Final Report and Feasibility Study
Avoca, Iowa

Program Partners:

Iowa Department of Transportation
Trees Forever
Iowa State University

Iowa's Living Roadways community visioning

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RDG PLANNING • DESIGN

About RDG Planning & Design

From our newest team members to the founding principals who began their practices in the 1960s, RDG Planning & Design is a multifaceted network of design and planning professionals. Diverse in knowledge and experience, we are united in the pursuit of meaning for our clients and ourselves. Officially formed in 1989 as the Renaissance Design Group Corporation and crafted to bring well established firms together into practice, our two business centers of RDG IA Inc. and RDG Schutte Wilscam Birge, Inc. create one distinct organization with the shared purpose of creating meaning together.

SERVICES:

- Architecture
- Art Studio
- Engineering
- Graphic Design & Multimedia
- Interior Design
- Landscape Architecture
- Lighting Design
- Strategic Facilities Planning
- Sustainability

MARKETS:

- College & University
- Community Planning
- Regional Planning
- Corporate
- Early Learning
- Government
- Healthcare
- K-12 Education
- Parks & Recreation
- Public Safety
- Restoration
- Senior Living
- Sports
- Urban Design
- Worship

CREATE.

Creation is a result of every interaction with our clients and those they serve. Ultimately, we help create lasting relationships between people and the places they live and love.

MEANING.

We find meaning in relationships, and in people and the deep connections they have to their environments. When we find meaning, we achieve a deeper understanding of how to create the very best spaces to work, live, and play.

TOGETHER.

The most important member of our team is you. You know your needs better than anyone else, and you're the advocate for the effort because you'll love and care for your space long after we celebrate its completion.

Over fifty years of dedication to success have taken us around the world. Today, our commitment to communication and technology allows us to engage our clients anywhere they may be from our offices in Omaha, Nebraska; Des Moines, Iowa City, and Dubuque, Iowa; St Louis, Missouri; and Ft. Myers, Florida. We're free from boundaries and able to work on a regional, national, or global scale. Our interdisciplinary approach allows us to integrate our broad areas of expertise and apply the right team members to any given endeavor.

171 EMPLOYEES | **72** LICENSED PROFESSIONALS | **34** LEED APS | **75%** OF STAFF ARE STOCKHOLDERS

Program Overview

Avoca is one of 10 communities selected to participate in the 2020 Iowa's Living Roadways Community Visioning Program. The program, which selects communities through a competitive application process, provides professional planning and design assistance along transportation corridors to small Iowa communities (populations of fewer than 10,000).

Goals for the Visioning Program include:
- Developing a conceptual plan and implementation strategies with local communities
- Enhancing the natural, cultural, and visual resources of communities
- Assisting local communities in using external funds as leverage for transportation corridor enhancement

Each visioning community works through a planning process consisting of four phases of concept development:
1. Program initiation
2. Needs assessment and goal setting
3. Development of a concept plan
4. Implementation and sustained action

Capturing the Avoca Vision

Based on the needs and desires of the local residents, as well as a detailed inventory of community resources, the design team developed a conceptual transportation enhancement plan. This plan, as well as the inventory information, is illustrated in the following set of presentation boards. These boards include the Program Overview, Local Geography, Bioregional Assessment, Transportation Assets and Barriers Assessment, Transportation Behavior and Needs Assessment, Transportation Inventory and Analysis, Concept Overview, and Community Design Boards.

Each visioning community is represented by a steering committee of local residents and stakeholders who take part in a series of meetings that are facilitated by field coordinators from Trees Forever. Iowa State University organizes design interns, and ISU faculty and staff. The program is sponsored by the Iowa Department of Transportation. This year, the typical Community Visioning process was changed due to the COVID-19 pandemic. Meetings were conducted virtually, and the in-person presentations were held outdoors with masks and appropriate social distancing.

Community Goals

The Avoca visioning committee identified a number of goals and priority areas during the visioning process, which are included below:
- Pedestrian Safety
- Downtown Development
- Trail Improvements

Touring Avoca prior to the design workshop

On-site collaboration of the design team prior to the design workshop

Presentation of ideas at the design workshop

Residents reviewing designs on kiosks in town

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- Program Overview
- Local Geography
- Bioregional Assessment
- Transportation Assets and Barriers Assessment
- Transportation Behavior and Needs Assessment
- Transportation Inventory and Analysis
- Concept Overview
- Walnut St. & Crocker St.
- Former Grain Elevator Site
- Former School Site
- Mez Buttermilk Flat Park
- Edgington Memorial Park
- G18 Water Access
- Library Activity Trail

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Final presentation of designs in Avoca

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Avoca
Program Overview

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Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Bioregional Assessment

Settlement Patterns

This board uses a map from *A.T. Andreas' Illustrated Historical Atlas of the State of Iowa, 1875* overlaid with present-day town boundaries and water bodies. Published in 1875, Andreas' Atlas is an extraordinary resource showing the post-Civil War landscape of Iowa, including settlement features (towns and villages, churches, schools, roads, railroads, etc.) and landscape features (water bodies, vegetated patches such as timber and swamp, and major topographic features). A high-quality scan of the Atlas has been arranged to correspond closely with present-day map, revealing major landscape changes as well as features that have persisted, such as railroad rights-of-way and in some cases remnant vegetation patches.

Avoca in Context

Compare the 1875 boundaries of your town to the current boundaries. How much has your town grown?

Compare the course of the rivers in 1875 to their current course. Are there major changes in alignment or location? Are there vegetation patches shown in the 1875 map still in existence?

Map Source: Iowa Department of Natural Resources, "Natural Resources Geographic Information Systems Library," http://www.igsb.uiowa.edu/nrgislibx/

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Avoca
Historical Settlement Patterns

Bioregional Context
Julia Badenhope, Clare Kiboko, Parmiss Sazgar, Carissa Shoemaker
Iowa State University | Trees Forever | Iowa Department of Transportation

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Historical Vegetation

The vegetation information shown here is derived from township maps made by the General Land Office (GLO) surveys beginning in 1836 through 1859. This information was digitized in 1996 as a resource for natural resource management and is useful "...for the study of long term ecological processes and as baseline data for the study of present day communities."[1]

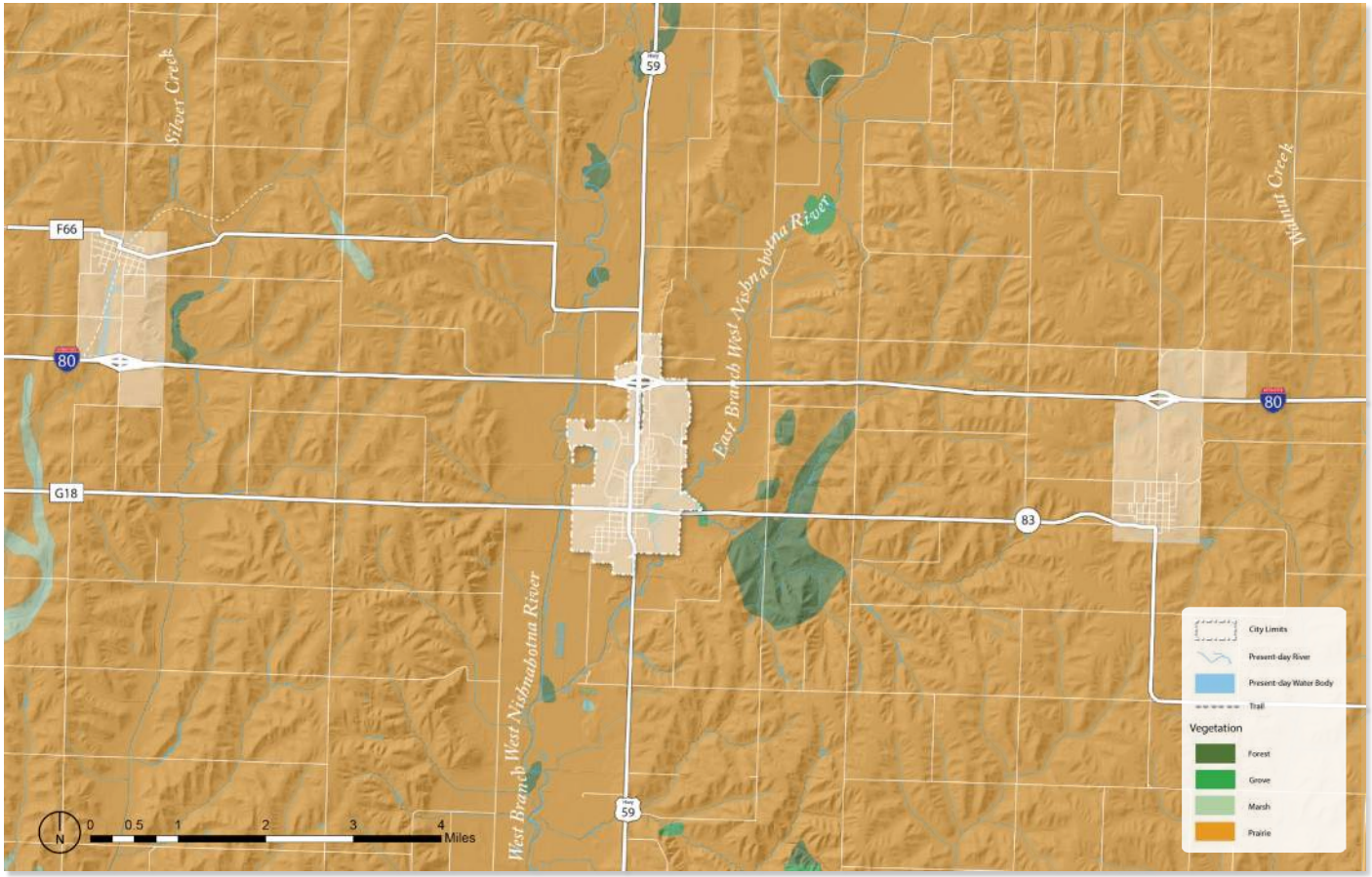
The plant community names mapped by the GLO surveyors varied. The original terminology they used has been preserved in the original data, but we have renamed them on this map to reflect names used to describe contemporary vegetation communities.

Not all communities will have all vegetation types, because various conditions that affect vegetation—such as geology, wind exposure, seasonally high water or groundwater, and frequency of fire—differ from place to place. Early land surveyors mapped the following vegetation types, some of which may not be present in the vicinity of your community:

The vegetation types are defined[1]:

1. Forest : Tree dominated, with a mostly closed canopy. Ground vegetation shade tolerant. developed under infrequent fire.
2. Grove: Isolated, relatively small, dense stand of small trees.
3. Marsh: Perennial non-woody plants; water and fire dominated.
4. Prairie: Perennial non-woody plants; fire dominated.

1 J.E. Ebinger, "Presettlement Vegetation of Coles County, Illinois," Transactions of the Illinois Academy of Science (1987): 15-24, quoted in Michael Charles Miller, "Analysis of historic vegetation patterns in Iowa using Government Land Office surveys and a Geographic Information System" (master's thesis, Iowa State University, 1995), 8.



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Historical Vegetation

Bioregional Context
Julia Badenhope, Clare Kiboko, Parmiss Sazgar, Carissa Shoemaker

Iowa State University | Trees Forever | Iowa Department of Transportation

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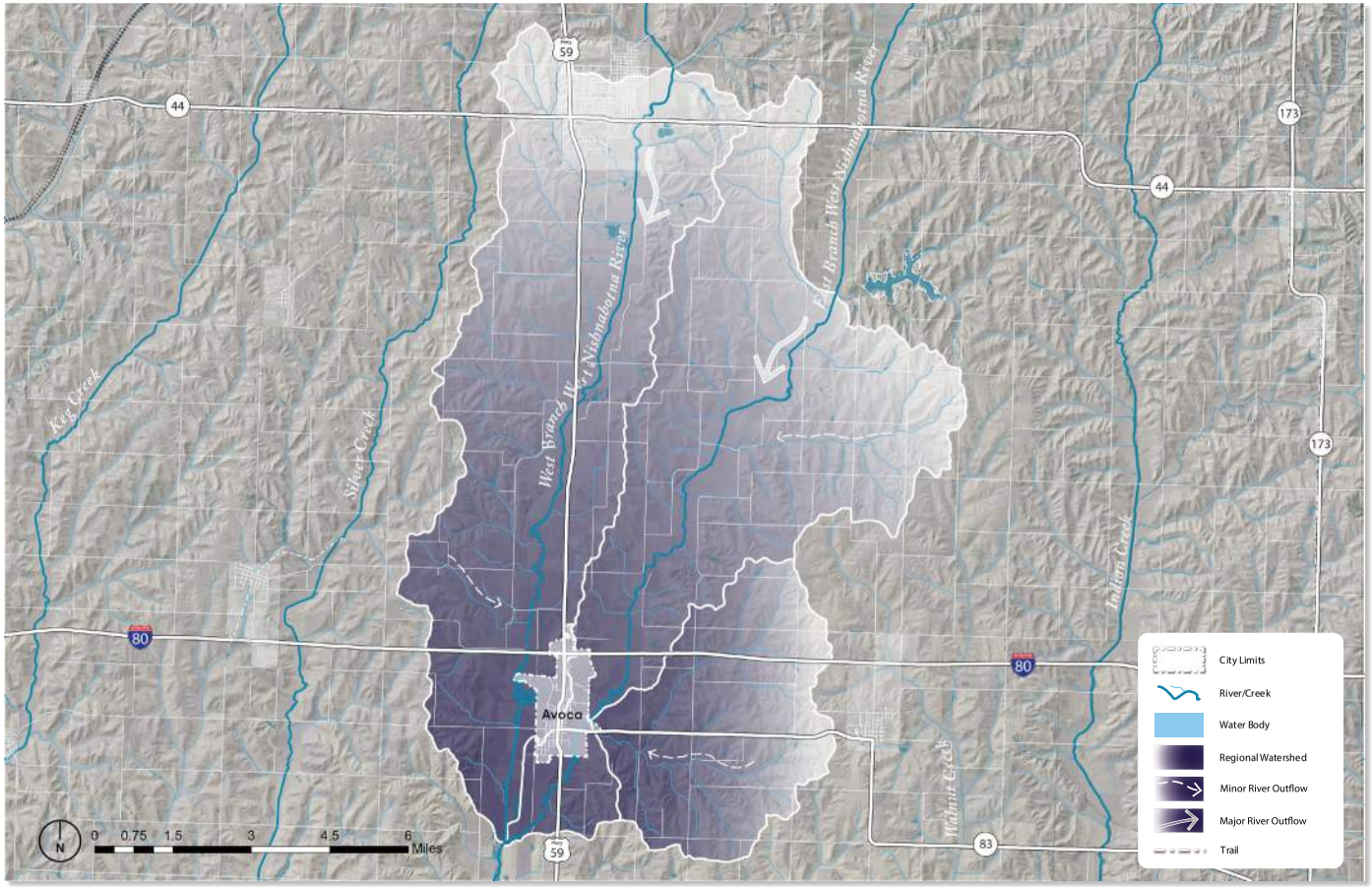
Regional Watershed

A watershed is a defined area or ridge of land with a boundary that separates waters flowing to different rivers, creeks, or basins. Watershed boundaries show the extent of a drainage area flowing to a single outlet point and determine whether precipitation is directed into one watershed or an adjacent watershed.

It is important to note that there are multiple levels of watersheds; for instance, the Iowa River watershed is composed of a dozen smaller watersheds, and the Iowa River watershed is a sub-basin of the Mississippi River watershed.

Where a community is located in relation to its surrounding watershed(s) determines its capacity to manage regional watershed issues such as flooding. For example, a community located near the end of a watershed (close to the outlet point) will have little capacity to reduce the amount of water draining toward it from upland areas.



