Final Report and Feasibility Study

Royal, Iowa

Program Partners:

Iowa Department of Transportation
Trees Forever
Iowa State University

Iowa's Living Roadways community visioning

Participants

Town Steering Committee

Dan Swanson
Sherman Nielsen
Fluff Ihry
Barb Fletcher
Alice Roghair
Cara Elbert
Iesha Toft
Kent Means
Jeff Jensen
Josh Toft
Jeff Van Westen
Anne Hagedorn

Trees Forever

770 7th Avenue
Marion, IA 52302
319-373-0650
www.treesforever.org

Program Manager
Jeff Jensen
(515) 320-6756
jjensen@treesforever.org

Iowa State University

Landscape Architecture Extension
2321 North Loop Drive, Suite 121
Ames, IA 50010
515-294-3721
www.communityvisioning.org

Julia Badenhope, Program Director and Professor of Landscape Architecture
Sandra Oberbroeckling, Project Manager and Extension Program Specialist

Bolton & Menk

1519 Baltimore Dr.
Ames, IA 50010
515-233-6100
www.bolton-menk.com

Joshua Shields, PLA, ASLA
(515) 233-6100 ext. 2913
Joshua.Shields@bolton-menk.com

Nate Schlorholtz, ASLA
(515) 233-6100 ext. 3335
Nathan.Schlorholtz@bolton-menk.com

Fan Lan
Landscape Architecture Intern
Iowa State University

Table of Contents

About Bolton & Menk 2
Program Overview 3
Bioregional Assessments 6
- Settlement Patterns 6
- Historical Vegetation 8
- Regional Watershed 10
- Depth to Water Table 12
- Elevation and Flow 14
- Present Day Land Cover 16
- Present Day Vegetation 18
- Urban Forest 20

Transportation Assets and Barriers Assessment 22
- Overview 22
- What People Said 24
- Emerging Themes 26

Transportation Inventory and Analysis 28
Goal Setting 30
Community Concept Overview 32
Community Trail & Walking Routes 34
Formal Truck Routes 36
Park Improvements 38
Royalty Addition Secondary Access 40
Family of Signage 42
Implementation Strategies 46
Available Resources 48

About Bolton & Menk

In 1949, two hard working Midwesterners – John Bolton and Martin Menk – saw people in their surrounding communities with dreams of a bright future, a desire to grow, and a common challenge of aging infrastructure. Their goal: to help communities make progress by listening to what people want, finding the best solutions for their needs, and treating them right. The legacy of John and Martin lives on. We still want to help, we work hard every day, and we always remember what got us here – we're people helping people. Today, Bolton & Menk, Inc. has more than 400 employees including a professional staff of over 150 engineers, planners, landscape architects, and surveyors.

Bolton & Menk specializes in providing public infrastructure solutions. We want to take care of our clients by providing the best services and solutions for them. From advocating for our communities, to designing their dreams, to finding funding; we take pride in our work throughout the Upper Midwest. Because we live here too. We believe in the power of face-to-face meetings, friendly conversations, and a collaborative decision making process to keep your projects on schedule, within budget, and focused on real, workable solutions.

Beyond our technical experience and skills, our service is also based on management and product delivery strategies we have developed over time:
Listen to the client's needs and wants
Learn the characteristics and personality of each client
Communicate proactively with staff, stakeholders, and the public
Develop **effective solutions** through consensus building
Achieve the **client's vision**
Foster **long-term relationships**

We promise every client two things: we'll work hard for you and we'll do a good job. We take a personal interest in the work being done around us. And at the end of the day, we're **Real People** offering **Real Solutions**.

Riverfront Renaissance Improvements | Hastings, MN

Program Overview

The city of Royal is one of 10 communities selected to participate in the 2019 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

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 teams of professional landscape architects, design interns, and ISU faculty and staff. The program is sponsored by the Iowa Department of Transportation.

Community Goals

The Royal visioning committee identified a number of goals and priority areas during the visioning process:

- Improve pedestrian connectivity and accessibility to local destinations
- Design a trail through Triangle Park and Memorial Park and develop additional recreational amenities in Memorial Park
- Create a secondary access point into the Royalty Addition to increase accessibility and safety for motorists and pedestrians
- Designate formal truck routes to reduce conflict areas between pedestrians and motorists
- Develop a family of signage to strengthen community brand and assist visitors with way-finding

Capturing the Royal 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 schematic park improvements plan, pedestrian routes study, conceptual truck routes plan, signage concepts, and conceptual subdivision street access plan. These plans, as well as the inventory information, is illustrated in the following set of presentation boards.

01. Program Overview
02. Bioregional Context
03. Transportation Assets and Barriers Assessment
04. Transportation Behaviors and Needs Assessment
05. Transportation Inventory and Analysis
06. Goal Setting
07. Concept Overview
08. Community Trail & Walking Routes
09. Formal Truck Routes
10. Park Improvements
11. Royalty Addition Secondary Access

12a & 12b. Family of Signage

Goal-setting meeting

Community design workshop

Preliminary design review

Memorial Park design opportunity

Program Overview

The city of Royal is one of 10 communities selected to participate in the 2019 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

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.

Community Goals

The Royal visioning committee identified a number of goals and priority areas during the visioning process:

Improve pedestrian connectivity and accessibility to local destinations

- Design a trail through Triangle Park and Memorial Park and develop additional recreational amenities in Memorial Park
- Create a secondary access point into the Royalty Addition to increase accessibility and safety for motorists and pedestrians
- Designate formal truck routes to reduce conflict areas between pedestrians and motorists
- Develop a family of signage to strengthen community brand and assist visitors with way-finding

Capturing the Royal 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 schematic park improvements plan, pedestrian routes study, conceptual truck routes plan, signage concepts, and conceptual subdivision street access plan. These plans, as well as the inventory information, is illustrated in the following set of presentation boards.

01. Program Overview
02. Bioregional Context
03. Transportation Assets and Barriers Assessment
04. Transportation Behaviors and Needs Assessment
05. Transportation Inventory and Analysis
06. Goal Setting
07. Concept Overview
08. Community Trail & Walking Routes
09. Formal Truck Routes
10. Park Improvements
11. Royalty Addition Secondary Access

12a & 12b. Family of Signage

M36 and Main St. intersection

Triangle Park and adjacent grain elevator

Royal

Program Overview

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Bioregional Assessment

Settlement Patterns

This board uses maps 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). High-quality scans of the Atlas have been arranged to correspond closely with present-day maps revealing major landscape changes as well as features that have persisted, such as railroad rights-of-way and in some cases remnant vegetation patches.

Royal 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 the 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/

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 is arranged to correspond closely with the 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.

Royal 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?

Royal

Historical Settlement Patterns

Bioregional Context

Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer

Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

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. The vegetation 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]

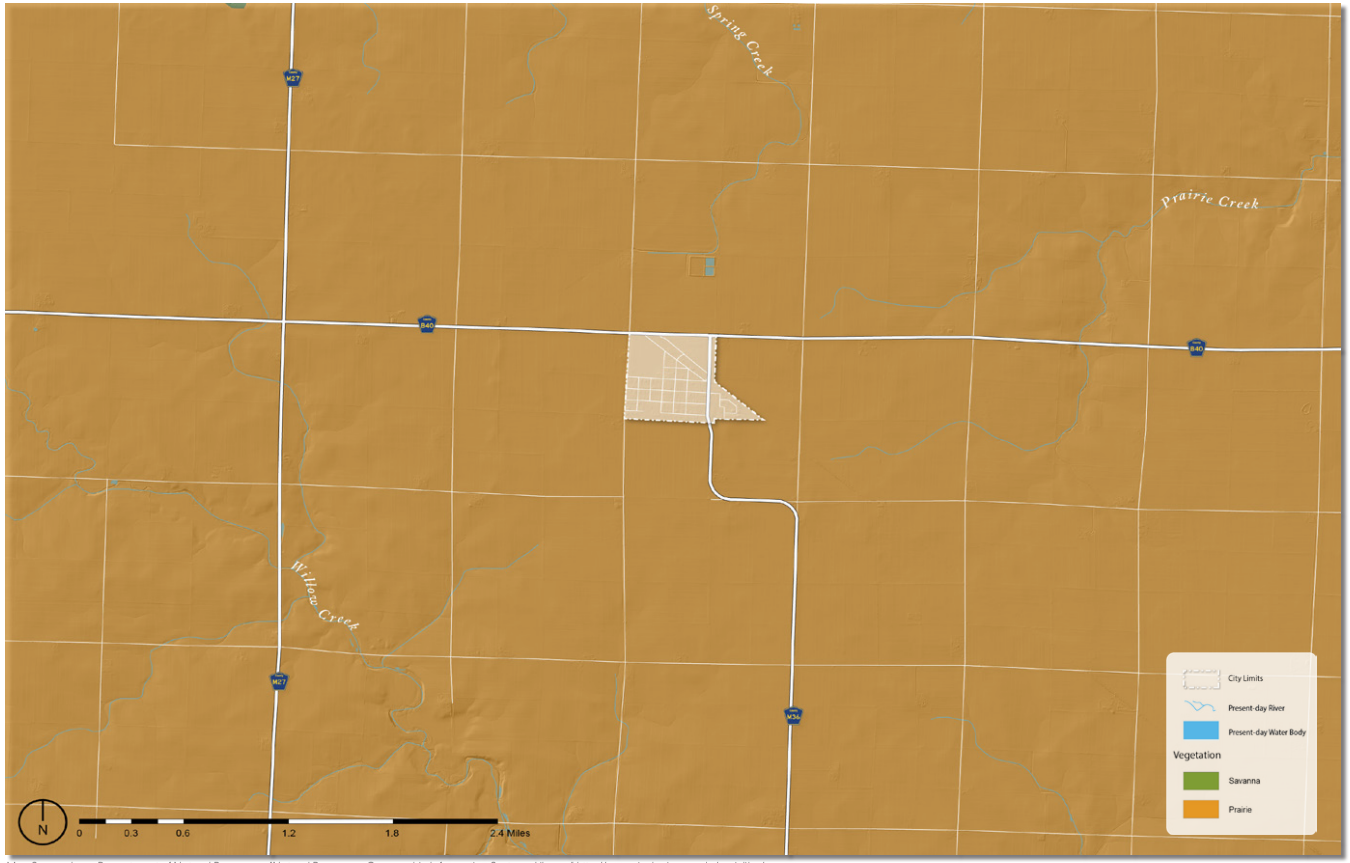
The plant community names mapped by the GLO surveyors varied. The original terminology they used has been preserved in the original data, but we have renamed them on this map to reflect names used to describe contemporary vegetation communities.

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 presented in the vicinity of your community:

1. Forest: Tree dominated, with a mostly closed canopy. Ground vegetation shade tolerant. Developed under infrequent fire.
2. 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.



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

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 presented in the vicinity of your community:

1. Forest: Tree dominated, with a mostly closed canopy. Ground vegetation shade tolerant. Developed under infrequent fire.
2. Prairie: Perennial non–woody plants; fire dominated.

[1] U.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.

