

Final Report and Feasibility Study

Treynor, Iowa



Program Partners:

Iowa Department of Transportation
Trees Forever
Iowa State University



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About ISU Community Design Lab

The Iowa State University Community Design Lab (CDL) partners with communities and organizations, combining local knowledge and design research expertise, to create healthy, livable communities. A primary goal of CDL's work is to effectively inform and engage community members in the process of developing design concepts for each community. Our process involves on-the-ground and investigative research to perform a thorough and engaged inventory and analysis with a focus on landscape performance and user experience of the built environment. The analysis aids us in visualizing community goals and concerns and provides a framework for developing community led strategies and designs. Throughout the process the CDL engages with the community members and stakeholders through committee and public meetings as well as through unique interactive strategies out in the community.

The Community Design Lab is a collaborative team, primarily comprised of landscape architects with additional background in architecture, visual art and community food systems. The team is made up of full-time designers, faculty in the landscape architecture department at Iowa State University, and a rotating cast of graduate and undergraduate design research assistants based on project needs.



Carl Rogers, RLA
Director: Community Design Lab
Department Chair and Associate Professor:
Dept. of Landscape Architecture;
Iowa State University



Chad Hunter
Design Fellow: Community Design Lab
Lecturer: Dept. of Landscape Architecture;
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Program Overview

Treynor 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 Treynor visioning committee identified a number of goals and priority areas during the visioning process, which are included below:

- **Increase accessibility and visibility at the intersection of Highway 92 and Eyberg Ave.**
- **Improve crossings for the schools across Highway 92**
- **Reduce traffic speeds along Highway 92**
- **Create a more walkable community through the addition of trails and sidewalks**
- **Increase community identity, especially near the primary intersection**

Capturing the Treynor 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, Bioregional Assessment, Transportation Assets and Barriers Assessment, Transportation Behavior and Needs Assessment, Transportation Inventory and Analysis, Concept Overview, and Community Design Boards.

Treynor's Community Visioning Process

Over the course of the Community Visioning process, residents were invited to provide feedback about Treynor's transportation system. Residents were asked about existing concerns and assets, but also how they hope that system will evolve in the future to meet the needs of the city. The major concern for residents and the visioning committee was the intersection of HWY92 and Eyberg. Along with the intersection, the visioning committee also identified that HWY92 is moving quickly, the overall street width is a long distance to cross, and congestion is common on Eyberg after school lets out. This condition also raised concerns about current school crossings and the need to improve and relocate those. Related to sidewalks in town that impede access to amenities such as the parks, school, and local businesses.

The committee was also interested in increasing community identity, especially near the primary school. The visioning committee identified four corridors, which is the town's original infrastructure.



When Factors Affect Transportation in Treynor?
The primary concern for residents and the visioning committee was the intersection of HWY92 and Eyberg. Along with the intersection, the visioning committee also identified that HWY92 is moving quickly, the overall street width is a long distance to cross, and congestion is common on Eyberg after school lets out. This condition also raised concerns about current school crossings and the need to improve and relocate those. Related to sidewalks in town that impede access to amenities such as the parks, school, and local businesses.

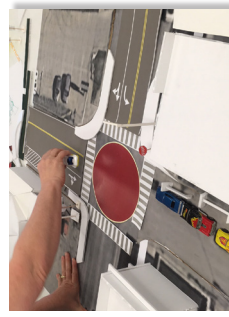
Different Users = Different Needs
Infrastructure projects affect transportation in a variety of ways. Transportation visioning allows us to understand the needs of different users and how they interact with the transportation system. Different users have different needs and requirements for transportation infrastructure. Understanding these needs and requirements is essential for creating a transportation system that works for everyone.

- Old participants:** This user group typically consists of older residents who may have limited mobility and require accessible transportation options.
- Young participants:** This user group typically consists of young residents who may be more active and require safe, accessible transportation options.
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Treynor Overview

Transportation Assets and Barriers in Treynor

How the Living community visioning



Public Design Charrette

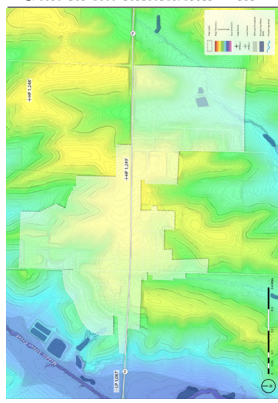
The design charrette allowed community members to collaborate in the design process. Through interactive models, activities, and mapping, residents helped to shape and direct the design's intersection and sidewalks. The charrette also provided an opportunity for residents to share their ideas and concerns and elements to enhance community identity. This type of collaborative design process builds on local knowledge and creates greater support from residents. The following designs expand on those initial concepts established by the steering committee and the public.

Treynor

Project Overview

Iowa State University Community Design Lab
LAs: Chad Hunter & Carl Rogers
Collaborators: Brian Leaders & Payton Schafers, National Park Service RTCA
Iowa State University | Trees Forever | Iowa Department of Transportation


Bioregional Assessment



Elevation and Flow

How the Living community visioning

Present-day Land Cover



Present-day Land Cover

How the Living community visioning

The conditions represented in the assessment are the result of the process of the assessment presented in the following boards.

Early in the process the steering committee is presented with the assessment results. The assessment looks at topics such as depth to water table, historic and present-day vegetation, historic settlement patterns, the regional watershed, elevation and flow, present-day land cover, and urban forest conditions.



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.

Treynor 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?

SPRING 2019 2a

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Map Source: Iowa Department of Natural Resources, "Natural Resources Geographic Information Systems Library," <http://www.dnrs.iowa.gov/igslib/>.

Treynor

Historical Settlement Patterns

Bioregional Context

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



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. Marsh: Perennial non-woody plants; water and fire dominated.
3. Prairie: Perennial non-woody plants; fire dominated.
4. Field: Cultivated lands of early pioneers or Native Americans.

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.

Historical Vegetation

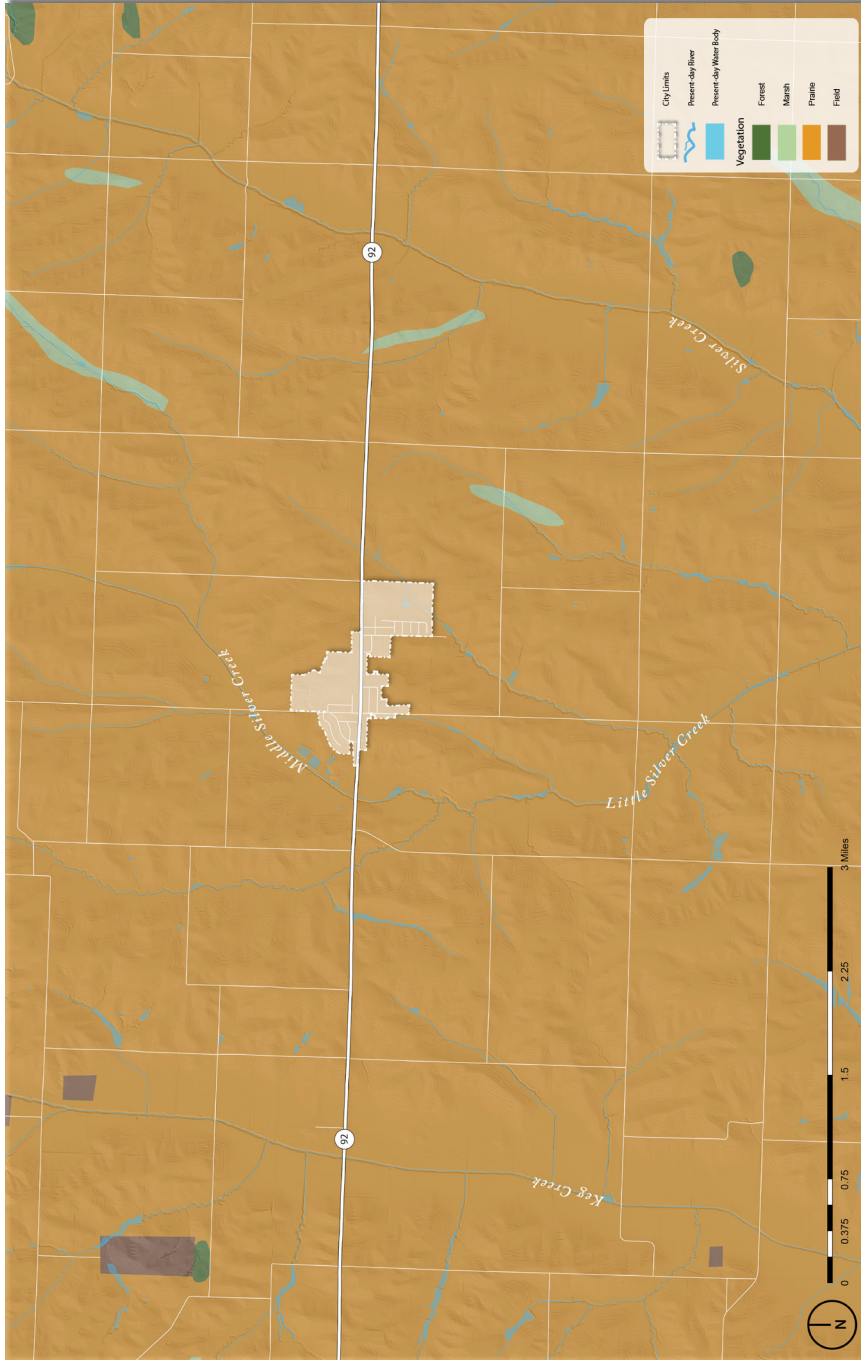
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Map Source: Iowa Department of Natural Resources. "Natural Resources Geographic Information Systems Library," <http://www.gisbulw.iowa.edu/mgislib/>.

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Historical Vegetation

Bioregional Context

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Iowa State University | Trees Forever | Iowa Department of Transportation



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.

