PlanIt

How to Address Climate Vulnerability in your Community

October 26, 2017

Mississippi Watershed Management Organization

METROPOLITAN COUNCIL

Today's Event

Framing

Moving Collaborative Planning Forward – Dan Milz from UMN

Climate Counseling – with help from UST

* Short Break*

Lightning Presentations – Freshwater & GPI

Strategy Development

Wrap Up

Tour

Why should we assess climate vulnerability?

Climate change is a ‘slow drip’ problem which requires long-range planning

Climate hazards are typically chronic stresses rather than disasters

What gets measured, gets managed

We are as ready as our most vulnerable asset – be it people, environment, or infrastructure

$300 billion in the past few weeks

Be like Jim

You won't ever have the right tools

Be Bold

Tools matter, but stories matter more

IMAGE SOURCE: University of Oregon, 2012

PlanIt

Sustainability

Maintain & Enhance Quality of Life

Mitigation

Vulnerabilities

Social –Environmental – Infrastructure

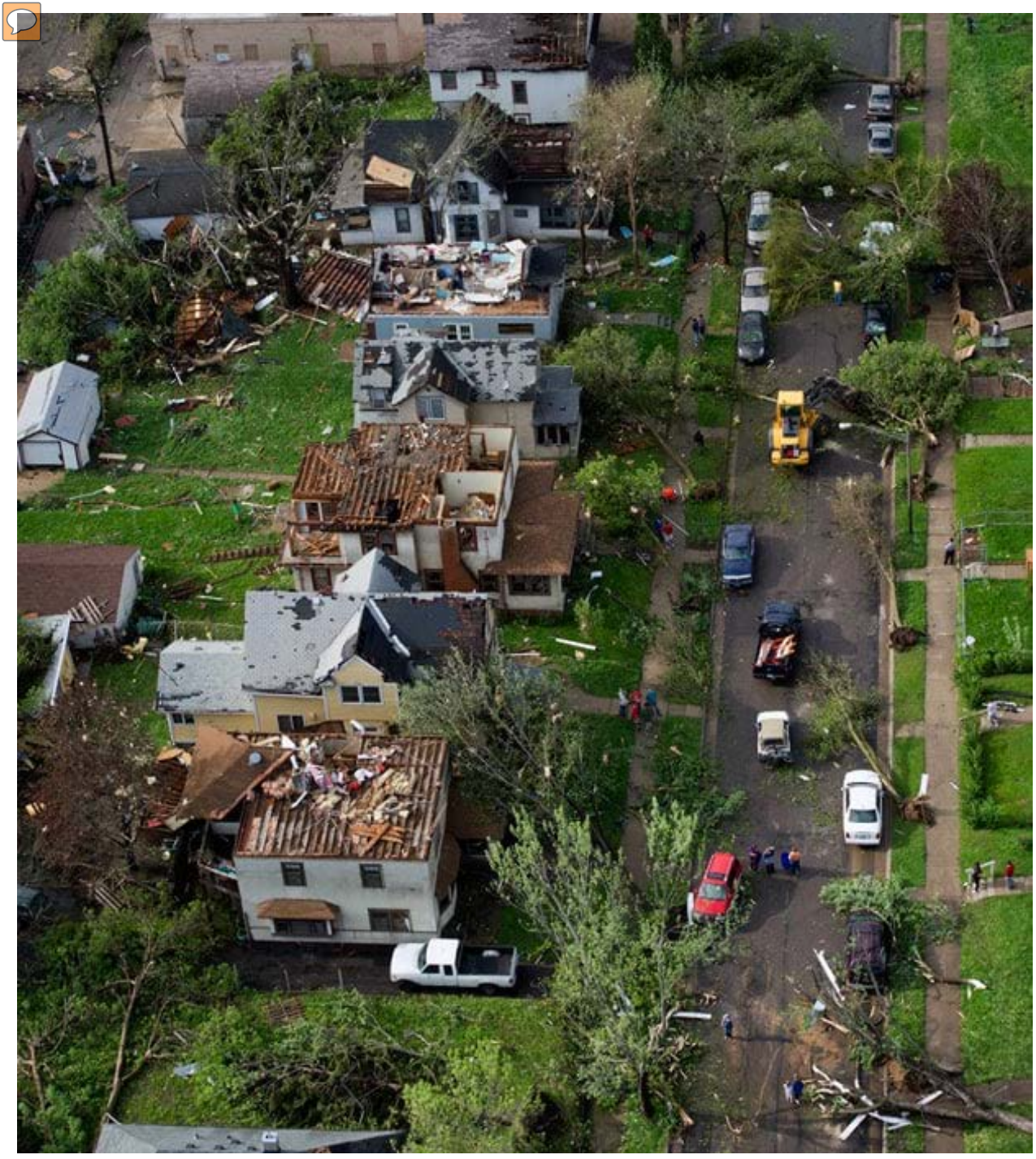
Adaptation

Reduce impacts/ Maintain current conditions

Resilience

Forward-looking/ Promote change

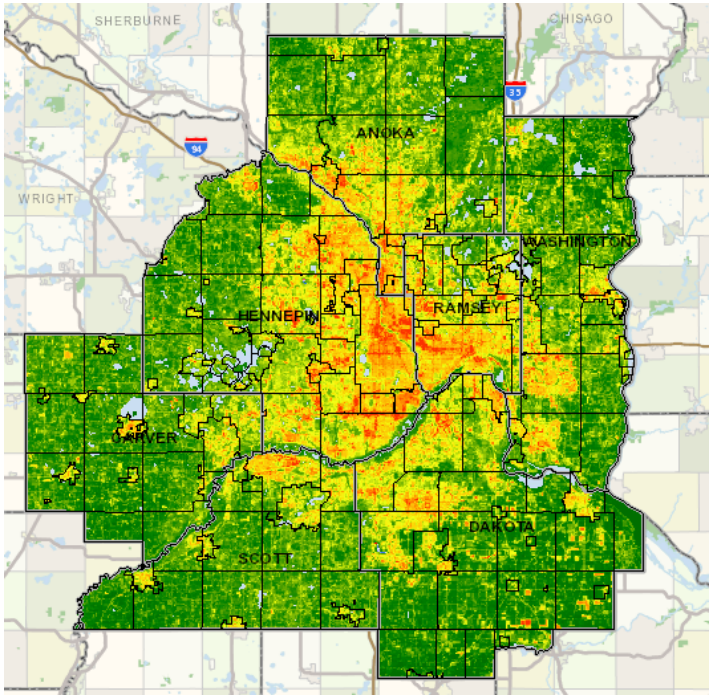
METROPOLITAN COUNCIL



"Resilience is all about being able to overcome the unexpected. Sustainability is about survival. The goal of resilience is to thrive."

- Jamais Cascio

IMAGE SOURCE: STAR TRIBUNE, DAVID BREWSTER, 2012



Extreme Heat & Localized Flooding

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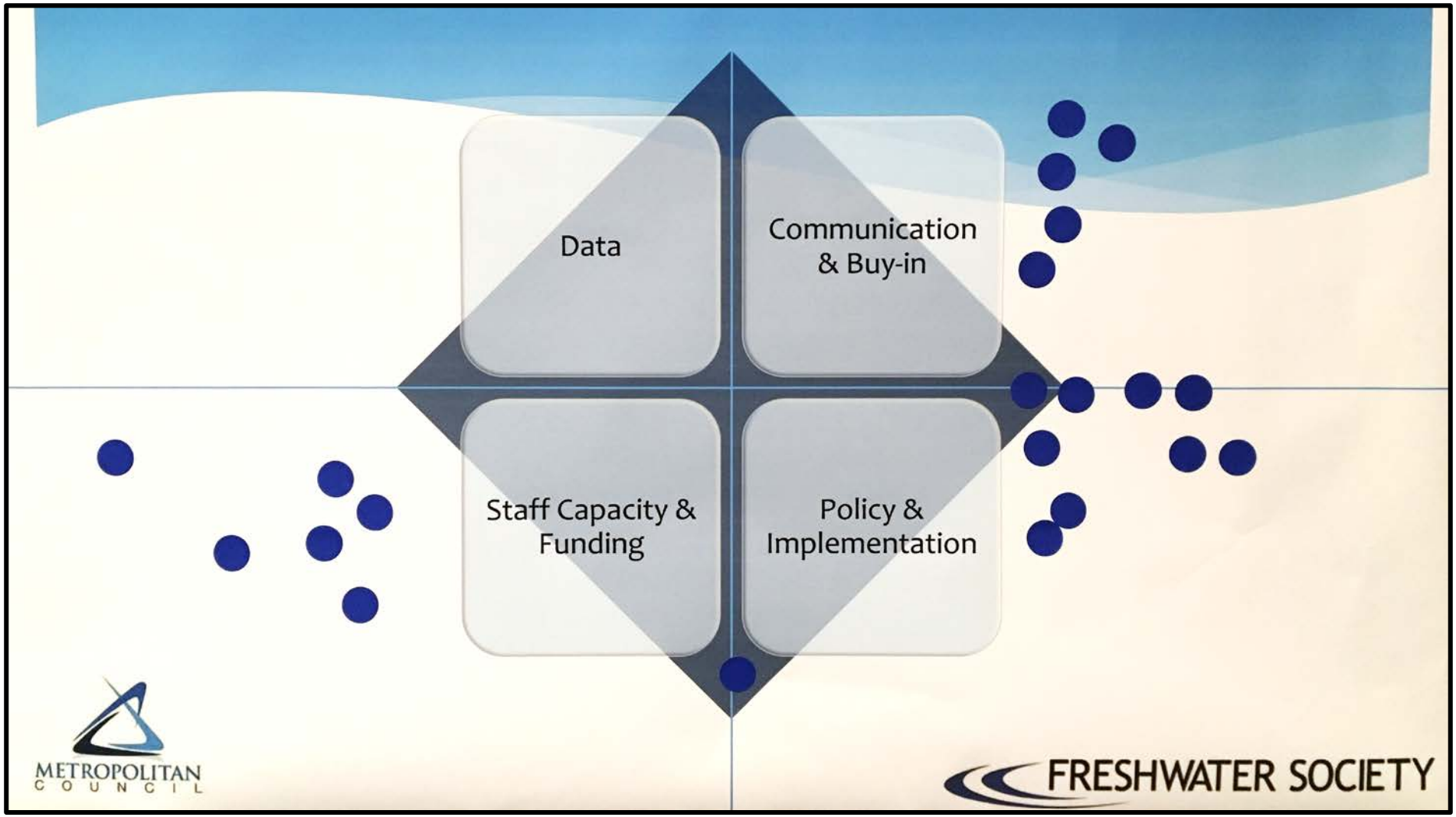
What are the challenges?



