Designing Sustainable Neighborhoods

City of Madison
Neighborhood Roundtable
March 8, 2008

Steve Steinhoff

Neighborhood Design Center

Neighborhood Design Center

Engages citizens to collaboratively design sustainable communities

What is Sustainability?

"Sustainable Development is development that meets the needs of the present without compromising the ability of future generations to meet their needs."

United Nations 1987 Brundtland Report - *Our Common Future*

A Sustainable City:

- Balances environment, economy and social good
- Recognizes a healthy environment underpins economic and social well-being

photo by: Archie Nicolette

www.ci.madison.wi.us/mayor/pdfs/TNS20070413.pdf

The City Adopts The Natural Step

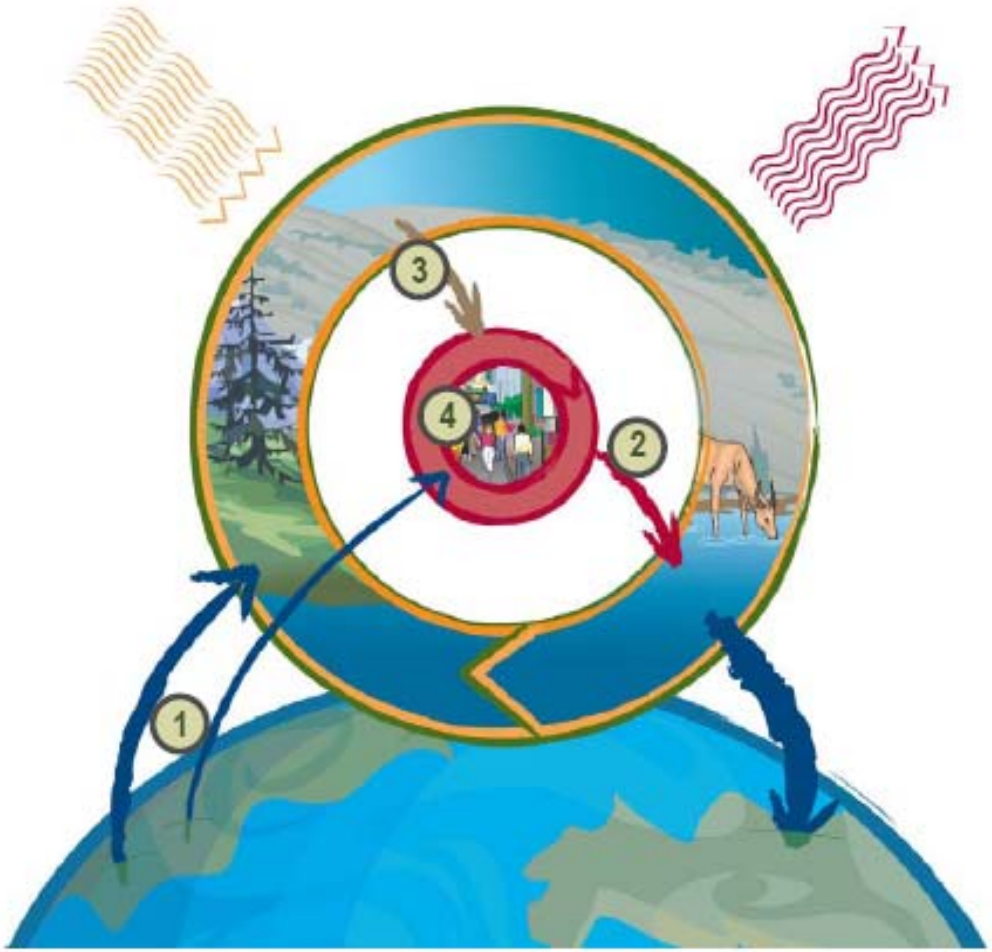
Historically, Madison had multiple individual environmental initiatives

- City adopts *Building a Green Capital City Blueprint* in 2004
  - Integrates sustainability in a systematic way into decision making, policies, operations and capital improvements in all departments
- The Natural Step (TNS) is adopted by Common Council resolution in December 2005 as City's guiding sustainability framework
- TNS trainings are conducted for 25 City managers, supervisors and staff across departments in 2006
- TNS is applied to numerous projects by trainees and other staff

www.ci.madison.wi.us/mayor/pdfs/TNS20070413.pdf

System Conditions

In a sustainable society, nature is not subject to systematically increasing:



1. Concentrations of substances extracted from the earth's crust
2. Concentrations of substances produced by society
3. Degradation by physical means

and, in that society…

4. People are not subject to conditions that systematically undermine their capacity to meet their needs.

www.ci.madison.wi.us/mayor/pdfs/TNS20070413.pdf

What are Sustainable Neighborhoods?

