

An aerial photograph of a rural area in South Dakota, showing a grid of agricultural fields, some roads, and a small town or village in the center. The image is faded and serves as a background for the text.

ACTIVE TRANSPORTATION RECOMMENDATIONS FOR THE CITY OF CROOKS, SD

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

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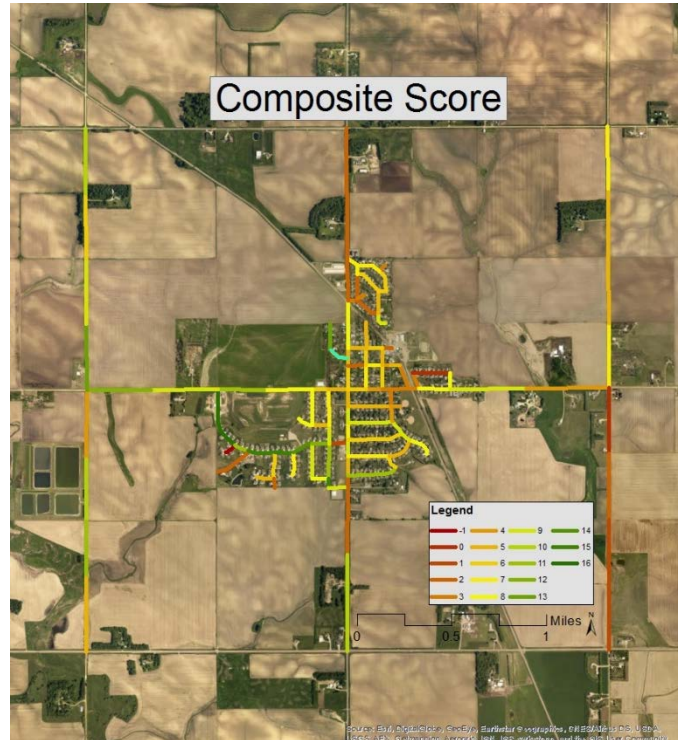
Jamison Rounds, Mayor

Introduction

This booklet represents the culmination of a semester-long study of Crooks, South Dakota, conducted by the third-year students in the Landscape Architecture Program at South Dakota State University, led by Prof. Don Burger. The premise of the study was to evaluate the town of Crooks and to propose recommendations for improving physical activity through active transportation to and within the town.

Essential to the success of the study was the collaborative process involving stakeholders at all levels, including the South Dakota Department of Health, the City of Crooks Mayor's office and City Council, residents of Crooks, and engineering and other professional consultants. These stakeholders were consulted throughout the process, both through formal meetings and informal conversations.

In addition, the SDSU team conducted on-site analyses of Crooks' existing infrastructure, including potential barriers to physical activity. These analyses utilized the Pedestrian Environment Data Scan (PEDS) process developed by Dr. Kelly Clifton at Portland State University, and included a block-by-block walking analysis of all roads and trails in the city. Data from this process were compiled into GIS documents to provide a visual reference of the city's relative walking environment.



This quantitative data, combined with other on-site observations, anecdotal evidence, and additional classroom content throughout the semester, provided the basis for the recommendations that follow. As such, these recommendations represent the students' best possible scenario for the City of Crooks. Some recommendations may be infeasible due to financial or political limitations. Due to the nature of the project and the constraints imposed by the semester timeline, students were unable to consider some of these outside factors.

We would like to recognize Ms. Beth Davis and the South Dakota Department of Health, who provided financial and administrative support for this project. Mayor Jamison Rounds and the members of the Crooks City Council and Crooks Housing Redevelopment Corporation have also been instrumental in providing background data and relevant perspective to the project.

Recommendation: Build and Enhance Active Transportation Infrastructure

Active Transportation

Active transportation is defined as any form of human-powered transportation. The most common types of active transportation are walking and biking, but inline skating, snowshoeing, and cross country skiing also fall in this category. Active transportation is a term used when talking about getting people out of their cars and onto the sidewalks, especially to perform everyday tasks such as shopping, commuting to work or school, or getting to community events. An ideal walking environment encourages use. Strategies include making an attractive and comfortable environment, with interesting building facades, populated storefront windows, plentiful sidewalk activity, and benches, shade trees, drinking fountains, street lighting, flower beds and directional and informational signs to enhance pedestrians' level of physical and cognitive comfort. In addition, there need to be places that people want and need to visit, including schools, shops, parks, and homes. The more of these that exist in relatively close proximity to one another, the greater the likelihood that people will choose to walk to or between them. Finally, there must be a designated network of paths to get safely from one place to the next, including sidewalks, separated street-level travel lanes or stand-alone bike/walking paths. These paths need to be clearly marked and defined, separated as much as possible from automobile traffic, and connected with each other to create a unified approach to non-vehicular travel.

Active Transportation Benefits

Active transportation represents a significant investment on the part of the municipality. Several benefits, at the individual, community and regional levels, contribute to the return on investment. At the level of the individual, active transportation increases physical activity which in turn has numerous health benefits. Adding a few five-minute walks per week can significantly reduce the risk of premature death due to physical inactivity. According to the Ontario College of Family Physiciansⁱ, obesity and physical inactivity are considered risk factors for heart disease, stroke, and other chronic diseases, such as cardiovascular disease, type 2 diabetes, and various cancers. Each additional kilometer walked per day reduces the likelihood of becoming obese by nearly 5%, while each hour per day spent in a car increases the likelihood of becoming obese by 6%. In addition, physical activity contributes to lower stress levelsⁱⁱ, higher worker productivity, a decreased demand on the medical system, and lower employee turnoverⁱⁱⁱ.

At the community scale, active transportation drives economic development, and increases overall community wellbeing. "A 2009 nationwide study by CEOs for Cities^{iv} found that houses

in areas of above-average walking and biking facilities are worth up to \$34,000 (national average) more than similar homes in areas with less supportive active transportation infrastructure”. In addition, local businesses saw an increase in economic growth due to the increased numbers of pedestrians.

At the regional/global level, active transportation decreases air pollution and greenhouse gas emissions and lowers energy consumption due to a decreased dependency on automobiles and gasoline. During a time when global climate change is a serious threat, active transportation can make a difference.

Barriers to Active Transportation

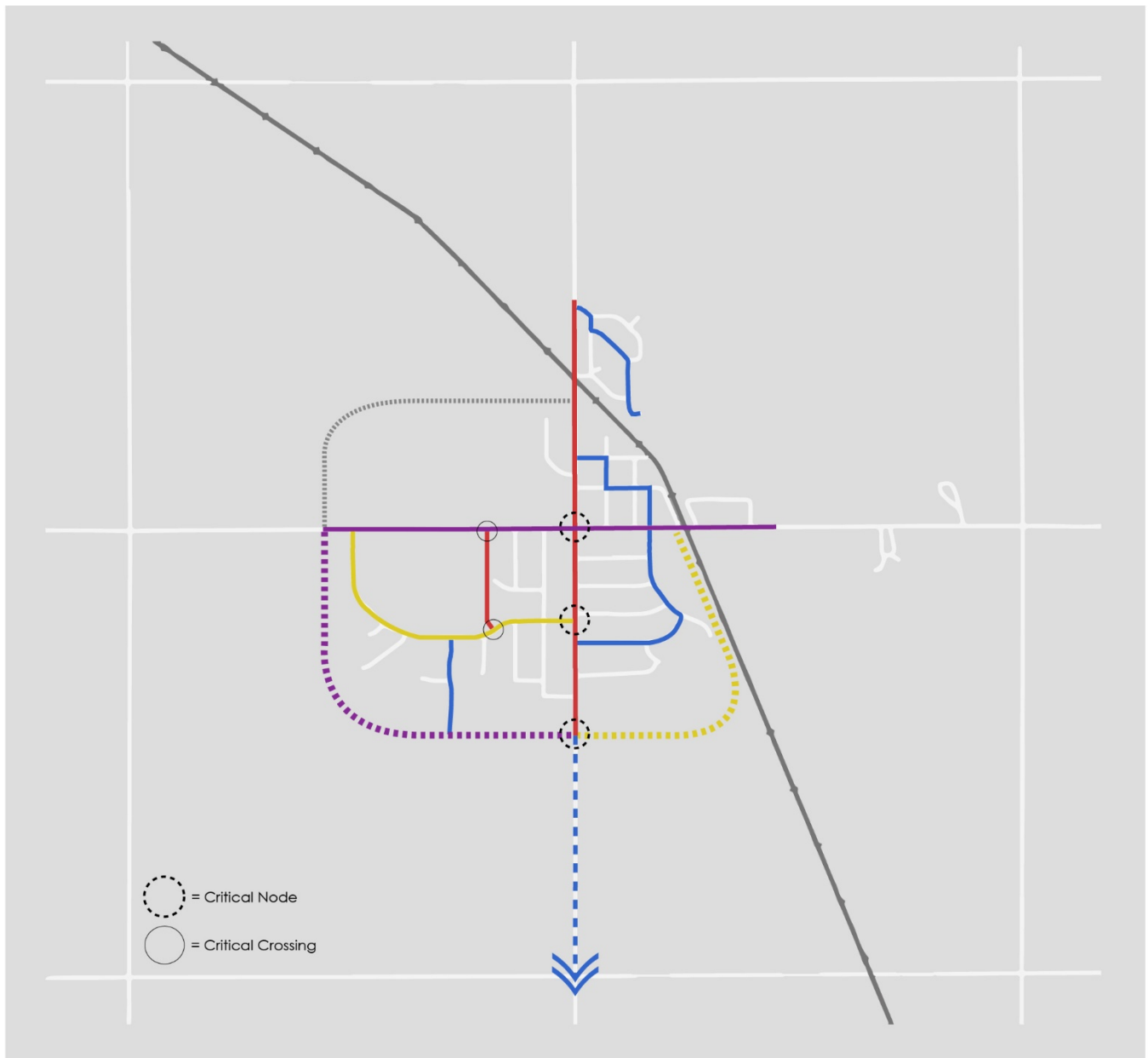
“It takes too long to walk.” “It is too far.” “I’ll get hit by a car.” “Walking takes too much energy.” These are all common excuses people use to justify their decision to drive rather than walk or bike. These barriers to active transportation can be addressed with the proper infrastructure and a gradual shift in mindset.