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MOVING COLLABORATIVE PLANNING FORWARD

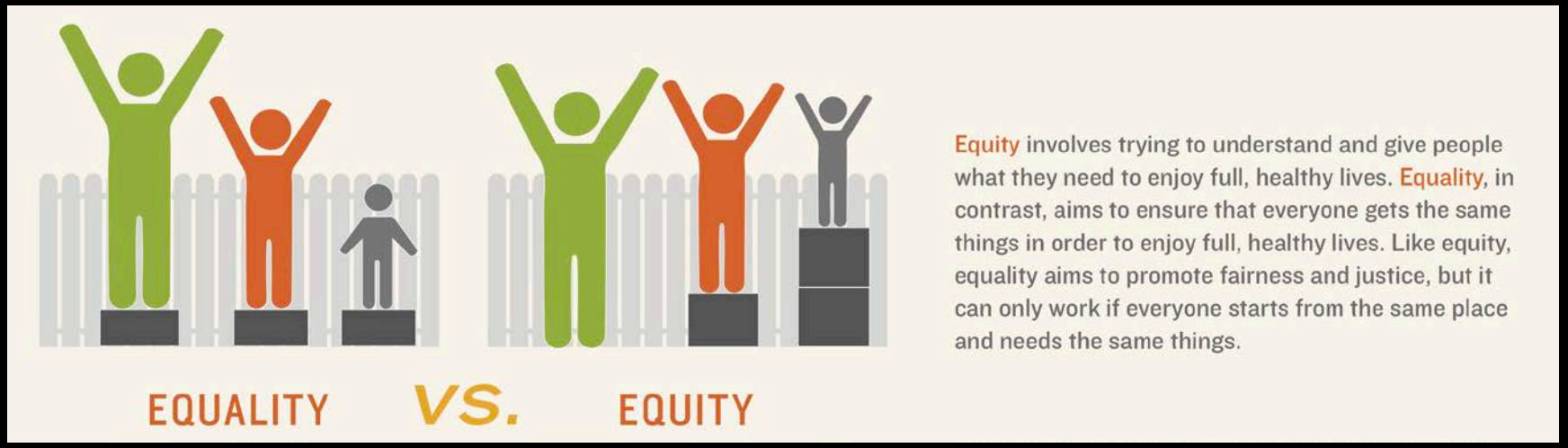
Dan Milz, PhD
Visiting Assistant Professor
Environmental Planning & Civic Engagement

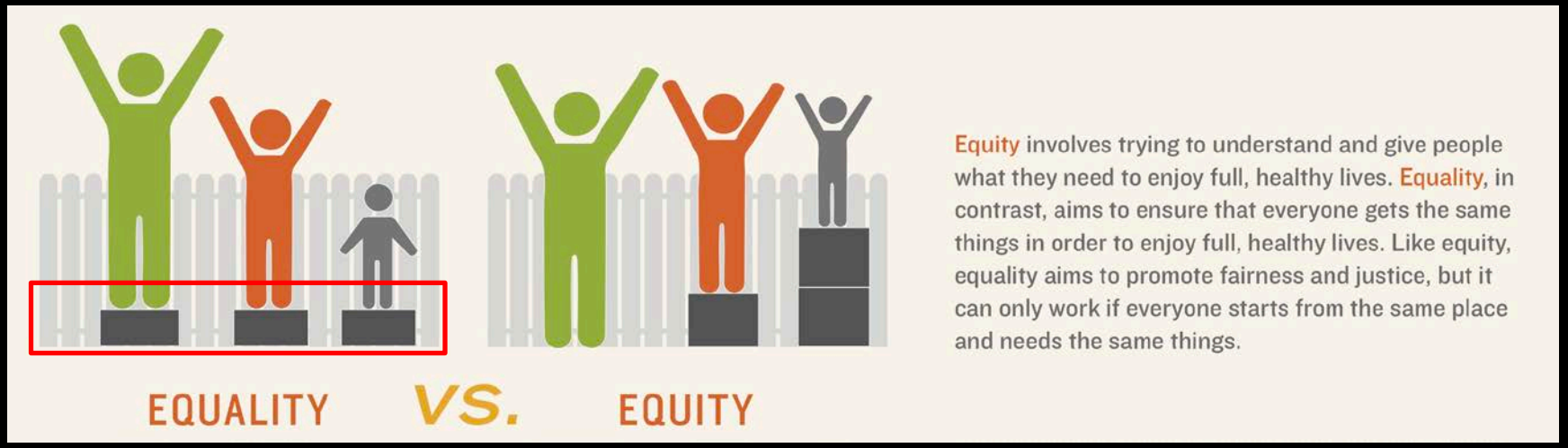
October 26, 2017
Mississippi Watershed Management Organization Office

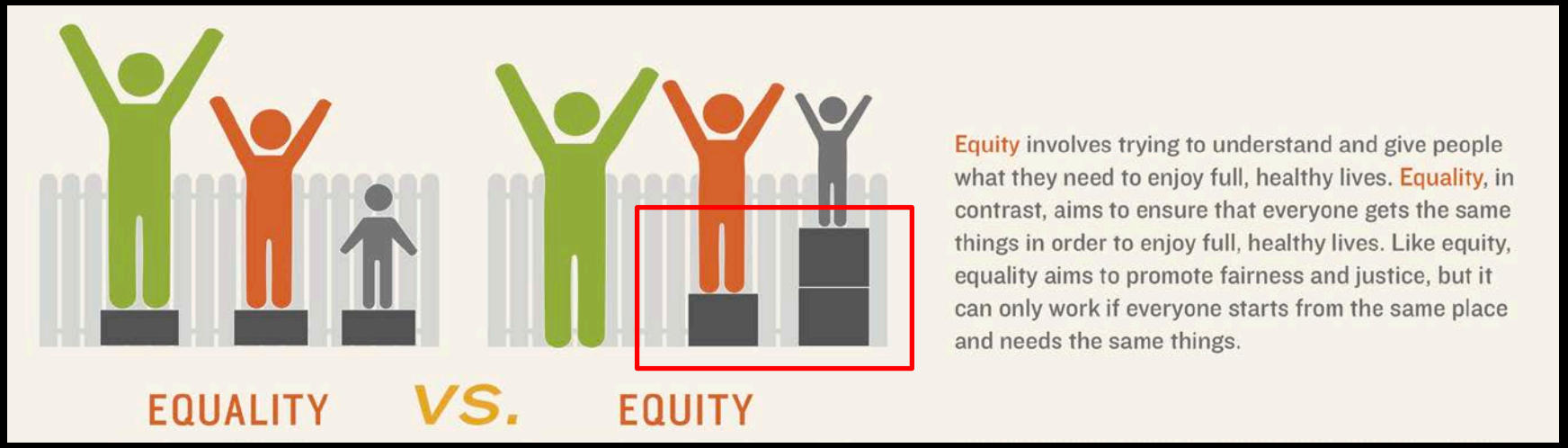
HUMPHREY SCHOOL OF PUBLIC AFFAIRS
UNIVERSITY OF MINNESOTA

Environmental Justice

- Equity





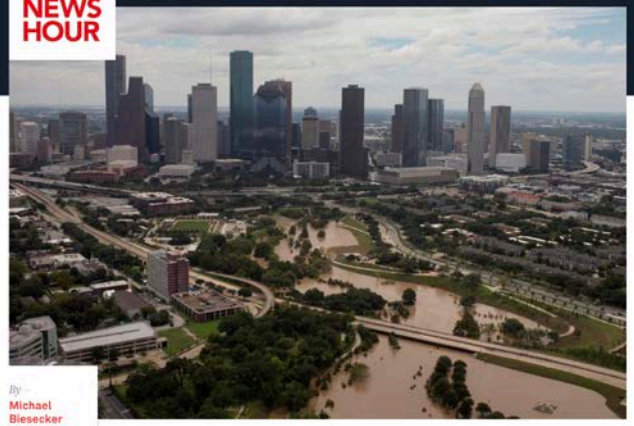


Environmental Justice

- Equity
- Recognition

PBS NEWS HOUR

Menu



Left: The Houston skyline is seen in the background as Buffalo Bayou is seen flooded from Tropical Storm Harvey in Texas on Aug. 30, 2017. Photo by /Adrees Latif/Reuters

Go Deeper

donald trump
hurricane harvey
louisiana
superfund sites
texas

By
Michael Biesecker and Jason Dearen, Associated Press

0 comments

Share

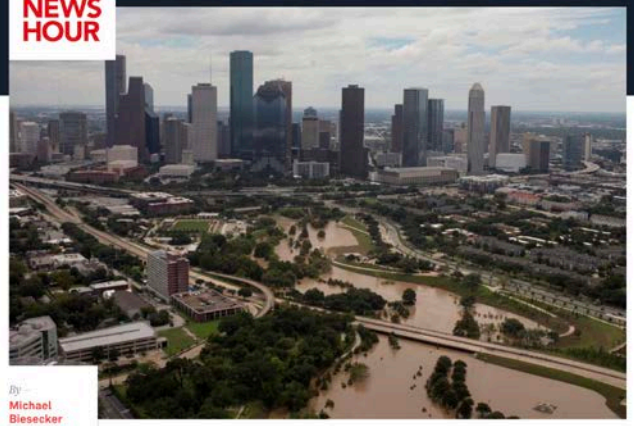
AP Exclusive: Toxic waste sites flooded in Houston area

Nation Sep 3, 2017 10:26 AM EDT

HIGHLANDS, Texas — As Dwight Chandler sipped beer and swept out the thick muck caked inside his devastated home, he worried whether Harvey's floodwaters had also washed in pollution from the old acid pit just a couple blocks away.

PBS NEWS HOUR

Menu



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Left: The H... seen in the... Buffalo Bay... flooded fro... Harvey in T... 2017. Photo... Latif/Reute...

Go Deeper

donald t...

hurrican...

louisian...

superfun...

texas

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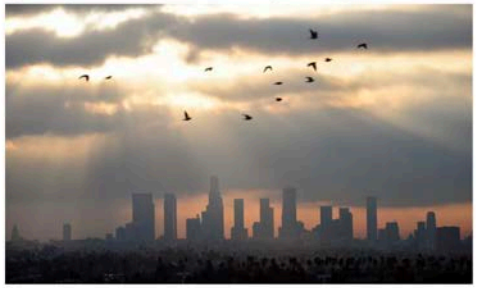
US people of color still more likely to be exposed to pollution than white people

New federal government-funded study finds exposure to a key air pollutant is significantly influenced by race, far more than by income, age or education



The smoggy, downtown Los Angeles skyline on 14 December 2011. Photograph: Frederic J Brown/AFP/Getty Images

This article is 1 month old

Oliver Milman

Thursday 14 September 2017 14.01 EDT

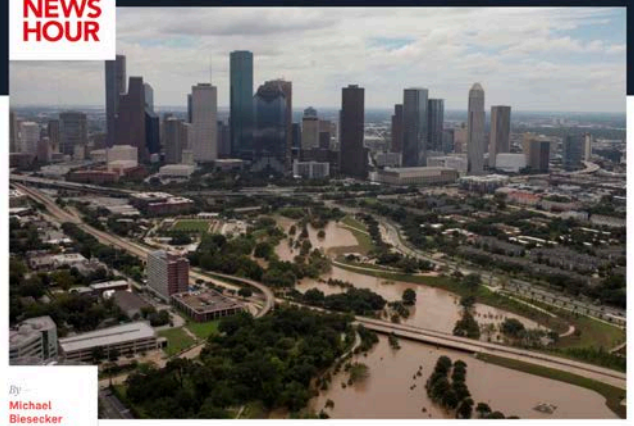
People of color are still far more likely to suffer from harmful air pollution than white people across the US and this disparity has barely improved in recent years, despite overall improvements in air quality, a new federal government-funded study has found.