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Regional Watershed

Bioregional Context

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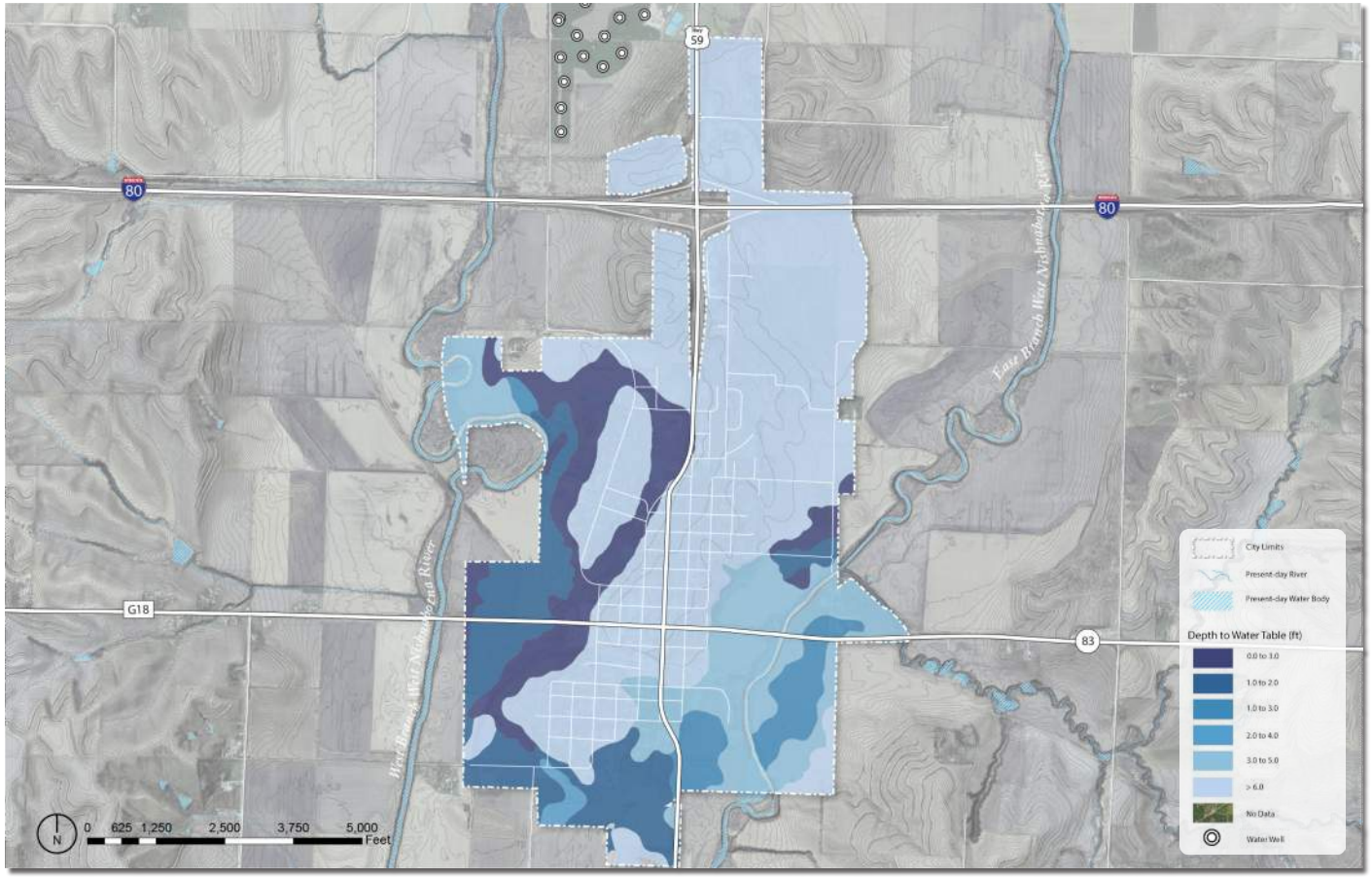
Depth to Water Table

The water table is defined as the distance below the surface at which the ground is saturated with water. Depth to water table is represented as a range because it varies due to seasonal changes and precipitation volumes. For example, following spring snowmelt, an area with a depth to water table ranging from one foot to three feet is likely to be at or near one-foot depth.

The map shows how close to the surface groundwater can be. Pavement and foundations are affected by groundwater near the surface. Freezing and thawing and upward pressure of rising groundwater can cause cracks or "frost boils" in pavement. Foundations can be wet and require "dewatering," which can be expensive.

Where the value is less than zero feet, water can well up out of the ground. This causes localized flooding, even if there is no surface water draining to the area.



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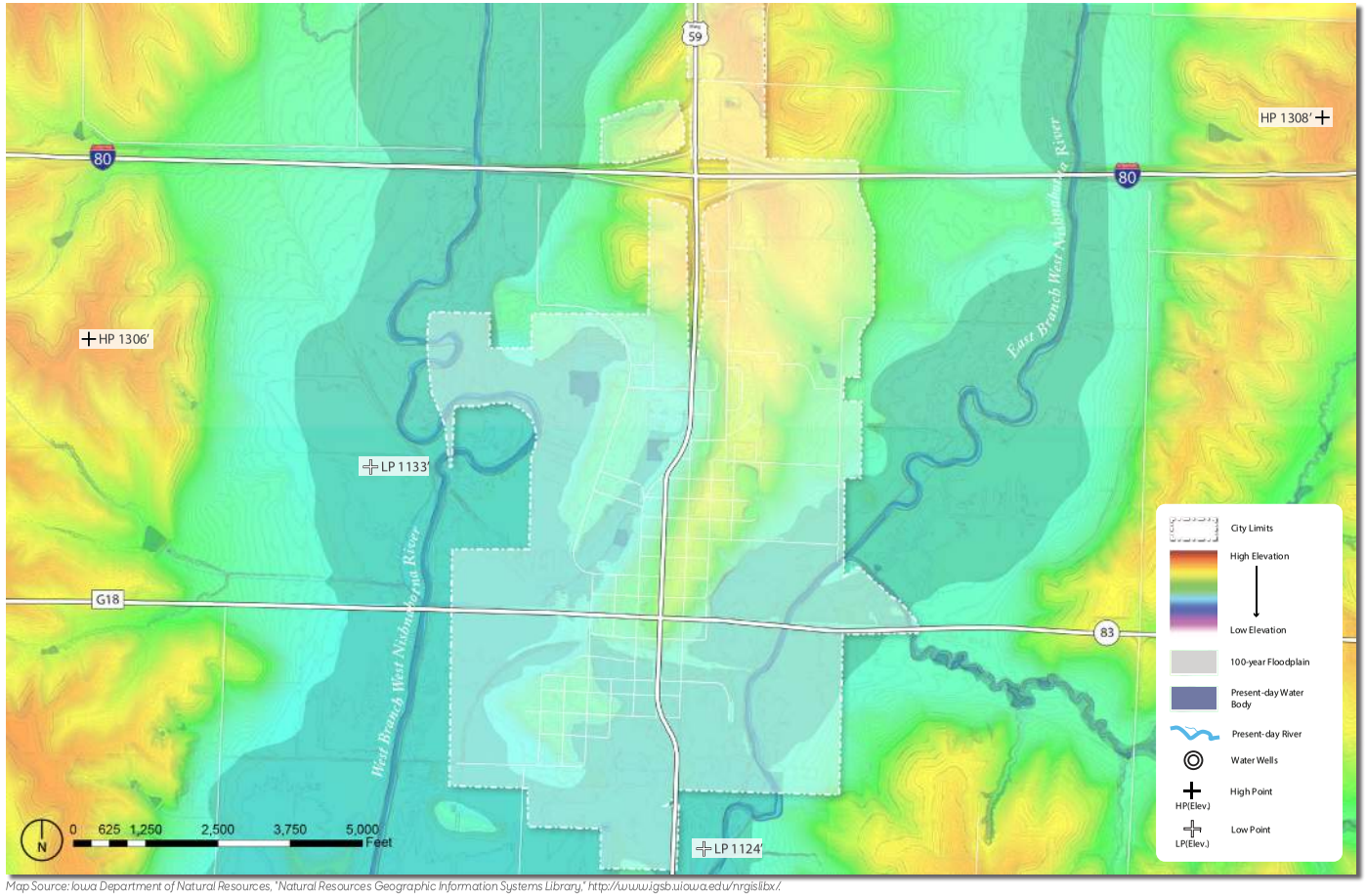
Elevation and Flow

This map displays topographic differences in elevation using a combination of contour lines and the color gradient depicted in the legend. The high and low points have also been located. Note the relationship of your community to the surrounding elevation. Is it located in a valley or on high ground, or is it split between the two?

If your community lies within or near a floodplain or floodway, the map reflects these features. Not all communities will have these elements; if they are absent on this map, none are present.

Flood risk is correlated to low-lying land. This map shows your community's flood risk as defined by the Federal Emergency Management Agency (FEMA) Flood Map Service Center. The map shows the two most important flood zones if present: the Base Flood and the Regulatory Floodway (consult legend). Base Flood is the zone having a 1% chance of being equaled or exceeded in any given year, also referred to as the "100-year floodplain." The Regulatory Floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% flood discharge can be accommodated without increasing the base flood elevation.



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Elevation and Flow

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Iowa's Living Roadways community visioning

Present-day Land Cover

The land-cover map depicts both natural and man-made land cover types with aerial imagery. The Iowa DNR created 15 unique classes for this dataset to differentiate land covers. Refer to the legend for a breakdown of land-cover types within your community boundaries.

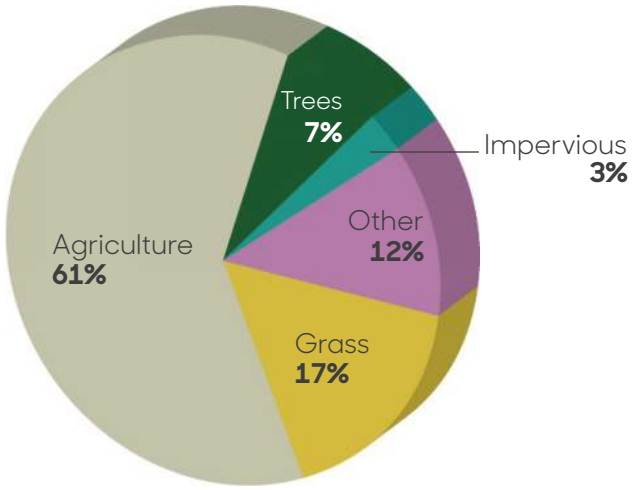
What do you observe about the dominant landcover types in your community?

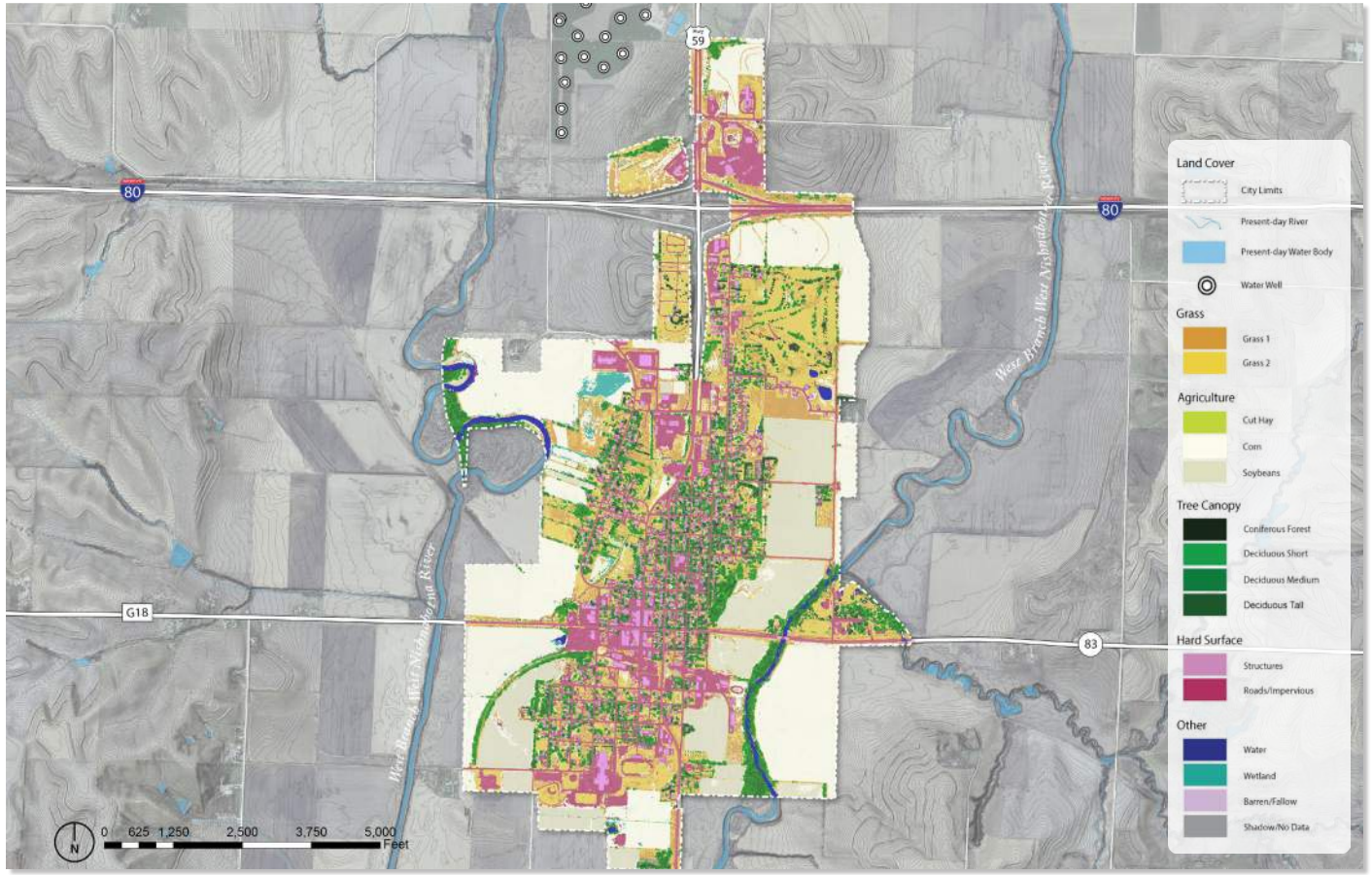
Where is the tree canopy most concentrated?

Look at how much of your community consists of impervious surfaces (e.g., parking lots, roads, buildings) compared to the other surfaces (e.g, water, grass, and agriculture). What does this mean for surface-water movement?

Tree cover affects microclimate. Are places surrounded by canopy more pleasant in the summer? How do these places feel in the winter?

Percent Land Cover Type





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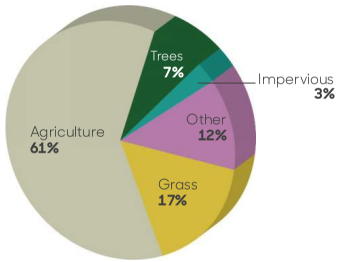

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Present-day Land Cover

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Present-day Vegetation

This map shows the present-day vegetation in an aerial image, indicating where trees, shrubs, and other plants create shade, line streets, buffer edges, and provide other services.

Notice how much the vegetation has been altered since government land office surveyors mapped the historic vegetation. People alter vegetation to produce crops and provide shelter, and for other amenities.

Also notice how the community and its vegetation have changed since the Andreas' Atlas was drawn. Development typically removes vegetation where infrastructure is built, and then re-introduces vegetation for its functional and amenity value.

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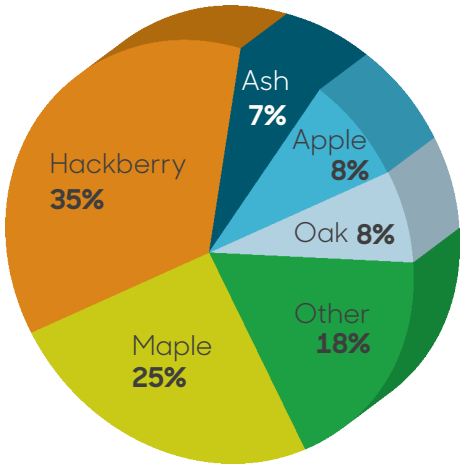
Urban Forest

This map depicts city-owned trees that were surveyed by the Iowa Department of Natural Resources (Iowa DNR) in 2013.1[1] The trees are divided into three categories: healthy trees, hazard trees, and ash trees.

A yellow triangle indicates a hazard tree. The hazard designation reflects tree condition using the Iowa DNR's priority rating. Hazard trees are "dangerous, dead, or dying, and no amount of maintenance will increase longevity or safety;" or are infected by "insects, pathogens, or parasites."

A purple cross indicates an ash tree. They are under imminent threat from the Emerald Ash Borer (EAB), an invasive beetle that disrupts circulation in the tree resulting in the loss of tens of millions of ash trees in North America.2[2] EAB was first discovered in Iowa in 2010 and was confirmed in 66 Iowa counties as of 2019.3[3]

The graph shows how many of the city's trees are of the same species. There is a strong possibility that 7% (ash trees) of Avoca's city-owned trees will die once EAB reaches the area. With proper planning and management, the city can improve its canopy by planting suitable trees to gradually replace hazard and ash trees. Improving species diversity will create a more resilient urban forest.



1 Iowa Department of Natural Resources Community Tree Inventories, http://www.iowadnr.gov/Conservation/Forestry/Urban-Forestry/Community-Tree-Inventories.

2 Emerald Ash Borer the Green Menace, USDA Program Aid No. 1769, 2008, https://www.aphis.usda.gov publications/plant_health/content/printable_version/EAB-GreenMenace-reprint June09.pdf.

3 "Iowa Tree Pests," Entomology and Plant Science Bureau of the Iowa Department of Agriculture and Land Stewardship (IDALS), accessed August 12, 2019, http://www.iowatreepests.com/eab_locations.html.

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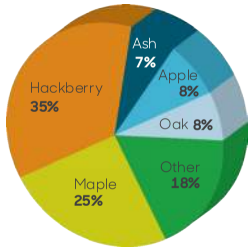

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Urban Forest

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Iowa's Living Roadways community visioning

Transportation Behaviors and Needs

Overview

The survey gives the visioning steering committee objective, representative information for the goal-setting phase of community visioning. The quantitative data collected from survey responses complements the qualitative information gathered from the focus groups at the transportation assets and barriers workshop.

The modes of transportation that residents use and the routes they take suggest suitable types of transportation enhancements in these areas. Having a sense for people's willingness to help either financially or with their time is important because many transportation enhancements are funded from multiple sources, including grants, private donations, in-kind contributions, and volunteers. Understanding what types of improvements are important to residents gives the committee insight into how to prioritize projects.