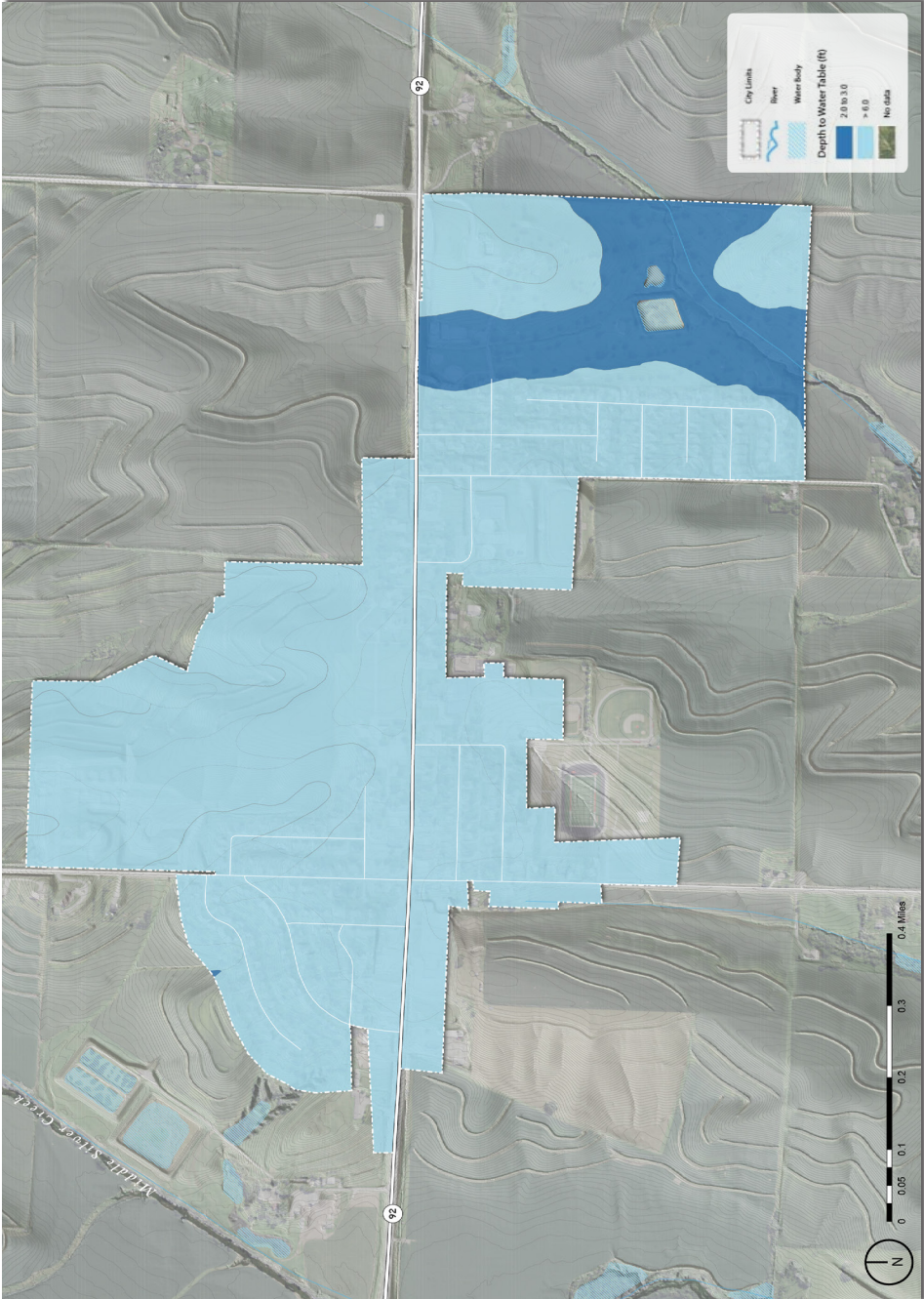
SPRING 2019 2d

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Iowa State University | Trees Forever | Iowa Department of Transportation



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).

SPRING 2019 2e

Elevation and Flow

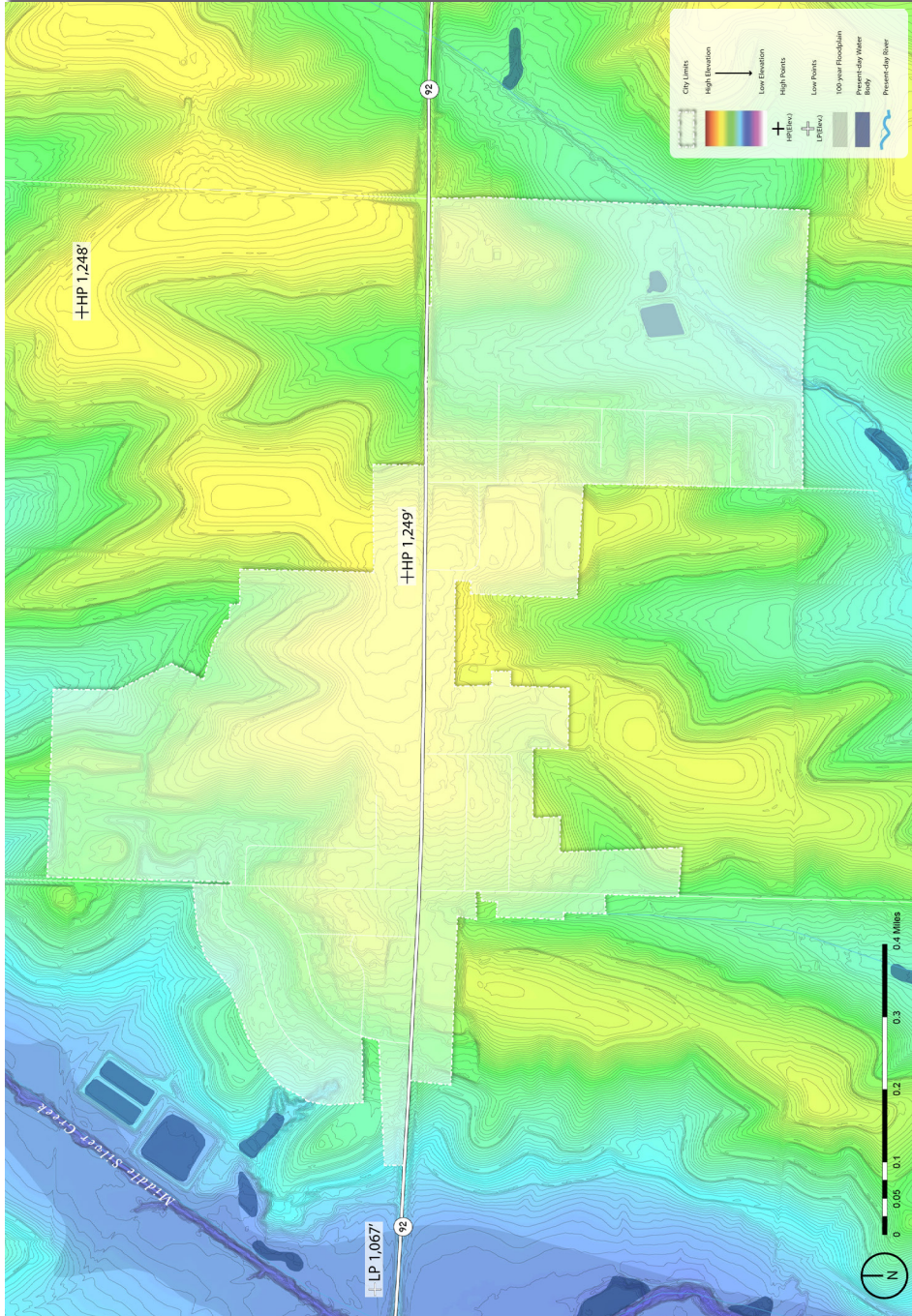
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Elevation and Flow

Bioregional Context

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Iowa State University | Treas Forever | Iowa Department of Transportation



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.

SPRING 2019 2c

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Map Source: Iowa Department of Natural Resources, "Natural Resources Geographic Information Systems Library," <http://www.iagis.iowa.edu/ingislib/>.

Treynor

Regional Watershed

Bioregional Context

Julia Badenhope, Riley Dunn, Emma Georgeff, Timothy Kerkhove, Clare Kiboko, Alysse Kirkman, Giamis Koutsou, Zoey Mauck, Abigail Schaffer
Iowa State University | Texas Forever | Iowa Department of Transportation



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.

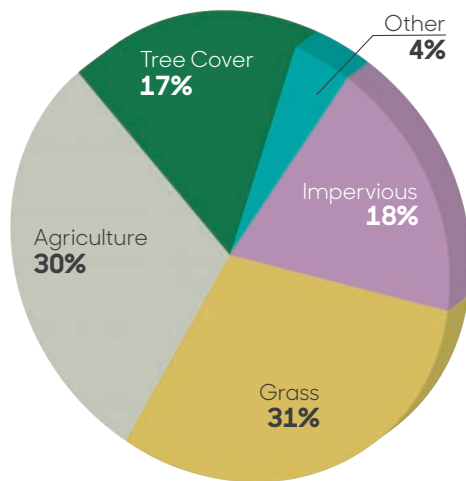
What do you observe about the dominant land-cover types in your community?

