Active Transportation Recommendations

in cooperation with

South Dakota Department of Health

Landscape Architecture Program

at South Dakota State University

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Acknowledgements

South Dakota Department of Health

Beth Davis

South Dakota Active Transportation Advisory Team

City of Volga

Andrew Bremseth

Tracy Nelson

Mary Bjerke

SDSU Landscape Architecture Program

Shalace Ahlers

Tucker Antonsen

Kaitlynn Berwald

Marika Cieciura

Brandi Hanten

Annaliese Hoffman

Geoffery Langland

Slade Mutchelknaus

Sam Sauer

Joseph Simpson

Tyler Landry (Teaching Assistant)

Professor Don Burger

Introduction

The built environment affects public and personal health. This fact has been proven time and again through studies, interviews, surveys, and mock-ups the world over. In addition to physical indicators of health, like measuring obesity, calorie intake, and steps walked in a day, there are less-tangible indicators of a community's health. These include perceived friendliness, sense of community, and livability. The built environment impacts all of these indicators.

In 2012, the South Dakota Department of Health initiated the Active Transportation Advisory Team (ATAT) to facilitate change in the built environment of South Dakota. In particular, an effort has been made to help communities encourage using alternative means of transportation (such as walking or cycling) for completing one's daily routine. An outgrowth of the ATAT work is the Active Transportation Collaboration project. This project provides resources and expertise to South Dakota communities each year to develop strategies for improving active transportation.

Recommendations are developed over the course of a 16-week semester by students from the South Dakota State University Landscape Architecture program. In the case of the present study, students traveled to Volga, South Dakota, to conduct interviews with key stakeholders within the community, including the mayor, members of city council, other city officials, and leaders of local industries and grassroots groups. Students also conducted an analysis of transportation infrastructure, parks and recreation facilities, and neighborhood composition.

After conducting these interviews and analysis, students developed a series of recommendations touching all aspects of active transportation issues, including pedestrian safety, building a sense of community, and improving access to and diversity of the various destinations in Volga (places of work, commerce, and recreation). By holistically approaching active transportation, it is hoped that a balanced, comprehensive plan for improving public and personal health can be achieved.

These recommendations represent a global shift in how people think of their community. Some recommendations represent a major financial investment. However, by shifting community priorities and actively pursuing existing sources of financial assistance, Volga can continue to be an example of the best that South Dakota has to offer: a small-town feel of a growing, progressive City. As past Mayor Mary Bjerke has said, Volga residents "maintain the highest standards for living and take great pride in [their] neighborhoods and parks". These recommendations will help to ensure that this statement continues to be the truth.

1. Pedestrian Safety

The lack of safe pedestrian facilities throughout Volga is a major concern. One of the key benefits of improving pedestrian safety is an overall improvement in community health. This is because designated and safe areas for walking and cycling facilitate an active lifestyle. According to Active Living Research[i], a brisk ten minute walk or a short trip on a bicycle each day can lead to major health benefits such as weight management, increased muscle strength, improved mental health and mood, and increased coordination. In order for people to realize these benefits, there must be pedestrian- and cyclist-friendly environments planned into the city structure.

Currently, there are few designated crossing locations in the city of Volga, as well as high volume roads and intersections, and those that exist need to be improved. Some of the areas lacking proper crossing include the school zones, pool/parks, and the connection of these places. Currently, there are no "safe" routes connecting the most popular places for children and families due to the lack of limited sidewalks and crosswalks, as well as signage for vehicular awareness.

According to the Safe Transportation Research and Education Center at the University of California-Berkeley, 23 percent of fatal pedestrian collisions occur on state highways[ii]. Along with that, a recent federal report[iii] identifies the following objectives for improving pedestrian safety:

- reducing pedestrian exposure to vehicular traffic
- improving pedestrians' visibility
- sight distances for pedestrians and motorists alike
- reducing vehicle speeds
- increasing the safety awareness of motorists and pedestrians.

Vehicle speed, road signage, pedestrian crosswalks, and traffic calming measures are all recommended in Volga to ensure pedestrian safety.

Figure 1: Proposed Location of Hwy-14 Pedestrian Crossing

Recommendation: Provide a Safe Crossing across Highway 14

US Highway 14 lacks a safe pedestrian crossing. Students at Sioux Valley School who live on the north side of the highway are unable to safely walk or bike to school, and must either drive (or be driven) or wait for the school bus coming from Bruce (the congregation point is at the Shell station). The South Dakota Department of Transportation has initiated plans to implement a stop light at the intersection of Highway 14 and Caspian Avenue, and will be conducting a traffic safety study of Highway 14 through Volga. This is an indication that Highway 14 is perceived as unsafe and merits further investigation.

To complement the DOT study and proposed traffic light at Caspian Avenue, we recommend that a pedestrian light be installed at the intersection of Highway 14 and Industrial Drive (see Figure 1, above). This location is strategic in that it does not interfere with the intersection of Highway 14 and Hansina Avenue, or with the entrance to the Shell station on the north side of the highway. In addition, it equally serves residents in the trailer court to the west of the intersection and the residential district to the east. Finally, this location provides easy access to a proposed multi-use pathway on the south side of Hwy-14 (see Section 2, this document). This will allow for an easy and safe route across the highway.

Figure 2, below, displays the current and proposed conditions of the intersection. The pedestrian light will allow uninterrupted vehicular flow on Highway 14 and will only turn red if there are pedestrians in need of crossing the high volume road. At this location, there will also be flashing pedestrian signs to give the drivers a warning of the pedestrian crossing zone. A high visibility crosswalk can be implemented in this area, if needed.

Figure 2: Before and After of Hwy-14 Pedestrian Crossing

In addition to the traffic lights and pedestrian crossing amenities, we recommend reducing the speed on Highway 14 in the approach to the city from 50 mph to 35 mph, and from 40 mph to 30 mph within city limits. This will further increase driver awareness of pedestrians and will improve overall safety within the city.

Recommendation: Implement Traffic Calming Solutions on Samara Avenue

A painted crosswalk with standard signage already exists at the intersections of Samara Avenue and Second and Third Streets. These crosswalks should be repainted with a high-visibility ladder configuration (see Figure 3).

Figure 3: High-Visibility Crosswalk

Adding flashing beacons (Figure 4) will help to increase driver awareness of pedestrians at these locations. The flashing beacons should be set on timers for busier parts of the day such as coming/going from school and during the summer when children are more likely to travel to the pool.

Additionally, we recommend that speed limits on Samara Avenue be reduced from 25 mph down to 20 mph to replicate a school zone. Increased patrolling by law enforcement on Samara is also a critical need.

We further recommend widening Samara Avenue by keeping two travel lanes while creating a larger shoulder unencumbered by tall vegetation or other visual barriers. By doing this, visibility will be increased for pedestrians and drivers. Along with the other recommendations listed above, this intersection can be much safer without the need for a lot of funding.

