

Big Ideas in Resiliency and Sustainability

Adam Arvidson, Director of Strategic Planning

Kelly Muellman, Sustainability Coordinator

Lacy Shelby, Principal Urban Designer

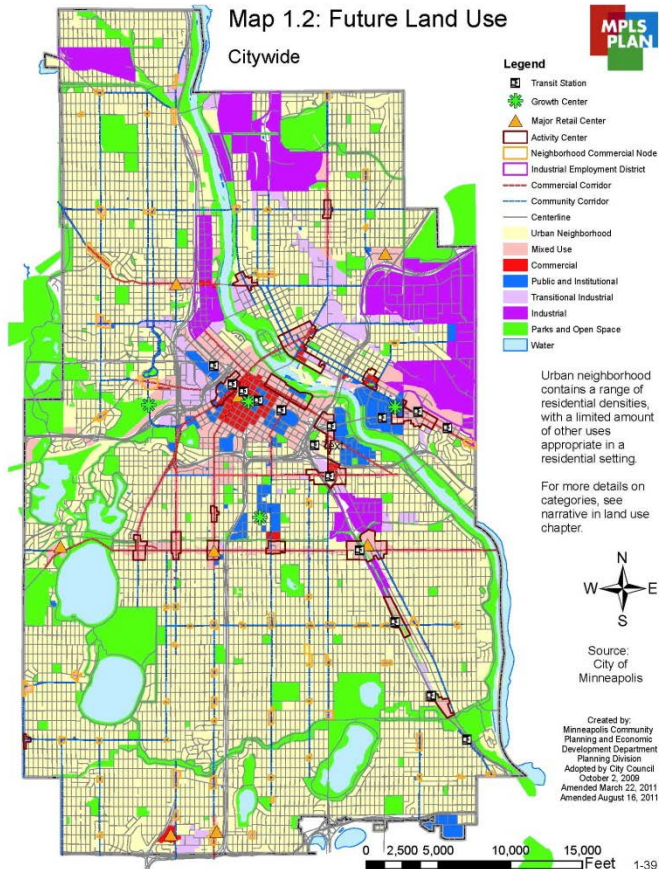
Image Credit Dusty Hoskovek





April 2, 2016 – Community Connections Conference

COMPREHENSIVE PLAN *UPDATE*



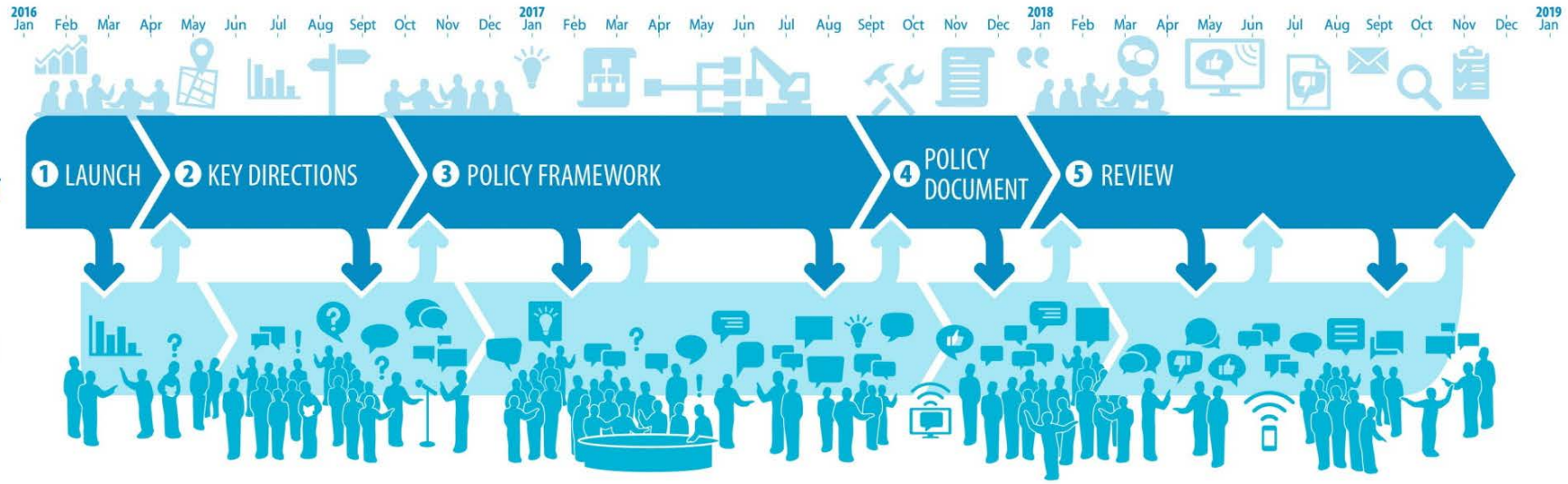
- Provides **long range policy guidance** for the City
- **Legally required** by state statute & Metropolitan Council regulation
- Must be updated every **10 years**
- Must be in compliance with **regional policy plans**
 - Transportation
 - Water
 - Parks
 - Housing



- Required by the Metropolitan Land Planning Act (§473)
 - Land use
 - Transportation
 - Housing
 - Parks and trails
 - Water resources
 - Implementation
 - *Natural resource protection*
 - *Historic resource protection*
 - *Public facilities plan*
- “Issues of regional importance” identified by Metropolitan Council
 - Economic competitiveness
 - Resilience
 - *Equity*



TIMELINE & PHASES





MISSION STATEMENT

Minneapolis 2040:

An inspiring city growing in equity,
health, & opportunity.



Growth



Equity



Sustainability



Livability



Competitiveness



Good Government



The Process is:

MEANINGFUL

RELEVANT

ACCESSIBLE

INCLUSIVE

EQUITABLE

The Community is:

REPRESENTED

INFORMED

HEARD

EMPOWERED

- Meaningful and relevant dialogue
- Inclusive representation
- Access to information & opportunities
- An empowering experience
- Contributions are heard & have impact
- Effective use of resources



PUBLIC LAUNCH ON APRIL 2

communityconnectionsconference

BIG IDEAS

Your Minneapolis



twitter

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[Home](#)

Frequently Asked Questions

- [What is Minneapolis 2040?](#)
- [How will the City use Minneapolis 2040?](#)
- [Why is the City updating its comprehensive plan?](#)
- [What are the comprehensive plan values?](#)
- [What is the Minneapolis 2040 process?](#)
- [How do I get involved?](#)
- [How will my voice be heard and my feedback used?](#)

What is Minneapolis 2040?

It is the update to the City's Comprehensive Plan... It will shape citywide policies and



Sign Up For Updates

Name

Email

Welcome to
Minneapolis 2040



TODAY'S SESSION

- Participate in discussion around key comprehensive plan values
- Share your “big ideas” for the comprehensive plan update

#MplsBigIdeas

- Visit the website and sign up for future announcements of events and reports (including summary from this conference)

<http://minneapolis2040.com>

Big Ideas in Resiliency and Sustainability

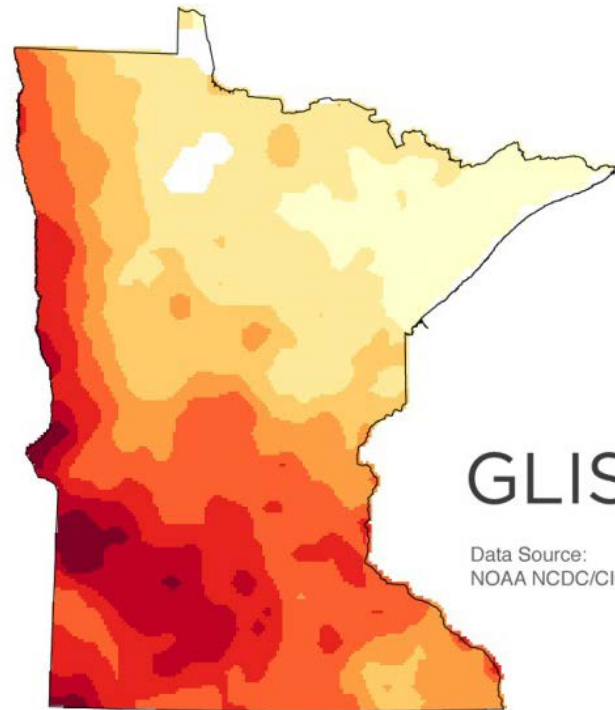
An aerial photograph of Minneapolis, Minnesota, showing the Mississippi River winding through the city. The river is crossed by several bridges, including the prominent stone arch bridge in the foreground. The city skyline is visible in the background, with various buildings and green spaces. The text 'Big Ideas in Resiliency and Sustainability' is overlaid in large white letters on the left side of the image.

