

# Seeds To Grow



How can a Greenway educate a community through the natural occurrence of flooding?

A Community Led Greenway

# Seeds To Grow

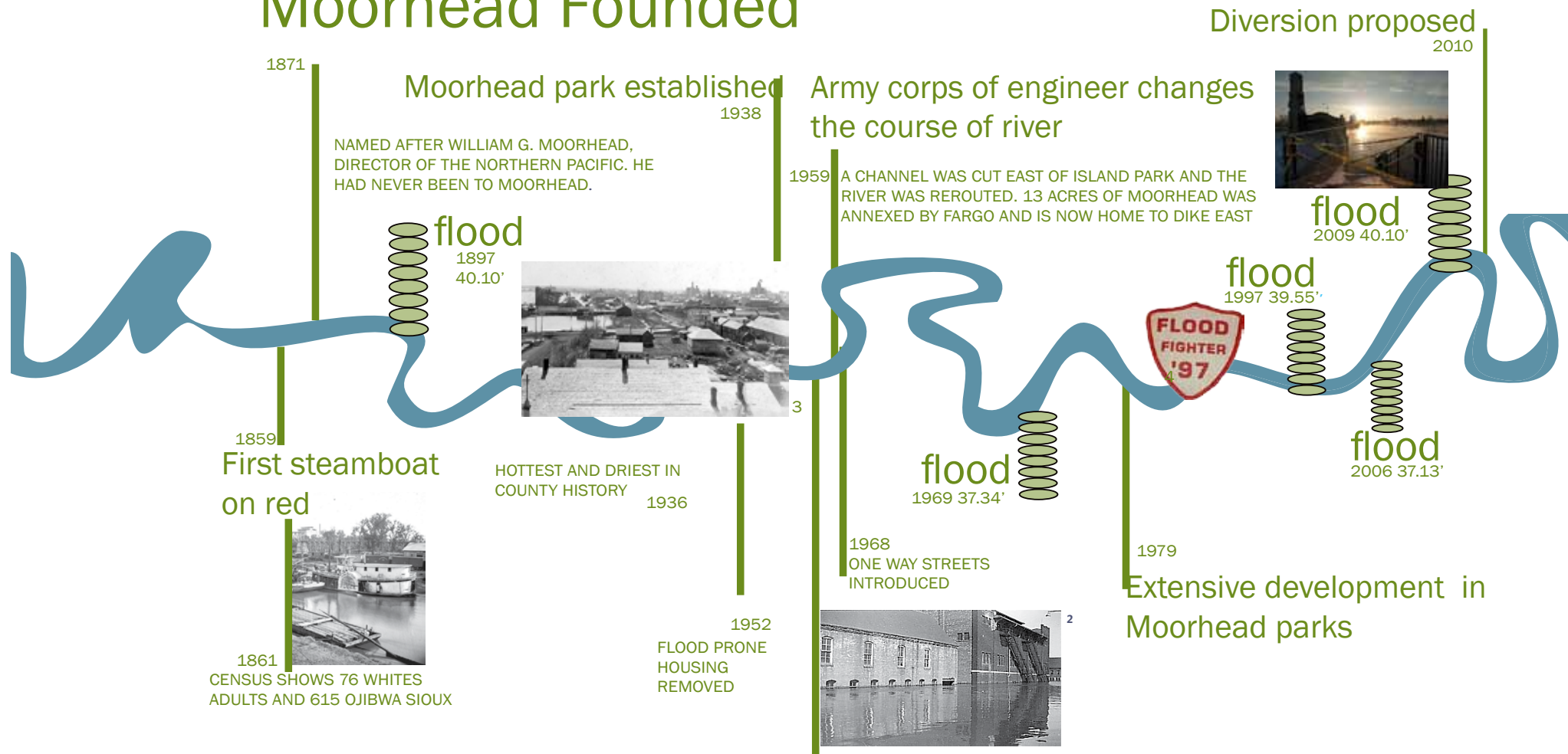


Site Context



# Seeds To Grow

## Moorhead Founded



History

# Seeds To Grow



Woodlawn park

Extensive Engineering and Buyouts



Bluestem Amphitheater



# Site Orientation



# Seeds To Grow



905 | 43.5'



901 | 39.5'





Flooding

Education

# Seeds To Grow

lack of walkway connectivity to parks

lack of spatial enclosure

lack of a continuous path along the river

views to the river blocked by structures

lack of pedestrian connections to fargo

site accessibility limited due to private ownership

degraded riparian corridor

lack of native species along river

uninterrupted storm water flowing to river

## Physical

## Cultural

## Biological

various micro climates could be utilized for multi seasonal activities

positive views should be capitalized on

the river corridor provides an excellent opportunity to strengthen circulation

opportunities for sensory impact should utilized

site should be used as an interpretive area for students and residents of community

riparian areas should be restored

creation of migratory routes would be beneficial to animal connectivity to ecosystems outside of immediate area