More on this topic: London's black communities

Exposure to nitrogen dioxide, NO_2, a key transportation-related pollutant, is significantly influenced by race, far more than by income, age or

PBS NEWS HOUR

Menu



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0 comments

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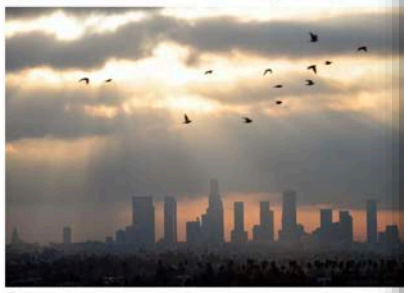

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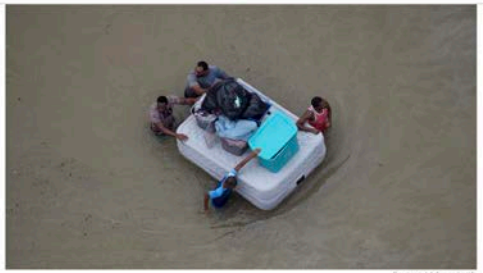
grist

BRIEFLY GRIST 50 SECTIONS NEWSLETTERS DONATE MORE



Reuters / Adrees Latif

CLIMATE DESK

After Harvey and Irma, people of color face displacement

By Brentin Mock on Sep 14, 2017

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This story was originally published by CityLab and is reproduced here as part of the Climate Desk collaboration.

Hilton Kelley has been sounding off on Facebook Live the past few days about families who evacuated their homes to escape Hurricane Harvey and are now getting eviction notices. The families live in Port Arthur, Texas, the small Gulf Coast city about 90 miles east of Houston, but are currently scattered across Louisiana and Texas. Kelley himself had to evacuate — his fourth time doing so in the last 15 years due to hurricane flooding — but was able to make it back to his home last week. He's now trying to locate as many dispersed families as possible via social media to find out who hasn't come back and why. That's when he found out about the eviction notices.

Those kinds of blindsiding evictions are a rootshock that many renter families in New Orleans know too well, as the same happened for Hurricane Katrina. Plenty of New Orleanians didn't even get a notice — instead they found out via TV that they would not be able to return to their homes. This certainly was true for

Environmental Justice

- Equity
- Recognition
- Inclusion & Due Process

Collaborative Planning

- Novelty

Collaborative Planning

- Novelty
- Saturation

Collaborative Planning

- Novelty
- Saturation
- Democratic pessimism

Collaborative Planning

- Novelty
- Saturation
- Democratic pessimism
- Elusive outcomes

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- Cost
- Time

Collaborative Planning

- Novelty
- Saturation
- Democratic pessimism
- Elusive outcomes
- Cost
- Time
- Habit

The Next Step

- Shift in focus

A little background might be helpful. is on the rise! As our city grows and prospers, in order to meet the challenges ahead, it's time to develop a Strategic Plan that will articulate values, vision, mission, priorities, and goals. The best way to shape a better future is not only to plan for where we want to be, but also to decide the best way to get "there." Such plans have been successfully developed and implemented all over the state and nation.

SPSC's purpose is to develop a process and timetable for developing Strategic Plan. So far, we have developed a set of values that will underpin the work an eventual Planning Team will do, and we have decided that gathering community input about these values should be our first step. Your advice about how to gather this data would be most helpful.

The **values** are the following.

- Diverse and Livable Community
- Cultural, Recreational, and Economic Vitality
- Individual and Community Well-Being
- Sustainable, Resilient Natural and Built Environment
- Engaged and Effective Government

During the May 1st focus group, participants will be asked,

- When you think about _____ (a value), what are greatest strengths, weaknesses, and challenges?
- Relative to each value, who are the community organizations and local leaders to whom we should reach out?
- What tools (surveys, focus groups, events, etc.) should be used to gather input from these groups?

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The Next Step

- Shift in focus
- Include and empower

SB 1000

Implementation Toolkit

Planning for Healthy Communities

CALIFORNIA ENVIRONMENTAL JUSTICE ALLIANCE

PLACEWORKS

Figure 4-1 / **IAP2 Public Participation Spectrum**

Increasing Level of Public Impact

Inform	Consult	Involve	Collaborate	Empower
Public Participation Goal	**Public Participation Goal**	**Public Participation Goal**	**Public Participation Goal**	**Public Participation Goal**
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives, and/or solutions.	To obtain public feedback on analysis, alternatives, and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
Promise to the Public	**Promise to the Public**	**Promise to the Public**	**Promise to the Public**	**Promise to the Public**
We will keep you informed.	We will keep you informed, listen to, and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to you for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
Example Tools	**Example Tools**	**Example Tools**	**Example Tools**	**Example Tools**
◤ Fact sheets ◤ Websites ◤ Open houses	◤ Public comment ◤ Focus groups ◤ Surveys ◤ Public meetings	◤ Workshops ◤ Deliberate polling	◤ Citizen Advisory Committee ◤ Consensus-building ◤ Paricipatory decision-making	◤ Citizen juries ◤ Ballots ◤ Delegated decisions

Source: International Association of Public Participation

Figure 4-1 / **IAP2 Public Participation Spectrum**

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Source: International Association of Public Participation

Carrier 6:50 PM 100%

Sort the items based on how important they are to you

- Investment
- Damage Reduction
- Efficiency of Intervention ($/Gallon)
- Capacity Used
- Water Depth Over Time
- rea
- on
- ors

Investment: Cost to install and maintain new green infrastructure on both city and private property.

Damage Reduction: The amount of damages reduced by the investment.

Efficiency of Intervention: ($/Gallon) The amount of money spent per gallon of rainwater stored or infiltrated by green infrastructure installations.

Capacity Used: The amount of intervention capacity used

Water Depth Over Time: The amount of rainwater in the streets and on property over the course of the entire storm.

Groundwater Infiltration: The percentage of rainwater that is

Your Survey Guidebook Simulation Results

Carrier 11:31 AM 100%

Simulation Results Sorted By Your Priorities

Map and Score	Intervention Efficiency	Puddle Depth Viewer	Private Cost
Trial 1 Score: 27 / 100 Broken down by source:	Rain Barrels Swales Perm. Pavers Green Roofs		Installation Cost: $0 Rain Damage: $88,276 Maintenance Cost: $0
Trial 2 Score: 30 / 100 Broken down by source:	Rain Barrels Swales Perm. Pavers Green Roofs		Installation Cost: $247,216 Rain Damage: $55,162 Maintenance Cost: $6,988
Trial 3 Score: 30 / 100 Broken down by source:	Rain Barrels Swales Perm. Pavers Green Roofs		Installation Cost: $247,216 Rain Damage: $37,978 Maintenance Cost: $6,988

Each color in the score breakdown is linked to an outcome measure to the right of it
Explore how the puddle depth and intervention capacity change over time
Unacceptable Flooding Depth 5.3" 0" 24"
Hours after storm 2 hours 0 48
Load Next Trial
You can revise your profile be returning to the "Your Survey" tab below

Your Survey Guidebook Simulation Results

The Next Step

- Shift in focus
- Include and empower
- Unearth interests

Tricia:
…the option of taking my town's effluent **and sending it or my town's sewage and sending it to your town**…is the some of the economics of regional solutions and cross-town transport.

Brady:
Where are you gonna dump the effluent?

Tricia
…are you going to build a treatment plant for y
you gonna take advantage of a treatment **plant else**?

Brady:
What are you gonna do with the effluent ((poir
and re-crosses arms))?

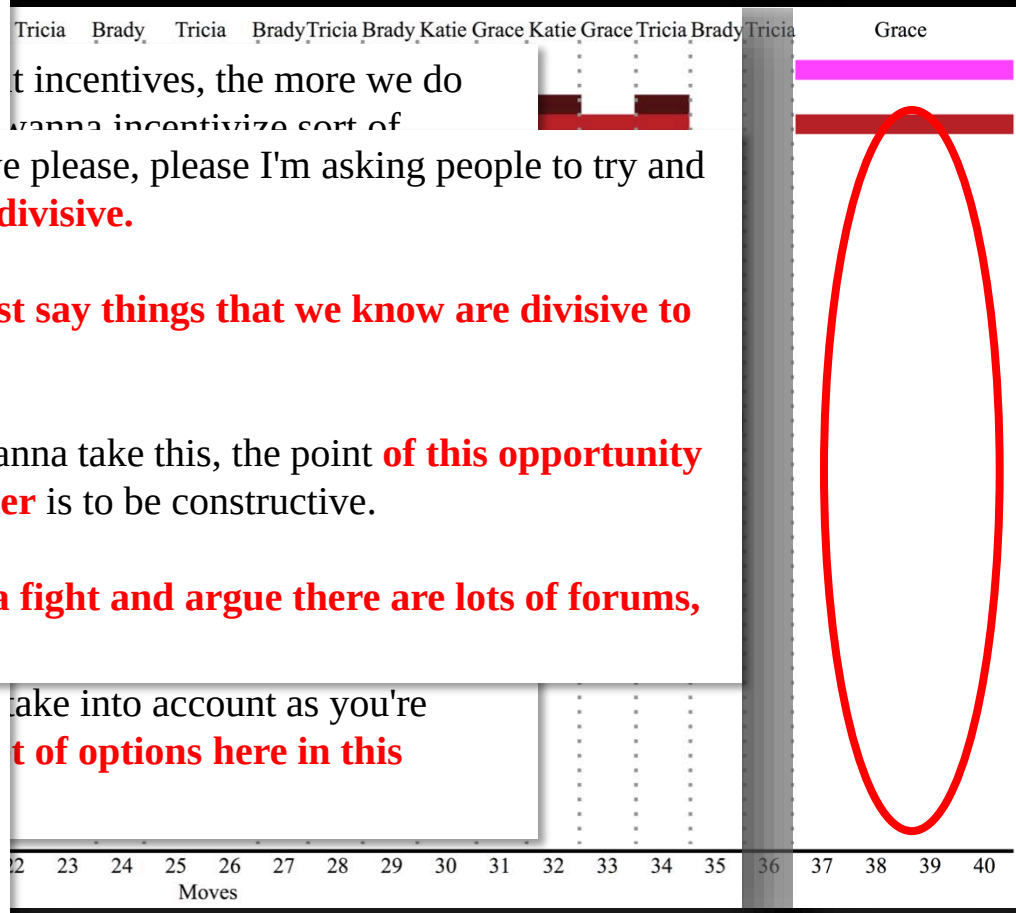
Tricia:
Actually I'm sending it to **the other town...**

Brady:
…I know…

Grace (Facil):
…sort of thinking about the inter-municipal opportunities and **tradeoffs.**

Tricia:
Yah and actually in truth **the inter-municipal opportunities** exist for a number of the technologies…