Kelly Muellman, AICP
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Climate Change Context

- Warmer

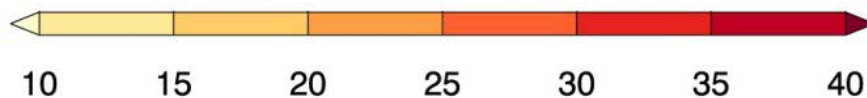
Projected Change in the Number of Days
Over 90°F



GLISA

Data Source:
NOAA NCDC/CICS-NC

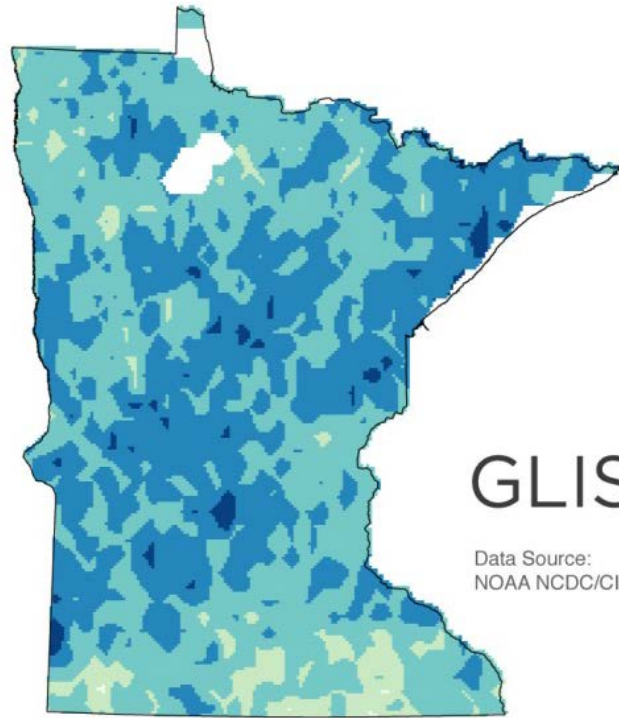
Change in Number of Days Per Year



Climate Change Context

- Warmer
- Wetter

Projected Change in the Number of Heavy Precipitation Days



GLISA

Data Source:
NOAA NCDC/CICS-NC

Change in Number of Days Per Year



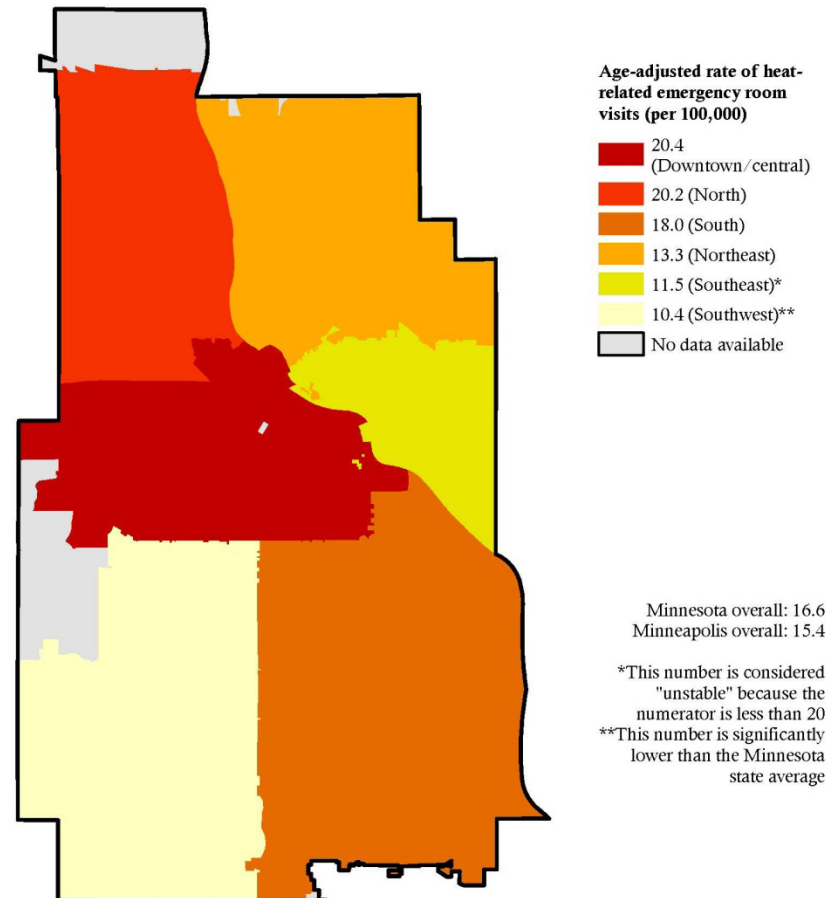
2013 Minneapolis Climate Adaptation Workshop

Key areas of vulnerability:

- Extreme heat
 - Human Health
 - Electric grid security
 - Lack of perceived threats
- Extreme precipitation
 - Stormwater systems
 - Property damage
- Drought
 - Ecosystems

Heat-related emergency department visits

Age-adjusted rate of visits by Zip code region (2009-2013)





2013 Minneapolis Climate Adaptation & Resilience Workshop

Actions the city is taking to prepare for existing and projected future climate related impacts:

- Heat response plan (Health)
- Small green business program (Health)
- Incentives for tree planting in commercial areas
- Emergency medical response plans- Hospitals have a network, coordination



2013 Minneapolis Climate Adaptation Workshop

System needs in order to adapt to climate change:

- Money-> stormwater storage, infrastructure
- More culturally appropriate education/outreach on the potential impacts of & response to extreme heat
- Knowledge of cooling centers with generators (that back-up cooling systems)
- Need for back-up to communications systems: charging stations, wireless phone provider capacity, etc.
- Information from Xcel about infrastructure vulnerabilities



2016 Resilience Dialogues

- What ideas came up?
 - Conduct scenario planning
 - Engage all departments
 - Engage residents and businesses

How could climate change and population changes result in different futures?

How will Public Works, Planning and Emergency Management plan for climate change?

How can we as individuals and communities make our neighborhoods more resilient?



Individual and Community Actions

- **Insulate your home** – good for winter and summer comfort!
- **Plant shade trees** – vegetation has cooling effect beyond shade and protects from winter winds!
- **Create a disaster preparedness plan**

- We want to hear from you!
What could you do as an individual or community?