With assistance from Iowa State University's Survey Research Services staff in the Center for Survey Statistics and Methodology (CSSM-SRS), ISU visioning program staff conducted a survey to better understand the transportation patterns and behaviors, needs and desires of Avoca residents. Surveys were mailed to 400 randomly selected residents living in Avoca and the surrounding area. To increase the response rate, the study was publicized through the local media and follow-up packets were mailed to nonrespondents. With adjustments for ineligible respondents (e.g., incorrect addresses, no longer living in the community), the final sample size was 262. A total of 110 people returned surveys, for a response rate of 41.9%. (A response rate of 20% is considered valid.)

We asked survey recipients what routes they used most often for going to work, walking, and biking. We also asked whether or not residents would like a recreation trail and where they think it should be. We also discovered what residents think is most important in terms of transportation enhancements that address issues such as accessibility, mobility, and safety. Finally, we learned whether or not residents are willing to contribute their time or their financial resources to making enhancements to Avoca. This series of boards summarizes the results of the survey as follows:

- Willingness to Help
- Enhancement Priorities
- Commuting Routes
- Walking Routes
- Desired Features

Why Do A Survey?

The survey gives the visioning steering committee objective, representative information for the goal-setting phase of community visioning. The quantitative data collected from survey responses complements the qualitative information gathered from the focus groups at the transportation assets and barriers workshop.

The modes of transportation that residents use and the routes they take suggest suitable types of transportation enhancements in these areas. Having a sense for people's willingness to help either financially or with their time is important because many transportation enhancements are funded from multiple sources, including grants, private donations, in-kind contributions, and volunteers. Understanding what types of improvements are important to residents gives the committee insight into how to prioritize projects.

How Is It Done?

With assistance from Iowa State University's Survey Research Services staff in the Center for Survey Statistics and Methodology (CSSM-SRS), ISU visioning program staff conducted a survey to better understand the transportation patterns, behaviors, needs, and desires of Avoca residents. Surveys were mailed to 300 randomly selected residents living in Avoca and the surrounding area. To increase the response rate, the study was publicized through the local media and follow-up packets were mailed to nonrespondents. With adjustments for ineligible respondents (e.g., incorrect addresses, no longer living in the community), the final sample size was 262. A total of 110 people returned surveys, for a response rate of 41.9%. (A response rate of 20% is considered valid.)

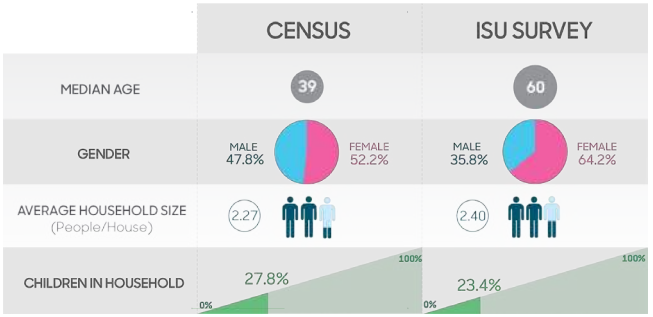
What Did We Find Out?

We asked survey recipients what routes they use most often for going to work and walking. In addition, we asked what qualities and features are important to cyclists and trail users. We also discovered what residents think is most important in terms of transportation enhancements that address issues such as accessibility, mobility, and safety. Finally, we learned whether or not residents are willing to contribute their time or their financial resources to making enhancements to Avoca. This series of boards summarizes the results of the survey as follows:

- Willingness to Help
- Enhancement Priorities
- Commuting Routes
- Walking Routes
- Desired Qualities

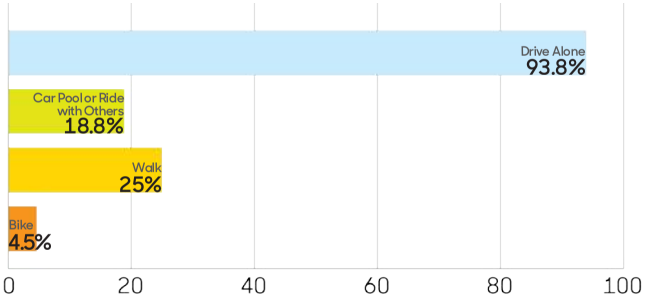
How Did We Do?

The demographics of the respondents are somewhat different from those obtained from the 2019 American Community Survey Five-Year Estimate. For example, the survey respondents median age of 60 is significantly older than the 2019 estimated average age for Avoca residents of 39. In terms of gender, the percentage of female survey respondents is significantly higher than that of the census. Average household size of survey respondents is higher than the 2019 estimate. The percentage of households with children for survey respondents is lower than that of the census estimate..



How Do Avoca Residents Travel?

Most survey respondents drive to important destinations such as the convenience store, the post office, school, and church (93.8%). Twenty-five percent walk to their destinations. Nearly 19% of participants indicated that they car pool or ride with someone else, and 4.5% bike to destinations.



*Please note that some respondents indicated that they use more than one mode of transportation to get to work; therefore, percentages add up to more than 100%.

Avoca

Overview

Transportation Behavior and Needs Survey

Julia Badenhope, Sandra Oberbroeckling, Aaron Lewis, Austin Alexander, Lexi Blank, Kristian Schofield, Minni Davis, Clare Kiboko, Abby Schafer

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Willingness to Help

Most survey participants who answered this question are willing to contribute their time to community improvements (57.1%), while 35.7% would contribute their time and talent. More than 7% of respondents indicated that they would be willing to contribute financially.

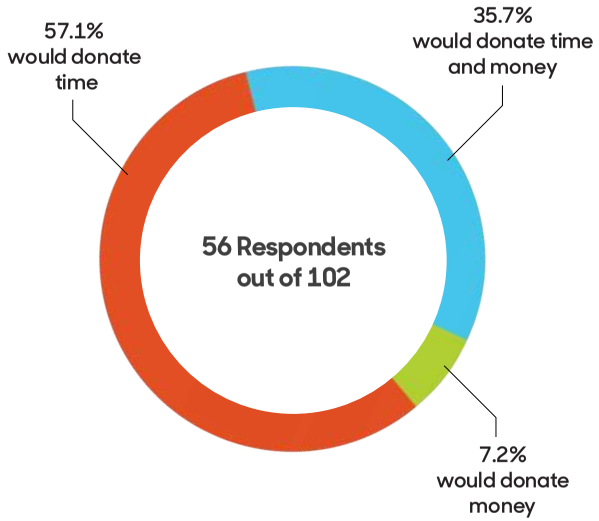
Compared to other small towns in Iowa, Avoca residents are more willing to become involved in improving their community. In 2014, on average, 43% of residents in small, rural towns volunteered to help with a community project.[1] Avoca exceeds this average by 11%.

In 2014, the most common reason residents in small-town Iowa said they didn't become involved in community projects is that no one asked them (34%). Twenty-eight percent on average said that they don't have time, which is significantly lower than the 2004 average of 59%. Sixteen percent indicated that they didn't know how to become involved, and 7% said that no community project needed volunteers.[1] These results indicate that the best ways to get people involved in community projects is to simply ask, along with advertising opportunities through traditional and social media outlets.

1 *Sigma: A Profile of Iowa Small Towns 1994 to 2014* (Ames, IA: Iowa State University College of Agriculture and Life Sciences, 2015).

ARE PEOPLE WILLING TO HELP?

More than 54% said YES!



Willingness to implement change

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WHAT DID PEOPLE SAY?

Survey Participants Said...

"[We] need yield signs [at] a few intersections in town. [It] would be awesome to get trails out of town... maybe connect Shelby and Walnut one day."

"The trails are wide and new. Expansion of the trails would be welcomed."

"I feel safe walking the dog because it's light out, but not at night due to the lack of lights and condition of the sidewalks and trail."

HOW DO YOU GET PEOPLE TO HELP?

Ask, Show, and Advertise Opportunities

In 2014, the most common reason residents in small-town Iowa said they didn't become involved in community projects is that no one asked them (34%). Twenty-eight percent on average said that they don't have time, which is significantly lower than the 2004 average of 59%. Sixteen percent indicated that they didn't know how to become involved, and 7% said that no community project needed volunteers.[1] These results indicate that the best ways to get people involved in community projects is to simply ask, along with advertising opportunities through traditional and social media outlets.

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Avoca

Willingness to Help

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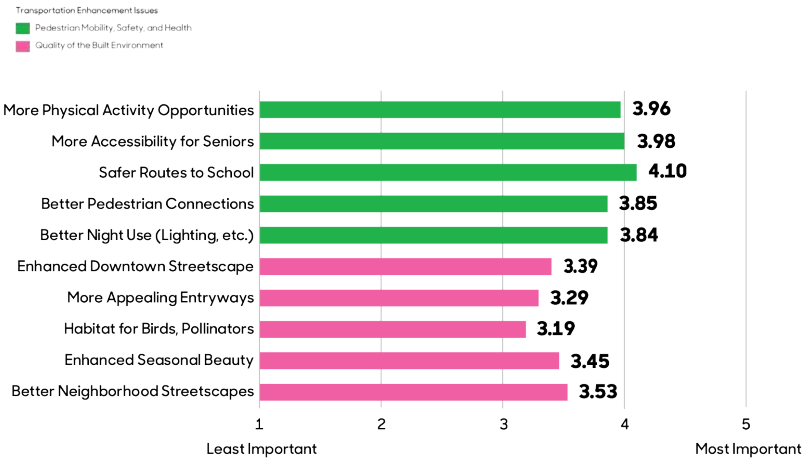
Priorities

Importance of transportation enhancement by type (102 responses)

On a scale of 1 to 5, with 5 being the most important, participants in Avoca ranked creating safer routes to school as most important, with a mean value of 4.10. Other types of transportation enhancements that address pedestrian mobility, health, and safety are also considered important, such as providing more accessibility for seniors (3.98), creating more physical activity opportunities (3.96), and creating better pedestrian connections (3.85). In terms of quality of the built environment, survey respondents consider better neighborhood streetscapes as most important (3.53), followed by enhanced seasonal beauty (3.45) and enhanced downtown streetscape (3.39).

WHAT TYPES OF ENHANCEMENTS ARE IMPORTANT?

Mobility, Safety, and Health!



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WHAT DID THEY SAY?

Survey Participants Said...

"[I] only feel safe biking on the trail at the city park. Otherwise the busy highway through town makes me feel too unsafe."

"[I] would love a stoplight or four-way stop at [the Highway] 59/83 intersection. [Drivers need] to SLOW DOWN (especially trucks) around corner on [Highway 59 by Grandma's Diner. [We] need a walk bridge over Highway 59 for kids."

"A trail that went all the way to Walnut would be amazing. The current Avoca trail has a wonderful loop, scenery, and location, but the trail is beginning to buckle and crumble is some places."

"My main concern is the lack of a safe highway crossing on both Highways 59 and 83. As a parent, I feel that my child is unable to utilize our great parks and pool because of the lack of safe crossing areas."

Avoca Priorities

Transportation Behavior and Needs Survey

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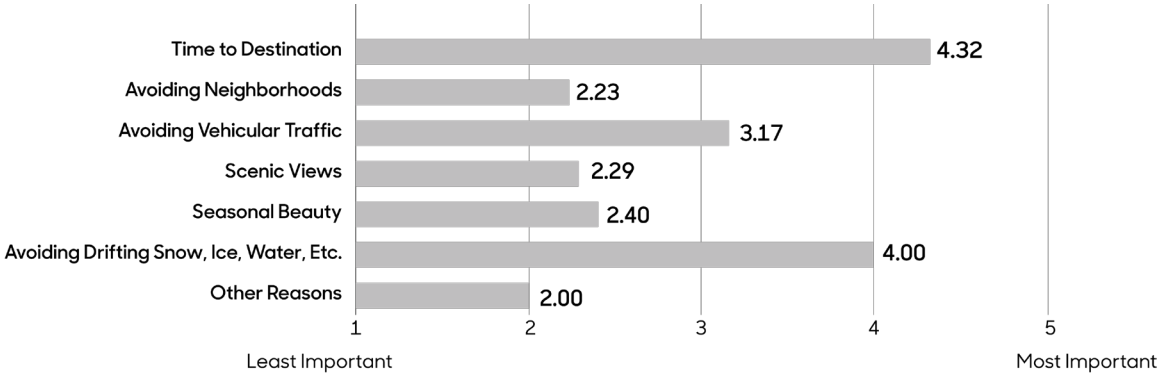
Commuting Routes

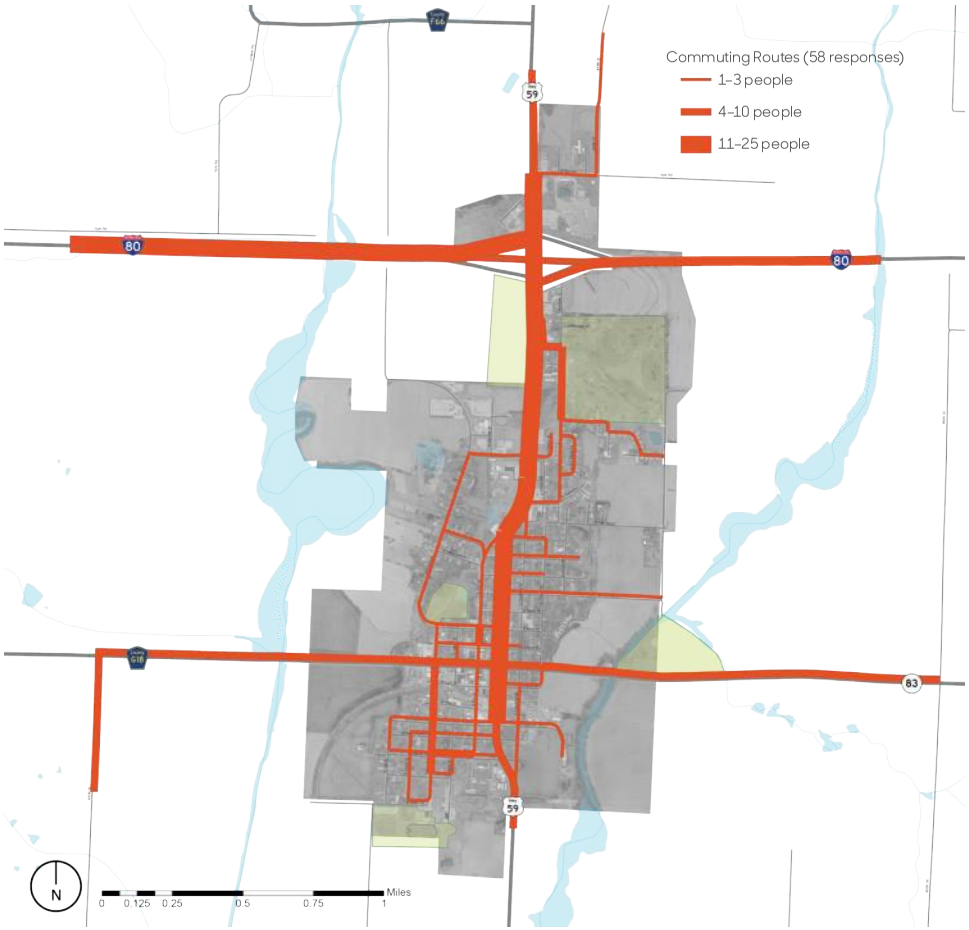
How They Get There

This map shows the commuting routes identified by 58 survey respondents. The frequency that the routes are used is depicted by their width, with most frequently used routes being the thickest. The primary commuting corridor in Avoca is Highway 59 north-south. Most out-of-town commuters take Highway 59 to Interstate 80 West, presumably to the Omaha-Council Bluffs Metro area. In addition to Highway 59 through town, commuters also travel north-south on Pine Street south of West High Street and Lavista Heights Road just south of the I-80 interchange. The circulation patterns that emerge when routes for biking, walking, and commuting are overlaid suggest suitable types of transportation enhancements. For example, where pedestrian and vehicular traffic intersect, such improvements could include creating better visibility, defining crossing points, or improving signage.

Why They Go That Way

On a scale of 1 to 5, with 5 being the most important, survey participants ranked the characteristics and features that factored into their choice of commuting route. Among Avoca participants, time to destinations is the most important factor, with a mean value of 4.32. Avoiding weather-related issues such as snow and ice (4.00) is the second most important factor determining commuting routes. Avoiding vehicular traffic is also considered somewhat important, with a mean value of 3.17. Scenic views, seasonal beauty, and avoiding neighborhoods are not critical factors in determining commuting routes.





Map Source: Iowa Department of Natural Resources, "Natural Resources Geographic Information Systems Library," http://www.igsb.uiowa.edu/nrgislibx/.

