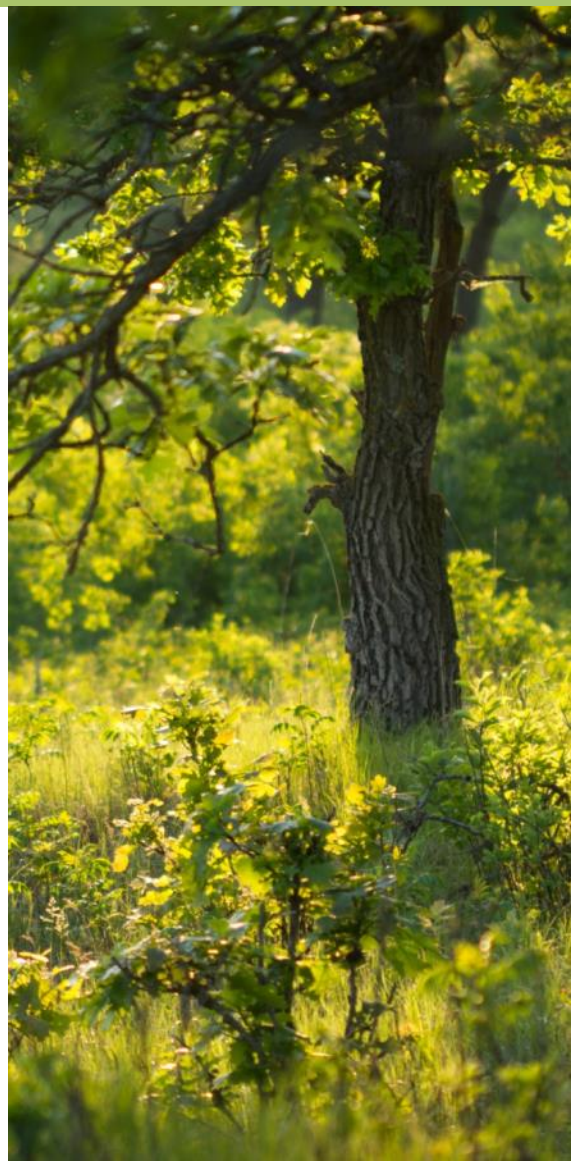
ROSEMOUNT GREENWAY RESTORATION PLAN

UNIVERSITY OF MINNESOTA | ESPM 5071 | FALL 2014

PROJECT INTRODUCTION

Resilient Communities Project

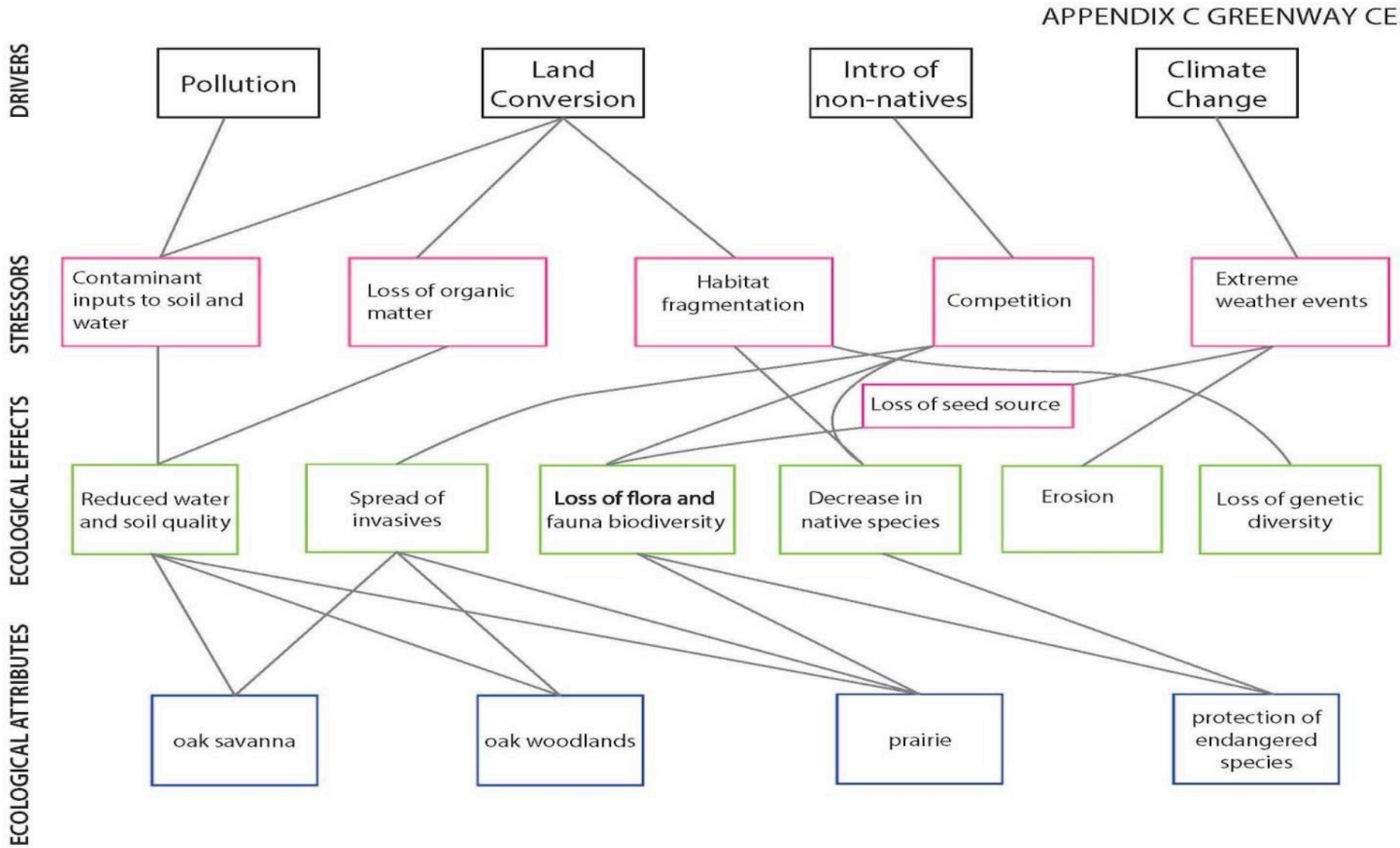
- Improve recreational opportunities in Dakota County
- Continue to restore Mississippi River Bluffland habitat with collaboration of partners



PROJECT AREA: THE GREENWAY

ROSEMOUNT GREENWAY EXTENT AND RESTORATION NODES

ECOLOGY OF THE GREENWAY



GREENWAY GOALS

1. Reduce the cover percentage of smooth brome grass (Bromus inermis) by 90% in 10 years.
2. Reduce the cover percentage of common buckthorn (Rhamnus cathartica), by 80% in 15 years.
3. Increase the number of visiting song-birds in the corridor by 50% in 10 years.
4. Stabilize eroding slopes by increasing native vegetative cover by 70% in 2 years.

RESTORATION NODE: N1


Mollisols:Hapludolls
Well drained
611C Salida
Mollisols:Hapludolls
Excessively drained
39B Wadena
Mollisols:Hapludolls
Well drained
39B Wadena
Mollisols:Hapludolls
Well drained
611F Hawick
Mollisols:Hapludolls
Excessively drained
N1
N2
N3
N4
N
0
50
100
150
200 m

NODE 1 CHARACTERISTICS

Zone 1:

- Steep slopes due to prior excavation
- Dominated by smooth brome

Zone 2:

- Top soil was completely removed during excavation
- Soil is now mostly sand and gravel
- Dominated by sweet clover and smooth brome

Zone 3:

- Steep slopes converging into a ravine.
- Understory dominated by common buckthorn

NODE 1 GOALS

1. Within four years, stabilize slopes to stop the erosion of soil by having 60% vegetation cover by native prairie species.
2. Dry southern prairie species cover 90% of the site within five years of seeding.
3. The abundance of sweet clover, smooth brome, and common buckthorn reduced by 90% by the fourth year of the restoration project.
4. Within five years, restore a self-sustaining population of skinks on the site.

