City of Aitkin, Minnesota

Non-Motorized Transportation Network Development

October 2019

Made possible by the Statewide Health Improvement Partnership and the Minnesota Department of Health.

Contents

Recommendations for Aitkin's Non-Motorized Transportation Network

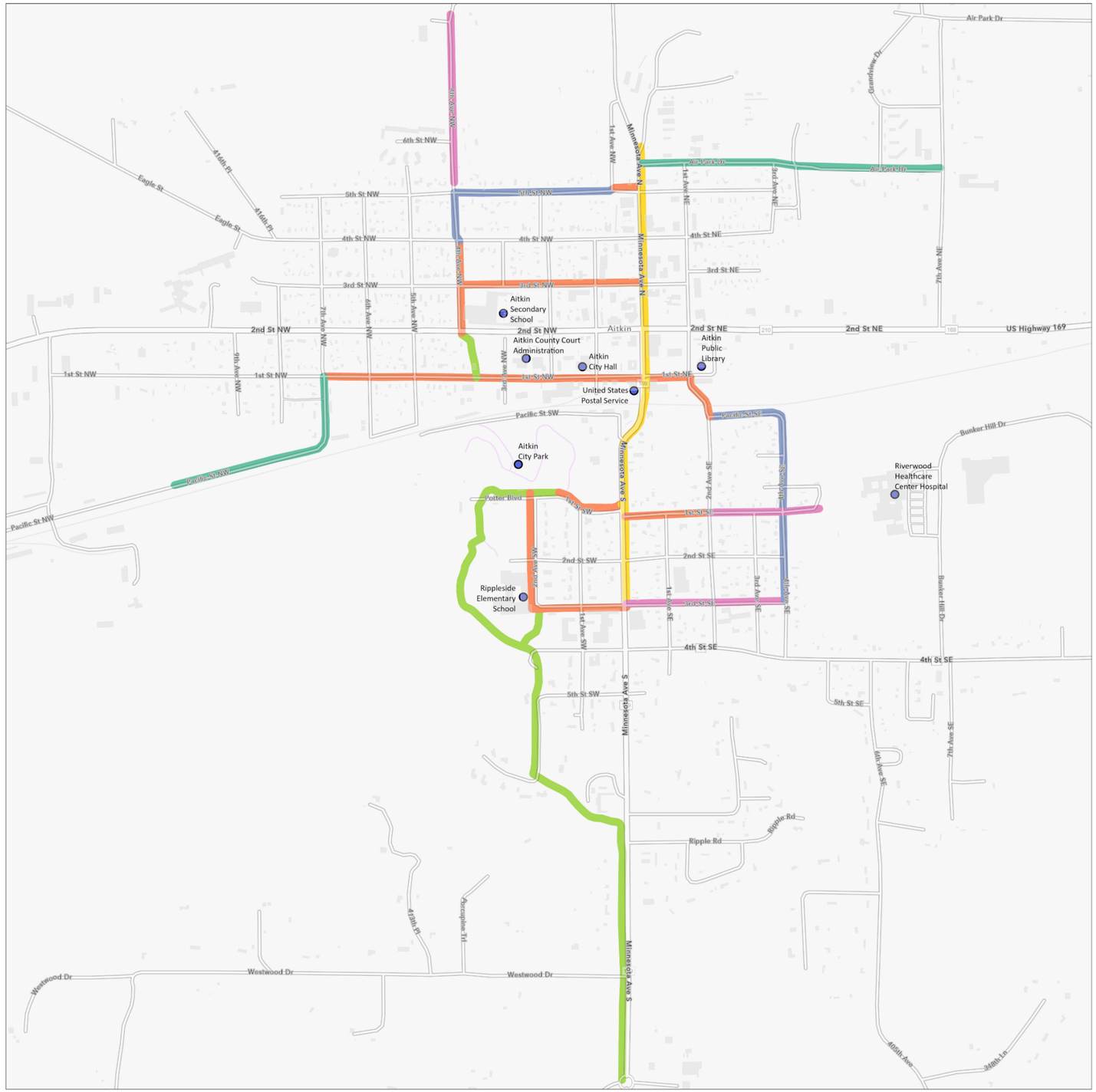
The following page highlights the recommended non-motorized transportation network in Aitkin, Minnesota. The Arrowhead Regional Development Commission (ARDC) developed this recommended network based on the location of community destinations and land identified as suitable for trail development in a 2019 study (Appendix A).