Royal

Historical Vegetation

Bioregional Context
Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer
Iowa State University | Trees Forever | Iowa Department of Transportation

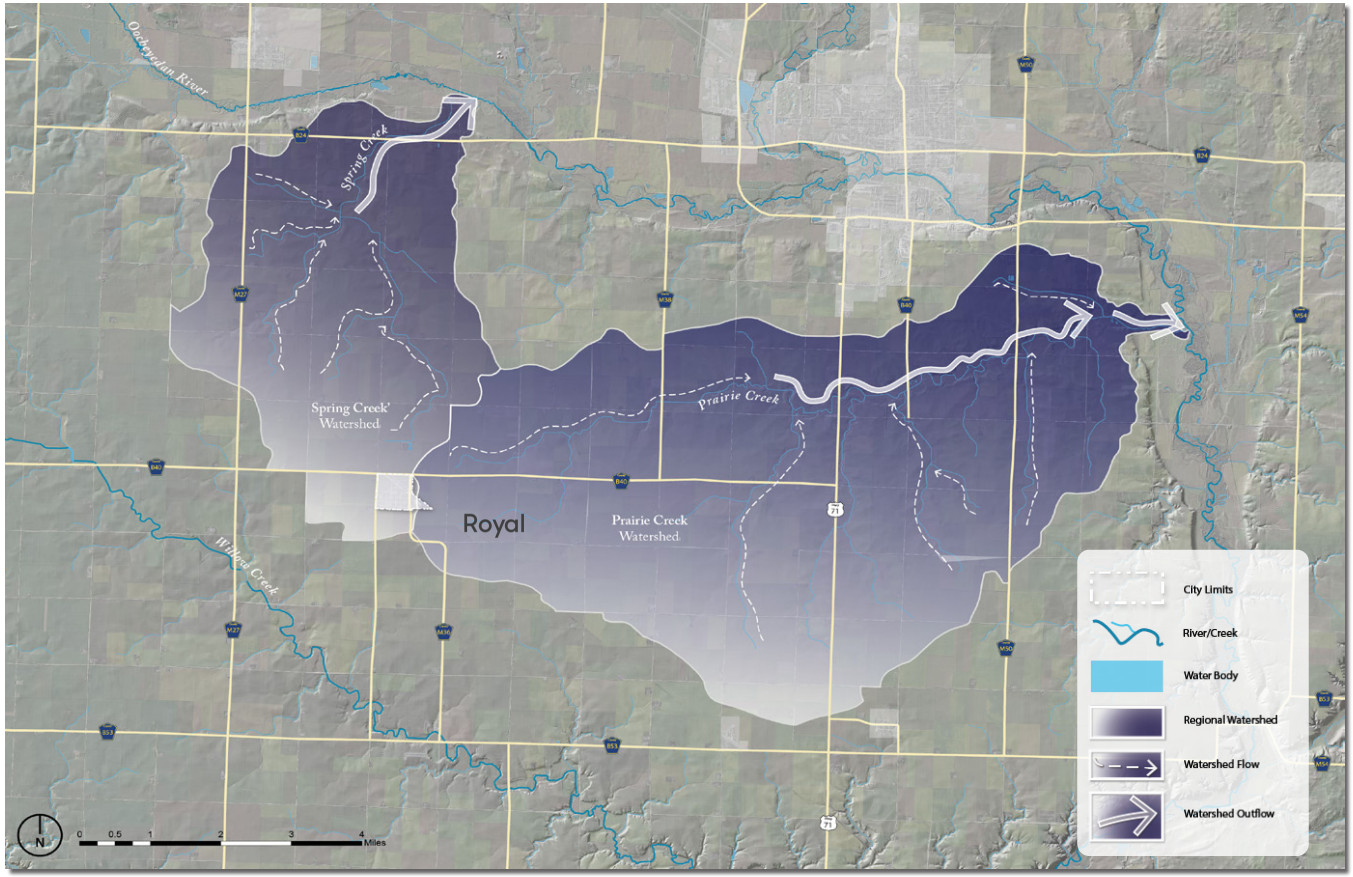
Iowa's Living Roadways community visioning

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.



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

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.

Royal
Regional Watershed

Bioregional Context
Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer
Iowa State University | Trees Forever | Iowa Department of Transportation

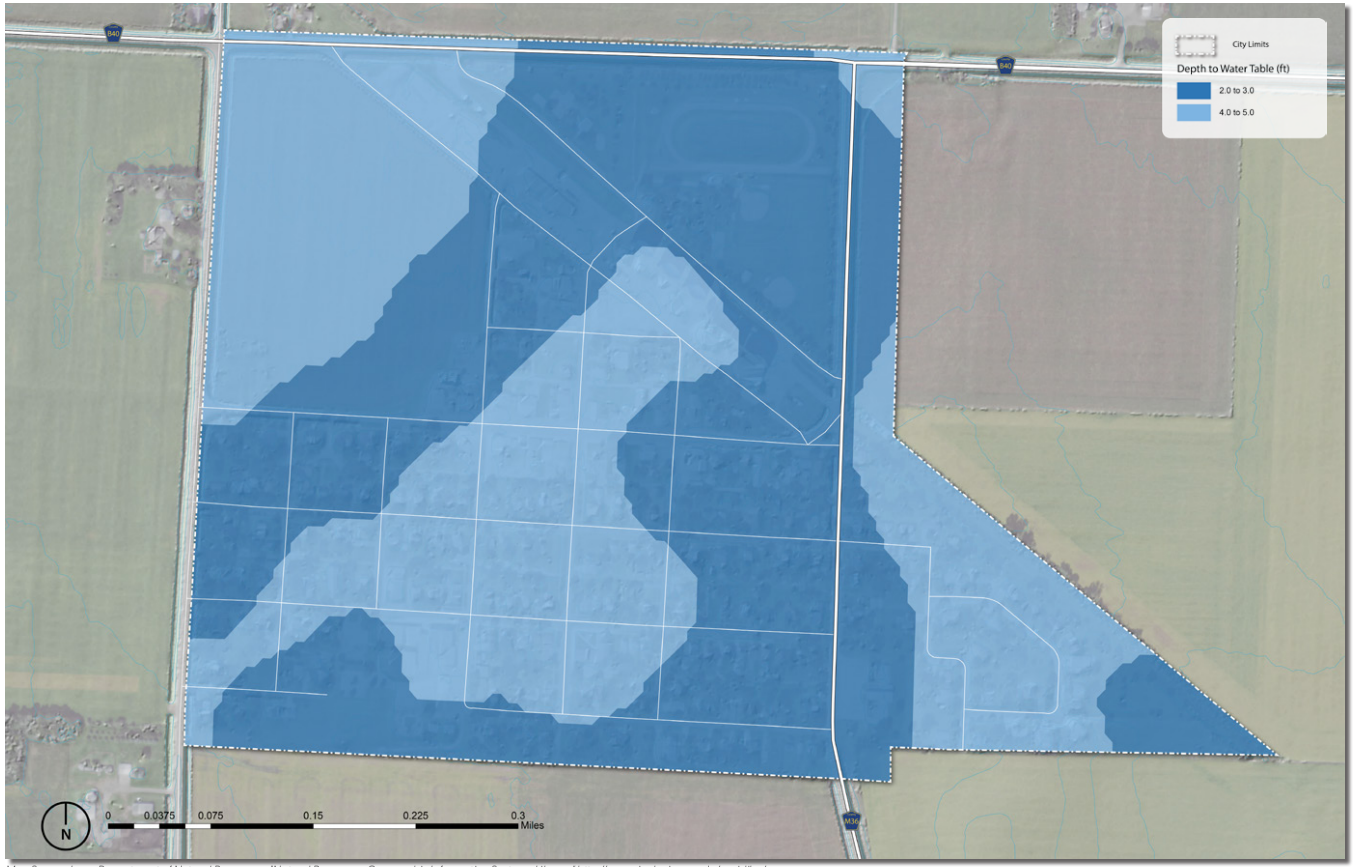
Iowa's Living Roadways community visioning

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 snow-melt, 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.



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

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.

Royal

Depth to Water Table

Bioregional Context
Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

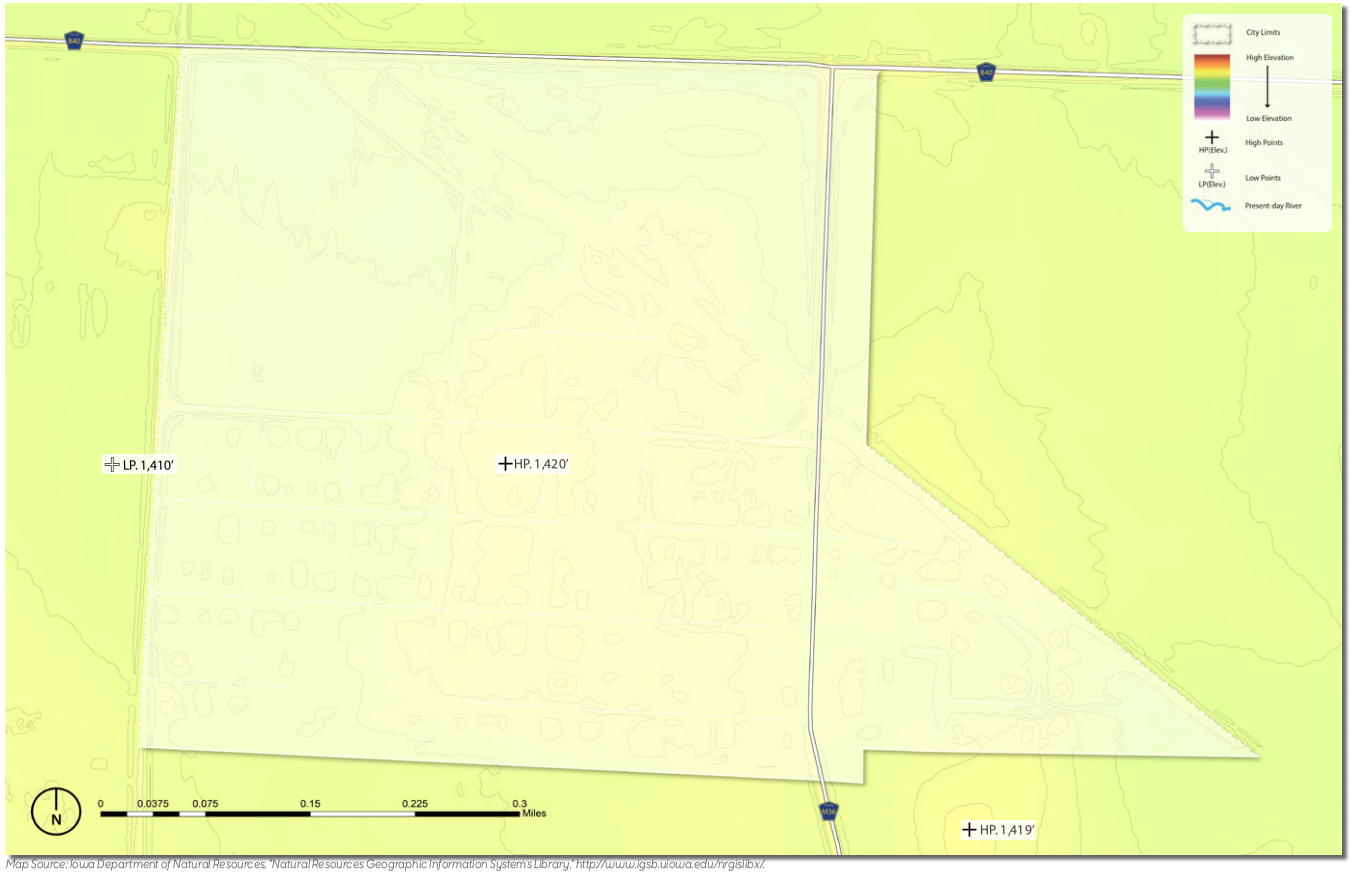
Elevation and Flow

The map to the right displays topographic differences in elevation using a combination of contour lines and the color gradient depicted in the legend. The high points 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. This map shows the two most important flood zones if they are 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.



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

Elevation and Flow

The map to the left displays topographic differences in elevation using a combination of contour lines and the color gradient depicted in the legend. The high points 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. This map shows the two most important flood zones if they are 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.

Note: The jurisdictional floodplain for this area has not been mapped by the Federal Emergency Management Agency (FEMA).

Royal

Elevation and Flow

Bioregional Context

Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer

Iowa State University | Trees Forever | Iowa Department of Transportation

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.

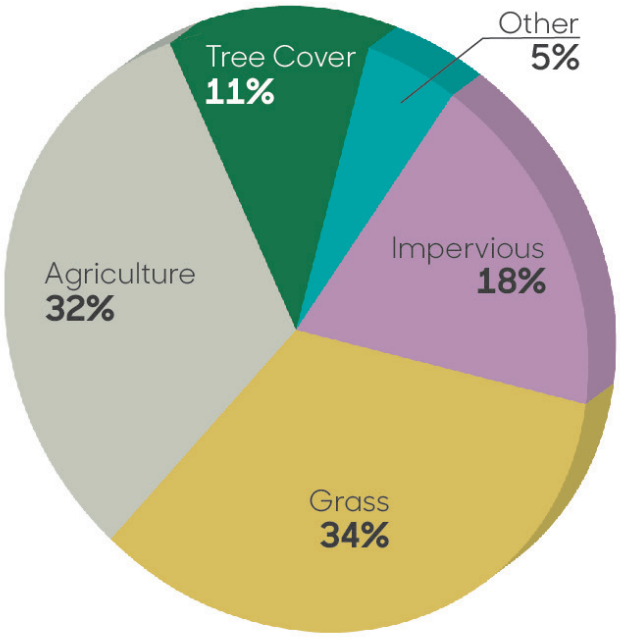
What do you observe about the dominant land cover types in your community?