Constraints

Opportunities

# Seeds To Grow



## Flood Protection

PERMANENT FLOOD PROTECTION  
WATER AND ENVIRONMENT

## Restore Riparian Areas

YEAR-ROUND RECREATIONAL  
OPPORTUNITIES PROMOTE HEALTH

## Remove Flood Prone Structures

PUBLIC ART ARTS  
AND CULTURE  
GATHERING SPACES WITH ARTS  
AND CULTURE

## Strengthen Circulation To Parks and Fargo

CITY-WIDE TRAIL LOOP

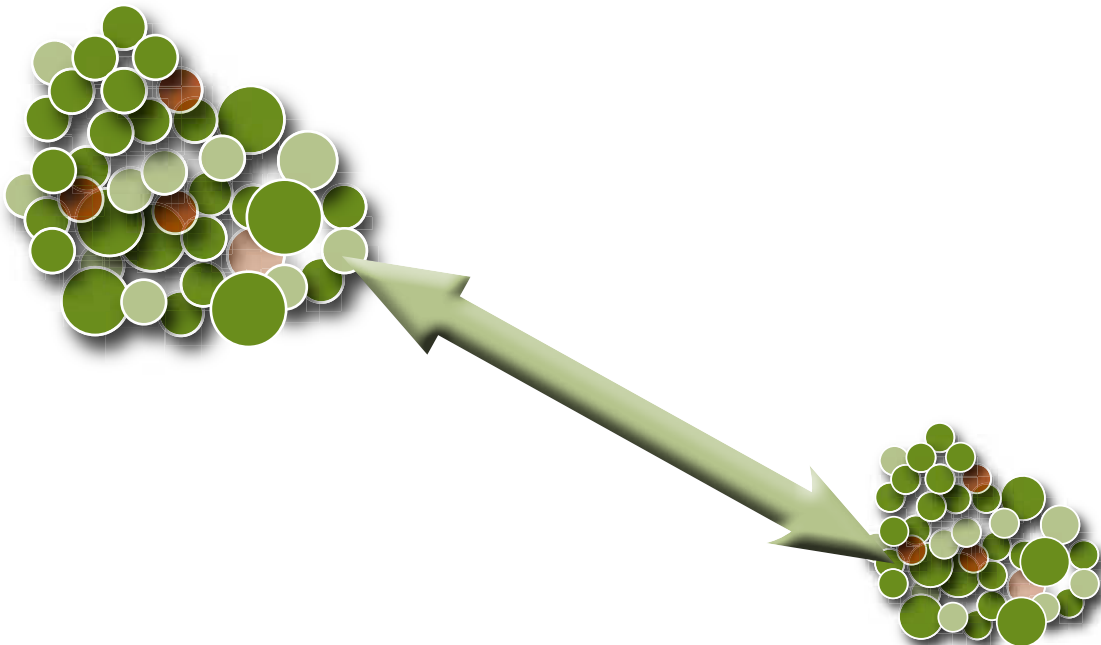
Program Elements



# Typology

## Ecological Corridor:

The designation of a continuous geographic greenway that links ecosystems, either spatially or functionally; such a link restores or conserves the connection between habitats fragmented by natural systems or human development.



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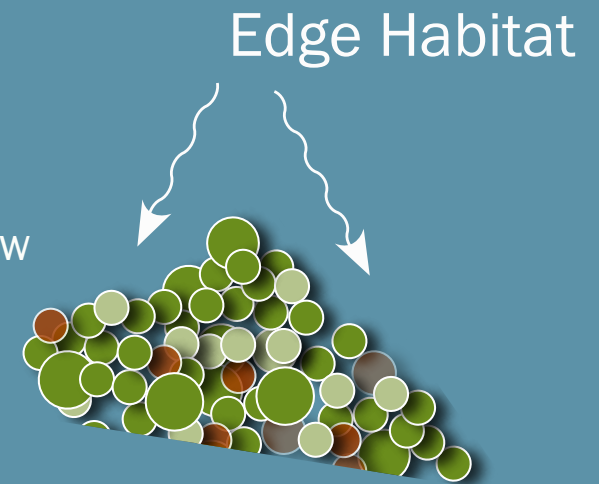
## Patch:

In order to repair riparian degradation, due to development, a network of ecological patches will be introduced. Patches are relatively homogeneous areas that differ from their surroundings.



## Edge:

The linear form of the Red River presents the opportunity to create an abundance of edge eco-zones. Edge systems in the environment differs significantly from the interior of the patch. Whether a boundary is curvilinear or straight influences the flow of nutrients, water, energy, or species along it.