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



SPRING 2019 2f

Present-day Land Cover

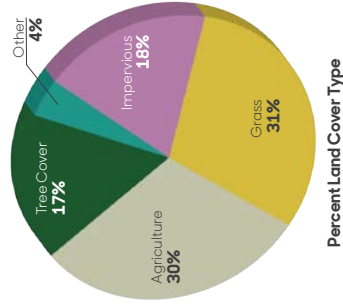
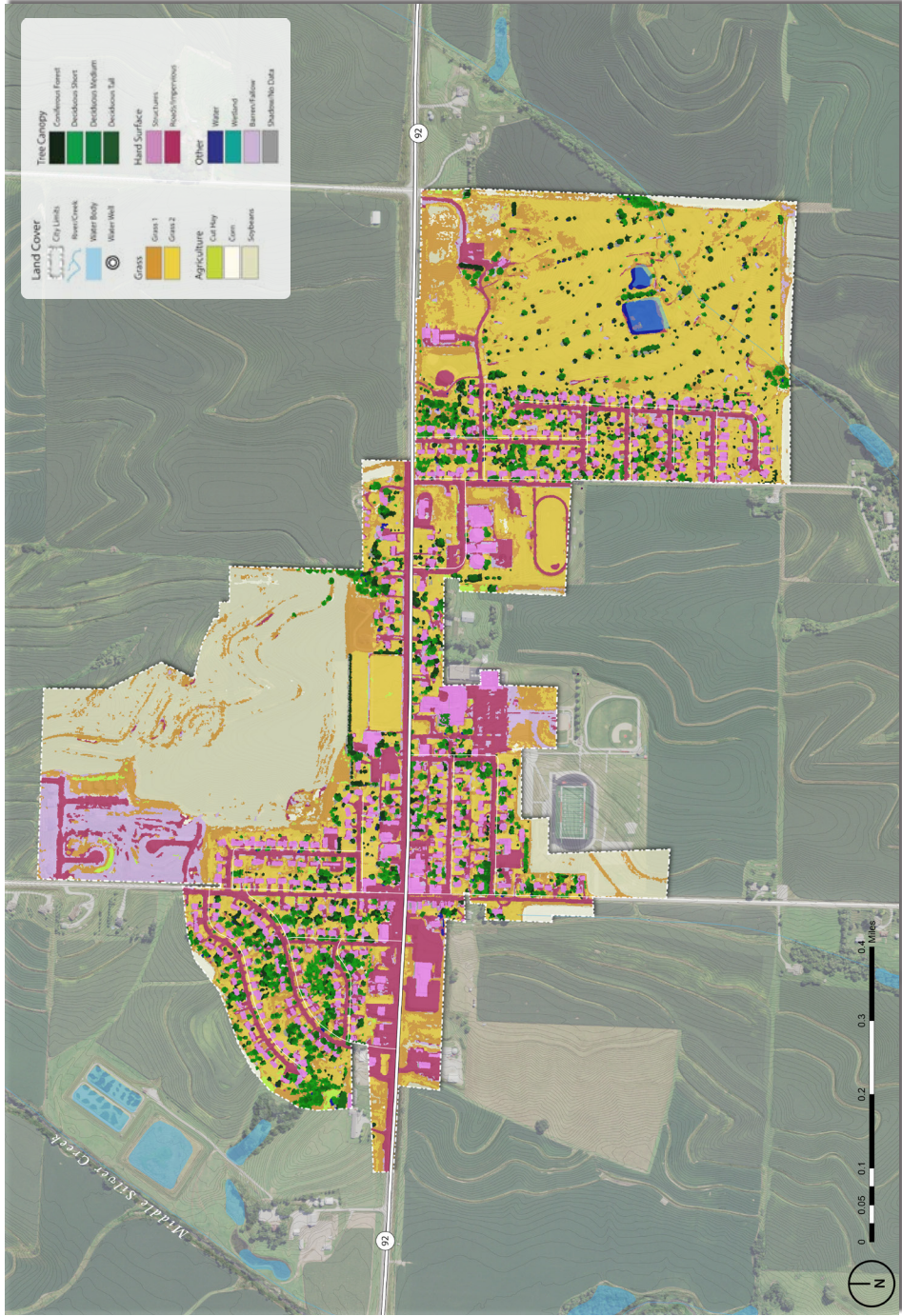
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Treynor

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Bioregional Context

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



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.

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Transportation Assets and Barriers

Overview

What Factors Affect Transportation in Treynor?

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 Treynor, 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 Treynor'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 Treynor residents with different transportation needs to participate in focus groups. A total of 81 residents attended Treynor's workshop. Participants were separated into five user groups and the Treynor steering committee.



Actives

(19 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

(20 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

(14 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

(16 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

(9 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.



East Park has updated lighting and a lots of shade. Kids enjoy going here to play.



The school sports complex provides an accessible place to run and is a favorite spot for active rec. users and teenagers.



On E Main St. near the High School, is the only delineated crosswalk in Treynor. It provides safe crossing for the students and families.

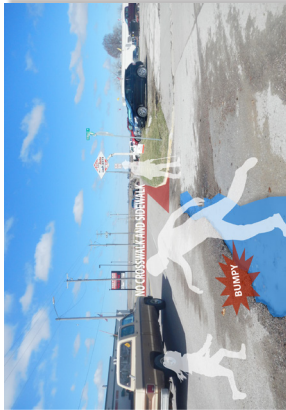
Treynor Overview



The sidewalks at key intersections stop abruptly. Traffic lights are desired to improve walkability.



Inconsistent traffic speed, missing sidewalks, and a lack of crosswalks makes walking along highway 92 difficult.



Bumps, potholes and lack of sidewalks along Terrace Rd. limit walking access to Casey's.

What Factors Affect Transportation in Treynor?

SPRING 2019 3a

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Transportation Assets and Barriers Analysis

Julia Badenhop, Sandra Oberbroeckling, Alisa Courney, Riley Dum, Zach Rupprecht, Wei Zhang

Iowa State University | Trees Forever | Iowa Department of Transportation



What People Said



“...when my family moved to Treynor... my mom and dad fell in love with the looks of the community. They liked the fact that... it had a reputation for [speed limit enforcement].”

“[We] always stay on the south side of 92 because there are sidewalks part of the way, and we don't have to cross the highway.”

“I think an occasional bench would be nice...I can see elderly people not being able to walk... because it's a long way, and they need a place to sit.”

“Flashing lights would be nice in the [four corners] intersection to downtown.”

“I would like to run, but don't, because it's like a maze [to figure out] where you're going to run on the sidewalks.”

Active Adults



“I used to walk in the cemetery because there was nobody...they have a nice drive. I didn't have to worry about anybody bothering me or driving.”


“East Park has nice equipment. It's just not very accessible to everyone, either getting up there, or the equipment is in gravel. If someone is very mobility impaired...there's no getting to it.”

“The sidewalks are terrible... I was out walking...I wasn't paying attention. I was looking around. I nearly fell.”

“You would struggle to have a wheelchair in town. You'd be riding in the street.”

“My big thing is that walking/running trail...I would love to see [that]. I think a lot of people would use it, [for] dog walking, biking, everything.”

Mobility Impaired



“I like trees and grass and flowers...it would be comfortable [sitting] in the grass and the flowers make the world pretty.”

“One time in the winter when it snowed a lot, around this area [south side of East Park], there was a big pile of snow so big that if you were driving in your car, you couldn't get past it...so you won't be able to go anywhere.”


“If you walk [to Silo's] you have to cross the highway and it's busy.”

“I know that stoplights cost a lot but stoplights over at the four corners would make everything else easier. Especially for people walking.”

“... I think that it's not that safe because if you're riding your bike to the park, you have to ride on the road.”

“When we were in elementary, we'd walk to [East Park] from the school, but there weren't any sidewalks, so we'd walk straight down the street.”

Youth



Older Adults

"I'll be glad to have sidewalks. I don't like to see children walking in the street going to school."


"there's a lot of sidewalks in town that need to be improved."

"[Going to] Casey's between North Eyberg and Casey's to the west, on [hwy 92], there is no sidewalk."

"[Elementary Dr.] can be a real rodeo when all the mamas roll in with their Suburbans. It gets pretty scary."

"...as you're coming up to [the] intersections [on hwy 92] and looking up the street, you can't see traffic coming because cars are parked there."

"I'd love to bike. I would bike if I had a trail."



Parents

"[The kids] like to walk to the convenience store, but there's not sidewalks the whole way, so they're walking through parking lots and businesses."

"...there's not a good spot to [run] outside of going around the track a hundred times...because it's part sidewalks, part streets, part parking lots—it makes us nervous."

"I think people would want a town square instead of [Highway 92] being a line."

"The sidewalks, if they are there, they're buckled...if you have a stroller, it's off-roading."

"[I would change] the Autobahn [Highway 92] that runs through the middle of the town."



Steering Committee

"Even with the flashing lights and a person [with a hand sign], it's hard to get [drivers on Highway 92 at the High School] stopped, especially if they are not from here and don't know what is going on."

"I enjoy walking Countryside, Lamar, and then even up the south side of the highway because there's enough places of shade I can get cooled down on a hot day."

"Where I live, they don't allow mailboxes, and that means walking [to the post office] every day, and they don't have sidewalks on either side."

"We do have sidewalk connectivity up around the school, and on the east side, a lot of this is newer... that's basically where everyone is walking..."

"I would like to see something with some easy biking distance so you could put in a mile or two miles or something on the bike trail."

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 walk, bike and drive regularly to get around the town. This group appreciates the athletic complex and the track as places to stay active. A biking/walking trail and connected sidewalks would allow this user group to better access their town.

Mobility-impaired individuals drive and walk through the town. These individuals identified the track at the sports complex as a great place to stay active. Any sidewalk improvements and adding walking/biking trails are desired.

Youth drive, walk, bike, ride their scooters, and take the school bus. Lack of continuous sidewalks around town make major destinations such as East Park inaccessible. Connected sidewalks and walking/biking trails would help this user group stay active.

Older adults drive, walk, bike, and ride scooters to get around town. Lack of sidewalks, unsafe crossing at Highway 92, and high-speed traffic at the school and church area are some of the barriers limiting their ability to walk around town. This user group desires sidewalk improvements and safer crossings along Highway 92.

Parents drive, walk, and drive golf carts. They identified poor, inconsistent sidewalks inconsistency and bad quality, lack of visibility turning onto Highway 92 at the "four corners," and traffic congestion at the school area as barriers to getting around town either by vehicle or on foot.

The steering committee members drive, walk, bike, and drive golf carts. This group identified ice and snow piles along major roads as an intermittent barrier making driving around town challenging in winter time. They would like connected walking/biking routes around town and a pedestrian bridge over Highway 92.

SPRING 2019 3c

User Types	Destinations and Activities			Desirable Qualities and Features				Undesirable Qualities and Features				Most Desired Improvements			
	Main Street	East Park	Walking in Town	Shaded Sidewalks	Golf Course	Athletic Complex/Track	Crossing Highway 92	Sidewalks	"Four Corners" Intersection	East Park Accessibility	School Traffic Congestion	Walking/Biking Trail	Pedestrian Bridge	Improved Sidewalks	Upgrades to East and West Parks
Active Adults	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Mobility Impaired	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Older Adults	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Youth	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Parents	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Steering Committee	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Active adults walk and drive regularly to get around the town. This group appreciates the sidewalks and the town's sidewalks to stay active. A biking/walking trail and connected sidewalks would allow this user group to better access their town.

Mobility-impaired individuals drive and walk through town. These individuals desired places to stay active. Any sidewalk improvements and adding walking/biking trails are desired.

Youth drive, walk, bike, ride their scooters, and take the school bus. Lack of continuous sidewalks around town make major improvements to sidewalks and walking/biking trails would help this user group stay active.

Older adults drive, walk, bike, and ride scooters to get around town. Lack of sidewalks, unappealing and poorly lit sidewalks, and traffic barriers limiting their ability to walk around town. This user group desires sidewalk improvements and safer crossing along Highway 92.

