Ecological Resilient Landscapes:

LA 572: Design Thesis
Jacob B. Berg
Primary Advisor: Kathleen Pepple
Secondary Advisor: Dr. Dale Herman
Software Used: Adobe CS4, Adobe Reader 9, AutoCAD 2011, Sketchup

Averting a Pending Disaster

Why Silver Lake Park?

- An aging urban park at a new transition
  I.e. Site uses are not adapting to site user demographics.

- Habitat fragmentation from existing infrastructure
  I.e. North Broadway, 14th St. NE. & 7th St. NE.

- Urban development expanding northeast
  I.e. Downtown Rochester; U of MN campus & Mayo Clinic.

- Existing flood mitigation lacks long-term planning
  I.e. Moves stormwater as soon as possible to develop other potential problems.

- Disappearing wildlife corridors
  I.e. Zumbro Riverside development.

Legend:
- Rivers & Creeks
- Vehicular Routes
- Design Intervention Sites

Microclimate: Rochester, MN
Macroclimate: Minnesota

Proposed Design Interventions:

Silver Lake Park & Reservoir
Northbrook Apartments
9th St. NE. Apartments
Jefferson Elementary

Existing Conditions:

Silver Lake Park
Downtown Rochester
North Broadway
7th St. NE
14th St. NE
Zumbro River
Rivers & Creeks
Vehicular Routes
Design Intervention Sites

Northbrook Apartments
9th St. NE. Apartments
Jefferson Elementary

Downtown Rochester
Rivers & Creeks
Vehicular Routes
Design Intervention Sites
Ecological Design Objectives:

1. **REGION:**
2. **COMMUNITY:**
3. **NEIGHBORHOOD:**
4. **STREET:**
5. **BLOCK:**
6. **BUILDING:**

**BIOPHILIC CITIES: Integrating Nature into Urban Design**

1. **Reconciling Human Needs & Biodiversity**
   Design an urban landscape based on “what it wants to be” - Ian McHarg

2. **Adaptive Cycles: Large Scale Disturbances**
   Design for Biotic and Abiotic Stresses

3. **Long-Term Landscape Planning**
   “Think Big, Think Connected, Think Whole”
   - (Ryn and Cowen, 1996)

**Jefferson Elementary: Promoting Fruiting Shrubs**

Credit: Renee Moog
**Regional Design Interventions**

**PHASE 1: Proposed Ecological Corridors**
- Connect fragmented public green spaces.
- Zumbro River as main riparian corridor for humans and wildlife.
- Renew focus on narrow streets to have pedestrians dominating over vehicular traffic.

**PHASE 2: Proposed Green Spaces**
- Expand further into the heart of downtown Rochester.
- Connect area schools which are public landscapes all residents pay taxes on.
- Develop green wedges beyond 2 miles for Silver Lake Park into a regional trail system.

---

**Silver Lake Constructed Marsh:**

**Zumbro River Riparian Habitat:**

**Cascade Creek:**

---

**Riparian Recreation Trails:**
Community: A Growing Experience

Promoting:
- Elementary Food Education
- Naturalized Plantings
- Urban fruit production
- Wildlife Corridors

Potential Community Gardens:

Promoting:
- Elementary Food Education
- Naturalized Plantings
- Urban fruit production
- Wildlife Corridors

Existing Grocery Stores:

Existing Grocery Stores:

Northbrook Community Garden Compost Sites

Northbrook Community Garden Compost Sites

Neighborhood: Increasing Public Green Spaces

Neighborhood: Increasing Public Green Spaces

Master Plan: 9th St. Apartments

Master Plan: 9th St. Apartments

9th St. Apartments: Green Alley & Naturalized Plantings

9th St. Apartments: Green Alley & Naturalized Plantings

Public school green spaces can implement simple design interventions to benefit children and neighborhoods.

1. School/neighborhood garden.
2. Naturalized plantings with fruiting shrubs and perennials.
3. Rain garden demonstration area.
**Street:** Narrowing Casualties through Green Streets

Narrow streets create a strong buffer between vehicular and pedestrian traffic.

1. Decrease stormwater runoff.
2. Reduce fragmented landscapes.
3. Decrease pedestrian/vehicular casualties.

**Pedestrian Corridor:**

- Modified apartment entrance
- Naturalized plantings
- 10’ wide central planting bed
  - Deciduous trees and naturalized plantings
- Permeable Pavers/ Boulevard
- 10’ wide central planting bed
  - Deciduous trees and naturalized plantings
- Naturalized plantings
**Block:** Improving Building Aesthetics

- Medium Density Housing
- Naturalized Plantings

**Northbrook Apartment Entrance:**

**Building:** Accessible Green Spaces & Rooftops

- Rooftop Gardens
- Personal 5 ft x 12 ft Balconies

**Jefferson Elementary:** Rain Gardens

**Willow Creek**

**9th St. Balcony Perspective:**

**Rooftop Garden with Raised Planters:**