanche Street. This 25–acre park includes soccer fields, the Bear Butte Creek Trail, a skate park, the Freedom Site Memorial, concessions, and restroom facilities.

While reasonably well–maintained, updates could improve the user experience. Areas for improvement include the concession/ restroom structure, parking facilities, path lighting, and passive

recreation opportunities.

Recommendations:

- Replace concession/restroom facilities.
- Organize and improve parking throughout site.
- Provide path lighting along the Bear Butte Creek Trail.
- Improve creek access at east edge of park to offer fishing opportunities.
- Enhance landscaping in east half of park.
- Design and install a park identification sign.

Hillview Park

Currently, this park is an undeveloped open space in the Hillview Subdivision. The linear park offers limited development possi–bilities beyond passive recreation such as a walking path.

Recommendations:

- Meet with residents in Hillview area to discuss possible uses of the open space.
- Develop an internal pathway for pedestrians and small children on bicycles and tricycles.

Lions' Club Park

This park is located on the south side of Lazelle Street at Regent Street. It features a large shelter, restroom facilities, playground, and water feature. Most parking is provided on the upper level (south side) of the park, supplemented by a gravel parking area along Lazelle Street. Vehicular access to the lower level of the park is awkward. Playground equipment has variety but is outdated and in some cases may pose a safety hazard to users.

Recommendations:

- Make ice skating rink area more usable during winter months. Investigate use of seasonal liner or revising existing soil to clay liner to provide water retention within the ice skating basin.
- Provide new irrigation system for the "upper level" of the park to help improve turf condition. Selective canopy thinning of the large shade trees may also help improve turf conditions by allowing additional light to penetrate down to the turf.
- Update playground equipment and safety surfacing to comply with the current edition of the Public Playground Safety Handbook.
- Relocate spring riders from lawn area into a playground area with adequate safe zones or provide adequate safety surfacing surrounding spring riders in current location.
- Consider planning and installing new playground on "upper level" of park near pavilion shelter.
- Provide ADA accessible pathway between the "upper level" and "lower level" of the park.
- Consider replacing the existing log shelter with an updated

Hill and Plains Park.
Right: Freedom Site Memorial.
Above: Welcome sign.
Below: Lighted soccer fields.

Lions' Club Park
Above: Shelter.
Below: Playground equipment recom–mended for upgrade and safety improvements.

Woodland Park. Above: Park shelter, the largest in the Sturgis system. Left: Contemporary play equipment.

Small Neighborhood Playgrounds. Above: Rose Park. Left: Meade Avenue Park. Playgrounds at these miniparks need re–equipping to provide contemporary playspace for children. Shelter and benches for adults watching children, and a serpentine, child–sized paths could also add to their use and quality.

shelter that would be more useful for users.

- Enhance the existing pond at the east end of park to include additional visitor amenities (i.e. benches, fishing access points); improve water quality by dredging silt and enhancing aeration within the pond.
- Upgrade and improve definition of lower level (Lazelle Street) park entrance and parking.

Woodland Park

Woodland Park is located west of City Park along Sly Hill Road north of Bear Butte Creek. The park contains Sturgis' largest park shelter/restroom facility and features off–street parking, a playground, swings, grills, a disc golf course, connection to the Sturgis trail system and other park amenities. This park is well–maintained and has modern playground equipment for young children.

Recommendations:

- Continue routine maintenance program. Monitor playground surfacing to maintain quality.
- Provide better guidance to disc golf course.

Meade Avenue Park

This neighborhood park is located at the southeast corner of Douglas Street and Meade Avenue. The park features swings, a slide, merry–go–round, a basketball court and unstructured open lawn areas. The park is accessed by street side parking along Meade Avenue. Playground equipment is outdated and poses some safety hazards to users.

Recommendations:

- Replace outdated playground equipment as scheduled in 2011.
- Provide parking and improve sidewalk access to the park.
- Provide shelter and benches for parents.

Rose Park

Rose Park is located at the intersection of Rose Street and Sherman Street. The park includes swings, a slide, merry–go–round, infant maze play structure, spring riders, picnic table, and unstructured open lawn area. The park is fairly well– maintained but needs updates and additional maintenance. Some of the play equipment is outdated and presents potential hazards to users.

Recommendations:

- Provide safety surfacing under play climber.
- Improve safety zone for swings.
- Replace slide with new slide which meets current play standards.
- Keep surfacing clean and provide adequate depth to cushion falls.