Figure 4: Flashing Pedestrian Sign

Recommendation: Develop a Comprehensive Crosswalks Plan

Currently crosswalks in Volga are sporadic (see Figure 5, below). Red circles represent critical locations for new crosswalks due to high vehicular traffic conditions and the proximity of pedestrian destinations (parks, schools, etc.). Key improvement areas include Kasan and Hansina Avenues and 2nd, 3rd, and 6th Streets.

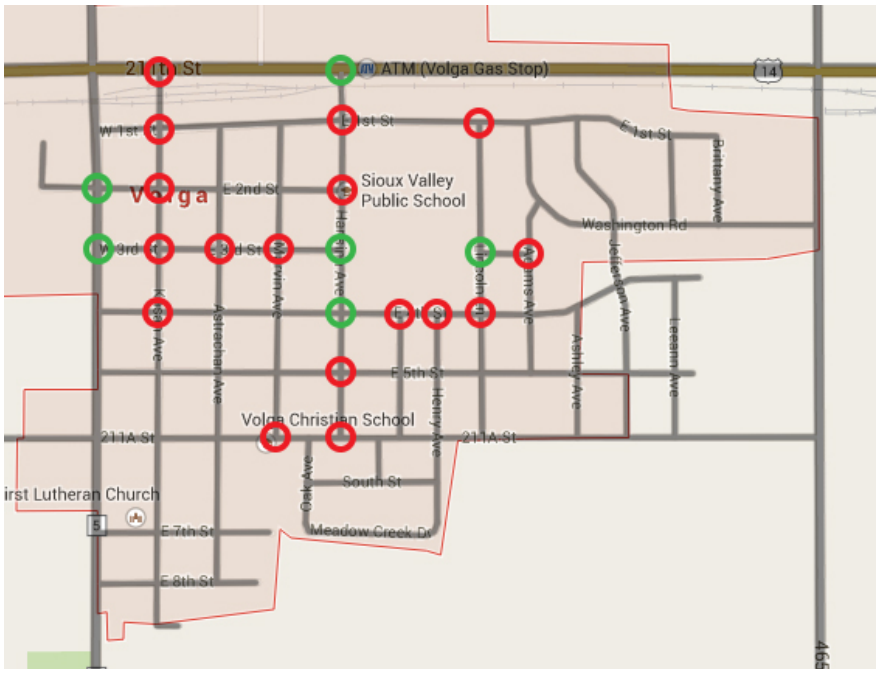


Figure 5: Current (green) and Proposed (red) Crosswalks

Recommendation: Continue to Invest in Street Lighting Improvements

Volga administrators have partnered with Heartland Consumer Power District to begin phasing streetlights to LED. We recommend that this partnership continue, and that lighting throughout town be enhanced. Proper forms of lighting are necessary for the safety of citizens of the community. Street lighting is used to improve visibility and increase visibility of objects on and near the roadway.

Adding more lights will improve safety for drivers, cyclists, and pedestrians. The Department of Transportation[iv] found that road safety was perceived as a key benefit for street lighting improvement:

- 73% felt better lighting will improve safety
- 63.8% stated that better lighting will lead to fewer accidents on the roads
- Street lighting reduces crashes at night by approximately 30%

Quality of life is increased by artificially extending the hours of light in which activities can take place. This is applicable to school playgrounds, baseball diamonds, Volga City Park, and walking/exercising on the sidewalks and enjoying the outdoors later in the evening. Adding proper street lighting will enhance the enjoyment of the surrounding environment for the citizens of Volga. Proper lighting also reduces the likelihood for criminal activity. Using light in the right ways can positively impact a neighborhood (Figure 6).

Figure 6: Effects of Proper Street Lighting

For the most part, Volga provides lighting at every intersection. For longer blocks, we recommend proper lighting in between the intersections so the full length of the street is lit (Figure 7). In addition, acquiring and placing fixtures which reduce light pollution is necessary (Figure 8) to maintain the ecological and quality of life standards that Volga has come to represent.

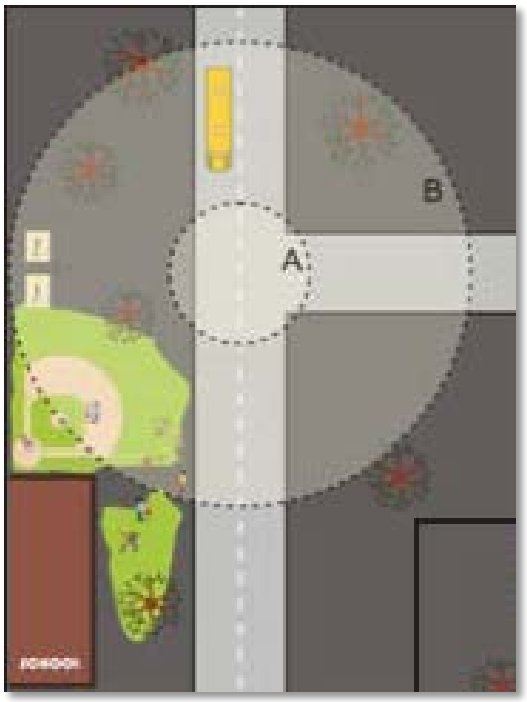


Figure 7: Lighting at Intersections

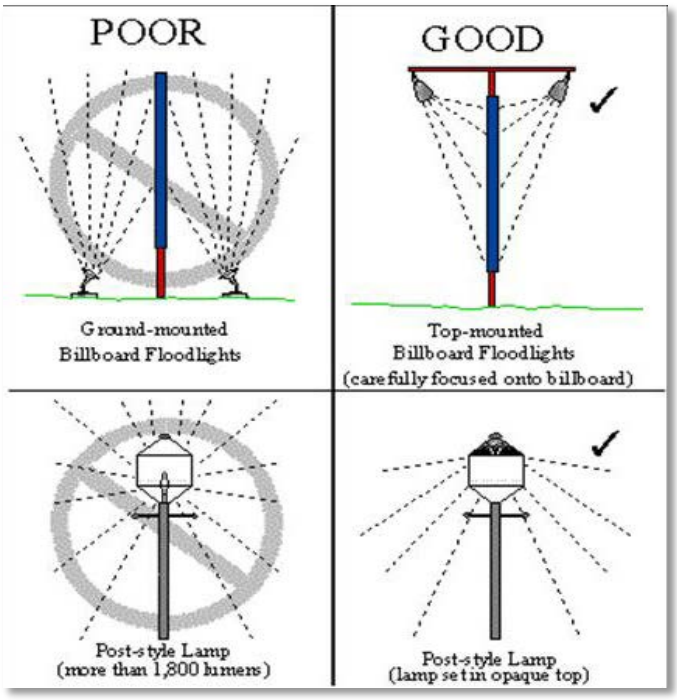


Figure 8: Examples of Efficient Lighting Practices

2. Active Transportation Infrastructure

The issues of pedestrian safety already discussed highlight the need to further develop the active transportation infrastructure in Volga. Pedestrians and cyclists are most at risk when there are no safe places for them to walk and ride. According to the US Department of Transportation[v], over four thousand pedestrians are killed every year in traffic crashes. Many of these accidents are due to a lack of appropriate walking and cycling infrastructure.

