

A large, spherical water tower stands in the background, its surface a faded brown. The word "Burke" is written in a white, serif font across the middle of the sphere. The tower is supported by several thin, dark metal legs. Bare, leafless tree branches are visible in the foreground and to the right, partially obscuring the tower. The overall scene is hazy and overcast.

ACTIVE TRANSPORTATION RECOMMENDATIONS

FOR THE

CITY OF BURKE, SD

PRESENTED BY THE
LANDSCAPE ARCHITECTURE PROGRAM
AT
SOUTH DAKOTA STATE UNIVERSITY
IN COOPERATION WITH THE
SOUTH DAKOTA DEPARTMENT OF HEALTH

27 APRIL 2018

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Introduction

The creation of the motor vehicle at the end of the 19th century lead to the automobile boom across America. Major highways and national interstates were developed throughout the country specifically for the automobile. Mass transit, railways, and subway lines quickly followed to accompany the automobile. While this technological advancement is largely considered an advantage for transportation, it is a disadvantage for pedestrian transportation. The purpose of this study is to increase active transportation in the community of Burke.

Active transportation can be defined as human-powered transportation. Vehicular transportation has put a limitation on active transportation. The concept of active transportation is to increase the number of people out of their vehicles and actively participating in the community. Active transportation facilitates face-to-face interactions and community engagement. Vehicular transportation has dissected and split up active transportation routes which in turn decreases active transportation. Heavily trafficked roads and busy intersections are barriers that hinder active transportation and further promote the use of the automobile.

The South Dakota Department of Health recognizes the negative effects that increased vehicular transportation has on the health and wellness, especially in smaller communities. To address this problem, the South Dakota Department of Health (SDDH) created this program to help increase active transportation in communities throughout South Dakota. The recommendations in this booklet were created after analysis of the community and meetings with members of the city of Burke. A five-phase plan, spanning approximately twenty years, was created to successfully achieve the full benefits of these recommendations in an achievable amount of time.



Figure 1: The City of Burke

Phase 1 (0-2 years)

Phase	Circulation	Vegetation & Amenities	Ordinances	Signage	Outdoor Spaces	Housing & Zoning
1	X	X	X			
2	X	X		X	X	X
3	X	X			X	
4	X	X		X	X	X
5	X					

The first phase encompasses recommendations that should be addressed as soon as possible. This phase focuses on establishing pedestrian circulation in key places that will link the City of Burke together. This will increase safety, create a pleasurable walking environment, and promote active transportation.

Circulation

Based on interviews with the residents of the Burke community, it was determined that the community provides many opportunities for outdoor recreation. A few examples of this are the city park/playground, Burke golf course, rodeo grounds, school playgrounds, and Burke Lake. However, as can be seen from the map of Burke, areas such as Burke Lake, Burke golf course, and the rodeo grounds are segregated from the main community by high volume highways and distance from city limits.

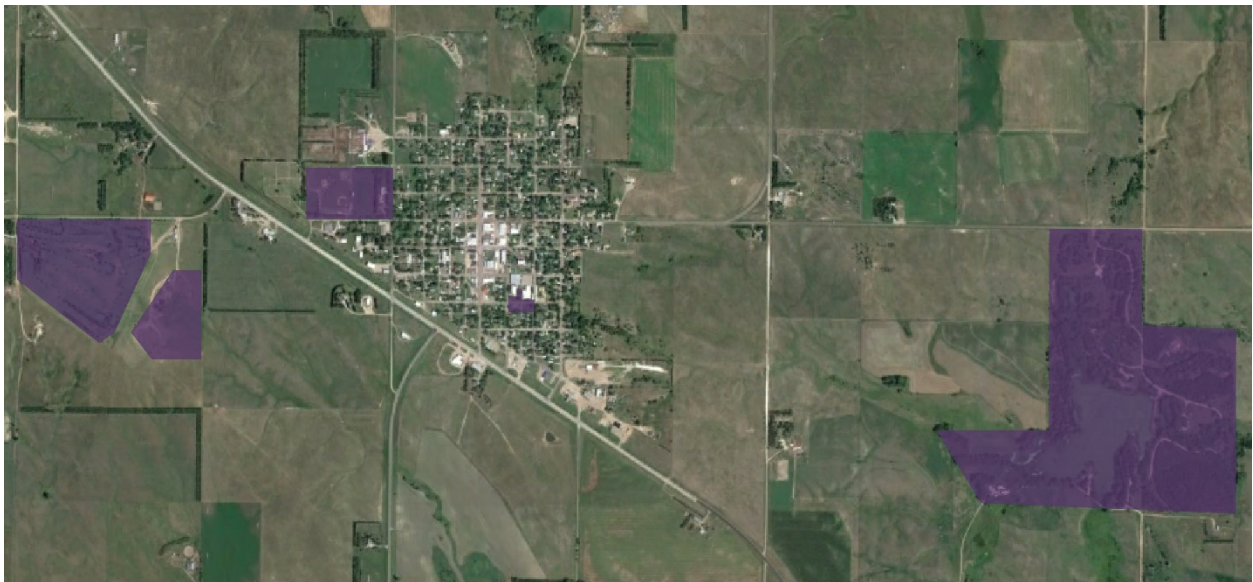


Figure 2: Existing Outdoor Recreational Spaces

To solve this problem a combination of paths and trails around the community should be added to ensure the safety of users. These trails creatively link recreational areas and other key areas of town. The implementation of these trails will make accessing these segmented areas, without the help of a motor vehicle, safe and enjoyable. The path system should be a network of sidewalks in the city and a trail system around the outside.

Sidewalks are an essential element for active transportation. To get people involved in the community, there has to be a pathway to get them there. In phase 1, the city of Burke should implement a network of sidewalks that links the heavily used areas throughout town. The first section of sidewalks to be installed should link the school, City Park, and Main Street. Children commonly use these areas; therefore, sidewalks would increase safety as they do not need to walk in the street.



 PHASE 1 SIDEWALKS

Figure 3: Burke Sidewalks Phase 1

While sidewalks prevent children from walking in the streets, there still needs to be a safe solution when children are crossing the streets. Crosswalks provide a simple solution to this problem. The city of Burke needs to install crosswalks at intersections with busy vehicular traffic. These locations are shown on the following map.

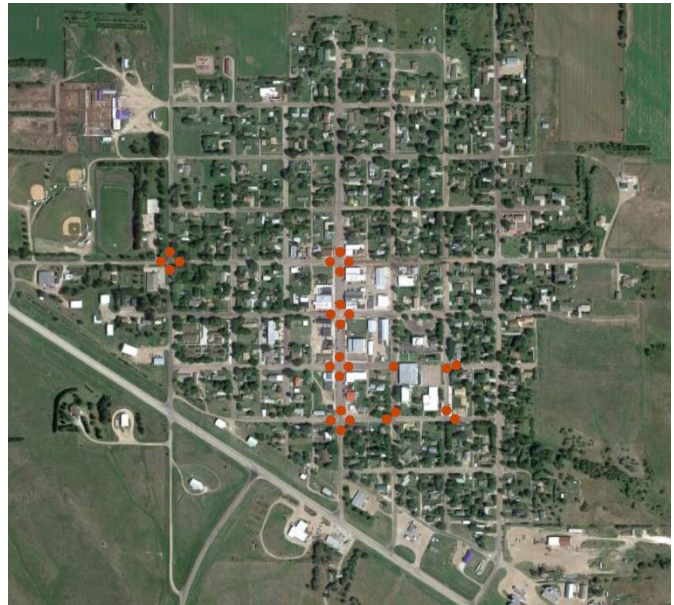


Figure 4: Burke Crosswalks Phase 1

To make sure safety is addressed as the main concern, it is recommended that standard white-striped crosswalks be installed.

However, because the city of Burke is a lively, vibrant community it is recommended that colorful designs expressing characteristic of the community be installed along with the white-stripes. This is a great way to incorporate art into the community without compromising safety. According to the Federal Highway Administration, the enhancement of crosswalk with colored pavement “has no increased effect on safety or risk of injury^{R11}. Therefore, “crosswalk art” does not harm a community, but instead provides the benefit of individually and expression.