Parents drive, walk, and drive golf carts. They identified poor, inconsistent sidewalks, turning onto Highway 92 at the "four corners," and traffic congestion at the school area as their top concerns.

Steering committee members drive, walk, bike, and drive golf carts. This group identified ice and snow, intermittent barrier making driving around town challenging in winter time. They would like to see a pedestrian bridge over Highway 92.

Main Street has nice amenities such as LED street lights and safe sidewalks that make the street a pleasant environment.

Many groups mentioned East Park as nice recreational space with good playground equipment and benches. The Youth Task Group especially like its proximity to the elementary school.

There are many places to comfortably walk around town, including the track, Zion Cemetery, by the elementary school, and on various sidewalks.

Multiple streets throughout town were noted as having good shade, including the south side of Main Street, Courtyards Drive, Lamar Drive, and East Park.

Street courses are popular places for many users for adding water for shading.

Groups both in warm weather for golfing and in the winter for adding.

All groups use the athletic complex track for a variety of recreational activities, including walking, running, and biking.

All user groups noted the difficulty of crossing Highway 92 as a barrier to town, especially for a division of the community.

A primary theme in every focus group was the lack of a connector between the athletic complex and the town due to high traffic volumes and no north-south connector.

The "four corners" intersection in town has no crosswalks and the various traffic signal has been removed to accommodate faster traffic.

Sidewalk access to East Park is limited making travel to the park challenging for walkers and bikers.

The intersection of Main Street and Yokers Avenue becomes congested before and after school and a walking/biking trail around town would allow for better access to the athletic complex.

Great outdoor sports facilities for people of all abilities as well as access for people with disabilities, such as the athletic complex.

Adding a pedestrian bridge across Highway 92 at the intersection of Main and Yokers would ease traffic congestion and make walking and biking more comfortable.

Connectivity in town could be improved by installing a continuous network.

East Park could use accessibility improvements like playground equipment.



Emerging Themes

Transportation Assets and Barriers

Julia Badenhop, Sandra Oberbroeckling, Mahsa Adib, Riley Dunn, Wei Zhang, Alisa Courney, and Zach Rupprecht
Iowa State University | Trees Forever | Iowa Department of Transportation



Transportation Inventory and Analysis

The intersection of Highway 92 and Eyberg Avenue is an important location for the residents of Treynor. It is a historical marker for the community and one that gave it its original name, "Four Corners." This location is one of two four-way intersections and the only one where the streets pass through and extend out of town. This location is where the primary business district is, creating the sense of a downtown district. But this intersection is also one noted for congestion and fast moving traffic. The intersection is hard for pedestrians to cross because the streets are wide. And there is little vegetation or site elements that promote a community identity, to make this feel like a welcoming hub within Treynor. Highway 75 is a 44 foot wide road. The inner two lanes are vehicular travel lanes and the outer lanes are for on-street parking. From a driver's standpoint however, this makes the road feel vast and can lead to increased speeds because there are few visual cues near the lanes of travel to make drivers aware of their speed. Community members noted that they would like to see measures taken to slow down traffic and improve crossings and accessibility at this intersection.

Crossings are also an important issue for the community near the schools. All three of Treynor's schools are located south of Highway 75, yet most of the residential areas are located to the north. This means that the majority of children who walk to school must cross the highway to get to and from school. There is currently a crosswalk near the middle school, but there are concerns about its distance from the school and the fact that its north endpoint leads into the driveway of the church parking lot. The elementary school does not currently have a crosswalk.

Across from the schools is the Treynor Zion Congregational Cemetery. The stretch of highway along the cemetery is known for drifting snow. This is partly due to the removal of a windbreak on its north side and the lack of vegetation within the cemetery. The lane immediately adjacent to the cemetery is an on-street parking lane primarily utilized by teachers at the school.

There are also a few points where stormwater issues have been noted. These instances are related to dips in the pavement where the road meets driveways and the flow of stormwater strays from the flow toward drain inlets. Green infrastructure strategies offer opportunities to reduce these stormwater related problems.

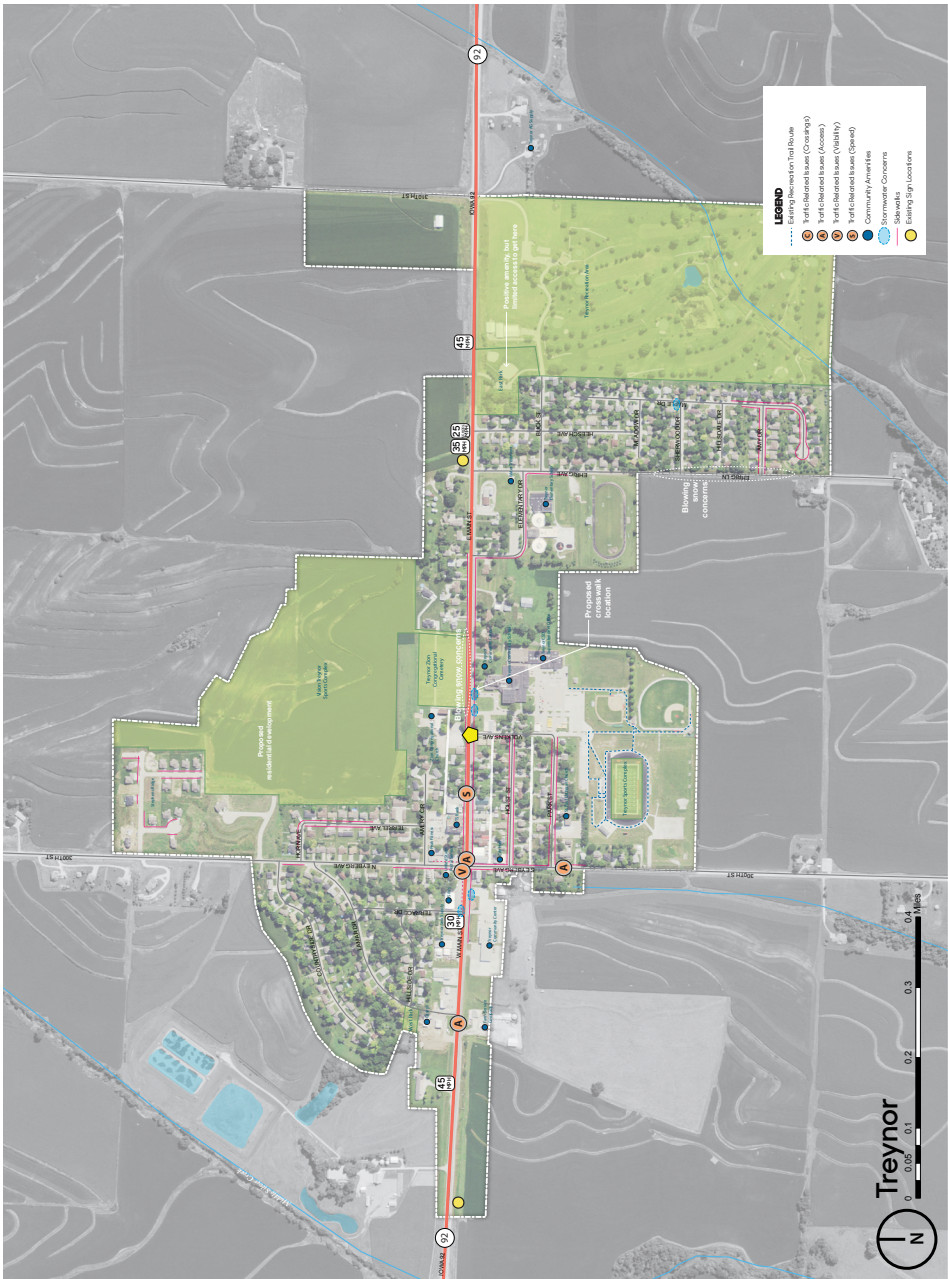
Treynor has historically not had policies in place that have required developers or residents to implement sidewalks on their properties. As a result only a few select blocks beyond the main stretch of Highway 75 have sidewalks. The community would like to see the sidewalk network expand, connect people to local amenities, and possibly introduce a trail that would provide opportunities to walk in locations other than down residential streets. The Vision Treynor project is hoping to implement some trails in the north central area of the community as part of their proposed sports complex.

SUMMER 2019 4

The intersection of Highway 20 and Elbow Avenue is an important location for the residents of Treynor. It is a major thoroughfare for the community and provides a vital link to the surrounding area. This location is one of two where the primary business district is the center of downtown. But this intersection is also one noted for congestion and traffic delays. The intersection is a major thoroughfare for the community and provides a vital link to the surrounding area. This location is one of two where the primary business district is the center of downtown. But this intersection is also one noted for congestion and traffic delays. The intersection is a major thoroughfare for the community and provides a vital link to the surrounding area. This location is one of two where the primary business district is the center of downtown. But this intersection is also one noted for congestion and traffic delays.

Congestion is also an important issue for the community near the school. All three of Treynor's schools are located south of Highway 75, yet most of the residential areas are located to the north. This means that the majority of the middle school, but there are concerns about its distance from the school and the fact that its north-south link is into the driveway of the church parking lot. The elementary school does not currently have access to the primary stability features of this school. The intersection is a major thoroughfare for the community and provides a vital link to the surrounding area. This location is one of two where the primary business district is the center of downtown. But this intersection is also one noted for congestion and traffic delays.

Green infrastructure strategies offer opportunities to reduce these stormwater re-entrainment problems. Treynor has historically had problems in places that have required developers or residents to implement sidewalks. The community would like to see the sidewalk network expanded, connect people to local amenities, and possibly reduce the amount of impervious surfaces. The intersection is a major thoroughfare for the community and provides a vital link to the surrounding area. This location is one of two where the primary business district is the center of downtown. But this intersection is also one noted for congestion and traffic delays.



Transportation Inventory

Iowa State University Community Design Lab
 LAs: Chad Hunter & Carl Rogers

Collaborators: Brian Leaders & Payton Schafers, National Park Service RTCA
 Iowa State University | Trees Forever | Iowa Department of Transportation



HWY 92 Reconfiguration

The proposed reconfiguration of Highway 92 builds on the study conducted by University of Iowa students and the city's comprehensive plan. This vision involves implementing bump-outs and extending the curb along the wide shoulders currently utilized for on-street parking to reduce the perception of the roadway from a wide open four-lane highway to a slower two-lane community scale street. The goal of these changes is to create more welcoming streets, slow traffic, and provide greater access to schools, parks, and businesses.