Parks and Community Facilities

Southside Open Space. Developing neighborhoods south of I–90 are underserved by parks. Now, Willow Park (left) is the only public park serving the area, However, opportunities like the Game, Fish, and Parks Department land along Elk Drive could satisfy the need for neighborhood and community open space.

- Replace outdated equipment with new equipment as funds become available. Remove hazardous equipment.
- Provide shelter and benches for parents.

Starline Park

This mini–park is located at the intersection of Starline Avenue and Oak Grove Court west of Exit 32 and approximately two blocks north of Interstate 90. The park contains newly planted trees and unstructured open lawn area and is in good condition.

Recommendations:

- Consider installing small playground structure for neighbor–hood use.

Skateboard Area

The existing skateboard facility is located in a parking lot at 3rd and Lazelle Street. The park consists of modular skate ramps which are easily moveable. The parking lot location is highly visible, but lacks permanence or connection with other park uses.

Recommendations:

- Develop a permanent skateboard park with features that maintain user interest. Location should be accessible from the city trail system.
- Collaborate with local user group to determine best location and design for a permanent facility.

Willow Park (Pine Acres Park)

Willow Park within the Pine Acres Subdivision is located on 1st Avenue between Greenwood Trail and 1st Avenue South. The park includes a playground, half–court basketball court, horseshoe court, picnic tables, and open lawn area. Park maintenance is fair, with playground surfacing requiring weed removal. Playground equipment is outdated and presents possible hazards to users.

Recommendations:

- Properly maintain playground areas and safety surfacing.
- Replace playground equipment with new equipment.
- Provide shelter and bench for parents.

Potential New Park Opportunities

In addition to these parks, Sturgis has several potential opportu–nities for major park and open space development. These include:

- The "Marcotte Property," a major site located on the west side of Vanocker Canyon Road south of Interstate 90. This site has commercial development opportunities as well as open space possibilities.

- South Dakota Game, Fish, and Parks Department property west of Elk Road and adjacent to the Black Hills National Forest. This land has potential for both neighborhood park and resort/recreational development.

- The City Lakes site, a unique chain of scenic lakes surrounded by the National Forest in the south hills above Vanocker Canyon.

Chapters Six and Seven discuss these opportunities in more detail.

COMMUNITY FACILITIES

City Hall and Library Complex

Sturgis City Hall is located at 1040 2nd Street in the downtown district. The structure, originally built for other purposes in 1963, is an excellent example of adaptive reuse. The building currently houses the Public Library and city offices, including the offices of the Mayor and City Manager; the Rally Department; and the Human Resources, Water, Finance, Legal, Planning (including GIS services), and Code Enforcement Departments. The building features a second–floor outdoor patio, as well as the Lushbaugh conference room and two additional conference rooms. Parking is provided along 2nd Street and Sherman Street, in a public lot across 2nd Street, and at a bicycle rack. The facility complies with the Americans with Disabilities Act.

Evaluation

The existing facility serves government uses relatively well, although, in common with other reuse projects, some functional compromises exist. The upper floor deck may provide some opportunity for expansion, although reprogramming of space within existing walls is usually preferable.

A need for additional meeting space has been addressed through the addition of new conference rooms and modifications to the Lushbaugh Room.

Recommendations:

- Evaluate whether recent renovations and new spaces satisfy the need for conference space.
- Review the use of space in the building, including offices and the library to ensure efficient use of the space available.
- Continue to expand library services to outlying areas through the Libraries Coalition. Costs should be equitably shared by all benefiting jurisdictions.

Sturgis Community Center

The Sturgis Community Center, located at 1401 Lazelle Street, was built in 1992. The 68,000 square foot facility houses an indoor swimming pool with 72–foot waterslide, sauna, hot tub, full–size gymnasium with elevated running track, weight lifting/fitness room, cardio room, two racquetball courts, men's and women's locker rooms, 444–seat theater, meeting rooms, offices, lobby and concessions facilities.

The gymnasium can be used for basketball and volleyball. The 1/17–mile running/walking track is located above and around the main space. The Cardio Room contains stairmasters and tread–mills while the Weight Room contains Nautilus, Body Master and Olympic style free weights as well as elliptical, Aerodynes and Lifecycles.

The Meade Room is available for rental meetings or programs and comfortably accommodates 75 people. The room is also used for Sturgis City Council Meetings. The Lazelle Room is a smaller meeting room used for parties and activities which can accom–modate small groups. In addition, the historic Sturgis Auditorium & Armory at 1019 Main Street is available for public use. This building contains a 6,650 square foot gymnasium, restrooms, and kitchen facilities.