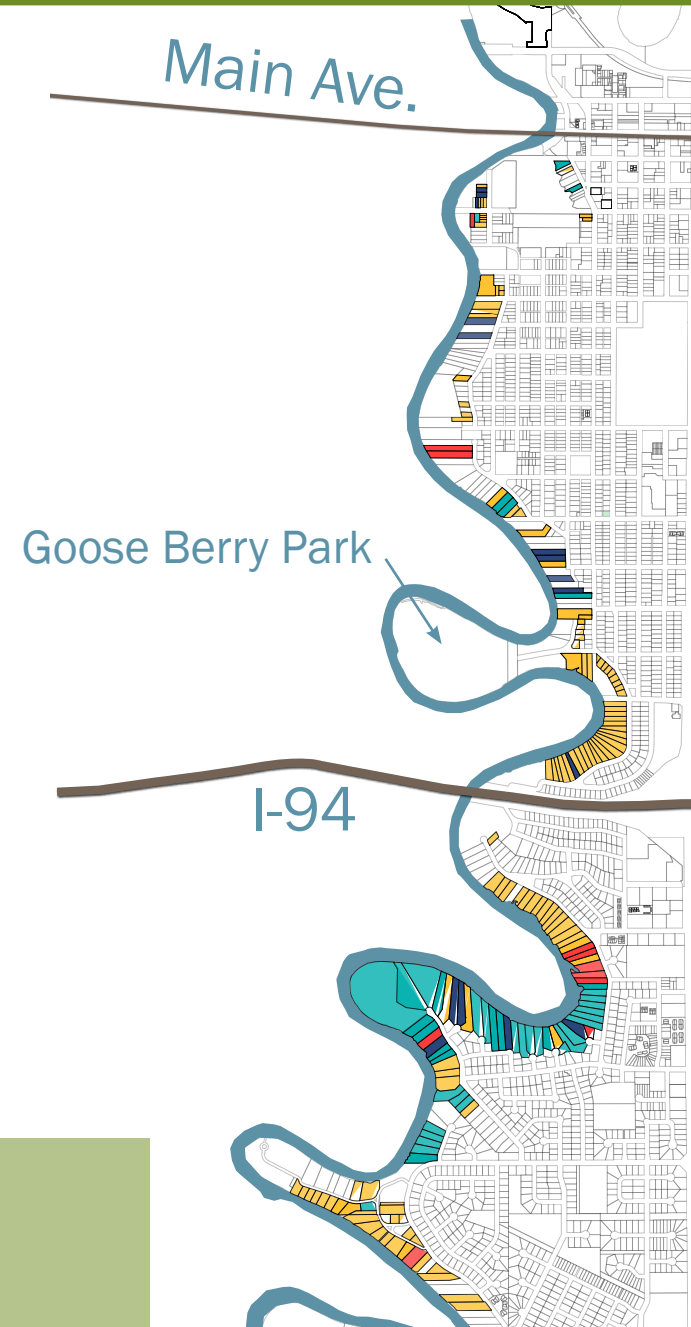


# Mosaic

# Seeds To Grow



-  No Response
-  Accepted or pending
-  Completed Property Buyouts
-  No



Remove Flood Prone Structures

# New Greenway

Design a greenway that provides an opportunity to educate the future residents of the area as well as provide an ecological buffer along the river.

Blue Stem



Educational Nursery



Goose Berry Park

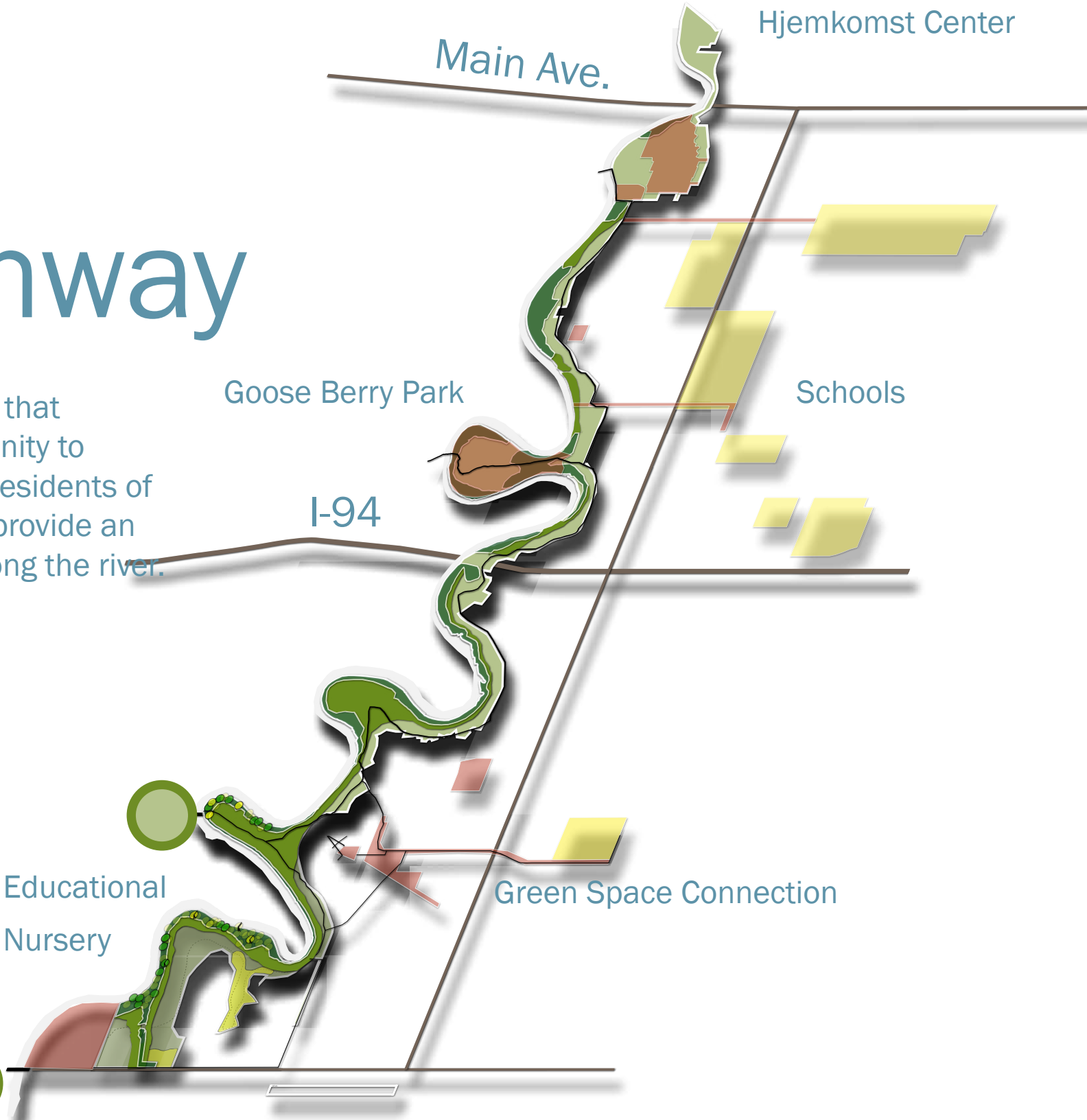
I-94

Main Ave.