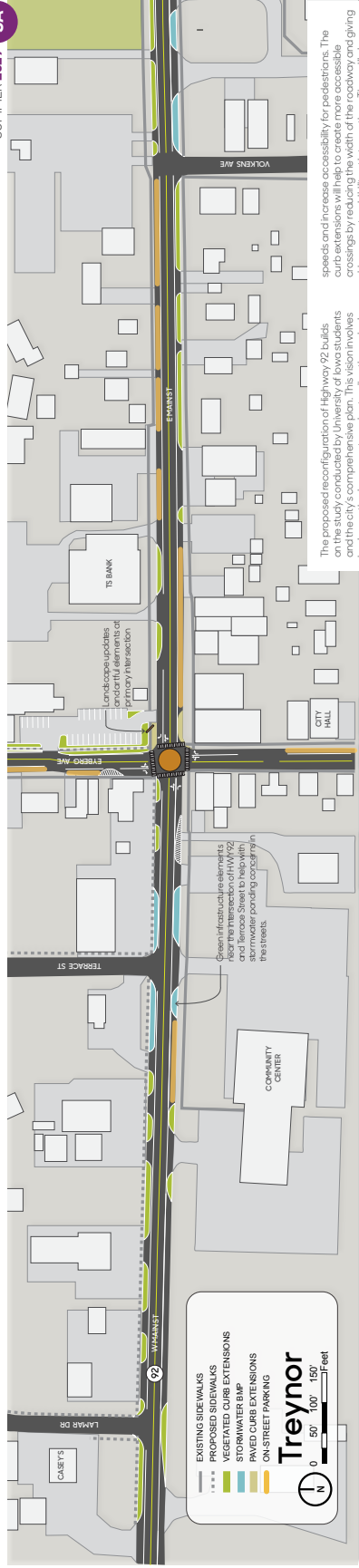
Narrowing the roadway and implementing vegetation along the roadways has been shown to decrease traffic speeds and increase accessibility for pedestrians. The curb extensions will help to create more accessible crossings by reducing the width of the roadway and giving drivers greater visibility at intersections. They will also define the zones where on-street parking is permitted.

As part of the Community Visioning process, areas of concern related to stormwater and blowing snow were identified. The curb extensions provide space to implement stormwater best management practices (BMPs) and other vegetation strategies that can decrease blowing snow and increase the comfort and welcoming character of the street for pedestrians and drivers.

COST ESTIMATE	
Key Projects	SUBTOTAL
HWY 92 Reconfiguration	\$470,370.00
Community Branding	\$90,600.00
Sidewalk Updates	\$1,125,667.00
TOTAL	\$1,686,637.00

Highway 92 (Lamar Dr to Treynor Zion Cemetery)

SUMMER 2019 5A

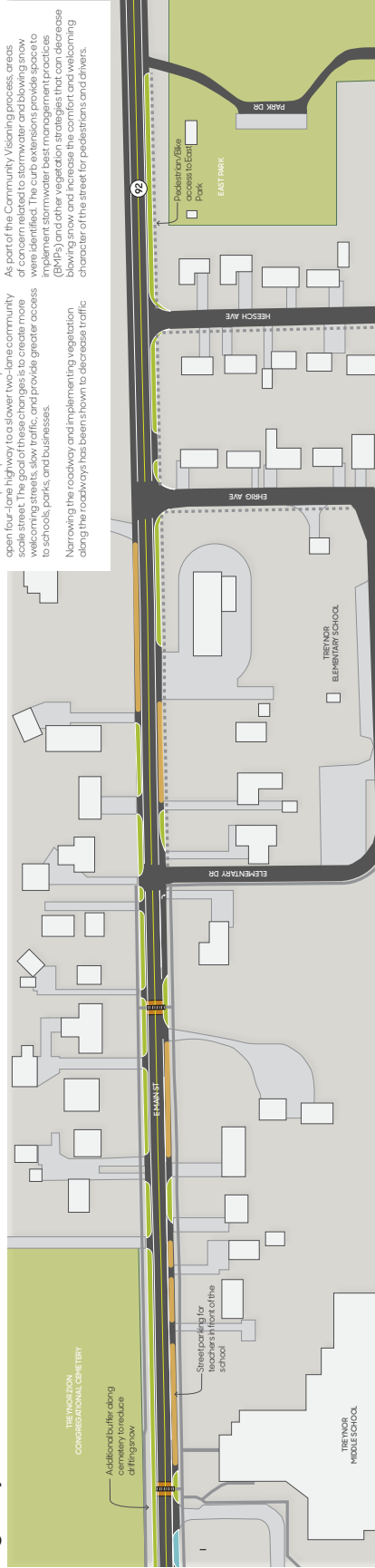


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As part of the Community Visioning process, areas of concern were identified. The curb extensions provide space to implement stormwater best management practices (BMPs) and other vegetation strategies that can decrease blowing snow and increase the comfort and welcoming character of the street for pedestrians and drivers.

Highway 92 (Treynor Zion Cemetery to East Park)



HWY 92 Reconfiguration

Iowa State University Community Design Lab

LAs: Chad Hunter & Carl Rogers
 Collaborators: Brian Leaders & Payton Schafers, National Park Service, RTCA
 Iowa State University | Trees Forever | Iowa Department of Transportation



"The Four Corners"

Highway 92 & Eyberg Ave Intersection

This concept proposes creating three-lane road configurations at the primary intersection, allowing for right-turn lanes that will help to ease traffic at this location. All proposed bump-outs will still accommodate the required turning needs for large trucks. At the corners the curb would be brought down to the grade of the street to allow for larger vehicles to make wider turns without engaging the curb.

Though the overall roadway dimensions have been reduced by extending the curb, the lane widths would remain similar to existing widths or be increased. As well, the lanes will be marked on the outer edge, but still provide another 2–3 feet of paved shoulder between the lane and the front of the curb.

The intersection of "The Four Corners" also provides opportunities to explore various strategies related to vegetation and stormwater management, as well as provide elements that increase community identity. This location is the primary commercial district and has the potential to have more of a downtown character in future planning. Elements such as pedestrian-scale streetlights, banners, and landscape updates can help to establish an identity for that district. These features create a more welcoming and social space for the community, and can inspire economic development. The proposed streetlights would be a more modern take on the historic style street lamps that currently surround the memorial landscape.

Highway 92 (Looking East)

Coming into town from the west, bump-outs would be implemented along both shoulders. This will allow for managing stormwater issues within this area, and providing sidewalk access on the north side of HWY92 where there currently is none. As you approach the "four-corners" the downtown identity elements such as pedestrian street lights would begin to establish the character for this district.

Highway 92 (Looking West)

Looking west, the streetlights, street trees and artful elements create a welcoming environment. These elements alert drivers that they are in a zone where there will more likely be pedestrians present, and that speeds are typically slower. Near the intersection all four lanes are utilized for vehicles, whether through travel lanes, turning lanes, or on-street parking.

Eyberg Ave (Looking North)

After school this length of Eyberg Avenue becomes one of the more congested streets in Treynor. This proposal converts the east shoulder of the road, currently utilized for on-street parking, into a turn lane. The addition of a right-hand turn lane will divert that traffic into two lanes and hopefully reduce back ups, by allowing eastbound traffic to disperse more quickly.

Eyberg Ave (Looking South)

Traveling south, the parking along the west side of Eyberg Avenue becomes a right-hand turn lane. On the east side of the road some curb extension is proposed to allow for widening the fitness center parking lot, adding a north-south sidewalk, and providing a vegetated buffer. A significant shoulder width will be provided along Eyberg Avenue on the east side, especially at the corner, to increase ease of turns for larger vehicles from HWY 92 onto Eyberg Avenue.

Highway 92 & Eyberg Ave Intersection



This concept proposes creating three-lane road configurations at the primary intersection, allowing for right-turn lanes that will help to ease traffic at this location. All proposed bump-outs will be implemented on the east side of Eyberg Ave to provide additional turning needs for large trucks. At the corners, the curb would be brought down to the grade of the street to allow for larger vehicles to make wider turns without engaging the curb.

Though the overall roadway dimensions have been reduced by extending the curb, the lane widths would remain similar to existing widths or be increased. As well, the lanes will be marked on the outer edge, but still provide another 2-3 feet of separation between the lane and the front of the curb.

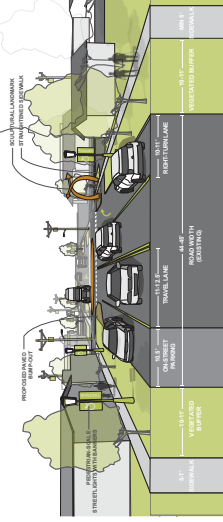
The intersection of "The Four Corners" also provides opportunities to explore various strategies related to vegetation and stormwater management, as well as to create a sense of place and community identity. This location is the primary commercial district and has the potential to have more of a downtown character in future planning. Elements such as pedestrian-scale streetlights, bicycle racks, and other amenities can help establish an identity for that district. These features create a more welcoming and social space for the community, and can inspire economic development. The proposed streetlights would be a more modern take on the traditional streetlights that define the identity surround the memorial landscape.

② Highway 92 (Looking West)



Looking west, the streetlights, street trees and artful elements create a welcoming environment. These elements alert drivers that they are in a zone where there will more likely be pedestrians present, and that speeds are typically slower. Near the intersection all four lanes are typically slower. Near the intersection all four lanes are typically slower. Near the intersection all four lanes are typically slower. Near the intersection all four lanes are typically slower.

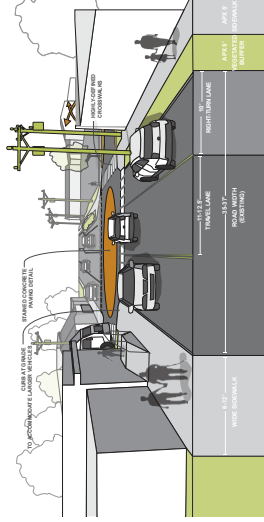
SUMMER 2019 5B



③ Eyberg Ave (Looking North)



After school, the length of Eyberg Avenue becomes one of the more congested streets in Treynor. This proposal converts the east shoulder of the road, currently utilized for on-street parking, into a turn lane. The addition of a right-turn lane allows for more efficient turning movements and hopefully reduce back-ups by allowing eastbound traffic to disperse more quickly.