Source: www.synergycompanies.org

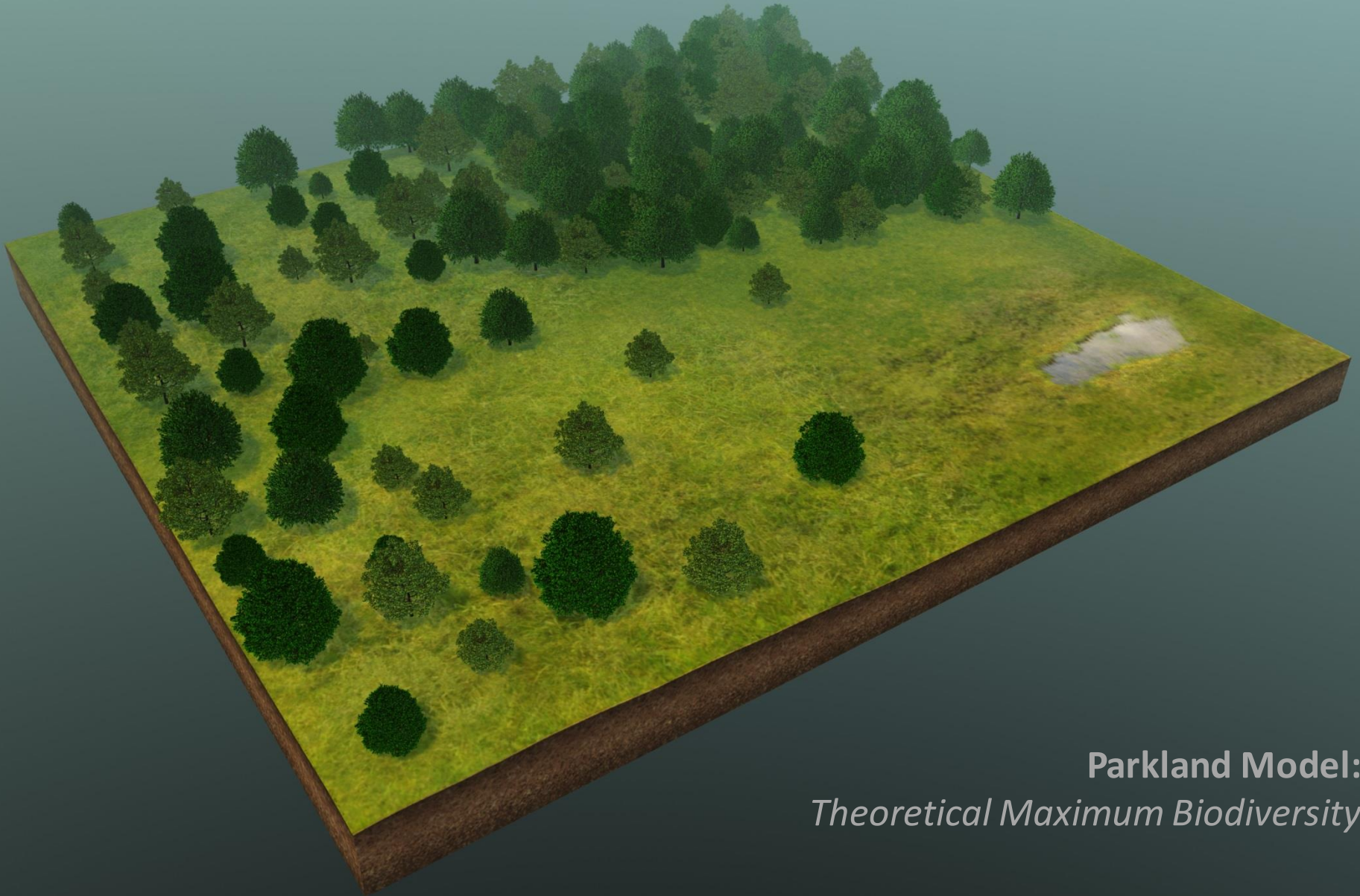


Source: southviewdesign.com

Big Ideas in Resiliency and Sustainability

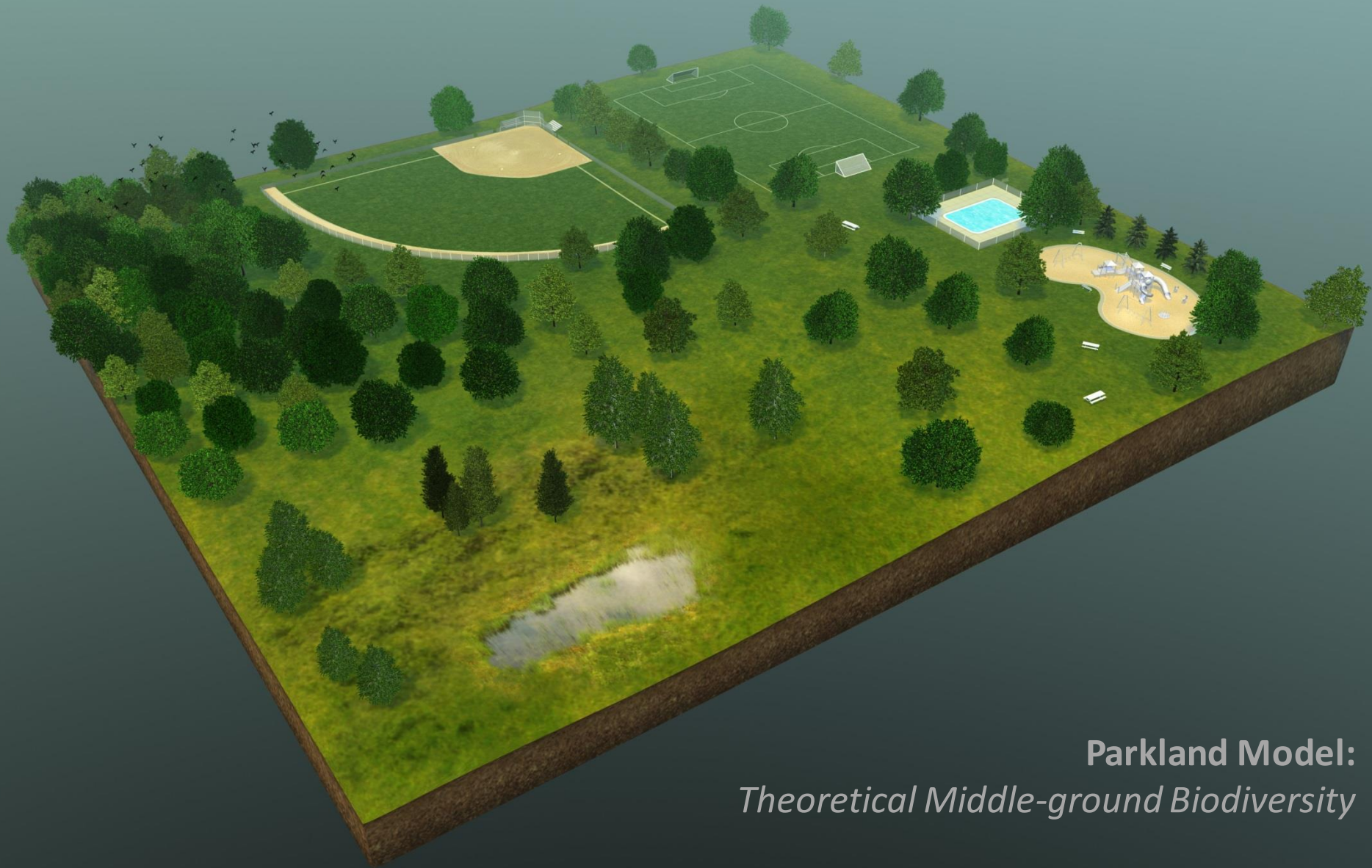
A scenic view of the Minneapolis skyline across a park with a lake and trees. The skyline features several prominent skyscrapers, including the Aon Center and the Wells Fargo Center. The park in the foreground is lush with green trees and a large body of water. A small boat is visible on the right side of the lake.

Adam Arvidson
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Minneapolis Park and Recreation Board
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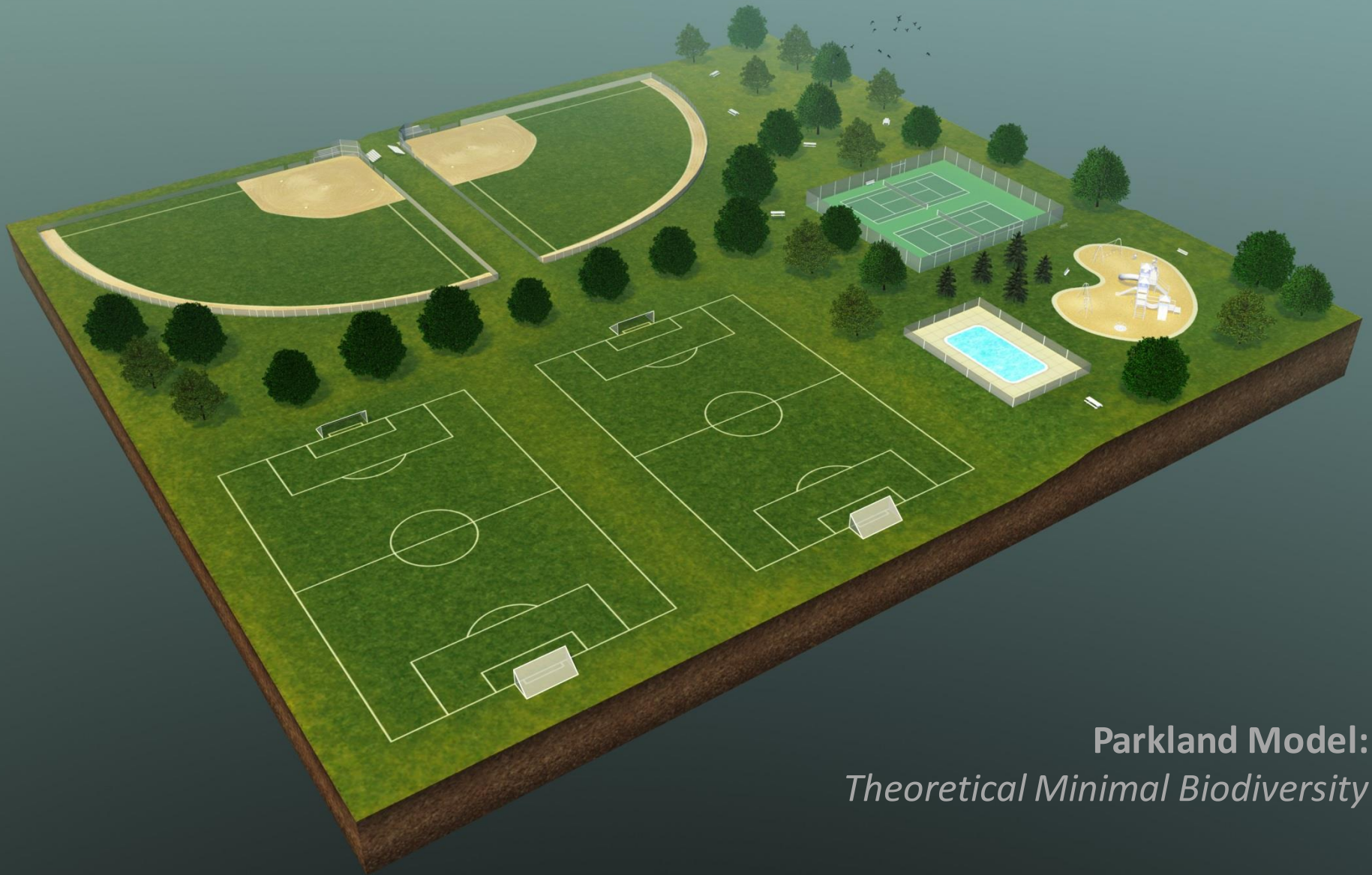


Parkland Model:
Theoretical Maximum Biodiversity

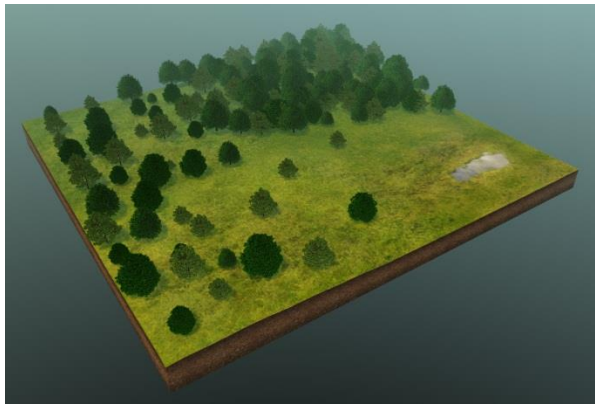




Parkland Model:
Theoretical Middle-ground Biodiversity



Parkland Model:
Theoretical Minimal Biodiversity



Parkland Model:
Theoretical Biodiversity Gradient

Project Framework

The Issues

*Invasive Species
Climate Change
Water Quality
Flooding
Food Insecurity
Obesity/Diabetes*



What can parks help solve?