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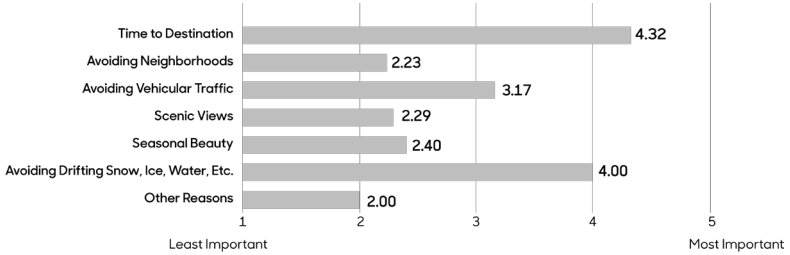

Avoca

Commuting Routes

Transportation Behavior and Needs Survey
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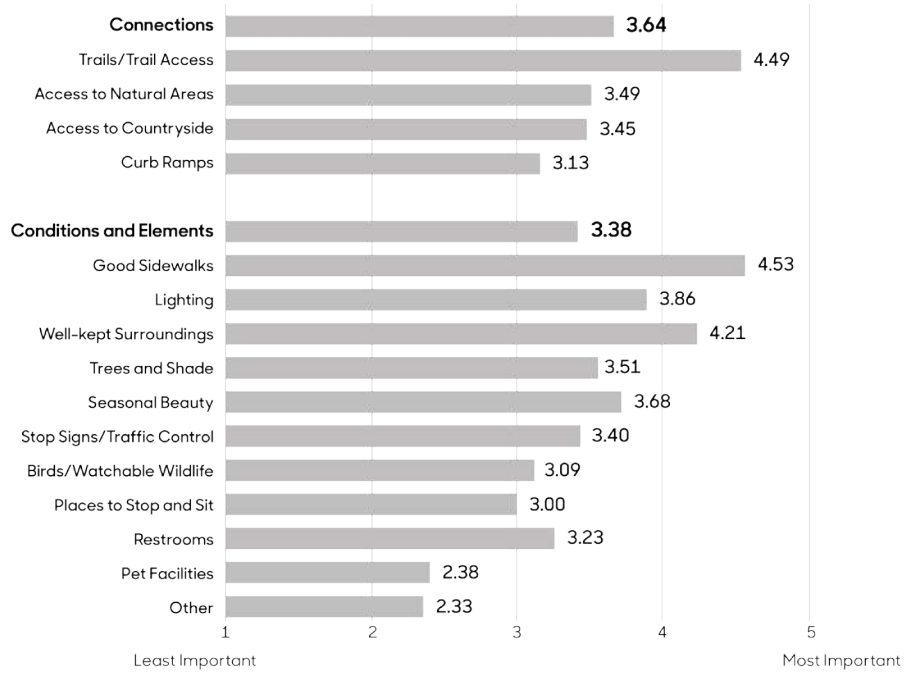
Walking Routes

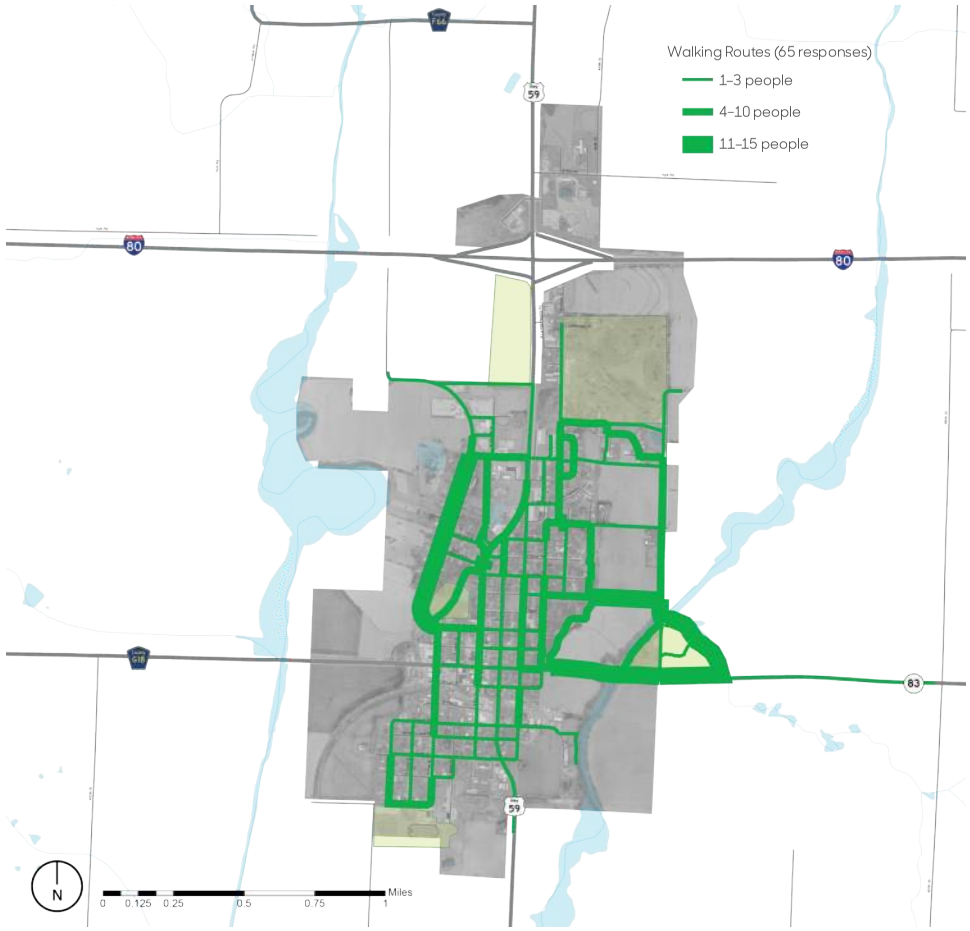
Where They Walk

This map shows the walking routes identified by 65 survey respondents. The frequency that the routes are used is depicted by their width, with most frequently used routes being the thickest. Survey respondents indicated that they walk primarily on the trails in Eddington Memorial Park, as well as along North Frost Avenue from Wool Street to Wood Street. East High Street and East Thomas Street, which connect to Eddington Memorial park, are also frequented by walkers. Walkers also take the trail adjacent to Mez Buttermilk Flat Park, North Walnut Street, and North Willow Street.

Why They Go That Way

On a scale of 1 to 5, with 5 being the most important, survey participants ranked the characteristics and features that made their walking experience better. These features are categorized as either "connections" or "conditions and elements." Among Avoca participants, connections are more important than conditions/elements, with mean values of 3.64 and 3.38, respectively. In terms of connections, access to trails is most important with a mean value of 4.49. Good sidewalks (4.53) are the most important element to walkers, followed by well-kept surroundings (4.21). Other significant factors include lighting (3.86), seasonal beauty (3.68) and trees and shade (3.51).





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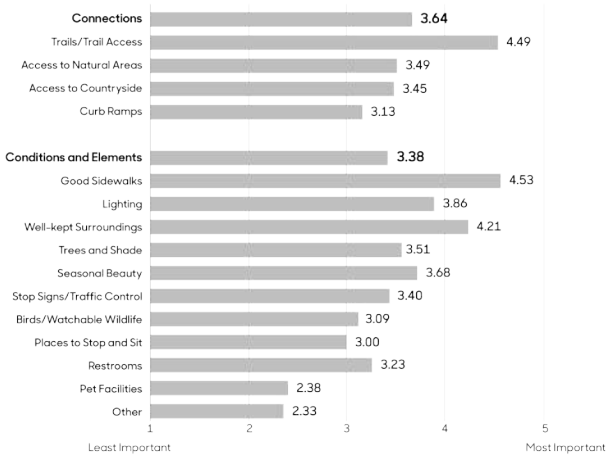

Avoca
Walking Routes

Transportation Behavior and Needs Survey
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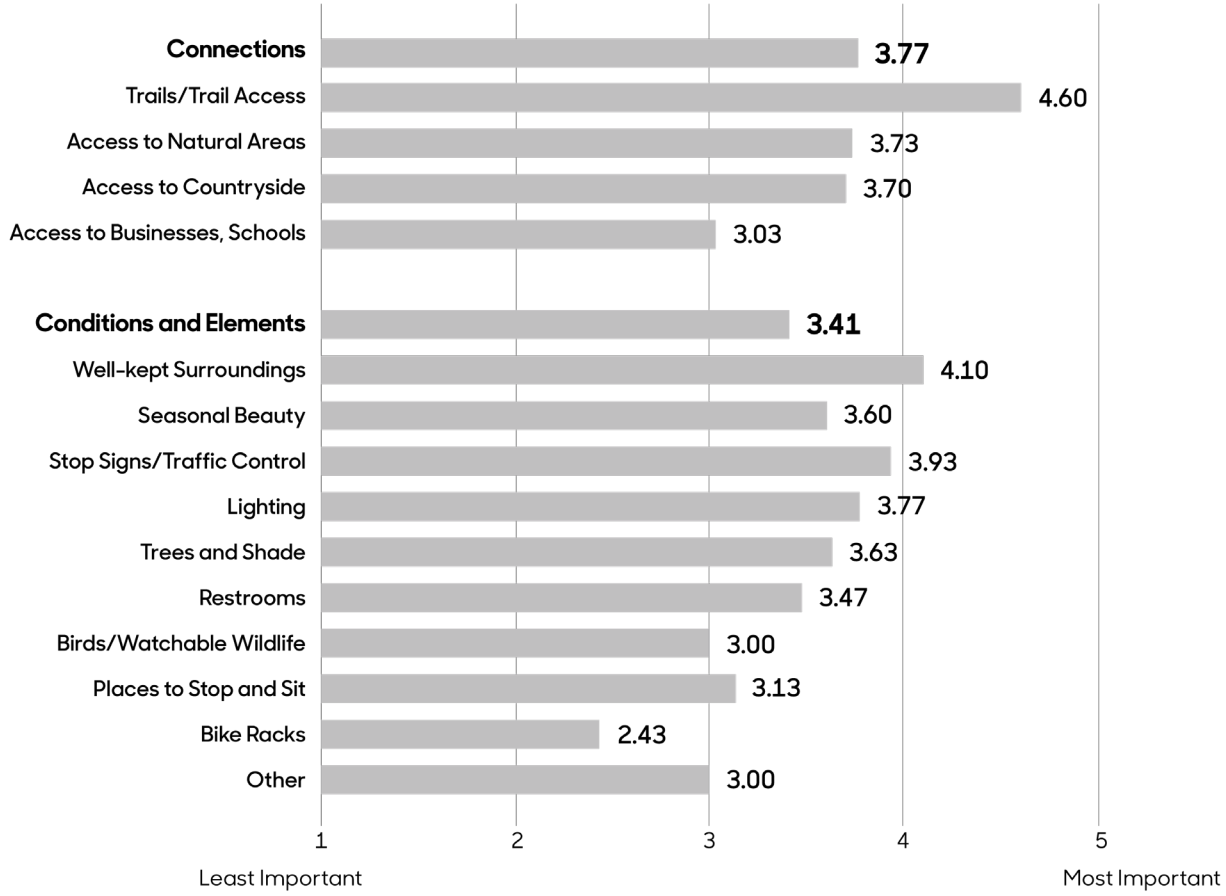
Iowa's Living Roadways community visioning

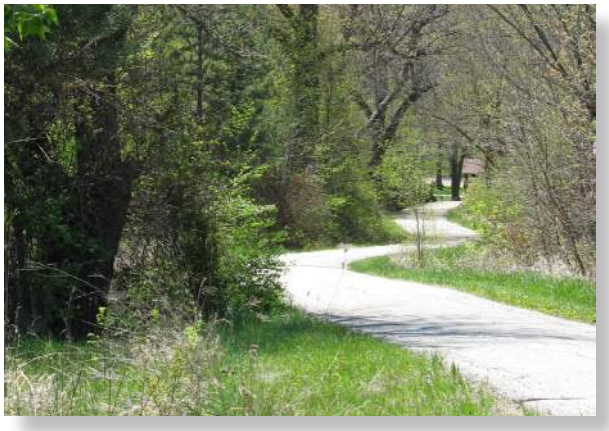
Desired Features

Desired Bike Route Features

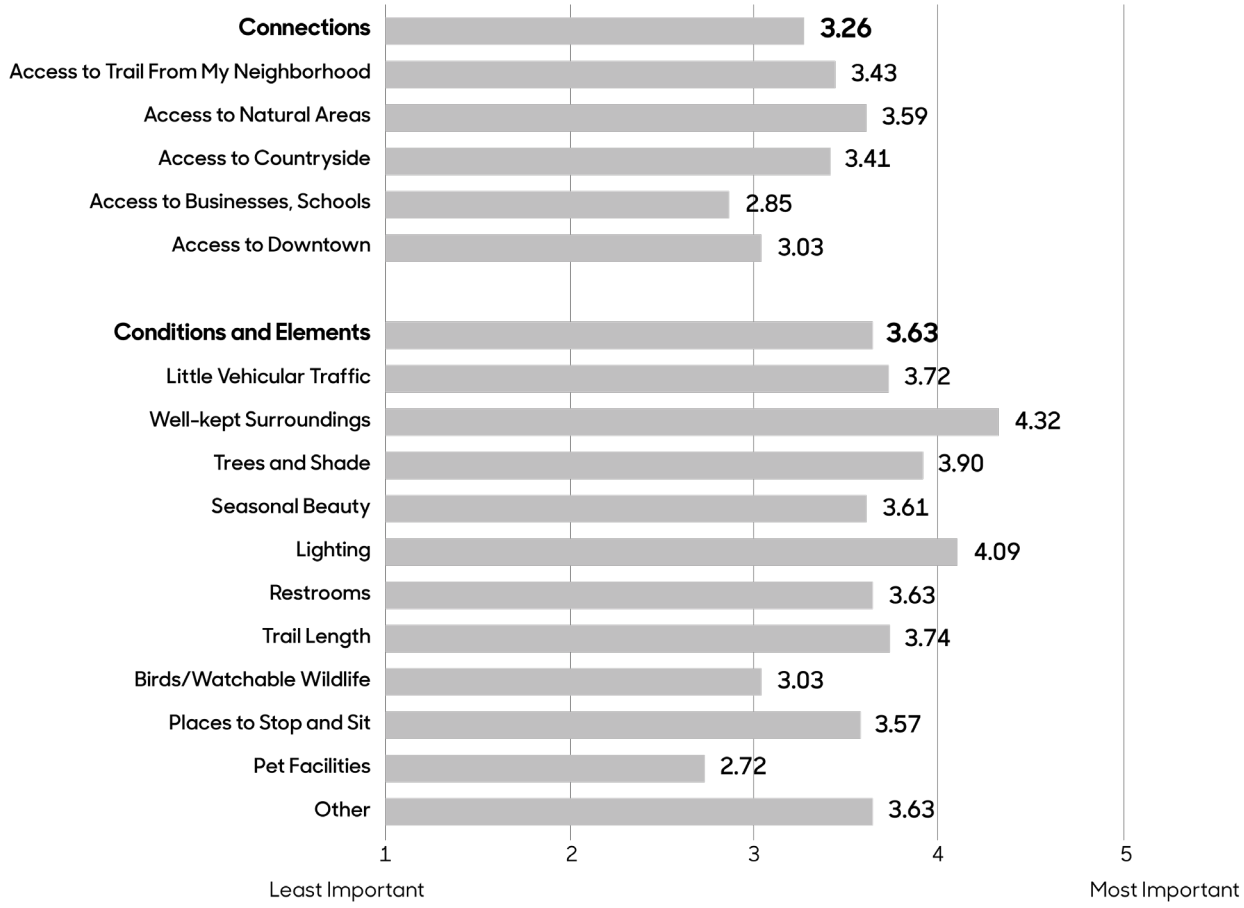
On a scale of 1 to 5, with 5 being the most important, survey participants ranked the characteristics and features that made their biking experience better. These features are categorized as either "connections" or "conditions and elements." Among Avoca participants, connections are significantly more important than conditions/elements, with mean values of 3.77 and 3.41, respectively. In terms of connections, access to trails is most important with a mean value of 4.60. Well-kept surroundings are the most important element to cyclists, with a mean value of 4.10. Stop signs/traffic control (3.93), lighting (3.77), and trees and shade (3.63) are also important features.



Desired Trail Features



On a scale of 1 to 5, with 5 being the most important, survey participants ranked the characteristics and features that made their trail experience better. Like the bike route features, they are categorized as either "connections" or "conditions and elements." Conditions and elements are more important to Avoca trail users than connections, with mean values of 3.63 and 3.26, respectively. In terms of connections, access to natural areas is considered most important, with a mean value of 3.59. In terms of conditions/elements, well-kept surroundings (4.32) is the most important element, followed by lighting (4.09), and trees and shade (3.90). Another factor identified by trail users as important is trail maintenance (3.63).



