Agenda Item #4D

City of Baltimore

Community Resilience in a Changing Climate

Metropolitan Washington Council of Governments

March 22, 2017

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Baltimore Office of Sustainability
People·Planet·Prosperity

Baltimore's Unique Approach

All Hazard Mitigation Plan

(Current and Historical Hazards)

+ **=** **<u>Resilience</u>**

Climate Adaptation Plan

(Adapt to new and predicted climate conditions)

Resilience

The ability of our community to anticipate, accommodate, and positively adapt to or thrive amidst changing climate conditions or hazard events and enhance quality of life, reliable systems, economic vitality, and conservation of resources for present and future generations.

Shocks and Stresses

Shocks
Shocks are typically considered single event disasters, such as fires, hurricanes, and floods.

Stresses
Stresses are factors that pressure Baltimore on a daily or reoccurring basis, such as endemic violence or high unemployment.

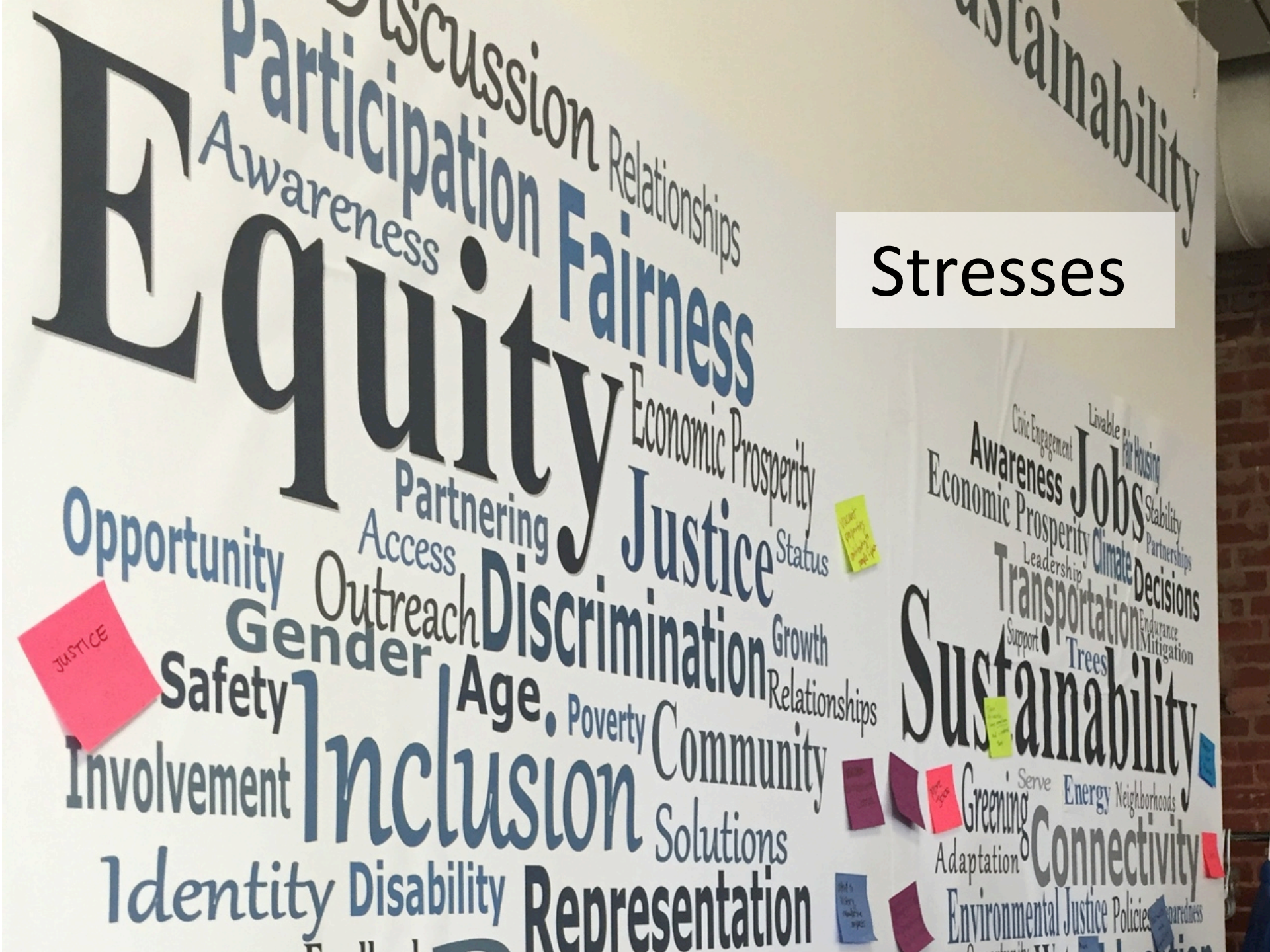
Focus on both shocks and stresses to enhance community adaptive capacity and resilience, especially in more vulnerable areas