Some parks are better than others at solving some of the issues

All parks can help solve some of the issues

*Stormwater management
Biodiversity enhancement
Air quality improvement
Alternative energy generation
Carbon sequestration*



Methods

*Park Design
Park Acquisition
Park Management
Tree Canopy
Collaboration*



*Stormwater management
Contaminated soils
Surface water quality
Macro-habitat enhancement
Urban heat island mitigation
Noise pollution mitigation
Air quality enhancement*

Project Framework

The Issues



What can parks help solve?

And to what degree?

What are the pros/cons of different levels of mitigation?

What is the cost of increasing environmental capacity?

At what point are we just not using our money wisely?

NOKOMIS-HIAWATHA REGIONAL PARK MASTER PLAN

Key Features

- A Picnic Area
- B Beach
- C ADA water access
- D Parking
- E Play Lawn
- F Fishing Pier
- G Enhanced Crossings
- H Restrooms & Drinking Fountains
- I Improved Sidewalk Access

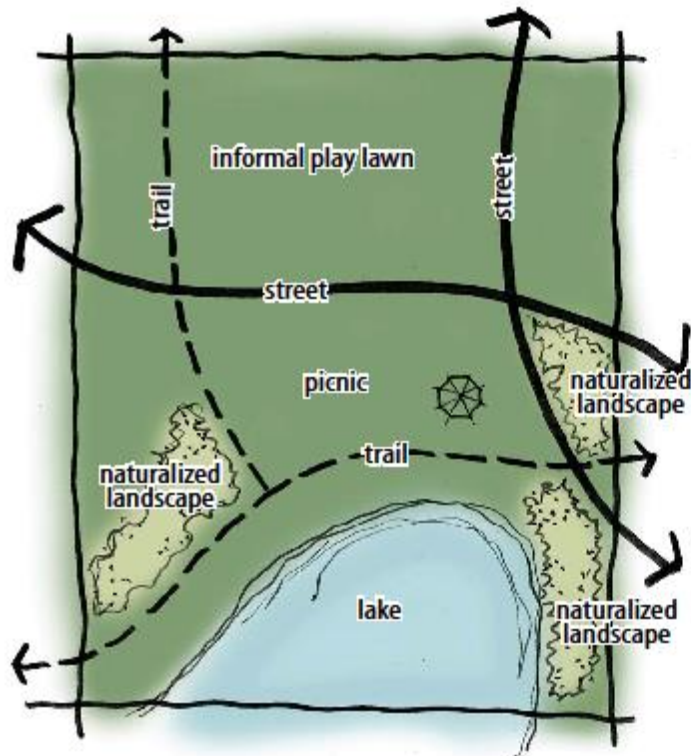


Continued coordination with City and County for ongoing intersection study

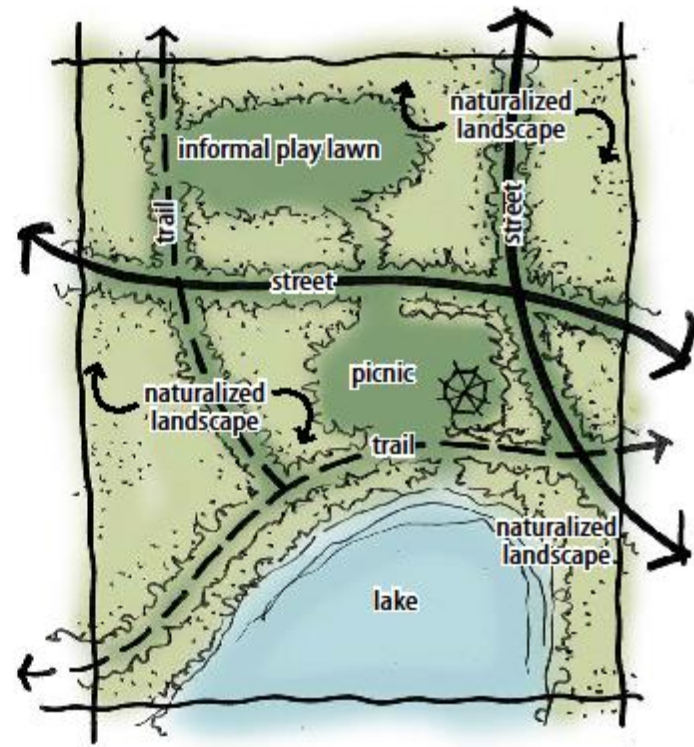
NATURAL RESOURCES & WATER QUALITY

For Discussion...

- How natural should the park be?



Campus-style



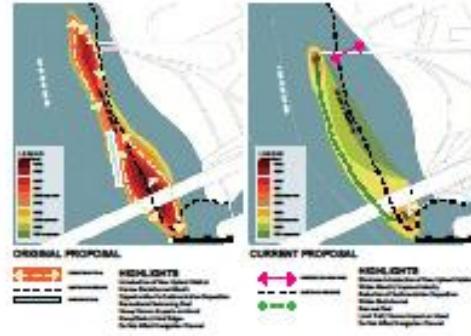
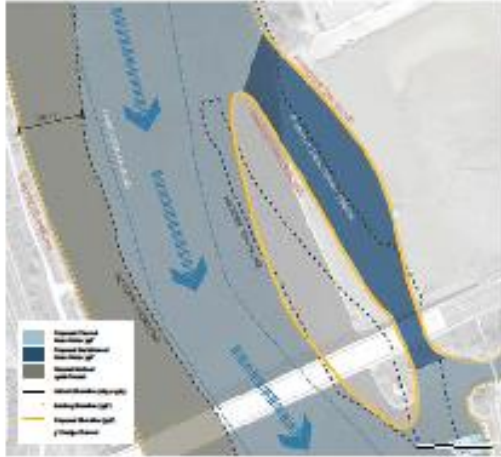
Natural-style

NATURAL RESOURCES FRAMEWORK





HALL'S ISLAND



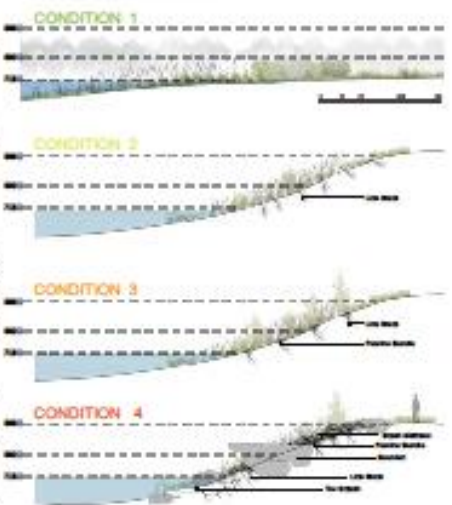
BIODIVERSITY CONCEPT DIAGRAM
 CREATES LINKING HABITAT ZONES ALONG ECOLOGICALLY IMPROVED REACH OF MISSISSIPPI RIVER