The incorporation of sidewalks and bike paths will also provide the framework for safe and enjoyable active lifestyles in Volga. Denizens of the city will be encouraged to leave their cars in the driveway and walk to work, school, and play venues throughout town. This will lead to a reduction in obesity and circulatory ailments, and improve the sense of community already prevalent in Volga.

Recommendation: Develop Bike and Pedestrian Pathways throughout Volga

Introducing walk/bike lanes into the community can make it much easier and safer for people to walk or bike. They can be used to connect different parts of town and draw people into commercial areas. Adding a bike lane by using paint to designate a portion of the road as a walk and bike lane can be quick, simple, and cost efficient. Using bollards or a vegetated buffer to separate these lanes from vehicular traffic will create an even safer condition (Figure 9).

Figure 9: Examples of Bicycle Lane Designations

Currently, both sides of Volga streets are used for parking. An effective way to incorporate bike lanes is to designate only one side of the street for parking, and the other for active transportation. This is commonly called a road share. Not only will this help create a safer environment, it will also help increase the amount of active transportation throughout Volga.

The first protected bicycle lane was constructed in New York City on 8th and 9th Avenues. According to the New York Department of Transportation, after the bicycle lane was implemented significant benefits were realized, including a 35% decrease in injuries to all street users on 8th Avenue, a 58% decrease in injuries to all street users on 9th Avenue, and a 49% increase in retail sales[vi].

The following improvements should be considered priorities moving forward:

Create multiuse path on the south side of Highway 14 between Hansina and Caspian Avenues

The green space between Highway 14 and the railroad tracks is an excellent opportunity for a bike/walk path. This will allow a connection from the Sioux Valley School District to residential homes in the area. Not only will this promote active transportation, but being seen from Highway 14, an often busy highway, will create a good impression to visitors passing through town.

Figure 10: Existing Green Space between Highway 14 and Railroad Tracks

Figure 11: Proposed Bike/Walk Path in Existing Green Space between Highway 14 and Railroad Tracks

Complete connection between Sioux Valley School and Auditorium (Kasan Avenue)

The students at Sioux Valley School often use the Auditorium for after-school programs. There is often a lot of traffic between the two facilities, highlighting the need for a safe walking route. Sidewalks along 3rd Street between Kasan and Hansina Avenues should be continuous on both sides of the street to facilitate this connection.

Complete sidewalks connecting Sioux Valley School and Volga Christian School to the City Park

The City Park is often used by students from both schools. During the summer months a summer program takes place at the Sioux Valley School. Supervisors often take students to the City Park. "Walking thirty students along the streets for eight blocks is hectic and can be dangerous" says a supervisor of the summer school program[vii]. Continuing the sidewalk along East 3rd Street to

Samara Avenue is recommended. This will allow a straight path between the Sioux Valley School District and Volga City Park. Students from Volga Christian School would access the park along 6th Street to Samara Avenue. Since 6th Street and Samara Avenue frequently experience heavy traffic and currently lack connected sidewalks, a bike/walk lane creating a road share with pedestrians and vehicles is recommended.

Connect Sioux Valley School and Volga Christian School to One-Acre Park

3rd Street between Sioux Valley School and One-Acre Park is another great opportunity for a bike/walk lane. One-Acre Park is an underdeveloped park located between residential homes (see Section 3, this document). A sidewalk currently runs through the park, providing a ready connection to the school and the surrounding residential neighborhood.

Incorporate bike/walk lane along Hansina Avenue

Hansina Avenue is a priority due to the connection of the Sioux Valley School District and the Volga Christian School. This path would connect to the proposed bike/walk lane along Highway 14. Incorporating a bike/walk lane into the street will promote safe pedestrian traffic flow to and from the school. This specific recommendation is crucial due to the fact that Sioux Valley School District is considered the central hub of Volga.

Figure 12: Proposed Active Transportation Improvements

Recommendation: Develop Bike Lane Signage and Education Programs

Currently there are no bike lanes on Volga roads. As they are installed in the future, drivers and cyclists will need to be educated on how to share the road and understand the active transportation signage. According to an article about bicycle lanes in Oklahoma City[viii], drivers are most important to reach out to because of their potential for causing fatalities if automobiles are improperly operated.

One of the most effective ways to change driving habits is through educating children. Children need to know how to properly use bike lanes, such as how to ride with traffic, signal turns, and properly change lanes. Another way to educate is to have bike lanes be a part of the drivers' license exam. This way, drivers will all get the same information about how to cooperate with bicycle traffic. While drivers are informed about bicycle lanes in drivers' exams, bicyclists need to be aware of how to ride with traffic[ix]. Providing a bicycle safety course, especially for children, on how to properly ride with traffic will be an important educational focus. This could be done through the summer parks and recreation programming by providing a program similar to "Safety Town".

Bicycles should be considered vehicles like any others on the roadways. Drivers must:

- respect the rights of cyclists and share the road
- give at least three feet of clearance when coming up behind bicyclists or passing them
- yield to bikes that are in or approaching an intersection[x].

Along with education, signage is very important in helping drivers abide by the rules of bike lanes. One of the major forms of signage is the white line painted for bike lanes (Figure 13). These lines are typically to the right side of the vehicles. This helps to distance the drivers and keep each person in their own lane.

Figure 13: Bicycle Lane Striping

Figure 14 represents a city street that has two way traffic with parking on one side and a bicycle lane on the other. There must be proper signage to indicate the existence of the bike lane to motorists. Bike lanes can be implemented in areas that lack sidewalks so there is also room for people walking/running as well. This is a more cost efficient solution than installing numerous sidewalks. Installing bike lanes would move all street parking to the opposite side of the street, which is not an issue since there are not a large number of parked cars on-street in residential areas.

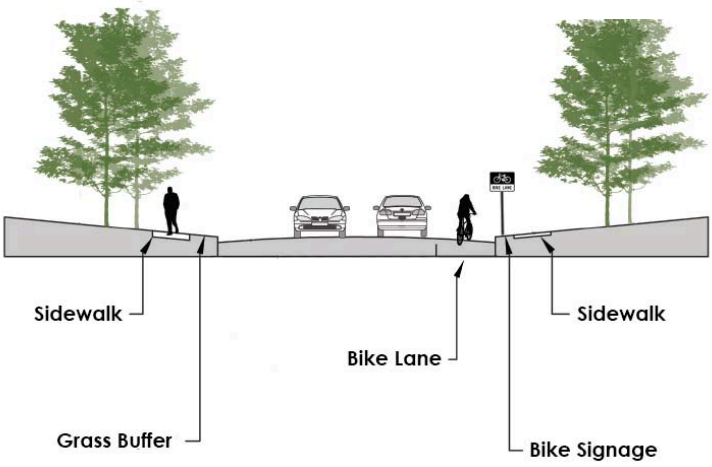


Figure 14: Incorporating Active Transportation with Parking

Recommendation: Develop a Sidewalks Requirement in All New Residential Development

According to the American Planning Association, motor vehicle mishaps account for two-fifths of the total accident mortality in children. Of these fatalities, three-fourths of the victims were pedestrians age five to nine[xi]. One factor in reducing these fatalities lies in providing a safe place for children to walk. This is also true for the elderly; the same report stated that as people age, their ability to cope with traffic conditions diminishes. A statement made by the director of the Traffic Operations Division, National Safety Council, stated, "It is the consensus of most safety authorities, that sidewalks are desirable in all areas in which there is any appreciable pedestrian traffic. Certainly this would apply in all residential developments"[xii]. A booklet from the National Committee for Traffic Safety, *Building Traffic Safety into Residential Developments*, also makes the case for sidewalks. The booklet states, "Traffic safety demands good sidewalks on each side of every residential street.