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 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



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

Present-day Land Cover

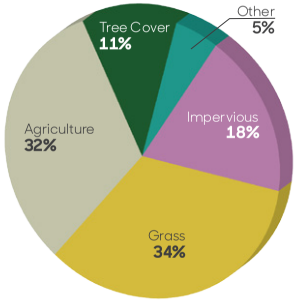
The land-cover map depicts both natural and man-made land-cover types with aerial imagery. The Iowa DNR created 15 unique classes for this dataset to differentiate land covers. Refer to the legend for a breakdown of land-cover types within your community boundaries.

What do you observe about the dominant land-cover 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 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

Royal

Present-day Land Cover

Bioregional Context

Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer

Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

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 Andrea's Atlas was drawn. Development typically removes vegetation where infrastructure is built, and then re-introduces vegetation for its functional and aesthetic value.

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

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 Andrea's Atlas was drawn. Development typically removes vegetation where infrastructure is built, and then re-introduces vegetation for its functional and aesthetic value.

Royal

Present-day Vegetation

Bioregional Context

Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer

Iowa State University | Trees Forever | Iowa Department of Transportation

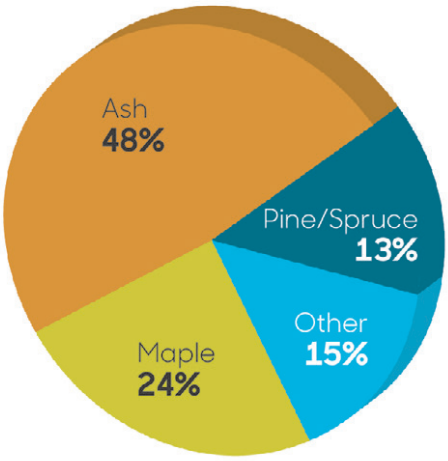
Iowa's Living Roadways community visioning

Urban Forest

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

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

"Ash" trees are distinguished with a purple cross. 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] EAB was first discovered in Iowa in 2010 and was confirmed in 65 Iowa counties as of 2018.[3]



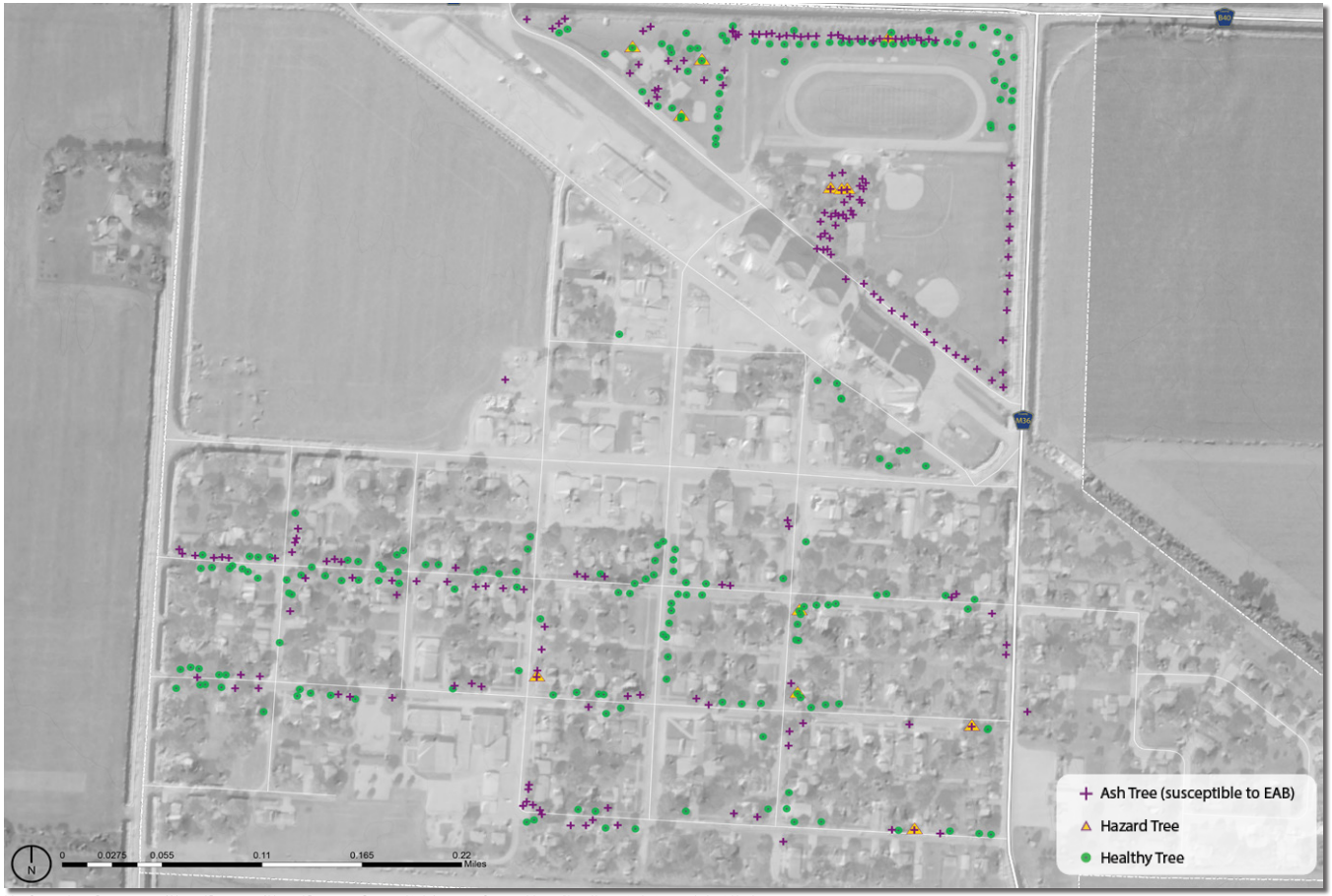
The graphic shows how many of the city's trees are of the same species. There is a strong possibility that 48% (ash trees) of Royal's city—owned trees will die once EAB is carried to the area. With proper planning and management, the city's canopy can be improved by planting suitable trees that can gradually replace hazard trees 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 EAB is a significant threat to our urban, suburban, and rural forests because it kills stressed and healthy ash trees. EAB is so aggressive that ash trees may die within two or three years after they become infested. Ash trees are as important ecologically as they are economically in the forests of the eastern United States. 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 website," Entomology and Plant Science Bureau of the Iowa Department of Agriculture and Land Stewardship (IDALS), last updated September 12, 2018, http://www.iowatreepests.com/eab_home.html.



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

Royal Urban Forest

Bioregional Context

Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giannis Koutsou, Zoey Mauck, Abigail Schafer

Iowa State University | Trees Forever | Iowa Department of Transportation

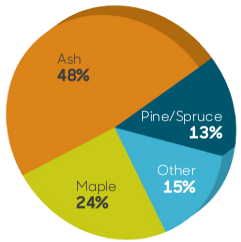
The Urban Forest

The map on the left depicts city owned—trees that have been surveyed by the Iowa Department of Natural Resources (Iowa DNR).[1] The trees are divided into three categories: healthy trees, hazard trees, and ash trees.

"**Hazard**" trees are distinguished with a yellow triangle symbol. The hazard designation reflects tree condition using the Iowa DNR's priority rating. Trees highlighted on this map are "dangerous, dead, or dying, and no amount of maintenance will increase longevity or safety;" or are infected by "insects, pathogens, or parasites."

"**Ash**" trees are distinguished with a purple cross. 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] EAB was first discovered in Iowa in 2010 and was confirmed in 65 Iowa counties as of 2018.[3]

The graph shows how many of the city's trees are of the same species. There is a strong possibility that 48% (ash trees) of Royal's city—owned trees will die once EAB is carried to the area. With proper planning and management, the city's canopy can be improved by planting suitable trees that can gradually replace hazard trees 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 EAB is a significant threat to our urban, suburban, and rural forests because it kills stressed and healthy ash trees. EAB is so aggressive that ash trees may die within two or three years after they become infested. Ash trees are as important ecologically as they are economically in the forests of the eastern United States. 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 website," Entomology and Plant Science Bureau of the Iowa Department of Agriculture and Land Stewardship (IDALS), last updated September 12, 2018, http://www.iowatreepests.com/eab_home.html.

Iowa's Living Roadways community visioning

Transportation Assets and Barriers

Overview

Transportation is integral to small-town life and a vibrant economy. In the context of the Community Visioning Program, we recognize walking, biking, and driving as quintessential modes of travel to various destinations important to residents and visitors. Access to these destinations is crucial for many everyday activities—getting to work and school, participating in community events, and providing for basic needs such as food, health care, and healthy activity.

In this participatory assessment, we want to find out which factors and conditions affect transportation use in Royal, where these factors and conditions are most prevalent, and how they influence route and transportation choices locally. Because residents have the best knowledge of how Royal's transportation system works, we use focused, small-group conversations, mapping, and photos of the best and worst to understand local transportation.

Different Users = Different Needs

To capture insights about transportation from a variety of perspectives, we invited Royal residents with different transportation needs to participate in focus groups. A total of 56 residents attended Royal's workshop. Participants were separated into five user groups and the Royal steering committee.

Actives

(11 participants): This user group represents those in the community who engage in outdoor recreation, including cycling, walking, running, swimming, skiing, etc. The availability of multiple venues for outdoor recreation matters to this group.

Mobility Impaired

(3 participants): This user group is directly affected by accessibility barriers such as high curbing and uneven sidewalks that make it difficult to operate mobility-aiding equipment effectively. Handicapped parking, curb ramps, and smooth surfaces are critical transportation features.

Older Adults

(7 participants): Accessibility—both in terms of physical access and proximity—is a major concern for this user group. Because some people in this user group do not or are unable to drive, having goods and services within walking distance is important.

Youth

(16 participants): This group uses primarily non-motorized modes of transportation, so pedestrian- and bike-friendly streets and sidewalks are important. These users value the ability to get to destinations on foot or via bicycle and having goods and services within walking distance.

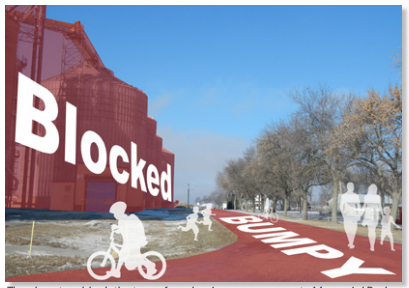
Parents

(7 participants): Safety of their children is a primary concern of this user group. Access to safe and easy routes to school activities is another significant factor to this group. Parents of young children desire smooth, wide surfaces for strollers.

Steering Committee

(6 participants): The common denominator for this user group is that their observations are influenced by special knowledge of the transportation system acquired during the Community Visioning assessment process. As a result, this group is more representative of decision makers.

Main Street Amenities: benches, planters, good lighting, good snow removal - lively place.



The elevators block the town from having easy access to Memorial Park and the gravel drive makes biking there difficult.

Memorial Park has shade, shelter, and good paths. It attracts people from out of town.

Dips in intersections with Long Street create bumpy conditions for bikers and drivers.

The nature center behind the school is connected with a path, has shelters, and shade.

Speeding traffic and no sidewalks along B40, north of town, make walkers and bikers feel unsafe.

What Factors Affect Transportation in Royal?

Transportation is integral to small-town life and a vibrant economy. In the context of the Community Visioning Program, we recognize walking, biking, and driving as quintessential modes of travel to various destinations important to residents and visitors. Access to these destinations is crucial for many everyday activities—getting to work and school, participating in community events, and providing for basic needs such as food, health care, and healthy activity.

In this participatory assessment, we want to find out which factors and conditions affect transportation use in Royal, where these factors and conditions are most prevalent, and how they influence route and transportation choices locally. Because residents have the best knowledge of how Royal's transportation system works, we use focused, small-group conversations, mapping, and photos of the best and worst to understand local transportation.

Different Users = Different Needs

To capture insights about transportation from a variety of perspectives, we invited Royal residents with different transportation needs to participate in focus groups. A total of 56 residents attended Royal's workshop. Participants were separated into five user groups and the Royal steering committee.

Active Adults

(11 participants): This user group represents those in the community who engage in outdoor recreation, including cycling, walking, running, swimming, skiing, etc. The availability of multiple venues for outdoor recreation matters to this group.

Mobility Impaired

(3 participants): This user group is directly affected by accessibility barriers such as high curbing and uneven sidewalks that make it difficult to operate mobility-aiding equipment effectively. Handicapped parking, curb ramps, and smooth surfaces are critical transportation features.