Figure 5: Crosswalk Art Example 1



Figure 6: Crosswalk Art Example 2

Crosswalk markings need to be touched up every 1-2 years, depending on wear and tear. Every 10-20 years there may be additional costs such as filling potholes or touching up the road surface.

In total, phase one sidewalks add up to about 1 mile in length, which makes the total estimated installation cost about \$91,000. There are 27 suggested crosswalks to be painted, which puts the total cost at approximately 54,000 for installation.

Estimated cost:

- Sidewalk Installation - \$3,350 per 800 sq.ft.^{R5}
- Sidewalk Maintenance - \$329 per 100ft of cracks^{R4}
- White Striped Crosswalk - Approximately \$750 (paint, sealer, and install)^{R10}
- Colorful Crosswalk - Approximately \$1,500-\$2,600 (paint, sealer, and install)^{R10}
- Crosswalk Maintenance - \$200 every 1-2 years^{R12}

Vegetation and Amenities

Vegetation

A key component to creating an attractive environment for walking is the inclusion of vegetation. When placed in major areas of circulation, vegetation is a significant factor that attracts people to places. It is not ideal to walk in a setting that is absolute concrete, so placing raised planter boxes on the sidewalks along Main Street can soften this strict hardscape and give a sense of attractiveness to a dull streetscape.

Planter Boxes

Concrete planter boxes are a better option than wood or plastic because concrete is heavy and when filled with potting soil will be heavy enough to stay in place. Concrete planter boxes are often sold completely enclosed which means there is no chance of loose soil spilling out. Another advantage is that concrete will not wear and tear as quickly as wood or plastic. In a downtown area, where impervious surfaces are prominent, storm water runoff can be an issue. Vegetation in planter boxes on Main Street can help reduce the amount of storm water entering the storm water management system.



Figure 7: Example Planter Box

Lighting

It is essential that areas that are going to be utilized at night are properly lit. Lighting serves many purposes including creating a sense of safety, increasing definition and interest, highlighting focal points, and encouraged nighttime activity. Lighting should be placed along Main Street and the streets directly adjacent to it, in public gathering spaces, around the school and park, and along the roads that connect them all together.



Figure 8: Placement of Lighting

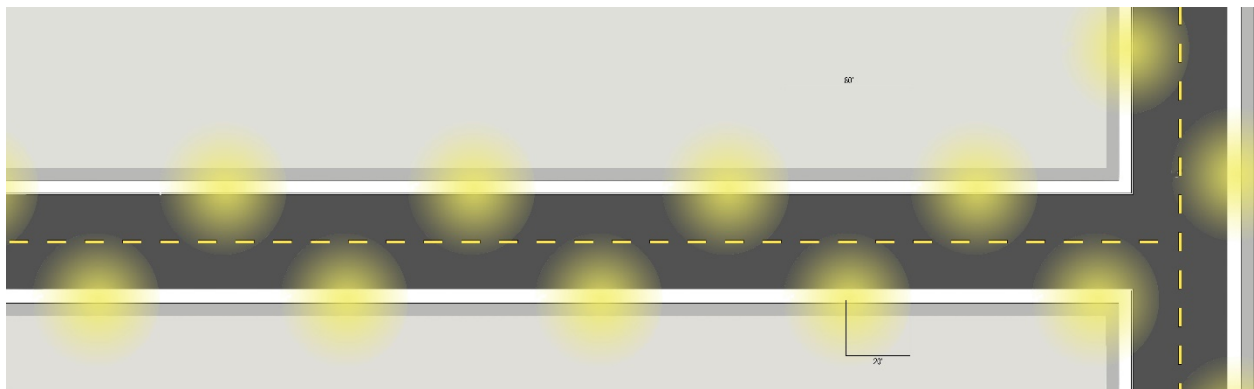


Figure 9: Lighting Dimensions

Along Main Street, it is recommended that light poles have attachments so that interchangeable banners may be added. These banners may state the city, promote local events, or decorate for the season. Light poles also could hold hanging flower baskets. Since the light poles hold up the baskets, they do not take up any extra space for walking. Flowering baskets compliment the planting boxes and other Main Street vegetation to create a visually appealing downtown streetscape.



Figure 10: Example Banner

Estimated Cost:

- 18" W x 36" L x 18" H planter box - \$600
- 10-12' Pedestrian Scale LED Light Pole - \$1,500
 - Hanging Light Pole Basket - \$50
 - Light Pole Banner Arms- \$250

Amenities

Amenities can play a key role in the usability of a space. One amenity that should be incorporated are water fountains. Water fountains should be located in and around the park. In addition, the City of Burke should place trashcans throughout the city to cut down on the amount of litter. When placing a trashcan, it is advised to place them where they are easy to see as well as easy to use. Trashcans must be convenient, or they will not serve their intended purpose. Benches shall also be integrated within the streetscape on Main Street to promote active transportation. Strategically placed benches serve as a spot for individuals partaking in active transportation to stop, rest, and sit for a longer period of time while they read the newspaper or people watch.

Bike Racks

Biking is a popular form of active transportation. Bike racks will promote active transportation throughout the City of Burke by providing a secure place for pedestrians to park their bike. These bike racks should be placed next to heavily used destinations in the City of Burke, as well as along the route there. Some of these key areas are highlighted in figure 11.



Figure 11: Location of Bike Racks

Instead of the traditional bike rack, sculpture-like bike racks should be installed to increase the aesthetic of amenities in the City of Burke. Custom made bike racks will also attract more attention for the business it is placed outside of, serving as a form of advertisement. Scottsbluff, NE has examples of these bike racks implemented on their Main Street.



Figure 12: Custom Bike Examples

Estimated Cost:

- 30 gallon Concrete Trash Can - \$500
- Metal Bench - \$300
- Custom Bike Rack - \$660^{R3}

Ordinances

Sidewalks are the most important part of pedestrian circulation throughout cities; they define areas for pedestrians to safely move around. The City of Burke currently has several ordinances to prevent obstruction and require minimum path widths. These ordinances need to be enforced to create a safe route for pedestrians to travel throughout the city.

The current ordinance only requires minimum widths on main street and streets that are used to access businesses. Additional requirements for residential areas shall be added to allow for safe pedestrian traffic through Burke. These ordinances shall become the responsibility of the homeowner and shall be enforced by the city.

12-2-6 WIDTH OF SIDEWALKS

The sidewalk abutting properties used for business purposes on Maine Street, shall be twelve (12) feet wide, and along properties used for business purposes on any streets, shall be eight (8) feet wide, provided, however, that when sidewalks are constructed along the west side of the lots in blocks 58, 65 and block 4 of Waterman's Additions to the City of Burke, that the same shall be ten (10) feet in width. The sidewalk abutting properties used for residential purposes shall be four (4) feet wide for all new development and redeveloped areas.

The removal of snow in a timely fashion is very important for active transportation to take place. To enforce this ordinance will be beneficial to the community and shall be enforced by the City of Burke.

12-2-7 REMOVING SNOW

It shall be the duty of the occupants of any property to remove all snow from any public sidewalk, abutting the property in question, within a twenty-four hour period. In the event the property is unoccupied, this duty is transferred to the owner, who shall be responsible for removing snow within the said time period.

Preventing obstruction is of utmost importance in providing safe conditions for pedestrians. Trees are a main obstruction of sidewalks because of low hanging

or broken branches. This creates dangerous conditions for pedestrians trying to use the sidewalks.

12-2-9 OBSTRUCTING SIDEWALKS

No person shall place any goods or merchandise for sale or exhibition upon any sidewalk, or suspend any goods over the same or show, or cause or suffer to be deposited thereon any cask, barrel, case, box or package, except as provided for the next section.

12-3-6 TRIMMING TREES

The occupant or owner of any private premises abutting any public street or alley shall keep all trees standing upon such premises or between the same and the center of the adjoining street or alley so trimmed that no bough or branch thereof shall be lower than eight feet above the sidewalk level.