Transportation Inventory and Analysis

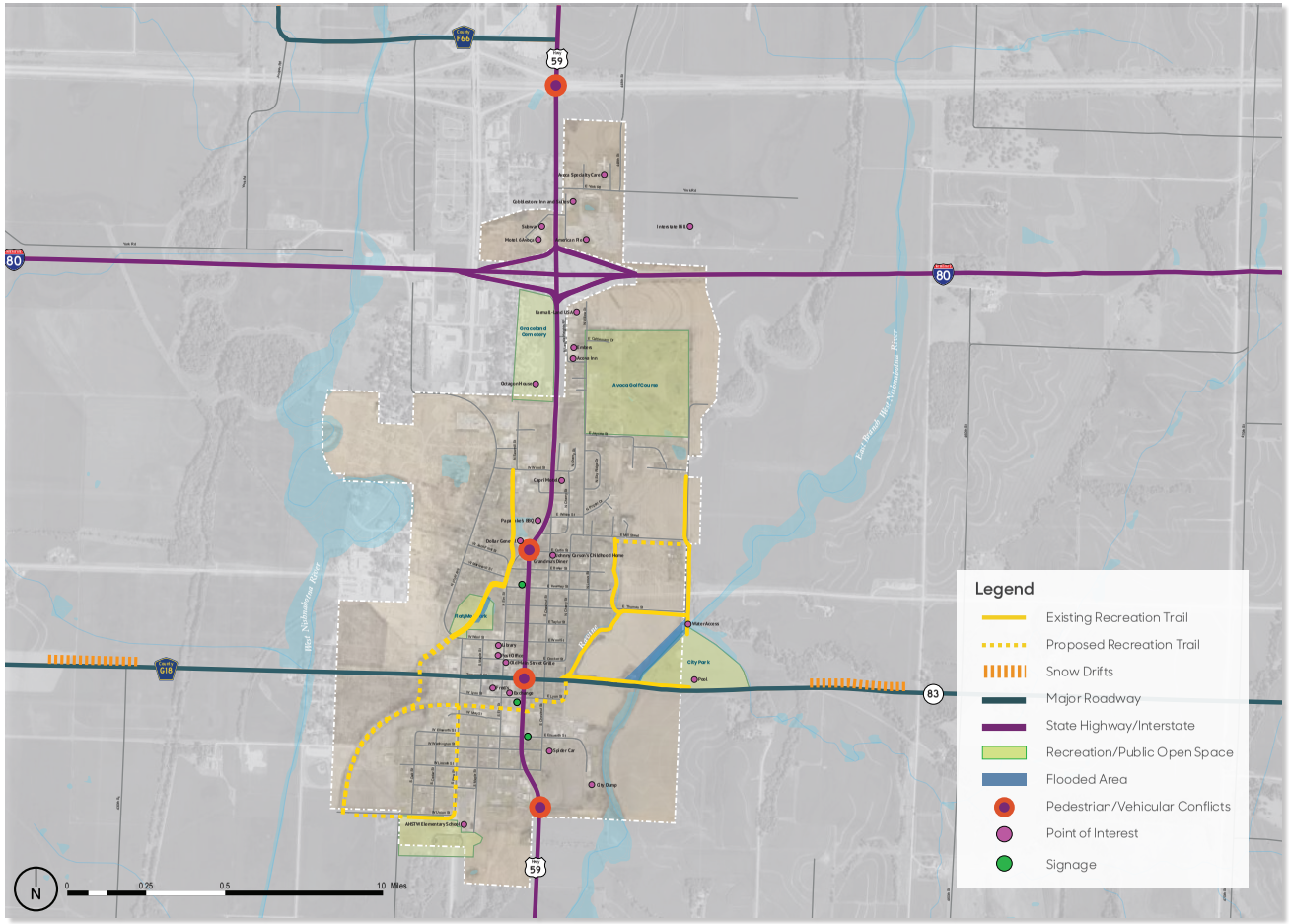
Knowledge of the transportation systems in and around a community is critical for sustainable transportation enhancement planning. Avoca's transportation system includes paved and unpaved roadways, sidewalks, and pedestrian and bike trails.

Iowa Highway 59 bisects Avoca as a north/south thoroughfare, and creates several pedestrian and vehicular conflicts. Along the curve south of Highway 83, better sight distancing is needed for pedestrian crossing. Along northern curve, traffic accidents occur and large trucks infringe on nearby residences. Vehicles do not slow down after exiting Highway 59 onto N Elm Street. There are planned sidewalks improvements along Highway 59.

Interstate 80 is a major highway that connects the east and west coasts of the United States and intersects Iowa Highway 59 in the northern portion of Avoca. The interstate separates businesses from the downtown area of Avoca, requiring visitors to drive to access those areas.

There are opportunities to revitalize the old rail lines for future trail connections throughout the southern portion of the city and into the existing trail infrastructure. There is the potential to create a safe pedestrian passage between the east and west sides of town under Iowa Highway 59 where the old viaduct was.

Avoca has flooding and stormwater issues. At City Park, flood damage and bank erosion are present along the east branch of the West Nishnabotna River from March 2019. Additional flood damage occurred at Mez Buttermilk Flat Park, which caused the basketball court to float away. Stormwater maintenance is desired at the old school property.



Avoca
Transportation Inventory

RDG Planning & Design
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Intern: Dani Hodgson
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Iowa's Living Roadways community visioning

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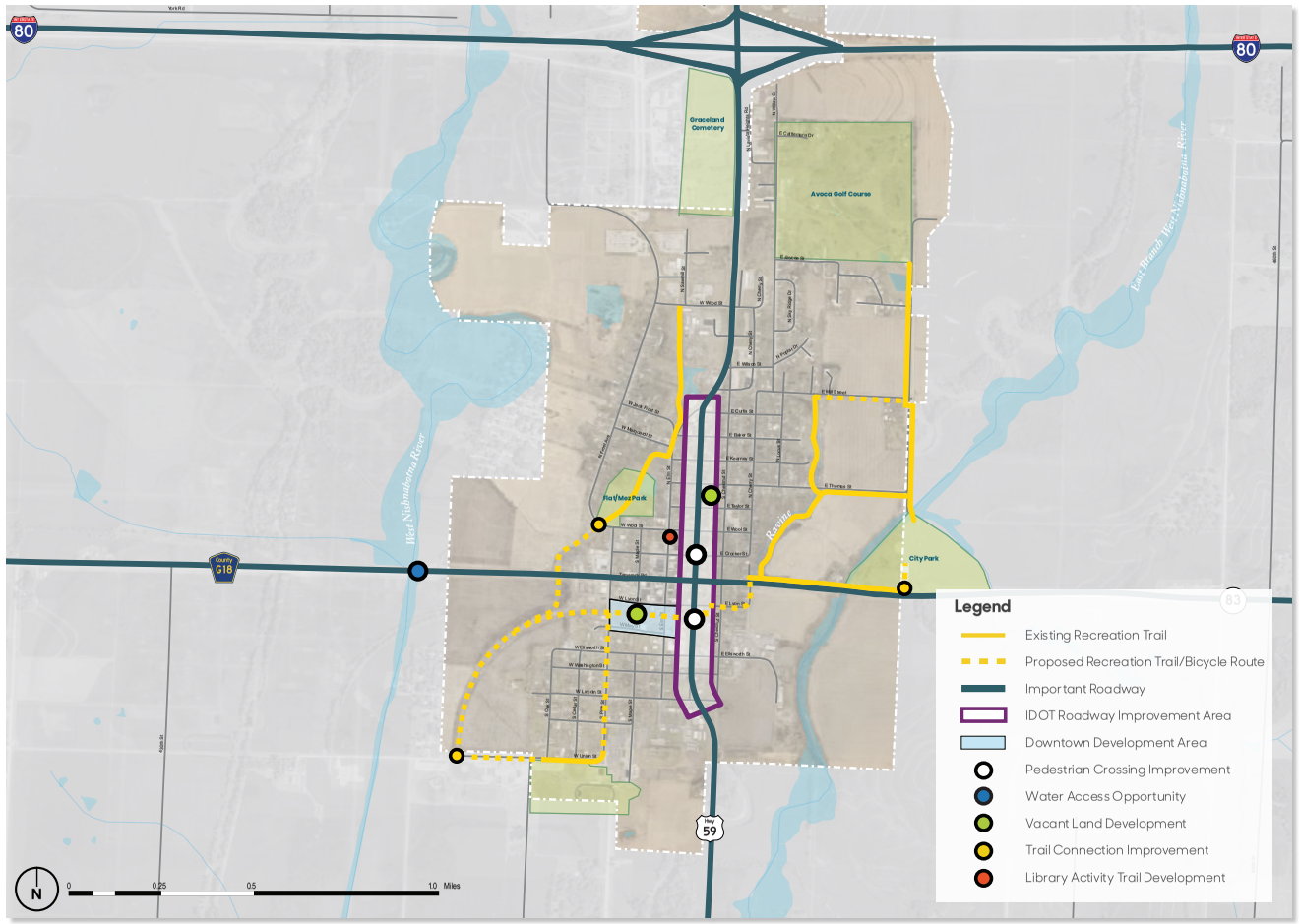
Community Concept Plan

Avoca utilized the results of mapping efforts, survey results, and a transportation inventory to identify a list of goals and opportunities to create a vision for the community. Drawing on this vision, the design team developed preliminary concept plans at a design workshop that was open to the public. The concept plan is based on the priorities of the community with guidance from the Avoca visioning committee. The improvements illustrated on this plan and in more detail on the following boards are intended to reinforce pedestrian connectivity and make Avoca more enjoyable for all residents and visitors. The goals that the visioning committee ranked as the highest priority and that the design team has addressed in this plan include:

A) Pedestrian Safety
B) Downtown Development
C) Trail Improvements

The concept plan promotes improvements in three different areas of interest that will increase pedestrian connectivity, activate underutilized areas, and enhance the community assets Avoca already provides for residents and visitors.



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Avoca
Concept Overview

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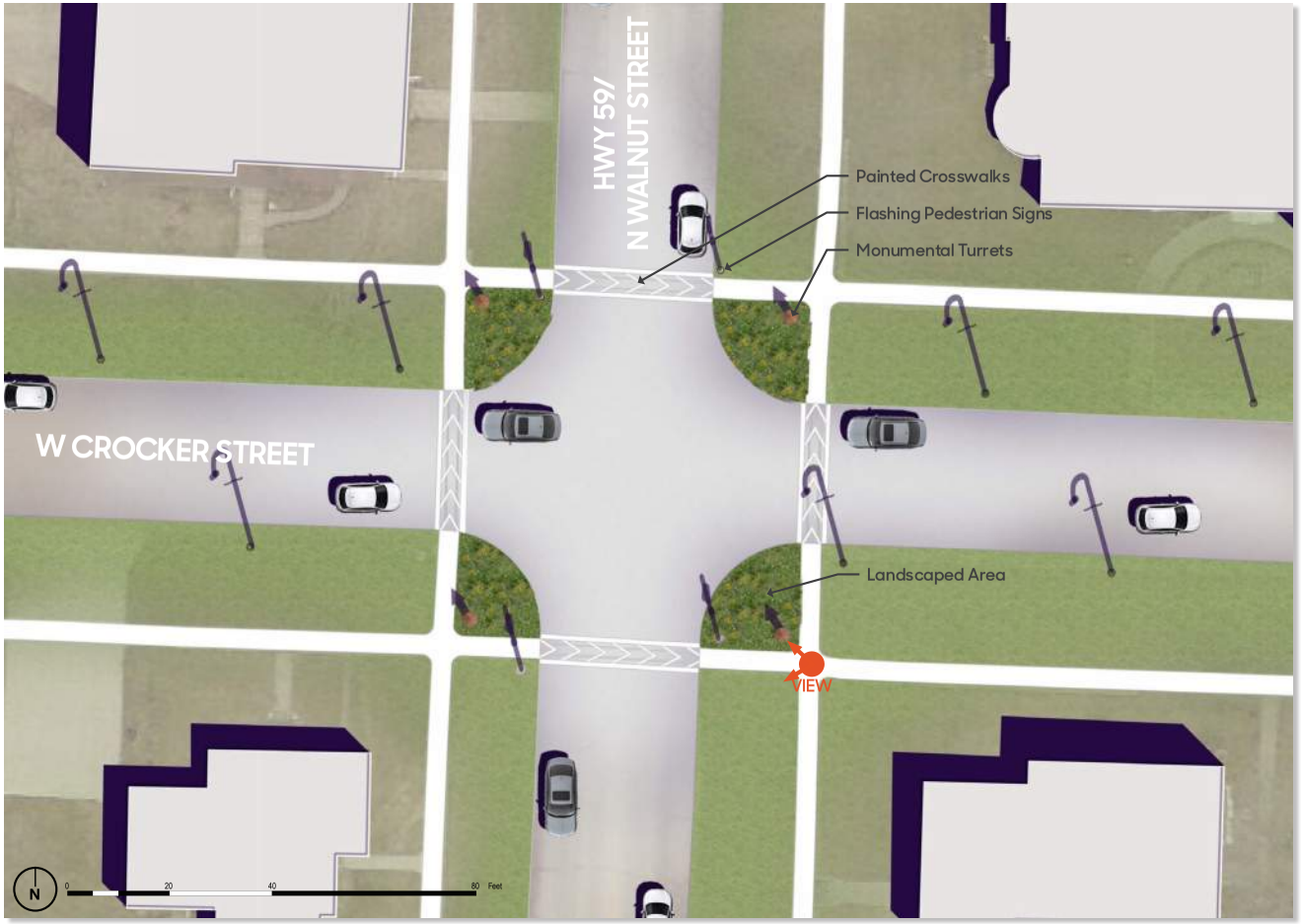
Iowa's Living Roadways community visioning

Walnut St. & Crocker St.

The Avoca visioning committee identified improved pedestrian safety as a key goal for the community. Survey respondents revealed Highway 59 (Walnut Street) to be the primary commuting corridor through town, due to the connection to Interstate 80 to the north and AHSTW Community Schools to the south. The highway challenges safe routes to school and bisects the community making it complicated for residents to safely access community assets, including parks and the swimming pool. By creating a designated intersection for safe pedestrian crossings, the walkability of Avoca can be significantly improved.

While evaluating viable intersections for pedestrian safety enhancements, it became apparent that the Highway 59/Highway 83 crossing is a major commuter intersection, but the topography of the hill sloping to the south makes for poor visibility of pedestrians in a crosswalk. The unique angle of Highway 59's intersection with Highway 83 creates vehicular conflicts and does not connect directly to Avoca's downtown along Elm Street.



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continued on Board 6b

Avoca
Walnut St. & Crocker St.

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Iowa's Living Roadways community visioning

Walnut St. & Crocker St.

Both Wool Street and Crocker Street were identified as existing routes for pedestrians to cross Highway 59 to access the downtown, though Wool Street does not have sidewalks in all directions and is situated at the crest of a hill. Crocker Street has generous rights-of-way and better visibility for both vehicles and pedestrians. Therefore, the intersection of Highway 59 (Walnut Street) and Crocker Street was determined to be a prime candidate for both pedestrian safety improvements and establishment of gateway monuments that will invite passersby to enter Avoca's downtown, just one block west of Highway 59.

Proposed improvements include flashing pedestrian crosswalk signage, painted crosswalks, and monumental gateway features. On the north and southbound lanes of the intersection, a Rectangular Rapid Flashing Beacon (RRFB) Pedestrian Crosswalk system is a Manual on Uniform Traffic Control Devices (MUTCD) compliant solution that would alert vehicular traffic to pedestrians in the intersection. The crosswalk, painted to designate the pedestrian zone, could use patterning iconic to Avoca's character, and the installation of Avoca's turret monuments would direct people to the heart of downtown, along Elm Street. The painted crosswalk would be the first phase of implementation and could be considered a pilot project with the goal of later replacing the crosswalks with more permanent stamped concrete through collaboration with Iowa DOT. The stamped concrete would emulate the brick pattern that is prominent in Avoca and would create visual connectivity with the existing downtown aesthetic.

Opinion of Probable Cost

WALNUT ST. & CROCKER ST. INTERSECTION				
Description	Quantity	Unit	Unit Cost	Extended Amount
GENERAL REQUIREMENTS				
Traffic Control	1	LS	$10,000.00	$10,000.00
HARDSCAPE				
Crosswalk Paint	725	SF	$2.00	$1,450.00
LANDSCAPE				
Amended Soil - 18" Depth	67	CY	$45.00	$3,015.00
Shrubs and Perennials	1,200	SF	$30.00	$36,000.00
SITE IMPROVEMENTS				
Monumental Turrets w/ Integrated Lighting	4	EA	$12,500.00	$50,000.00
Flashing Pedestrian Signs	4	EA	$2,500.00	$10,000.00
SUB-TOTAL - BASE BID				$110,465.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$5,523.25
CONTINGENCY - 15%				$16,569.75
DESIGN AND ENGINEERING - 10%				$11,046.50
INFLATION - 3%				$3,313.95
CONSTRUCTION COST				**$146,918.45**

Avoca

Walnut St. & Crocker St.