Housing choices for diverse families and households that are **located close** to public and semi-public spaces, commerce, recreation, and civic and cultural activities, which encourages walking, bicycling and social interaction

MIX OF HOUSING

PROXIMITY

MIX OF USES

FUNCTION

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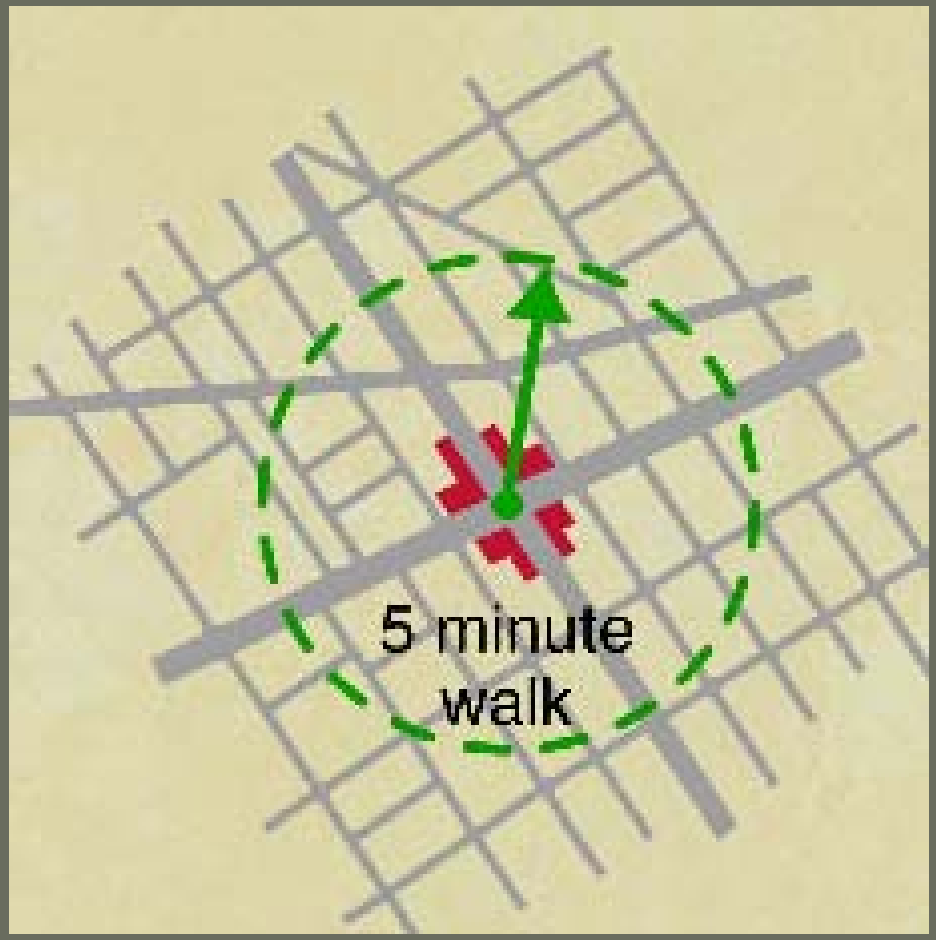
Mix of Housing