Bicycle riding shall be limited to streets and bicycle lanes. Riding a bicycle on a sidewalk can create a dangerous environment for all types of traffic, including pedestrian and vehicular.

12-2-8 BICYCLE RIDING

No person shall ride any bicycle on any sidewalk of this town.

Implementing these recommendations will set up the major route for circulation through the city of Burke, while also adding amenities to increase the aesthetic of the highly used areas. This will make the city more desirable to visitors and give residents a reason to get outside. These implementations will specifically affect "The Rock", which is the youth center on Main Street. Creating safe routes and adding transportation amenities throughout the city of Burke will promote active transportation and outdoor activity at the youth center. These recommendations will build upon the "Small Town Atmosphere" of the City of Burke.

Phase 2 (2-5 years)

Phase	Circulation	Vegetation & Amenities	Ordinances	Signage	Outdoor Spaces	Housing & Zoning
1	X	X	X			
2	X	X		X	X	X
3	X	X			X	
4	X	X		X	X	X
5	X					

Phase 2 builds on the recommendations enacted in Phase 1, while introducing new ideas to stimulate active transportation and interaction within the city.

Circulation

The second section of sidewalk that needs to be installed is the minor route that links large areas of residential communities to the major route implemented in phase 1. The placement of the minor route was strategically designed to include areas where there is already existing sidewalk and connect blocks of city that previously has no pedestrian connections. This will increase circulation throughout the heart of the city, while also encouraging residents to get around the community without the help of their motor vehicles. Phase 2 sidewalks also start to create connections for the upcoming trail in phase 3.



■ PHASE 1 SIDEWALKS

■■■■■■■■ PHASE 2 SIDEWALKS

Figure13: Burke Sidewalk Phase 2

The total cost for installing all the sidewalks marked in phase 2 is about \$365,000. However, some parts of the sidewalk walk are already finished, as seen in red marked as “incomplete.” This means the total estimated cost will most likely be reduced to some degree.

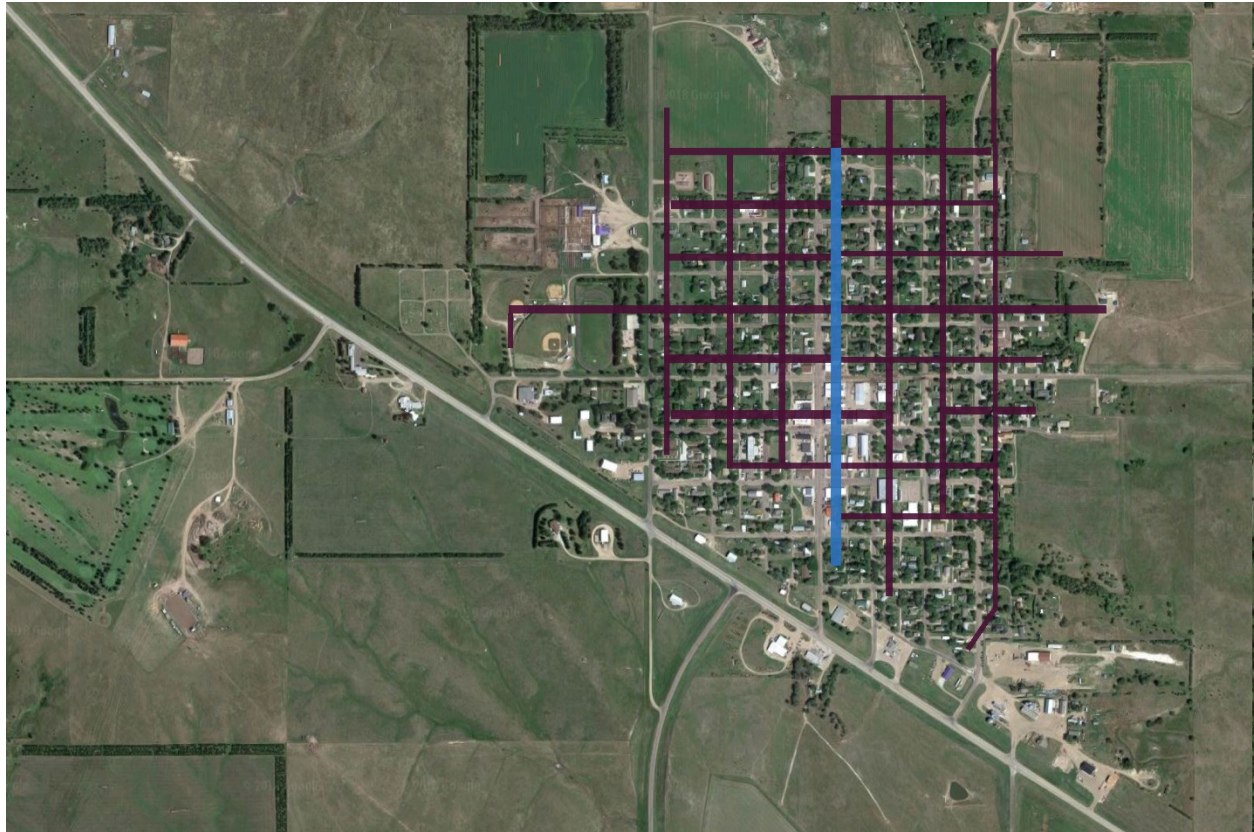
Estimated cost:

- Sidewalk Installation - \$3,350 per 800 sq.ft.^{R5}
- Sidewalk Maintenance - \$329 per 100ft of cracks^{R4}



Figure 14: PEDS Survey Sidewalk Completeness

Due to city ordinance 12-2-8 that states, “No person shall ride any bicycle on any sidewalk of this town,” it is recommended that the city of Burke create an on-street bike lane along Main Street. The bike lane should be 5ft. in width, measuring from the adjacent lane to the parking lane^{R18}. This will allow cyclists to remain safe, while remaining off the sidewalk. Throughout the rest of the city, the streets should become shared lanes for motor vehicles and bicycles. This is a low-cost way to increase awareness of motorists and enhance safety of cyclists.



- On-Street Bike Lane
- Cyclist/Motorist Shared Lane

Figure 15: Bike Lane Masterplan

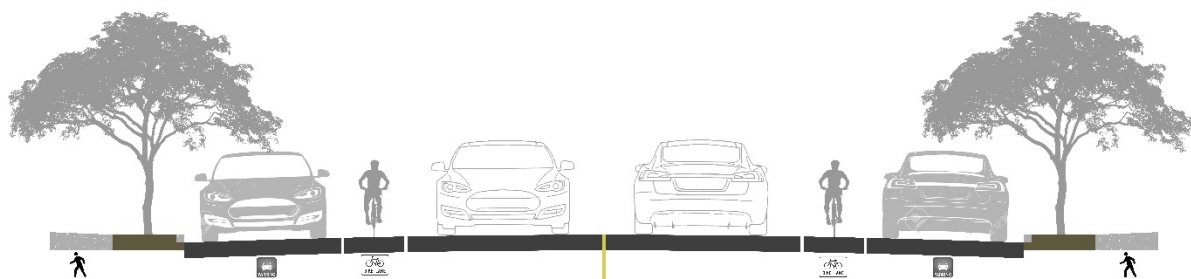


Figure 16: Mainstreet Bike Lane Section

Pavement markings should be added to Main Street to indicate the bike lane. Painting pavement markings for a bike lane at 5ft. width is approximately \$5000 per mile. This would accumulate a total cost of about \$5,600 to have a bike lane on both side of Main Street^{R18}.



Figure17: Bike Lane Pavement Markings

The truck route through the city should be rerouted away from the school zone and other heavily populated areas. The new route will enter city limits as little as possible, in order to prevent noise pollution and destruction to paved city streets. Instead, the truck route will travel mostly along county roads. This will also deter trucks from driving past areas of high pedestrian activity, such as the school grounds.