The Pedestrian Environment in Crooks

Crooks is ideally sized to promote active transportation, with all areas of the city easily within a ten-minute walk. Distance alone, however, is only one factor. On-street assessment data compiled during the course of this project reveal that the pedestrian environment is in need of enhancement. The sidewalk network is incomplete in 75% or more of the city, crosswalks are not identified, and the walking environment is unattractive (insufficient lighting, no benches or other pedestrian amenities, few places to go, see, or be seen). These issues contribute to a built environment that prohibits and discourages use. Implementing proper active transportation infrastructure will alleviate these problems, ultimately making the walking routes more accessible.

Vision for Active Transportation in Crooks

An active transportation master plan has been developed as the vision for future development in Crooks. This network must be safe, enjoyable, and navigable for all users. A sidewalk is not needed on every road, but the proposal identifies the key segments needed to create a basic network. The plan has been broken into phases based on priority and current resources in the city.



Sidewalks and Shared Streets



Bicycle Infrastructure



Figure 2: Crooks Active Transportation Master Plan

Phase One: 1-2 Years

The first phase focuses on Western Avenue, which is the most pressing issue for active transportation in Crooks. Western Avenue is Crooks' primary north-south corridor, and features high traffic volumes and speeds. This makes active transportation in Crooks extremely difficult as well as dangerous.

Establishing a safe route along Western Avenue should be the number one priority for the city. To accomplish this, two general strategies should be employed.

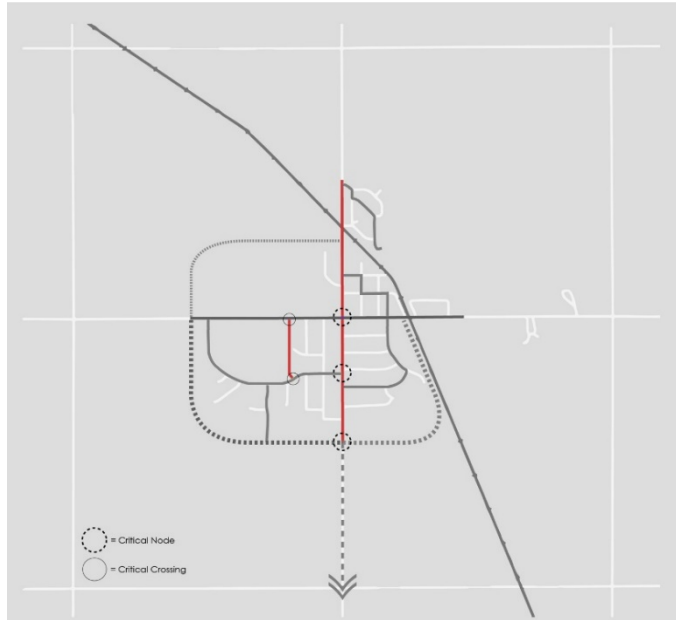


Figure 3: Phase One (1-2 years)

First, a redesign of the intersection of Western and 4th should take place, developing this intersection as the first of several pedestrian “nodes”. Key features of the node are a controlled intersection (four-way stop), colorful flowers and low shrubs, monument and directional signs, and pedestrian crossing aids, including curb bump-outs, signage and crosswalks.

Brookings, SD, has successfully developed nodes on each major intersection of Main Avenue included in the downtown (between the railroad tracks and 6th Street). These nodes have led to slower traffic and a reinvigorated, pedestrian-friendly downtown.

The node at 4th and Western is the most important for the development of a safe walking environment due to its position at the natural heart of the city. 4th is the City's major east-west connector, the only street that continues beyond city limits while maintaining a connection across Western. However, two other intersections are also important and should be developed as nodes in the next five years. These include the intersections of Western and Andrews/7th and Western and 10th.

Second, a cyclist/pedestrian lane should be implemented along the length of Western. The purpose behind a separate lane is to create a safer environment for the people that would otherwise drive on the road without the suggested lane. Bicycle lanes (or cyclist/pedestrian lanes) are located adjacent to motor vehicle travel lanes or parking lanes, flow in the same direction as

motor vehicle traffic, and are typically a minimum of four to six feet wide, although wider lanes (six to ten feet) and/or buffers provide additional operating space and lateral separation from moving and parked vehicles. They are generally designated by a double white stripe, a painted bicycle symbol, a pedestrian walking symbol or signage that alerts all road users that a portion of the roadway is for exclusive use of non-motorized traffic. Colored pavement or a contrasting paving material can also be used to distinguish these lanes from motor vehicle lanes. Buffers between motorized and non-motorized lanes can further be used to visually narrow a wide street, naturally calming traffic.

With a width of 33 feet, Western Avenue is wide enough for two-way motorized traffic and a six-foot multi-directional non-motorized lane (including a barrier). This non-motorized lane will form the backbone of Crooks' active transportation network, calm traffic through town, and improve the in-town experience for residents and visitors alike.

This proposed lane should be implemented immediately. The cost of a five-foot lane can range from \$5,000 to \$535,000 per mile. The proposed lane in Crooks will have a total approximate cost of \$130,000, depending on the extent and type of buffers to be used.

Finally, a pedestrian/bicycle corridor should be established between Andrew Drive and 4th Street, creating a non-motorized extension of Kelsey Circle through Sunset Park. A portion of this recommendation is already under consideration by the City of Crooks with the development of a walking path and footbridges across the small drainage creek that demarcates the boundary between Sunset Park on the south and the CHRC residential development to the immediate north. This link provides access to Sunset Park for residents living in the vicinity of 4th Street.