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

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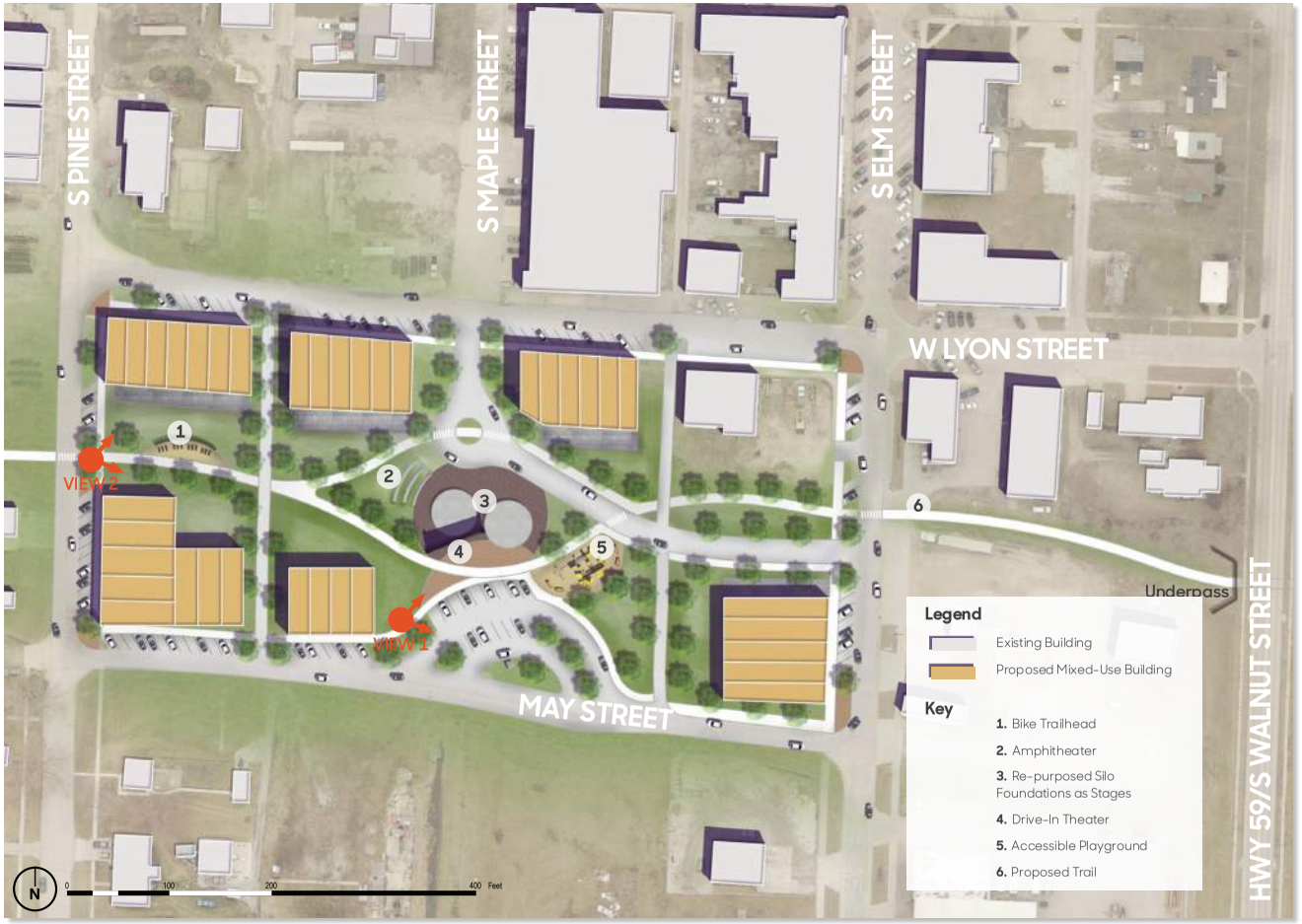
Existing view from the southeast corner of the intersection

Iowa's Living Roadways community visioning

Former Grain Elevator Site

The former grain elevator property, located at the southwest corner of Avoca's historic business district, is currently vacant and provides a prime opportunity for expanded downtown development. The Avoca visioning committee expressed a need for expansion of downtown business storefront opportunities, as well as varied housing options.

The development of mixed-use buildings with commercial storefront opportunities on the ground level and apartments above would attract more businesses to move from their homes to downtown. The committee also mentioned that people want to live downtown, but there are not enough available units. These new buildings could attract talent to downtown, as well as keep the workforce within Avoca rather than surrounding communities. The streetscape character of Elm Street could be continued south and west with a similar pedestrian experience, street trees, and angled parking. Within the site, an opportunity for a greenway park would serve as both a public venue for downtown Avoca and an attractive amenity for downtown residents. South Maple Street would be extended into the park with a turnaround at a public plaza featuring a potential bandshell/pavilion and drive-in theater screen utilizing the foundations of the former grain elevators. This central area is envisioned to become a community hub, with an outdoor amphitheater, drive-in movies, an accessible playground, and opportunities for additional programming of community events.



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continued on Board 7b

Key Map

Avoca
Former Grain Elevator Site

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Former Grain Elevator Site

The implementation of the project can be explored through the development of public/private partnerships. A private developer could see this space as an investment in the area and sell off portions to private owners. An easement or agreement could be created with the City of Avoca to develop the public space. If the City of Avoca is able to acquire the land that is privately owned, it can then partner with developers to craft an area that supports commercial and residential growth, while also creating a community greenspace. This land is currently privately owned and this design makes no assumptions that this land will be sold or acquired by the City of Avoca. The design team sees an opportunity for future development in this space due to its proximity to downtown, the potential for trail connectivity, and a perceived demand for such development, as heard from visioning committee members.

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continued on Board 7c

Existing view of silo foundations looking northeast

Drive-In theatre example

Avoca
Former Grain Elevator Site

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Former Grain Elevator Site

Another key element to the development of this site is the connection to the expanded trail network of Avoca. The abandoned railroad corridor terminates to the west of the site. Bringing the trail into the downtown would create additional safe routes through the community and would create the opportunity to provide a trailhead for bike activities in Avoca. The trailhead would include bike parking, with additional features such as a repair station and rest area to create a productive hub for cycling activity. The new trail would meander through the greenway, crossing South Elm Street and could pass beneath Highway 59 at the old viaduct site. Easements or property acquisition would be necessary to create this safe pedestrian crossing for the community closer to the school grounds and connecting the east and west neighborhoods of Avoca without vehicular conflict.

Opinion of Probable Cost

FORMER GRAIN ELEVATOR SITE				
Description	Quantity	Unit	Unit Cost	Extended Amount
DEMOLITION				
Temporary Erosion Control	1	LS	$15,000.00	$15,000.00
Site Grading	6	AC	$25,000.00	$157,500.00
Tree Removal	5	EA	$1,000.00	$5,000.00
Building Removal	1	LS	$25,000.00	$25,000.00
HARDSCAPE				
General Site Utilities	1	LS	$50,000.00	$50,000.00
New Roadway Utilities*	1,250	LF	$150.00	$187,500.00
Concrete Paving Curb & Gutter	5,800	LF	$35.00	$203,000.00
Concrete Paving - Walks	30,325	SF	$5.00	$151,625.00
Asphalt **	60,600	SF	$4.00	$242,400.00
Brick Pavers over PCC Subslab	11,200	SF	$20.00	$224,000.00
PIP Rubberized Surfacing	3,715	SF	$18.00	$66,870.00
Crosswalk Paint & Parking Stall Markings	2,520	SF	$2.00	$5,040.00
BUILDINGS				
Mixed-Use Buildings (3-Story)	175,200	SF	$130.00	$22,776,000.00
LANDSCAPE				
Deciduous Shade Trees - 2" Caliper	152	EA	$400.00	$60,800.00
Shrubs and Perennials	8,000	SF	$30.00	$240,000.00
Sod	81,875	SF	$1.50	$122,812.50
SITE IMPROVEMENTS				
New Playground Equipment	1	LS	$150,000.00	$150,000.00
Bike Parking Stall	15	EA	$750.00	$11,250.00
Picnic Tables	3	EA	$3,000.00	$9,000.00
Site Lighting	80	EA	$4,000.00	$320,000.00
Drive-In Theater Screen	1	LS	$50,000.00	$50,000.00
Digital Format Projector	1	LS	$75,000.00	$75,000.00
Shelter at Repurposed Grain Bin Foundation	1	LS	$150,000.00	$150,000.00
Amphitheater CIP Concrete Seatwalls	260	LF	$200.00	$52,000.00
SUB-TOTAL - BASE BID				$25,349,797.50
MOBILIZATION/GENERAL CONDITIONS - 5%				$1,267,489.88
CONTINGENCY - 15%				$3,802,469.63
DESIGN AND ENGINEERING - 10%				$2,534,979.75
INFLATION - 3%				$760,493.93
CONSTRUCTION COST				**$33,715,230.68**

* This line item acounts for utilities associated with new roadway and alley extensions. Utility connections along W Lyon Street, May Street, S Pine Street, and S Elm Street are not included within this estimate.

** Asphalt Paving for City Streets are not included within this estimate.

Another key element to the development of this site is the connection to the expanded trail network of Avoca. The abandoned railroad corridor terminates to the west of the site. Bringing the trail into the downtown would create additional safe routes through the community and would create the opportunity to provide a trailhead for bike activities in Avoca. The trailhead would include bike parking, with additional features such as a repair station and rest area to create a productive hub for cycling activity. The new trail would meander through the greenway, crossing South Elm Street and could pass beneath Highway 59 at the old viaduct site. Easements or property acquisition would be necessary to create this safe pedestrian crossing for the community closer to the school grounds and connecting the east and west neighborhoods of Avoca without vehicular conflict.

Existing view of site looking east

Greenway trail example

Pedestrian trail underpass example

Avoca
Former Grain Elevator Site

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LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
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Iowa's Living Roadways community visioning

Former School Site

The former school site is located along Highway 59 between W Thomas and W Taylor Streets bordering on the north and south, respectively. By developing townhomes on the east half of the site, facing both Chestnut Street and the proposed alley, this vacant lot would be able to accommodate more housing opportunities for residents of Avoca. This site also slopes steeply down to the highway where the existing tree canopy shades the sidewalk along the street. By designating the western half of the site as a neighborhood park—complete with a walking loop, shade structure and seating area, open lawn, and both formal and natural areas—this amenity will become a great attraction to the city and surrounding neighborhood. There is currently no park or playground space close to this neighborhood, so adding this amenity will support equitable access to outdoor space for more families.

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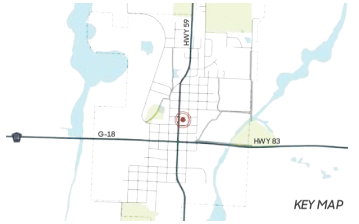
continued on Board 8b

Existing view looking northwest from Chestnut and Taylor Streets



Avoca
Former School Site

RDG Planning & Design
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Iowa's Living Roadways community visioning

Former School Site

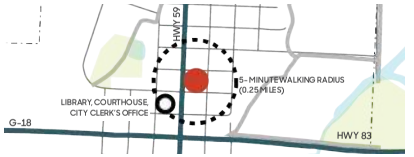
The play area will include an accessible playground and adult fitness equipment to encourage full utilization of the park. One feature of this park includes a "food forest"—an orchard of fruit-bearing trees that citizens can harvest and enjoy—as well as native planting areas with grasses and wildflowers that will slow stormwater runoff and attract both pollinators and wildlife to the heart of Avoca. This area has the potential to impact much of the community with its close proximity to downtown, which is within a five-minute walking radius of the site.

Opinion of Probable Cost

FORMER SCHOOL SITE				
Description	Quantity	Unit	Unit Cost	Extended Amount
DEMOLITION				
Temporary Erosion Control	1	LS	$5,000.00	$5,000.00
Site Grading	3	AC	$20,000.00	$60,000.00
Tree Removal	6	EA	$1,000.00	$6,000.00
HARDSCAPE				
Concrete Paving Curb & Gutter	675	LF	$35.00	$23,625.00
Concrete Paving - Walks	14,825	SF	$6.00	$88,950.00
Asphalt	12,540	SF	$4.00	$50,160.00
Brick Pavers over PCC Subslab	2,465	SF	$20.00	$49,300.00
PIP Rubberized Surfacing	4,315	SF	$18.00	$77,670.00
Parking Markings	20	SF	$2.00	$40.00
BUILDINGS				
Townhouses (3-Story)	63,000	SF	$115.00	$7,245,000.00
LANDSCAPE				
Deciduous Shade Trees - 2" Caliper	11	EA	$400.00	$4,400.00
Orchard Trees	41	EA	$300.00	$12,300.00
Shrubs and Perennials	7,000	SF	$30.00	$210,000.00
Sod	33,476	SF	$1.50	$50,214.00
SITE IMPROVEMENTS				
New Playground Equipment	1	EA	$150,000.00	$150,000.00
Overhead Shade Structure	1	EA	$20,000.00	$20,000.00
Picnic Tables	3	EA	$3,000.00	$9,000.00
Site Lighting	8	EA	$4,000.00	$32,000.00
SUB-TOTAL - BASE BID				$8,093,659.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$404,682.95
CONTINGENCY - 15%				$1,214,048.85
DESIGN AND ENGINEERING - 10%				$809,365.90
INFLATION - 3%				$242,809.77
CONSTRUCTION COST				$10,764,566.47

The play area will include an accessible playground and adult fitness equipment to encourage full utilization of the park. One feature of this park includes a "food forest"—an orchard of fruit-bearing trees that citizens can harvest and enjoy—as well as native planting areas with grasses and wildflowers that will slow stormwater runoff and attract both pollinators and wildlife to the heart of Avoca. This area has the potential to impact much of the community with its close proximity to downtown, which is within a five-minute walking radius of the site.

Existing view looking northeast



Five-minute walking radius around school site redevelopment

Avoca
Former School Site

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson

Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Mez Buttermilk Flat Park

The City of Avoca has had several plans and studies for Mez Buttermilk Flat Park developed in the past, and amenities such as a playground, community garden, and park shelter are desired in addition to the existing basketball court and trail. This park has flooded several times, so any further development will need to take stormwater management into consideration. The existing trail has two identified areas where stormwater overtops the trail before entering the drainage ditch that runs north-south through the park. A bioretention rain garden in combination with a culvert underneath the trail would prevent runoff from flooding the path. Rain gardens and culverts placed strategically in areas where water currently overtops the trail will reduce trail flooding and allow for greater and safer usage of the park. In addition to absorbing and filtering stormwater, the rain garden will provide habitat for pollinators that benefit the local ecosystem and support the health of the community garden. Survey respondents and the visioning committee also noted that this trail would be better utilized if it had lighting. Solar pathway lights would be a low impact, cost-effective way to increase the comfort of visitors to the park, and the additions of shade, seating, and play opportunities would encourage more community members to visit this park and take advantage of what it has to offer.

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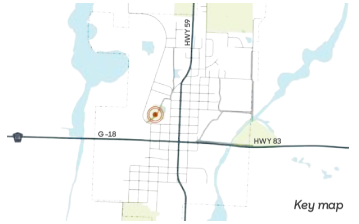
continued on Board 9b



Avoca
Mez Buttermilk Flat Park

RDG Planning & Design
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Intern: Dani Hodgson
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Iowa's Living Roadways community visioning

Mez Buttermilk Flat Park

The addition of shade trees and solar lighting along the length of Mez Buttermilk Flat Park's trail will make the park more hospitable, increasing shade during sunny days and extending the use of the trail into the twilight and evening hours. These improvements could spur more use of the park and encourage active lifestyles in the surrounding neighborhood and throughout the community of Avoca.

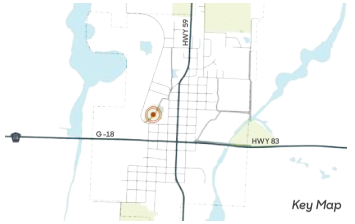
Opinion of Probable Cost

MEZ BUTTERMILK FLAT PARK				
Description	Quantity	Unit	Unit Cost	Extended Amount
HARDSCAPE				
Concrete Paving - Walks	14,000	SF	$6.00	$84,000.00
PIP Rubberized Surfacing	1,950	SF	$18.00	$35,100.00
Crosswalk Paint	100	SF	$2.00	$200.00
LANDSCAPE				
Amended Soil	161	CY	$45.00	$7,245.00
Deciduous Shade Trees - 2" Caliper	64	EA	$400.00	$25,600.00
Orchard Trees	16	EA	$300.00	$4,800.00
Rain Garden	0.07	AC	$4,000.00	$264.00
SITE IMPROVEMENTS				
New Playground Equipment	1	EA	$50,000.00	$50,000.00
Park Shelter	1	EA	$75,000.00	$75,000.00
Picnic Tables	3	EA	$3,000.00	$9,000.00
Solar Trail Lighting	45	EA	$1,000.00	$45,000.00
Benches	11	EA	$2,000.00	$22,000.00
Community Garden	1	LS	$10,000.00	$10,000.00
SUB-TOTAL - BASE BID				$368,209.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$18,410.45
CONTINGENCY - 15%				$55,231.35
DESIGN AND ENGINEERING - 10%				$36,820.90
INFLATION - 3%				$11,046.27
CONSTRUCTION COST				$489,717.97

The addition of shade trees and solar lighting along the length of Mez Buttermilk Flat Park's trail will make the park more hospitable, increasing shade during sunny days and extending the use of the trail into the twilight and evening hours. These improvements could spur more use of the park and encourage active lifestyles in the surrounding neighborhood and throughout the community of Avoca.