Older Adults

(7 participants): Accessibility—both in terms of physical access and proximity—is a major concern for this user group. Because some people in this user group do not or are unable to drive, having goods and services within walking distance is important.

Youth

(16 participants): This group uses primarily non-motorized modes of transportation, so pedestrian- and bike-friendly streets and sidewalks are important. These users value the ability to get to destinations on foot or via bicycle and having goods and services within walking distance.

Parents

(7 participants): Safety of their children is a primary concern of this user group. Access to safe and easy routes to school activities is another significant factor to this group. Parents of young children desire smooth, wide surfaces for strollers.

Steering Committee

(6 participants): The common denominator for this user group is that their observations are influenced by special knowledge of the transportation system acquired during the Community Visioning assessment process. As a result, this group is more representative of decision makers.

Royal

Overview

Transportation Assets and Barriers Analysis
Julia Badenhope, Sandra Oberbroeckling, Riley Dunn, Emma Georgeff, Clare Kiboko, Abigail Schafer, Laura Schwartz, Chad Shultz
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

What People Said

Actives

"All these [north-south] streets are pretty good for walking… because they['ve] got big bumps, so it kind of slows traffic."

"This town has a lot of amenities that small towns do not have. We have electrical, grocery store, a café, and eating place at nights on and so forth."

"We sometimes walk all the way down through the new addition, make a circle."

"They have so much traffic [at the elevator], they don't want people… cutting through."

"During the winters I walk in the school, in the gym at the school. They have it open in the mornings before the kids get there."

"[The elevator] really kind of cuts us off from a wonderful facility here, so it would be wonderful if we could find a way to make it safe for children to get to [the park]."

Older Adults

" Every time we drive up at night, [my wife] says, 'I'd like to see more lighting there to the highway.' The electronic sign is a nice landmark because you know you're coming close to town."

"I walk when the weather is nice down through the new addition, and in addition to that, I walk the blacktop."

"In the summertime, I walk a lot of sidewalks, but I walk streets too because they are level."

"There's a lot of sidewalk where it is so uneven or crumbling that I'd rather go out in the street..."

"I kind of avoid the graveled areas by the Memorial Park and the elevators and all that kind of uneven ground and gravel. I prefer to stay near pavement."

Mobility Impaired

"…in front of the community building, there's a ramp that you can use, and there's one other on the south side too, but [those are] the only two in town…"

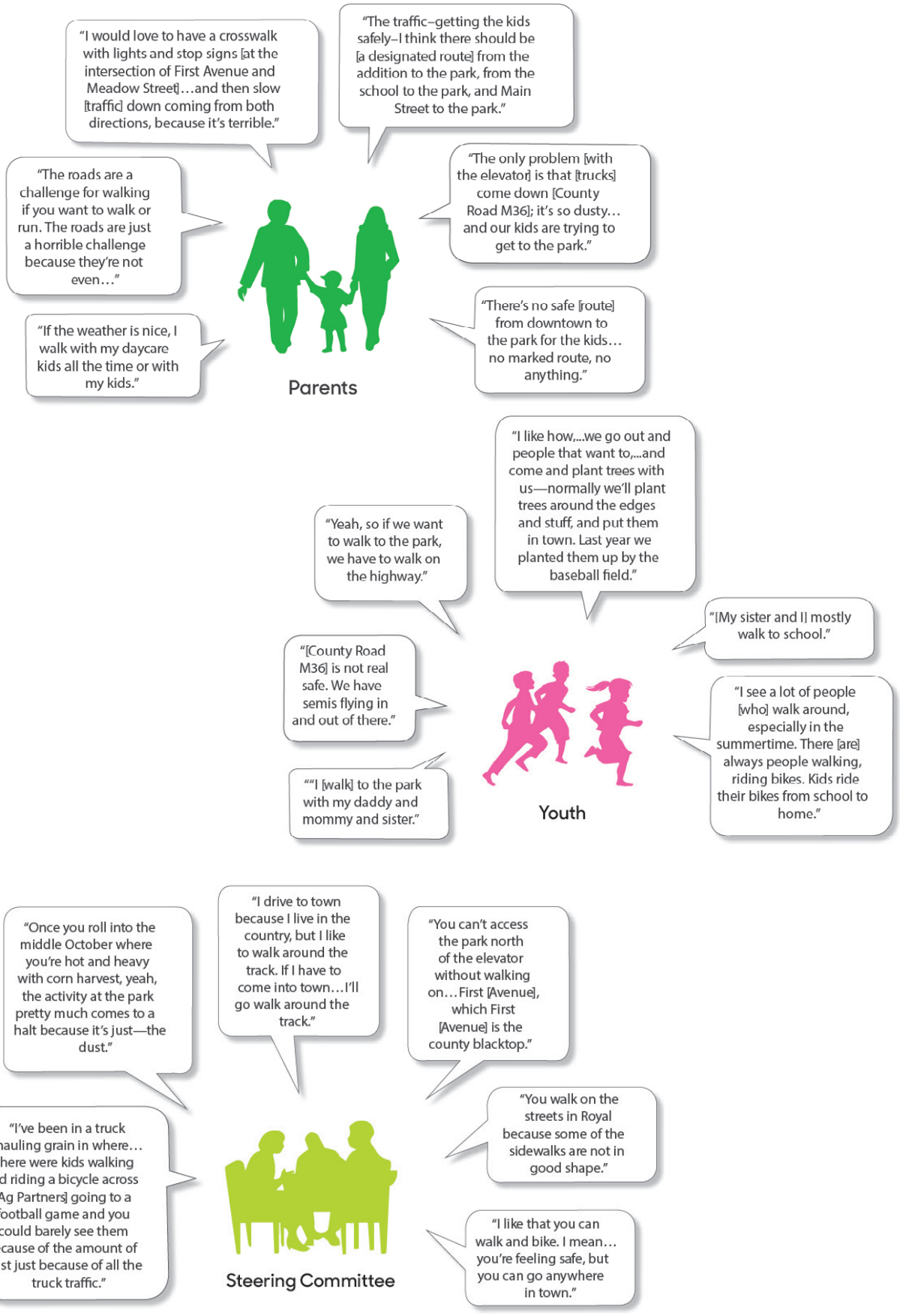
"The grocery store and the restaurant will deliver if you have to have it….You don't see that in the cities."

"And the school has an adequate place to park and get in. It's all level. You don't climb."

"If you go by the bank, there's a high curb there."

"I use my walker on the sidewalks."

"My biggest fear is falling, and so even with a cane, you hit a slick spot…and that's all it takes."


"I would love to have a crosswalk with lights and stop signs [at the intersection of First Avenue and Meadow Street]…and then slow [traffic] down coming from both directions, because it's terrible."
"The traffic–getting the kids safely–I think there should be [a designated route] from the addition to the park, from the school to the park, and Main Street to the park."
"The roads are a challenge for walking if you want to walk or run. The roads are just a horrible challenge because they're not even…"
"The only problem [with the elevator] is that [trucks] come down [County Road M36]; it's so dusty… and our kids are trying to get to the park."
"If the weather is nice, I walk with my daycare kids all the time or with my kids."
"There's no safe [route] from downtown to the park for the kids… no marked route, no anything."
Parents
"I like how,...we go out and people that want to,...and come and plant trees with us—normally we'll plant trees around the edges and stuff, and put them in town. Last year we planted them up by the baseball field."
"Yeah, so if we want to walk to the park, we have to walk on the highway."
"[My sister and I] mostly walk to school."
"[County Road M36] is not real safe. We have semis flying in and out of there."
"I see a lot of people [who] walk around, especially in the summertime. There [are] always people walking, riding bikes. Kids ride their bikes from school to home."
""I [walk] to the park with my daddy and mommy and sister."
Youth
"Once you roll into the middle October where you're hot and heavy with corn harvest, yeah, the activity at the park pretty much comes to a halt because it's just—the dust."
"I drive to town because I live in the country, but I like to walk around the track. If I have to come into town…I'll go walk around the track."
"You can't access the park north of the elevator without walking on…First [Avenue], which First [Avenue] is the county blacktop."
"You walk on the streets in Royal because some of the sidewalks are not in good shape."
"I've been in a truck hauling grain in where… there were kids walking and riding a bicycle across [Ag Partners] going to a football game and you could barely see them because of the amount of dust just because of all the truck traffic."
"I like that you can walk and bike. I mean… you're feeling safe, but you can go anywhere in town."
Steering Committee

Emerging Themes

Discovering themes and consistencies among user groups helps the steering committee to identify solutions to address the needs of all. The chart on the opposite page displays each user group's collective thoughts on particular issues in comparison with the other user groups in the community.

Actives drive, and walk and bike regularly, either as part of a daily commute or as recreational/sports training. They would like a pedestrian/cyclist connection between Memorial Park and the rest of town.

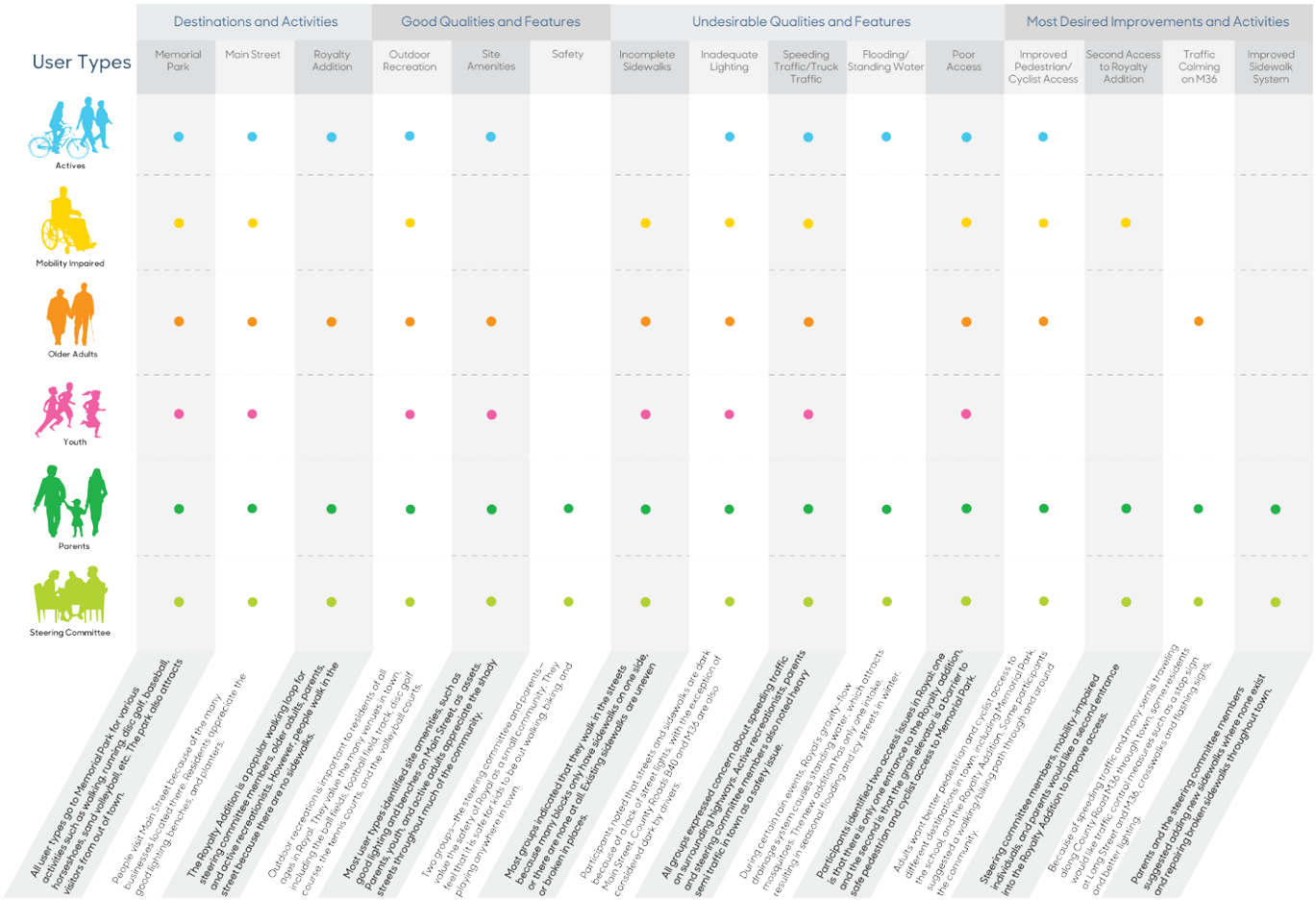
Mobility-impaired individuals walk and drive to get around. This group is concerned mainly with having smooth surfaces and ramps available.