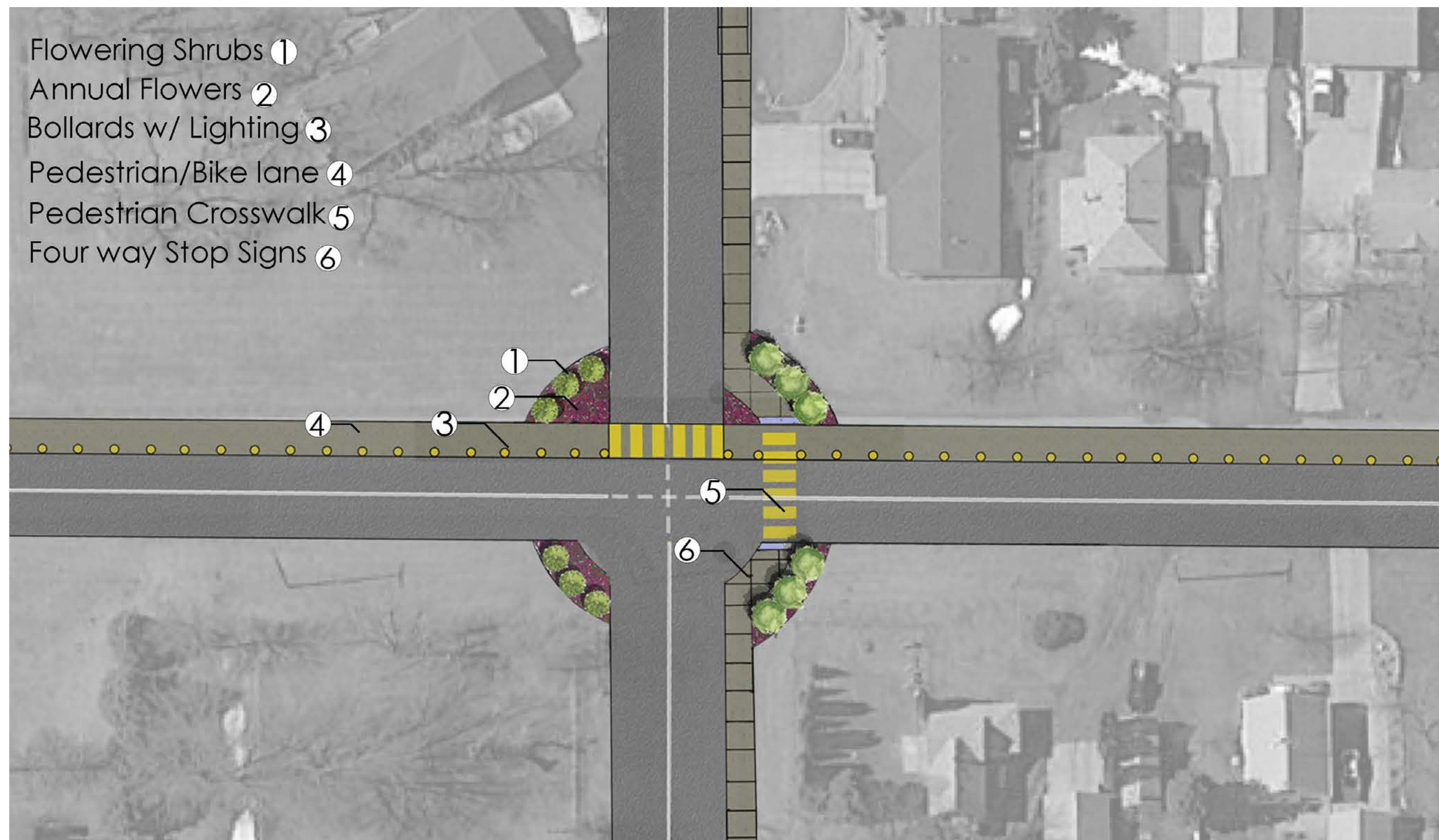


Figure 4: Western and 4th Node

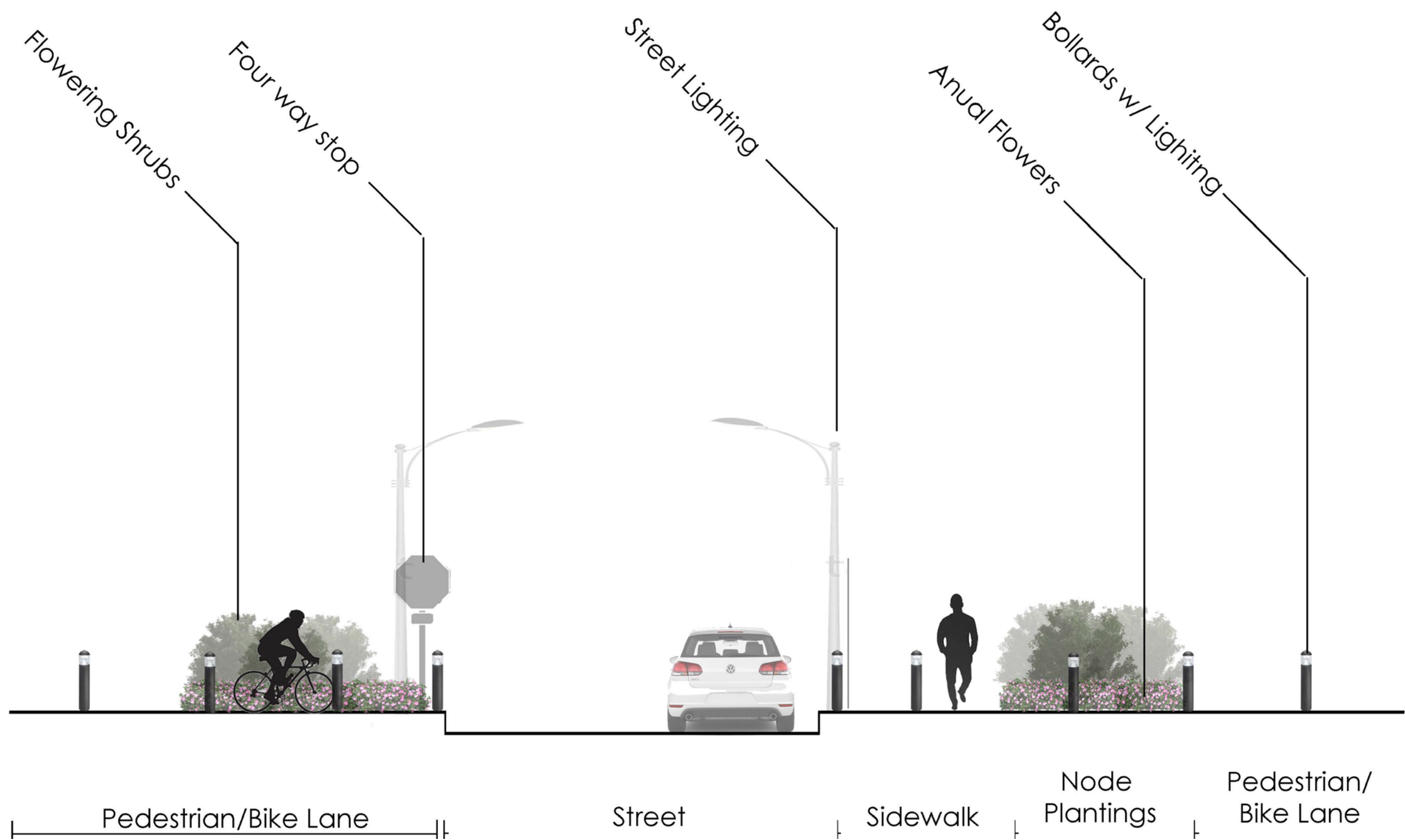


Figure 5: Western and 4th Node (Section View)

Phase Two

The second phase, 2-5 years out, looks to address the east west connection for residents living on the east side of Western Avenue, especially providing safe access to Sunset Park. This phase of construction focuses on completing the node at Western and Andrew/7th and a sidewalk on the south side of Andrew Drive from Western Avenue to 4th Street. This segment is needed as residents who wish to access Sunset Park currently must walk in the street to reach the park from both the East and the West. During the on-site assessments, Andrew Drive was classified as an area that was attractive for walking, yet did not feel safe, largely due to the lack of a sidewalk and the higher traffic flows and speeds. By completing this segment this area will be both attractive and safe for pedestrians.

Furthermore, a crosswalk across Andrew and linking to Sunset Park from the south side of the street is necessary (see Figure 8). This will aid in slowing traffic, give greater visual prominence to pedestrians attempting to cross the street, and provide easier access to Sunset Park and the future development around 4th Street.



Figure 6: Phase Two (2-5 years)



Figure 7: Andrew Drive current condition



Figure 8: Crosswalk on Andrew Drive @ Sunset Park

In addition, during this phase the construction of a bike trail around the city should begin. The first segment of the trail should be located between New Hope Park and the rail road tracks (see Figure 9), within the railroad right-of-way, and should meet up with Western Avenue at the southernmost critical node (10th Street). Keeping the bike trail on the west side of the tracks but within the right-of-way creates easier access to the active transportation network and reduces implementation costs by eliminating expensive level railroad crossings. The railroad has two trains per day traveling through Crooks, making the rail corridor relatively safe and uncongested. A partnership between the City of Crooks and the Burlington Northern/Santa Fe Railroad will be necessary to develop this trail. By locating the bike path in this area, a safe pedestrian walkway will be established that links New Hope Park, as well as residents in the southeast portion of town, to the rest of the active transportation network. A partnership with the railroad company that owns the tracks will need to be established in order to complete the bike path in this location.



Figure 9: Rail right-of-way at New Hope Park

This phase connects both portions of Phase One, connecting a critical node and a critical crossing. By the end of the first two phases the City of Crooks will have established pedestrian routes along Western Avenue and Andrew Drive. The completion of this phase provides safe pedestrian access to the library, community center, Sunset Park, New Hope Park, and Lunch Thyme restaurant.

Phase Three: 5-8 Years

The third phase establishes a prominent east-west connection on 4th Street and further completes the south half of the bike trail around the city. Ideally the construction of this phase would occur simultaneously with the development of the city center concept. Sidewalks and a bike lane should be incorporated when paving the western half of 4th Street (Andrew Street to Eric Avenue). A sidewalk should also be built on the north side of 4th Street between Eric Avenue and Western Avenue, and extending



Figure 10: Phase Three (5-8 Years)

eastward to 5th Avenue on the far east side of the city. This will provide equal access to the active transportation network for community members on both sides of town.

A major goal of this phase is to physically bridge Western Avenue. By the end of Phase Three, all nodes will be implemented and connecting the active transportation network for the majority of the city.

In this phase, the bike path is continued west of Western Avenue. This segment of bike path should be located immediately north of the community center along 10th Street, and then hug the south property lines of the Sunset Park neighborhood district. By locating this segment of bike path here, current and future residents will have access to active transportation.

Phase Four: 8-12 Years

In the fourth phase, on-street biking/ pedestrian lanes - or “sharrows”- are developed to ensure that every resident of Crooks is within 1 block of a safe active transportation route. Along these routes a traditional sidewalk does not make sense due to already slower traffic and existing residential lot lines and setbacks. Residents of Crooks have expressed their comfortability walking on the streets, however, there still needs to be a place for pedestrians to walk without being in danger.

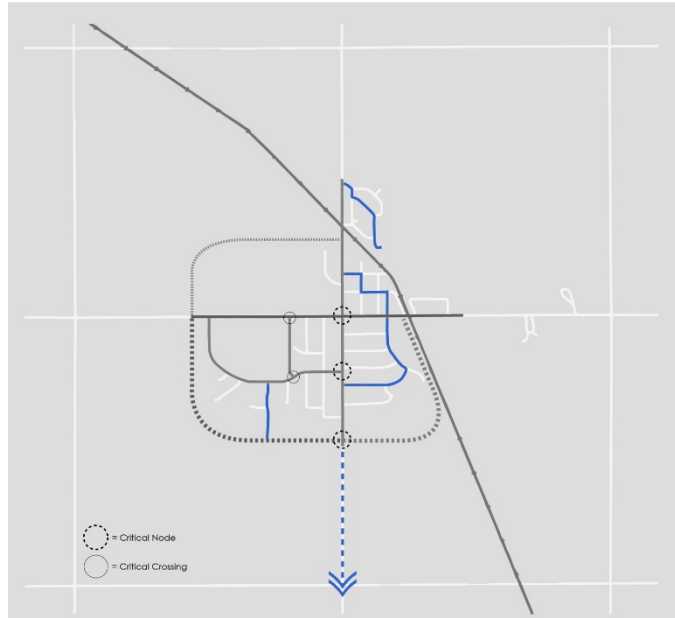


Figure 11: Phase Four (8-12 Years)

To achieve safe active transportation on these routes, on street lanes can be developed to dedicate a portion of the road for pedestrian use. For most residential streets in Crooks the road is 40 feet wide. By mandating that parking only occurs on one side of the road, a dedicated 10-foot pedestrian lane can be striped on the road. This allows for ample room for active transportation, while also providing a separation between vehicular and pedestrian traffic.

In addition to on street pedestrian lanes, this phase also aims to connect the Crooks bike trail to the Sioux Falls bike trail. A partnership with the City of Sioux Falls and Minnehaha County could provide on-street bike lanes from Crooks to the Sioux Falls trail system along 470th Ave (Western Avenue in Crooks) and North 60th Street in Sioux Falls. Two options exist for implementing this proposal: either a reduction in the width of the travel lanes or an expansion of the eastern shoulder. Either would provide adequate space for a 5-foot bike lane.



Figure 12: Connection to Sioux Falls Bike Path

A connection to the Sioux Falls trail would provide access to Sioux Falls workplaces, grocery stores, parks, and higher education. In addition, a connection between the Sioux Falls bike trails and the Crooks loop would make Crooks a destination for cyclists.

A portion of the active transportation master plan not yet talked about is the segment of bike trail in the northwest quadrant of the city. This segment of trail does not specify a specific

location, but rather represents the completion of the bike loop in Crooks. As development occurs in this area, space should be set aside to make sure the bike trail can be completed.