Proximity



Mix of Uses


MARKET
OWNED


LOWELL
ELEMENTARY SCHOOL
401 MAPLE AVENUE

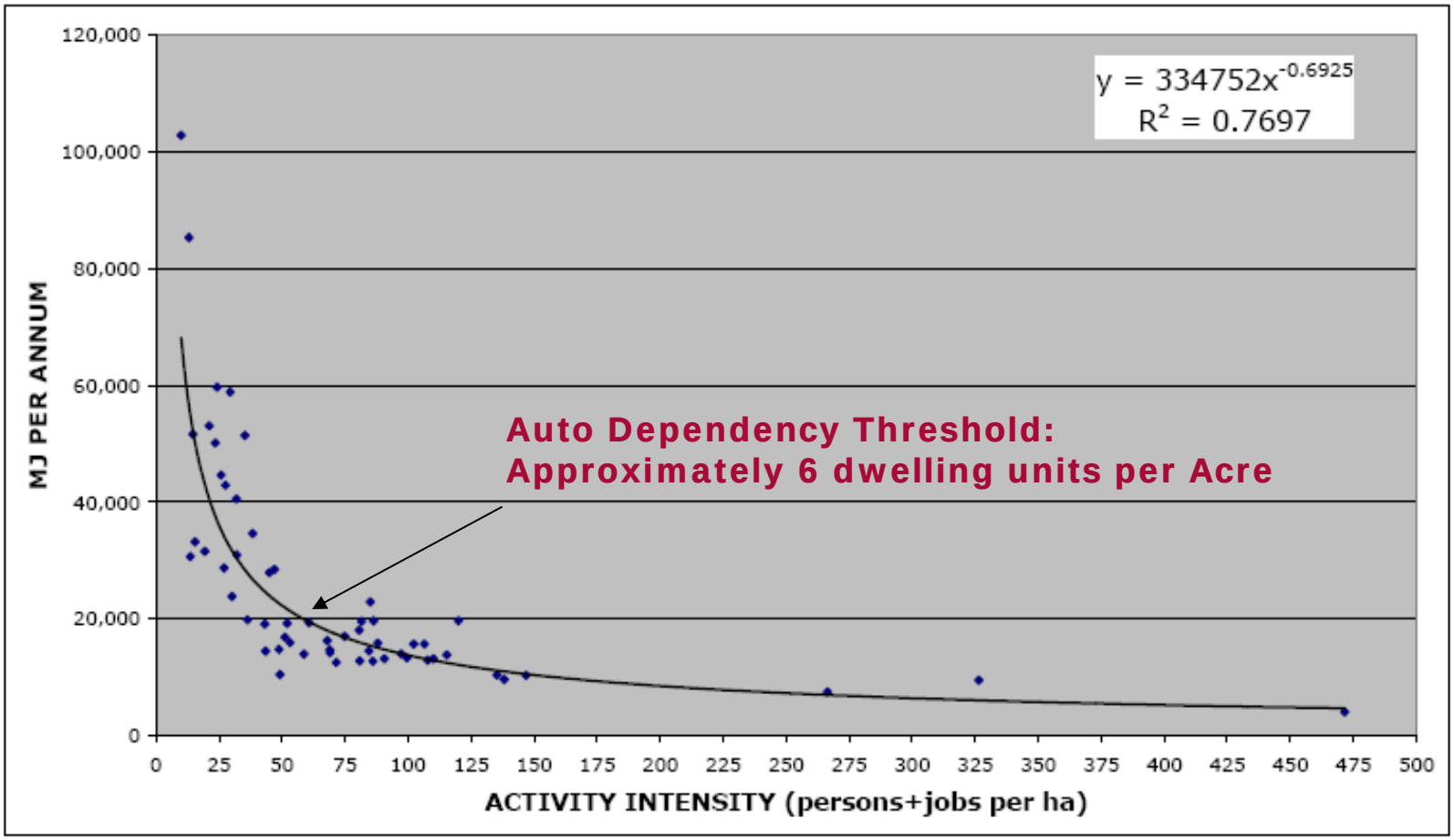

BIKE
REPAIR
HERE


FOR LEASE

Function

Mix of Houses
+
Proximity
+
Mix of Uses
=
Compactness

Figure 1. Activity Intensity versus Private Passenger Transport Energy Use in 58 Higher-Income Cities, 1995



Newman and Kenworthy, Opolis, Vol. 2, No. 1, Winter 2006

Huntersville, NC

6 units per acre

Lincoln Institute of Land Policy

Visualizing Density

www.lincolninst.edu

“Transit-Friendly” Threshold
Approximately 12-15 units per acre

Boulder, CO

12 units per acre

Lincoln Institute of Land Policy

Visualizing Density

www.lincolninst.edu

Neighborhoods linked by efficient transportation corridors to facilitate transit as a mobility choice

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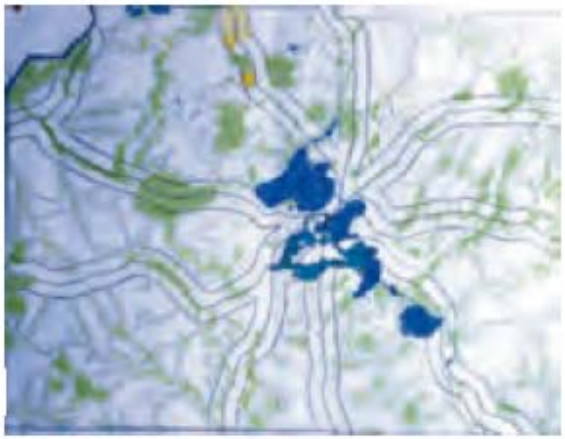
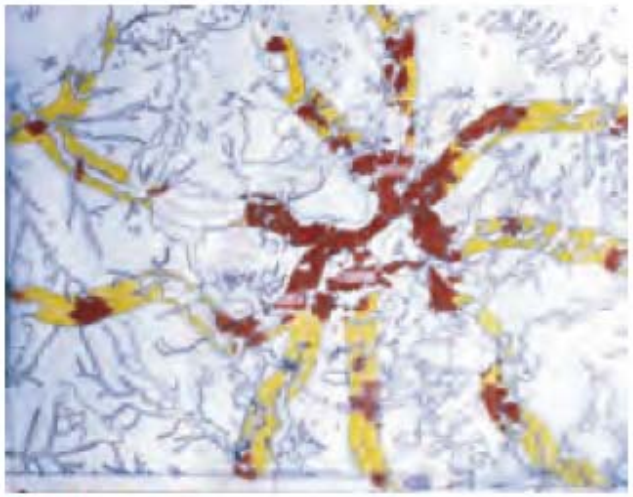
DANE COUNTY