Vehicular traffic and pedestrians should be segregated. It is unsafe, unreasonable and often disagreeable to pedestrians to be forced to walk on the paved roadway"[xiii]. The Mid-American Regional Council claims that "the higher speeds of traffic and general absence of lighting in rural areas reinforce the need for sidewalks". Available data suggest that sidewalks in rural areas reduce pedestrian/motor vehicle collisions"[xiv].

Another reason sidewalks should be required in new developments is the health aspect. Today, nearly 40 percent of youths are overweight or obese[xv]. This number nearly tripled between 1980 and 2004. Health experts believe that this significant rise is largely due to inactivity and sedentary lifestyles. Nearly 55 percent of the U.S. adult population does not meet recommended physical activity guidelines, with 25 percent reporting no daily physical activity. Inactivity can lead to many diseases and problems including: obesity, diabetes, heart disease, and stroke. One simple step to combat this epidemic is ensuring people have safe places to walk. This could be in the form of sidewalks or bikeways. A report by the National Conference of State Legislators found the best way to promote walking and biking was incorporating sidewalks and bike lanes into community design[xvi]. Ensuring safe places to walk in Volga can help reinforce the need for exercise and promote community health.

According to the National Complete Streets Coalition, around 43 percent of people with safe places to walk within 10 minutes of their home meet the daily physical activity recommendations. This was compared to just 27% without safe places to walk. The study also stated that residents are 65% more likely to walk in areas where sidewalks are present. In walkable neighborhoods, residents did 35-45 more minutes of moderate activity per week than residents in a low-walkable neighborhood. A walkable neighborhood is a place where people feel safe and comfortable walking, and also has destinations to which people want to walk or cycle[xvii].

The Centers for Disease Control and Prevention recommends the following guidelines for physical activity[xviii]:

- Children and adolescents ages 6-17 need 60 minutes or more of physical activity each day
- Adults ages 18-64 recommends one of the following for important health benefits
    - 2 hours and 30 minutes moderate intensity aerobic activity per week and muscle/strength training for all muscle groups on two or more days a week

    - 1 hour and 15 minutes vigorous-intensity aerobic activity every week and muscle/strength training for all muscle groups on two or more days a week
    - For even greater health benefits, the aerobic activity time should be doubled each week
- Adults ages 65 and over with no limiting health conditions have the same recommendations as adults ages 18-64

Creating walkable neighborhoods is as easy requiring sidewalks in new developments. The easiest way to implement this is with a city ordinance requiring that any new development must have a sidewalk up to the property line. This ensures that all pedestrians traveling through this neighborhood have a safe place to walk separated from traffic. Sidewalks would allow children to safely walk to and from school, parks, and other destinations. Sidewalks also create opportunities for community members to safely get outside and exercise. Accompanying this ordinance should be two additional measures, one requiring the property owner to maintain their sidewalks, and one requiring snow removal by the property owner on sidewalks.

To fund the development of sidewalks in new developments, the ordinance should require that the developer install the sidewalks while still on-site. Sidewalk construction should be required prior to final plat approval. Requiring the developer to construct sidewalks on site also helps to save money. According to the American Planning Association, "if sidewalks are built on a mass production basis at the same time as streets, curbs, and gutters, considerable economies in material, equipment, and labor can be realized,"[xix]. This option is much more economically feasible then requiring the city or homeowner to install the sidewalks on each plat as they are purchased.

Another reason this ordinance is important for the community to enact is that it allows for state funding on other projects. Currently, Volga cannot receive funding from the South Dakota Transportation Alternatives Program (TAP) to fund any active transportation projects. The TAP program is very competitive and therefore requires that the community must have the three sidewalks ordinances mentioned above in place before it will be considered for funding[xx]. Once the city of Volga has ordinances like these in place, TAP funding for active transportation projects will become attainable. A full description of the South Dakota Transportation Alternatives Program can be found at:
http://www.sddot.com/services/transalt/SDDOTTAPSummaryandApplicationGuide.pdf

Sample language for ordinances is included in Appendix A.

3. Park System Distribution and Enhancements

Volga currently offers various recreational amenities including community parks, sports complexes, a golf course, and a community pool. These are excellent features for a community of 1,800 people. As important as the quantity of recreation spaces, however, are the quality and distribution of the amenities. The average person will travel on foot ten minutes or less to reach their destination[xxi]. This willingness to travel helps to define how truly accessible parks and other amenities are. An examination of the destination areas in Volga and the walkability of each destination will illuminate where further park development may be needed to create a more walkable city.

Recommendation: Enact an Ordinance Requiring Acreage of Parks/Open Space in New Developments

An analysis of the parks distribution (see Map 1) in Volga reveals that current facilities are adequate for the community. However, as growth occurs, especially to the south of town, additional park amenities should be considered. These properties should be required of developers as part of their plat plan approval process for future residential developments. A common standard of park provision is one acre of parkland per 100 residents[xxii]. Volga has an average household size of 2.4 individuals[xxiii]. Therefore, for every 25 new housing units, one acre should be granted to the city as open recreational or park land. The city should draft language dictating the type and quality of the ceded land, and should sequester funds for park improvements as part of the increased tax base realized by this residential growth.

An effective way of utilizing this land is through the development of pocket parks. Pocket parks are typified by their small size (usually less than 25,000 square feet) and their ability to serve the immediate local population in a variety of ways. Many municipalities elect to install basic playground equipment or sports equipment (basketball hoops or soccer nets) in these spaces, plus basic amenities like picnic shelters, drinking fountains, benches, and shade trees.

Another use for this land is the creation of community gardens. These facilities again take little space and provide the neighborhood with something they are encouraged to use and maintain. Community gardens can provide many other benefits to the neighborhood, including improved sense of belonging and community, local food production, and cultural and educational opportunities.