Figure 13: Potential Bike Lane on 470th Avenue

Separating Motorized and Non-Motorized Traffic

On streets where traffic volumes and speeds are the highest, additional physical separation between motorized and non-motorized traffic is necessary to improve safety and usability of the active transportation environment. There are a variety of options for creating this separation; a few of the most feasible are discussed below.

The first option is a 3- or 4-foot flexible reflector stake often used in conjunction with roadside construction. The flexible nature of the paddle does not physically stop an errant vehicle, but still provides a significant visual barrier. This is the most affordable of the available options



Figure 14: Flexible Reflector Stake

(\$200 to \$250 for a ten foot span^v), but it requires more frequent maintenance/replacement and after a few years becomes soiled and unattractive.

The second option is a 4-foot galvanized guard rail fence. This option is more permanent and solid, better at preventing automobiles from crossing into the pedestrian zone. It can be more visually appealing than the reflector stake, but is more difficult to repair or replace when it finally breaks down. It costs \$140 to \$200 per ten feet^{vi}.



Figure 15: Galvanized Steel Barrier

The third option is a 2-foot wooden guard rail fence. Depending on the dimensional lumber used, this option provides the greatest physical protection against automobile intrusion of the three options, but will require periodic maintenance. This option ranges in price from \$275 to \$300 per ten foot section^{vii}, making it the most expensive.



Figure 16: Wooden Traffic Barrier

Recommendation: Implement a Comprehensive Wayfinding System

Wayfinding is a way for people to orient themselves within a space, interpret their surroundings, and navigate within a space^{viii}. Elements of wayfinding can include anything from physical signage to landmarks that allow for a person's sense of place. Street wayfinding is necessary for both motorists and pedestrians to understand their next moves, and to execute these moves successfully within a given environment. Kevin Lynch, an urban planner and author emphasizes the importance of wayfinding and legibility in his work *The Image of the City*; Lynch states, "If the street and building do their job, it is legible. Elements of the street and buildings contribute to understanding the city."^{ix}

Mental images of a city are largely based on the legibility and clarity of paths, edges, districts, nodes, and landmarks -- the five spatial-organizing features that Lynch continually references; wayfinding is much more than a sign on the side of the road that tells you where to go.

Traditionally, towns would rely on multisensory forms of wayfinding – "what they would hear, see, touch, or smell would let them know where they were and where they were going."^x Due to



Figure 17: Example of Wayfinding System Implementation

the vast amount of information that humans are able to process visually, it is important to include traditional forms of wayfinding with modern signage to improve its effectiveness.

A study called Pathways to Better Community Wayfinding found that, “if wayfinding is easy, people are more likely to patronize businesses, visit cultural or entertainment sites, and walk or use public transportation with confidence. Good wayfinding enhances quality of life for individuals and for communities, whether large cities or small towns. It affects how easily and often we travel and how engaged we are with others.”^{xi} For example, even though the residents of Crooks may already know where the city’s parks are located, they may have never even considered walking to them due to a misperception that walking would be more difficult, or that the parks are inaccessible to pedestrians. Proper wayfinding will help residents and visitors alike make informed decisions about appropriate modes of travel to the various destinations Crooks provides.

Entry Wayfinding

Entrance signage into the city helps to create a sense of arrival and welcome. These signs typically feature the city logo or crest, and occasionally the population of the city. Park entrance signage also allows for visitors to know they’ve arrived. These signs often feature bulletin boards for park and city announcements, and provide advertisement and sponsorship opportunities. First impressions of a city are often given by entrance signage, or lack of, and they set the tone for the character of the community.

ENTRANCE SIGNAGE



Figure 18: Examples of entrance signage that should be implemented into Crooks

Directional Wayfinding and Regulatory Signage

Street signage helps motorists and pedestrians to know where features of the city are located, and how to get there. Parks, community centers, libraries, bike routes, and other civic centers are most often featured on these signs. There are also regulatory signs that should be implemented into the Crooks street system. This type of signage includes, but is not limited to, stop signs, yield signs, share the road signs, bike lane signs, and parking indication signs. The city's streets are also the perfect place for street banners. These banners not only add character to the street system but also tie communities together by creating a common unifying aesthetic throughout the city. These banners can be customizable and seasonal, and advertise upcoming or current events happening within the city.

Recreational Wayfinding

Recreational signage within the community allows for motorists and pedestrians to know there is a trail and how to access it. Informational signage on the trail provides history and distances, and mile markers allow for users to have a sense of location while on the trail, while also allowing the users to make informed decisions about how they want to use the trail.