Rail Corridors

Environmental Corridors

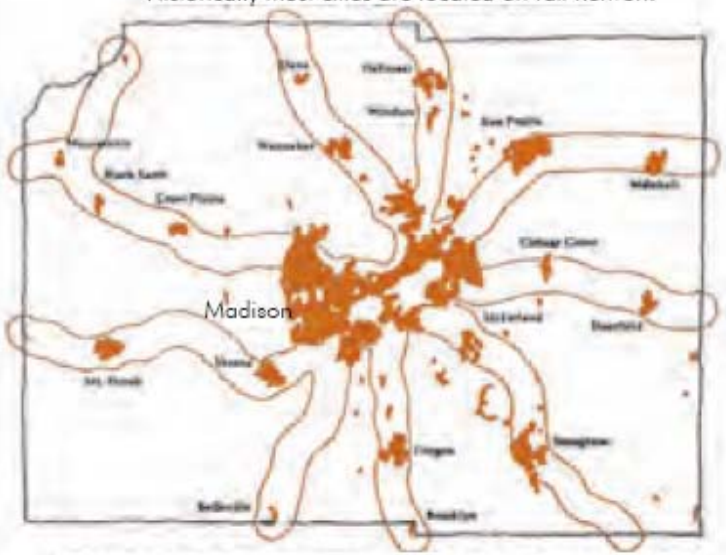




Urbanism

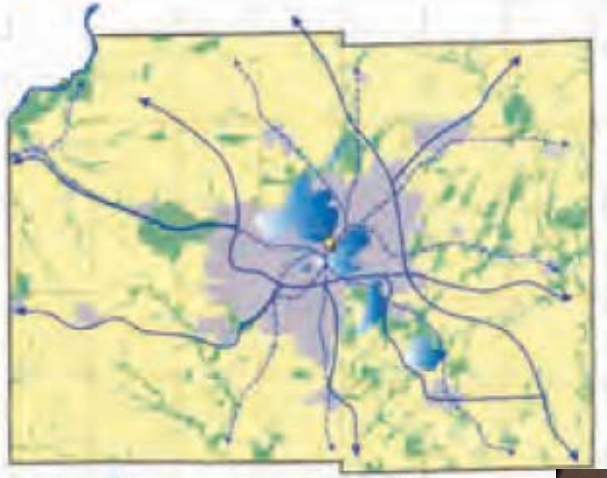
Opportunities for growth

Historically most cities are located on rail network



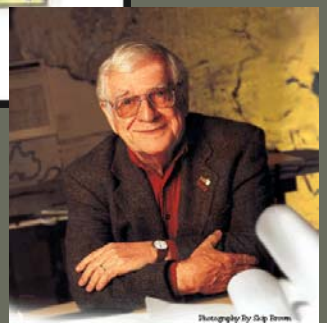
Today most high density patterns are located within the three mile wide rail corridor systems

Dane County
Highest Density Areas
(Over 320,000 persons/square Km)



Environmental Corridors

Rail Corridors



Professor Phil Lewis

System Condition 1

In a sustainable society, nature is not subject to systematically increasing:

… concentrations of substances extracted from the Earth's crust;

Inefficient Use	→	Efficient Use
Dissipative Use	→	Tight Technical Cycles
Scarce metals	→	Abundant metals
Fossil Fuels	→	Renewables

www.ci.madison.wi.us/mayor/pdfs/TNS20070413.pdf

LEED for Neighborhood Design Certification

Prerequisite: Smart Location

Location near “adequate transit service”
OR
Close (1/4 – ½ mile) to “diverse uses”