Considering this recommended network, the list below highlights transportation network improvements needed to meet these recommendations:

- Continue to stripe pedestrian lanes on 4th Avenue SE/Pacific Street SE, on 5th Street NW/4th Avenue NW, and on 4th Avenue NW (between 4th Street NW and 5th Street NW).
- Construct a mid-block sidewalk connection west of the Aitkin County courthouse parking lot, making connection between 1st Street NW and 2nd Street NW.
- Install a rectangular rapid flashing beacon (RRFB) at the 4th Avenue NW crossing of 2nd Avenue NW.
- Construct and maintain sidewalks and bike lanes on both sides of Minnesota Avenue.
- Construct a sidewalk along the west side of 4th Avenue NW (between 3rd Street NW and 4th Street NW) and 1st Avenue NE/2nd Avenue SE (between Pacific Street SE and 1st Street NE).
- File a *Request to Experiment* with the Federal Highway Administration (FHWA) and stripe advisory shoulders on Air Park Drive and on Pacific Street NW.

Please note: As public input was not collected to inform development of the network outlined on the following page, the recommendations enclosed do not represent the public's perspectives about non-motorized networks in the city of Aitkin, Minnesota. As different streets are considered for improvements, a detailed analysis of each street and its function in safely moving people using all modes of transportation should be considered.

Aitkin, Minnesota -- Recommended Non-Motorized Network

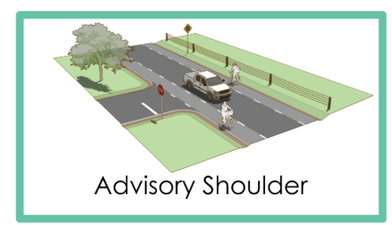


A **shared use path** provides a travel area separate from motorized traffic for bicyclists, pedestrians, skaters, wheelchair users, joggers, and other users.

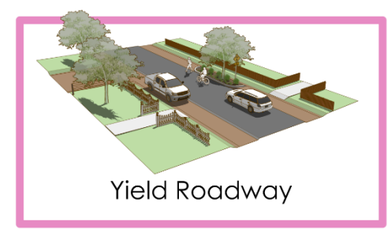
Sidewalks provide dedicated space intended for use by pedestrians and are physically separated from the roadway by a curb or unpaped buffer space.

Bike lanes designate an exclusive space for bicyclists and are located directly adjacent to motor vehicle travel lanes, following the same direction as motor vehicle traffic.

A **pedestrian lane** is a designated space on the roadway for exclusive use of pedestrians. The lane may be on one or both sides of the roadway.



Advisory shoulders create usable shoulders for bicyclists on a roadway that is otherwise too narrow to accommodate one. *Advisory shoulders are new in the United States. In order to install advisory shoulders, an approved Request to Experiment is required as detailed in Section 1A.10 of the MUTCD.*



A **yield roadway** is designed to serve pedestrians, bicyclists, and motor vehicle traffic in the same slow-speed travel area. Yield roadways serve bidirectional motor vehicle traffic without lane markings in the roadway travel area.

ARDC 2019

Source: FHWA, ARDC

Appendix A: Aitkin Trail Feasibility Study

The following pages outline a study about feasible areas for trail development in Aitkin, Minnesota. The study was completed at the request of the City of Aitkin by the Arrowhead Regional Development Commission (ARDC) in 2019. The following pages outline the study process and conclusions.