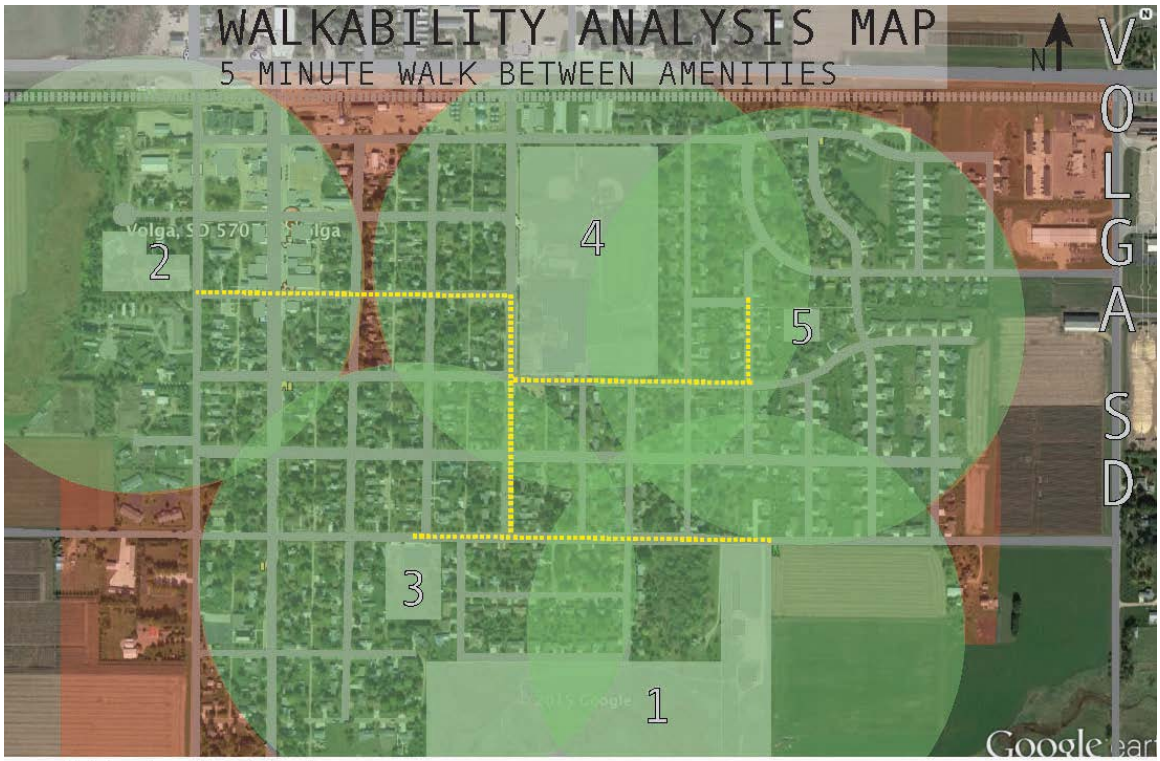
Figure 15: Community Garden

Improved distribution of parkland has proven positive effects on property values and tax revenues. A pair of studies conducted in 2000 and 2001 analyzed a set of 16,400 home sales in Oregon using two different methods. The first method inquired whether parks in the area had a significant, positive impact on nearby property values. This study found that "the existence of a park/green space within 1500 feet of a home increased its sale price by up to $2,262.00". The second study found that large natural areas had a greater positive impact on nearby public prices than did small urban

parks, specialty parks such as playgrounds or skate parks, and golf courses. Homes located within 1,500 feet of natural forest areas, for example, enjoyed statistically significant property premiums, an average of $10,648, compared to $1,214 for urban parks, $5,657 for specialty parks and $8,849 for golf courses (in 1990 dollars) [xxiv]. Green spaces such as parks have a proximate effect on the areas immediately surrounding them. According to John L. Crompton, this effect is most pronounced within a three-block area, but can extend to up to 9 blocks for parks over 30 acres. Crompton suggests that up to a 20% increase in property values can be realized for properties fronting a passive park area[xxv].

Parks and green space also have an impact on the community's health. An abundance of open spaces and parks give the people more opportunities for physical activity and social interaction. A study conducted in the United Kingdom found that "if parks and green spaces are well managed…communities use their local spaces more, have better relationships with their local councils and take some pride in the area where they live. They provide communities with a sense of place and belonging, opportunities for recreation, health and fitness, events that reinforce social cohesion and inclusive society and offer an escape from the stresses and strains of modern urban living, which can feel compounded by the built environment"[xxvi].

Parks and green spaces are an essential part of daily life; from taking a walk in the local park and enjoying the fresh air, participating in sports at the local recreation ground, a family trip to the playground or a picnic with old friends or new neighbors at a city farm, parks and green spaces offer something for everyone.



Map 1: Volga Parks Distribution

Volga Parks

Park system facilities have been grouped into three broad categories. These are described as follows:

Sports Facilities:
Sports fields are used to host sporting events for the community. In Volga, the sports fields are located at the Sioux Valley School District (see School Parks, this section). In addition, Meadow Creek Golf Course is a nine-hole golf course located on the south side of Volga. Amenities include a driving range, practice putting and chipping greens, pro shop, golf cart storage, and cart rentals. Meadow Creek is open for public use and holds special events throughout the season.

MEADOW CREEK GOLF COURSE

Location	E 6th St
Points of Interest	Natural prairie and wetlands Open for public use Hosts special events
Amenities	Driving Range Practice Putting and Chipping Green Pro Shops Golf Cart Storage Cart Rentals

Figure 16: Meadow Creek Golf Course

Community Parks:

Community parks fall under the direct jurisdiction of the Parks and Recreation Department and offer a variety of amenities for public enjoyment. The parks grouped in this category include: Volga City Park and One-Acre Park.

VOLGA CITY PARK

Location	1st Street @ Samara Avenue
Points of Interest	Encompasses swimming pool Houses Brookings County Museum
Amenities	Swimming Pool Historic Buildings Picnic Shelters Grills Playground Equipment Bike Racks Frisbee Golf Benches

Figure 17: Volga City Park

ONE-ACRE PARK

Location	South of Washington Road and east of Adams Avenue
Points of Interest	Close proximity to public school Located in residential area Good area for development
Amenities	Picnic Shelter Sidewalk access

Figure 18: One-Acre Park

School Parks:

These facilities are directly attached to the City's schools (Sioux Valley and Volga Christian) and are intended primarily for the use of these schools' students during the day. They are generally open to the public after school hours. They include playground equipment for children and open green space for recreational play.

VOLGA CHRISTIAN SCHOOL

Location	Marvin Avenue and 6th Street
Points of Interest	School Playground Spacious recreational area Upgraded equipment
Amenities	Backstop for ball games Playground Equipment Open Green Space

Figure 19: Volga Christian School

SIOUX VALLEY SCHOOL

Location	Hansina Avenue and 4th Street
Points of Interest	School Playground Various recreational opportunities
Amenities	Track & Field Football Field Softball Field Baseball Field Playground Equipment Basketball Courts Bleachers

Figure 20: Sioux Valley School

Recommendation: Develop and Implement a Master Plan for One-Acre Park

Figure 21: One-Acre Park Entrance

Residential housing surrounds One-Acre Park, giving it a private feel that could discourage the use of the space. With a sidewalk already in place, the park is accessible for community members participating in active transportation (see Section 2). Widening the sidewalk will invite visitors into the park, as will a formal park sign and entry experience on Adams Avenue. Currently, the park also has a single picnic shelter in good condition on the north end of the site. Planting trees will provide shade and seclusion, leading to a comfortable and relaxing ambiance. Further defining a boundary between the park and surrounding lots and houses through the use of hedges or other plant material will make the park feel open to the public.