Brady:
{We're not gonna} be willing to **sacrifice our watershed.**

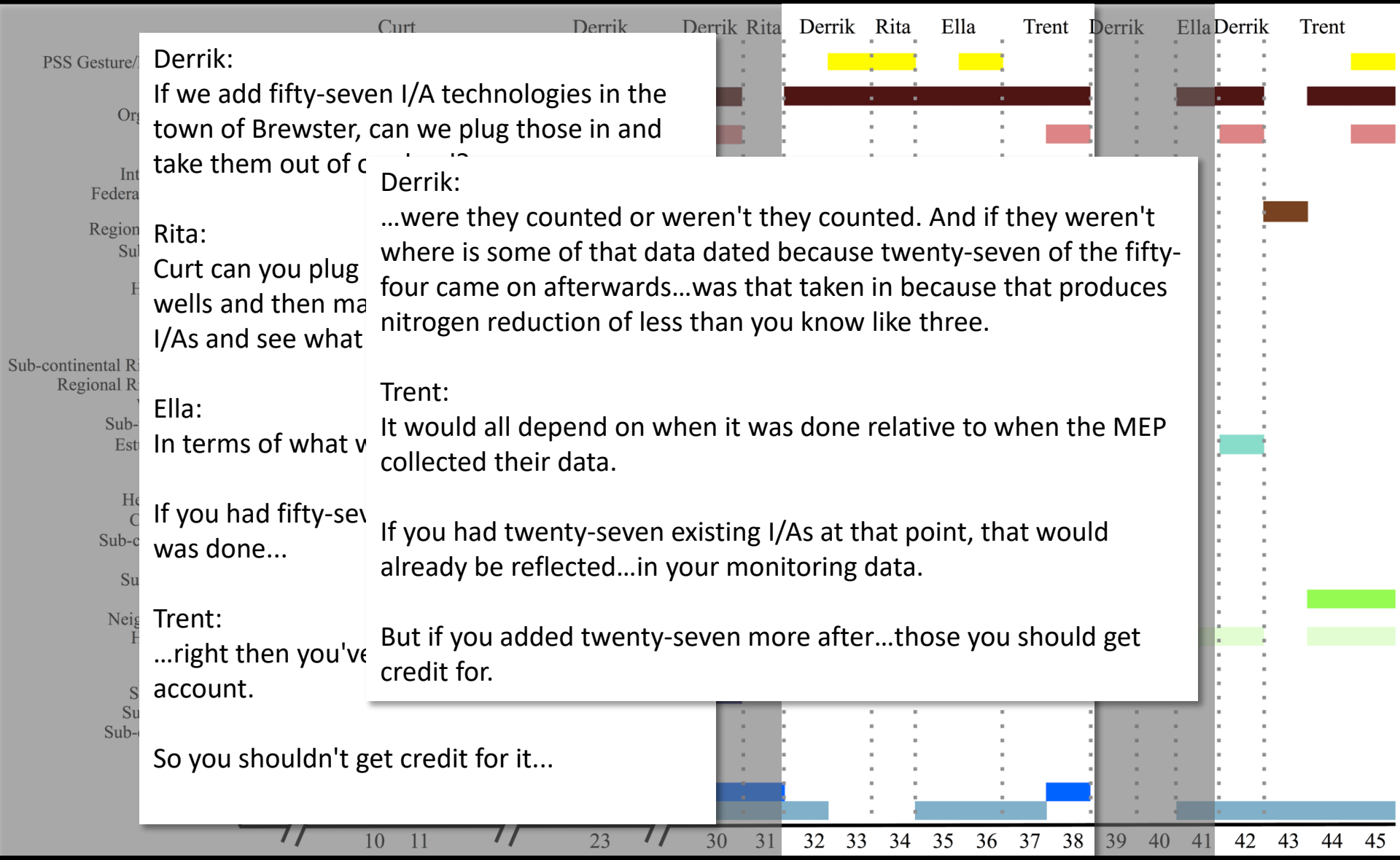


Again can we please, please I'm asking people to try and **let's not be divisive.**

Let's not just say things that we know are divisive to be divisive.

We really wanna take this, the point **of this opportunity to be together** is to be constructive.

If we wanna fight and argue there are lots of forums, right



Derrik:
If we add fifty-seven I/A technologies in the town of Brewster, can we plug those in and take them out of c

Rita:
Curt can you plug
wells and then ma
I/As and see what

Ella:
In terms of what v

If you had fifty-sev
was done...

Trent:
...right then you've
account.

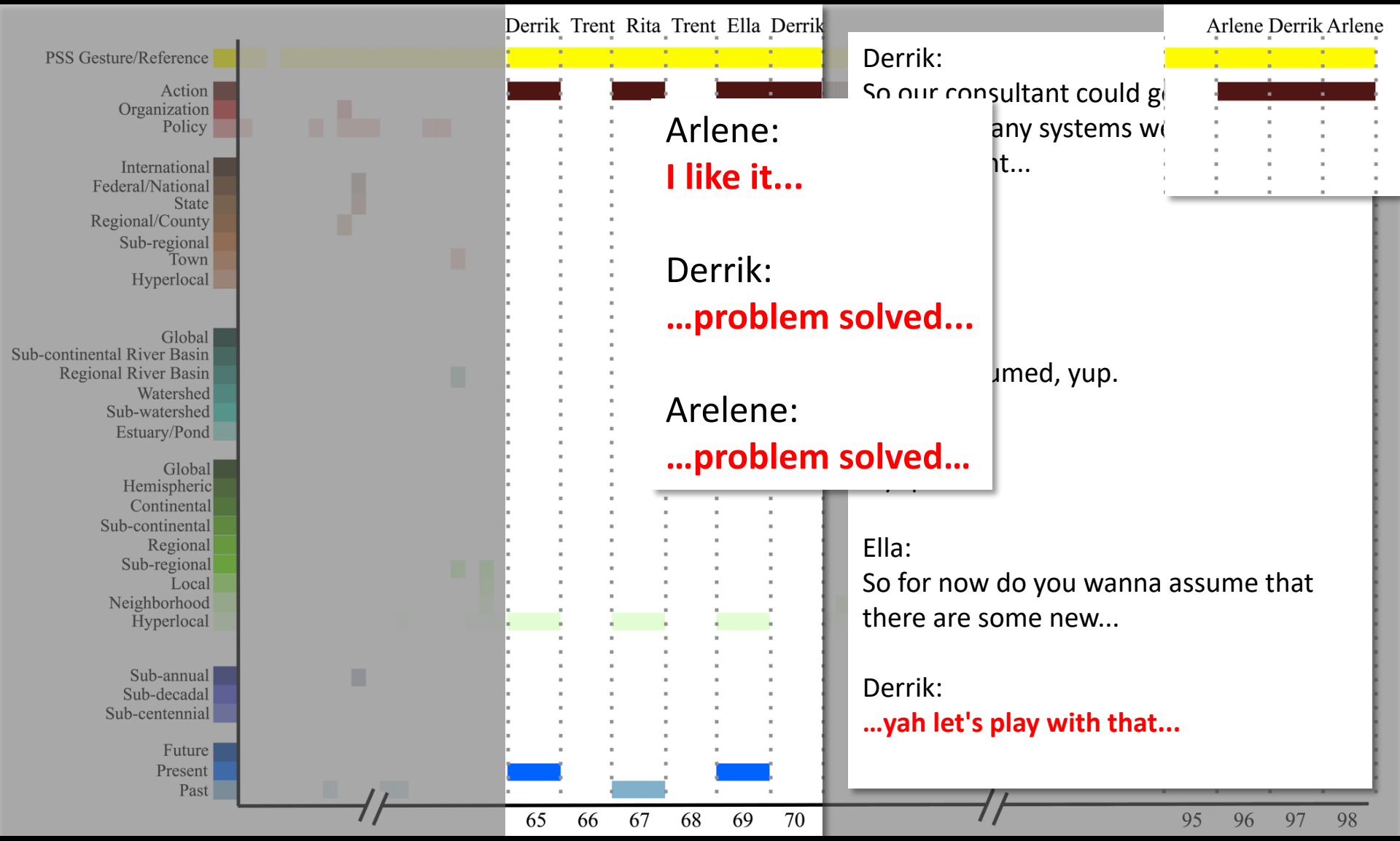
So you shouldn't get credit for it...

Derrik:
...were they counted or weren't they counted. And if they weren't where is some of that data dated because twenty-seven of the fifty-four came on afterwards...was that taken in because that produces nitrogen reduction of less than you know like three.

Trent:
It would all depend on when it was done relative to when the MEP collected their data.

If you had twenty-seven existing I/As at that point, that would already be reflected...in your monitoring data.

But if you added twenty-seven more after...those you should get credit for.


PSS Gesture/Reference
Action
Organization
Policy
International
Federal/National
State
Regional/County
Sub-regional
Town
Hyperlocal
Global
Sub-continental River Basin
Regional River Basin
Watershed
Sub-watershed
Estuary/Pond
Global
Hemispheric
Continental
Sub-continental
Regional
Sub-regional
Local
Neighborhood
Hyperlocal
Sub-annual
Sub-decadal
Sub-centennial
Future
Present
Past
Derrik Trent Rita Trent Ella Derrik
65 66 67 68 69 70
Arlene Derrik Arlene
95 96 97 98
Arlene:
I like it...
Derrik:
...problem solved...
Arelene:
...problem solved...
Derrik:
So our consultant could g
any systems w
t...
umed, yup.
Ella:
So for now do you wanna assume that there are some new...
Derrik:
...yah let's play with that...

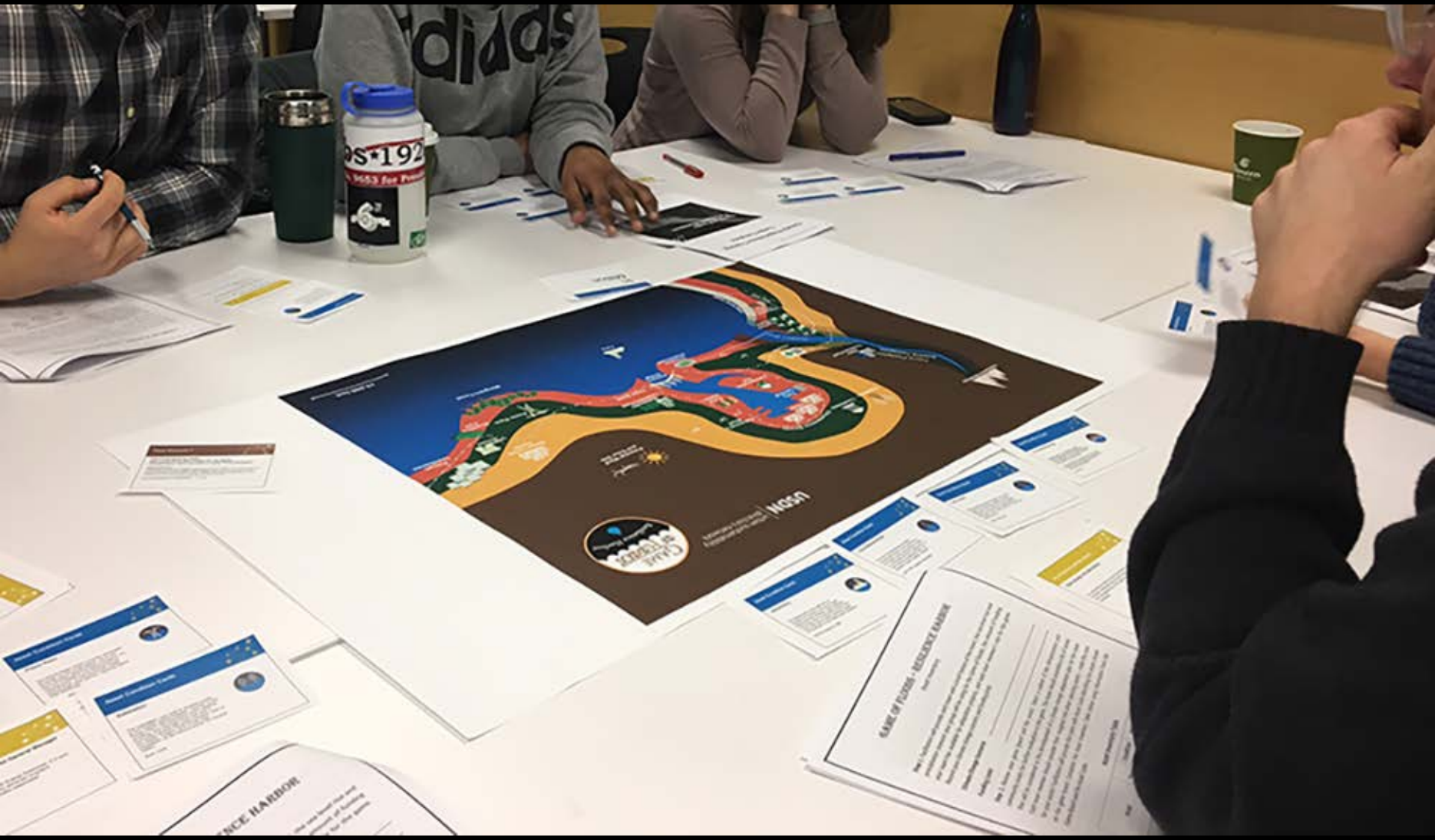
Persistent Challenges

- Blind spots


© Saša Rajkov

Persistent Challenges

- Blind spots
- Empathy Gaps



Persistent Challenges

- Blind spots
- Empathy Gaps
- Risk and Liability

"*Tactical Urbanism* demonstrates the huge power of thinking small about our cities. It shows how, with a little imagination and the resources at hand, cities can unlock the full potential of their streets."