STREET SIGNAGE

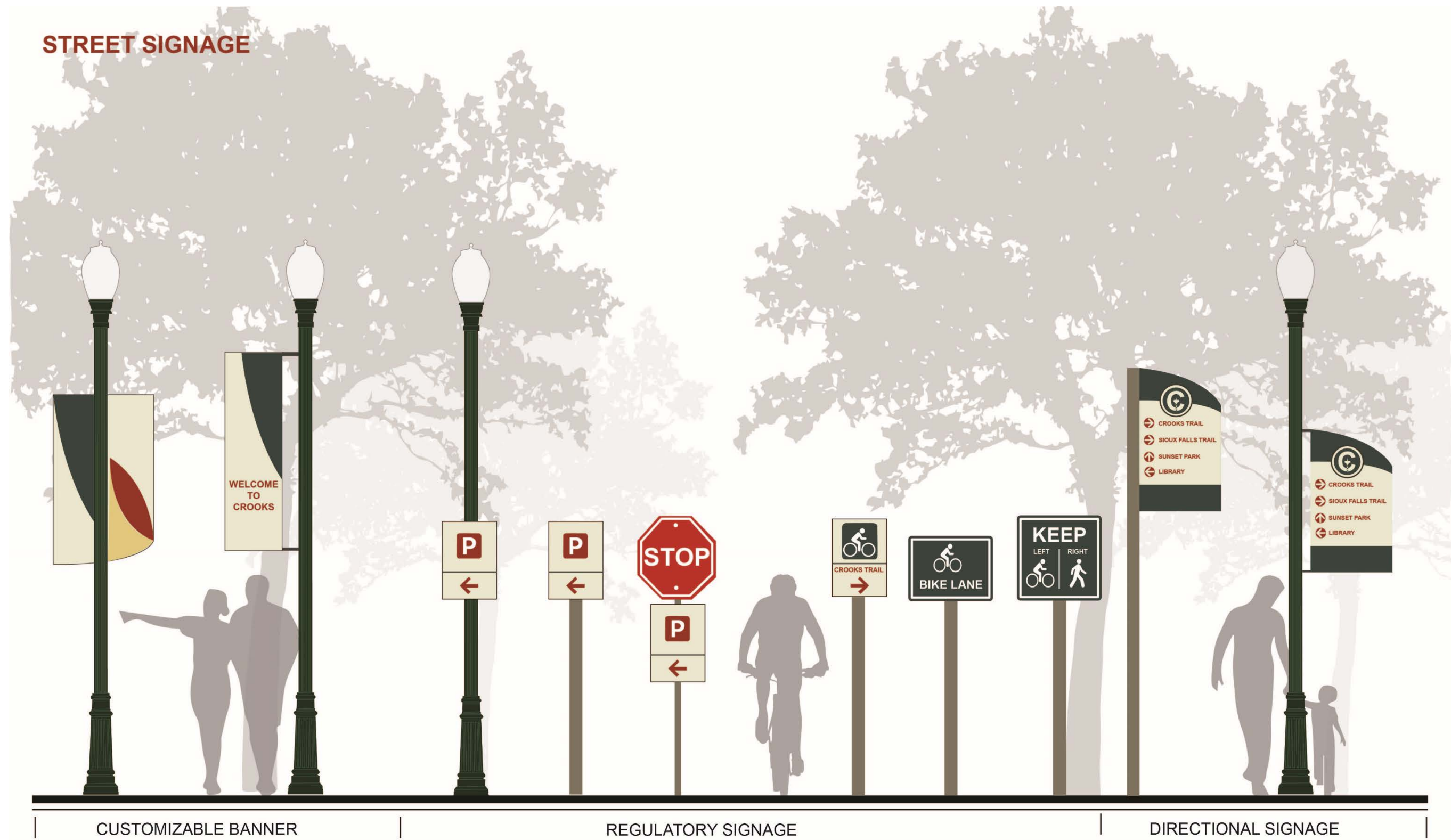


Figure 19: Street-Level Wayfinding System

RECREATIONAL TRAIL SIGNAGE

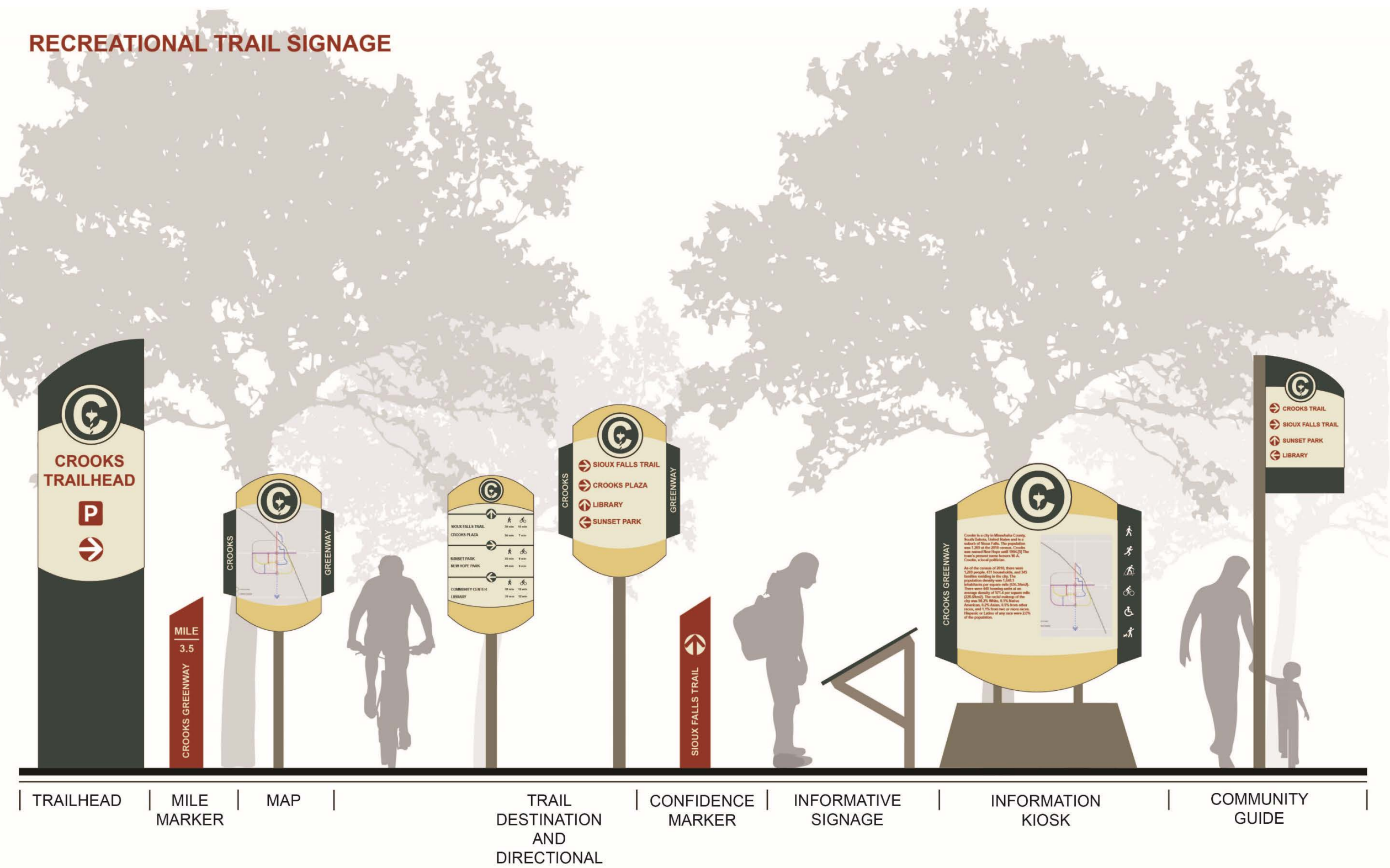


Figure 20: Parks and Recreation Wayfinding System

Other Sensory Forms of Wayfinding

Finally, visual and olfactory cues should be implemented throughout the entire city in order to provide a unique sense of place to the community and to the visitors. Scented flowers, shrubs, and trees provide olfactory cues to the passerby; meaning that “the next time they visit, they will be reminded of being there before and what they were feeling when they were there.”^{xii}

Even when away from the city, as these individuals come in contact with a similar fragrance, they may be reminded of Crooks and particularly the area where they continually had come in contact with that scent. Sense of smell is a powerful way to tie a person to a place, and potentially to bring them back for a visit. Likewise, visual cues should be incorporated within the city to provide a sense of place for the community. These visual cues could be as simple as planting tall boulevard trees along the city streets. Sculpture and public art also play an important role in providing visual cues. Public art along high traffic streets adds character to the city and paints an everlasting picture to visitors and residents alike. These elements attract people and direct them to key locations within the city.

Successful wayfinding signage requires careful planning. When successful, wayfinding creates sense of place, enhances visitor’s experiences, helps visitors find their way, and has positive economic impacts by increasing awareness of the community’s assets. It is important to include wayfinding and signage into the design process to maximize its effectiveness.



Figure 21: Visual Wayfinding



Figure 22: Street Trees Aid in Wayfinding

Recommendation: Update and Complete the Parks System

Parks provide many benefits to a community, including strengthening a community's image and identity, creating a sense of place, promoting healthy living, and improving quality of life^{xiii}.

Crooks presently has three parks that comprise the park system in the city. These are excellent amenities for a city of less than 2,000 people and they provide multiple recreational opportunities. All three parks offer different types of activities and play options that provide a balanced recreational palette. Following is an analysis of each of the three parks, along with recommendations for improving each.

Distances to Parks

A 5- to 10-minute walking radius is generally the limit an individual will walk before they opt to use a car instead. This loosely translates to about $\frac{1}{4}$ of a mile. Therefore, to make cities walkable commodities should be strategically placed throughout the city to make sure that residents are within walking distance from these amenities.

When it comes to the Crooks system, the parks are distributed fairly equally throughout the city (see Figure 20). The red, blue, and yellow circles surrounding the three parks depict the quarter mile distance from the center of the three parks within Crooks. Judging by only this measurement, it appears that almost all residents in Crooks are within walking distance of a park. However, the $\frac{1}{4}$ mile radius circle shows the distance 'as the crow flies' or as a linear route. "Pedestrians tend to utilize sidewalks, whereas a drawing with a $\frac{1}{4}$ mile circle cannot represent this. Major arterials, fences and walls are...commonplace in suburban locations, limiting...walkability".^{xiv}

In order to correct for this measurement error, on-street distance data was also collected using GIS software. Figure 20 also shows on-street distances within $\frac{1}{4}$ mile from each of the three parks main entrances, indicated in yellow for Palmira Park, blue for New Hope Park, and red for Sunset Park. These on-street distance measurements tell a slightly different story than the circles. Here one can see that there is a greater percentage of the community that is outside of the $\frac{1}{4}$ mile range from any of the parks. This is reflectant upon a few circulation issues within the city.

For example, residents on the east side of Western Avenue north of 4th Street but south of the railroad tracks do not have railroad crossings that allow them to get to Palmira Park without having to take a half-mile walk around the tracks. This means that even though these houses are within the $\frac{1}{4}$ mile circle, they are still not within walking distance due to pedestrian scale restraints. Street layouts in other parts of Crooks also make it difficult for residents to reach these

parks in a 5- to 10-minute timeframe. Areas of the city near Sunset Park, for example, are laid out in suburban form and many times do not provide straight routes to the park.

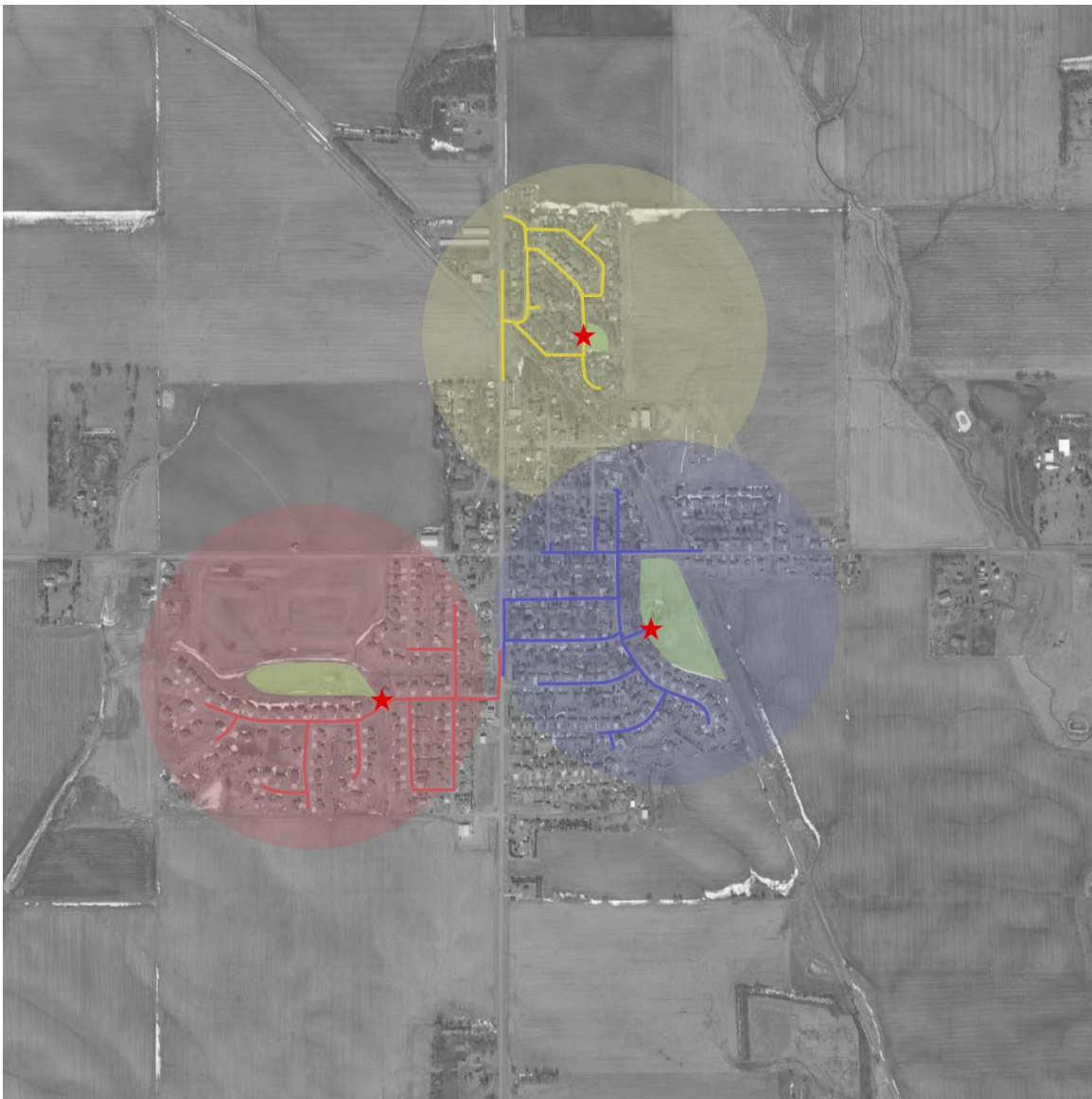
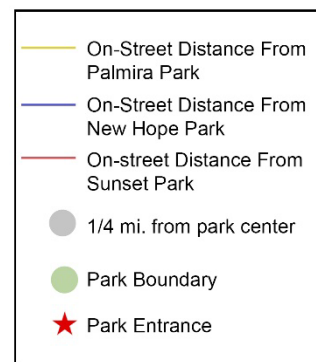


Figure 23: Park Distribution Map with Walking Distances



Individual Parks

Palmira Park

Location: Regal Drive, NE quadrant

Palmira Park offers traditional play equipment, open grassed areas for free play, a baseball diamond, a basketball court, park lighting, a superior picnic shelter, and large, mature shade trees. The location of the park within a residential neighborhood helps to ensure safety and use of the park by the surrounding residents.