Figure 22: Proposed Parking along 3rd Street

Another issue is nearby parking for large gatherings at the park. One-Acre Park has many opportunities to be a gathering place for community members and visitors. People from out of town may feel discouraged from using the space due of the lack of parking. Including angled parking along the north side of 3rd Street will make the park more accessible for all and maximize available parking space. This will also complement the active transportation infrastructure investments recommended in Section 2.

Finally, it is important that One-Acre Park have a unique identity distinct from other parks and recreational facilities in Volga. This will enhance the recreational offerings the community has to offer. The park should be master-planned in consultation with a qualified professional, such as a landscape architect, who can also provide construction documents to realize the eventual vision.

Possible uses for One-Acre Park include the development of a veteran's memorial, formal floral display gardens, or an adventure playground (Figures 22-24), among others. An examination of precedents for "vest pocket parks" such as this one is another important aspect in its design.

Figure 25: An Adventure Playground

Figure 25: Formal Floral Gardens

Figure 25: An Example of a Veteran's Memorial

Recommendation: Invest in Volga City Park

An update to the park equipment is crucial to attract community members to the park. The equipment must also be accessible for children of all ages; the current equipment is not suitable for young children because it is too high to climb up on and has some unsafe features, such as the glider, that could potentially lead to injury. Families, daycare providers, or summer programs can utilize this equipment, so making sure it is adaptable for all ages is necessary for safe, enjoyable encounters. Updating the park equipment would also attract more community member to use and enjoy the park.

Volga City Park is a large facility that offers many unique amenities. Circulation and wayfinding throughout the park, however, are inadequate. Interpretive and directional signage should be implemented in conjunction with new sidewalks connecting main park features, such as the swimming pool, parking lot, and key historic buildings. Developing a cohesive plan for the park will also help city officials project future uses and amenities in the park and ensure it is presented to the visiting public as a truly valued city facility.

Figure 26: Necessary Sidewalk Additions

Finally, a city bulletin board with flyers from local businesses and events will inform community members of city happenings and keep everyone in the loop. This would also be a place where people can post notifications of missing pets, rummage sales, and other items of local interest. Message boards such as this tend to be gathering spots in a community. Installing other amenities such as benches, shade structures, adequate lighting, and

Figure 28: Current "Bulletin Board" in Volga City Park

Figure 28: Public Notice Board

drinking fountains will further improve the gathering capacity in this park. Formalizing the parking area with paving and striping is also important for improving circulation and visual appeal.

Recommendation: Improve Park Signage throughout Volga

Implementing exciting and cohesive signage in the City Park is crucial to develop the atmosphere of the space. Tying in the stone material from the Brookings County Museum into park signs will create a sense of unity in the park. Improving plantings around signs will also improve the aesthetics and create a place where community members enjoy congregating. The graphic standards utilized in Volga City Park should also be used as a template for other signage throughout the city's parks system, and should be developed in consultation with a graphic designer.

4. Downtown and City-Wide Improvements

Recommendation: Provide Pedestrian Amenities in the Downtown

Developing an attractive Downtown in the community of Volga will help reinforce the use of active transportation by welcoming people into Downtown Volga. Quality sidewalks, public spaces, an abundance of trees, seasonal flowers, and bright pedestrian lighting will enable and encourage people to take advantage of what Downtown Volga has to offer. An aesthetically pleasing downtown provides an inviting place that not only will enhance the quality of environment for people to live, work, and play, but also attract new businesses. Improvements include:

Add street trees

- Shade and overhead structure creates human scale, making a more pleasant pedestrian environment for walking, socializing, security, and association with ownership.
- Street trees create vertical walls framing streets, providing a defined edge helping motorists guide their movement and assess their speed.
- Filters, screens, and softens utility poles, light poles, on-street or off-street parking and other features creating visual eyesore to the street.
- Business on tree-lined streets show 12% higher income streams compared to streets that lack trees[xxvii].

Figure 29: Human-Scaled Streets

Widen walks and add seating

- Seating encourages people to sit and linger
- Help people feel comfortable and welcomed
- Tables and chairs in conjunction with cafes bring activity to the streets
- Seeing people sit outside draws other people into the area

Figure 30: Parallel Parking Stall Converted to Outdoor Seating, Portland, OR

Add planting beds and hanging baskets

- Flowers and other vegetation create interest and add color
- They create boundaries between pedestrian and vehicular travel
- Property owners have opportunity for additional landscaping for their businesses

These improvements would greatly benefit the community by encouraging people to get out of their cars and walk. Improving the aesthetics of the main business district can help draw people downtown, thus increasing local business.

Brookings, South Dakota, grew by 30 percent in the last 20 years, due in part to its appealing business opportunities and lifestyle[xxviii]. In 2005, the Vision Brookings Coalition made a goal to make Brookings a better place to live, invest, and enjoy life. A major change that the City of Brookings invested in was their unique downtown. Since the improvements made to downtown Brookings, the city has attracted knowledge-based businesses, retained and attracted a solid workforce, and accelerated sustainable economic growth by encouraging entrepreneurism. The downtown not only brings a special pride that community members have but also visitors can appreciate what downtown Brookings has to offer.

Figure 31: Downtown Brookings Improvements

The City of Sioux Falls provides another example of downtown redevelopment. The heart of Sioux Falls can be found in the area defined by 8th and 15th Streets on the north and south, and Minnesota and Philips Avenues on the west and east, respectively. This area defines the City's image and is the center for business, finance, government, arts, culture, and historic architecture.

Figure 32: Walkable Downtown Sioux Falls

Recently, city officials decided to redevelop a portion of Main Avenue as a case study. The road on a two-block section of the street was narrowed to accommodate wider sidewalks, on which benches, pedestrian-scaled lighting, and other amenities were installed. In the two years after the change, officials noted a distinct upswing in business activity and success in the study area. Results were successful enough to make the change permanent, and city officials have decided to expand the length of the street with wider sidewalks to the full length of Main. Parking is convenient and available, bike and pedestrian circulation is expanding, and the hub of the public transit system maintains its central location all downtown. Additionally, care is devoted to maintaining and increasing sidewalks, streetscaping, outdoor art, and public spaces. Currently there is a rich diverse range of dining, shopping, lodging, housing, education, and entertainment opportunities, and these roles continue to grow[xxix].

Although some suggestions are easier to implement than others, such as adding trees and plant materials, as well as other amenities, others can require a larger amount of time and money. To widen sidewalks, improve lighting, and create crosswalks would require major construction.