Older adults drive, walk, and bike. They prefer to walk in the street rather than on the sidewalks because the sidewalks are uneven and/or broken in some places.

Youth walk, drive, and bike around town. They are most interested in having access to Memorial Park. Youth would like more outdoor recreation opportunities.

Parents walk, drive, and bike. They are concerned about their children's transportation experience. Parents top priority is safe access to Memorial Park for their kids.

The steering committee walks, drives, and bikes. Like parents, committee members would also like better access to the park for children. This group noted the grain dust problem at harvest time.



Actives drive, and walk and bike regularly, either as part of a daily commute or as recreational/sports training. They would like a pedestrian/cyclist connection between Memorial Park and the rest of town.

Mobility-impaired individuals walk and drive to get around. This group is concerned mainly with having smooth surfaces and ramps available.

Older adults drive, walk, and bike. They prefer to walk in the street rather than on the sidewalks because the sidewalks are uneven and/or broken in some places.

Youth walk, drive, and bike around town. They are most interested in having access to Memorial Park. Youth would like more outdoor recreation opportunities.

Parents walk, drive, and bike. They are concerned about their children's transportation experience. Parents' top priority is safe access to Memorial Park for their kids.

The steering committee walks, drives, and bikes. Like parents, committee members would also like better access to the park for children. This group noted the grain dust problem at harvest time.

Royal
Emerging Themes

Transportation Assets and Barriers

Julia Badenhope, Sandra Oberbroeckling, Riley Dunn, Emma Georgeff, Clare Kiboko, Abigail Schafer, Laura Schwartz, Chad Schultz

Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Transportation Inventory and Analysis

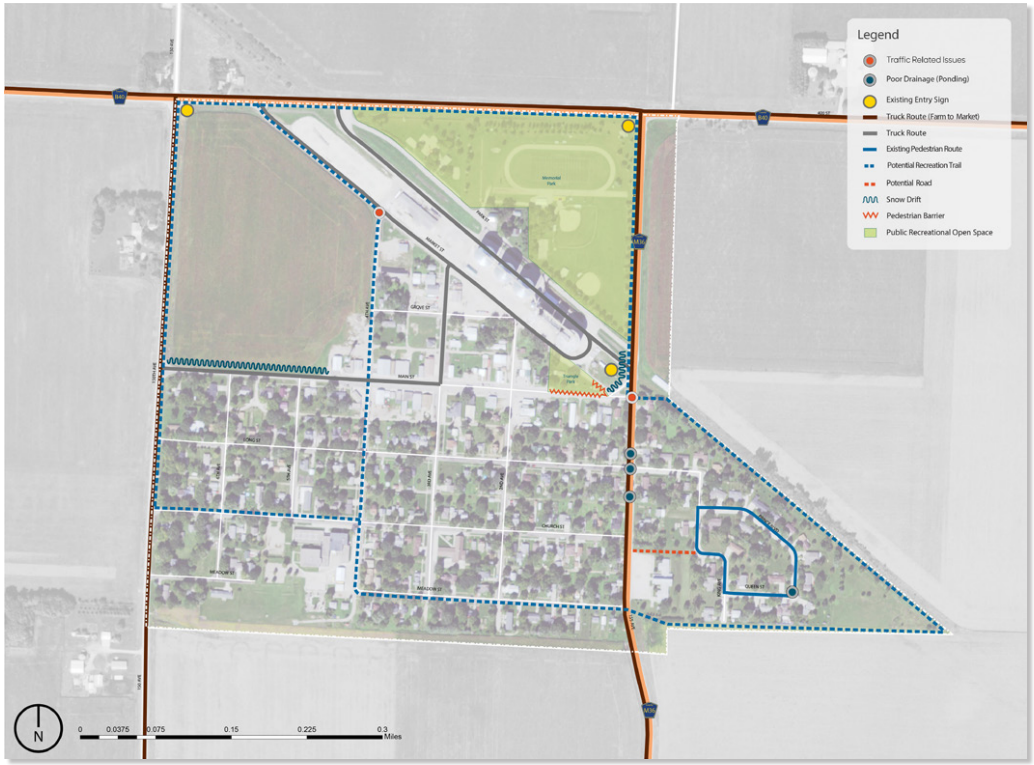
Knowledge of the transportation systems in an around a community is critical for sustainable transportation enhancement planning. Royal's transportation system includes paved and unpaved roadways, sidewalks, pedestrian and bike trails, and abandoned railroad beds.

Royal is bounded on the north by County Road B40 and is bisected along the eastern boundary by County Road M36.

The design team coordinated with Iowa Department of Transportation (DOT) planning staff, the Clay County Engineer, and local public works and maintenance personnel to identify past and future improvements to the community's transportation system. This discussion included topics of maintenance and other transportation-related constraints and opportunities in and around Royal.

Several transportation-related needs include providing opportunities for improved pedestrian infrastructure across current barriers. Improvements to existing roadways to address vehicular/pedestrian conflicts and areas of ponding would also address concerns voiced by the community. The need for better access to civic, cultural and natural destinations, including improved recreational/multi-modal infrastructure, were also noted during inventory of the transportation system.

Items of concern related to transportation systems include incomplete, narrow, and crumbling sidewalks and trails; unsafe intersections; poor connections to community destinations, especially over county highways and near the co-op. High vehicular speed along County Highway M36 and overlapping vehicular, bike, and pedestrian traffic to the park were also mentioned by residents.



Transportation Mapping

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

Royal is bounded on the north by County Road B40 and is bisected along the eastern boundary by County Road M36.

The design team coordinated with Iowa Department of Transportation (DOT) planning staff, the Clay County Engineer, and local public works and maintenance personnel to identify past and future improvements to the community's transportation system. This discussion included topics of maintenance and other transportation-related constraints and opportunities in and around Royal.

Several transportation-related needs include providing opportunities for improved pedestrian infrastructure across current barriers. Improvements to existing roadways to address vehicular/pedestrian conflicts and areas of ponding would also address concerns voiced by the community. The need for better access to civic, cultural and natural destinations, including improved recreational/multi-modal infrastructure, were also noted during inventory of the transportation system.

Items of concern related to transportation systems include incomplete, narrow, and crumbling sidewalks and trails; unsafe intersections; poor connections to community destinations, especially over county highways and near the co-op. High vehicular speed along County Highway M36 and overlapping vehicular, bike, and pedestrian traffic to the park were also mentioned by residents.

Actives

"We sometimes walk all the way down through the new addition, make a circle."

Youth

"Yeah, so if we want to walk to the park, we have to walk on the highway."

Parents

"There's no safe [route] from downtown to the park for the kids... no marked route, no anything."

Older Adults

"There's a lot of sidewalk where it is so uneven or crumbling that I'd rather go out in the street..."

Mobility Impaired

"My biggest fear is falling, and so even with a cane, you hit a slick spot... and that's all it takes."

Steering Committee

"You can't access the park north of the elevator without walking on... First [Avenue], which First [Avenue] is the county blacktop."

Royal
Transportation Inventory

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Goal Setting

The Royal steering committee presented the design team with observations from the TAB assessment and bioregional inventories. The committee then identified goals and values based on this assessment information. The landscape architects asked each committee member to explain why it would be important to work on a project with the intent of achieving the broad-based goals, while also identifying potential improvements addressing areas of concern. The landscape architects organized these programming themes using the goals identified by the steering committee, with greater importance given to goals highlighted in discussions and/or repeated by individuals during the goal-setting meeting.

Community Trail & Walking Routes

- Connect community destinations with trails and sidewalks
- Develop recreational pedestrian trail
- Improve sidewalk accessibility

Formal Truck Routes

- Create formalized truck routes to lessen conflict areas between trucks and pedestrians
- Develop formal truck routes to decrease damage to infrastructure
- Improve intersections and pave streets to make routes easier for trucks to use

Park Improvements

- Create recreational trail to connect community to parks
- Add amenities to Memorial Park
- Improve accessibility to Triangle Park

Royalty Addition Secondary Access

- Provide secondary access street and sidewalk to the Royalty addition
- Provide stormwater inlet to assist with area drainage

Family of Signage

- Create a community brand for all signage
- Redesign Memorial Park sign
- Develop signage for way-finding and trails

Goal Setting Process

The Royal steering committee presented the design team with observations from the TAB assessment and bioregional inventories. The committee then identified goals and values based on this assessment information. The landscape architects asked each committee member to explain why it would be important to work on a project with the intent of achieving the broad-based goals, while also identifying potential improvements addressing areas of concern. The landscape architects organized these programming themes using the goals identified by the steering committee, with greater importance given to goals highlighted in discussions and/or repeated by individuals during the goal-setting meeting.

Community Values/Themes	Broad-Based Outcomes/Goals	Why Change Anything?	What Exactly and Where?
Economic Development	· Strengthen community brand · Enhance existing amenities available to residents · Attract visitors to local businesses and community destinations	· Attract visitors to town to stimulate local economy · Continue to provide amenities for community residents	· Develop way-finding signage to direct visitors to local destinations · Invest in pedestrian infrastructure to enhance walkability in Royal · Develop family of signage to enhance community brand
Community Pride	· Strengthen community brand · Showcase community pride	· Encourage community pride/ownership · Enhance aesthetics for community members and visitors	· Develop family of signage to enhance community brand · Provide additional amenities in parks
Intersection Safety	· Improve safety for pedestrians accessing local amenities · Decrease conflict areas between pedestrians and motorists	· Safer pedestrian routes improve access to local amenities · Reducing conflict areas will make it easier for semi-trucks to use grain elevator	· Create formalized truck route to lessen conflict areas · Develop pedestrian routes for safer access to parks · Provide pedestrian crossing signage and crosswalk striping at key intersections to raise awareness to motorists
Accessibility + Connectivity	· Improve pedestrian connectivity to local destinations · Make local amenities more accessible to pedestrians · Improve vehicular accessibility in residential areas	· Some amenities are inaccessible to users with mobility impairments · Encourage exercise and healthy alternative to driving · Enhance recreational opportunities	· Develop pedestrian routes to improve access to parks · Create community trail and walking routes to enhance connectivity · Provide secondary access to the Royalty Addition
Recreational Opportunities	· Expand pedestrian recreational routes · Improve connectivity to existing recreation areas · Add amenities to existing recreation areas	· Improve access to existing recreational areas · Provide additional amenities for residents · Strengthen draw as a local and regional destination	· Expand recreational amenities in Memorial Park · Develop recreational pedestrian trail

Royal
Goal Setting

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

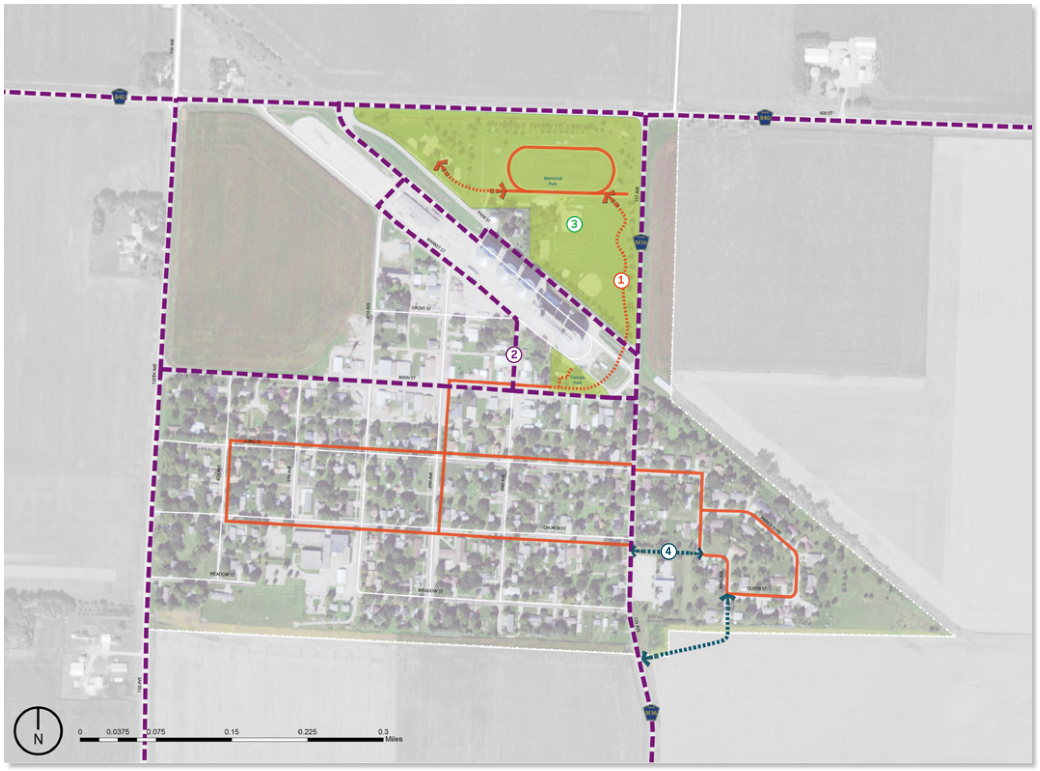
Community Concept Overview

Long-term vision planning enables a community to provide its residents with sustainable, functional, and beneficial improvements. By analyzing transportation assessments and inventories of bioregional resources, Royal's steering committee set goals to define their vision and evaluate success of potential projects. During this goal-setting discussion, the steering committee asked the design team to generate several concepts aligning with the goals of their vision. An outline of the proposed concepts is included below, with locations shown on the corresponding map.