—Janette Sadik-Khan

TACTICAL URBANISM

Short-term Action for Long-term Change

MIKE LYDON & ANTHONY GARCIA

FOREWORD BY ANDRÉS DUANY

Discussion Questions

- Is there a future for collaborative planning and decision-making?

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- How can it address the third component of environmental justice?

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- How can it address the third component of environmental justice?
- What role do planners play in shaping collaborative processes?
- Do we have too much power?
- How do we make the transition to the next phase of collaborative planning?

Dan Milz
Visiting Assistant Professor
Environmental Planning & Civic Engagement
Humphrey School of Public Affairs
University of Minnesota

e:dmilz@umn.edu
t: @dcmilz

Climate Counseling

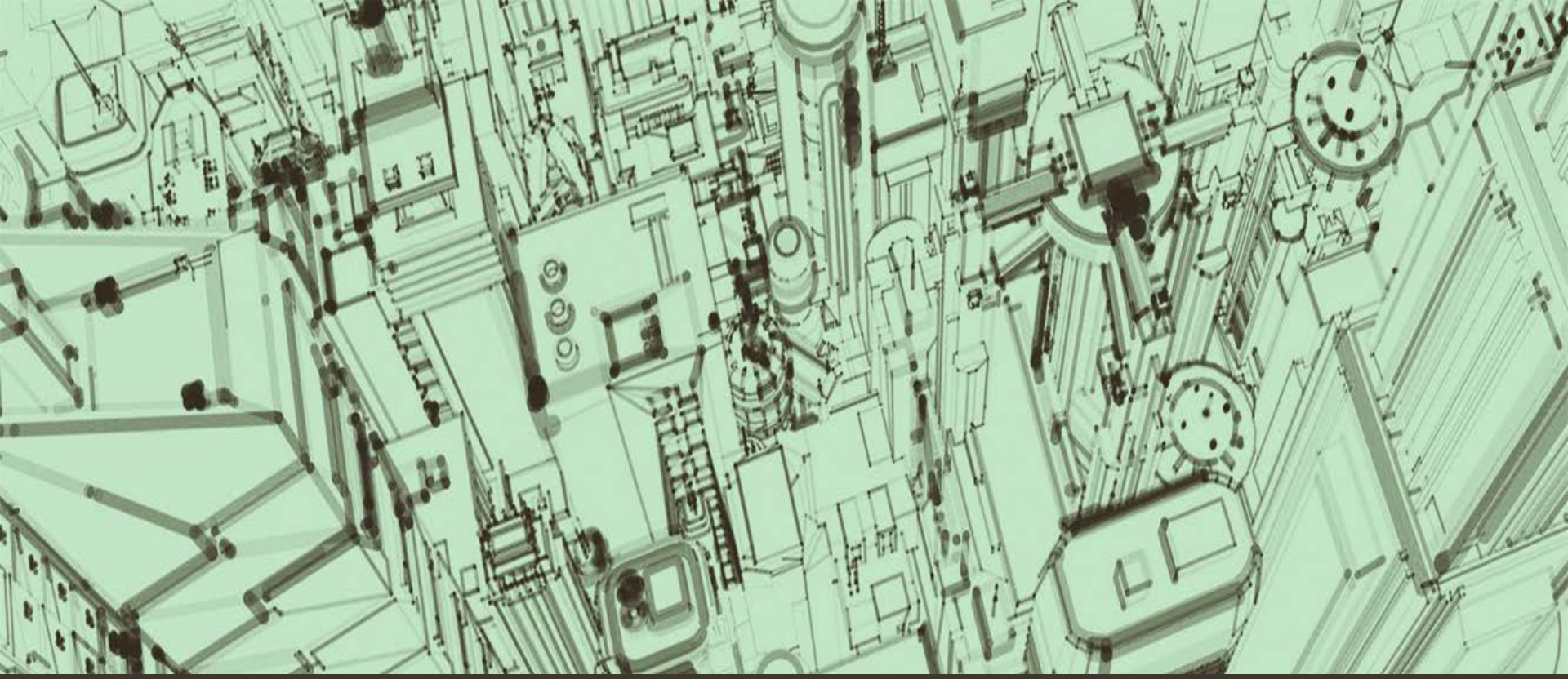
- Cities pair with Cities or Counties
- St Thomas Students to record (12.5min x 2)
  - Redacted
  - Shared resource
  - Feel free to move around
- Report out (10min)
  - Sets agenda for later Strategy Development

Climate Counseling

What is the biggest challenge for you in doing climate vulnerability work?

How would your partner address that problem?

Break
5 min

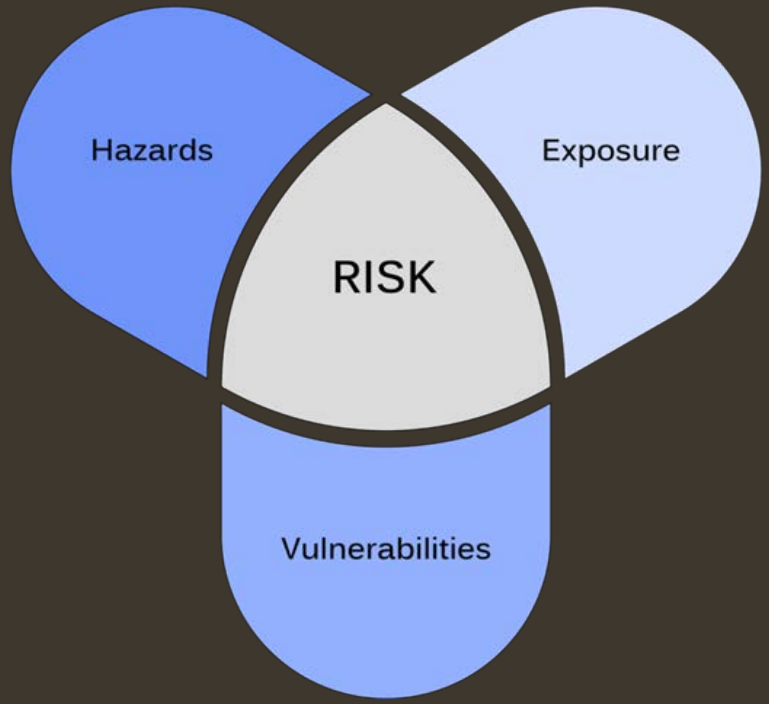


Climate Resilience Planning at Multiple Scales

Leslie Yetka and Jen Kader - Freshwater Society

Resilience Building as Risk Management

- Building resilience is about managing risk
- Can't control:
  - Hazards
  - Exposure
- Can address:
  - Vulnerabilities
  - Strengths

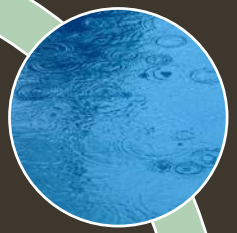


Resilience Workshops – Jan/Feb 2017

Community Participants

- ✓ Bloomington
- ✓ Edina
- ✓ Hopkins
- ✓ Riley Purgatory Bluff Creek Watershed District

Participatory Planning



1. Identify Climate Hazards

2. Determine Vulnerabilities and Strengths

3. Prioritize Community Actions

Intense Rain

Extreme Heat

Severe Storms/Wind

Warming Lows

Create a Community Climate Hazard Profile

Four top hazards identified by each community

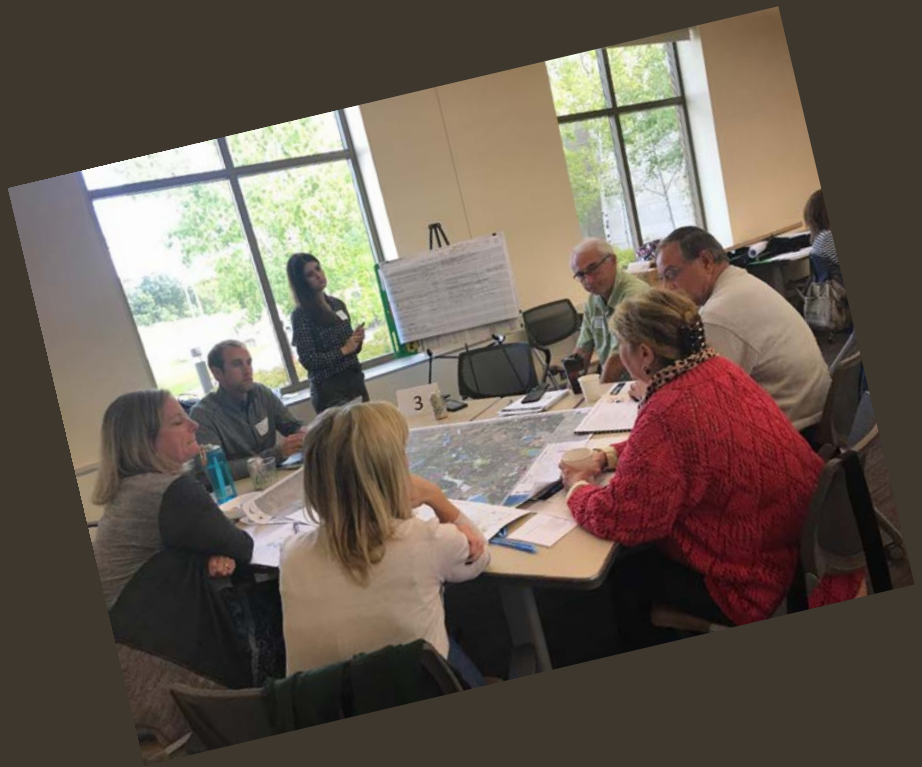
Planning Across Community Sectors

Infrastructure

Natural Resources

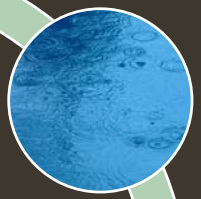
Societal

Participatory Mapping



Remember

Participatory Planning



1. Identify Climate Hazards

2. Determine Vulnerabilities and Strengths

3. Prioritize Community Actions

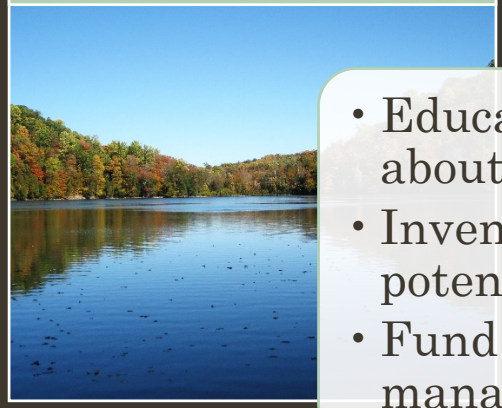
Build the buy-in, legitimacy, and relationships necessary to bring the actions to life.