Existing view looking south \from trail at stormwater swale

Trail pathway lights example



Key Map

Avoca

Mez Buttermilk Flat Park

RDG Planning & Design
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Iowa's Living Roadways community visioning

Trail Improvements

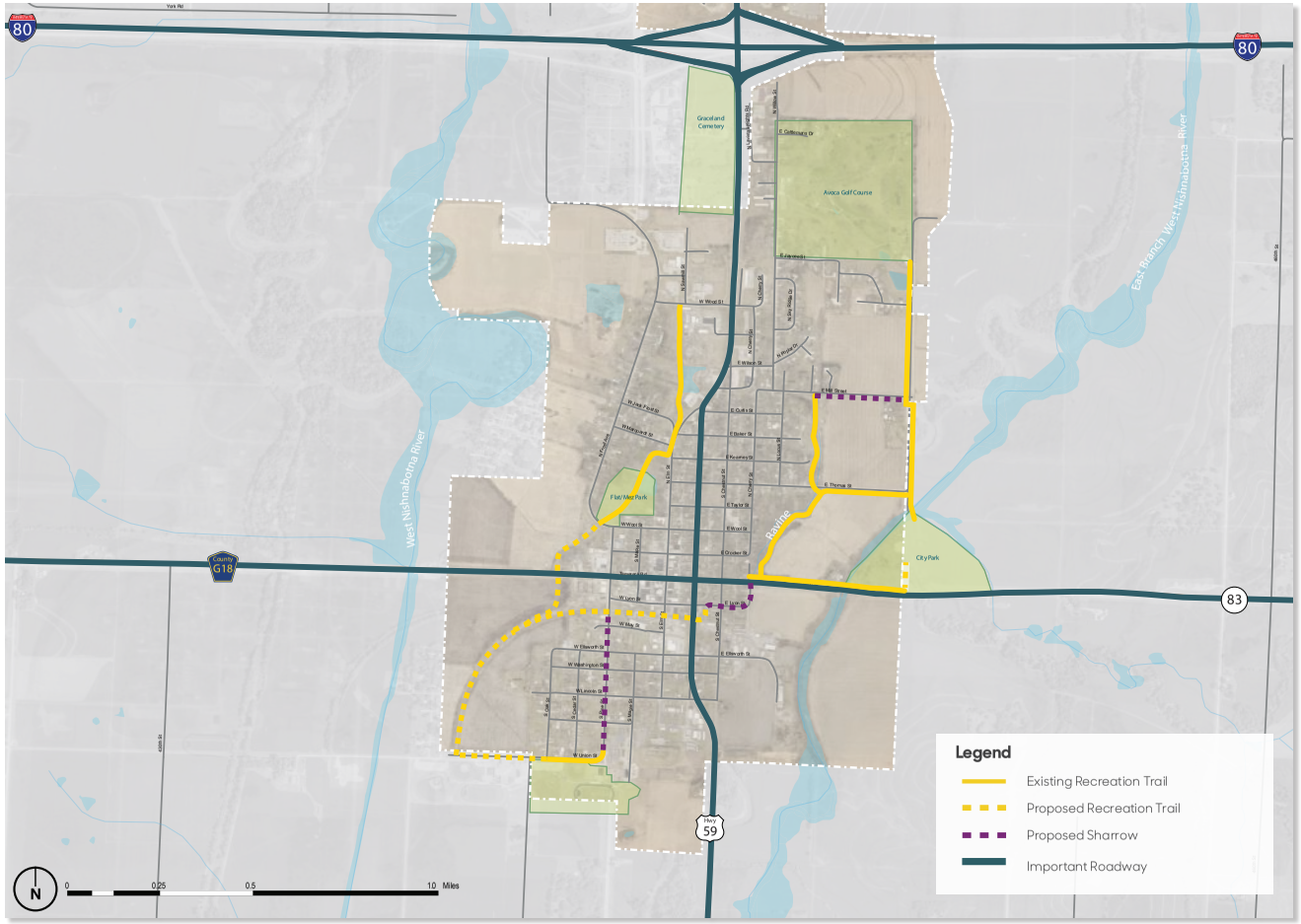
Improving trail connections throughout the city of Avoca will not only create additional safe pedestrian routes, but also enhance opportunities for improved wellness, recreation, and sustainable modes of transportation to the community's parks, businesses, and other amenities. A cohesive trail system could take the existing trail fragments and develop them into a complete network of on-street and dedicated trails.

Creating an on-street trail system with pavement markings indicating sharrows—dedicated bicycle routes where vehicles must share the road with bicyclists—will connect to the existing off-street recreational trails as well as proposed expansions. In addition to pavement markings, sharrows would need to have associated pole-mounted way-finding signage, indicating the proposed roads as designated bicycle routes. All signs on trail routes and vehicular roadways should display reflective finishes to increase visibility during any time of day.

The former railroad corridor in southwest Avoca is a prime opportunity for expanded recreational trails. After clearing overhanging vegetation, the city can use the level route of the old railroad line for an asphalt trail. This route would connect the old grain elevator site and Mez Buttermilk Flat Park to the existing sidewalk at Union Street and Oak Street, leading to AHSTW Community Schools. This map shows the different designations of existing trails, proposed trail expansions, and designated bike routes. To complete safe and accessible loops, some easements or property acquisition may be required.

Opinion of Probable Cost

TRAIL IMPROVEMENTS				
Description	Quantity	Unit	Unit Cost	Extended Amount
HARDSCAPE				
Site Preparation	9,590	SY	$4.00	$38,360.00
H.M.A Trail (10' wide)	9,590	SY	$35.00	$335,650.00
LANDSCAPE				
Lawn/Seed Mix and Prep	2,400	SY	$0.65	$1,560.00
Clearing and Grubbing	1	AC	$1,500.00	$1,500.00
SITE IMPROVEMENTS				
Underpass & Associated Sitework	1	LS	$350,000.00	$350,000.00
Underpass Lighting	1	LS	$15,000.00	$15,000.00
Sharrows - Pavement Markings and Signage	1	LS	$3,500.00	$3,500.00
SUB-TOTAL - BASE BID				$745,570.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$37,278.50
CONTINGENCY - 15%				$111,835.50
DESIGN AND ENGINEERING - 10%				$74,557.00
INFLATION - 3%				$22,367.10
CONSTRUCTION COST				$991,608.10



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Recreation trail example

Sharrow example

Avoca
Trail Improvements

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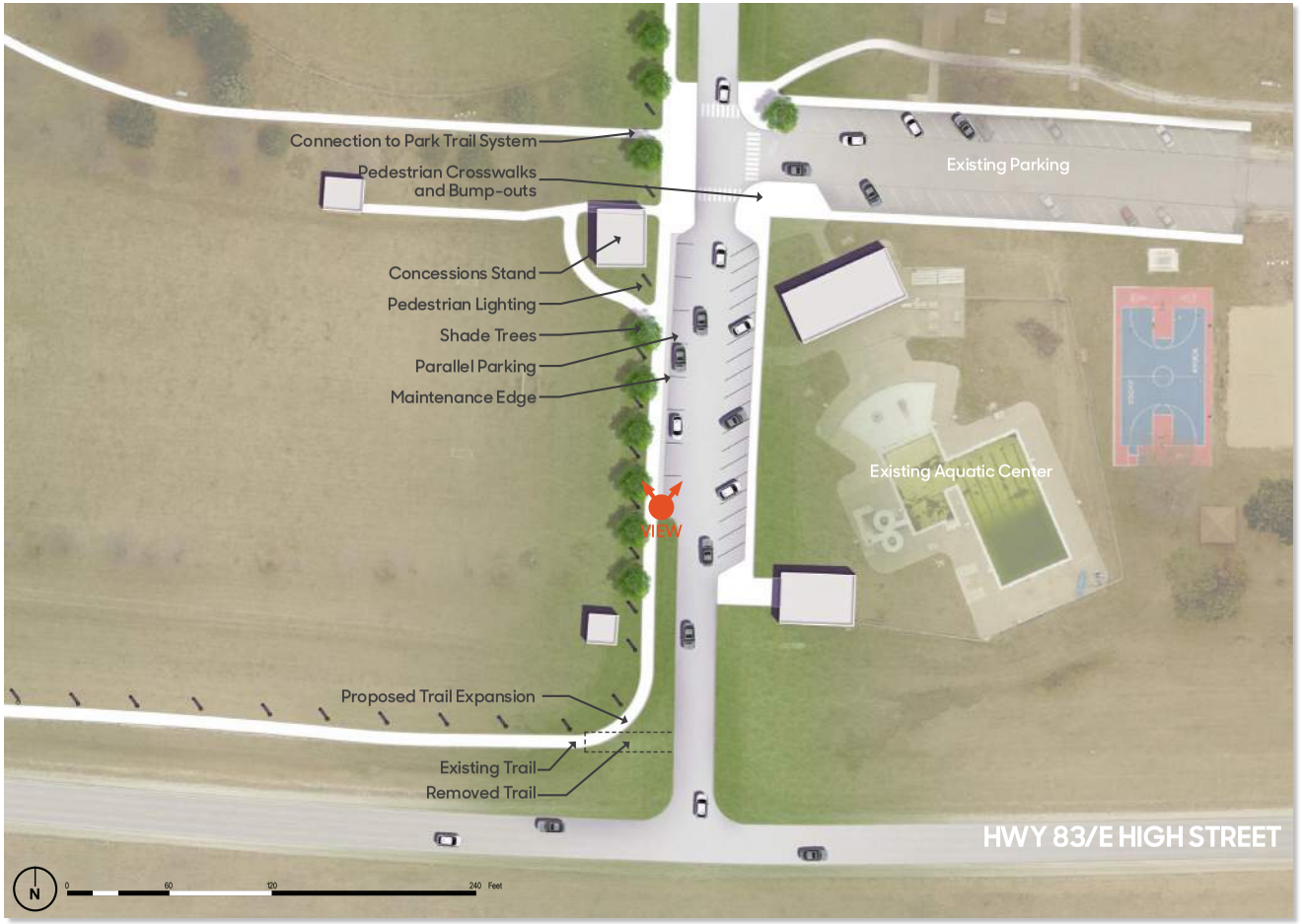
Iowa's Living Roadways community visioning

Edgington Memorial Park

Edgington Memorial Park holds many of the Avoca's park amenities, such as the Avoca Family Aquatic Center, fields and courts, a disc golf course, dog park, park shelters and water access to the East Branch of the West Nishnabotna River. While the park is a huge attraction for residents, it is located east of town along Highway 83. An existing trail leads to the park's entry, but bicyclists and other trail users must then compete with vehicles parking at the aquatic center or soccer field for a traversable route.

Proposed improvements include extending the trail into the park to connect with the existing park trails. Street trees and lighting would make this a friendlier pedestrian environment and would signal to drivers to reduce their speeds in this area. Bump-outs at the northwest intersection from the aquatic center would also create a safer experience for pedestrians crossing to the concessions stand on the west side of the main park entry drive.



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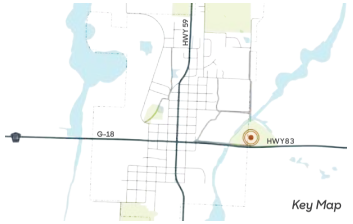
continued on Board 11b



Avoca
Edgington Memorial Park

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Edgington Memorial Park

With a grade-separated trail extending into the park, vehicle and pedestrian traffic have clear zones of use, improving both safety and comfort at the park entrance. The incorporation of shade trees and lighting increase pedestrian comfort throughout the day on the trail and the adjacent soccer field, and also serve as a traffic-calming device for vehicles entering the park.

Opinion of Probable Cost

EDGINGTON MEMORIAL PARK				
Description	Quantity	Unit	Unit Cost	Extended Amount
DEMOLITION				
P.C.C Walk	1,119	SF	$3.00	$3,357.00
HARDSCAPE				
Concrete Trail	12,530	SF	$6.00	$75,180.00
Concrete Paving Curb & Gutter	902	LF	$35.00	$31,570.00
UTILITIES				
Site Lighting - Pedestrian Scale	21	EA	$4,000.00	$84,000.00
LANDSCAPE				
Deciduous Shade Trees - 2" Caliper	10	EA	$400.00	$4,000.00
Sod	9,036.00	SF	$1.50	$13,554.00
SUB-TOTAL - BASE BID				$211,661.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$10,583.05
CONTINGENCY - 15%				$31,749.15
DESIGN AND ENGINEERING - 10%				$21,166.10
INFLATION - 3%				$6,349.83
CONSTRUCTION COST				$281,509.13

With a grade-separated trail extending into the park, vehicle and pedestrian traffic have clear zones of use, improving both safety and comfort at the park entrance. The incorporation of shade trees and lighting increase pedestrian comfort throughout the day on the trail and the adjacent soccer field, and also serve as a traffic-calming device for vehicles entering the park.

Existing view looking north towards concessions stand

Existing view looking north from park entry drive

Key Map

Avoca
Edgington Memorial Park

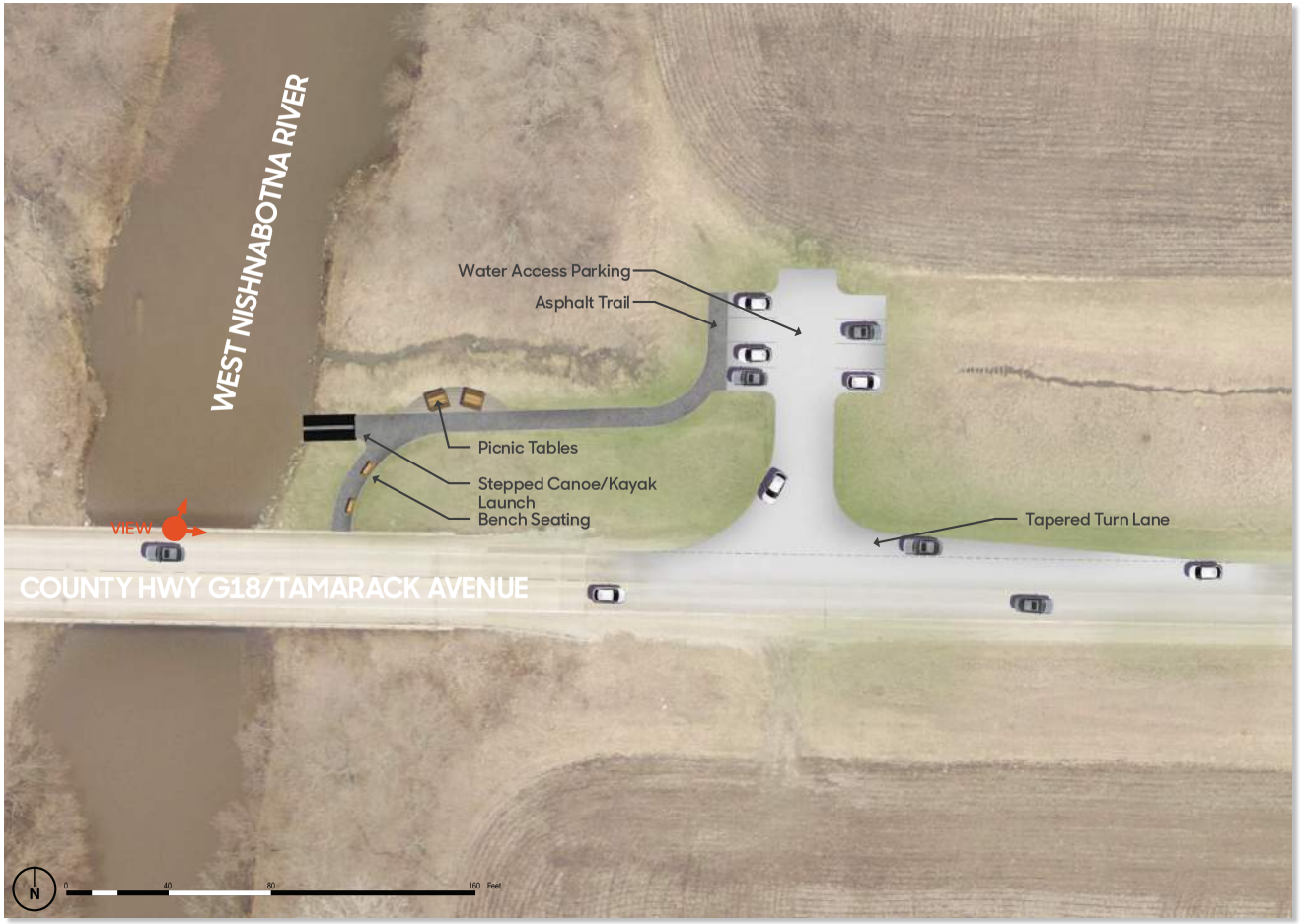
RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

G18 Water Access

While the East Branch of the West Nishnabotna River is accessible from Edgington Memorial Park, the West Branch does not have a designated water access point.

The Avoca visioning committee described this stretch of the river as a unique recreation experience north of the confluence of the East and West Branches. An existing pull-off on the northeast side of the intersection of the West Branch and County Highway G18 (Tamarack Avenue) is a prime location for a water access point. The existing pull-off from the highway slopes steeply down to a level gravel turnaround, and seems to double as a farm field access drive. Proposed improvements include paving a tapered turn-lane and access drive down to a small parking area. An asphalt trail would lead to a small picnic and seating area adjacent to a stair-stepped canoe/kayak launch point. The launch point would be constructed with 6x6-inch plastic timbers and gravel per the Iowa DNR's Stair-Step Launch design. Necessary agreements would need to be acquired for the parking area within the adjacent farmland.



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continued on Board 12b

Avoca

G18 Water Access

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

G18 Water Access

Solidifying this informal water access into an accessible amenity will help Avoca capitalize on its connection to the river. An additional launch point will encourage more residents to enjoy the natural landscape and give them the opportunity to support a healthier lifestyle. A greater focus on recreation along the Nishnabotna can create a draw for visitors and emphasize the identity of Avoca as hub for water access.