Figure 33: Suggested materials for use in the downtown

They are proven to be necessary and effective when trying to redevelop a downtown business district. Some state and federal grants may help cover the costs:

- Section 108 Loan Guarantee Program to help with revitalization activities
- Local Infrastructure Improvement Program
- Deadwood Fund Grant to help rehabilitate historic buildings or structures
- U.S. Department of Housing and Urban Development
- Urban & Community Forestry Comprehensive Challenge Sub-grant to help fund forestry projects (Grant)

Developing an attractive downtown in Volga will reinforce active transportation by welcoming people into the Downtown Area, and providing a pedestrian friendly environment. An aesthetically pleasing downtown will provide the city of Volga with a quality environment for people in the community to live, work, and play, economic growth will also be encouraged.

Figure 34: This location on West 1st Street could easily become a haven for pedestrians through the incorporation of a paved sidewalk and a double row of small street trees and planting beds.

Figure 35: The City Building on the corner of Kasan Avenue and East 3rd Street could be enhanced through the development of a pedestrian plaza where off-street parking is currently located.

Recommendation: Improve Wayfinding in Volga

As mostly first-time visitors to Volga, the South Dakota State City Planning/Landscape Architectures students found that the city lacked a uniform wayfinding system. During the initial stakeholders meeting with city members, it was clear that by implementing a concise and recognizable wayfinding system, visitors would avoid confusion and misdirection.

By implementing a small-scale wayfinding system, visitors to the city may find it easier to locate the schools, parks, and main business district. Since Volga is a small town, it may not seem like there is much need for a wayfinding system. However, by installing key signs initially, and adding to them as the need arises, the cost of this system would be minimal. This would also help to mitigate the need for continually adding signs and finding places for them.

This wayfinding system must be consistent, clear, and concise in its design as it will then be easy to recognize and understand by those who use it. If these basic principles are adhered to, the wayfinding system will be "legible" as later stated. It should also reduce visual clutter and work in conjunction with the existing signage. This system should not only draw people in, but help them to orient themselves within Volga.

Sharmi Patel is a graphic design company out of Philadelphia that has designed wayfinding signs for many cities in the United States- from large cities to small towns (Figure 36). As more attractions come to Volga, the pre-existing posts will be added to in order to accommodate a continually effective wayfinding system. In order to add another panel to the post, the black post casing is slid down, making more room for another panel. This panel is then braced onto the post and will appear as though it has been part of the sign since it was installed.

Figure 36: Wayfinding System Example

If an adequate and appropriate wayfinding system was incorporated into Volga, its visitors would not only benefit from it, but also the business owners throughout the city. One article describes the benefits of a well-designed wayfinding system in these words:

> "Wayfinding is a vital tool of economic development. Cities realize that there is a net benefit to a shared approach to attracting business and capturing resident and tourist dollars. A high-functioning wayfinding system makes the environment "legible" and enhances the visitors' experience as it increases their comfort, builds their confidence, and encourages them to discover unique events, attractions and destinations on their own."[xxx]

Pros:

- Navigation would be much easier for visitors and those who are not as familiar with Volga. They would not have to rely so greatly on their learned orientation of the city.
- The design of the signage would be aesthetically pleasing due to its clear and concise layout and design.

- Wayfinding would reduce stress, discomfort, and disorientation of those who are unfamiliar with Volga.
- An adequate wayfinding system would be regularly used and would satisfy its users.
- Added wayfinding signage will safely direct traffic to their destination.

<u>Cons:</u>

- Adding wayfinding signage would be an additional cost for Volga and the community (as later explained).
- Not all people use wayfinding aids the same way. What might be comfortable for one person to use may not suit everyone else.

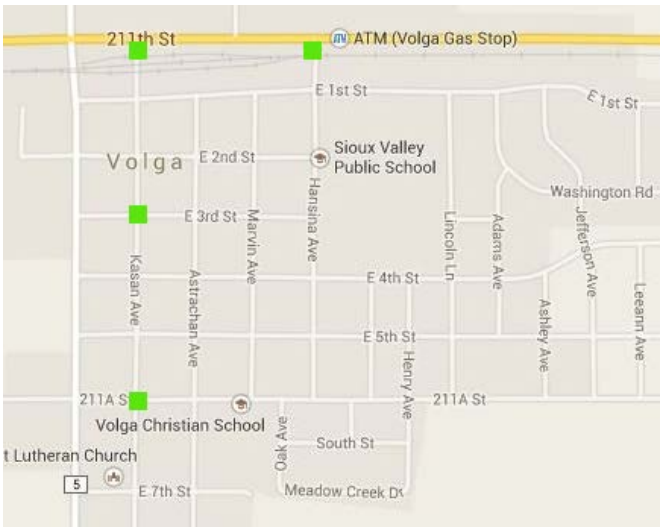


Figure 37: Proposed Wayfinding Locations

The proposed wayfinding system calls for eight signs to direct visitors to key city attractions. Two posts would be located at each indicated spot (on both sides of the street) in Figure 37:

- Corner of Hansina Ave. & Highway 14 (to High School)
- Corner of Kasan Ave. & Highway 14 (to Central Business District, Volga Christian School)
- Corner of 6th Street & Kasan Ave. (to Volga Christian School)
- Corner of Kasan Ave. & E 3rd Street (to Pool, park, and museum and HS – opposite direction)

The initial cost of the eight signs, including design and installation, would be about $27,000. The estimated cost per sign would be approximately $3,500[xxxi]. As the need for additional wayfinding becomes apparent, additions to a post would be approximately $500 to $1,000. Although this would be an additional cost, it would be cheaper than regularly adding new signs. With this, adding to the signs will assure a uniform and easily recognizable wayfinding system.

Figure 38: Proposed Wayfinding Appearance

Appendix A: Sample Ordinances

Rapid City, South Dakota[xxxii]

12.08.060 New and existing developments.

A. *Conformance with sidewalk requirements—Exceptions*. The construction of a permanent sidewalk fronting or abutting all streets, highways and avenues shall be accomplished by the builder, owner or developer of all new or existing residential or commercial buildings within the city, except in the following circumstances:

1. When the Common Council, pursuant to Chapter 17.50 of this code, approves a planned unit development or planned residential development incorporating a sidewalk plan unique to the development;
2. When the lot has a frontage in excess of 200 feet per dwelling unit located on the lot and is in the General Agricultural Zoning District; however, if the lot abuts or is adjacent to a lot with existing sidewalk, this exception shall not apply;
3. When the property has frontage along an interstate highway, a sidewalk will not be required along the interstate;
4. When the Common Council, in its sole discretion, approves a variance from sidewalk requirements.
5. All property with existing development on the effective date of these regulations which is not in compliance with the provisions of these regulations shall be considered nonconforming and allowed to continue until such time as a building permit is granted to enlarge by 20% or more a structure or parking lot on the property or increase the occupant load by 20% or more. A waiver of right to protest shall be required prior to a building permit being granted to enlarge by less than 20% a structure or parking lot on the property or increase the occupant load by less than 20%. Nothing in this section shall limit the City Council's ability to order the installation of sidewalk in accordance with the provision of § 12.08.020.