① Highway 92 (Looking East)

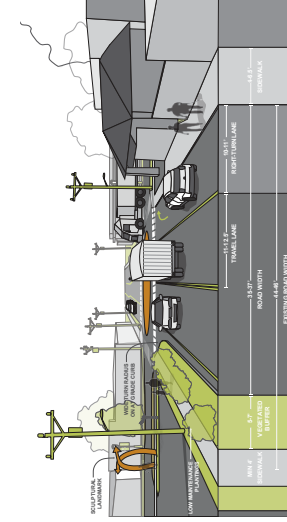


Coming into town from the west, bump-outs would be implemented along both shoulders. This will allow for managing stormwater issues within this area, and provide additional space for parking on the east side of the road. As well, the "four corners" the downtown identity elements such as pedestrian street lights would begin to establish the character for this district.

④ Eyberg Ave (Looking South)



Traveling south, the parking along the west side of Eyberg Avenue becomes a right-hand turn lane. On the east side of the road some curb extension is proposed to allow for widening the fitness center parking lot, adding a buffer. A significant shoulder width will be provided along Eyberg Avenue on the east side, especially at the corner, to increase ease of turns for larger vehicles from HWY 92 onto Eyberg Avenue.



Treynor

"The Four Corners"

Iowa State University Community Design Lab
 LAs: Chad Hunter & Carl Rogers

Collaborators: Brian Leaders & Payton Schafers, National Park Service RTCA
 Iowa State University | Trees Forever | Iowa Department of Transportation



HWY 92 RECONFIGURATION				
Caseys/Lamar Dr to Terrace St	QTY	UNIT	UNIT COST	SUBTOTAL
Bump-outs				
Excavation for raised bump-out	203	CY	\$14.00	\$2,842.00
Additional Excavation for Green Infrastructure	236	CY	\$14.00	\$3,304.00
Concrete Paving 6" Curb	1,139	LF	\$18.00	\$20,502.00
Clean Fill (4.5' depth)	213	CY	\$10.00	\$2,130.00
Amended Top Soil (6"-12" depth)	227	CY	\$20.00	\$4,540.00
Road Markings/Striping	1,700	LF	\$2.00	\$3,400.00
Plantings*				
Low-maintenance Perennials	1	AL	\$5,000.00	\$5,000.00
Grass Seed (w/labor)	5,468	SF	\$0.20	\$1,093.00
Mulch (3" depth)	1,275	SF	\$1.00	\$1,275.00
Bed Prep	1	AL	\$1,000.00	\$1,000.00
Pavement Markings				
Lane Striping	1,700	LF	\$2.00	\$3,400.00
Caseys/Lamar Dr to Terrace St Total				\$48,468.00
Terrace St to Volkens Ave	QTY	UNIT	UNIT COST	SUBTOTAL
Bump-outs				
Excavation for raised bump-out	186	CY	\$14.00	\$2,604.00
PCC Concrete / Stained (4" depth)	490	SF	\$25.00	\$10,500.00
Gravel Base (8" depth)	12	CY	\$3.00	\$36.00
Additional Excavation for green infrastructure and tree pits	315	CY	\$14.00	\$4,410.00
Clean Fill (4.5' depth)	283	CY	\$10.00	\$2,830.00
Amended Top Soil (6"-12" depth)	216	CY	\$20.00	\$4,320.00
Concrete Paving 6" Curb	1490	LF	\$18.00	\$26,820.00
Plantings*				
Low-maintenance Plantings	1	AL	\$7,500.00	\$7,500.00
Street Trees	8	EA	\$400.00	\$3,200.00
Grass Seed (w/labor)	4,875	SF	\$0.20	\$975.00
Mulch (3" depth)	1,700	SF	\$1.00	\$1,700.00
Bed Prep	1	AL	\$2,000.00	\$2,000.00
Site Elements				
Pedestrian-Scale Streetlights w/ Banners*	12	EA	\$800.00	\$9,600.00
Pedestrian Crossing Sign w/ Post	4	EA	\$175.00	\$700.00
Crosswalks	4	EA	\$750.00	\$3,000.00
Curb ramp & ADA Warning Strip	6	EA	\$1500.00	\$9,000.00
Pavement Markings				
Lane Striping & Turn Arrows	3,445	LF	\$2.00	\$6,890.00
Terrace St to Volkens Ave Total				\$96,180.00

Cost Estimate Key AL: Allotment; CY: Cubic Yards; SF: Square Feet; LF: Linear Feet; EA: Each

HWY 92 RECONFIGURATION (continued)				
Volkens Ave to Park Dr	QTY	UNIT	UNIT COST	SUBTOTAL
Bump-outs				
Excavation for raised bump-out	544	CY	\$14.00	\$7,616.00
Additional Excavation for green infrastructure and shrub plantings	971	CY	\$14.00	\$13,594.00
Clean Fill (4.5' depth)	1,036	CY	\$10.00	\$10,360.00
Amended Top Soil (6"-12" depth)	412	CY	\$20.00	\$8,240.00
Stained Concrete for Ped Crossing	1,200	SF	\$12.00	\$14,400.00
Concrete Paving 6" Curb	3,501	LF	\$18.00	\$63,018.00
Plantings*				
Low-maintenance Plantings *	1	AL	\$15,000.00	\$15,000.00
Street Trees	12	EA	\$400.00	\$4,800.00
Grass Seed (w/labor)	14,682	SF	\$0.20	\$2,937.00
Mulch (3" depth)	2,849	SF	\$1.00	\$2,849.00
Bed Prep	1	AL	\$2,000.00	\$2,000.00
Site Elements				
Pedestrian Crossing Sign w/ Post	4	EA	\$175.00	\$700.00
Crosswalks	2	EA	\$750.00	\$1,500.00
Curb ramp & ADA Warning Strip	4	EA	\$1500.00	\$6,000.00
Pavement Markings				
Lane Striping	5,212	LF	\$2.00	\$10,424.00
Volkens Ave to Park Dr Total				\$163,438.00
Eyberg Ave Updates	QTY	UNIT	UNIT COST	SUBTOTAL
Bump-outs				
Excavation for raised bump-out	35	CY	\$14.00	\$490.00
Clean Fill (12" depth)	35	CY	\$10.00	\$350.00
Amended Top Soil (6" depth)	17	CY	\$20.00	\$340.00
Concrete Paving 6" Curb	150	LF	\$18.00	\$2,700.00
Plantings*				
Grass Seed (w/labor)	930	SF	\$0.20	\$186.00
Pavement Markings				
Lane Striping & Turn Arrows	714	LF	\$2.00	\$1,428.00
Eyberg Ave Updates Total				\$5,494.00
HWY 92 RECONFIGURATION SUBTOTAL				\$313,580.00
Mobilization			15%	\$47,037.00
Engineering			15%	\$47,037.00
Contingency			20%	\$62,716.00
HWY 92 RECONFIGURATION TOTAL				\$470,370.00

* Additional tree and perennial plantings by property owners on residential and commercial properties should be encouraged

Cost Estimate Key AL: Allotment; CY: Cubic Yards; SF: Square Feet; LF: Linear Feet; EA: Each

Intersections & Crossings

Four Corners Intersection

"The Four Corners" intersection has great possibilities for creating community identity through artful streetscape updates. The proposed vision includes a graphic, stained concrete detail in the center of the intersection. The symbol is representative of the intersection of HWY 92 and Eyberg Avenue, which gave the community its original name, and the undulating landscape that HWY 92 traverses coming into and leaving Treynor. This swooping form that makes the "corner" form can also become a pavement detail in the paved bump-outs within the downtown zone. The colors would be of an aged brick tone to give a more timeless color palette, but with a more modern character to the design.

Also building on the four-corners identity, a steel sculpture representing the prominence and historic importance of this intersection is proposed as an iconic landmark on the northeast corner. The arcing form complements the swooping form of the pavement details.

The sculpture would act as a threshold that community members and residents would pass through as they walked down the sidewalk on their way to school or local businesses. This concept for the sculpture envisions a corten steel structure which would have a brownish-orange tone with age that would compliment the colors of the paving details.

Highway 92 School Crossing

Widening the vegetated buffer and adding bump-outs provide opportunities near the middle school and cemetery to address multiple goals. The added space will create a more visible and accessible crossing for students, narrowing the crossing distance from 44 to approximately 28 feet. The bump-outs will define on-street parking, now relocated to the south side of the street in front of the school. On the north side of the street the vegetated buffer expands from an average of 7-11 feet to 15-18 feet. This added width will provide plenty of right-of-way to add tree and shrub vegetation to help reduce drifting snow from the cemetery. It will be important to select shrubs that do not obstruct visibility of children walking along the sidewalk to the north.

Recommended Trees and Shrubs

Plant choices should ensure that children on the sidewalks are visible. Shrubs with evergreen foliage or dense branching will help with drifting snow. Trees should be small scale or narrow so as not to interfere with power lines. Plants should also be tolerant to urban conditions such as poor soil and salt spray.

COMMUNITY BRANDING				
Four Corners Sculpture*	QTY	UNIT	UNIT COST	SUBTOTAL
Sculpture Design and Installation	1	AL	\$50,000.00	\$50,000.00
Intersection Emblem	QTY	UNIT	UNIT COST	SUBTOTAL
Stained Concrete Design	1020	SF	\$25.00	\$25,500.00
COMMUNITY BRANDING SUBTOTAL				\$75,500.00
Contingency			20%	\$15,100.00
COMMUNITY BRANDING TOTAL				\$90,600.00

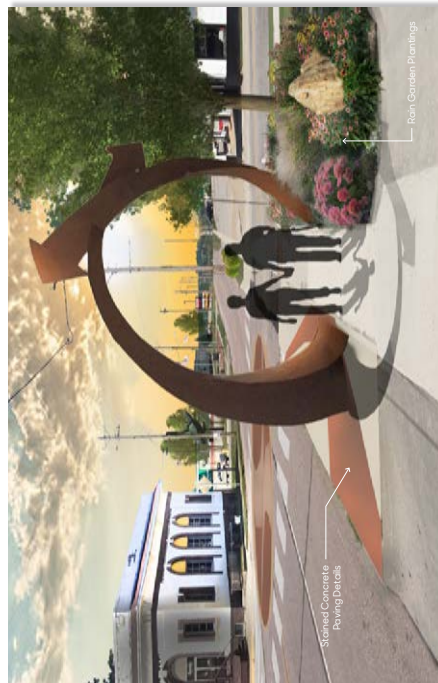
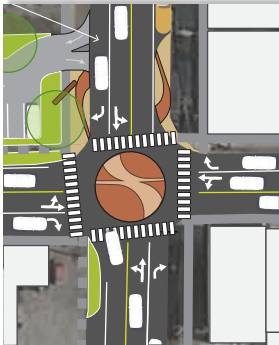
* Costs do not include the adjacent planting bed pictured in the images, since this is currently on private property

Cost Estimate Key AL: Allotment; CY: Cubic Yards; SF: Square Feet; LF: Linear Feet; EA: Each

Four Corners Intersection

The Four Corners intersection has great possibilities for creating community identity through artful streetscape updates. The proposed vision includes a graphic, tiered sculpture that is representative of the intersection of HWY 92 and E 10th Avenue, which gave the community its original name, and the undulating landscape that HWY 92 traverses coming into and leaving Treynor. This swooping form that makes the "corner" form can also become a pavement detail in the paved sidewalk, which can be used to create a color palette, but with a more modern character to the design.