Hjemkomst Center

Schools

Green Space Connection



Species Mobility

# Riparian Species

Zone One | Rivers Edge  
River-30'  
Black Willow  
Cotton Wood

Zone Two | Water Tolerant  
30'- 120'  
Oak  
Silver Maple

Zone Three | Habitat Establishment  
120'- 300'  
Poplar  
River Birch  
Hickory  
Hackberry  
American Elm  
Black Walnut  
Hazelnut



Restore Riparian Areas

Canopy

Understory

Ground Cover



Willow, black  
*Salix nigra*

Cottonwood  
var. *Deltoids*

Oak, bur  
*Quercus macrocarpa*



*Juglans nigra*  
Walnut, black



Birch, River  
*Betula nigra*



Maple, silver  
*Acer saccharinum*



American cranberry  
*Viburnum trilobum*



Arrowwood  
*Viburnum dentatum*



Chokecherry  
*Prunus virginiana*



Dogwood, red osier  
*Cornus sericea*



Black chokeberry  
*Aronia melanocarpa*



Red River

Rivers Edge

Uplands

High Lands

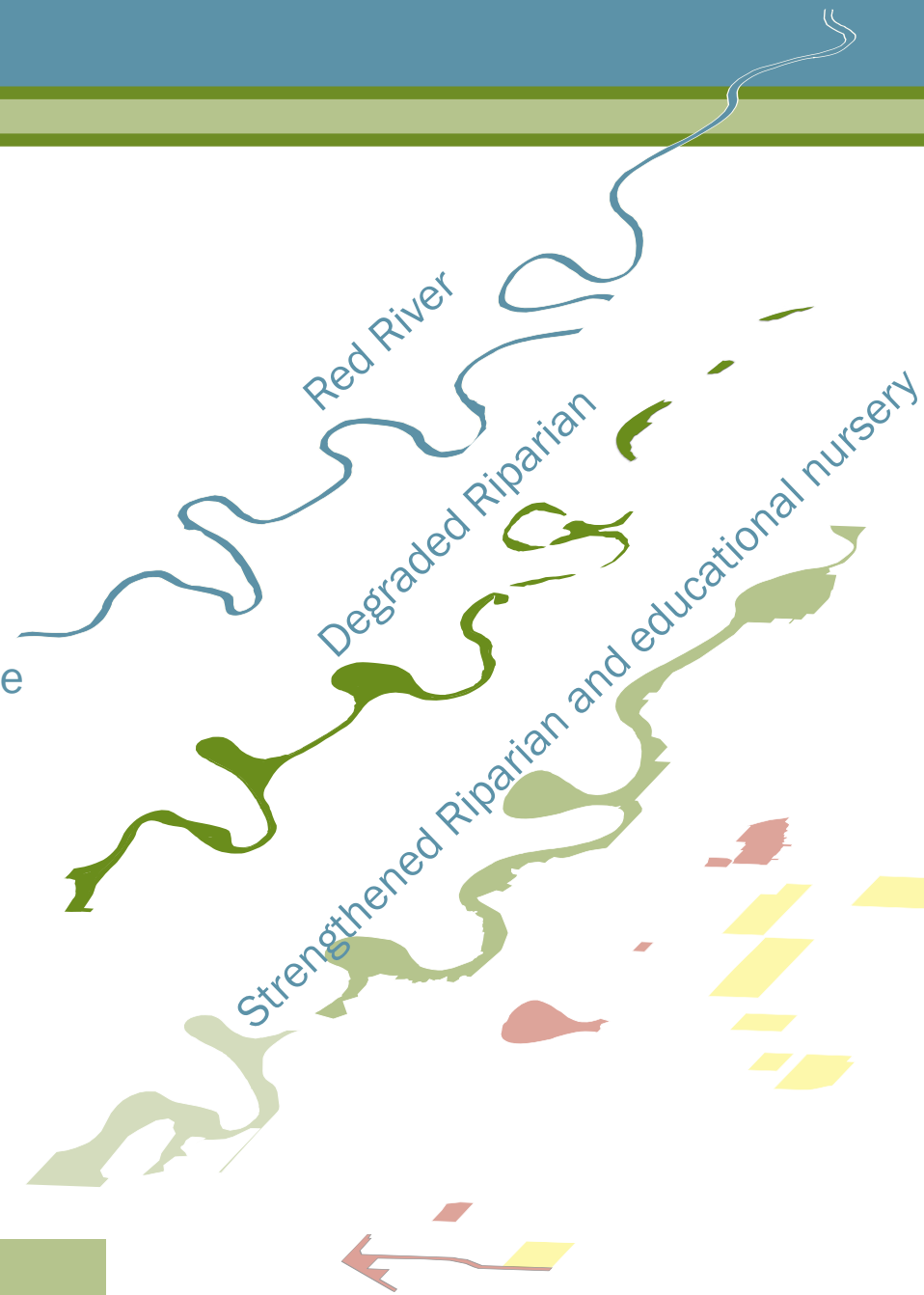
# Seeds To Grow

## Riparian Buffers

Strip of vegetation (trees, shrubs, grasses, etc.) that grows along the edges of a bank or a waterway.