Design Matters

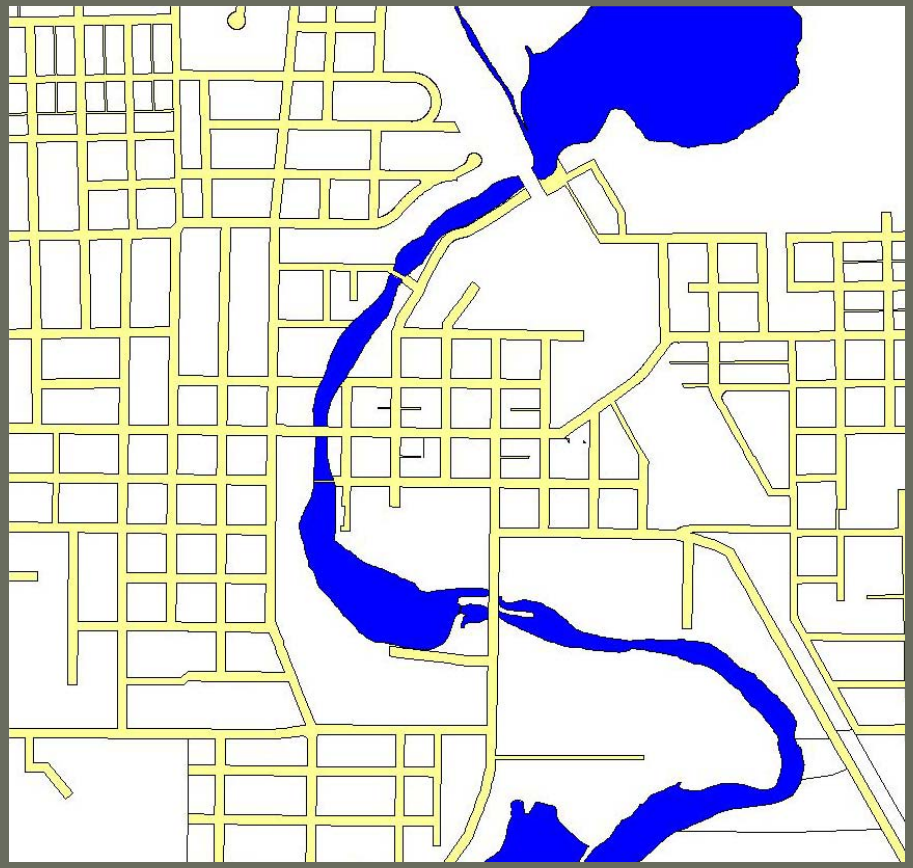
Same Density - 12 units per acre

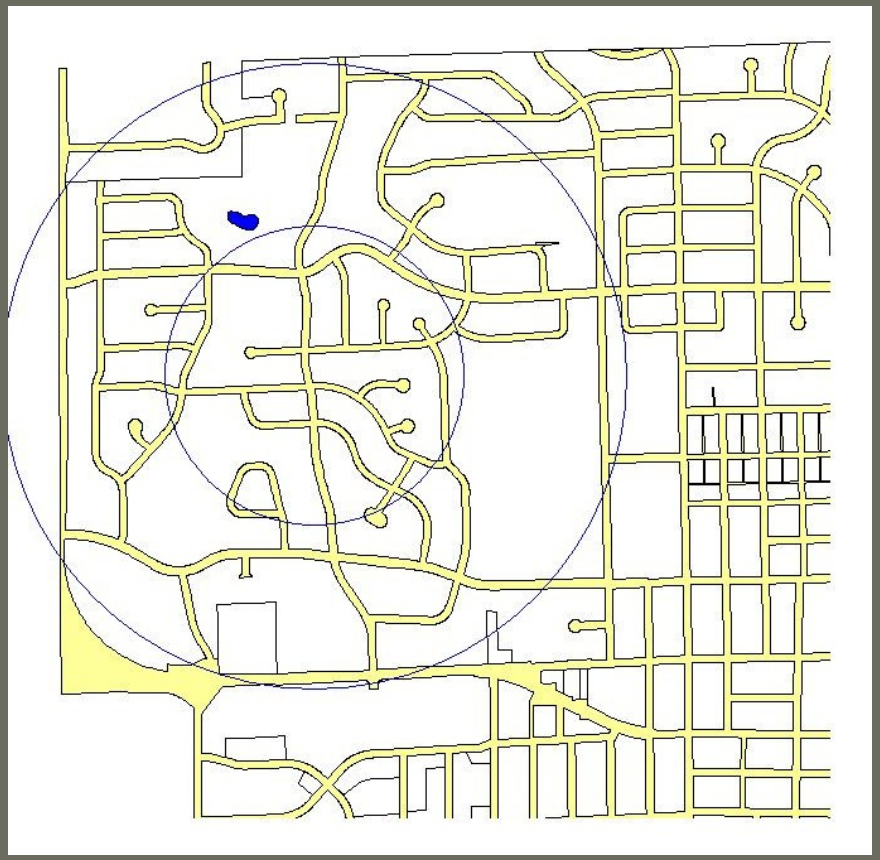
Different Neighborhoods

Lincoln Institute of Land Policy

Visualizing Density

Street Network

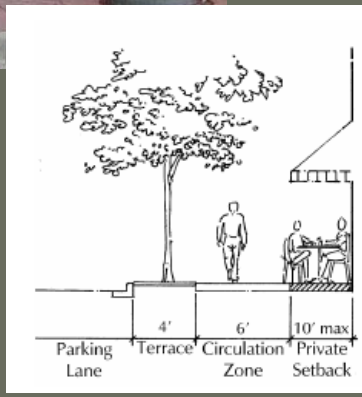




Urban Design

Buildings oriented around pedestrian- and bicycle-friendly streets

Sense of Place



Buildings face street

Buildings open to street

Human scaled