Evaluation

The facility is in good condition and receives continued routine maintenance. The men's and women's locker rooms received a recent renovation and updating.

Information provided by the Recreation Department indicates that the center's programs and public activities receive heavy use, with most activity taking place during the fall, winter and spring months. Programs managed through the Community Center

Major civic resources. Left: City Hall and Library, on 2nd Street between main and Sherman Streets. Right: Sturgis Community Center viewed from Bear Butte Creek.

including swimming lessons, youth and adult fitness programs, youth after–school programs, basketball leagues, volleyball leagues, an adult softball league, a youth football league, dance classes, and martial arts classes.

The lack of an outdoor pool or water play area reduces summer use of the building and grounds. The existing indoor pool lacks a zero–depth entry and wading area, limiting use by small children and people with disabilities.

The center's Lazelle Street location is convenient for motorists, but difficult for pedestrians and bicyclists. The connection from the Bear Butte Creek Trail to the Community Center is indirect, and requires users to use the 7th Street bridge, one of the weak links in trail connectivity. Access from most of Sturgis requires pedestrians and cyclists to cross Lazelle Street.

Most of the center's fitness equipment was purchased in 1992 when the facility was constructed. A need exists for near–term equipment upgrades to remain competitive in the Sturgis market. Gymnasium space is at a premium throughout Sturgis, and finding adequate practice time for teams has become an issue. Additional fitness class space is also needed. Currently, classes overlap into the racquetball courts and meeting rooms, creating some conflict between uses.

The building currently operates at capacity. However, the building design and additional space both accommodate expansion to increase services and offer additional program to the community.

Recommendations:

- Continue routine maintenance of the facility.
- Complete a long–term master plan for the Community Center building and campus, based on current and projected use. In the study, program building expansion options for additional fitness and dance program space and a new gymnasium.
- Upgrade fitness equipment to remain competitive with other providers.
- Develop a plan for an outdoor splash/wading park on the site, possibly adjacent to the existing indoor swimming pool. This would provide some increased summer use of the facility while also offering water play for younger, non–swimmers. Such a project may also provide an outdoor deck and concession space for summer use by all community members. A well–programmed and designed facility could provide a seasonal leisure park at a fraction of the cost of an outdoor pool or full water park.

Fire Department and EMS Services

The Sturgis Fire Hall and Ambulance Station at 1901 Ball Park Road was built in 2003. Of its 23,000 square feet area, 6,600 square feet are devoted to office and meeting rooms with sleeping quarters, with the remainder used for apparatus storage. The site, just under two acres in area, provides 30 parking spaces. The facility is handicapped accessible.

The joint emergency services of fire protection and ambulance serves an area of 580 square miles within and immediately outside of the corporate limits of Sturgis. The Fire Chief is a full–time employee, with the rest of staffing provided by 50 volunteers, 15 of which are core responders. Their ability to respond is not limited by job location or other factors. The department also employs a half–time maintenance person and two volunteer Assistant Fire Chiefs. Ambulance service is provided by five full–time

? HOW ARE FIRE PROTECTION SERVICES RATED?

Fire protection ratings influence local insurance rates and have an impact on business and investment decisions. The ISO (Insurance Service Office) rates services on a 1 to 10 scale, with ratings weighted as follows: 40% for water supply; 26% for equipment; 24% for personnel; and 10% for dispatching capabilities. The heavy weighting on water supply reflects the criticality of this factor for adequate fire suppression beyond daily maximum consumption.

Minimum specifications and standards are applied to fire equipment. Those standards compare available equipment with the number and types of structures within Sturgis. Regular testing of the equipment is also a factor. Four of the 26 percentage points allowed for equipment, are awarded based on the % of built areas in the district with an adequately equipped first–due engine company within 1.5 miles and an adequately equipped ladder company within 2.5 miles. For this reason fire station locations become very important in consideration of this credit.

Of the 24 percentage points allowed for personnel, 15 are based on the number of firefighters available for initial response and how quickly they can respond. Nine points are allowed for training.

staff, including three full–time paramedics and two full–time Emergency Medical Technicians; and assisted by other part–time EMS staff. This service is tax–neutral, and is self–supporting on a fee–for–service basis.