Palmira Park Updates:

- Repair or replace the park sign.
This will improve visitors' initial reactions to the park and provide a greater sense of place. This recommendation is of immediate importance, and should be resolved within 1-3 years.
- Reroute the drainage in the park to the edges to mitigate negative erosive influences and improve springtime usage. This should be completed within 3-5 years.
- Update the play equipment to better meet the needs of users.
Check play equipment often for signs of wear and abuse, and fix or replace as appropriate. This can be accomplished within 5-12 years.



Figures 24-26: Palmira Park

New Hope Park

Location: Park Drive, SE quadrant

This is Crooks' largest sports facility, providing a variety of recreational opportunities, including two baseball fields, basketball standard, large shade trees, a restroom facility, parking lot, batting cage, a variety of play equipment, and vast open lawn. The park is surrounded by residential development, creating the potential for a walkable neighborhood park. New Hope Park is the location for summer programming such as T-ball, softball, and baseball tournaments. The park is located adjacent to the BNSF railroad tracks, providing an opportunity for the new bike path.

New Hope Park Updates

- Update the park entry sign. As with Palmira Park, updated signage will improve the sense of welcome and arrival at New Hope Park and will freshen the park's image. This should be accomplished within 1-3 years.
- Provide a planted screen along the fence next to the railroad tracks. This will help to separate the park from the railroad and mitigate noise and other undesirable impacts from passing trains. This should be completed in the next 3-5 years.



Figure 27-29: New Hope Park

- Update the play equipment/facilities in the park. By updating both the play equipment and facilities it adds to the feel of the park. Not only does it create a fresh feel to the park, but it preserves a sense of safety in the park. Of particular importance are the restroom facilities and the parking lot. This should be finished within the next 5-12 years.

Sunset Park

Location: Andrew Drive, southwest quadrant of Crooks

Sunset Park provides a grand, open recreational area in Crooks' newest development. It is surrounded by homes on the south and east, thus secluding the park and making wayfinding difficult for a new user. Sunset Park offers the newest form of play equipment in Crooks, a picnic shelter, basketball court, football/soccer field, and plenty of open lawn. This park offers a wide range of opportunity for the community. The park has the beginnings of a pathway that runs along the south end of the park, which should be extended north to 4th Street (see Active Transportation section).

Sunset Park Updates

- Improve access to Sunset Park. Incorporating an entry sign and crosswalk across Andrew Drive (see Active Transportation section) will help park patrons make the decision to walk or ride to Sunset Park. In addition, connections across the north drainage creek to 4th Street will help residents from both north and south access this facility. This should be completed within the next 1-5 years.



Figure 30-32: Sunset Park

- Plant more shade trees and incorporate ornamental shrubs and flowers. Shade trees serve many functions in a city park. They create natural gathering spaces, help to define subareas within the park, and reduce park noise (from sporting events or concerts, for example) affecting surrounding homes. Ornamental plants contribute to the overall pleasing effect provided in the park and to the wayfinding system described above. This should be accomplished over the next 5-8 years.
- Resolve minor drainage issues. When originally subdivided, the park was artfully and expertly graded to ensure proper drainage. In the years following development, however, the topography has been altered, resulting in storm water pooling in some locations. The original grading should be restored to eliminate these problem locations. The sooner this is done, the better. It is imperative this be addressed within the next 12 years.

Recommendation: Improve Crooks' Sense of Identity by Creating a Community "Heart"

While collecting data for this study, there were several deficiencies that immediately leapt out, including sidewalks, lighting, and access to and amenities within parks. The general lack of active transportation infrastructure throughout the city and the parks system updates have already been addressed. One issue, however, remains.

It is striking that Crooks lacks a definitive sense of identity and place. Most towns in South Dakota have a defining place, such as a school, a church, a courthouse, or even a grocery store or barber shop, where townspeople can mingle, have chance encounters with one another, and otherwise actively or passively interact. Crooks has none of these features. In fact, when asked where the best place to mix and mingle in Crooks was, one resident replied with "Walmart". Grocery stores are often a gathering and meeting place. However, the facility mentioned by the Crooks resident is not even found within city limits, but 5 miles away in the northern part of Sioux Falls. This fact generally defines the current status of Crooks as a place: a small bedroom community completely dependent on Sioux Falls for its survival. As the city matures and comes more into its own, a defining community "heart" must be created. This heart should be a facility that encourages civic pride, naturally promotes further community growth, and attracts small businesses to town.

Creating a town square or heart of the community has been proven to work in other South Dakota communities. The logical location for such an amenity is near the geographical center of a community. In addition, looking at likely circulation patterns, proximity to potential patrons, and future development patterns is necessary.



Figure 33: Harley Davidson Plaza, Sturgis, SD



Figure 34: Main Street Plaza, Rapid City, SD

In Crooks, there are two potential sites. One is farmland immediately southwest of the community center, at the far south edge of town. The other is farmland on either side of West 4th Street, in the northwest quadrant of town.

Both sites have advantages and disadvantages. Part of the property on 4th Street is already being developed, ensuring an influx of families in the next five years, but also limiting some of the options for property development. This site is also more central to the community, enabling it

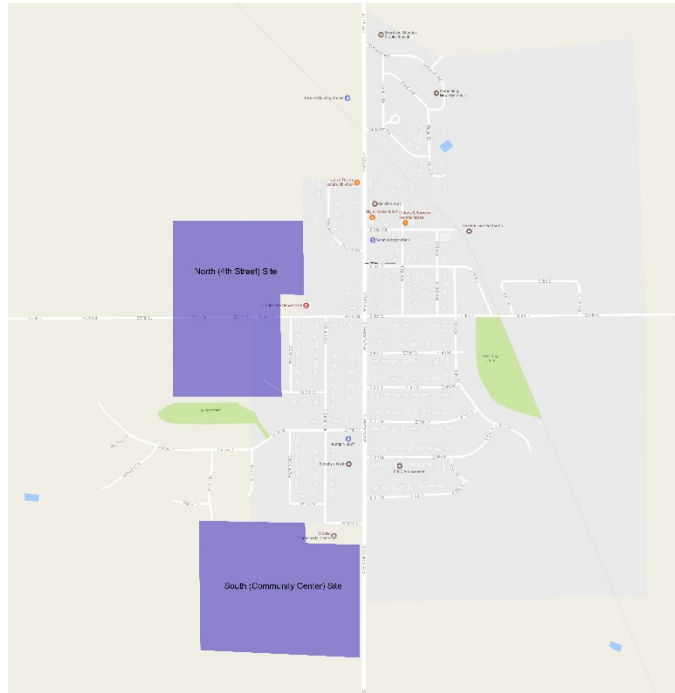


Figure 35: Potential Sites for Crooks Community Heart

to fit within the proposed active transportation network easily and ensuring access to all community members. It lacks frontage on Western Avenue, but has ample frontage along 4th Street, which is poised to become more developed as the major east-west connector in town. Finally, the 4th Street site is easier to incorporate into other infrastructure in the city, including roads, power, water, and sewage, as these connections are ready to be extended into the site already.

The site south of the community center is currently undeveloped and does not have any encumbrances on it, making it more flexible for development. It also creates a southern approach to the community with frontage on Western Avenue. However, development here would create expansion towards Sioux Falls and pull away from the rest of the community. Utilities, including sewer, power and roads, are not as available, and significant earthwork would have to be done to create access off of Western Avenue. Potential safety issues crossing Western Avenue at 10th Street also exist, necessitating the immediate development of the 10th Street node mentioned above.

Given the pros and cons of each site, it is recommended that a community heart be developed around 4th Street. The nature of the community heart is also a question. After looking at all of the options, the easiest and most desirable solution would be the incorporation of a school (either K-5 or K-8) with a small commercial development and public square. The school is a natural choice

due to the unique demographic situation in Crooks: the median age is 32 years old (compared to 39 state-wide) and nearly 35% of the population is under the age of 18 (23% statewide). There is a significant population base for a school. In addition, townspeople can rally around a school, taking pride in the collective achievements of its students and participating in the various concerts and other community events commonly contributed by a resident educational facility. This will contribute to the sense of identity that Crooks currently lacks.

Adjacent uses to a new school include a wellness center, new community library, indoor pool, multi-use indoor sports courts, sports fields, community gardens and playgrounds. By making these parts of the school joint ventures with the community, it will create a connection between the students and residents of Crooks, further embedding the school within the community and sharing costs across both entities. In the provided concept, the school occupies property north of 4th Street, while a new community square and commercial district are positioned immediately south. By creating the school directly across from the town square, it allows for parents and others to occupy themselves while they wait for their kids to get out of school.

The location around 4th Street is key for keeping a connection between the school, town square, Sunset Park, and the rest of town. The goal in creating the heart of the community around 4th Street is to allow for people to walk easily to the town square after a game is over at the school or Sunset Park. When activities are going on at any of the locations, the other locations will also be used during that time. The corridor between the buildings south of 6th Street allows for connection between Sunset Park and the Town Square. The school and town square connect by sidewalks and crosswalks across 4th Street. The three locations each have their own parking areas but they can also work for overflow parking if one of the other spaces is full. All three of the locations have a bike path passing through them to connect the three spaces plus the rest of the community of Crooks.