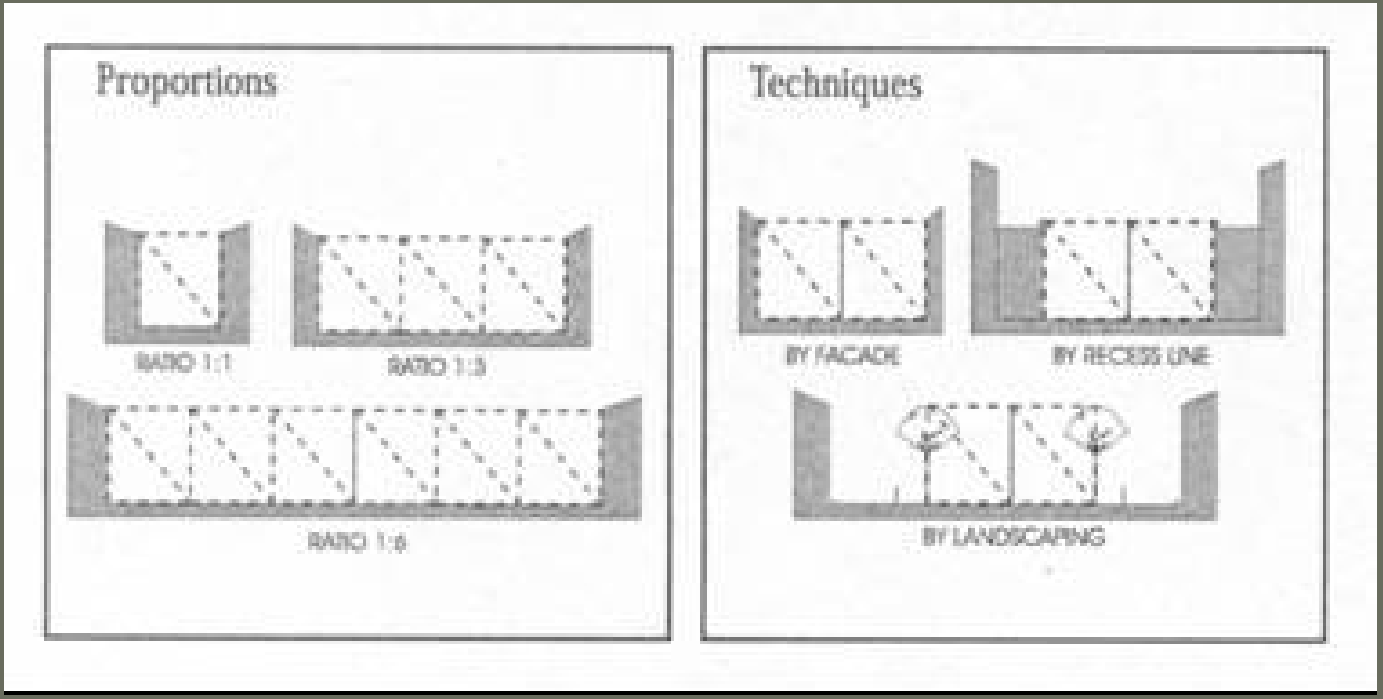
Articulated buildings

Defined, safe pedestrian space

Repeating Patterns

Quality Materials

Sense of Enclosure



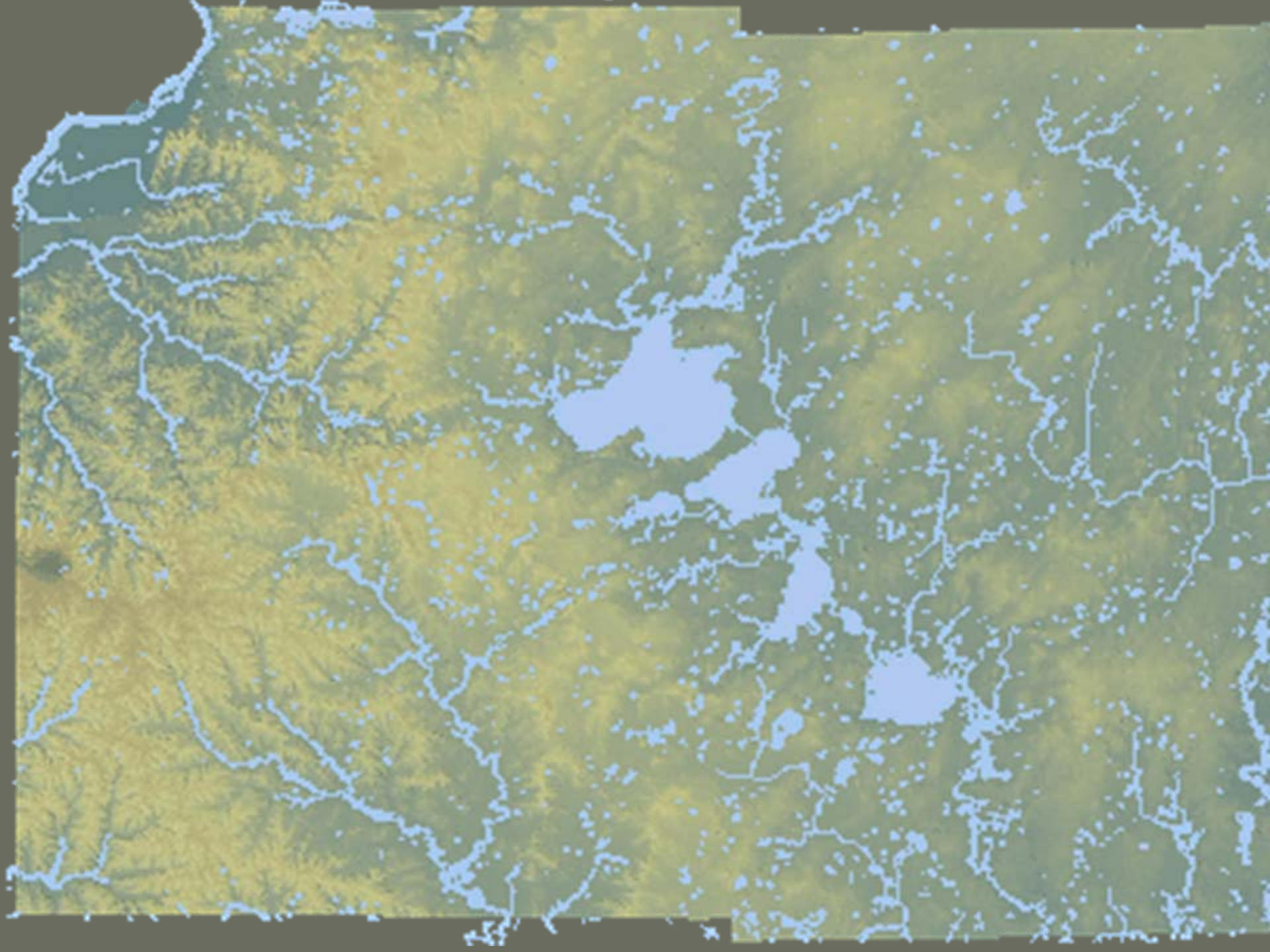
Aesthetics Vs. Function

Public Spaces

Sustainable communities preserve natural environments by*:*

• preserving working landscapes and natural systems within and surrounding metropolitan regions, and

•building and urban design that integrates nature into urban communities.