HABITAT SECTIONS
 CONTRIBUTES TO MORE DIVERSE VEGETATION ZONES ALONG WATER'S EDGE



EDGE CONDITION TREATMENTS



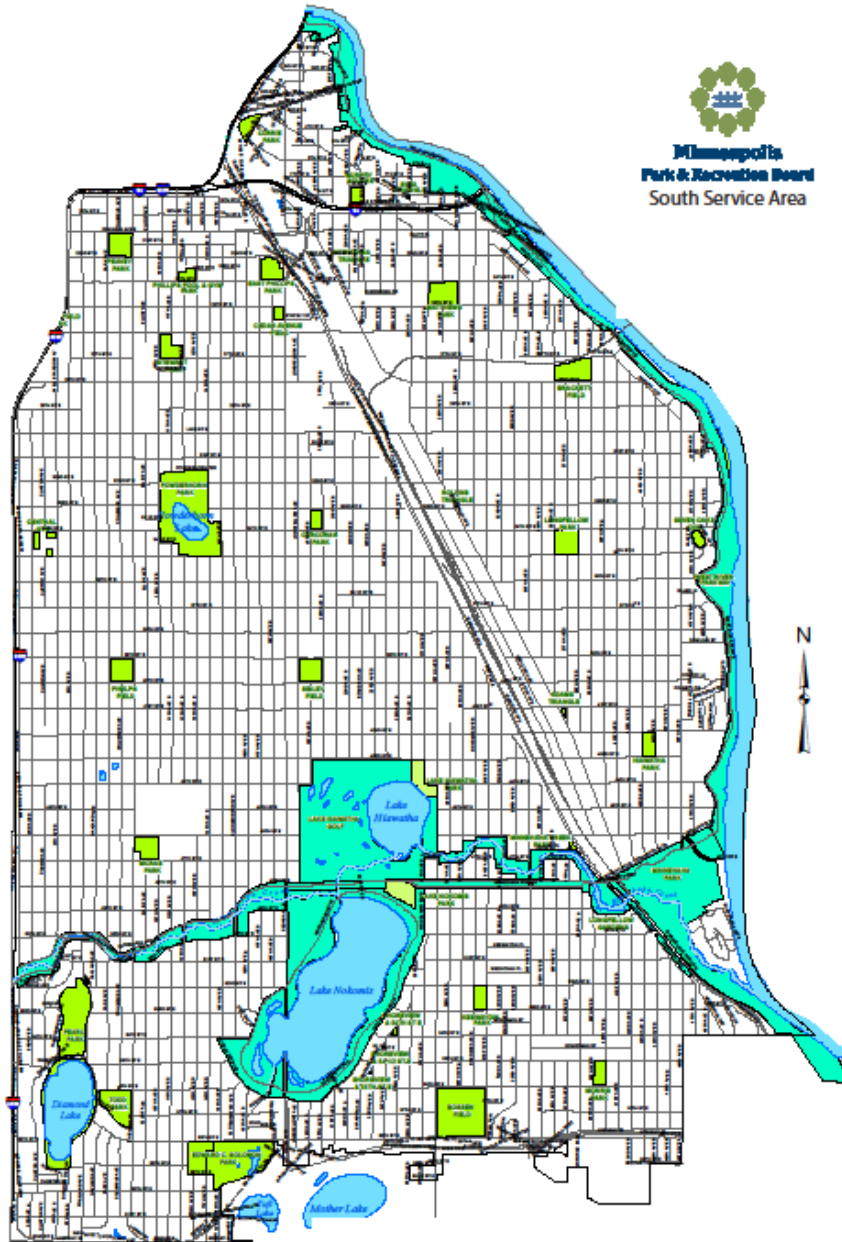
HISTORY OF SITE


CREATES LINKING HABITAT ZONES ALONG ECOLOGICALLY IMPROVED REACH OF MISSISSIPPI RIVER





**Minneapolis
Park & Recreation Board**
South Service Area



 = Regional Parks (not included in South Service Area Master Plan)

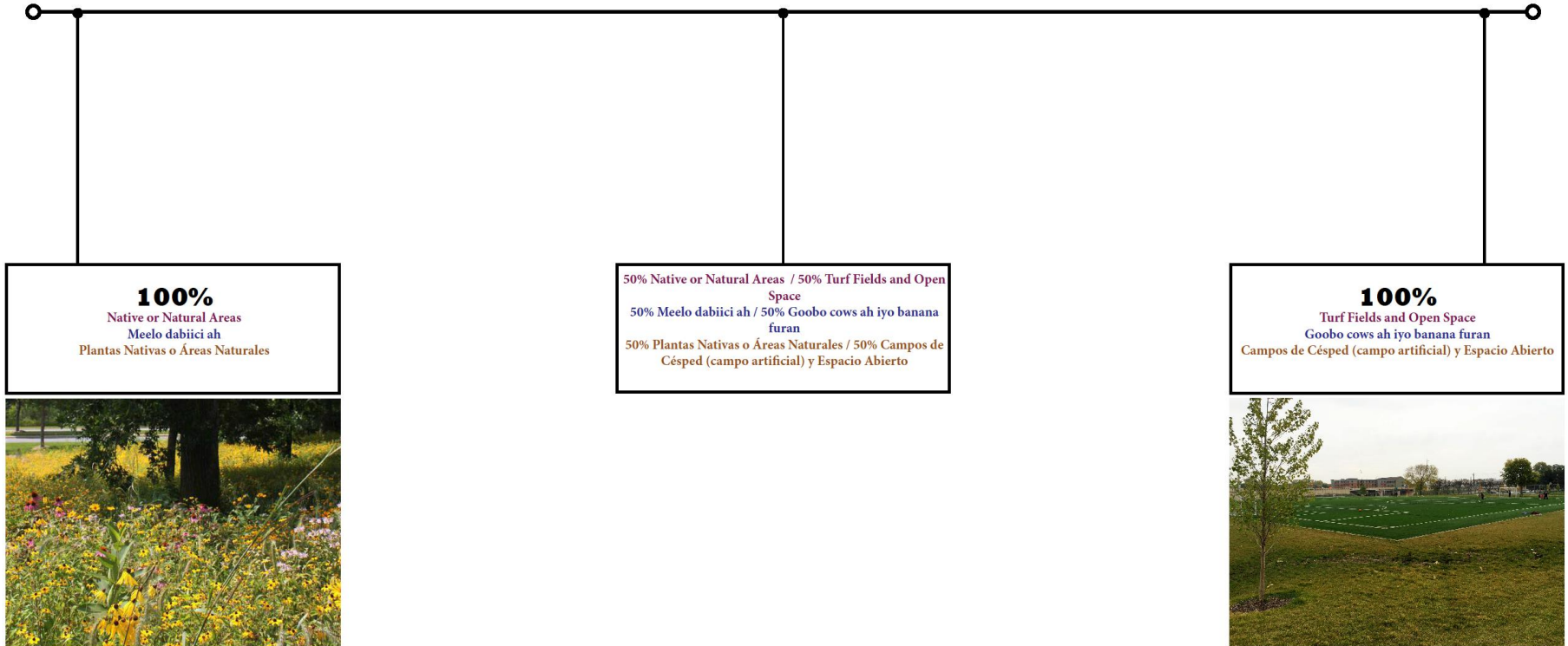
1: Landscape Style



Should parks be all natural, or all turf, or somewhere in between? Place a dot to show the type of park you prefer.

Park-yadu ma inay noqdaan gabi ahaan dabiici, ama cows ama wax u dhexeeya baa? Ku dhig calaamad tusaysa nooca park-ka aad doorbidaysa

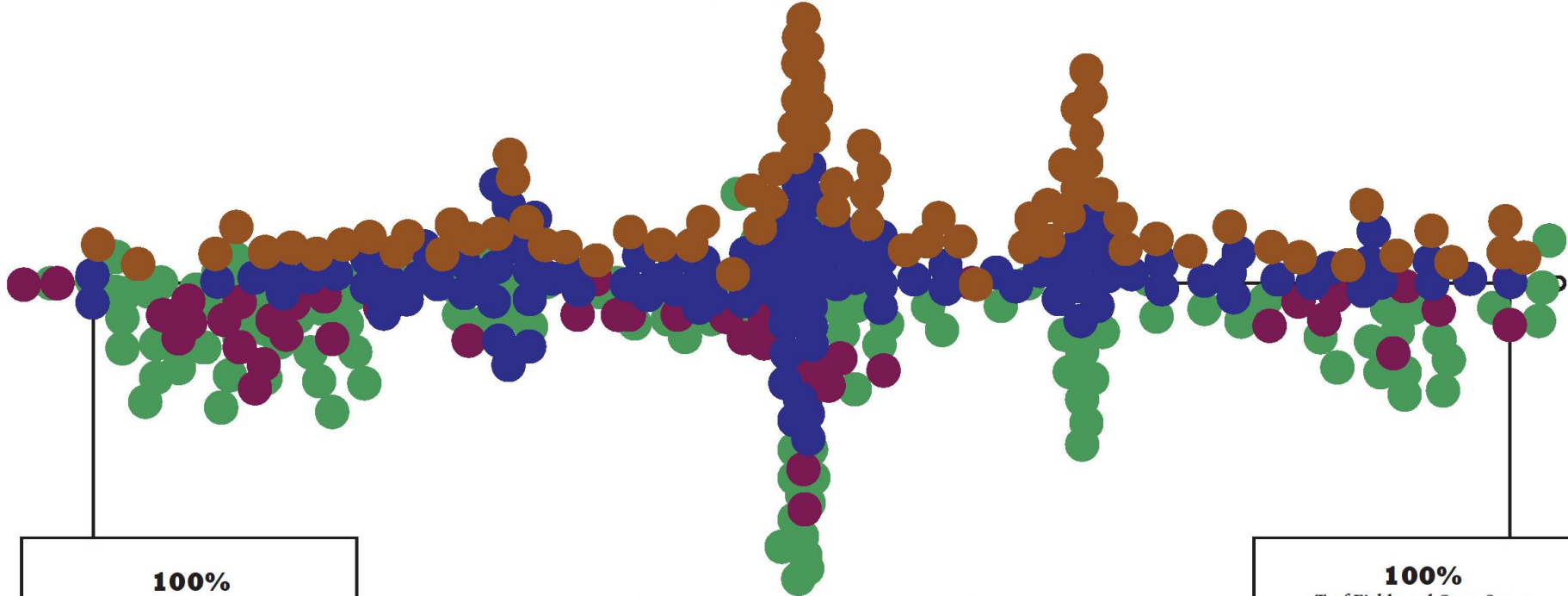
En tu opinión los parques deben ser todo natural, o todo hecho de césped (campo artificial), o en algún lugar en el medio? Coloque un punto para mostrar el tipo de parque que usted prefiere.