MODIFIED LANDSCAPE

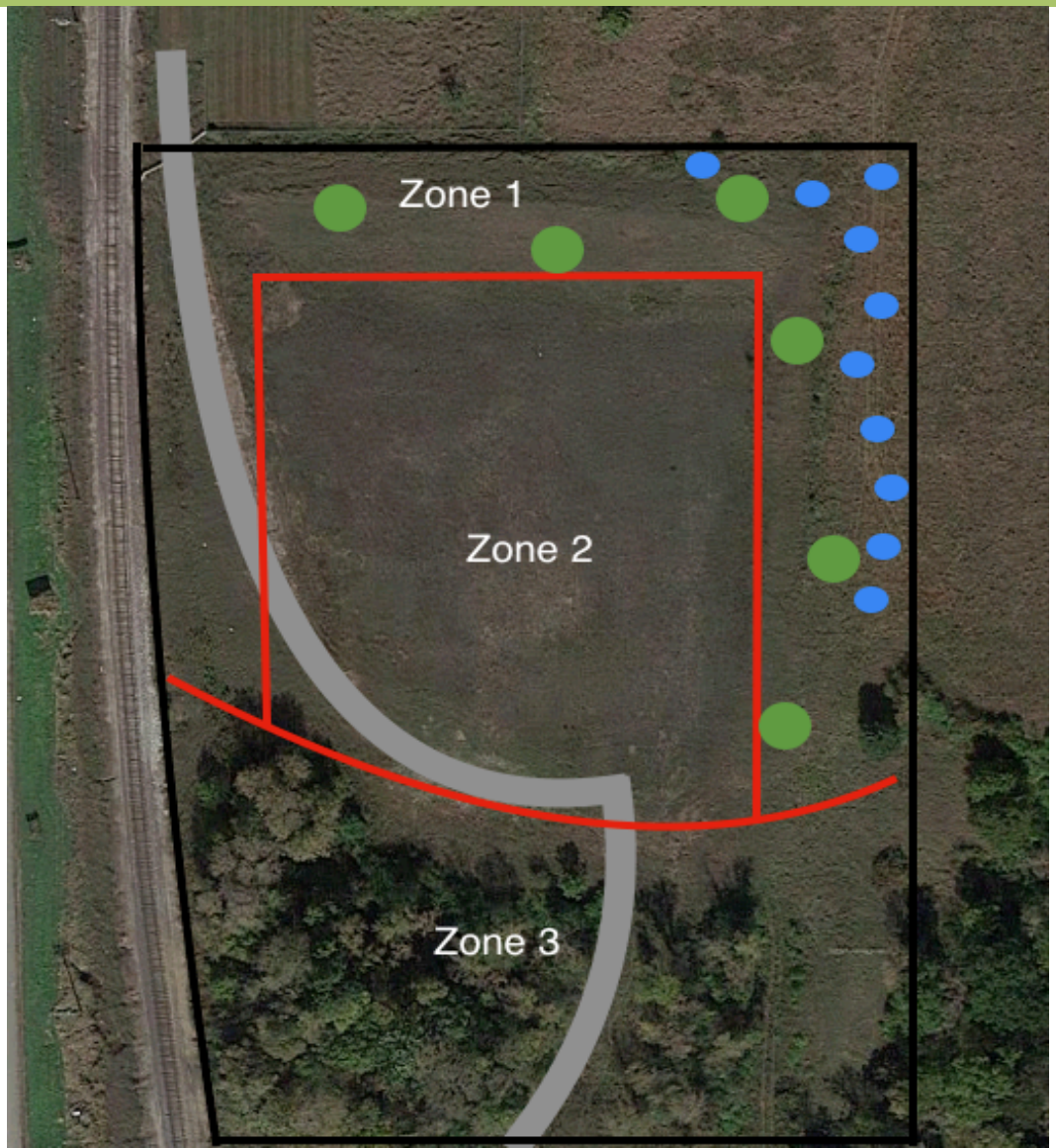
Existing Conditions

- Prior restoration to the east and northeast
- Steep slopes created due to the excavation of the site

Restoration Plan

- Interseeding of big bluestem to match the height of the adjacent restored prairie.
- Planting of bur oaks to break up the anthropogenic contrast of the slopes.
- Heavier seeding of cover crop for temporary stabilization of steep slopes.