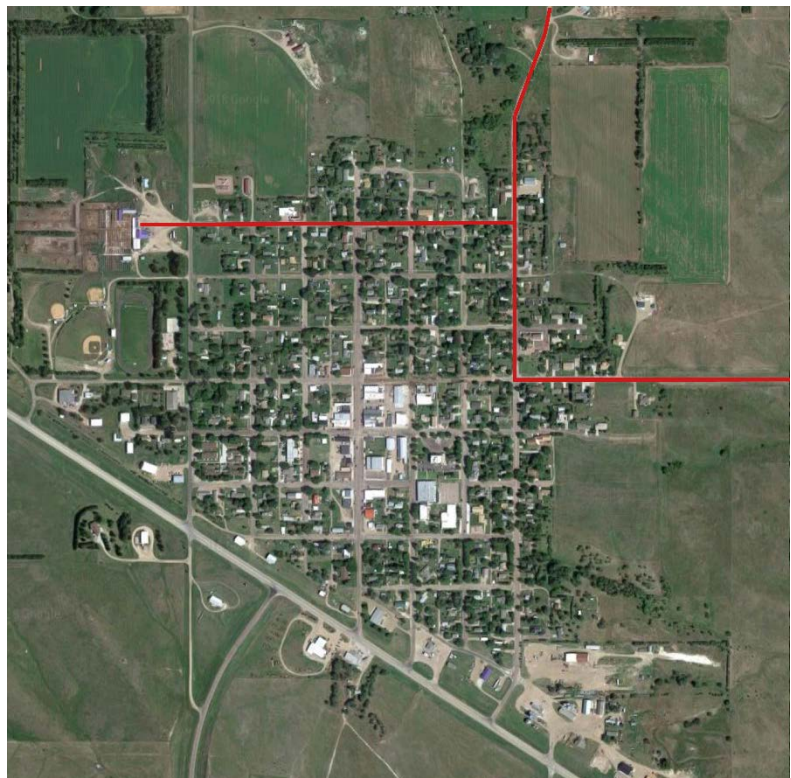
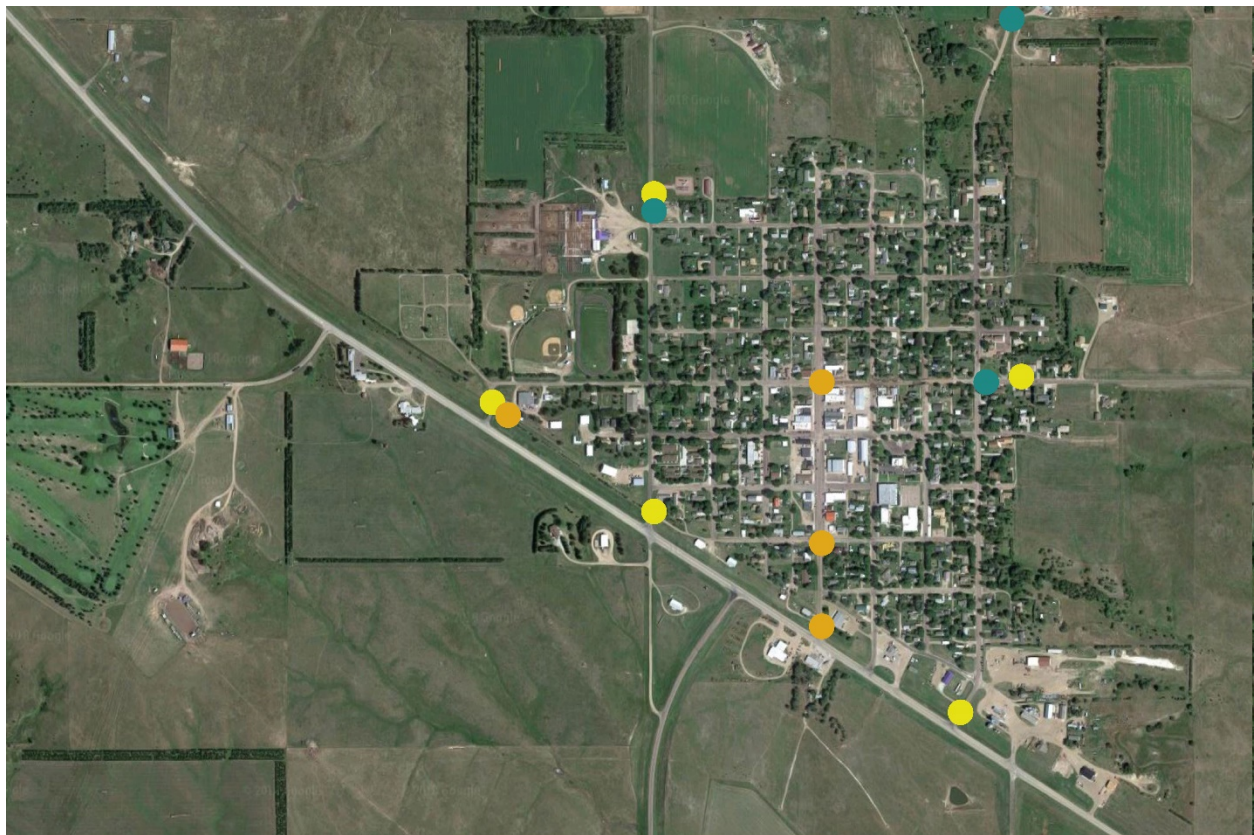


Figure 18: Updated Truck Route

Signage

In areas of the city where the lanes are shared, “Share the Road” signs should be placed at additional entrances to the city so locals, as well as visitors know that cyclists will be on the road too. A minimum of six signs should be installed, according to the locations on the map below. Each sign costs \$100 each, including pole and labor. This creates a total cost of \$600^{R20}.

Because the truck route has been relocated, the current signage for that route will also need to be moved. The map below shows the new locations for the truck routes signs. Furthermore, additional signs may need to be purchased to notify truckers of each entry they can use.



- Share the Road
- Truck Route
- Wayfinding

Figure 19: Signage Phase 2

Wayfinding refers to a system of information that guides people through a physical environment in order to enhance their understanding and experience of the space^{R13}. Burke is a small community and is generally easy to navigate for residents. However, a lack of wayfinding signs creates a high-stress environment for visitors and children. Wayfinding comes in many forms, such as maps, directions, and symbols.

The city of Burke should place wayfinding signage on Main Street that indicates the location of key areas in Burke, such as the Youth Center, school, ball fields, camping area, and splash pad. This will make the location of local attractions more apparent and easier to find. An additional sign placed in the alleyway behind the center would also be helpful for pickup and drop-off purposes.