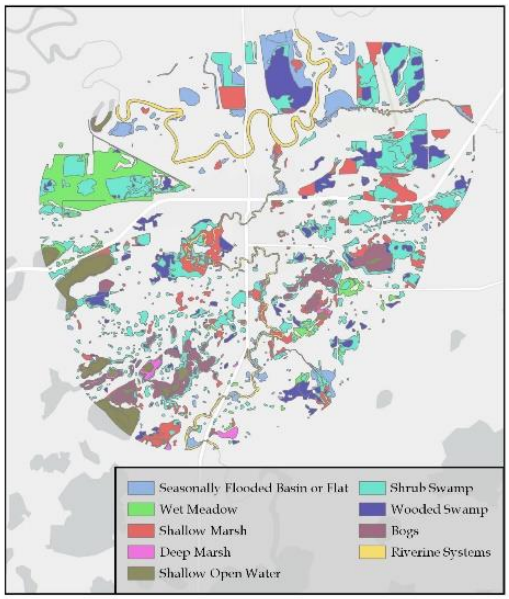
Step 1: Data Collection & Analysis

To analyze areas suitable for future trail development in Aitkin, ARDC performed a study on land and land use features within the city boundary and within a one-mile extension of the city boundary. The features were then scored on a scale from 1 to 5 (1 being poor for trail development and 5 being good for trail development). These land and land use features are described with their relevance to trail development, data sources, and scoring criteria below.

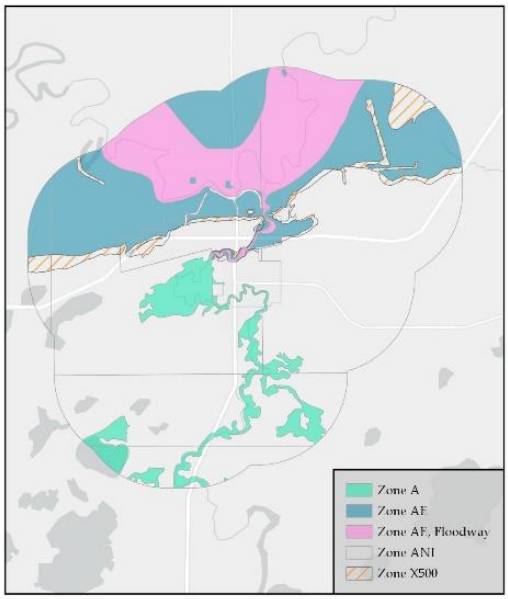
- **Wetlands** present a challenge to the construction and environmental impact of a trail project. To account for this, data was gathered from the NWI (National Wetlands Inventory). Areas identified to not have wetland features were scored the highest. Wetland areas such as marshes and bogs were assigned lower scores to account for the increased cost of constructing infrastructure like boardwalks or floating trail sections through waterlogged ground and for the potential disruption of wetland ecosystems. Open water, both lakes and riverine systems, were set as least desirable.
- **Flood zones** represent areas that are determined to be at elevated risk of flooding. FEMA (Federal Emergency Management Agency) flood hazard data was available for the study area. A floodway was identified around the Mississippi River as it flows past Aitkin to the north. To represent the elevated risk to a trail system that flooding poses, this northern region of the study area was assigned lower desirability scores. Areas determined to be at "minimal risk" for flooding were assigned the highest scores.
- **Road right of ways** can indicate areas that are prime locations for trail development due to the existing presence of engineered transportation infrastructure. Buffers were created around major roads to represent these areas and in the suitability analysis these areas were given higher priority than other locations.
- The last factor considered was **slope**. ADA regulations dictate maximum allowed slope for the ground on which potential trails will be developed. Slopes from 0-5% were assigned the most desirable scores with categories from 5- 8.33%, 8.33-10%, and 10-12.5% being scored with decreasing desirability. Slopes over 12.5% were classified as least desirable.