RESTORED LANDSCAPE



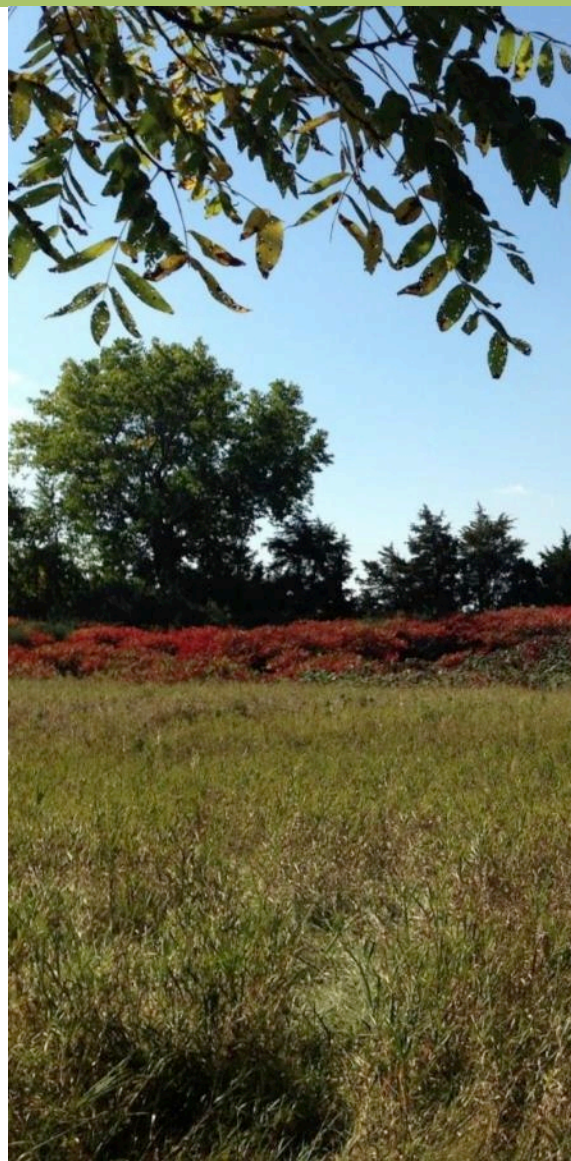
RESTORATION NODE: N2


N1
N2
N3
N4
611F Hawick
Mollisols:Hapludolls
Excessively drained
39B Wadena
Mollisols:Hapludolls
Well drained
7B Hubbard
Mollisols:Hapludolls
Excessively drained
250 Kennebec
Mollisols:Hapludolls
Moderately well drained
611C Salida
Mollisols:Hapludolls
Excessively drained
39A Wadena
Well drained
N
0
50
100
150
200 m