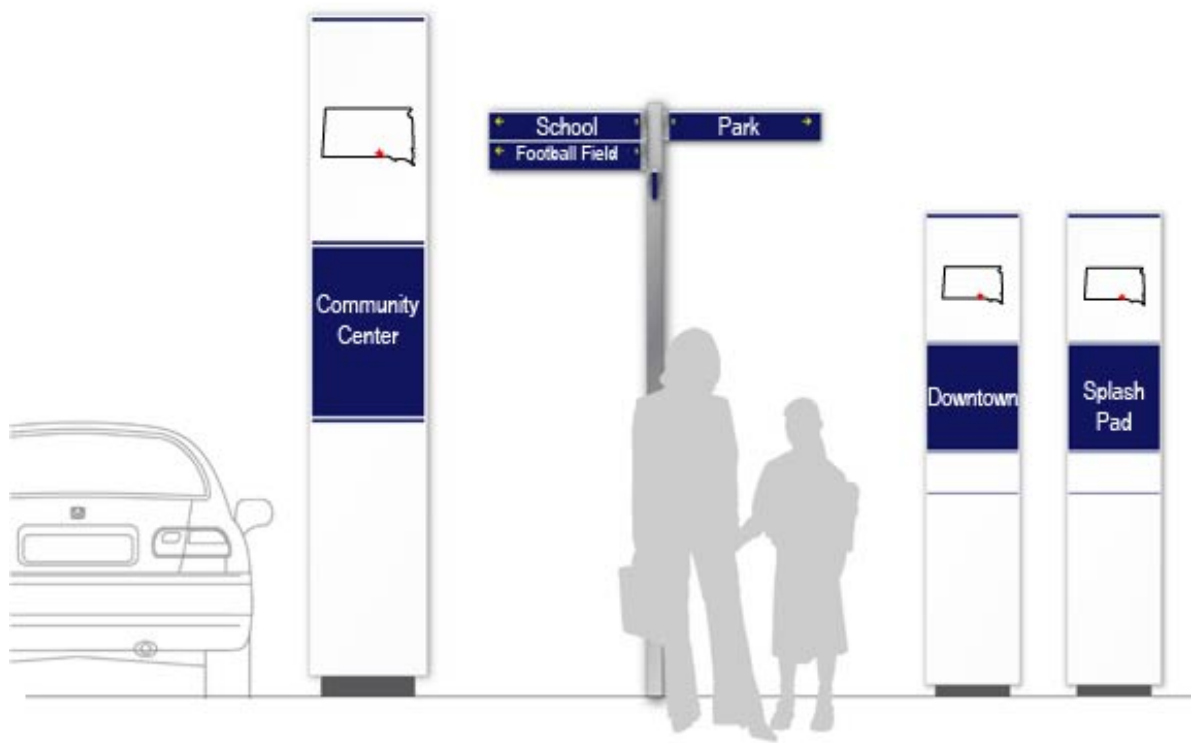


Figure 20: Wayfinding Signage

Amenities

It is recommended that shade sails should be placed over the sidewalks along Burke's Main Street. Shade sails provide filtered light but are less opposing than a continuous pergola. They will also last longer than trees planted in a small planting bed along the street. Along with this, shade sails help decrease temperature and reflectivity. They also create a colorful contrast against the concrete sidewalks and street.

Estimated Cost:

- Shade Sail – 2'x16.5' approximately \$25.00-40.00 (not including installation)



Figure 21: Example of Shade Sail

Outdoor Spaces

Utilizing the vacant green spaces on Main Street as outdoor gathering spaces will bring the community together through a sense of place, improve the environmental quality, and become the home of new and existing events including the Hospital Gala, a Street Dance, Dogs Days, the Stampede Rodeo, movie night, and a sack lunch day. Two areas of unused green space should be utilized for this purpose.

The community center is the current core-gathering place on Main Street but is limited to indoor activities and events. The first step to creating this outdoor space is to acquire the open space behind the buildings adjacent to the community center lot for public use. After acquisition of this land, it is advised that vegetation be added to define the outdoor space.



Figure22: Community Center Vegetation

The same process will happen on the corner of Main Street and W 7th Street by acquiring the land. On this corner lot, a splash pad that also doubles as an ice rink during the winter months should be installed. The outer edges of this ring will act as seat walls. After the concrete is poured for this structure, vegetation will be added as well.



Figure 23: Splashpad/Ice Rink Concept

Estimated Cost:

- 2" Balled & Burlap Tree - \$300
- Ice Rink/Splash Pad - \$200,000^{R23}

The temporary closure of East 10th Street between the elementary school playgrounds creates a disjointed area of play and can become unsafe. This stretch of the street should be redeveloped to better utilize the space. The city of Burke should apply for grants and fundraise in order to acquire the funds to redevelop the school playground and update the old playground equipment.



Figure 24: School Park Redevelopment

Zoning

Unused land in and around Burke should be annexed and zoned for residential use. To break this down even further, two things should be done. First, the empty and/or run-down lots throughout the community should be acquired by the city for development.

The city of Burke should create a petition to annex Burke Golf Course, the park/ ball fields, the cemetery grounds, and additional surrounding unused land into the city's boundaries. This would allow the city to upkeep, maintain, and add amenities to these areas. Along with this, there is a section of land on the east side of Burke that is ideal for the addition of more residential property. This would also create opportunities for future housing and create a solution for the current housing demand. The petition would be voted on by citizens residing in the municipality^{R14}.

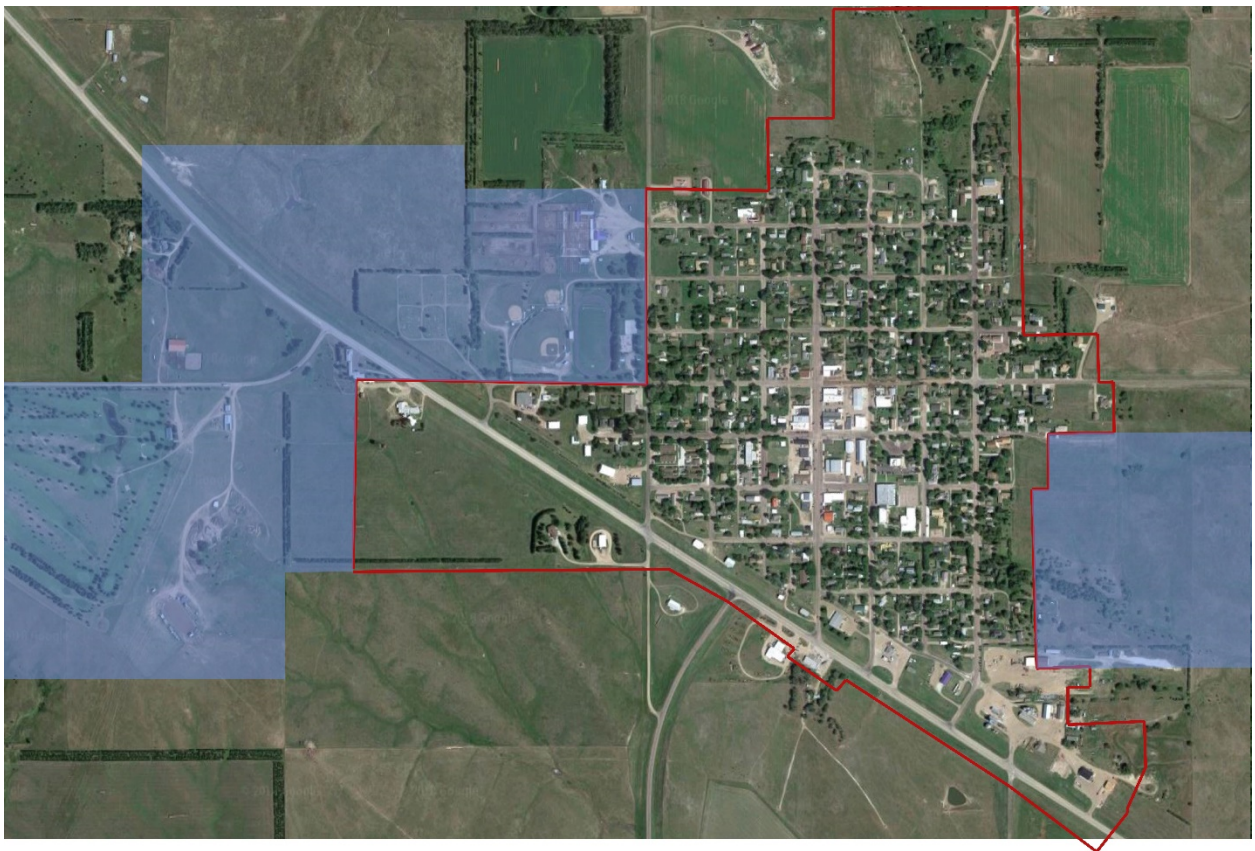


Figure 25: Proposed Land to be Annexed

Phase 3 (5-10 years)

Phase	Circulation	Vegetation & Amenities	Ordinances	Signage	Outdoor Spaces	Housing & Zoning
1	X	X	X			
2	X	X		X	X	X
3	X	X			X	
4	X	X		X	X	X
5	X					

Circulation

The third section that addresses circulation deals with installing a trail pathway on the outskirts of the city. A large contributor to lack of physical exercise is environmental barriers. This includes accessibility of walking paths and cycling trails^{R21}. Not only does a trail system encourage outdoor activities, but it also improves the wellness of a community. Therefore, a multi-use trail should be implemented around the City Park and cemetery, and then continue down along the highway to link up with the sidewalks added in phase 2. The goal of this pathway is to create a series of trails that increase safe pedestrian travel and encourage outdoor exercise.