1: Landscape Style

Should parks be all natural, or all turf, or somewhere in between? The dots shown represent preferences made by individuals at various events around the South Service Area.



100%
Native or Natural Areas

50% Native or Natural Areas / 50% Turf
Fields and Open Space

100%
Turf Fields and Open Space



Big Ideas in Resiliency and Sustainability

Lacy Shelby
Principal Urban Designer
Community Planning and Economic Development
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Minneapolis
City of Lakes



BIG IDEAS IN RESILIENCY AND SUSTAINABILITY

LACY SHELBY
PRINCIPAL URBAN DESIGNER
COMMUNITY PLANNING AND ECONOMIC DEVELOPMENT
LACY.SHELBY@MINNEAPOLISMN.GOV

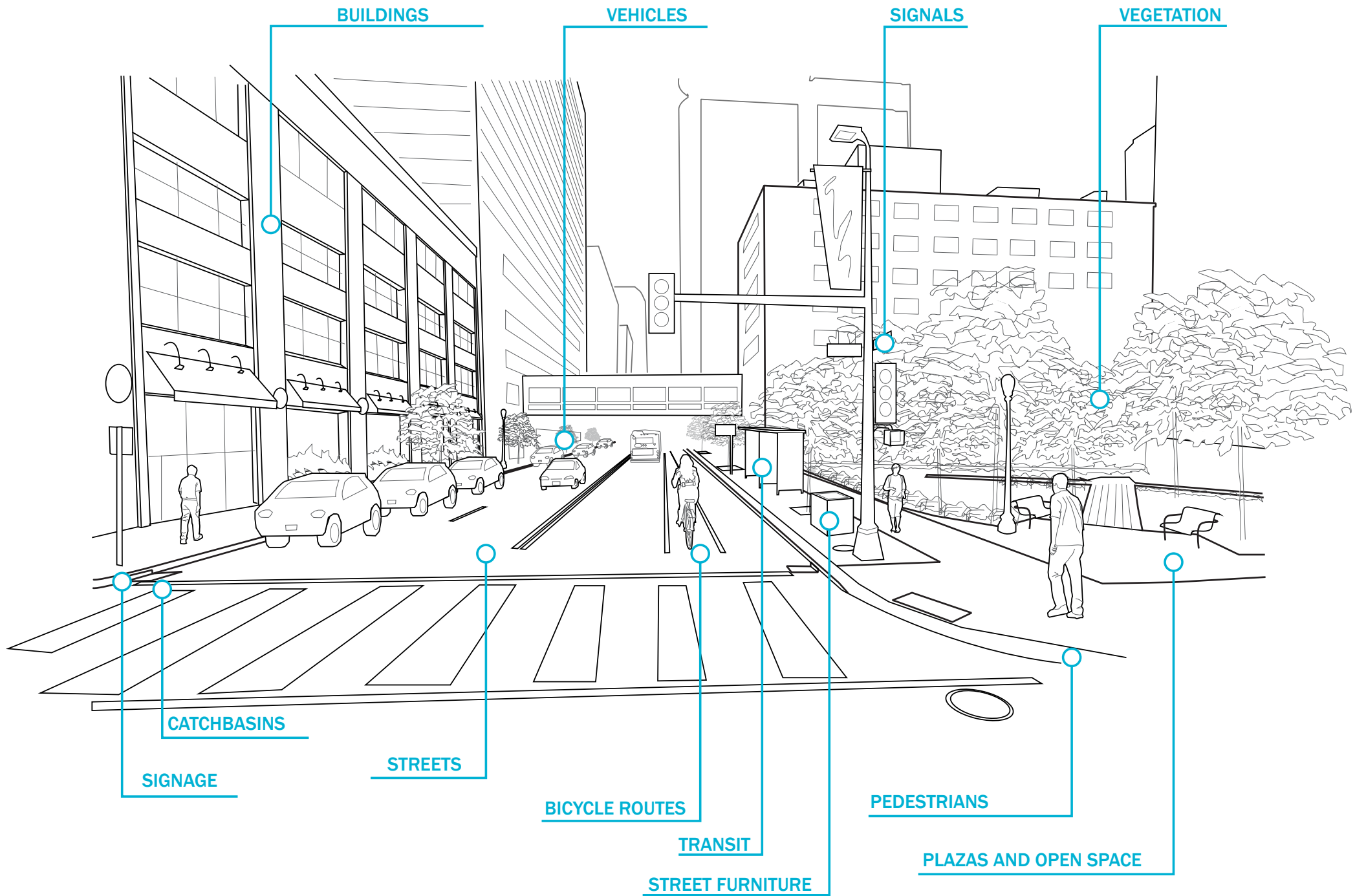
VEGETATION

BUILDINGS

PEOPLE

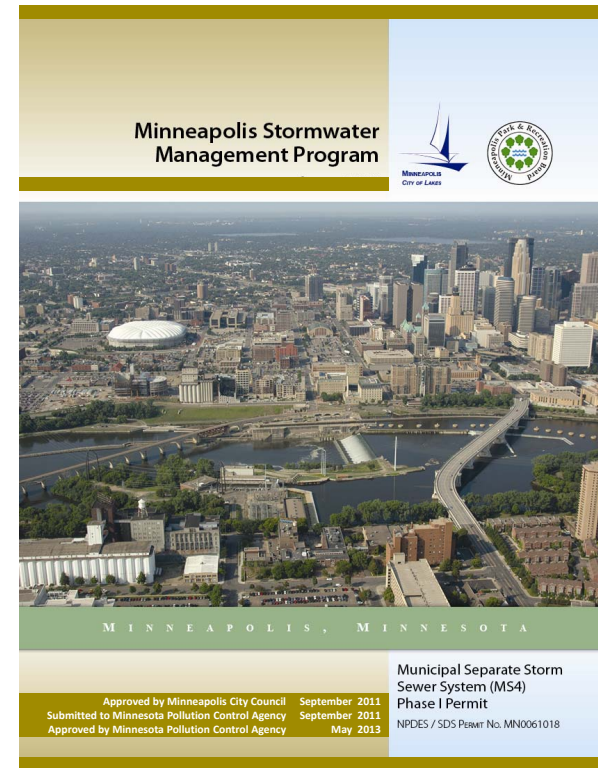
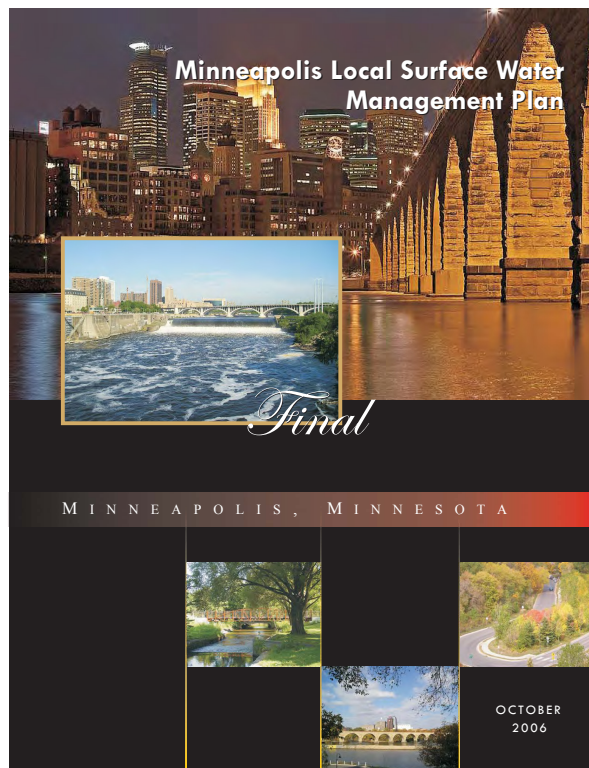
PAVEMENT

IMAGE CREDIT- DUSTY HOSKOVEC



WHAT MAKES PLACE?





**Community Planning and Economic Development Planning Division Report
Zoning Code Text Amendment**

Date: July 19, 2010

Initiator of Amendment: Council Member Gordon

Date of Introduction at City Council: September 18, 2009

Ward: Citywide **Neighborhood Organization:** Citywide

Planning Staff and Phone: Jim Voll 612-673-3887

Intent of the Ordinance: The intent of the amendment is to update standards related to parking and driveway surfacing requirements to better align with adopted applicable city policies and practices.