The efforts of the Fire Department have resulted in an Insurance Service Office (ISO) rating of 5.0. ISO analyzes data and assigns a classification rating from 1 to 10. Class 1 represents superior property fire protection and Class 10 indicates the fire suppres–sion program does not meet ISO's minimum standards.

Evaluation

The existing facility is only seven years old and is in good condition. Its space and storage capacity is adequate for community fire protection. Some equipment is currently housed in a private storage building located approximately 12 miles east of the City. However, this equipment is not relevant to community fire production and is primarily used for wildland fire suppression. Community growth could require additional facility space or a satellite station. Existing cold storage space can accommodate additional equipment on an interim basis.

Fire Department and EMS Services response time is adequate for most of the year and for the area within the current corporate limits of the City. In 2010, Sturgis attempted to annex areas to its east, including campground and seasonal facilities used primarily during the Rally. Although this specific referendum failed, the city is likely to expand in the near future. The nature of annexation will determine impact on the City's ISO rating. Traffic congestion during the Rally can have a severe effect on response time. An enhanced transportation network that provides alternative routes can counter this problem and provide lasting community–wide benefit.

Older or substandard water mains in the established area of the city can also create capacity issues for the fire department. The downtown area's less than ideal water distribution system may limit fire suppression capacity, especially during the Rally season.

Recommendations:

- Evaluate equipment requirements and storage needs necessary to accommodate projected growth in Sturgis. Based on this evaluation, provide storage that allows the equipment to be available for intended use or dispose of equipment that does not serve its purpose. Required equipment should be stored at the Fire Hall or at a satellite station for quick access and response.
- Review the effect on response times during the Sturgis Motorcycle Rally or by future city development. Enhancements include transportation network improvements presented in Chapter Six; and a strategically located satellite station. Either of these measures could maintain or improve the ISO rating. A satellite facility could also serve as a temporary ambulance station during the Rally and other special events.
- Upgrade water mains in conjunction with complementary street or sewer reconstruction projects, especially in older parts of the city that are more susceptible to serious fires.

Police Department

The Sturgis Police Department is housed in the Law Enforcement Center (LEC) at 1400 Main Street, adjacent to the Meade County Courthouse. This facility houses the Sturgis Police Department, the Meade County Sheriff's Department, the dispatch center and the Meade County jail. The LEC was established through a Mutual Operating Agreement between Meade County and the City of Sturgis. The Sturgis Police Department occupies 3,289 square feet of the LEC's gross floor area of 13,980 square feet. Other space allocations include Meade County Sheriff's Department (3,448 square feet), Sturgis/Meade County Dispatch (739 square feet), and common area (6,504 square feet).

The City of Sturgis is responsible for 20% of the utilities, insurance, and maintenance of the building exterior; 50% of the common area maintenance; and 100% of the maintenance cost for the area occupied by the City of Sturgis Police Department. Payment to the County for the city's share of the cost is due in January for costs incurred the previous 12 months ending in July. In addition, the city pays a share of custodial fees that may be adjusted annually according to cost–of–living increases. The city clears snow and ice on parking spaces assigned to it. The agreement was last renewed in 2009 and runs for five years from the date of agreement execution. The City of Sturgis and Meade County may agree mutually to end the agreement at any time.

As of January, 2011, the Sturgis Police Department personnel consists of 19 full–time staff. Of these, 16 are sworn officers, including the Police Chief, Assistant Chief, three Patrol Sergeants,

one Detective Sergeant, one Sergeant assigned to the school system, eight Patrol Officers, and one Detective; and three civilian employees. During the Sturgis Motorcycle Rally, the Department employs approximately 107 sworn officers and 20 civilians to provide law enforcement support on a 24–hour a day basis.

In addition to normal law enforcement duties the Department's responsibility includes joint administration of the animal shelter with Meade County. Animal shelter staff includes the Animal Control Officer, a Shelter Technician, and a Secretary. Thirty–three percent of the calls to the Department are animal control related. The Police Department also provides a school resource officer.

Evaluation

In 1993 the City of Sturgis and Meade County had the foresight to establish the Joint Law Enforcement Center. This facility is sound and has adequate room for Police Department personnel. Shared usage provides efficiencies between the City and County law enforcement agencies.

Staffing of the Police Department during the Motorcycle Rally presents unique event and crowd management challenges. Sturgis addresses the Rally's influx of people, which can swell the city's daily population by 100,000, with its resultant law enforce–ment issues by hiring temporary law enforcement officers and security personnel. The law enforcement structure during this period is well established and, while challenging, has become close to routine and serves both the Rally population and city residents well.