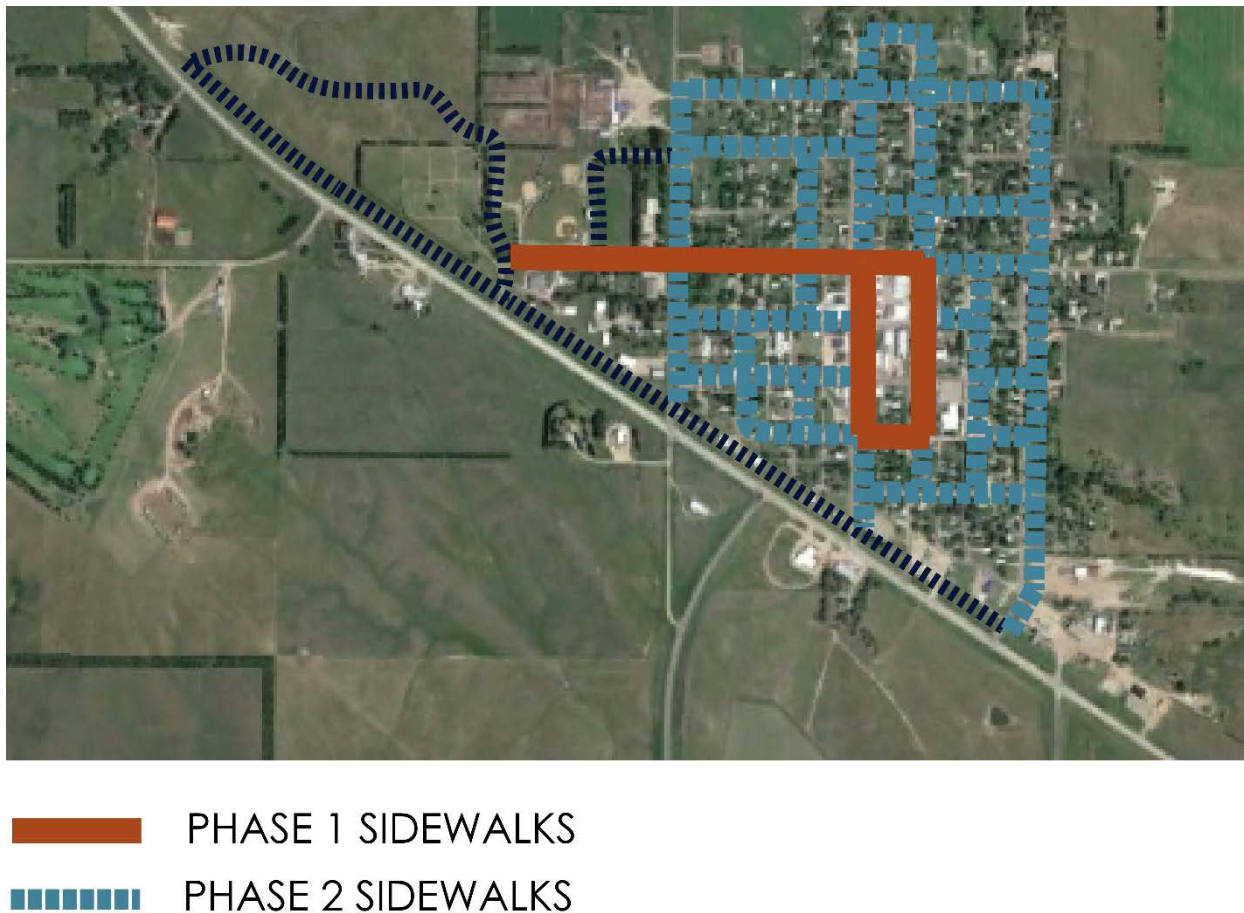


Figure 26: Burke Sidewalk Phase 3

The trail should be 8ft. in width allowing for two lanes of pedestrian and cyclist traffic. It is recommended that the pavement have a smooth surface and be made of asphalt. The estimated cost for one mile of trail, including amenities, additional vegetation, and construction, is approximately \$275,000-\$400,000. The price varies based on how many amenities are added to the design, as well as how much the area must be prepared for installment^{R22}. The total length of this section of trail is about 1.8 miles, bringing the cost estimate to \$700,000.

While this is a high cost, there are available federal and state grants that can help offset the costs. The Land and Water Conservation Fund is a federal grant program administered by the U.S. Department of Interior. The South Dakota Department of Game, Fish, and Parks distributes these funds locally. This grant aims to increase recreational opportunities through state and local development projects. Up to 50% of funding for trail development may be provided^{R22}.

In addition, the U.S. Congress authorizes a highway-funding program that allows for special programs. These programs can include funding for construction of recreational trails for non-motorized use. These funds are distributed by the South Dakota Department of Transportation and provide up to 80% of funding^{R22}.

Vegetation and Amenities

The city of Burke should collaborate with Gregory County to access the right of way along Highway 18 for the implementation of the trail. Trees should be planted in the right of way to serve as a screen and barrier between the highway and the city. This will cut down on noise traffic for the city and screen the highway from the city's views. The trees will also act as a barrier between the highway and the trail, increasing pedestrian safety. In addition, the trees will create add visual interest and make traveling along the trail more enjoyable. The tree line should end about 40 ft. before reaching an intersection to ensure visibility for motorists of crossing pedestrians.



- PHASE 1 SIDEWALKS
- - - - - PHASE 2 SIDEWALKS
- PHASE 3 TRAIL

Figure 26.1: Tree-Lined Highway Concept

The two dilapidated sheds on the corner of West 10th Street and Main Street should be torn down to accommodate an Apple Tree Orchard Memorial.

Outdoor Spaces

The open area across from the VFW will become the permanent residence for the Farmer's Market. A large pergola structure should be built to house the booths during the Farmer's Market hours. This structure can also become an event space to hold birthday parties, reunions, large picnics, etc. Vegetation should be added to give the space an appealing aesthetic. The existing dirt road will remain to allow for convenient loading.



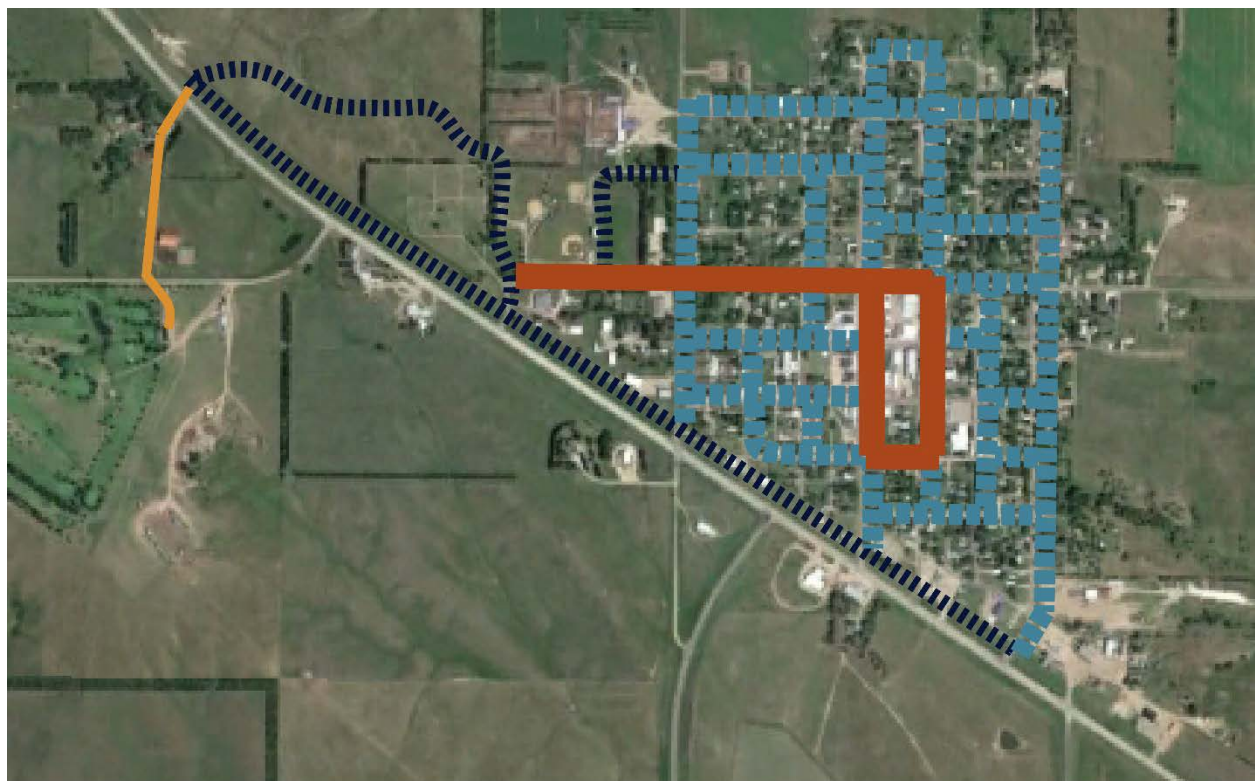
Figure 27: Farmers Market Development and Memorial Garden Concept