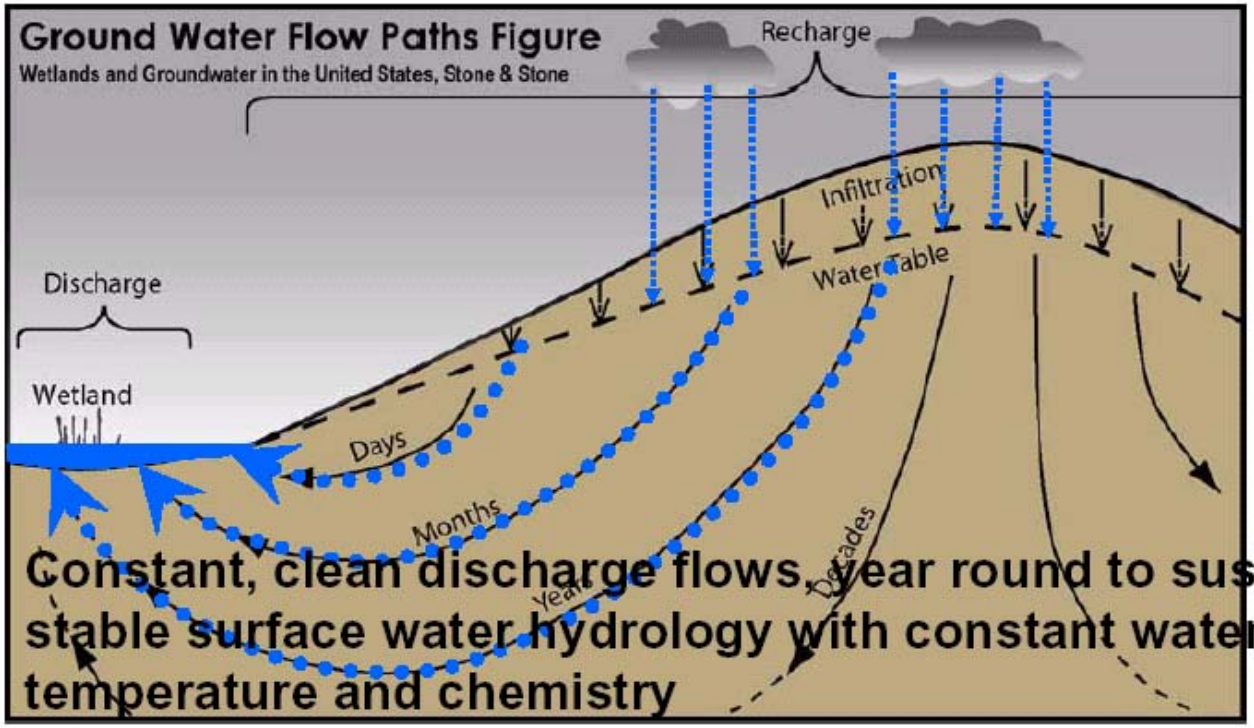


Protecting Water Systems

Historical Patterns of Hydrology

Recharge Zone: Uplands

Discharge Zones: Lowlands- rivers, streams, ponds, wetlands



Constant, clean discharge flows, year round to sustain stable surface water hydrology with constant water temperature and chemistry

Source: Jim Patchett

Water in Contemporary Urban, Suburban & Rural Environments

Traditional Stormwater Management Approach:

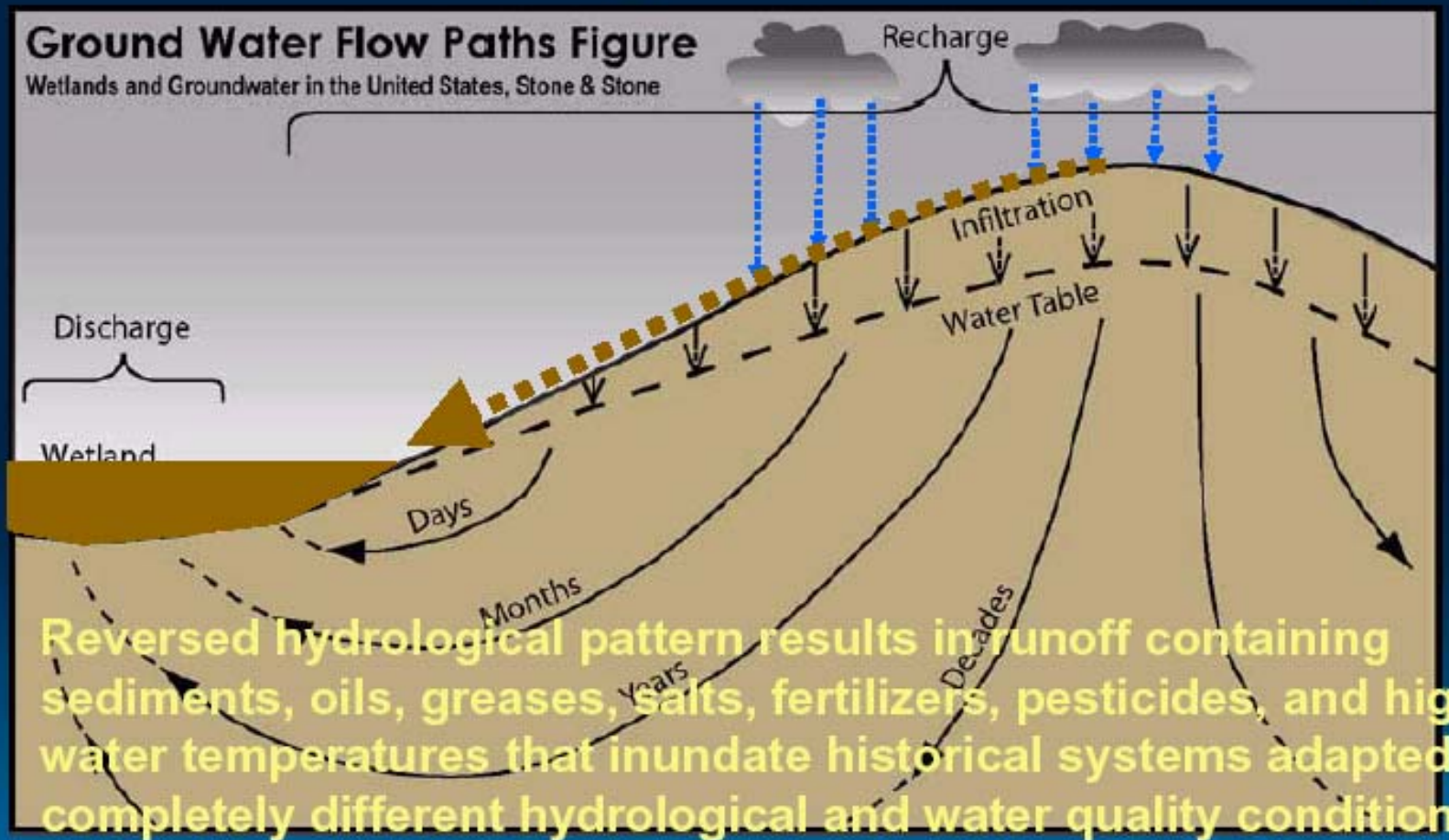
Collect and convey water away from the site just as quickly and efficiently as the law will allow through enclosed storm sewer systems designed with concentrated points of discharge that generate a velocity and volume of flow that is nearly impossible to mitigate.