During the normal year, the Department adequately meets its manpower needs. The Police Department has the flexibility and management efficiency to serve modest population growth without the addition of staff.

The physical facility of the Police Department is adequate except for storage space for equipment and large evidence. The Command Trailer and large evidence such as automobiles, motorcycles, and large equipment must be stored outside. Outside storage may not adequately maintain the integrity of evidence.

The Animal Shelter serves the current needs of Sturgis and Meade County very well. Sufficiency and condition of the shelter should be evaluated on an 8 to 10 year basis. Accelerated growth in the county could reduce this review interval.

Recommendations:

- Continue the successful operation of the Joint Law Enforcement Center with Meade County. Long term planning should consider an expanded facility or a Community Public Safety Building which would include the Police Department, the Sheriff's Department, the Fire Department and Ambulance Service.
- Develop standard storage space for large evidence. If current practices do not adequately provide for the integrity of large evidence, a secured storage facility should be developed. Additional space may be considered to house Police equipment.
- Review departmental staffing needs every three to four years to maintain an appropriate level of service. The Police Department should be able to provide good law enforcement service over the next eight to ten years at current popula–tion growth rates. Faster growth in population or urban area will stress the department's services and require department expansion.

Public Works Department

The Public Works complex along Dudley Street between Junction Avenue and 1st Street, includes three buildings. The original office, shop, yard and garage structure dates from 1960 and includes 15,921 square feet. A 2,210 square foot Sanitation Garage was added in 1988, and a 1,400 square foot office was completed in 2005. The complex has 20 parking spaces, and the new newer buildings are accessible to disabled people.

The Department's responsibilities include stormwater manage–ment, buildings, sanitation, streets, wastewater, street lighting, traffic signals, snow removal, street sweeping, and special sani–tation. It is staffed by 19 full time employees.

The Department provides sanitation service to about 2,700 customers, including all households and most of the city's commercial properties. Equipment includes four automated and two rear loaders, and two backup trucks. Waste collected includes household garbage, cardboard, rubble, and business waste. Service is provided outside the city to Sturgis–Brown High School, the National Guard complex, and Fort Meade.

Rubble is hauled to a City–owned and operated rubble site on Avalanche Road, the former city landfill. The remainder of solid waste is taken to the Belle Fouche sanitary landfill for final disposal. The rubble site accepts approximately 200 – 300 cubic yards per day. Its remaining life is estimated at 12 – 15 years. Special sanitation service is provided for approximately 19 days during the August Sturgis Rally.

Evaluation

The overall service provided by the Public Works Department is generally acceptable to the community. Operations that affect the visual quality of town, including curb repair, pothole patching,

pavement marking, vegetation on sidewalks, and sign conditions appear to take a lower priority to other operations.

The original Public Works complex is relatively unattractive in its highly visible setting near downtown and along Bear Butte Creek. Much of the facility is in Bear Butte Creek's 100–year floodplain. Relocation of the facility to an industrial area outside of floodplains would open the creek greenway to redevelopment and provide a more contemporary operational base for the Department.

While sanitation service to the community is good, recycling as an alternative to conventional solid waste disposal in a distant landfill should be expanded. The city's fee structure should encourage recycling efforts, and convenient drop–off sites should be established.

Recommendations:

- Expand efforts to improve Sturgis' appearance by providing regular programs to repair curbs and potholes, mark pavement, replace signs, and control weeds along major community corridors. Engage Sturgis residents as volunteer partners in a continuing civic maintenance effort.
- Increase recycling efforts on economic and convenience fronts, establishing a fee structure that rewards individual recycling and makes the practice convenient for residents.
- Relocate the Public Works Department operation to a more appropriate industrial site that offers contemporary space, full accessibility, and a location out of flood–prone areas. Master plan a facility for joint use with flexibility to meet future police and fire storage needs and accommodate a possible satellite fire station.

Airport

The Sturgis Airport covers 251 acres east of the city at 13345 Alkali Road. The airport includes a 60' x 80' main building, built in 1994 and accessible to disabled people, and 25 parking spaces. Average weekly traffic is ten operations inbound and outbound combined, with an increase during the Rally, during a seven–day operating week. The facility is operated by a contract manager who also provides manufacturing, fueling, and mechanic service.

Evaluation

The 5,100 foot runway is in excellent condition and is long enough for most propeller– driven planes and some jets. Despite its light traffic, airport availability adds value to the community; it is an important criterion for businesses considering investment in a city.