Its major role is to **Filter** and **Store** sediment, nutrients, pesticides, and metals from upland surface and groundwater through infiltration, uptake, and transformation.

Ecological Corridor



# Seeds To Grow

Strengthen Circulation To Parks



MSU Pedestrian Path



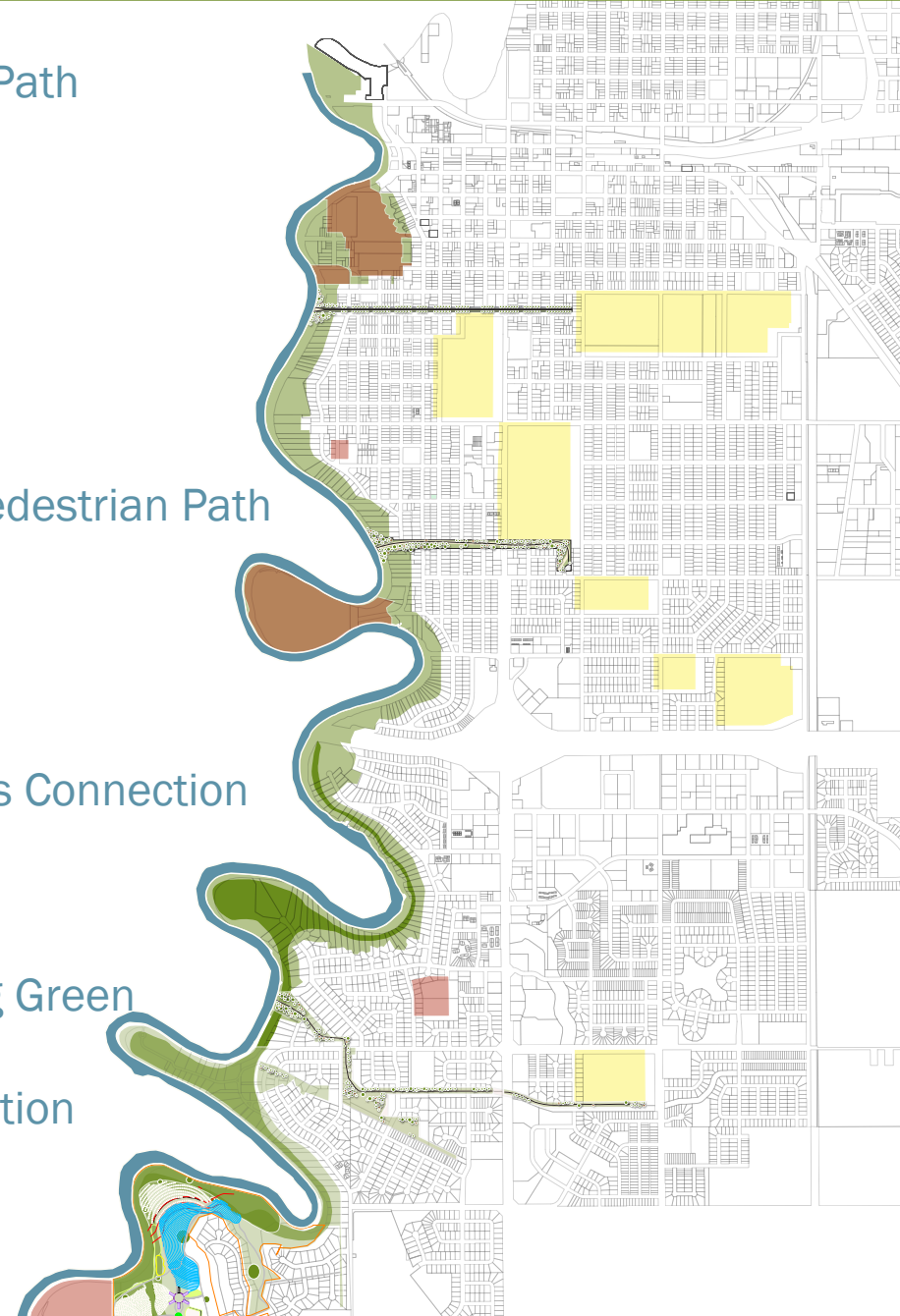
MSU Pedestrian Path



Hopkins Connection



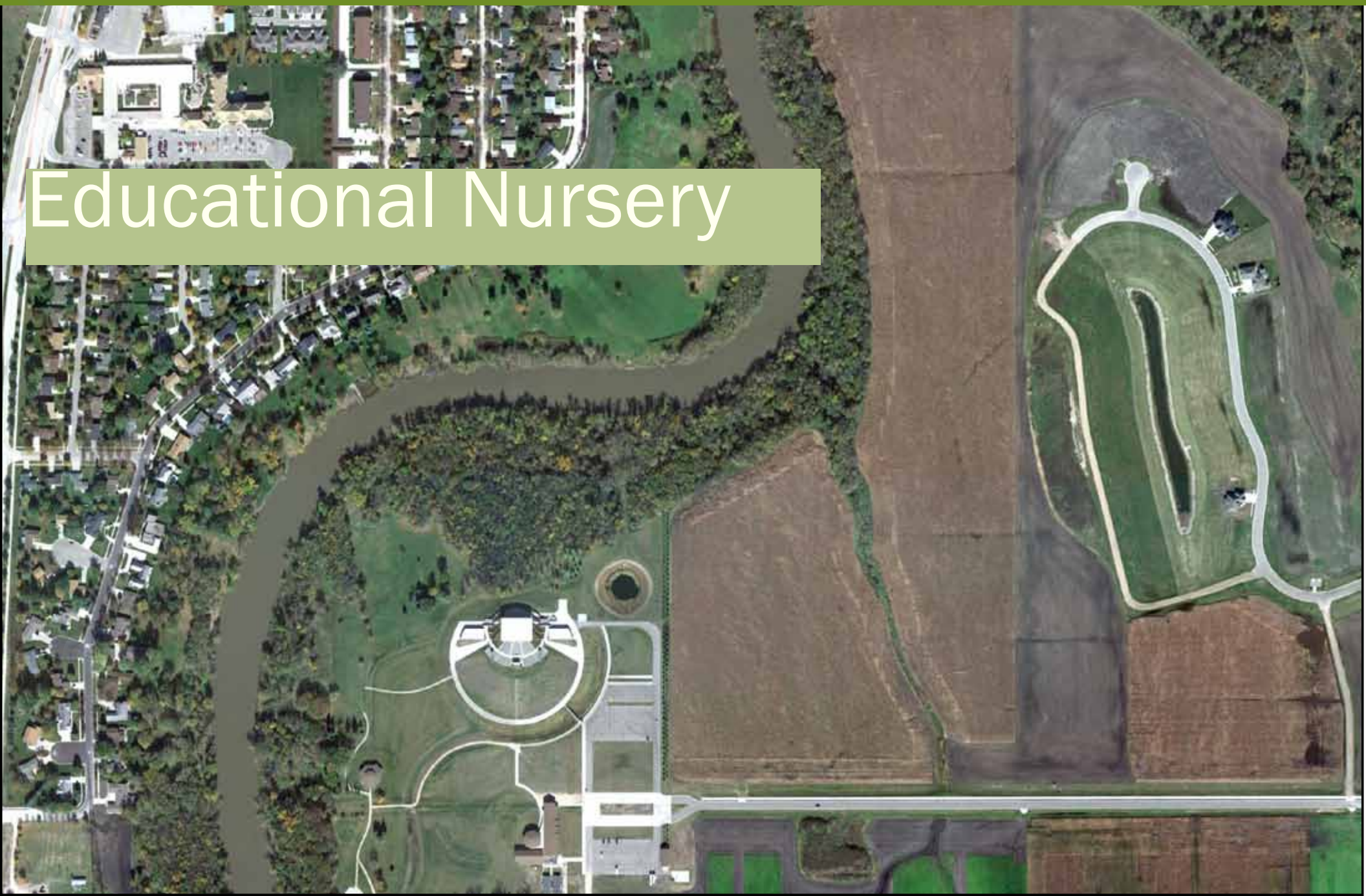
Existing Green Space Connection





# Seeds To Grow

Educational Nursery



# Seeds To Grow



Between Ages 5 and 12 are the most critical years of development according to Niban and Trimbal (2002).

Children have lost a connection to nature and a free spirited childhood