Also, building on the four-corners identity, a steel sculpture representing the prominence and historic importance of this intersection is proposed as an iconic landmark on the sidewalk. This sculpture would be a sweeping form of the pavement details.



The sculpture would act as a threshold that community members and residents would pass through as they walked down the sidewalk on their way to school or local businesses. This concept for the sculpture envisions a corten steel structure which would have a brownish-orange tone with age that would compliment the colors of the paving details.

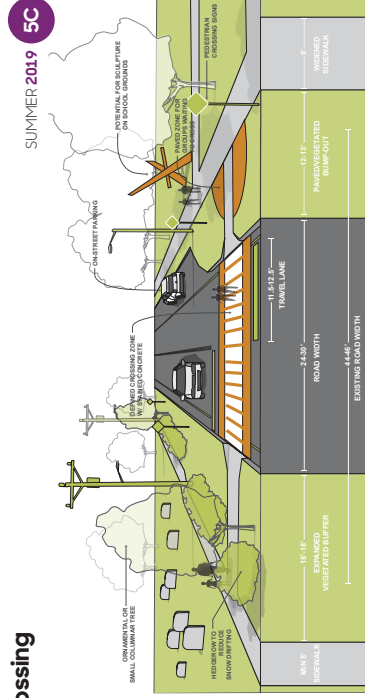


Treynor

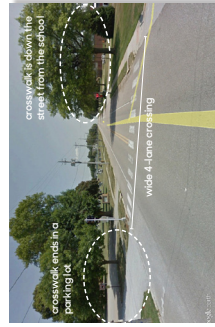
Intersections & Crossings

Highway 92 School Crossing

Widening the vegetated buffer and adding bump-outs provide opportunities near the middle school and cemetery to address a number of concerns. The crossing is a major, visible and accessible crossing for students, narrowing the crossing distance from 44 to approximately 28 feet. The bump-outs will define on-street parking, now relocated to the south side of the street in front of the school. On the north side of the street, the sidewalk is widened to a width of 7-11 feet to 15-18 feet. This added width will provide plenty of right-of-way to add tree and shrub vegetation to help reduce drifting snow from the cemetery. It will be important to select shrubs that do not obstruct visibility of children walking along the sidewalk to the north.

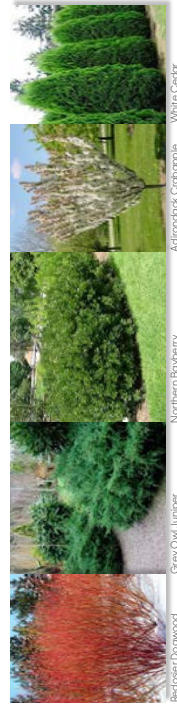


Existing Conditions



Recommended Trees and Shrubs

Plant choices should ensure that children on the sidewalks are visible. Shrubs with evergreen foliage or dense branching will help with drifting snow. Trees should be small scale species that are tolerant of poor soil conditions such as poor soil and salt spray.



Iowa State University Community Design Lab

LAs: Chad Hunter & Carl Rogers
 Collaborators: Brian Leaders & Payton Schafers, National Park Service RTCA
 Iowa State University | Trees Forever | Iowa Department of Transportation



Green Infrastructure

Location of Stormwater & Snow Concerns

Much of Treynor exists on a plateau within the Loess Hills. For the most part, stormwater sheds easily downhill and into storm drains. However there are small-scale topography changes within the infrastructure that can lead to poor drainage and ponding. Four main locations along HWY 92 were noted for ponding after rain events.

During community focus groups, drifting snow was identified as another major concern. This condition is persistent along the cemetery on HWY 92. Focus-group participants also pointed out that the problem exists along Ehrig Avenue, south of the elementary school.

Bioswales

Swales are shallow vegetated open channels designed to convey, reduce, and filter runoff. A wet swale includes design features that improve the contaminant removal and runoff reduction functions of a simple roadside ditch. Swales are often combined with rain gardens.

Suggested Use: Incorporate with addition of boulevards along Highway 92. The swale would reduce stormwater runoff and increase aesthetics along the street corridor.

Rain Gardens

Rain gardens and bioretention facilities use a combination of soil and plant material to capture and treat stormwater. Rain gardens are typically smaller systems that do not require engineering. They feature a planted or rock-based depression, designed to provide temporary rainwater storage and filter runoff. These are typically cost effective and easy to maintain options for both private and public land.

Suggested Use: Combine rain gardens with bioswales to place within boulevards. Plants used should require little water and maintenance. Decorative rocks/stones can be incorporated as well.

Permeable Pavement

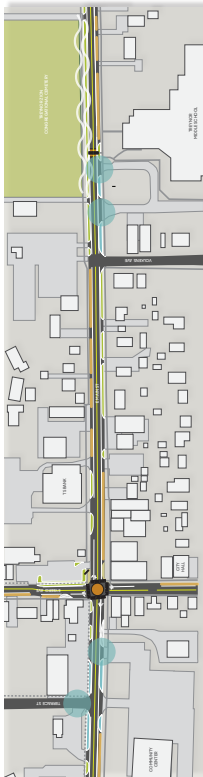
Permeable pavement refers to surface treatment that is suitable for pedestrian or vehicular traffic and contains pore spaces or joints that allow stormwater to pass through to a stone base where it is infiltrated into the underlying native soil, or temporarily detained and conveyed to a stormwater management pond. Types of permeable pavement include: pervious concrete, porous asphalt, and permeable interlocking concrete pavers.

Suggested Use: Pavement changes create visual interest, which helps slow down traffic. Permeable pavers could be used to mark on-street parking or crosswalks. Place permeable pavement in a location that will not have high traffic speeds.

Recommended Plants

Low maintenance and drought tolerant plants should be considered for sun-exposed rain gardens, bioswales, and general landscaping in vegetated buffers along the roadway. Native species offer many advantages, such as better adaptation and provision of food for native pollinators. The practice of xeriscaping uses creative landscaping techniques, such as grouping drought-resistant vegetation, and creates an aesthetically interesting natural environment, which contributes to a sense of place.

Locations of Stormwater & Snow Concerns



Much of Treynor exists on a plateau within the Loess Hills. For the most part, stormwater sheds easily downhill and into storm drains. However, there are small-scale topography changes within the infrastructure that can lead to poor drainage and ponding. Four main locations along HWY 92 were noted for ponding after rain events. During community focus groups, drifting snow was identified as another major concern. This condition is persistent along the cemetery on HWY 92. Focus-group participants also pointed out that the problem exists along Ehrig Avenue, south of the elementary school.

Green Infrastructure Precedents



Bioswales

Bioswales are shallow vegetated open channels designed to convey, reduce, and filter runoff. A bioswale includes design features that improve water quality, such as a vegetated filter strip, a storage depression, or a simple roadside ditch. Bioswales are often combined with rain gardens. **Suggested Use:** Incorporate with addition of boulevards along Highway 92. The swale would reduce stormwater runoff and increase aesthetics along the street corridor.



Rain Gardens

Rain gardens and bioretention facilities use a combination of soil and plant material to capture and treat stormwater. Rain gardens are typically smaller systems that do not require a concrete curb. They are designed to provide temporary storage and filter runoff. These are typically cost effective and easy to maintain options for both private and public land. **Suggested Use:** Combine rain gardens with bioswales to place within boulevards. Plants used should require little water and maintenance. Decorative rocks/stones can be incorporated as well.



Permeable Pavement

Permeable pavement refers to surface treatment that is suitable for pedestrian or vehicular traffic and contains pore spaces or joints that allow stormwater to infiltrate into the ground. Permeable pavement is made of underlying native soil or temporarily detained and conveyed to a stormwater management pond. Types of permeable pavement include pervious concrete, porous asphalt, and permeable interlocking concrete pavers. **Suggested Use:** Pavement changes create visual interest, which helps slow down traffic. Permeable pavers could be used to mark on-street parking or crosswalks. Place permeable pavement in a location that will not have high traffic speeds.

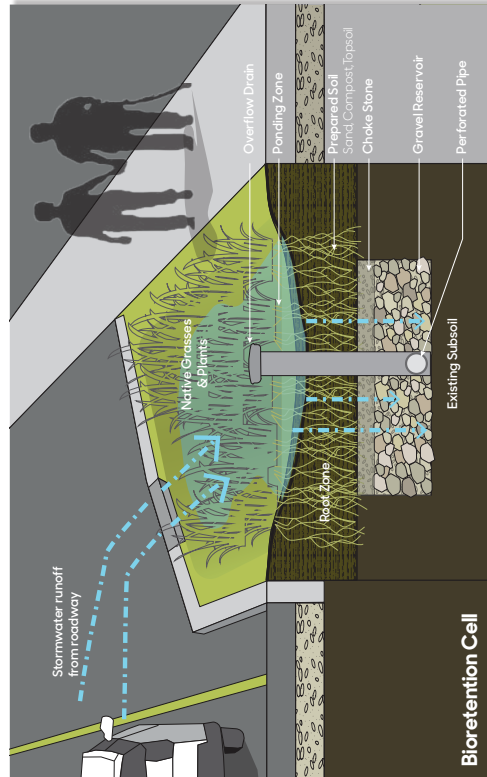
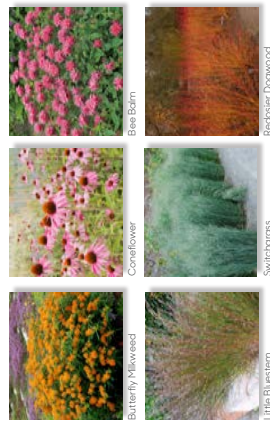
Modifying Existing Drains



Where current stormwater inlets exist, the bump-outs would be formed to direct stormwater from the roadway to the existing drain. A steel grate can be implemented over the drainage way to maintain an even surface across the bump-out. This will allow for quick access to the existing inlet location.