Community-Specific Strategies to Address Systems at Risk

Infrastructure

- Create energy plan
- Address flooding in prone areas
- Increase durability of roadways

Natural Resources



- Educate citizens about aquifers
- Inventory areas for potential wildfire risk
- Fund urban forest management plan

Societal

- Leverage volunteer services in time of need
- Ensure medical facilities are staffed and accessible
- Establish transportation for disabled people

Dig Deeper - Natural Resources:

Education

Educate public on climate change impacts on local environment

Policies

- Review regulations, codes, and policies to encourage protection and conservation
- Demonstrate and incentivize land management practices that protect water and wildlife habitat

Projects

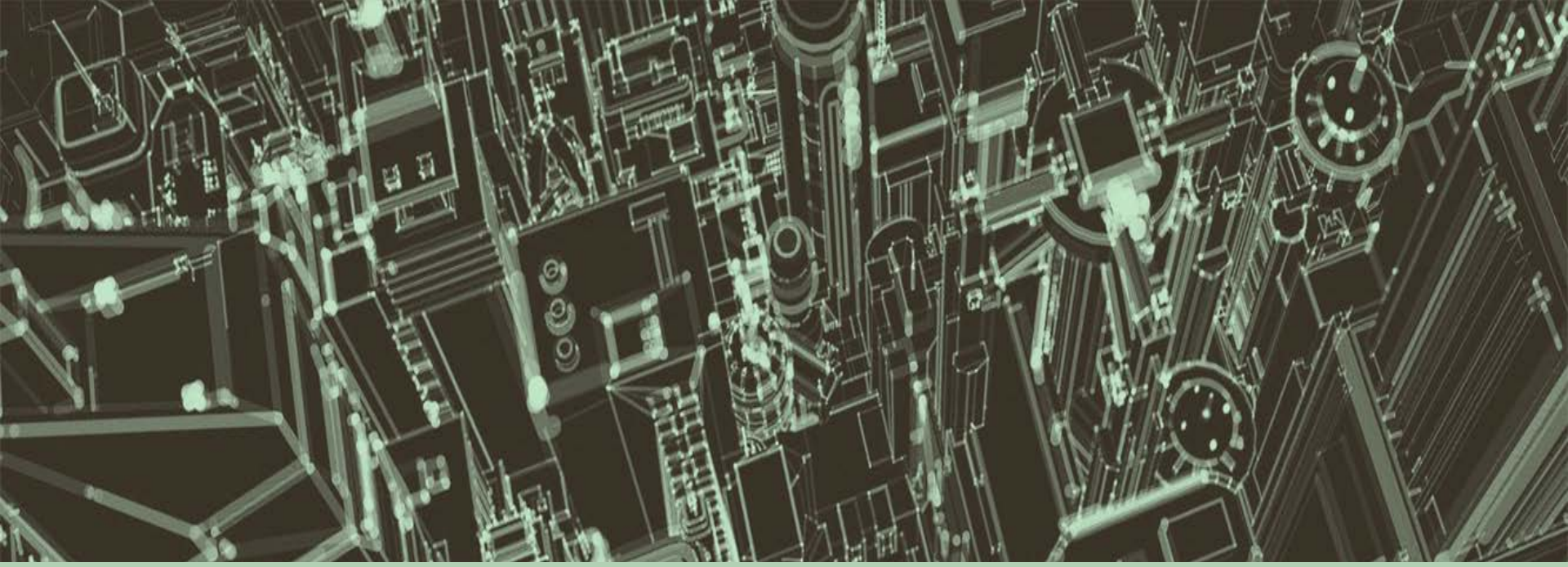
- Maintain, diversify and increase urban forest canopy
- Invest in green space
- Monitor degrading natural systems such as wetlands
- Reduce erosion risks for infrastructure and developed areas

Benefits and Lessons Learned

- Builds relationships
- Creates shared knowledge base
- Supports decisions made
- Existing data good enough
- Provide context – sense of urgency

Project Partners

- Riley-Purgatory-Bluff Creek Watershed District
- Nine Mile Creek Watershed District
- Freshwater Society
- Barr Engineering
- Metropolitan Council
- Minnesota Pollution Control Agency
- Humphrey School of Public Affairs
- The Nature Conservancy



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Golden Valley Resilience and Sustainability Plan

Metropolitan Council PlanIt Workshop

October 26, 2017

Abby Finis
Senior Energy Planner, Great Plains Institute

GREAT PLAINS INSTITUTE
Better Energy. Better World.

Great Plains Institute

Transforming the way we produce, distribute, and consume energy to be both economically and environmentally sustainable.

ENERGY EFFICIENCY

ENERGY INFRASTRUCTURE

FOSSIL ENERGY

INTERNATIONAL COLLABORATION

RENEWABLE ENERGY

SUSTAINABLE COMMUNITIES

TRANSPORTATION

Vulnerability Assessment Summary

Climate Hazards

The 2013 Report of the Interagency Climate Adaptation Team suggests Minnesota can expect prolonged heatwaves and cold spells; diminished air quality; more extreme weather (droughts, heavy precipitation); and increased ecological changes (invasive species, vector-borne disease).

The Minnesota Department of Health completed a statewide vulnerability assessment, where it determined the risk of climate events, by county. Hennepin County climate risks include:

HIGH: Extreme Rain Events, Diminished Air Quality

MODERATE: Extreme Heat, Invasive Species

LOW: Drought, Vector-borne Disease

Vulnerability Summary

For this vulnerability assessment the following areas were analyzed:

Natural Infrastructure

- Trees
- Native Landscaping
- Rain Gardens

Built Infrastructure

- Sewers
- Streets
- Stormwater
- Water
- Bridges

Vulnerable Populations

- Age
- Income
- Race
- Health
- Language

Economic Vulnerabilities

- Personal
- Community-wide

Climate Mitigation

Opportunities exist to reduce the city's contribution to climate change. This assessment includes a summary of energy consumption within the City and identifies clean energy and energy efficiency resources.

Natural Infrastructure: Trees & Native Plants

Climate Hazards

Invasive Species**: High**
Extreme Wind Events & Tornadoes**: Moderate**
Drought**: Low**
Heavy Rainfall: **Moderate**

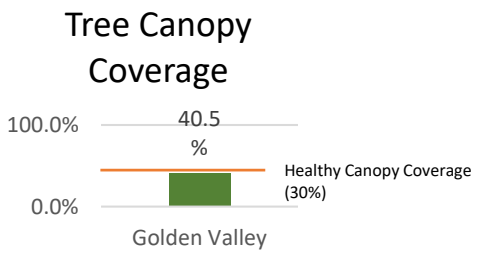
Vulnerability Summary

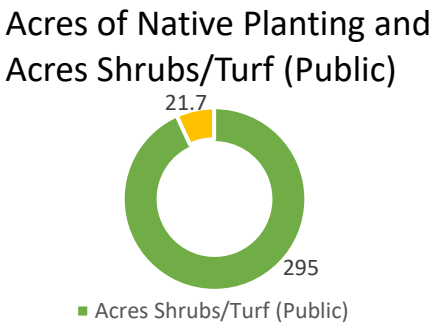
Trees offer many important benefits to communities: they improve air quality, remove carbon from the atmosphere, provide shade, support stormwater management, enhance aesthetics, increase property value, and are home to wildlife. Native plants can also improve surface water quality, provide critical habitat to pollinators, improve aesthetics, and reduce maintenance costs.

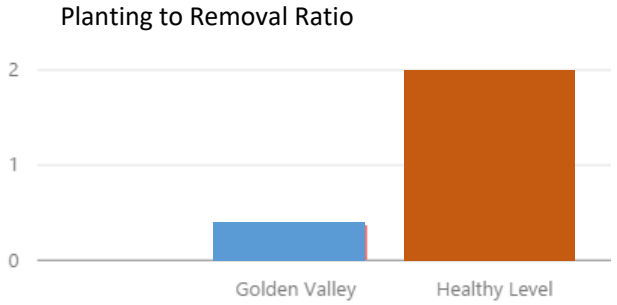
Strengths: The City has a healthy tree canopy coverage with a generally diverse mix of tree species; the city follows the 10-20-30 rule for replacement. The City continues to replace turf with native plantings.

Weaknesses: The City has a relatively high count of Ash trees that are susceptible to Emerald Ash Borer. The City's commercial areas have a relatively low tree canopy coverage. The City has a less than healthy planting to removal ratio. The area of native planting remains a relative low amount compared to manicured turf.

Vulnerability: The greatest concern for tree health in Golden Valley is the spread of Emerald Ash Borer, and recovering from strong wind events that have taken down a number of the City's trees in recent years.







Built Infrastructure: Sewers, Water, Roads, Bridges

Climate Hazards

Heavy Rainfall: **High**
Freeze/Thaw: **High**

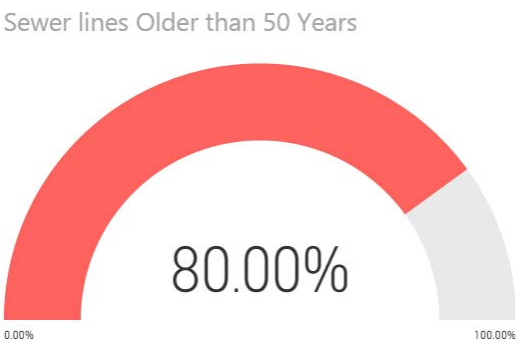
Vulnerability Summary

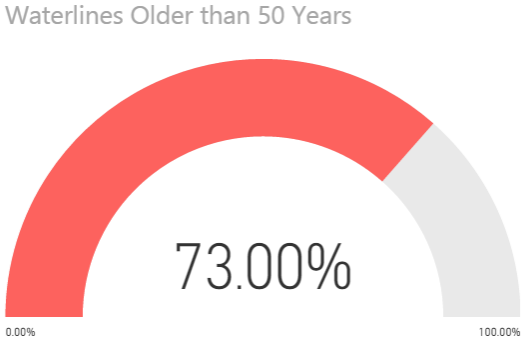
Increased precipitation and freeze thaw cycles have the potential to stress and shock built infrastructure systems like pipes (stormwater, sewers, water), roads, and bridges. This may result in increased maintenance costs, structural damage to public infrastructure, damage to private properties, and inconveniences to residents.

Strengths: The City has a Capital Improvement Program that recognizes aging infrastructure and addresses flooding impacts. Nearly all roads (99%) will be reconstructed by 2022, with some rehabilitation and replacement of pipes implemented along the way.

Weaknesses: The City has a significant amount of aging infrastructure, which has seen an increase in the amount and costs of maintenance (pipe breaks, deterioration, sink holes) over the past 20 years. Much of the system needs to be replaced.