## Nature Deficit Disorder



**Existing Riparian**  
Trees In the existing Riparian area need to be preserved and replenished.

**Grass Filter Strips**  
Act as a cushion protecting sensitive ecosystem from anthropogenic land use. Control erosion limit pesticide, herbicide, and sediment runoff.

**Detention Pond**  
Detention ponds manage storm water by maintaining a permanent pond of water in a basin that removes pollutants and only drains partial amounts storm water. Captured water would be used to irrigate the nursery.

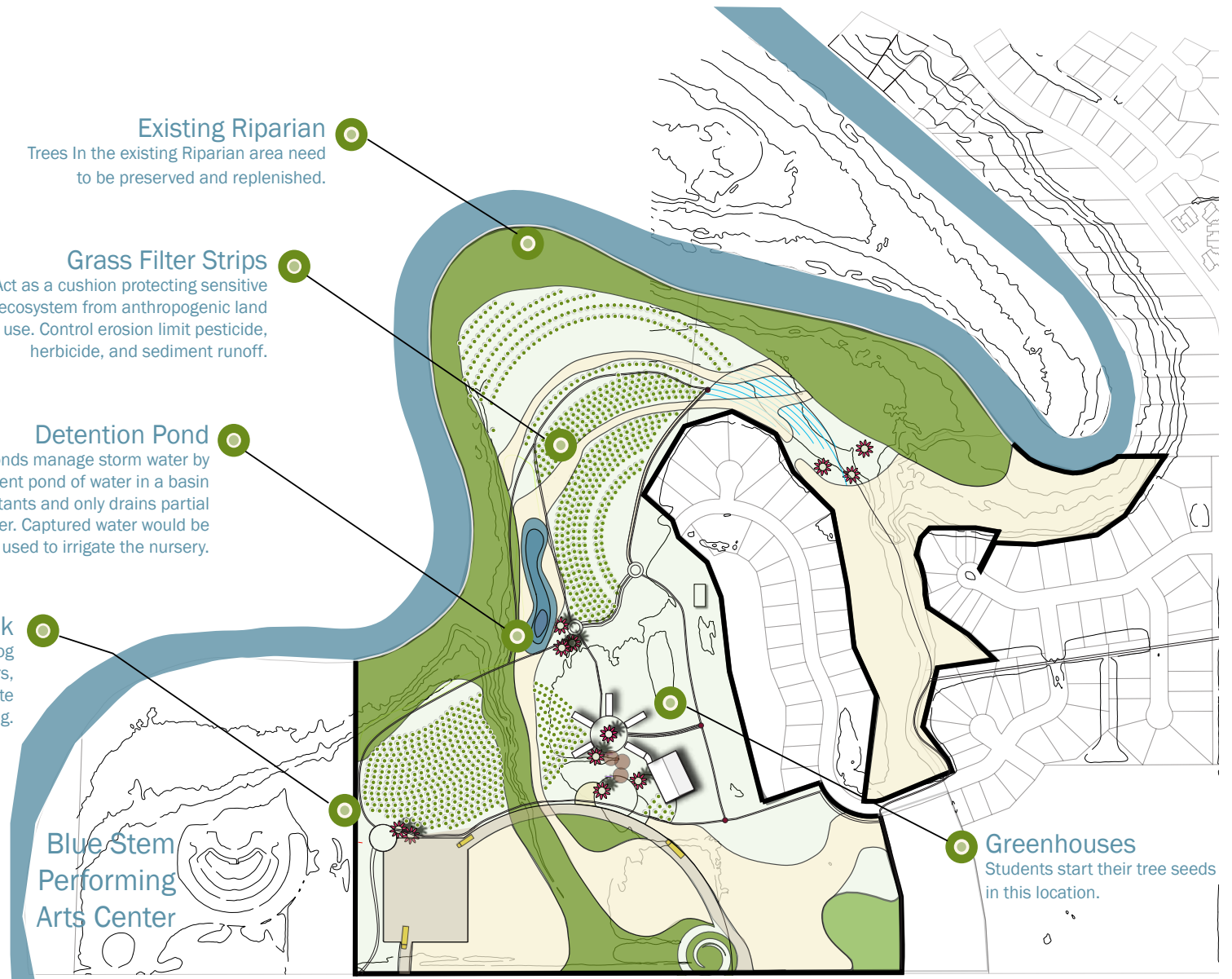
**Dog Walk**  
This Trail can be utilized by dog walkers, mountain bikers, joggers, and hikers. Its recycled concrete material allows for periodic flooding.