Recommended Plants

Low maintenance and drought tolerant plants should be considered for sustainability along the roadway. Native species offer many advantages, such as better adaptation and provision of food for native pollinators. The practice of xeriscaping uses creative landscaping techniques, such as grouping drought-resistant vegetation and creates an aesthetically interesting natural environment, which contributes to a sense of place.



Treynor

Green Infrastructure

Iowa State University Community Design Lab

LAs: Chad Hunter & Carl Rogers
Collaborators: Brian Leaders & Payton Schafers, National Park Service-RTCA

Iowa State University | Trees Forever | Iowa Department of Transportation



Sidewalk Updates

Phasing for sidewalk improvements and additions are based on locations/routes identified by community members at the public design charrette. These locations were either identified by multiple residents or provide needed links to key points of interest in Treynor. Further updates should be considered as opportunities present themselves. It would be recommended that all new development require sidewalk infrastructure. The proposed crosswalks complement the sidewalk updates to increase accessibility to primary businesses and schools.

Phase I:

The initial phase for sidewalk updates includes both new sidewalks and updates to existing infrastructure. The public overwhelmingly identified the need to update and extend sidewalks along HWY 92. Providing access along the north side of HWY 92 between Eyberg Ave and Caseys, as well providing access to East Park, were the primary suggestions. Phase I will establish more visible and accessible crossings to the schools. The first trail implemented as part of Vision Treynor would also be part of Phase I.

Phase II:

Phase II increases connections to the schools and parks, especially in neighborhoods on the east side of town by the elementary school.

Phase III:

Phase III expands access within the residential streets and completes trails throughout the Vision Treynor complex. The locations selected for residential updates were identified through the design process and public input sessions, and is not meant to limit the potential for implementation of sidewalks elsewhere.

PHASE I



The initial phase for sidewalk updates includes both new sidewalks and updates to existing infrastructure. The public overwhelmingly identified updates to sidewalks as the top priority, with 72% of survey respondents ranking it as a top priority. The first phase of updates, including updates to sidewalks and updates to existing infrastructure, will be implemented along the east side of Hwy 92 between East Park and East Park. This phase will establish more visible and accessible crossings to the schools. The first trail implemented as part of Vision Treynor would also be part of Phase I.

PHASE II

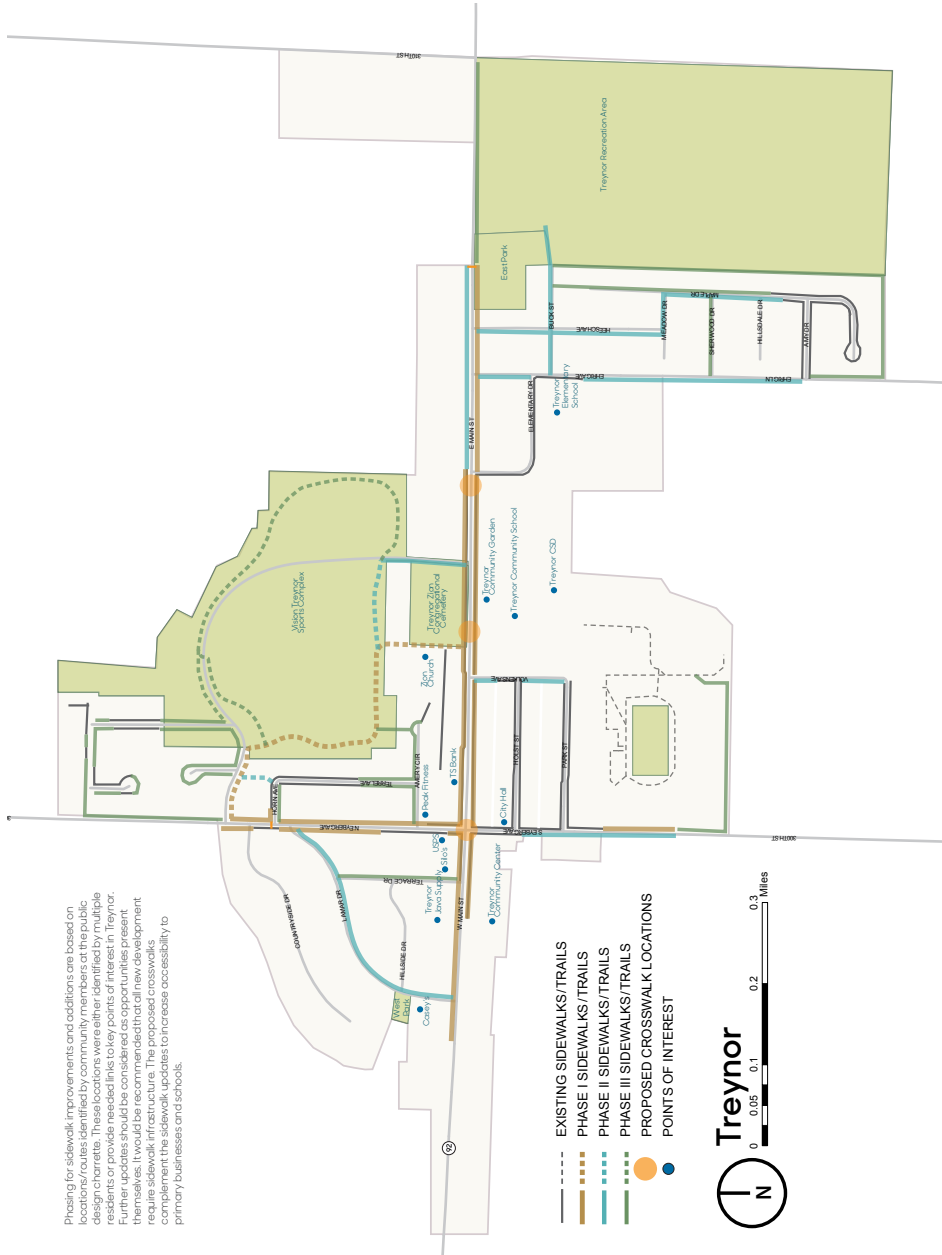


Phase II increases connections to the schools and parks, especially in neighborhoods on the east side of town by the elementary school.

PHASE III



Phase III expands access within the residential streets and completes trails throughout the Vision Treynor complex. The locations selected for residential updates were identified through the design process and public input sessions, and is not meant to limit the potential for implementation of sidewalks elsewhere.



Phasing for sidewalk improvements and additions are based on locations/routes identified by community members at the public design charrette. These locations were either identified by multiple residents or provide needed links to key points of interest in Treynor. Further updates should be considered as opportunities present themselves. It would be recommended that all new development complement the sidewalk updates to increase accessibility to primary businesses and schools.

Treynor
Sidewalk Updates

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SIDEWALK UPDATES*				
Phase I	QTY	UNIT	UNIT COST	SUBTOTAL
4' Wide Sidewalks				
Excavation (10")	588	CY	\$14.00	\$8,232.00
PCC Concrete (4" depth)	19,820	SF	\$7.00	\$138,740.00
Gravel Base (6" depth)	368	CY	\$3.00	\$1,104.00
5' Wide Sidewalks (Eyberg Ave)				
Excavation (10")	40	CY	\$14.00	\$560.00
PCC Concrete (4" depth)	1328	SF	\$7.00	\$9,296.00
Gravel Base (6" depth)	25	CY	\$3.00	\$75.00
Phase I Subtotal				\$158,007.00
Phase II	QTY	UNIT	UNIT COST	SUBTOTAL
4' Wide Sidewalks				
Excavation (10")	1,018	CY	\$14.00	\$14,252.00
PCC Concrete (4" depth)	34,360	SF	\$7.00	\$240,520.00
Gravel Base (6" depth)	637	CY	\$3.00	\$1,911.00
Phase II Subtotal				\$256,683.00
Phase III	QTY	UNIT	UNIT COST	SUBTOTAL
4' Wide Sidewalks				
Excavation (10")	1,332	CY	\$14.00	\$18,648.00
PCC Concrete (4" depth)	44,944	SF	\$7.00	\$314,608.00
Gravel Base (6" depth)	833	CY	\$3.00	\$2,499.00
Phase III Subtotal				\$335,755.00
SIDEWALK UPDATES SUBTOTAL				\$750,445.00
Mobilization			15%	\$112,566.75
Engineering			15%	\$112,566.75
Contingency			20%	\$150,089.00
SIDEWALK UPDATES TOTAL				\$1,125,667.50

* The estimated costs for sidewalk and trail updates does not include those trails within the Vision Trey nor property, assuming that an estimate would have been proposed for that project already.

Cost Estimate Key AL: Allotment; CY: Cubic Yards; SF: Square Feet; LF: Linear Feet; EA: Each

Implementation Strategies

Step One

Identify a Community Steering Committee to continue the momentum of the Community Visioning process. This group or groups will oversee the selection, planning and development of the projects.

Step Two

Define a ranking for the projects outlined in the feasibility study. This list will help prioritize goal setting, planning, funding. Remember that each concept outlined in the feasibility study can be broken down in to smaller parts. Also there are ways of testing ideas to see how the community will respond to change, such as using temporary paint to mark out the lanes and bump-out areas along Highway 92.

Step Three

Identify a project to be implemented. Start with a small scale project such as plantings or crosswalks. Implementation of a small project can have a larger catalytic effect. It creates a visible statement that change is happening, keeps the momentum going and can be a great motivation for building support and funding for future projects. Determine whether further design or planning is needed.

Step Four

With each project, identify potential funding sources to finance the implementation of a small scale catalyst project and the higher priority projects.

Step Five

Once a grant, loan or other funding source has been secured, develop a plan for contracting for additional design, advertising for bid and contracting for construction of the project.

Step Six

Select and contract with a Landscape Architect or Design Professional as your lead design consultant for the identified community improvement project. Allow 3-6 months in the project timeline for design and construction documentation development.

Step Seven

Select and execute a contract with a General Contractor as your construction manager for the identified community improvement project. Allow 6 months in the project timeline for construction administration.

Repeat the steps as each new project is determined.

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)