Following the goal-setting process, the design team led a conceptual design workshop and presented feedback from the workshop to community members. Enhancements explored during the workshop included:

- Community Trail & Walking Routes
- Formal Truck Routes
- Park Improvements
- Royalty Addition Secondary Access
- Family of Signage

The community concept plan is based on input from both the visioning committee and residents of Royal, and brings together ideas, goals, and visions for improvements.



Concept Plan

Long-term vision planning enables a community to provide its residents with sustainable, functional, and beneficial improvements. By analyzing transportation assessments and inventories of bioregional resources, Royal's steering committee set goals to define their vision and evaluate success of potential projects. During this goal-setting discussion, the steering committee asked the design team to generate several concepts aligning with the goals of their vision. An outline of the proposed concepts is included below, with locations shown on the corresponding map.

Following the goal-setting process, the design team led a conceptual design workshop and presented feedback from the workshop to community members. Enhancements explored during the workshop included:

1. *Community Trail & Walking Routes*
2. *Formal Truck Routes*
3. *Park Improvements*
4. *Royalty Addition Secondary Access*
5. *Family of Signage*

The community concept plan is based on input from both the visioning committee and residents of Royal, and brings together ideas, goals, and visions for improvements.

Royal
Concept Overview

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Community Trail & Walking Routes

Prioritized Pedestrian Routes

The data gathered during community assessments indicate the value that residents of Royal place on accessibility and walkability in their community. All user groups who participated in the information-gathering process emphasized the importance of connecting existing sidewalks and trails to new routes. Development of a connected trail and sidewalk system promotes pedestrian recreation throughout the community and increases accessibility to local amenities.

Residents identified destinations and desired walking routes within Royal, allowing the design team to develop a sidewalk and trails plan. Intersections requiring accessibility and/or safety improvements are indicated along the routes. Proposed enhancements for these intersections include installing ADA ramps with detectable warning panels, widening walks to 5 feet, and incorporating crosswalk striping and signage at key intersections.

Key Concept Components

- Develop a trail connection to Triangle and Memorial Parks
- Improve accessibility of existing walking routes
- Improve pedestrian safety at key crossings

Recommended Design Expertise

Projects may require help beyond the capability of the visioning committee or available city staff. For this improvement project, the committee should expect to involve the following design professionals: landscape architect, civil engineer, and traffic engineer.

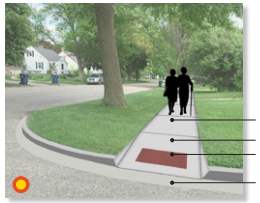
Project Cost Opinion

The following cost opinion is for conceptual design based on current Iowa bid pricing. Donated or at-cost materials and volunteer labor, when appropriate, could reduce overall project costs.

	UNIT	QUANTITY	UNIT COST	TOTAL
COMMUNITY TRAIL & WALKING ROUTES				
Mobilization	LS	1	$22,000	$22,000
Traffic Control	LS	1	$15,000	$15,000
Excavation/Grading	CY	1,030	$10	$10,300
Proposed Trail (10' Wide)	SY	2,575	$55	$141,625
ADA Ramp with Detectable Warning Panel	EA	31	$1,000	$31,000
Removable Pedestrian Bridge (2)	LS	1	$5,000	$5,000
Pedestrian Crossing Sign	EA	6	$1,000	$6,000
Crosswalk Striping	EA	3	$500	$1,500
Seeding	AC	0.1	$6,500	$650
			IMPROVEMENTS SUBTOTAL	$233,075
			CONTINGENCY (20%)	$46,615
			DESIGN/ENGINEERING FEES (15%)	$34,961
			IMPROVEMENTS TOTAL	**$314,651**

ANTICIPATED COST RANGE **$230,000 - $320,000**

Many existing sidewalks are not accessible



Visualization of improvements needed to meet accessibilty guidelines

Visualization of key crossing improvements

Prioritized Pedestrian Routes

The data gathered during community assessments indicate the value that residents of Royal place on accessibility and walkability in their community. All user groups who participated in the information-gathering process emphasized the importance of connecting existing sidewalks and trails to new routes. Development of a connected trail and sidewalk system promotes pedestrian recreation throughout the community and increases accessibility to local amenities.

Residents identified destinations and desired walking routes within Royal, allowing the design team to develop a sidewalk and trails plan. Intersections requiring accessibility and/or safety improvements are indicated along the routes. Proposed enhancements for these intersections include installing ADA ramps with detectable warning panels, widening walks to 5 feet, and incorporating crosswalk striping and signage at key intersections.

Royal

Community Trail & Walking Routes

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Formal Truck Routes

Creating Official Truck Route

The co-op running diagonally through Royal is an economic driver for the community. Although the trucks using the grain elevator bring people and revenue to various businesses, they also create conflict. With no designated route for trucks coming into or leaving Royal, residents are having issues accessing Memorial Park. Having a formalized route will reduce these conflict areas and decrease the wear and tear to infrastructure caused by the heavy trucks. The adoption of a formal route requires multiple improvements, including adding signage to mark routes, improving unpaved streets on the route, and redesigning intersections to accommodate turning by large vehicles. The aim of the official truck route is to enhance safety for both pedestrian and vehicular users while improving usability of the grain elevator for trucks.

Key Concept Components

- Create formalized truck routes to lessen conflict areas between trucks and pedestrians
- Improve intersections and pave streets to make routes easier for trucks to use

Recommended Design Expertise

Projects may require help beyond the capability of the visioning committee or available city staff. For this improvement project, the committee should expect to involve the following design professionals: civil engineer, traffic engineer, county DOT.

Project Cost Opinion

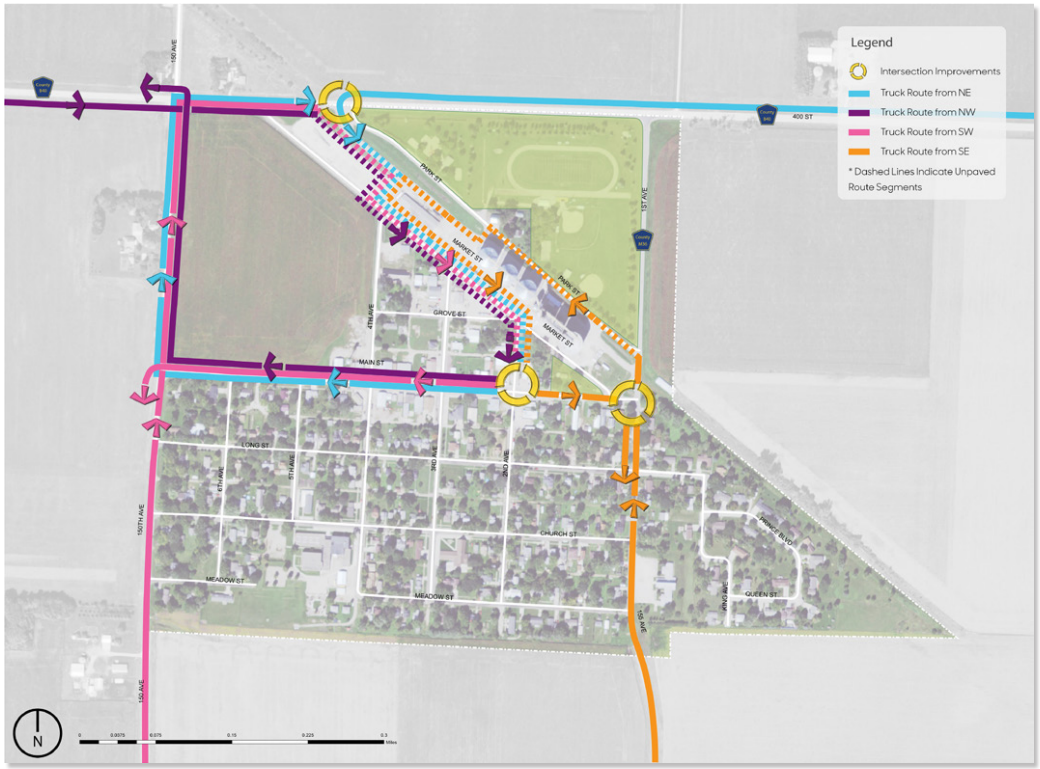
The following cost opinion is for conceptual design based on current Iowa bid pricing Donated or at-cost materials and volunteer labor, when appropriate, could reduce overall project costs. Private roads were not included in the pavement quantity below.

	UNIT	QUANTITY	UNIT COST	TOTAL
FORMAL TRUCK ROUTES				
Mobilization	LS	1	$47,000	$47,000
Traffic Control	LS	1	$40,000	$40,000
Pavement Removal *	SY	425	$15	$6,375
Excavation/Grading	CY	2,435	$10	$24,350
Asphalt Roadway Pavement	SY	6,390	$60	$383,400
Truck Route Signage	LS	1	$10,000	$10,000
Seeding	AC	0.3	$6,500	$1,950

* Pavement removal includes removal of old highway segment

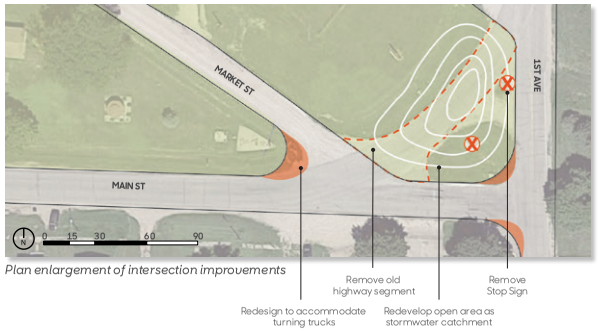
IMPROVEMENTS SUBTOTAL	$513,075
CONTINGENCY (20%)	$102,615
DESIGN/ENGINEERING FEES (15%)	$76,961
IMPROVEMENTS TOTAL	**$692,651**

ANTICIPATED COST RANGE **$510,000 - $700,000**



Existing intersection at M36 and Main St.

Proposed M36 and Main St. intersection improvements



Plan enlargement of intersection improvements

Creating Official Truck Route

The co-op running diagonally through Royal is an economic driver for the community. Although the trucks using the grain elevator bring people and revenue to various businesses, they also create conflict. With no designated route for trucks coming into or leaving Royal, residents are having issues accessing Memorial Park. Having a formalized route will reduce these conflict areas and decrease the wear and tear to infrastructure caused by the heavy trucks. The adoption of a formal route requires multiple improvements, including adding signage to mark routes, improving unpaved streets on the route, and redesigning intersections to accommodate turning by large vehicles. The aim of the official truck route is to enhance safety for both pedestrian and vehicular users while improving usability of the grain elevator for trucks.

Royal
Formal Truck Routes

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Park Improvements

Parks Development

As evidenced by assessment responses, Memorial and Triangle Parks are popular destinations for residents. However, the grain elevator and truck traffic create barriers for pedestrians who want to access these parks. Proposed improvements explore a trail connection originating on Main Street and running through both parks. Along with improving the accessibility to each park, the design concept expands Memorial Park's amenities, benefiting the community and increasing its draw as a regional destination. Additions include new disc golf holes, a pond, a splash pad, an outdoor movie theater, and a viewing berm for events and performances.

Users commented that the road swales surrounding Triangle Park make it difficult to access park features. The proposed trail connects to a flatter area west of the park, providing a pedestrian route that is accessible for everyone. Overall park enhancements explore opportunities to address accessibility and safety while improving park amenities.