B. *Inspection prerequisite to certificate of occupancy—Bond*. No certificate of occupancy shall be issued nor shall a water meter be released until a final inspection by the Building Official reveals that security in an amount equal to the estimated cost of construction of the sidewalk, whereby the sidewalk will be constructed without cost to the city in the event of default by the builder, owner or developer of the property. All bonds and other methods of guarantee shall be approved by the City Attorney.

C. *Application for variance.* Any person aggrieved by any decision of the Building Official under this section may apply in writing to the Common Council for an exception from the requirements of this section.

Sioux Falls, South Dakota[xxxiii]

96.050 RESPONSIBILITY.

The construction of a permanent sidewalk fronting or abutting all streets, highways and avenues shall be accomplished by the builder, owner or developer of all new or relocated residential and commercial buildings within the city.

(1992 Code, § 38-39) (Ord. 104-99, passed 10-14-1999)

96.051 SUPERVISION.

The building and construction of all sidewalks and driveway approaches within the city shall be done under the supervision of the city engineer. (1992 Code, § 38-40) (Ord. 104-99, passed 10-14-1999)

96.052 APPROVAL GENERALLY.

The construction of sidewalks and driveway approaches within the city shall be approved by the city prior to the issuance of a certificate of occupancy as provided by the building code; except where conditions exist which in the opinion of the city engineer justify waiver thereof. (1992 Code, § 38-41) (Ord. 104-99, passed 10-14-1999)

96.053 SPECIFICATIONS.

The construction of all sidewalks and driveway approaches, whether to be done by direct contract with the city or by contract with the abutting property owners, shall be done strictly in accordance with the city's specifications for sidewalks and driveway approaches. The city engineer shall have full power to condemn work and material not in accordance with the requirements of those specifications.
(1992 Code, § 38-42) (Ord. 104-99, passed 10-14-1999)

96.054 PERMIT REQUIRED.

(a) Before any sidewalk or private driveway approach is constructed within the right-of-way by any contractor or person for the owners of abutting property, the contractor or person must first secure a permit therefor from the city engineer.

(b) Any person installing or constructing a sidewalk within the right-of- way and in front of or along property owned by him or her shall obtain a permit. The sidewalk shall be constructed in accordance with city specifications. If the city determines that the sidewalk was not constructed in accordance with city specifications, it shall be replaced by the property owner. The persons shall be exempt from the provisions of
§§ 96.030, 96.031, 96.071 through 96.073, 96.085 and 96.086. Driveway approach permits will only be granted to bonded and insured contractors.
(1992 Code, § 38-43) (Ord. 104-99, passed 10-14-1999)

96.055 WIDTH OF SIDEWALKS.

The width of all sidewalks shall be determined by the city's engineering design standards.
(1992 Code, § 38-45) (Ord. 104-99, passed 10-14-1999)

96.056 SIDEWALKS IN PLANNED UNIT DEVELOPMENTS.

In approved planned unit developments including large scale residential developments as defined in chapter 160 of this Code, permanent sidewalks shall be located in a manner and in those areas as shall best provide access to the residents thereof, including utilization of open spaces and substantially as shown on approved development plans therefor, all subject to §§ 96.051 through 96.054.

Example of ordinance requiring sidewalks be maintained by property owner.

Rapid City, South Dakota[xxxiv]

12.08.010 Liability of property owner for failure to repair.

Any owner of real property who shall fail to keep in repair the sidewalk in front or along the property if he or she resides thereon, or if he or she does not reside thereon, to repair the same forthwith when notified, shall be held liable to the city for any damage caused by the neglect. (Ord. 5793 (part), 2012)

12.08.020 When required—Notice to property owners.

Whenever the Common Council shall deem it necessary to construct, rebuild or repair any sidewalk, it shall notify all owners by return receipt mail of lots adjoining the sidewalk to construct, rebuild or repair the same at their own expense within a time designated. The notice shall be in writing and either be served personally on each owner or by publication once each week for 2 consecutive weeks. It shall set forth the character of the work and the time within which it is to be done. The notice may be general as to the owners, but must be specific as to the description of the lots.
(Ord. 5793 (part), 2012)

12.08.030 Work by city.

If a sidewalk is not constructed, reconstructed or repaired in the manner and within the time prescribed in the notice given pursuant to § 12.08.010, the Common Council, by resolution, may cause the same to be done and the cost thereof assessed against the lots, plots or parcels of land fronting or abutting upon the sidewalk so constructed, reconstructed or repaired, as provided in SDCL Chapter 9-46.
(Ord. 5793 (part), 2012)

Example of ordinance requiring snow removal.

Sioux Falls, South Dakota[xxxv]

96.101 NOTICE.

The city shall notify all owners or persons in possession of property abutting on sidewalks to keep the sidewalks free from snow and ice and to remove the same within 48 hours after every fall or accumulation of snow or ice. The notice need not be given personally but may be given generally through the official newspaper annually. The notice shall provide that each owner or person in possession is required to keep the sidewalk in front of the premises free and clear from snow and ice. It shall further provide that if the owner or person in possession fails to remove the snow or ice within 72 hours of the falling or accumulation hereof, that the city may cause the snow or ice to be removed and charge the cost to the abutting property.
(1992 Code, § 38-77) (Ord. 101-92, passed 11-16-1992)

96.102 DISPOSAL OF SNOW AND ICE.

The property owner, person in possession or person removing snow or ice from any sidewalk, public or private driveway, parking lot or parking area shall dispose of accumulated snow and ice upon the property as follows.

(a) Snow and ice shall not be deposited on any sidewalk or in any park. (b) Snow and ice shall not be deposited so as to obstruct or interfere
with the passage or vision of vehicular or pedestrian traffic.

(c) In the area designated zone 1 for snow alerts, snow and ice shall not be deposited upon any public street or alley that has been cleared of snow by the grading of snow away from the curb or the picking up and carrying away of snow by the city. Snow and ice may be deposited on the street until it has been cleared.

(d) In all areas outside zone 1, no snow may be blown, pushed, or otherwise placed on any street at any time (both before and after the street has been plowed).
(1957 Rev. Ords., § 11.802; 1992 Code, § 38-78) (Ord. 2395, passed 12-20-1965; Ord. 2662, passed 1-12-1970; Ord. 1-84, passed 1-3-1984; Ord. 101-92, passed 11-16-1992; Ord. 28-93, passed 4-12-1993; Ord. 35-94, passed 4-25-1994) Penalty, see § 10.999

96.103 CITY MAY REMOVE.

If the owner or person in possession of property fails to remove the snow or ice from the sidewalks within the time specified, the city may have the snow or ice removed and charge the cost thereof against the abutting property each time the snow or ice is removed.
(1992 Code, § 38-78.1) (Ord. 101-92, passed 11-16-1992)

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