Geographic Features

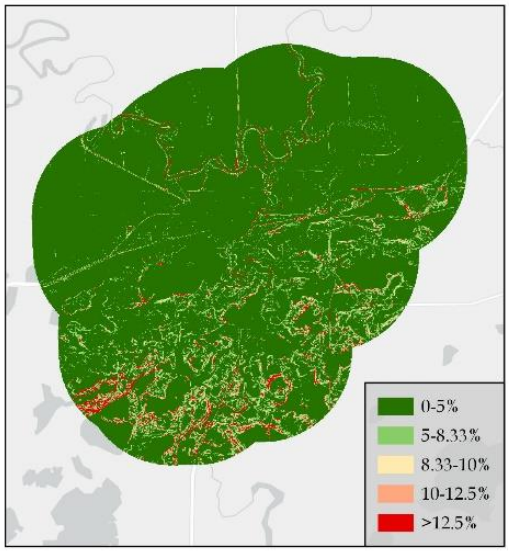
NWI Wetland Areas



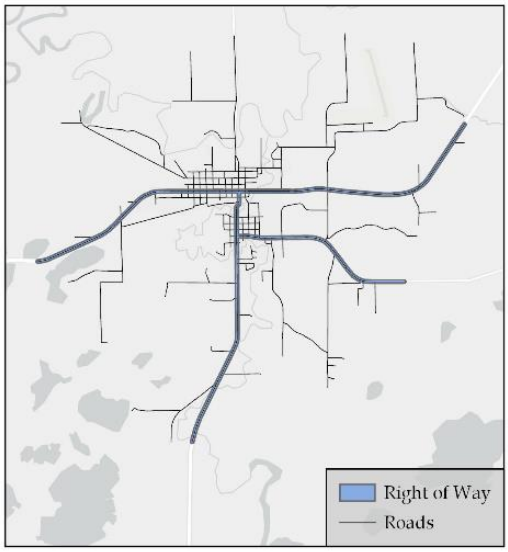
FEMA Flood Zones



ADA Slope Regulations



Road Right of Way



ARDC 2019

Source: USDA, MNDOT, MNDNR, Aitkin County

Step 2: Trail Suitability Analysis

Following data collection and analysis, ARDC combined data analysis results into a single tool to identify the suitability of locations throughout Aitkin for trail development. For set locations throughout the city, the trail suitability scores of land and land use features were combined and averaged, creating the model. The final map displays the entire study area and the total composite suitability of all considered environmental factors.

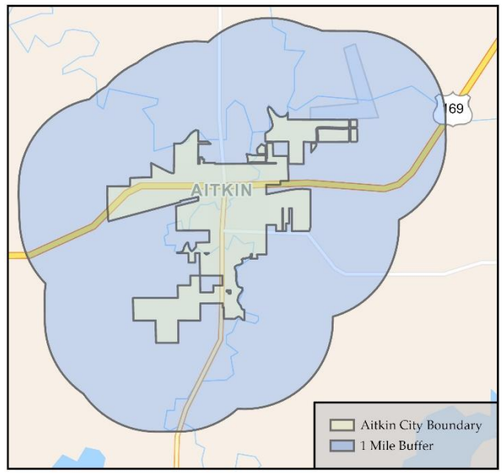
Aside from land and general land use, land ownership is a considerable factor for ability to develop trails. Land owned or managed by a public agency is preferred for trail development because it is already secured for public use. Public ownership parcel data was obtained from Aitkin County. The trail suitability analysis for these parcels was extracted to a separate map. Though land owned by a public agency would be easiest to utilize for trail development, easements or land purchasing could be pursued to make vital non-motorized transportation network connections as well.

Conclusions

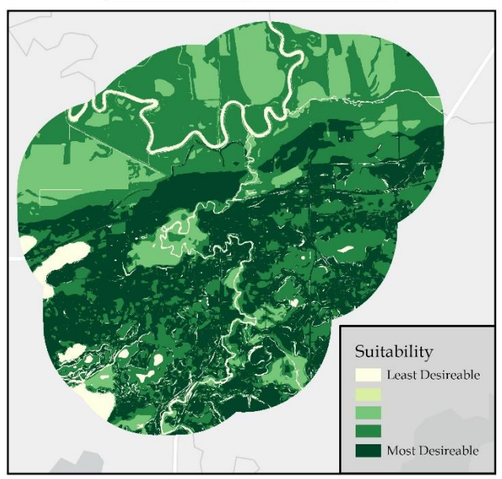
Based on this study, the most desirable areas for non-motorized transportation network development are within existing road rights of way, which would readily serve connections between residential neighborhoods and community destinations. While other lands owned by public agencies would be suitable for trail development, the location of these areas on the edge of the city may lead toward less use than those located within the residential setting.