NODE 2 HIGHLIGHTS

Goals

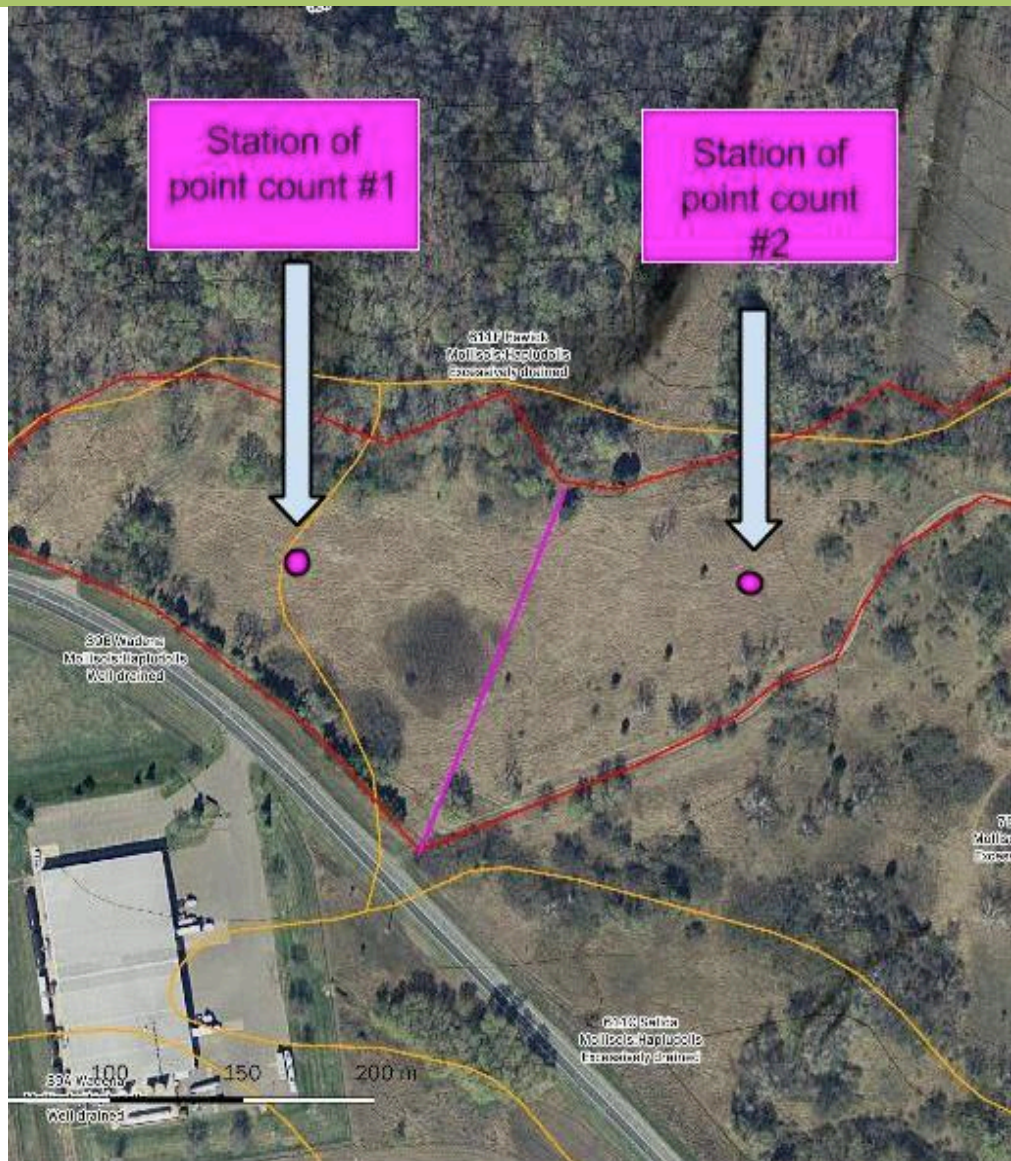
- Goal 1: Enhance pollinator species
- Goal 2: Increase bird abundance
- Goal 3: Establish Southern Dry Prairie
- Goal 4: Establish Oak Savannah
- Goal 5 & 6: Reduce the cover of smooth brome and common buckthorn