**Blue Stem Performing Arts Center**

**Greenhouses**  
Students start their tree seeds in this location.

**Shade Structures**  
Metal works of art that look like Daisies. These Structures provide shade a well as show different flood elevations on the stem.

Scale 1:200 ↗



# Seeds To Grow

Elementary :  
Seeds In Green House

Middle School:  
Trees in Nursery



Educational Nursery

High School:  
Trees forming  
Ecological  
Corridor

## “ Cottonwood Forest “

A Production area for the Rivers Edge Riparian Species. These species protects the physical integrity of the river ecosystem. This area should be designated for Flood mitigation and foot paths.

## “ Walnut Way ”

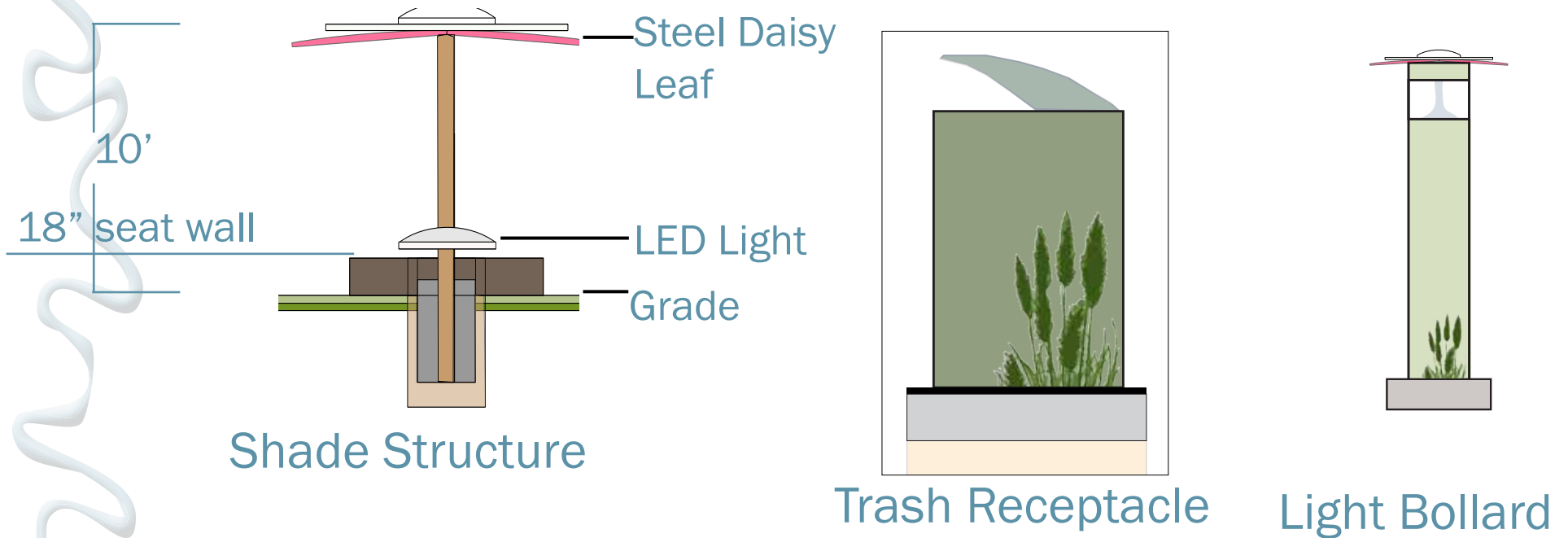
A Production area for the Low Land Riparian Species. These species are water tolerant and may be subjected to temporary inundation . The natural grass filtration strips within this area provide filtration of pesticides, nutrients and sediment.