Figure 36: 4th Street Community Heart Master Plan



Figure 37: Town Square and Commercial Development South of 4th Street



Figure 38: The Heart of Crooks



Figure 39: Arrangement of Uses and Interface between Street and Storefronts

The town square is designed to resonate with the small-town character of Crooks. The shops surrounding the square should mimic the small-town charm of Midwestern communities. Using the charm and character of the shops in downtown Brookings, the Crooks Commercial District should employ brick facades with awnings to create a local shopping and gathering environment. The paving materials in the plaza should reinforce the design as well as accentuate the spaces within the plaza. Changing the paving material from the walking paths to the sitting areas creates the illusion of a change in environment. This would also be implemented in the parking and patio areas of the plaza. The material would have a slight shift but remain at essentially the same grade allowing for an ease of movement from the parking area to the patio area during the farmer market events but retain the illusion of a different area during non-market times. Where the paving areas are expansive in the design, the pavers should be implemented to add character and charm to the hardscape. This could be done through a color change or even a shift in the direction bringing texture to the hardscape.



Figures 40-43: Creating a Unique Community Character

Programming the Plaza

Created for enhancing the “chance encounter”, the plaza provides a place for everyone to gather together for events and activities. Potential events within the plaza include arts festivals, concerts, dances, movies, farmers’ and holiday markets, light festivals, and daily activities including splash pad water play, ice skating, and outdoor dining. Surrounding the town square with small businesses creates a mutually beneficial relationship.

Plantings within the plaza should focus on sensory stimuli, creating an immersive ambiance that encourages repeated visits. A “candy garden” could be incorporated using hyssop (*Agastache sp.*) or spearmint (*Mentha spicata*), for easy maintenance. A more playful sensory garden could include balloon flower (*Platycodon grandiflora*) or pigsqueak (*Bergenia cordifolia*). These plantings could also be used for a school learning activity with kids learning about their senses, or even learning about plants in science.



Figure 44: Sensory Garden

Mixed-Use Residential/Commercial Development

Crooks should implement mixed-use residential/commercial development into the core of the city. As of now Crooks lacks any sort of mixed-use buildings that the community can benefit from. The idea of having residential apartments above commercial real estate has been around for centuries and has proven effective. Mixed use residential commercial not only provides more housing for the town, but it also provides a location for local shops and businesses. Mixed-use buildings also help to generate business downtown due to an embedded resident population.

Crooks is in a need of local shops and businesses to fuel the town. Some of the possible businesses that Crooks could adopt to these mixed use buildings are a café, ice cream and coffee shop, local small town restaurant, hair salon, accounting firm, architecture or engineering firm, or a bar and grill. Other business ideas that are unique and will add to the character of Crooks should be entertained as well.

Residential/Commercial Interface

Embedding a commercial development within an existing residential neighborhood requires careful examination of compatible land uses, and mitigation of potential threats to the existing community fabric. For example, while having a town square and businesses nearby is desirable, improving quality of life for neighbors, some of the proposed uses in the Crooks community “heart”, such as a café or bar and grill, can produce unwanted smells or noise. Creating a carefully designed transitional zone between the commercial and residential land uses is therefore necessary.

There are four main objectives of these transitional zones: visually screen adjacent land uses, reduce noise pollution, combat intrusive odors, and provide a recreational corridor for neighbors and patrons. The proposed zones employ planted earthen berms to meet these objectives. The earthen berm is utilized to create a physical barrier between the two zones and serves as the foundation for the plant material. The vertical aspect of the earth (up to six total feet of elevation change between the road and the top of the berm), along with the trapezoidal cross-sectional shape of the berm, help to deflect noise up and out. The plant material also works to absorb sound and further blocks unwanted views while improving air quality and reducing odors. A combination of evergreen and deciduous trees with understory shrubs is needed to maintain screening year-round. In addition, deciduous plants offer sensory interest throughout the growing season as they flower, leaf, and senesce. Pleasant aromas from flowers and shrubs help to mask smells associated with some of the proposed commercial development.

Planted transitional zones are not limited to a specific size and shape, but rather are adaptable to given site conditions. In some situations, a 6-foot-tall berm with full tree plantings may be appropriate. When less vertical height is needed, a mix of perennials and shrubs is adequate. Height, width, and plant material selected should be based upon the intended purpose of the transitional area.

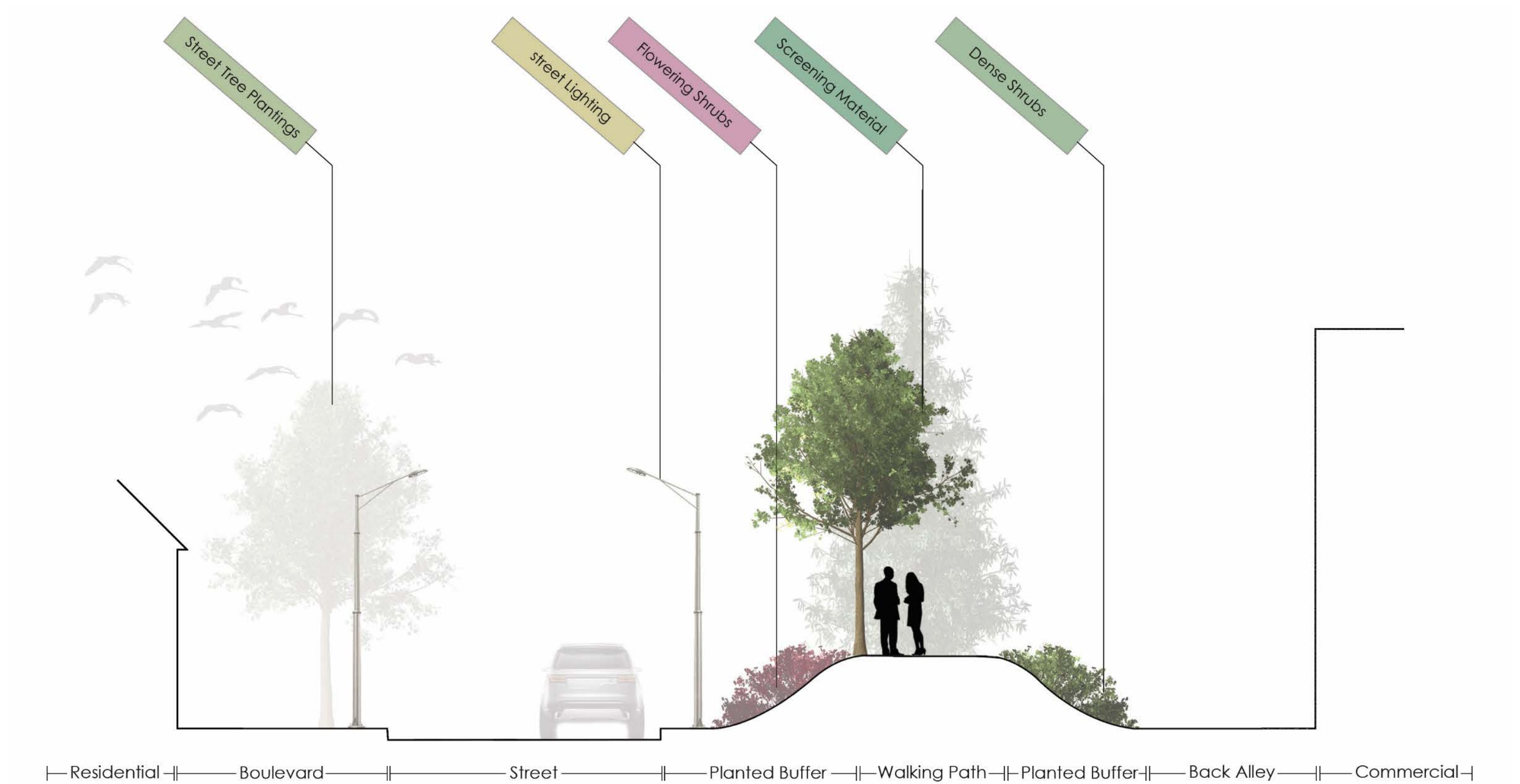


Figure 45: Section View of Planted Berm between Commercial and Residential Properties



Figure 46: View of Planted Berm from Residences, Looking toward Commercial Development