Appropriate Section(s) of the Zoning Code:

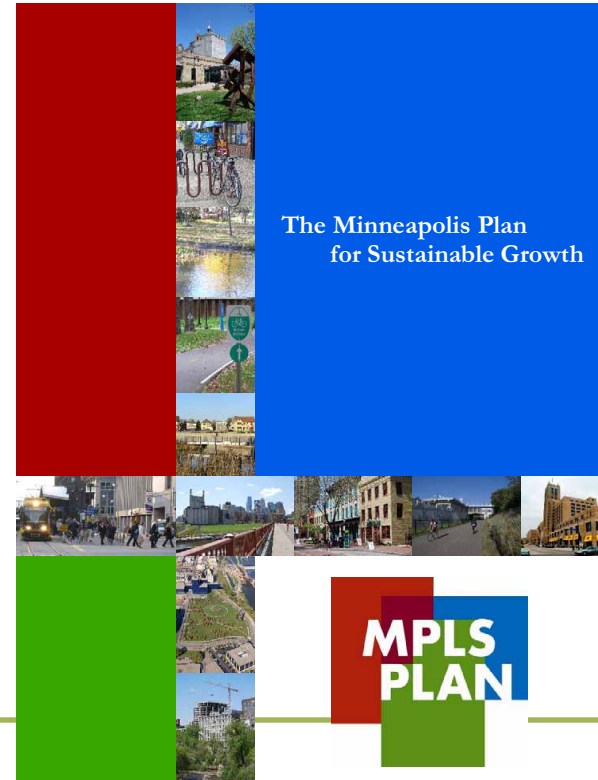
Chapter 541: Off-street Parking and Loading

Chapter 520: Introductory Provisions and Chapter 525: Administration and Enforcement were also introduced. However, staff is not recommending changes to these chapters as part of this amendment and therefore recommends returning them to the author.

Background: The purpose of this text amendment is to revise Section 541.300 of the zoning code, surfacing, to allow permeable or pervious materials for parking and associated drive aisles and driveways. This amendment relates only to parking areas and associated drive aisles and driveways and not to other hard-surfaced areas, such as patios or walkways.

In general, the amendment would limit turf systems for overflow parking spaces only, due to concerns with durability; however, turf systems that utilize plastic geocells or concrete grids are allowed for single and two-family dwellings. Gravel systems have been limited to industrial districts and for single-family homes, where they are currently allowed, for aesthetic reasons and for dust control. One exception is to allow open-celled paving grids utilizing gravel within the commercial and downtown districts for the parking spaces only. Pervious pavement or pervious pavement systems, with the exception of pervious concrete, pervious asphalt, and pervious pavers, would not be allowed for drive aisles or driveways, except for single and two-family uses, where gravel would be allowed for single-family dwellings and turf would be allowed for single and two-family dwellings. In addition, the ordinance clarifies and codifies staff practice with regard to ribbon drives.

This amendment was reviewed by the Public Works Department and the Regulatory Services Department, as well as the various sections of the CPED-Planning Division. The Regulatory Services Department did not make an official comment on the amendment, but did express concern over the use of turf systems for drives and parking for residential uses and the ability to enforce the difference between a turf system and regular grass. Planning staff also has concern over the durability of turf

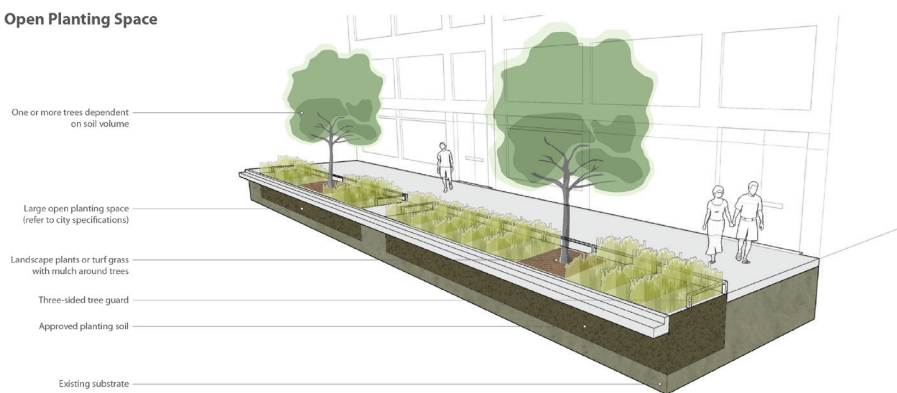


PUBLIC REALM GUIDELINES

Continuous Open Boulevard



Open Planting Space



Engineered Root Space

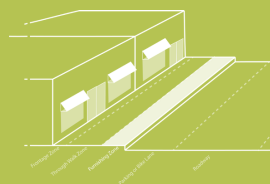


Public Realm Guidelines

Trees Engineered Root Space

Sidewalk Zone

- » Furnishing Zone



Benefits:

- » Reduce heat island effect
- » Provide habitat for urban wildlife
- » Reduce noise and glare
- » Absorb carbon dioxide
- » Reduce runoff

Cost:

\$\$\$

More Information

Contact 311

If you are outside the Minneapolis city limits or are unable reach 311, call (612) 673-3000
TTY/TDD customers dial (612) 673-2157

Minneapolis311@minneapolismn.gov

Permits or Applications:

Tree Permit (Park Board): Call 612-313-7710 or email forestry@minneapolis-sparks.org to request a permit.

- » [Encroachment Permit](#)

Feature Description

Where continuous open boulevards or open planting spaces cannot be incorporated, an approved engineered root space of 500 cubic feet per tree shall be required with a minimum serviceable opening of 5 feet by 5 feet. Engineered root space profile must have a minimum width of 5 feet, minimum depth of 3 feet, and maximum depth of 4 feet. Designs that enhance stormwater infiltration to the root zone are preferred.

Preferred Conditions

Engineered Root Space sites are recommended in locations with the most restricted conditions and where continuous open boulevard or open planting spaces can not be accommodated. These conditions may include sidewalks with high pedestrian volume, narrow sidewalks, or incompatible adjacent land use.

Maintenance

Maintenance for engineered root space sites is similar to other tree planting sites. For the establishment period it is crucial to water regularly. Newly planted trees need to be watered with 20 gallons of water once a week. This will help the tree thrive in the challenging urban environment.



Figure 1.124 Image credit

Engineered Root Space

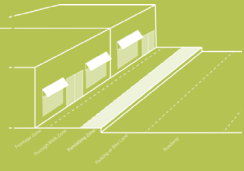
Examples of engineered root space include:

- » Suspended Pavement System
- » Structural Soil Designs
 - Rock based structural soil
 - Sand based structural soil
 - Or other acceptable proposed soil mix (ex. Mpls DPW Structural Soil)

Furnishing Zone Swale

Sidewalk Zone

- » Furnishing Zone



Benefits:

- » Reduce heat island effect
- » Provide habitat for pollinators
- » Absorb carbon dioxide
- » Reduce runoff

Cost:

\$\$

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- » [Sidewalk Construction Permit](#)
- » [Obstruction/Street Use](#)

Feature Description

A swale is a stormwater system that is generally characterized by a longitudinal turf depression between the curb and sidewalk. Swales may or may not have trees depending on the dimensional width of the system with a minimum of 3'. It is recommended swales be designed with mowing in mind, thereby designing the dimension of the swale based to accommodate mowing.



Figure 1.141 Image credit



Figure 1.142 Image credit

Preferred Conditions

Swales are recommended in locations with concerns for flooding or areas where managing stormwater quantity and quality is a priority.

Maintenance

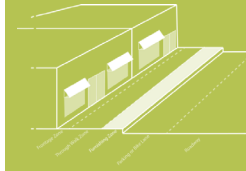
Regularly evaluate the function and condition of swales for signs of erosion, deterioration and sediment accumulation. If identified, it is crucial to clean out the swale to improve its functional capacity. Additional maintenance includes deadheading and weeding of plants, removal of litter

and debris, replenish and redistribute mulching material/aggregate.

Furnishing Zone Rain Garden

Sidewalk Zone

- » Furnishing Zone



Benefits:

- » Reduce heat island effect
- » Provide habitat for pollinators
- » Absorb carbon dioxide
- » Reduce runoff

Cost:

\$\$

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Feature Description

A raingarden is a low area in the landscape that collects runoff from impervious surfaces allowing water to infiltrate into the soil. Rain gardens are graded to appropriately manage stormwater. They are typically sited in areas with greater dimension and reduced pedestrian traffic. Must be designed to drain stormwater within 48 hours after a rain event. Raingardens are generally designed as shallow vegetated depressions that assist in the slowing of runoff reducing peak runoff rates. Rain gardens are typically designed so that stormwater temporarily ponds and slowly infiltrates into the soil.



Figure 1.143 Image credit



Figure 1.144 Image credit

Preferred Conditions

Rain gardens are recommended in locations with concerns for flooding or areas where managing stormwater quantity and quality is a priority.

Maintenance

Regularly evaluate the function and condition of raingardens for signs of erosion, deterioration and sediment accumulation. If identified, it is crucial to clean out the raingarden to improve its functional capacity. Additional

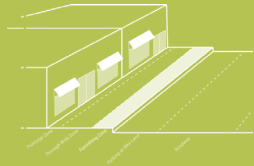
maintenance includes deadheading and weeding of plants, removal of litter and debris, replenish and redistribute mulching material/aggregate.