Recommendations:

- Continue to operate the airport under its current manage–ment structure.
- Extend the runway to 5,500 feet.

- Build a wildlife fence and consider construction of a terminal structure.
- Develop a back–up management plan in absence of manager.
- Review the benefit of additional hangars to attract airport business.
- Follow the growth of the DUSEL research facility at the Homestake Mine in Lead, and re–assess airport needs with evolution of the facility.

Liquor Store

The Sturgis Liquor Store is located at 1075 Lazelle Street. The new 6,400 square foot store was completed in January 2011, and is operated by one full time employee, two permanent part–time employees, and three part–time employees. The building adds on–street parking and will provide good service for up to 20 years. The revenue generated by the Liquor Store provides support for the Sturgis Community Center and the General Fund, contrib–uting approximately $400,000 between 2007 to 2010. Enhanced revenues from an expanded facility may reduce general fund requirements to support the community center.

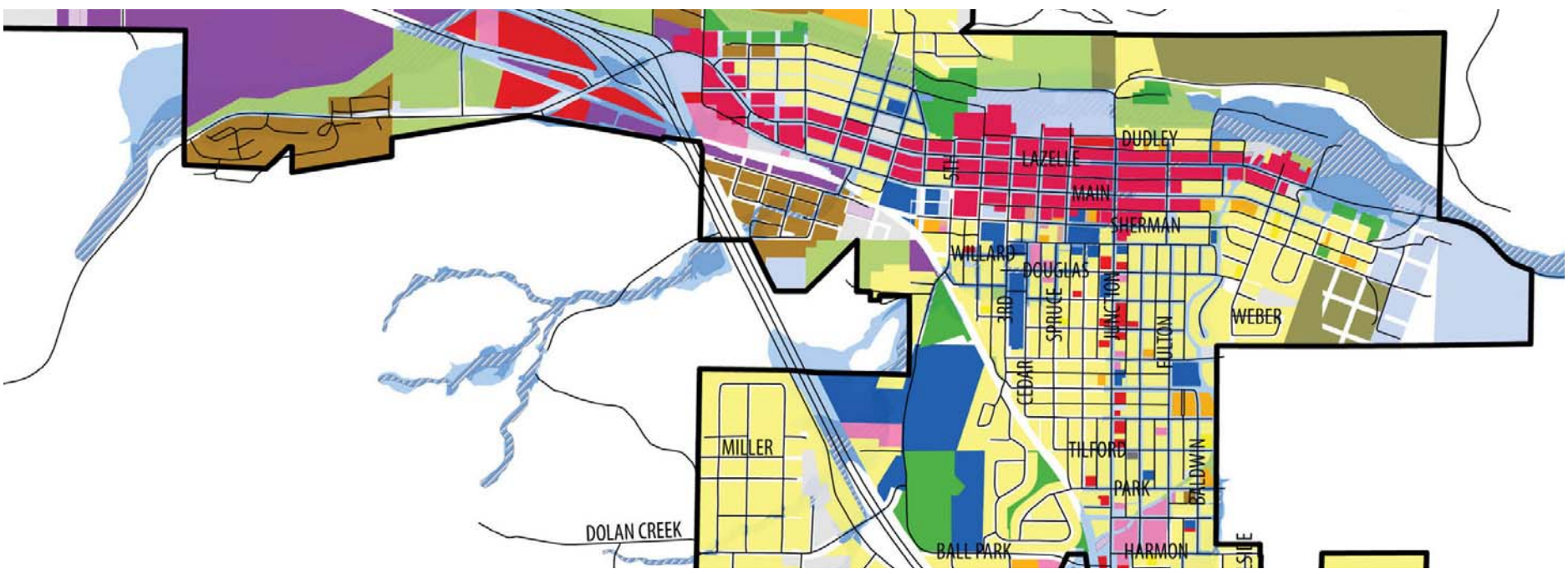
Evaluation

The Liquor Store provides a good source of revenue to the city. The new building will serve the Sturgis community, the surrounding area and any dramatic increase in population for the foreseeable future.

Recommendation:

- Continue to operate the Liquor Store under current manage–ment structure.
- Implement contemporary retailing practices and enhance–ments over time to continue to increase revenues.


STOP
Black Hills Souvenir T's • Aldo's T's • Sturgis T's • Caps •
T'S



PART TWO:
Sturgis Future