Phase 4 (10-15 years)

Phase	Circulation	Vegetation & Amenities	Ordinances	Signage	Outdoor Spaces	Housing & Zoning
1	X	X	X			
2	X	X		X	X	X
3	X	X			X	
4	X	X		X	X	X
5	X					

Circulation

The city of Burke has a very active community. For that reason, it is recommended that the trail installed in the previous phase be extended from the city park/cemetery to the golf course and rodeo grounds. This extension connects this area to the main part of the city. It also allows residents easier access to these grounds. This is a much shorter section of trail, about 0.3 miles, and will cost approximately \$120,000 to install.



- PHASE 1 SIDEWALKS
- PHASE 2 SIDEWALKS
- PHASE 3 TRAIL

Figure 28: Burke Sidewalk Phase 4

This pathway would cross a major highway with a sharp curve; therefore, curb extensions would be required as well as a crosswalk. Curb extensions are typically used to help increase the visibility of pedestrians, but they would be beneficial in this location to force drivers to slow down as well as decrease the crossing distance for pedestrian and bikers.



Figure 29: Curb Extension Section

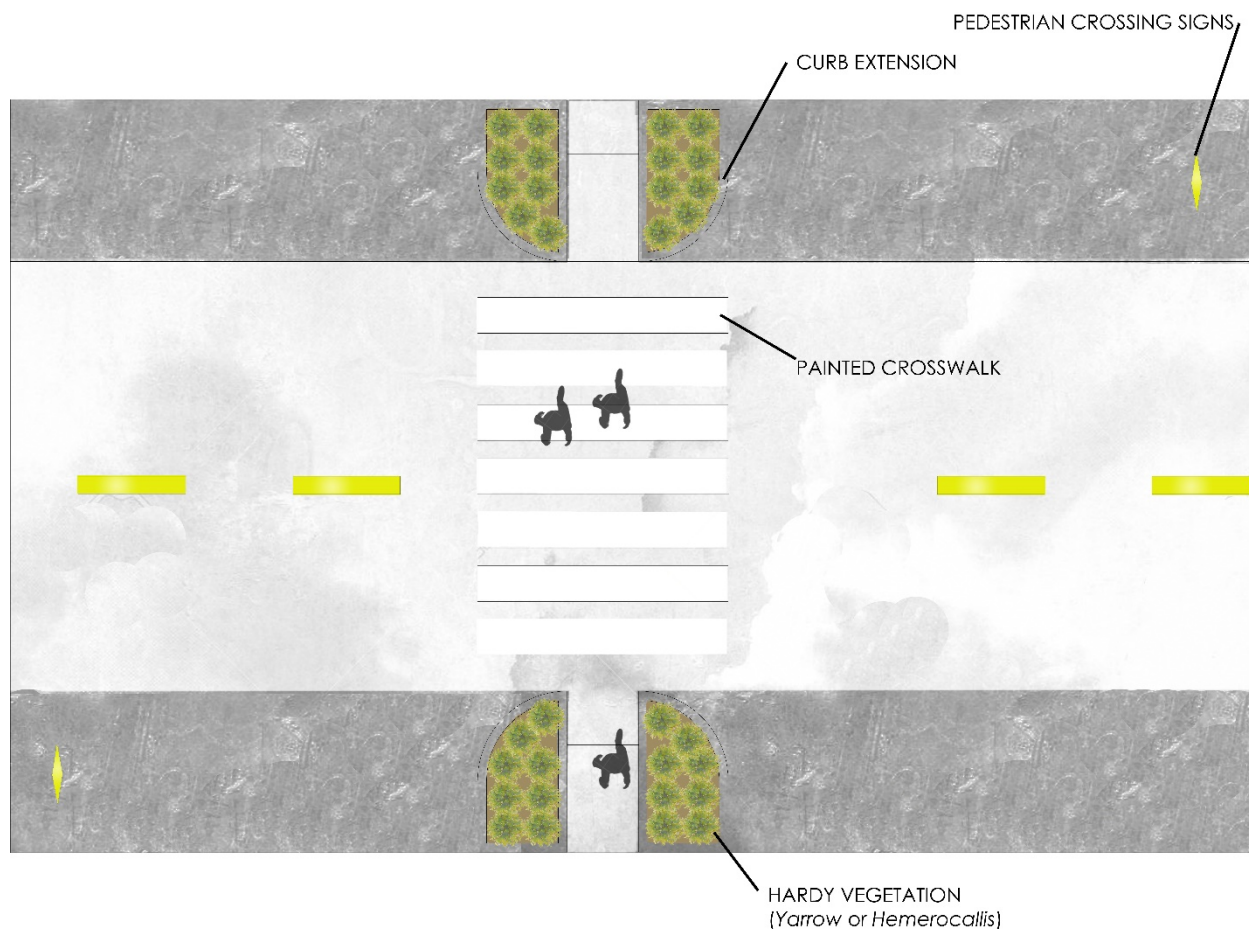


Figure 30: Curb Extension Planview

The cost of curb extensions can range from \$2,000 to \$20,000 per corner. The price varies significantly depending on what type of storm water management practices are in place. The number and type of amenities included in the design can also increase costs. Vegetation, lighting, and furnishings are a few examples of amenities that can be incorporated^{R6}.

Vegetation and Amenities

It is highly suggested that a planting bed for perennials should be incorporated into the curb extension design. Planting material helps attract the driver's attention to a pedestrian crossing the street. Additionally, two streetlights should be located on each side of the road for the same reason. Street lighting increases safety for pedestrians that travel in the evenings.

Estimated Costs:

- Vegetation:
- 10-12' Light Pole with LED Light: \$1,500

Signage

Pedestrian crossing signage needs to be placed on the highway before and after the curb extensions to notify drivers that a pedestrian crossing is coming up. Along with this, changing the speed limit from 40 mph to 35 mph will increase safety for both pedestrians and drivers, while also encouraging travelers to stop and spend money in the community.

Estimated Costs:

- Pedestrian Crossing Sign and Post: \$180 per sign with installation
- Speed Limit Sign: \$100 per sign with installation

Outdoor Spaces

The section of E 10th Street dividing the school playground should be demolished and re-graded. The city of Burke should redevelop the playground area to accommodate for future changes and updates.

Updated playground equipment should be installed in the redeveloped area for the elementary school playground on East 10th Street. A playground complex should be installed as well as a grass field, which could be utilized as a soccer field, kickball, etc. Other amenities such as trashcans, benches, and lighting should be installed.