Opinion of Probable Cost

G18 WATER ACCESS				
Description	Quantity	Unit	Unit Cost	Extended Amount
DEMOLITION				
Temporary Erosion Control	1	LS	$5,000.00	$5,000.00
Site Grading	1	LS	$10,000.00	$10,000.00
Clearing and Grubbing	1	LS	$2,500.00	$2,500.00
HARDSCAPE				
Asphalt	5,500	SF	$4.00	$22,000.00
H.M.A Trail (8' wide)	240	SY	$56.00	$13,440.00
SITE IMPROVEMENTS				
Picnic Tables	2	EA	$3,000.00	$6,000.00
Benches	2	EA	$2,000.00	$4,000.00
Stepped Canoe/Kayak Launch	1	LS	$20,000.00	$20,000.00
SUB-TOTAL - BASE BID				$82,940.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$4,147.00
CONTINGENCY - 15%				$12,441.00
DESIGN AND ENGINEERING - 10%				$8,294.00
INFLATION - 3%				$2,488.20
CONSTRUCTION COST				$110,310.20

Solidifying this informal water access into an accessible amenity will help Avoca capitalize on its connection to the river. An additional launch point will encourage more residents to enjoy the natural landscape and give them the opportunity to support a healthier lifestyle. A greater focus on recreation along the Nishnabotna can create a draw for visitors and emphasize the identity of Avoca as hub for water access.

Existing view looking east from the G18 bridge

Existing view looking west from the northeast access path

Key Map

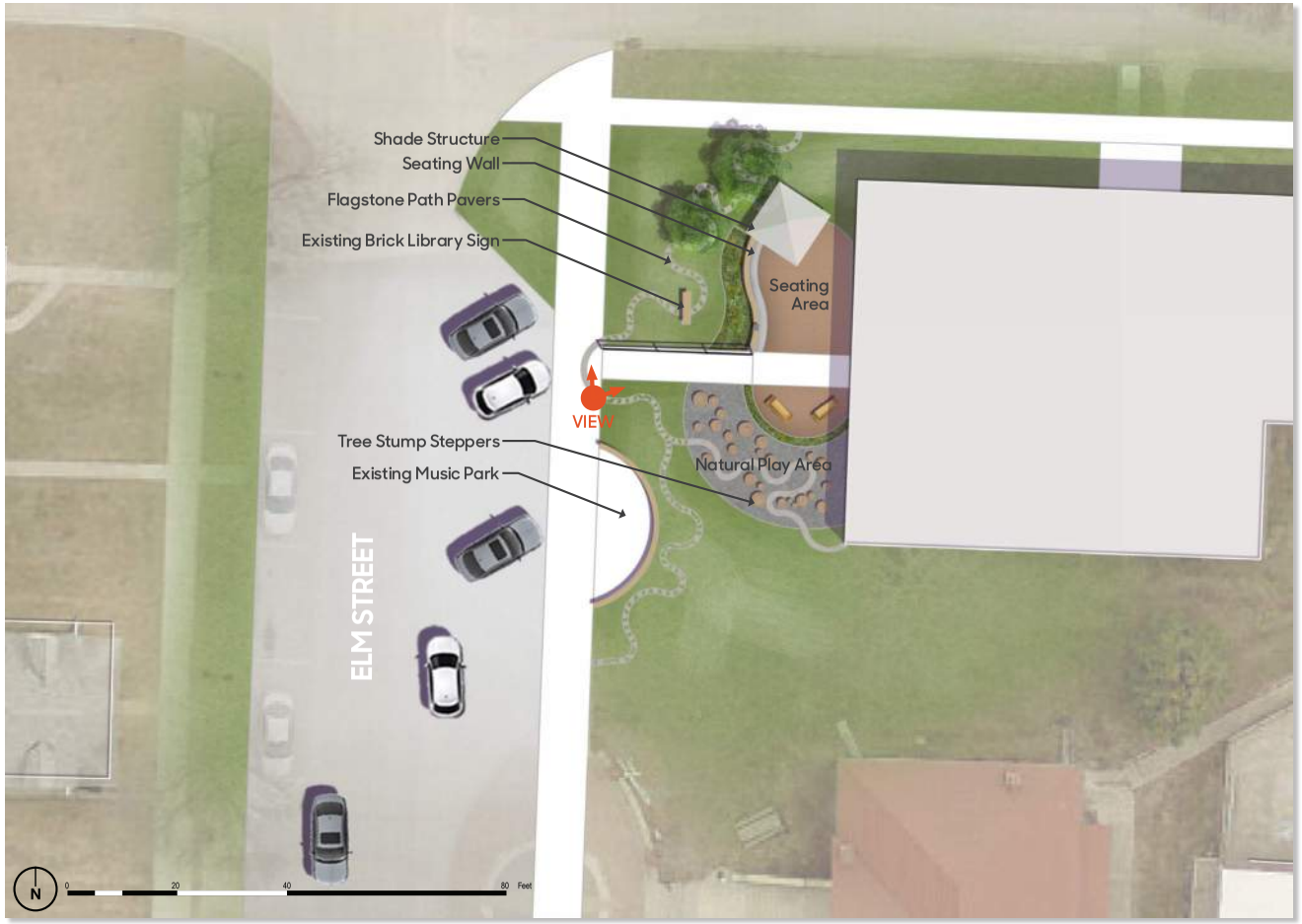
Avoca
G18 Water Access

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Library Activity Trail

The Avoca Public Library is located at the north end of the town's heavily used business district, which is very active during the bi-weekly farmer's market. The space in front of the library could be used to engage children during the periods of heavy usage along Elm Street and throughout the year via educational and engaging activities. This proposed design offers both active and passive spaces to fully utilize the multi-use area. A seating area north of the existing path allows for outdoor learning opportunities and small gatherings. The west façade of the library can be used as a backdrop for a projector, which can encourage more utilization of this area as an entertainment space that showcases movies and other events. A flagstone path that weaves throughout the library's lawn connects the northern half to the southern, which is focused around natural play. The pathway not only serves as physical connection and play element, but is also a visual representation of the Nishnabotna River that plays a large role in shaping the geography of Avoca. The river path connects into a natural play area that uses tree stumps, steps, and sensory material to encourage children to interact with the environment.



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continued on Board 13b

Avoca
Library Activity Trail

RDG Planning & Design
LAs: Anne Machian, PLA, ASLA; Bruce Niedermyer, PLA, ASLA, LEED AP
Intern: Dani Hodgson
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Library Activity Trail

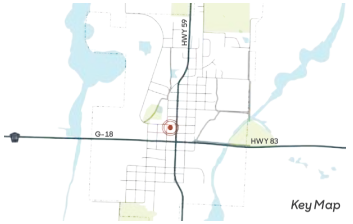
The existing masonry sign in front of the library can be integrated into the design and become an interactive element. Plantings along the west side of the seating wall can create a beautiful backdrop for photos taken by parents as they follow the winding flagstone path through the sign. A shade structure can be implemented into the seating area to promote its usage during hot, sunny periods of the day. Creating an active and engaging space for children can encourage more traffic during the farmers market and other town-wide events, in addition to supporting education and greater utilization of the library.

Opinion of Probable Cost

LIBRARY ACTIVITY TRAIL				
Description	Quantity	Unit	Unit Cost	Extended Amount
DEMOLITION				
P.C.C Walk	107	SF	$3.00	$321.00
HARDSCAPE				
Concrete Paving - Walks	107	SF	$6.00	$642.00
Special Paving - Brick	520	SF	$20.00	$10,400.00
PIP Rubberized Surfacing	455	SF	$18.00	$8,190.00
LANDSCAPE				
Deciduous Shade Trees - 2" Caliper	1	EA	$400.00	$400.00
Shrubs and Perennials	150	SF	$30.00	$4,500.00
SITE IMPROVEMENTS				
Flagstone Paver	251	SF	$30.00	$7,530.00
Shade Umbrella	1	EA	$5,000.00	$5,000.00
Tree Stump Steppers	1	LS	$10,000.00	$10,000.00
Benches	2	EA	$2,000.00	$4,000.00
Seating Wall	21	LF	$225.00	$4,725.00
SUB-TOTAL - BASE BID				$55,708.00
MOBILIZATION/GENERAL CONDITIONS - 5%				$2,785.40
CONTINGENCY - 15%				$8,356.20
DESIGN AND ENGINEERING - 10%				$5,570.80
INFLATION - 3%				$1,671.24
CONSTRUCTION COST				$74,091.64

The existing masonry sign in front of the library can be integrated into the design and become an interactive element. Plantings along the west side of the seating wall can create a beautiful backdrop for photos taken by parents as they following the winding flagstone path through the sign. A shade structure can be implemented into the seating area to promote its usage during hot, sunny periods of the day. Creating an active and engaging space for children can encourage more traffic during the farmers market and other town-wide events, in addition to supporting education and greater utilization of the library.

Existing view of the north lawn of the library



Key Map

Avoca
Library Activity Trail

RDG Planning & Design
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Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Implementation Strategies

The Community Visioning Program is just the beginning of the planning process for implementing projects that will enhance Avoca's quality of life. Although there is value in data gathering, analysis, conclusions, and recommendations, the most significant value is providing Avoca's residents the opportunity to look at their community from different perspectives and to motivate future change. The design team intends to provide the community with a framework for significant future development and community resource enhancement.

Key Recommendations – Based on economic return and increased quality of life, proposed projects are recommended to be approached individually, keeping in mind that some may run concurrently, and others may require phasing. It is important to have two goals related to implementation: create success and build on those successes. Initial projects should most likely require the least funding and present the fewest barriers to implementation. Many of the projects proposed in this document and through this process have numerous elements incorporated with one another. These elements have the potential to be separated and completed systematically. This will provide an opportunity to address smaller, more affordable portions of work to build success without substantial fundraising efforts.

Walnut St. & Crocker St. – When looking for funding sources for the intersection improvements proposed as a gateway to downtown, focusing on pedestrian safety will be the key. One of the most beneficial aspects of this concept is the fact that the improved pedestrian crossing will create a safe, walkable route. It will make a designated connection from Downtown Avoca and the west side of town to the east side of town and amenities such as Edgington Memorial Park for children and adults alike. Improving the pedestrian crossings with newly painted pavement accompanied by a Pedestrian Crosswalk system could align with several grant sourcing opportunities, including Iowa DOT's Transportation Alternatives Program, Safe Routes to Parks, or the America Walks Community Change Grants. Also, these improvements will significantly improve the walkability of Avoca, which is very important for health-based funding sources. The monumental turrets that signify the entrance to Downtown Avoca from Highway 59 could be paid for through private fundraising or in conjunction with grants that support creative placemaking initiatives.

Former Grain Elevator Site – While the Former Grain Elevator Site is currently privately owned, this site is a prime opportunity to establish public/private partnerships between the City of Avoca and a developer. Much of this concept relies on business owners and developers wanting to locate in this area. The city should make it a priority to provide incentives for these potential property owners to extend Avoca's thriving downtown district, grow the local economy, and provide an area where people can live, work, and play. While a private developer could fund the mixed-use residential and retail buildings on the perimeter of the site in phases, City investment in the public greenway and drive-

in movie theater would serve as an attraction to both newcomers and lifelong Avoca area residents. This concept extends Avoca's already thriving downtown along Elm Street, where there have already been significant improvements, largely because it is a Main Street Iowa Community. Opportunities from Main Street Iowa should continue to be utilized as community members move forward with the proposed projects in this document. The components of the design concepts that should be focused on for the development of this property are pedestrian safety, additional public amenities, the potential economic benefit to local businesses, and expansion of the housing market in Avoca. The expansion of the Avoca Trail system that extends through this concept could be paired with the funding opportunities listed for Trail Improvements (below) as well as Safe Routes to Schools funding. This project holds a more considerable community investment but could be implemented in phases.

Former School Site – This proposed concept also sits on a privately owned property, but like the Former Grain Elevator site, it is a prime opportunity to establish public/private partnerships between the City of Avoca and a developer. By allowing the east half of the site to be dedicated to townhomes, offering a unique option for residential housing not readily available elsewhere in Avoca, the western half becomes a dedicated neighborhood park, with opportunities to celebrate urban agriculture and stormwater management. Funding sources could potentially come from organizations that focus on edible landscaping and urban agriculture, such as Farm Credit Services of America, Iowa State Extension, and the USDA's Farmer's Market Promotion Program (FMPP). With the park's opportunity for outdoor recreation at a neighborhood scale, the Iowa DNR may be able to help with the funding of an inclusive ADA playground as part of The Land and Water Conservation Fund Program.

Mez Buttermilk Flat Park – Additional amenities proposed at this park could be funded from a variety of sources, however, in light of past flooding, focusing on improving existing stormwater management will be key. The goal of implementing stormwater management practices and integration into the park systems offers opportunities for grant funding. Slowing down the water and implementing vegetated rain gardens and bioretention areas in key locations will help improve the flooding in this area of Avoca and ensure this park remains resilient in the future. This is a top priority for many residents and city leaders. The NRCS may have grants available addressing how improvements here could improve the larger watershed of Avoca's region. Implementing these improvements in phases and educating the public on the goals will also benefit the overall health and performance of the intended stormwater system. Implementing some pilot projects to raise awareness will alert Avoca residents that progress is being made. By inviting volunteerism for public involvement, such as tree planting events with Trees Forever funding, public support can be gained by instigating personal investment in the success of the park. Seeing this progress invites residents to become involved as projects continue to move forward by providing physical and/or financial support. Another key component of the proposed improvments is the installation of solar lighting along the park's recreation

trail. Funding for solar lighting could be found from opportunities with the U.S. Department of Energy's Solar Park Grants Program.

Trail Improvements – The extension of recreational trails and development of a networked trail system offers opportunities to promote wellness while ensuring safer routes through the community. Acquiring property, easements, or long-term leases will be a portion of making accessible trail loops to connect to Avoca. The logistics of working in the right-of-way and negotiating access to private property will require careful consideration and a possible phased approach. These improvements will greatly improve the walkability of Avoca, which is very important in any health-based funding sources. For the trail extension underneath Highway 59, potential funding could be available from the Iowa DOT.

Edgington Memorial Park – The connection of the Highway 83 Recreational Trail to the Edgington Memorial Park System will significantly enhance safety at the park entrance by separating vehicular and pedestrian traffic. Funding sources could include Safe Routes to Parks or the Iowa DOT's Transportation Alternatives program.

G18 Water Access – The only designated water access point in Avoca puts in at the East Branch of the West Nishnabotna River. Adding an access point to the west branch, north of the confluence offers expanded water recreation opportunities and a different paddling experience for Avoca. While land agreements would need to be negotiated with the private owner adjacent to Highway G18, the majority of this development would be within the Iowa DOT's right of way and could be funded by the Iowa DNR's Land and Water Conservation Fund Program or other grant opportunities for water recreation.

Library Activity Trail – Improvements to the Library entrance will add a layer of activity for children adjacent to Downtown Avoca activities such as the bi-weekly Farmer's Market. By adding gathering areas and play elements adjacent to the streetscape, this project can add to the vibrancy of Elm Street, encouraging families to linger here. Funding for this project could come from sources such as the National Endowment for the Arts' Our Town Creative Placemaking Grants Program that emphasizes downtown enhancement and integrated arts, culture, and design in communities.

Avoca has strategically identified community projects with great potential for success. The community should take a two-pronged approach to project implementation, which includes completion of select projects within a short timeframe and commencement of the fundraising and planning process for larger-scale, keystone projects. These improvements will increase the quality of life for all citizens of Avoca, as well as develop and enhance a positive identity for the community.

Implementation Road Map

MILE 1 Assemble a steering committee with community members that are willing to become advocates for proposed improvements in Avoca.

MILE 2 Identify the committee's top three priority projects, confirm whether the projects should be developed at once or in phases, and evaluate associated costs.

MILE 3 Determine the most feasible project based on available grants/ funding opportunities.

MILE 4 Utilizing the concepts generated from the Community Visioning Process and this Feasibility Report, develop applications for applicable grants or funding.

MILE 5 Develop a project scope and proposed schedule to request services for design consultants, if necessary, or request bids from potential contractors.

MILE 6 Once your project is complete, reevaluate your committee's priority projects and repeat these steps to implement your next community improvement project!

Available Resources

There are many creative ways that communities can raise the resources necessary to fund and implement projects. The following list is a compilation of various sources and opportunities for funding the projects conceptualized during the visioning process. This list is not all-inclusive; it is meant to serve as a tool to assist in brainstorming ideas.

Funding Opportunities

- Grants
- Partnerships (private and public)
- Trusts and endowments
- Fund-raising and donations
- Memorials
- Volunteer labor
- Low-interest loans
- Implementation of project in phases

Funding Sources

- Iowa Department of Transportation
- Iowa Department of Natural Resources
- Iowa Department of Education
- Iowa Department of Economic Development
- Utility companies
- Trees Forever

Grant Programs

- Alliant Energy and Trees Forever Branching Out Program
- Federal Surface Transportation Program (STP)
- Iowa Clean Air Attainment Program (ICAAP)
- Iowa DOT/DNR Fund Iowa
- Iowa DOT Iowa's Living Roadways Projects Program
- Iowa DOT Living Roadways Trust Fund Program
- Iowa DOT Pedestrian Curb Ramp Construction Program
- Iowa DOT Statewide Transportation Enhancement Funding
- Iowa DNR Recreation Infrastructure Program
- Land and Water Conservation Fund
- National Recreational Trails Program
- Pheasants Forever
- Revitalization Assistance for Community Improvement (RACI) Grant Program
- State Recreational Trails Program
- Transportation Alternatives Program (TAP)