Key Concept Component

- Create recreational trail to connect community to parks
- Add amenities to Memorial Park
- Improve accessibility to Triangle Park

Recommended Design Expertise

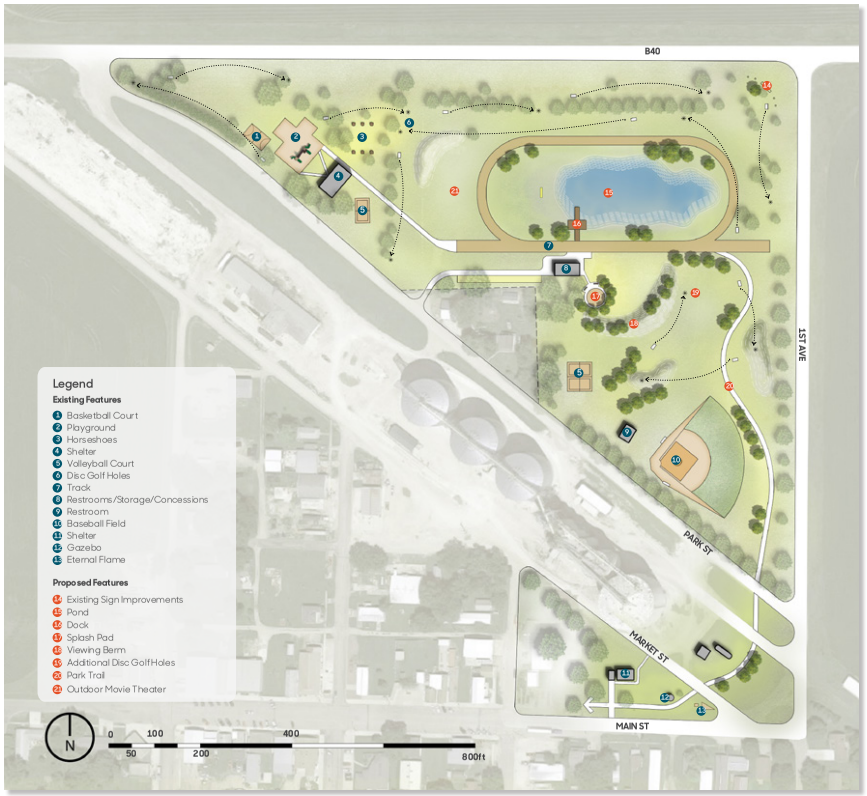
Projects may require help beyond the capability of the visioning committee or available city staff. For this improvement project, the committee should expect to involve the following design professionals: landscape architect, civil engineer.

Project Cost Opinion

The following cost opinion is for conceptual design based on current Iowa bid pricing. Donated or at-cost materials and volunteer labor, when appropriate, could reduce overall project costs. Pricing for trail is included in the "Community Trail & Walking Routes" project cost opinion (pg. 34).

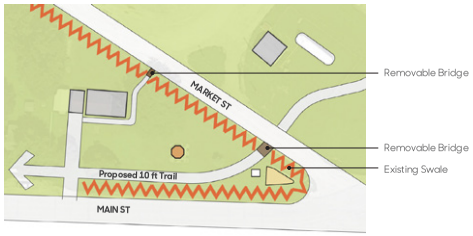
	UNIT	QUANTITY	UNIT COST	TOTAL
PARK IMPROVEMENTS				
Mobilization	LS	1	$43,000	$43,000
Excavation/Grading of Pond and Berms	CY	13,510	$15	$202,650
Dock	SF	1,345	$35	$47,075
Disc Golf Holes (3)	LS	1	$3,000	$3,000
Splash Pad *	LS	1	$150,000	$150,000
Overstory Tree	EA	22	$550	$12,100
Evergreen Tree	EA	10	$550	$5,500
Ornamental Tree	EA	10	$400	$4,000
Shrub	EA	21	$75	$1,575
Seeding	AC	0.3	$6,500	$1,950
*Splash pad price may vary depending on elements chosen			IMPROVEMENTS SUBTOTAL	$470,850
			CONTINGENCY (20%)	$94,170
			DESIGN/ENGINEERING FEES (15%)	$70,628
			IMPROVEMENTS TOTAL	**$635,648**

ANTICIPATED COST RANGE	**$470,000 - $640,000**



Lack of pedestrian infrastructure connecting Triangle and Memorial Parks from town

Proposed 10-foot trail providing access to Triangle and Memorial Parks



Plan enlargement of Triangle Park improvements

Parks Development

As evidenced by assessment responses, Memorial and Triangle Parks are popular destinations for residents. However, the grain elevator and truck traffic create barriers for pedestrians who want to access these parks. Proposed improvements explore a trail connection originating on Main Street and running through both parks. Along with improving the accessibility to each park, the design concept expands Memorial Park's amenities, benefiting the community and increasing its draw as a regional destination. Additions include new disc golf holes, a pond, a splash pad, an outdoor movie theater, and a viewing berm for events and performances.

Users commented that the road swales surrounding Triangle Park make it difficult to access park features. The proposed trail connects to a flatter area west of the park, providing a pedestrian route that is accessible for everyone. Overall park enhancements explore opportunities to address accessibility and safety while improving park amenities.

Royal

Park Improvements

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Royalty Addition Secondary Access

Royalty Addition Secondary Access

Multiple user groups indicated a desire to construct a secondary access street to the Royalty Addition. In addition to improving the vehicular connectivity for residents, a second entry point improves accessibility for fire trucks and ambulances. The concept shows a street extension and sidewalk connecting the walking route in the Royalty Addition to the sidewalk along Church Street. This new roadway will also provide an opportunity to add a second stormwater inlet for the subdivision to alleviate the seasonal flooding noted by community member assessments. In addition to the proposed access point, an opportunity to extend King Ave. south and connect with 1st Ave. may provide space for potential development.

Key Concept Component

- Provide secondary access street and sidewalk to the Royalty addition
- Provide stormwater inlet to assist with area drainage

Recommended Design Expertise

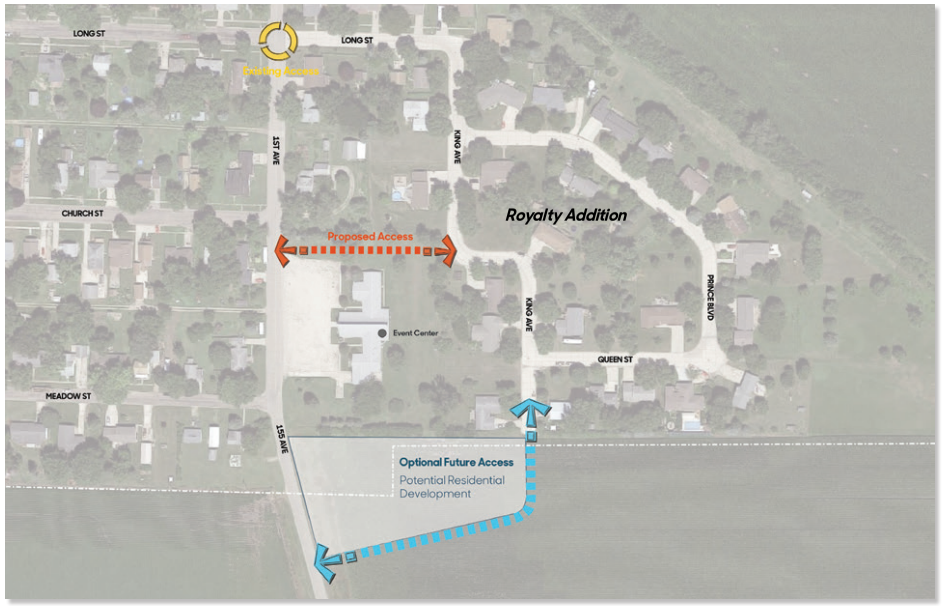
Projects may require help beyond the capability of the visioning committee or available city staff. For this improvement project, the committee should expect to involve the following design professionals: civil engineer, county DOT.

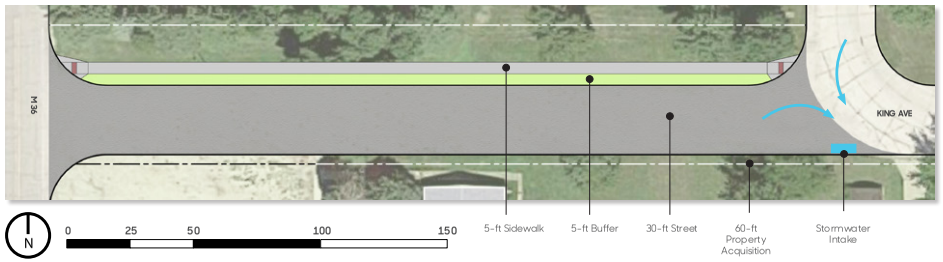
Project Cost Opinion

The following cost opinion is for conceptual design based on current bid pricing. Donated or at-cost materials and volunteer labor, when appropriate, could reduce overall project costs. Coordination with land owners, setting up easements, and/or purchasing land, will also be necessary to implement the proposed concept design, and is not included in this estimate. The "Optional Future Access" was also not included in this cost opinion.

	UNIT	QUANTITY	UNIT COST	TOTAL
ROYALTY ADDITION SECONDARY ACCESS				
Mobilization	LS	1	$14,000	$14,000
Traffic Control	LS	1	$15,000	$15,000
Excavation/Grading	CY	630	$10	$6,300
Street Extension, Conc. (7" Thick)	SY	1,140	$60	$68,400
Sidewalk, Conc. (5" Thick)	SY	175	$55	$9,625
Stormwater Intake	EA	2	$6,000	$12,000
24" Stormwater Pipe	LF	330	$85	$28,050
Seeding	AC	0.1	$6,500	$650
			IMPROVEMENTS SUBTOTAL	$154,025
			CONTINGENCY (20%)	$30,805
			DESIGN/ENGINEERING FEES (15%)	$23,104
			IMPROVEMENTS TOTAL	**$207,934**

ANTICIPATED COST RANGE **$150,000 - $210,000**

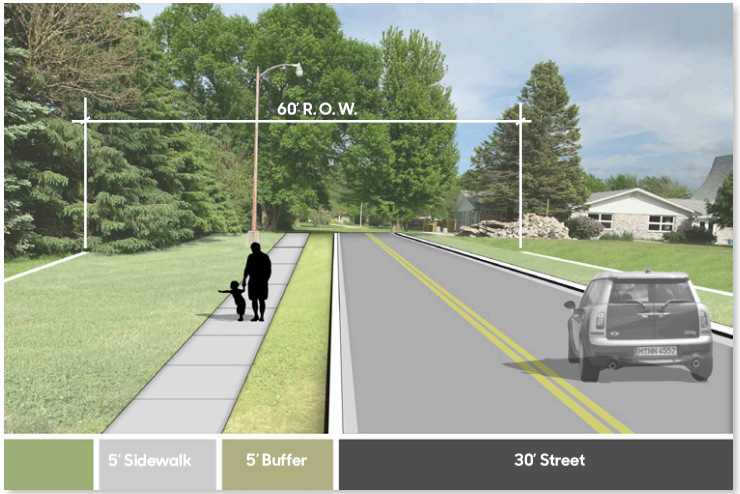




Existing space north of the Event Center

Royalty Addition Secondary Access

Multiple user groups indicated a desire to construct a secondary access street to the Royalty Addition. In addition to improving the vehicular connectivity for residents, a second entry point improves accessibility for fire trucks and ambulances. The concept shows a street extension and sidewalk connecting the walking route in the Royalty Addition to the sidewalk along Church Street. This new roadway will also provide an opportunity to add a second stormwater inlet for the subdivision to alleviate the seasonal flooding noted by community member assessments. In addition to the proposed access point, an opportunity to extend King Ave. south and connect with 1st Ave. may provide space for potential development.



Proposed street and sidewalk north of the Event Center

Royal

Royalty Addition Secondary Access

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Family of Signage

Expanding Community Brand

Signage provides many benefits within a community, from showcasing civic pride to providing way-finding for visitors. Incorporating various sign types with one cohesive style helps to strengthen the brand and unique identity of a community. The steering committee identified signage options that may benefit Royal. Included in this family of signs is way-finding signage, trails signage, and redesign of the existing Memorial Park sign.

Way-finding signs can act as landmarks and direct tourists to local destinations while promoting Royal's brand. Trail signs provide another form of way-finding. These elements designate pedestrian routes while alerting motorists of pedestrian presence. The existing sign in Memorial Park is in an advantageous position to act as an entrance sign for the community as well as welcome patrons to the park. The proposed update incorporates the names of both the town and park onto a sign that is more legible for passersby.