Trail Feasibility Study for Aitkin, MN

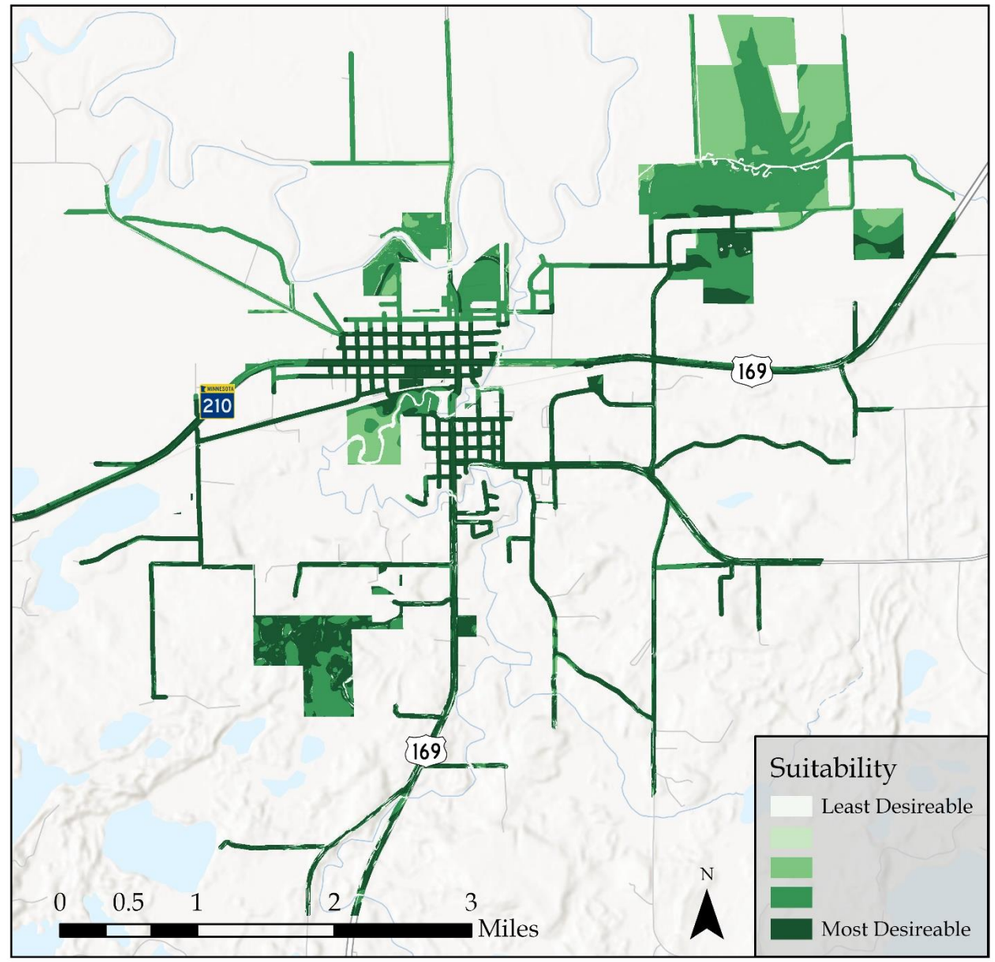
Study Area



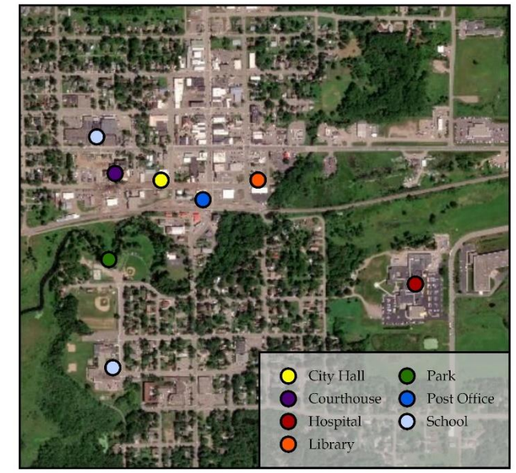
Suitability Overlay



Feasibility of Trail Development on Public Land



Community Destinations



Performing this Analysis

Suitability overlays are created by assigning scores to the study area based on the desirability of certain factors. For this trail analysis project, the considered elements were wetland areas, flood zones, land slope and road right of way. Each point in the study area had its total desirability combined and averaged, (see Suitability Overlay map). Areas of public land were then selected from the overlay and mapped along with potential connection risks to future trail development.

ARDC 2019

Source: USDA, MNDOT, MNDNR, Aitkin County