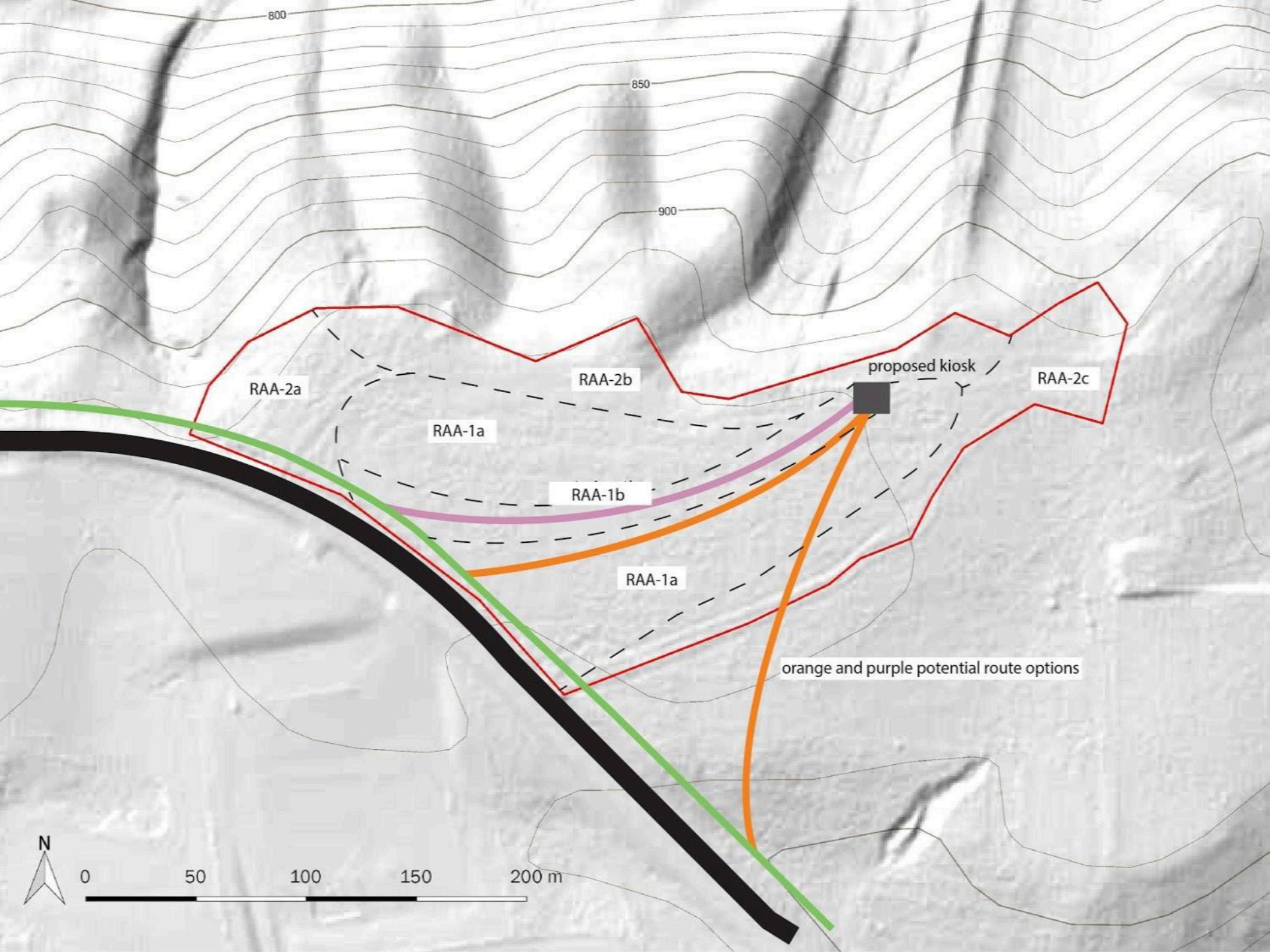


NODE 2 HIGHLIGHTS

- Birds: Indicator Species - Monitoring
  - Grasshopper Sparrow
  - Western Meadowlark
  - Henslow's Sparrows

- Vegetation:
  - Kiosk Enhancement
  - Oak Savanna




800
850
900
RAA-2a
RAA-2b
RAA-2c
proposed kiosk
RAA-1a
RAA-1b
RAA-1a
orange and purple potential route options
N
0
50
100
150
200 m

RESTORATION NODE: N3


N1
N2
N3
N4
39B Wadena
Mollisols:Hapludolls
Well drained
7B Hubbard
Mollisols:Hapludolls
Excessively drained
611E Hawick
Mollisols:Hapludolls
Excessively drained
N
0
50
100
150
200 m

NODE 3 HIGHLIGHTS (pre-restoration)

- Invasive species
- Degraded trees
- Deer overpopulation
- Former homestead
- Dryer soils/ minimal slopes

NODE 3 DELINEATION

Oak Savanna (green)

Bur oak (*Quercus macrocarpa*) trees, ecotone

Native savanna/prairie species seed mix

Dry Prairie (orange)

Native dry prairie species seed mix

Bike Path Buffer (yellow)

Aesthetics:

-flowering plants, more trees

-Impediment plants

NODE 3 HIGHLIGHTS

- Replacing invasive exotic with native flora
- Preserving resilient genotypes
- Pollinator value

RESTORATION NODE: N4


N1
N2
N3
N4
7B Hubbard
Mollisols:Hapludolls
Excessively drained
7C Hubbard
Mollisols:Hapludo
Excessively drain
8B Sparta
Mollisols:Hapludolls
Excessively drained
8B Sparta
Mollisols:Hapludol
Excessively draine
8B Sparta
Mollisols:Hapludolls
Excessively drained
27A Wadena
Mollisols:Hapludolls
Well drained
0
50
100
150
200 m
611D Salida
Mollisols:Hapludolls
611E Hawick
Mollisols:Hapludolls
Excessively drained
27A Waden
Mollisols:Hapl
Well drain