Vulnerability: The major vulnerability is the age and condition of the pie infrastructure within the City.





99% of roads will have been reconstructed to city standards by 2022.

Infrastructure maintenance will coincide with reconstruction of

Vulnerable Populations: Extreme Heat & Air Quality

Climate Hazards

Extreme Heat**: High**
Diminished Air Quality**: Moderate**

Vulnerability Summary

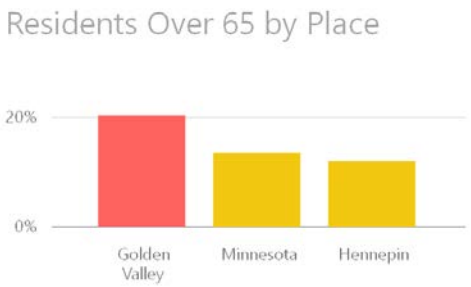
Minnesota and especially Hennepin County will likely see an increase in the number of days that require a heat advisory. Increased extreme weather may cause power disruptions during times when air conditioning is needed. As wildfires and pollen blooms increase, more air quality alerts will be issued.

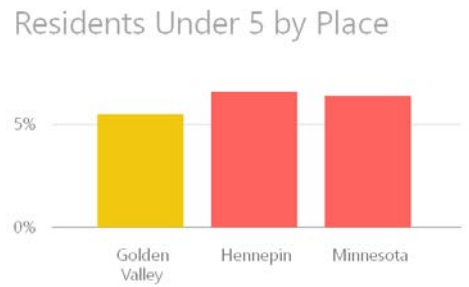
Strengths: The Community Center and City Hall are critical public facilities with air conditioning. The City has a healthy tree canopy in residential areas to help reduce the impact of urban heat island effect.

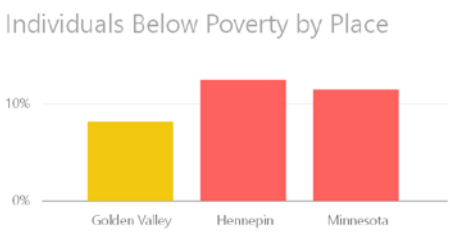
Weaknesses: The City faces potentially significant tree loss (see natural infrastructure). The City's commercial area has low tree canopy coverage and high impervious surface, particularly asphalt surface parking areas.

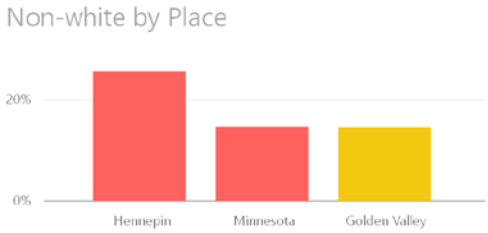
Vulnerability: Residents who are most vulnerable to heat and air quality hazards are senior residents, children under 5, low-income residents who live in areas near major roadways, and those with existing respiratory illnesses like asthma or allergies.

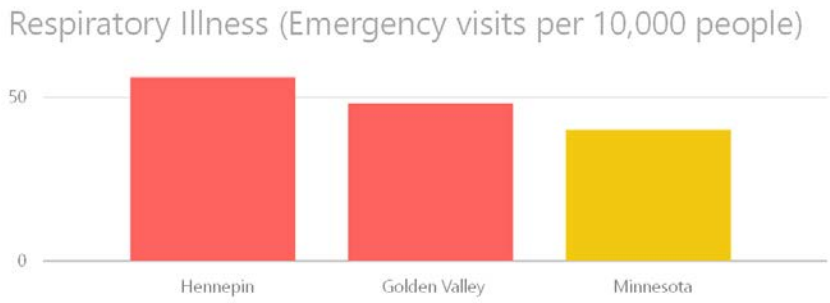
Those who appear to be at greatest risk are the elderly and residents with respiratory illness, particularly those who live alone during times of power disruption.











Vulnerable Populations: Vector-Borne Disease

Climate Hazards

Vector-borne diseases: **Moderate**

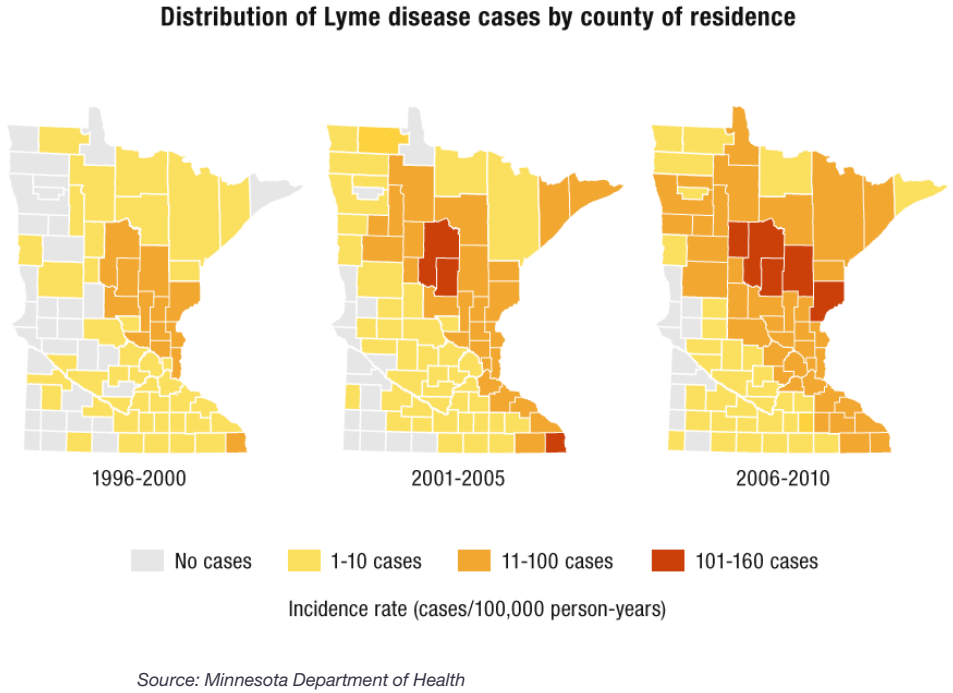
Vulnerability Summary

Vector borne diseases that are found in Minnesota include West Nile, transmitted by mosquitoes, and Lyme Disease that is transmitted by deer ticks. Lyme Disease, in particular, has been rapidly expanding throughout the Midwest as deer ticks find it a more favorable climate. Hennepin County is currently at a low to moderate risk for Lyme disease.

Strengths: The City currently has low incidence of residents who have contracted vector-borne diseases. The City falls within the jurisdiction of the metro mosquito control district which has a regular program for treating mosquito breeding habitat within Golden Valley.

Weaknesses: The city has many heavily wooded and natural areas that make a good habitat for ticks and mosquitoes.

Vulnerability: Most at risk are children under 5 who play outside and will need to be thoroughly checked by an adult for any sign of ticks or Lyme disease.



Source: Minnesota Department of Health

Economic Vulnerability: Resident Level

Climate Hazards

Additional economic impacts that could burden residents are high heating and cooling costs due to prolonged heatwaves and cold spells. Travel may also be impacted by extreme weather.

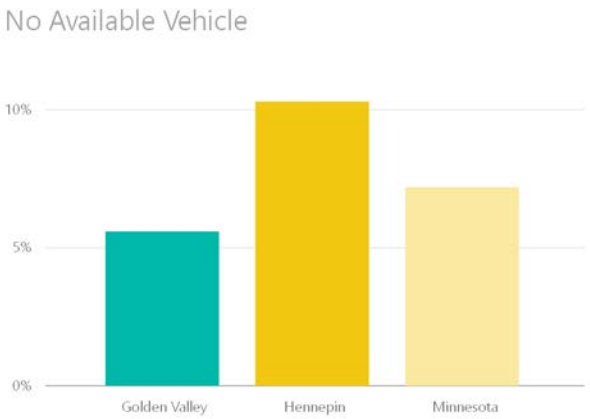
Vulnerability Summary

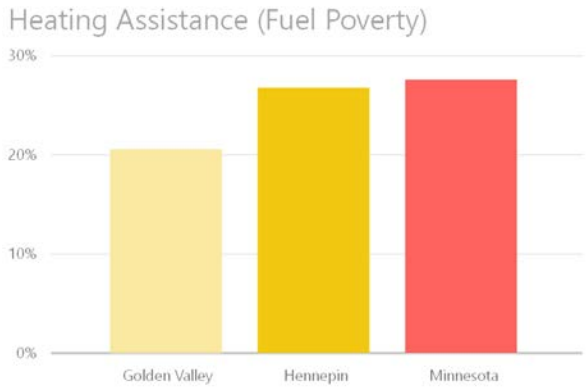
Extreme weather events may have a disproportionate impact on people who are economically vulnerable. Many climate hazards can have a direct or indirect impact on the financial stability of low-income residents. Economic disruptions are also likely to have greater consequences for low-income residents relative to middle class or wealthy residents.

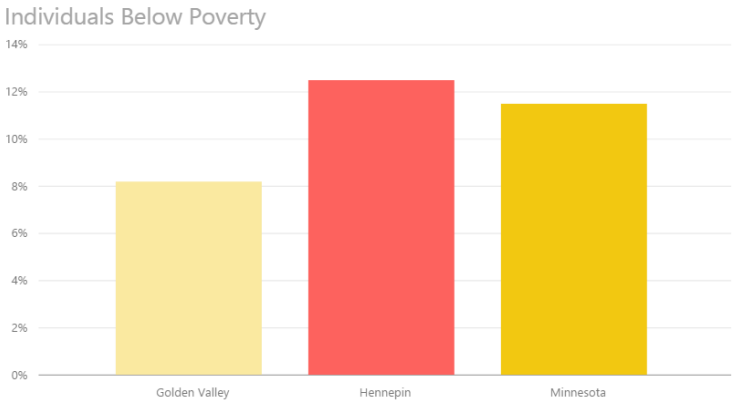
Strengths: Golden Valley has a relatively low percentage of low-income residents.

Weaknesses: 8.2% of the population live below the poverty line, and 20.6% are eligible to receive heating assistance. By choice or personal reasons, 5.6% of Golden Valley residents do not have access to a vehicle.

Vulnerability: Heatwaves and prolonged cooling spells can have significant financial impacts on households with a high energy burden. Residents without access to a vehicle may have difficulty making it to work, or evacuating in times of extreme weather events.







Climate Mitigation: Electricity Consumption

Electricity Consumption

A major contributor to climate change is greenhouse gas emissions from the generation of electricity. While the electric grid in Minnesota continues to get cleaner, it remains important for local governments to understand energy consumption in their communities.

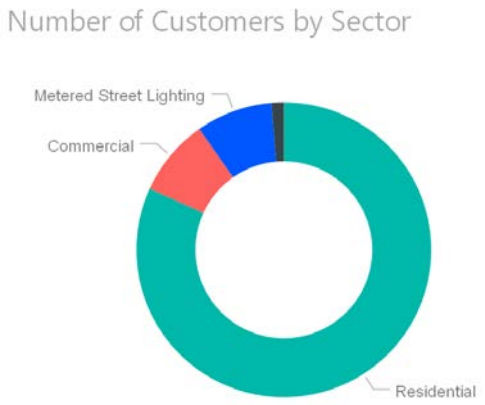
Golden Valley residents get their electricity from Xcel Energy. Residents make up the largest customer sector with more than 8,000 customers. However, 62% of the energy is consumed by 146 Industrial customers.