Key Concept Components

- Create a community brand for all signage
- Redesign Memorial Park sign
- Develop signage for way-finding and trails

Recommended Design Expertise

Projects may require help beyond the capability of the visioning committee or available city staff. For this improvement project, the committee should expect to involve the following design professionals: landscape architect, graphic designer, sign fabricator.

Project Cost Opinion

The following cost opinion is for conceptual design based on current Iowa bid pricing. Donated or at-cost materials and volunteer labor, when appropriate, could reduce overall project costs.

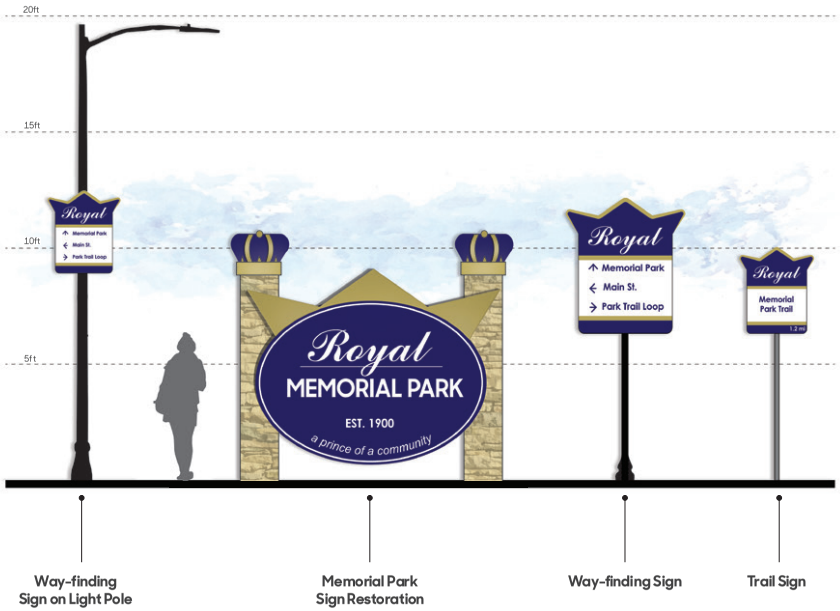
	UNIT	QUANTITY	UNIT COST	TOTAL
FAMILY OF SIGNAGE (OPTION A)				
Memorial Park Sign Redesign (Metalwork, Reuse Existing Sign Footings)*	LS	1	$15,000	$15,000
Metal Way-finding Sign w/ Decorative Pole	EA	2	$2,500	$5,000
Metal Way-finding Sign on Light Pole (Sign & Straps)	EA	4	$500	$2,000
Metal Trail Sign w/ Painted Black Post	EA	4	$750	$3,000

*Cost includes new columns

IMPROVEMENTS SUBTOTAL	$25,000
CONTINGENCY (20%)	$5,000
DESIGN/ENGINEERING FEES (15%)	$3,750
IMPROVEMENTS TOTAL	**$33,750**

ANTICIPATED COST RANGE **$25,000 - $34,000**

Signage Option A



Existing Memorial Park sign

Visualization of sign redesign

Expanding Community Brand

Signage provides many benefits within a community, from showcasing civic pride to providing way-finding for visitors. Incorporating various sign types with one cohesive style helps to strengthen the brand and unique identity of a community. The steering committee identified signage options that may benefit Royal. Included in this family of signs is way-finding signage, trails signage, and redesign of the existing Memorial Park sign.

Way-finding signs can act as landmarks and direct tourists to local destinations while promoting Royal's brand. Trail signs provide another form of way-finding. These elements designate pedestrian routes while alerting motorists of pedestrian presence. The existing sign in Memorial Park is in an advantageous position to act as an entrance sign for the community as well as welcome patrons to the park. The proposed update incorporates the names of both the town and park onto a sign that is more legible for passersby.

Royal
Family of Signage

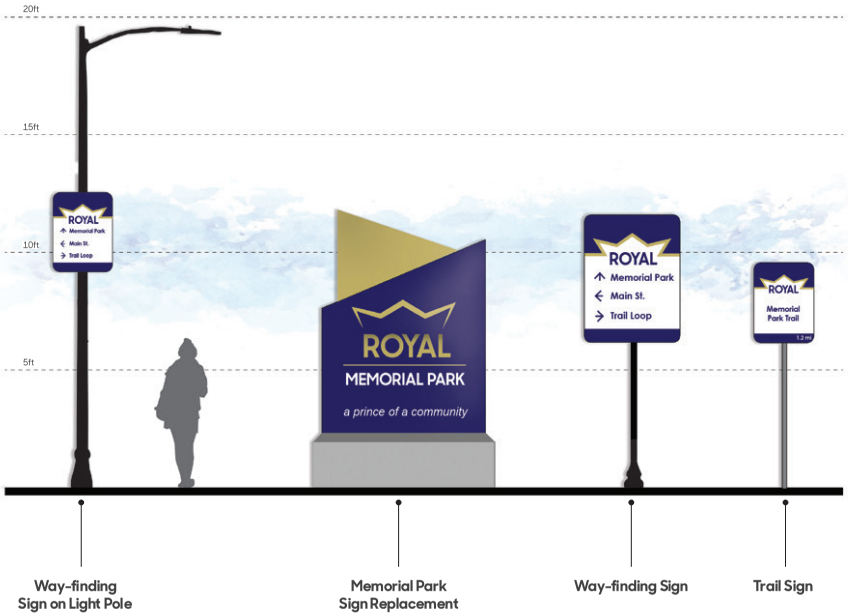
Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

	UNIT	QUANTITY	UNIT COST	TOTAL
FAMILY OF SIGNAGE (OPTION B)				
Memorial Park Sign Replacement (Metalwork, Reuse Existing Sign Footings)	LS	1	$20,000	$20,000
Metal Way-finding Sign w/ Decorative Pole	EA	2	$2,500	$5,000
Metal Way-finding Sign on Light Pole (Sign & Straps)	EA	4	$500	$2,000
Metal Trail Sign w/ Painted Black Post	EA	4	$750	$3,000
			IMPROVEMENTS SUBTOTAL	$30,000
			CONTINGENCY (20%)	$6,000
			DESIGN/ENGINEERING FEES (15%)	$4,500
			IMPROVEMENTS TOTAL	**$40,500**

ANTICIPATED COST RANGE	**$30,000 - $41,000**

Signage Option B



Existing Memorial Park sign

Visualization of sign redesign

Expanding Community Brand

Signage provides many benefits within a community, from showcasing civic pride to providing way-finding for visitors. Incorporating various sign types with one cohesive style helps to strengthen the brand and unique identity of a community. The steering committee identified signage options that may benefit Royal. Included in this family of signs is way-finding signage, trails signage, and redesign of the existing Memorial Park sign.

Way-finding signs can act as landmarks and direct tourists to local destinations while promoting Royal's brand. Trail signs provide another form of way-finding. These elements designate pedestrian routes while alerting motorists of pedestrian presence. The existing sign in Memorial Park is in an advantageous position to act as an entrance sign for the community as well as welcome patrons to the park. The proposed update incorporates the names of both the town and park onto a sign that is more legible for passersby.

Royal
Family of Signage

Bolton & Menk, Inc.
LAs: Josh Shields, PLA; Nate Schlorholtz
Intern: Fan Lan
Iowa State University | Trees Forever | Iowa Department of Transportation

Iowa's Living Roadways community visioning

Implementation Strategies

The Visioning Program is the beginning of the planning process for implementation of projects that will contribute to an enhanced quality of life in Royal. Despite the tremendous value in data gathering, analysis, conclusions, and recommendations; the greatest value is providing residents of Royal with the opportunity to look at their community form different perspectives and to motivate future positive change. It is the design team's intent to provide the community with a framework for significant future development and enhancement to community resources.

Recommendations
Project implementation should be determined based on the priority given it by the community and with the realization of available funding sources. These funding sources may be through grants and private donations but may also be in the form of volunteer labor donated materials, or donated services.

The projects have been developed with a variety of different scales in mind, allowing some to be more easily realized than others. By reviewing the available resources and developing an implementation plan, the community can move forward towards realizing the fruits of its vision.

The primary goal of the community as it moves forward should be planning for successful projects. Successful implementation of a project allows for public support and interest to grow and can quickly lead to availability of additional and more diverse implementation resources – a community with a history of successful projects and involvement is more appealing to funding agencies. Therefore, a smaller project that fits the following criteria is generally recommended as a starting project for the community to undertake:

1. Is highly visible
2. Has a good chance of receiving a grant or funding assistance
3. Can use volunteers
4. Is not overly complicated

Because the information depicted on each board is conceptual in nature, the edits, sketches, and other deliverables are not intended for use as final design/construction documents. They need to be further developed with the help of professionals during a "design phase." During a design phase, concepts will be refined and developed to determine the actual character, size, and essentials that will become part of the final project. The final products from this phase may retain the general concepts depicted on the boards, but may look vastly different because of constraints or opportunities unknown during the visioning process. However, the design that emerges from final design may also look very similar to that developed during the Visioning Program.

One thing to keep in mind with all projects, whether phased or not, is to make sure that the overall project is designed and planned for at the beginning to ensure that each segment will interconnect and relate to another. Failing to plan for future construction phases can easily lead to complications that could set back positive progress for years.

Action Plan

It is recommended that project implementation be approached using the following basic action plan:

Year 1

TASK 1 Schedule monthly steering committee meetings, confirm understanding of scope and anticipated cost for identified projects. **Prioritize top three projects for design refinement.**

TASK 2 Determine the most feasible first project and **identify all potential grant/funding opportunities.**

TASK 3 Using Community Visioning deliverables and assistance from Trees Forever and a landscape architect, **develop application(s) for appropriating grant/funding.**

TASK 4 After successfully securing funding, **develop a schedule for project design, bidding, and construction, and enter into a contract with a design consultant.**

Year 2 & Ongoing

TASK 1 Re-evaluate priority projects based on funding success and **repeat Tasks 2-4 for a second project**

TASK 1 Community Visioning Project Areas	TASK 2 Grant Funding Opportunities
Community Trail & Walking Routes	
Formal Truck Routes	
Park Improvements	
Royalty Addition Secondary Access	
Family of Signage	

Grant Funding Opportunities Legend

Iowa DNR REAP
open space, park, trails, access to natural resources

The Wellmark Foundation
food nutrition, healthy environment, safety

Iowa Economic Development Authority
main street, green infrastructure

Iowa Department of Transportation
accessibility, safety trails, roadside vegetation

Iowa Department of Cultural Affairs
community enhancement through art, history & culture

Trees Forever
plantings, trees, educations

Iowa DNR/NPS Land and Water Conservation Fund
natural areas, water resources and cultural heritage

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
- Foundations & Partnerships (private and public)
- Trusts and endowments
- Fund-raising and donations
- Memorials
- Volunteer labor
- Low-interest loans
- Implement project in multiple phases

Funding Sources

- Iowa Department of Transportation (IDOT)
- Iowa Department of Natural Resources (IDNR)
- Iowa Department of Cultural Affairs (IDCA)
- Iowa Economic Development Authority (IEDA)
- Iowa Department of Agriculture & Land Stewardship (IDALS)
- Utility companies
- Trees Forever
- U.S. Department of Agriculture (USDA)

Grant Programs

- Alliant Energy and Trees Forever Branching Out Program
- Federal Highway Administration (FHWA) National Recreational Trails Program
- Federal Highway Administration (FHWA) Surface Transportation Program (STP)
- Iowa Clean Air Attainment Program (ICAAP)
- Iowa DNR Recreation Infrastructure Program
- Iowa DNR Resource Enhancement and Protection (REAP)
- Iowa DNR/National Park Service (NPS) Land and Water Conservation Fund (LWCF)
- Iowa Department of Agriculture & Land Stewardship State Revolving Fund (SRF) Program
- Iowa DOT Iowa's Living Roadways Projects Program
- Iowa DOT Living Roadways Trust Fund Program (LRTF)
- Iowa DOT Americans with Disabilities Act (ADA) Transition Plan
- Iowa DOT Statewide Transportation Enhancement Funding
- Iowa DOT State Recreational Trails Program
- Iowa DOT Transportation Alternatives Program (TAP)
- Iowa DOT Traffic Safety Improvement Program (TSIP)
- Pheasants Forever
- Revitalization Assistance for Community Improvement (RACI) Grant Program
- Wellmark Foundation