NODE 4 GOALS

1. Establish at least a 60% composition of plant species, by ground cover, characteristic of a Mesic or Dry Prairie (as defined by MN DNR) in 3 years.
2. Establish Northern Pin Oak and Bur Oak at a rate of 10-12 trees per acre (combined and including selected established trees) in 10 years.
3. Establish 15-25% composition, by ground cover, of flowering plant species known to be excellent forage for pollinators such as bees and butterflies in 3 years.
4. Achieve less than 5% composition of plant species, by ground cover, on the MN invasive species list.

NODE 4 HIGHLIGHTS

- Use existing species
- Selectively fell trees in wooded area
- Chip wood waste(trees and woody plants) and thin spread on-site
- Long-term management with fire and grazing

KEY CHALLENGES

- The prevalence of invasive species
  - Thorough site prep needed to ensure good seeded plant establishment

- Dedicated long term management
  - Prescribed fire essential to prevent savanna/prairie sites from being overrun by woody species
  - Persistent monitoring and control essential to keep invasive species abundance low

SOLUTIONS

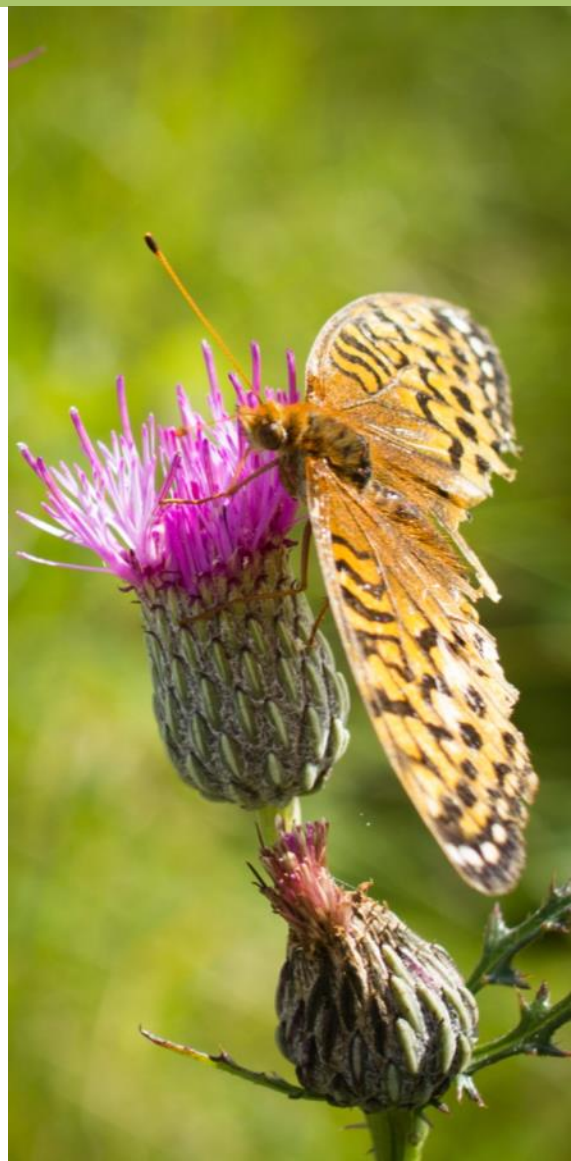
- Use existing remnant vegetation
  - Existing oaks, native seed sources
- Use a combination of planting and seeding
  - Seeding savanna understory
  - Planting savanna canopy trees
- Vary the seed mixes
  - Aesthetic and pollinator enhancement mixes near trail
  - “Functional” mixes elsewhere

ADDING IT ALL UP

Taken together, these planned restorations provide:

- More opportunities for Rosemount citizens to experience prairie/savanna ecosystems
- A landscape designed to encourage native pollinators
- More habitat for grassland birds to use
- Expansion of rare Minnesota ecosystems

In sum, a greenway landscape improved for both Rosemount citizens and non-human species



THANK YOU

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ROSEMOUNT MINNESOTA