Source: Jim Patchett

Contemporary Hydrology

Upland becomes discharge zone

Natural wetlands are expected to function as recharge zones



Reversed hydrological pattern results in runoff containing sediments, oils, greases, salts, fertilizers, pesticides, and higher water temperatures that inundate historical systems adapted to completely different hydrological and water quality conditions

Sustainable water resource management: decentralized system design

- Capture rainfall
- Diffuse flow
- Cleanse
- Absorb on-site

Restore historically stable patterns of infiltration and groundwater-dominated hydrology

Rain Gardens

Green Roofs

Green Streets

Stormwater Street

Boulevard with Swale and Trees

FARR ASSOCIATES
Architecture | Planning | Preservation

What can Neighborhood Groups Do?

People can create Sustainable communities when they:

•understand community design principles and how to apply them to their community; and

•participate in developing the community's vision and goals for their future, and the design objectives to implement the vision and goals.

Develop a Shared Vision

Who should participate?

Visioning

- Broad participation
- Broad open-ended questions
- Small group & large group
- Get at core values and goals
- Open discussion
- FUN AND FOOD
- High degree of outreach needed

Who should participate?

- [list]

How to Recruit Under-Represented?

- Six degrees of separation – find someone who knows someone, they become an ambassador to the under-represented community
- Satellite conversations
- Rotating the location of the meetings
- Go to where the groups congregate
- Talk Back – Podium that allows people to say what they want to say
- Easier when the owners and tenants are more mixed (owner-occupants)
- Support group model
- Tap into existing groups where the community is tied into

How to Recruit Under-Represented?

- Go to people's houses
- Be aware of other cultural difference for participation
- Recruit people from under-represented groups to recruit
- Kids – go to schools, clubs, social workers
- Older kids reach through clubs
- Going to where people are already congregating
- Bring in food
- Who actually lives in the neighborhood? (beware of assumptions)

Translate the Vision into Designs

Basic understanding of Urban Design

It’s not rocket science

Design

- Ground in market reality
- Avoid “Christmas lists”
- Visually oriented
- Quick feedback loops of input to designs

Use the Designs to Guide Development

Minneapolis Corridor Housing Initiative - South Lyndale Neighborhood

Site One: 5516 Lyndale Avenue S.

Workshop photos
October 26, 2004

Development options

Option 1

Option 2

Option 3

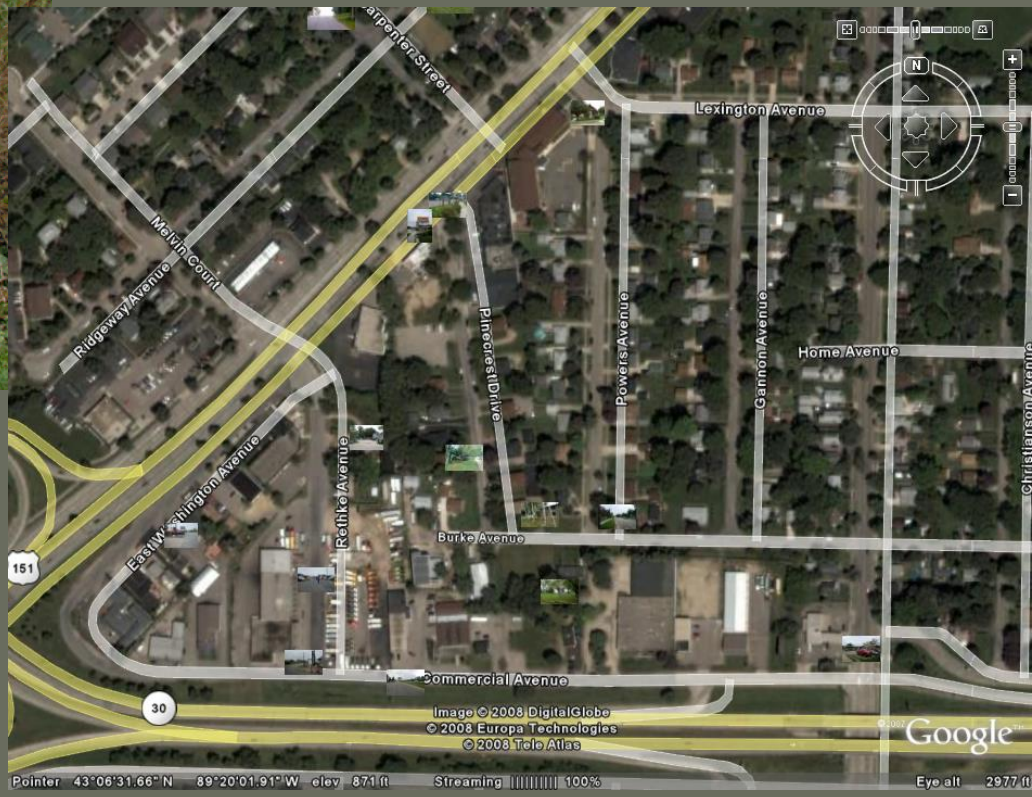
Neighborhood

Follow-through

Policy

- Written guidelines
- Incorporate into neighborhood plan
- Share widely
- Review often
- Use to meet with developers
- Inform elected and city officials

Carpenter-Ridgeway Project




EVERGUARD
IT'S LEATHER
CATALOG
OUTLET
OPEN
U R E

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