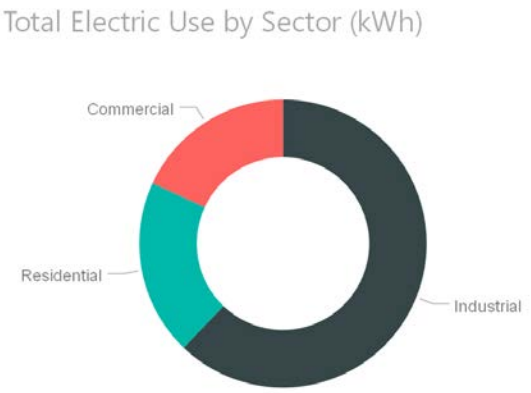
Xcel Energy offers a number of programs to customers to increase efficiency and clean energy actions. Very few Golden Valley residents and businesses are taking advantage of these programs. Under 400 residents participate in Windsource, and only 2 businesses do. More businesses take advantage of energy efficiency rebates than residential customers.

Overall the current participation in clean energy and energy efficiency programs is having little impact on the energy consumption within the city.

Xcel Energy offers a production incentive for solar installations, Solar*Rewards, 12 residents and 2 businesses have taken advantage of this program.

In 2015, the City installed two solar PV systems: Public Safety Building (40kW), Park Maintenance Building (40kW).





Climate Mitigation: Clean Energy Opportunities

Mitigation Opportunities

The solar resource in Golden Valley has been mapped to identify how much solar energy is possible in the city and where there might be good locations for solar installations. This tool can be used to help residents and businesses determine whether their solar resource is adequate to pursue and installation.

The following summarizes the rooftop solar opportunity within the city of Golden Valley:

Total rooftop solar resource capacity: 164 MW

Rooftop resource capacity of top 10 buildings: 23 MW

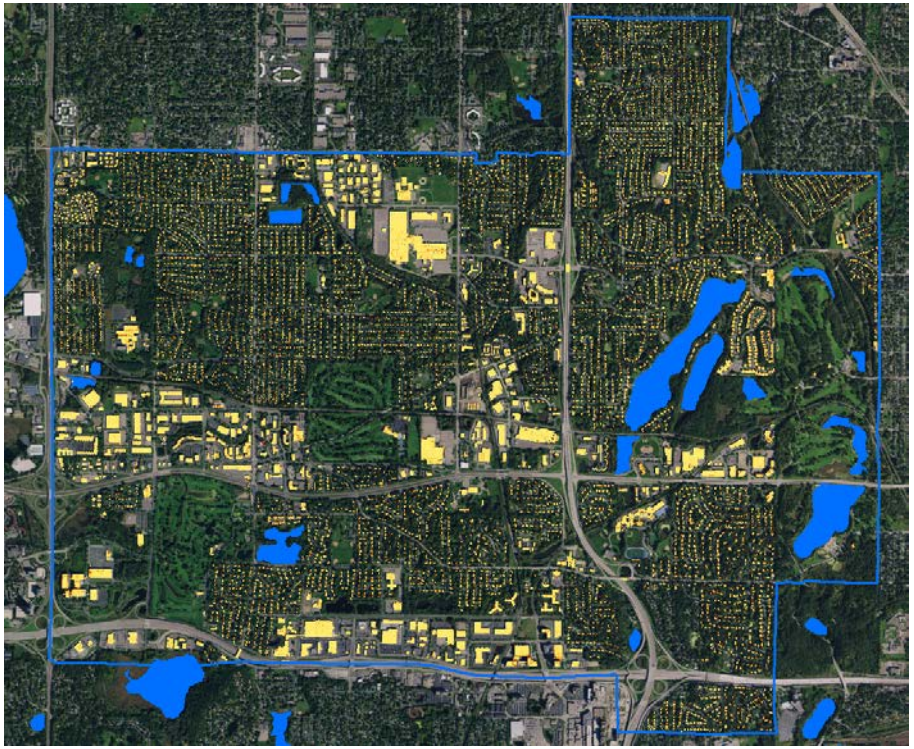
There is a significant solar resource in the City of Golden Valley. The solar resource of the top 10 buildings could offset approximately 9% of the electricity consumed in the City, nearly achieving the State's goal of 10% solar electricity by 2030.

The total rooftop solar resource available in Golden Valley could generate 64% of the electricity consumed in the City.

Beyond Solar:

- **Windsource**
- **Energy Efficiency Rebates**
- **Community Solar Subscriptions**

There are several opportunities available to help residents and businesses improve energy efficiency and increase clean energy generation that will help reduce overall greenhouse gas emissions.



Goals, Objectives, Policies, Strategies

Goal 1: Promote and Develop Clean, Renewable Energy

Goal 2: Improve Energy Efficiency in Buildings, Lighting, and Infrastructure

Goal 3: Promote Waste Reduction, Recycling, and Composting

Goal 4: Protect and Enhance the Natural Environment

Goal 5: Plan for Resilient and Sustainable Infrastructure

Goal 6: Increase Community Resilience and Preparedness

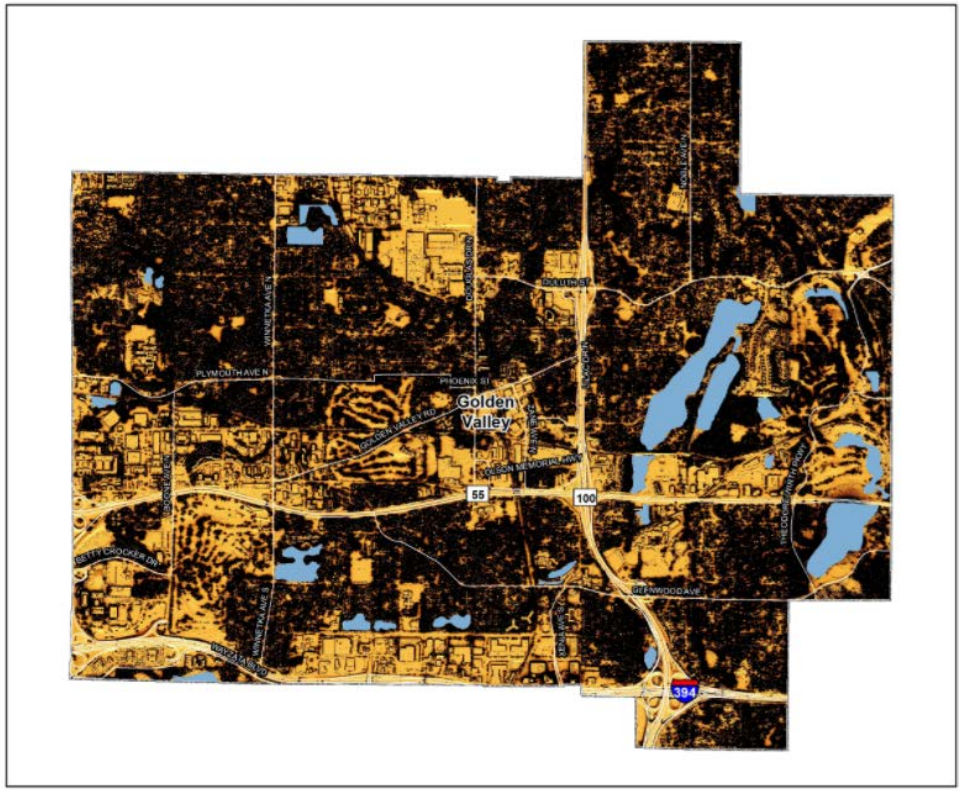
Example: Clean Energy (Solar)

Minimum Requirements:

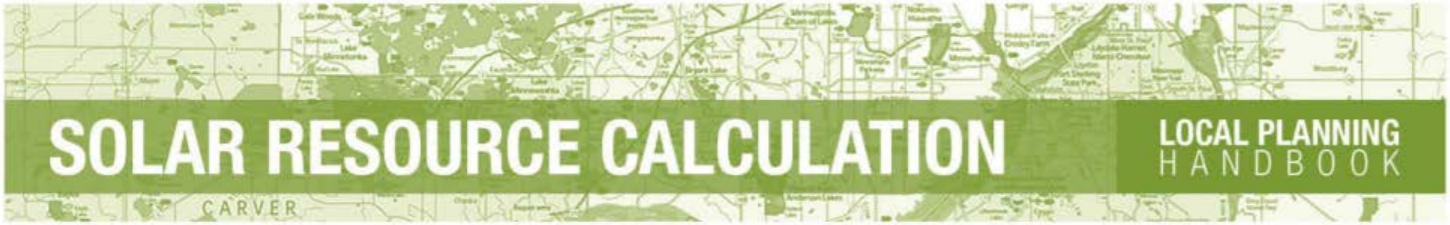
- Solar Resource Protection: Include your community's Minnesota Solar Suitability Analysis Map. This is available on your **Community Page**.
- Solar Resource Protection: Include calculations of your community's gross solar and rooftop solar resource. This is available on your **Community Page**.
- Solar Resource Development: Include a policy or policies relating to the development of access to direct sunlight for solar energy systems.
- Solar Resource Development: Include strategies needed to implement the policy or policies.

Gross Solar Potential Map

City of Golden Valley, Hennepin County



Solar Resource Calculation



CITY OF GOLDEN VALLEY

Community[1]	Gross Potential (Mwh/yr	Rooftop Potential (Mwh/yr)	Gross Generation Potential (Mwh/yr)[2]	Rooftop Generation Potential (Mwh/yr)[2]
Golden Valley	12,021,431	1,637,796	1,202,143	163,779

Example: Clean Energy (Solar)

Goal 1: Promote and Develop Clean, Renewable Energy

Remove barriers and increase renewable energy use to strengthen and diversify the energy grid and mitigate climate-related impacts

Objectives

- Increase City-wide renewable energy use, purchase, and generation
  - Communicate opportunities and information about clean, renewable energy to the public
  - Use solar mapping tools to identify potential solar resources and share mapping tools with residents and businesses
  - Support programs that enable community members to participate in community renewable energy projects
  - Create City-wide clean energy and emissions goals

Implementation Strategies:

- Participate in existing energy or climate technical assistance program. Energy or action planning programs available to assist cities in 2017 include:
  - Partners in Energy (PiE) is an energy action and technical assistance program offered by Xcel Energy. Applications open every six months (GreenStep Cities Best Practice 25.2).
  - The Local Government Planning for Energy Project (LoGoPEP) provides communities with planning tools and actual results to measure progress toward their goals.

Questions?

Abby Finis| afinis@gpisd.net
Great Plains Institute

Toolshop for Strategy Development

Facilitated by Freshwater Society

PlanIt

METROPOLITAN COUNCIL

Commitment Statement & Takeaways

Community Resilience Planning is Regional & Local

Convene

Plan Together

Multidisciplinary Approach

Embed Practice

PlanIt

METROPOLITAN COUNCIL

Resources

LOCAL PLANNING HANDBOOK

http://metrocouncil.org/Handbook.aspx

PlanIt

http://www.metrocouncil.org/Handbook/PlanIt.aspx

Resilience Plan Element

https://metrocouncil.org/Handbook/Plan-Elements/Resilience.aspx

Community Pages

http://lphonline.metc.state.mn.us/commportal

PlanIt

METROPOLITAN COUNCIL

Tour

MWMO - 30min

THANKS!

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