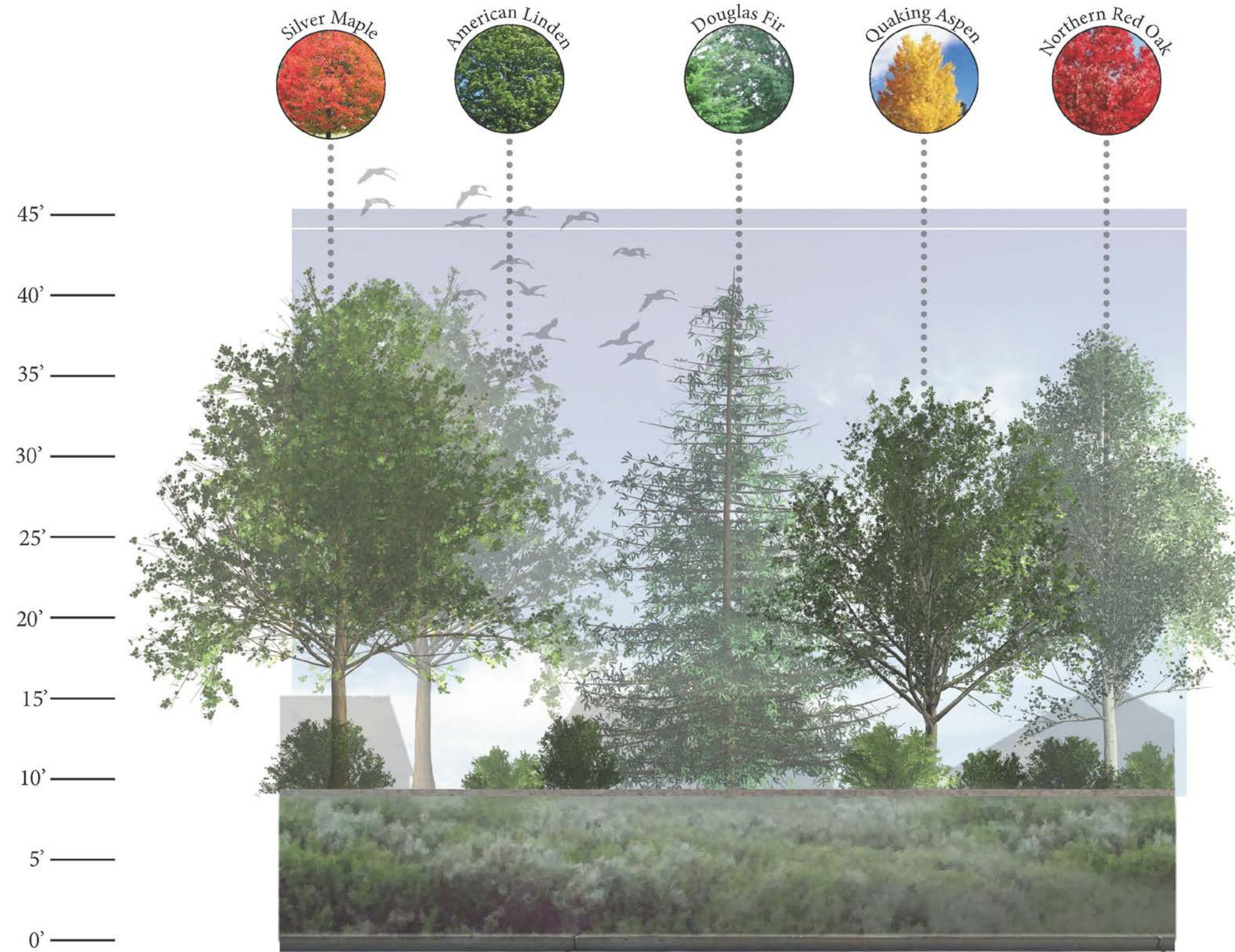


Figure 47: View of Planted Berm (Commercial Side), Looking toward Existing Homes

GRASSES FOR USE IN BERM PLANTINGS

Name	Height	Width	Spring	Fall	Use
Switchgrass	3-5'	1-2'	Green foliage with vibrant seed head	Golden yellow foliage	Screen/color/ wildlife
Prairie dropseed	3-6'	1-3'	Bright green with white seed head	Rustic brown with seed head	Screen/color/ wildlife
Big Bluestem	5-7'	1-2'	Bluish green foliage, brilliant seed head	Reddish foliage, bunchgrass	Screen/color/ wildlife
Indian grass	4-6'	1-2'	Bronze colored seed head	Brownish golden foliage	Screen/color/ wildlife
Blue Grama	1-2'	1-2'	Nice seed head with slender stalks	Rustic brown foliage	Screen/color/ wildlife

TREES FOR USE IN BERM

Name	Height	Width	Spring	Fall	Use
Paper Birch	8-15'	6-12'	Green foliage peeling bark	Yellow orange foliage peeling bark	Screen/color/ Wildlife/shade
Quaking Aspen	25-60'	20-30'	Green foliage white bark	Yellow foliage white bark	Screen/color/ Wildlife/shade
Boxelder	30-60'	30-60'	Dense green foliage	Yellow brown foliage	Screen/color/ Wildlife/shade
Colorado Blue Spruce	30-65'	15-25'	Green	Green	Screen/color/ Wildlife/shade
Eastern Redcedar	40-50'	20-25'	Green	Green	Screen/color/ Wildlife/shade

SHRUBS FOR USE IN BERM

Name	Height	Width	Spring	Fall	Use
Dogwood	7-10'	3-5'	Brownish red stalks	Reddish purple stalks	Screen/color/ Wildlife/scent
Golden Currant	3-6'	1-2'	Yellow foliage	Yellow Gold foliage	Screen/color/ wildlife/scent
False Indigo	8-12'	3-4'	Purple blue foliage	Light purple/green foliage	Screen/color/ wildlife/scent
Western Sand Cherry	3-6'	2-3'	Silver green foliage with fruit	Reddish purple foliage	Screen/color/ wildlife/scent
Nannyberry	10-14'	3-5'	Green foliage with white flowers	Yellow red foliage	Screen/color/ wildlife/scent

Recommendation: Hire a Part-Time Grant Writer

Grants can help to cover some of the costs associated with community development initiatives. Because the grant application process is lengthy and intensive, however, a part-time grant writer is needed. Their job would be to coordinate fundraisers and complete grant applications. The grants that they would be applying for should serve the entire community, including the school district, parks, streets, and infrastructure. This individual should also collaborate with community development specialists and grant specialists at the South Eastern Council of Governments.

The federal government has a number of grants that can help better the community. The salary of this part time employee could be paid with the funds from the grants. Having a part-time employee would save the city money because they wouldn't have to supply a benefits package. Below is just a few of the grants that Crooks could apply for.

- 1) The USDA has a Community Facilities Grant^{xv} that can be used to assist in the development of essential community facilities in rural areas and towns up to 20,000 in population. The funds can be used to construct, enlarge, or improve community facilities for health care, public safety, and community and public services. This would be a good grant to help fund the bump outs and pedestrian crossings. Trying to make Crooks a safer community is important and this is one way to get funding to help complete the steps of making it safer. This grant has \$2 billion in funds available to distribute.
- 2) The Rural Business Enterprise Grant Program^{xvi} through the USDA ranges from \$10,000 to \$500,000 for town and communities. This grant can be used for construction of buildings, access streets, roads, parking areas, and transportation. With the building of a school this grant can be very helpful to Crooks to help put towards funding the school, access roads, and parking areas.
- 3) A smaller grant that is available in South Dakota through the Bush Foundation is the Community Innovation Grant^{xvii}. This grant is available to towns that using creative solutions to community problems. Projects can be at any stage to qualify. This \$500-\$10,000 grant can be used to fund projects that are using innovative ways to help solve issues like water management. Because new buildings produce a lot of runoff from roofs and hardscapes it is important to think about storm water runoff. Taking additional steps to care for the environment is important for the community and wildlife.

4) Grants to US non-profit organizations to support and encourage youth outdoor participation. This grant is up to \$2,500 that would be used to encourage youth outdoor participation. Creating opportunities for the youth to be connected to nature while becoming healthy is a great thing. Because Crooks is a young community it is important to foster a connection between nature and children.

5) Price Estimates

- Amenities

- Benches
 - 4ft Metal- \$400-\$500 each
 - 6ft Metal- \$600-\$750 each
 - Wood- \$400-\$500 each
- Picnic Tables- \$700-\$1000 each
- Metal Trash Receptacles- \$120+ each
- Bike Racks- \$300-\$400 each

- Sign

- Wayfinding- \$3,500 w/ installation
- Crosswalk Marking
 - Inlay Tape- \$100 each
 - Ladder- \$300 each
 - Patterned- \$3000 each
- Pedestrian Crosswalk Sign- \$224.95 each^{xviii}

- Lighting

- Bollards- \$300-\$400 each^{xix}
- Pedestrian Lighting- \$1,500 each
- Street Lighting- \$2,324 each^{xx}

- Paving

- Concrete
 - Large areas- \$4-\$4.50 per sq. ft. (6-in. depth)
 - Sidewalks- \$11 per sq. ft.
 - Curbs- \$15 per linear foot
- Asphalt
 - Sidewalk- \$4.50-\$6.00 per sq. ft.
 - Curbing- \$6-\$7 per linear foot

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- ⁱ <http://www.ocfp.on.ca/docs/committee-documents/urban-sprawl---volume-3---obesity.pdf?sfvrsn>
- ⁱⁱ Wankel, Leonard M. "The importance of enjoyment to adherence and psychological benefits from physical activity." *International Journal of Sport Psychology*. Vol. 24(2): Apr-Jun 1993, 151-169.
- ⁱⁱⁱ Driver, BL; Brown, Perry J; and Peterson, George L (eds). *The Benefits of Leisure*. State College, PA. Venture Publishing. 1991. Print.
- ^{iv} <http://www2.ku.edu/~kutc/pdffiles/KUTC%20Fact%20Sheet%20Benefits%20of%20Rural%20Active%20Transportation%202016.pdf>
- ^v http://www.globalindustrial.com/p/outdoor-grounds-maintenance/parking-lot/traffic-control/surface-mount-flexible-stake-24-in-h-yellow?infoParam.campaignId=T9F&gclid=Cj0KEQjwuOHHBRDmvsHs8PukylQBEiQAiEMW0Cm4Pz_0_gIAxFPqILwdYHmeQiW5GoI-U7ccCSD4TwMaAjVf8P8HAQ
- ^{vi} https://www.alibaba.com/product-detail/Pedestrian-Guardrail_944201302.html
- ^{vii} <http://www.onlinefence.com/wood-styles>
- ^{viii} "What is Wayfinding?" <http://www.umich.edu/~wayfind/supplements/moreinfomain.htm>
- ^{ix} Lynch, Kevin. *The Image of the City*. Cambridge. The MIT Press. 1960. Print
- ^x <http://blog.signsdirect.com/the-four-types-of-wayfinding-signage/>
- ^{xi} <http://www.aarp.org/content/dam/aarp/livable-communities/documents-2014/Pathways%20to%20Better%20Community%20Wayfinding-AARP.pdf>
- ^{xii} <http://www.citylab.com/design/2012/01/surprisingly-complex-art-wayfinding/1088/>
- ^{xiii} National Recreation and Parks Association. "Why Parks and Recreation Are Essential Public Services." Ashburn, VA. 2010. www.nrpa.org.
- ^{xiv} <http://evstudio.com/the-five-minute-walk-calibrated-to-the-pedestrian/>
- ^{xv} <http://reconnectingamerica.org/resource-center/federal-grant-opportunities/>
- ^{xvi} <https://www.rd.usda.gov/programs-services/community-facilities-direct-loan-grant-program>
- ^{xvii} <https://www.bushfoundation.org/grants/community-innovation-grants>
- ^{xviii} <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#tbm=shop&q=crosswalk+lighting>
- ^{xix} <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=bollard+lighting&tbm=shop>
- ^{xx} <https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#tbm=shop&q=street+lighting>