Housing

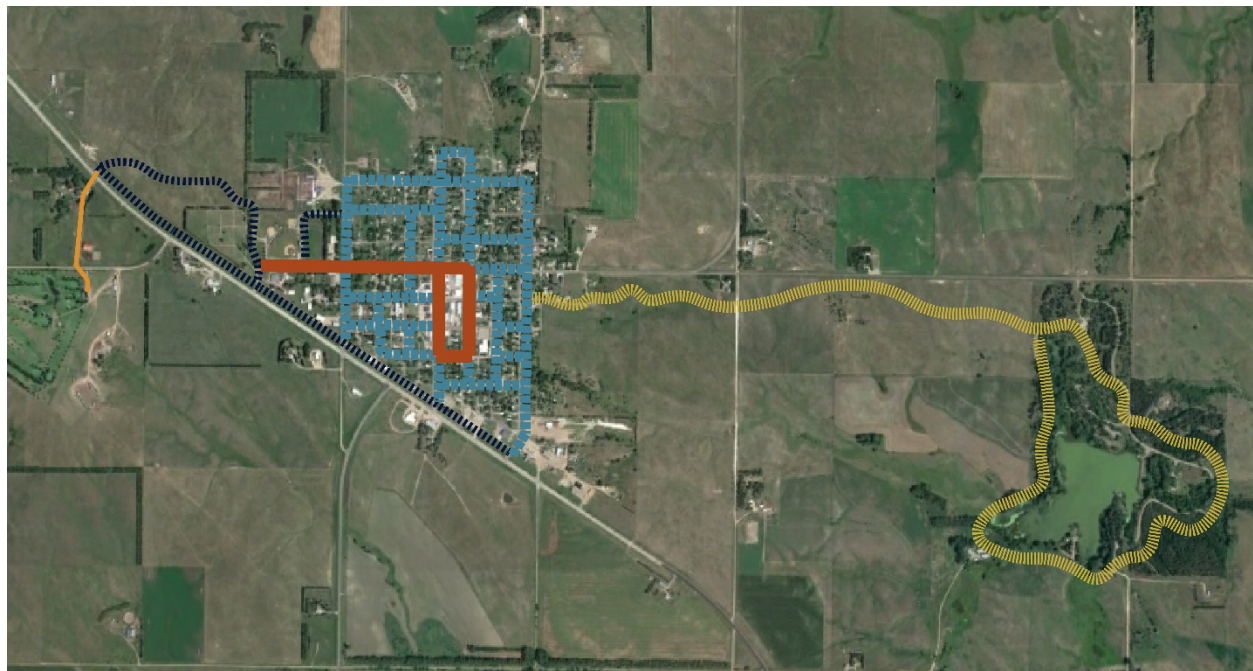
The section of land to the east should include multiple forms of housing. A low-income apartment building/complex should be built. The addition of this extra housing will give more people the opportunity to settle down and become a member the community. Increasing housing in Burke will draw in people and give them the opportunity to stay.

Phase 5 (15-20 years)

Phase	Circulation	Vegetation & Amenities	Ordinances	Signage	Outdoor Spaces	Housing & Zoning
1	X	X	X			
2	X	X		X	X	X
3	X	X			X	
4	X	X		X	X	X
5	X					

Circulation

Burke Lake is located approximately 1.5 miles east of the city of Burke. Burke Lake provides plentiful outdoor activities that all ages can enjoy, such as camping, picnicking, and fishing. It is recommended that the city of Burke attempt to gain control of the land that includes and surrounds Burke Lake. Gaining control of this land will allow the city of Burke to better maintain this area and keep it accessible for all users. In doing this, a bike and pedestrian trail can be installed linking Burke Lake directly to the city of Burke. This would create easy access to the lake and promote its use by the community.



- PHASE 1 SIDEWALKS
- - - - - PHASE 2 SIDEWALKS
- PHASE 3 TRAIL
- PHASE 4 TRAIL
- - - - - PHASE 5 TRAIL

Figure 31: Burke Sidewalk Phase 5

The total distance from the city of Burke to the loop around Burke Lake is about 3.3 miles. The estimated cost is \$1,000,000, including vegetation, amenities, and installation.

Comparison Chart

Although it is recommended that the recommendations are followed in order of phase, the process is fluid and can be altered as needed. For example, if there is an adequate amount of funds to install all phases of signage at the same time, that is okay. Because certain sections of each phase require a significant amount more than others, focusing too much on one phase can cause stagnation. Having a fluid chart helps ensure that there is always progress being made.

Phase	Circulation	Vegetation & Amenities	Ordinances	Signage	Outdoor Spaces	Housing & Zoning
1	X	X	X			
2	X	X		X	X	X
3	X	X			X	
4	X	X		X	X	X
5	X					

Conclusion

The city of Burke is a wonderful community that is full of potential. Implementing these recommendations will encourage this community to thrive for many years to come. Throughout the five phases of this plan, each recommendation works to improve the active transportation potential in the City of Burke. Circulation is the core of this network of recommendations. Adding vegetation, amenities, outdoor spaces, signage, housing opportunities, and enforcing ordinances will increase safety and promote active transportation for the residents of Burke. All these recommendations will build upon the “Small Town Atmosphere” of the City of Burke to create a happy, healthy, and lively community for years to come.

References

1. Custom Bike Racks <https://wyobraskatandem.wordpress.com/current-stats/>
2. Signage Costs
<http://www.safetysign.com>
3. Estimated Bike Rack Cost <https://georgiabikes.org/resources/engineering-for-better-bicycling/cost-of-bicycle-facilities>
4. "Concrete Crack Repair Costs." <https://howmuch.net/costs/sealing-concrete-crack-repair>
5. "Concrete Sidewalk Costs." <https://howmuch.net/costs/sidewalk-concrete-install-build>
6. Pedestrian and Bicycle Information Center. "Curb Extensions."
http://www.pedbikeinfo.org/planning/facilities_crossings_curbextensions.cfm
7. Planting Bed Costs
<http://www.belson.com>
8. Trashcan Costs
<https://trashcansunlimited.com/concrete-receptacles/>
9. Waste Receptacle Information
<https://www.pps.org/article/wastereceptacles>
10. "Marking and Signing Crosswalks." SafeRoutes.
http://guide.saferoutesinfo.org/engineering/marked_crosswalks.cfm
11. "Interpretation Letter 3(09)-24(I) - Application of Colored Pavement."
Federal Highway Administration. U.S. Department of Transportation, Aug. 2013. https://mutcd.fhwa.dot.gov/resources/interpretations/3_09_24.htm
12. U.S. Department of Transportation Federal Highway Administration. "2.4 Maintenance of Crosswalk Markings and Pedestrian signals." Guide for Maintaining Pedestrian Facilities for Enhanced Safety Research Report. Feb. 2013.
https://safety.fhwa.dot.gov/ped_bike/tools_solve/fhwasa13037/research_report/chap2e.cfm
13. "What is Wayfinding." <https://segd.org/what-wayfinding>
14. "Change of Municipal Boundaries."
http://sdlegislature.gov/Statutes/Codified_Laws/DisplayStatute.aspx?Statute=9-4&Type=Statute
15. Street Lights
<https://www.illuminatorwholesaler.com/ecommerce/street-lights.html>

16. Banner Arms
<http://www.hooksandlattice.com/street-pole-banners.html>
17. Planting Support
<http://www.hooksandlattice.com/large-hanging-baskets-1.html>
18. FHWA. "Bicycle Lanes."
https://safety.fhwa.dot.gov/PED_BIKE/univcourse/pdf/swless19.pdf
19. http://www.pedbikeinfo.org/planning/facilities_bike_bikelanes.cfm
20. <https://www.roadtrafficsigns.com/share-the-road-signs>
21. Lowe, Rachael and Lee, Michelle. "Barriers to Physical Activity."
https://www.physio-pedia.com/Barriers_to_Physical_Activity#cite_note-1
22. Aberdeen Parks, Recreation, and Forestry Department. "City of Aberdeen Recreational Trails Master Plan 2010."
<http://www.aberdeen.sd.us/DocumentCenter/View/2759>
23. <http://www.customicerinks.com/plan-FAQ.html>