Furnishing Zone

Stormwater Planter

Sidewalk Zone

- » Furnishing Zone



Benefits:

- » Reduce heat island effect
- » Provide habitat for pollinators
- » Absorb carbon dioxide
- » Reduce runoff

Cost:

\$\$

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- » [Encroachment Permit](#)
- » [Sidewalk Construction Permit](#)
- » [Obstruction/Street Use](#)

Feature Description

A stormwater planter is a linear shallow vegetated bed between the curb and sidewalk allowing the infiltration of stormwater during rain events. Stormwater enters the planted bed and infiltrates through the soil. It can be designed to collect runoff from the street and/or sidewalk. These systems can be designed for both infiltration and/or detention storage. Designing planted areas to accommodate stormwater provides huge benefits to the surrounding environment. Stormwater planters contribute to the reduction of pollutants entering nearby waterbodies, contribute to the reduction of flooding in certain areas, and enhance the local ecology.



Figure 1.140 Image credit



Preferred Conditions

Stormwater planters are recommended in locations with concerns for flooding or areas where managing stormwater quantity and quality is a priority.

Maintenance

Stormwater planters require regular maintenance and care. It is important to regularly inspect the planter for signs of erosion, deterioration and sediment accumulation. If identified, it is crucial to clean out the planter to improve its functional capacity. Additional

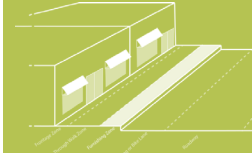
maintenance includes deadheading and weeding of plants, removal of litter and debris, replenish and redistribute mulching material/aggregate.

Furnishing Zone

Stormwater Bump-Out

Sidewalk Zone

- » Furnishing Zone



Benefits:

- » Traffic calming
- » Stormwater management

Cost:

\$\$

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- » [Sidewalk Construction Permit](#)
- » [Obstruction/Street Use Permit](#)
- » [Erosion Control Permit](#)
- » [Stormwater Credit Program](#)

Feature Description

A stormwater bump-out is a planted curb extension that serves to both slow the velocity and store or infiltrate stormwater in the street. These bump-outs can be applied both midblock or at intersections. Stormwater bump-outs can be most effective if designed to capture run-off from the street. They can also be designed for surface run-off from the sidewalk to drain into the system. The system is designed with an overflow at an outlet. A stormwater bump-out or curb extension should be mostly vegetated while providing appropriate pedestrian access, in the event the bump-out is located at an intersection or street crossing. Stormwater bump-outs must be coordinated with Public Works transportation and planning and stormwater and sewer divisions. All understory vegetation must be maintained at less than 3' in height. Trees are allowed in bump-outs adhering to minimum site requirements from intersections, centered in the planting bed and sized appropriate to the conditions. Please note that consideration of tree habit should be considered for trees planted in bump-outs. A columnar form may be preferred due to proximity to travel lane.



Figure 1.148 Image credit

EXISTING PROJECTS



37th Ave. North Greenway



14th Ave. N. Permeable Paver Road Pilot



Lowry Ave. Bridge Sand Trap



Mill District Permeable Tree Trench



Seward Coop Rain Garden



Green Catch Basin SE 25th Ave.

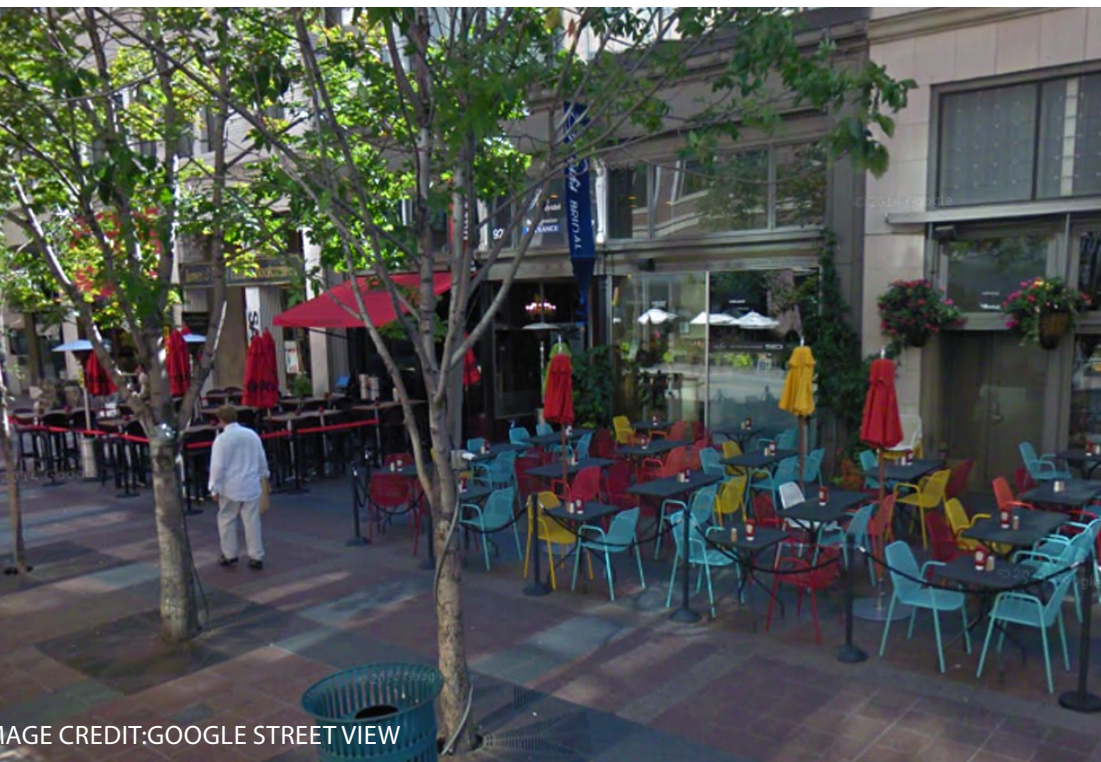


IMAGE CREDIT:GOOGLE STREET VIEW



STREETS AS ECOSYSTEMS

MAXIMIZE THE OPERATIONAL AND FUNCTIONAL EFFECTIVENESS OF A STREET

UTILITY OPTIMIZATION, STORMWATER MANAGEMENT, GEOMETRIC ENHANCEMENTS

INVEST IN ENHANCING THE AMENITY AND BEAUTY OF A STREET

SCALE FEATURES APPROPRIATELY, PUT PEOPLE FIRST, ADD VEGETATION LIBERALLY

IMAGINE A CAPITAL LIFE WITHOUT YOU

BUILD FOR RESILIENCY, CONSIDER FUTURE RETROFITS, KEEP IT SIMPLE

UNLOCK NEW FUNDING SOURCES

SHAPE MESSAGE, FOCUS ON PARTNERSHIP NOT “STAKEHOLDER”



RESPITE

IMAGE CREDIT: ROSE LINDSAY

LEISURE



IMAGE CREDIT: LITTLE BOX SAUNA

HABITAT

COMING FULL CIRCLE

Native Plants Return to Heritage Park

PORTRAITS OF THE PAST

Looking not over Heritage Park more than 150 years ago, you would have seen Bassett's Creek meandering through a pristine landscape of wetlands, marshes, prairies, and woodlands. Plants and wildlife were plentiful, and the creek and the nearby Mississippi River flowed with clear water.

Over time, settlers established farms around Bassett's Creek. Soon Minneapolis surrounded the prairie landscape, and the wetlands were filled to make way for homes and businesses. Without the sponge-like wetlands to absorb and filter water, the creek often flooded nearby properties. In the 1920s, the creek was redirected into giant underground pipes.


CYCLES OF SEASONS

Creating Heritage Park transformed an urban landscape into a diverse and sustainable natural community. Restored wetlands and prairies wind through the neighborhood, cleaning runoff and providing habitat for wildlife while adding beauty with seasonal blooms and textures.


Bright shafts of grass peek through the spring of tall grasses swells in the summer heat and hardy wildflowers stretch to bank on the sun. Autumn paints the landscape rust and gold, and winter foot rests on the bristly contours of wild bergamot seed pods. Although the plants do not flower in every season, they are continually working hard to keep the city's water clean.

The benefits of native plants


- Plants in their native habitat require less water and so pesticides and fertilizers do not leech from the soil, helping to reduce water usage and improve water quality.
- Native plants and surrounding prairie soils with native plants can help filter and absorb pollutants in precipitation, reducing runoff.
- Native plants produce pollen, fruit, and seeds that attract songbirds, butterflies, and bees.




Wild Bergamot




Black-eyed Susan




Purple Spotted




Bassett's Creek near Chestnut and Uptown, 1920s



Restored wetland



Prairie landscape



Wetland with water

PLAY



IMAGE CREDIT: ELDO WALLS, SQUAMISH, BC

SOCIAL ENGAGEMENT



IMAGE CREDIT: MPLS PARK & REC BOARD

EXPOSURE



IMAGE CREDIT: MPLS PARK & REC BOARD

SPECTATE



IMAGE CREDIT: THE CULTURAL LANDSCAPE FOUNDATION

PEACE



IMAGE CREDIT: MPLS PARK & REC BOARD

ART



WAYFINDING



Big Ideas in Resiliency and Sustainability

THANK YOU

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Image Credit Dusty Hoskovek