## “ The High Lands “

A Production area for the Outer Edge Riparian Species. These species provide habitat by creating buffers which double as corridors for species that have had their habitat fragmented by various land uses. The number of different tree species in this area increases biodiversity.



## Locally grown trees

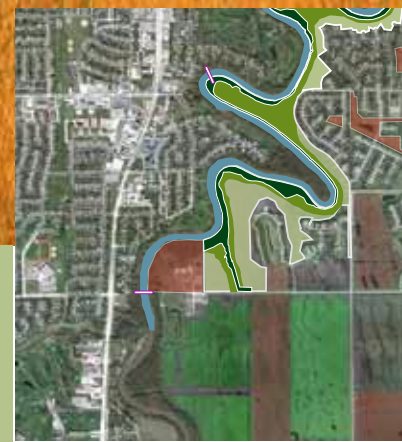


# Materials

# Seeds To Grow



## Connections



# Seeds To Grow



Priorities



# Phases



Buy outs

Levees

## 1 Buffer zone/Nursery

5 Years

Project Base Learning

Greenway | Bridge

## 2 Public Arts and Culture

10 Years

Sculpture | Gathering Spaces

## 3 Connections

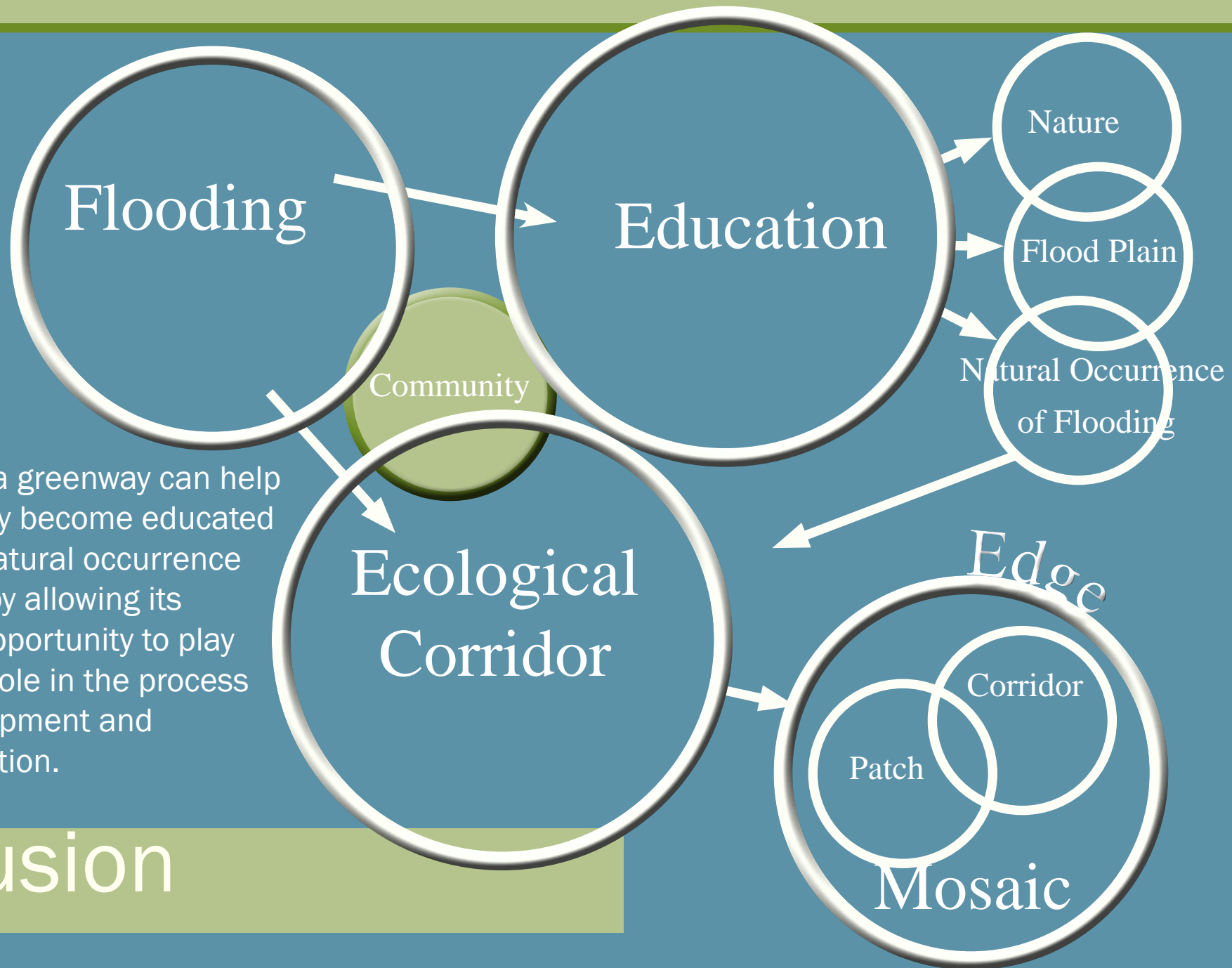
15 Years

Trails | Paths |

## 4 Native and Valued Amenity

Future

# Seeds To Grow



Designing a greenway can help a community become educated about the natural occurrence of flooding by allowing its members opportunity to play an integral role in the process of its development and implementation.

## Conclusion