Shocks

Future Impacts

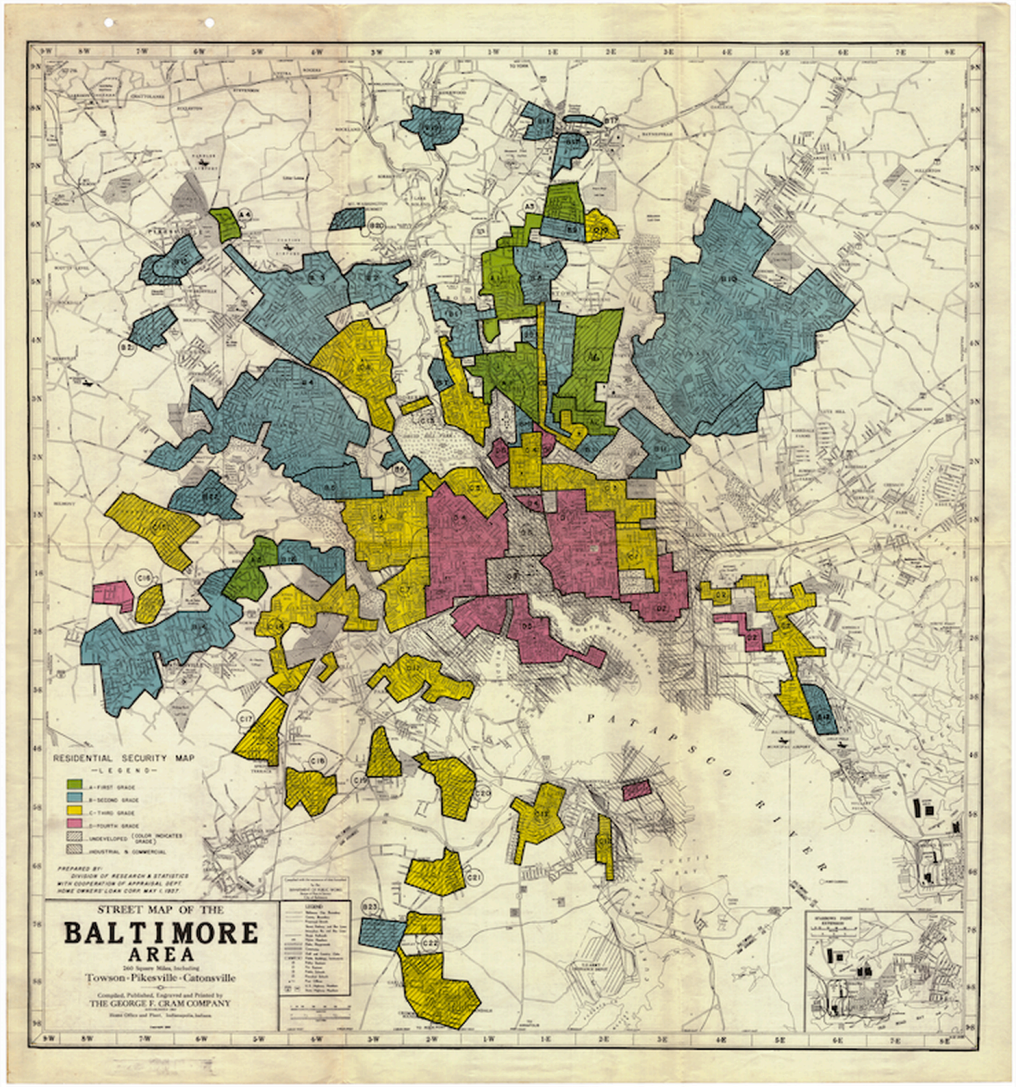
Coastal Storms	more severe
Floods	more extensive
Severe Thunderstorms	more severe
Wind	increase intensity
Winter Storms	less snow, more flooding
Extreme Heat/Drought	more severe and intense
Sea Level Rise	increased threat
Air Quality	lower quality and increase risk

Stresses


Discussion
Relationships
Sustainability
Participation
Fairness
Awareness
Equity
Economic Prosperity
Partnering
Justice
Status
Opportunity
Access
Outreach
Discrimination
Growth
Gender
Relationships
Safety
Age.
Poverty
Community
Involvement
Inclusion
Solutions
Identity
Disability
Representation
JUSTICE
Civic Engagement
Livable
Fair Housing
Awareness
Jobs
Stability
Economic Prosperity
Partnerships
Leadership
Climate
Decisions
Transportation
Endurance
Mitigation
Support
Trees
Sustainability
Serve
Energy
Neighborhoods
Greening
Adaptation
Connectivity
Environmental Justice

Acknowledging the Past

- Historic planning practices. Honestly acknowledge racism within policies and practices
- From 1951 to 1971 80-90% of the 25,000 families displaced to build new highways, schools and housing were black



Two Baltimores: The White L vs. the Black Butterfly

Lawrence Brown (@bmoredoc)

Baltimore is a city that is hypersegregated into two parts: the "White L" and the "Black Butterfly." Due to 105 years of racist policies and practices, Baltimore's hypersegregated neighborhoods experience radically different realities. Due to this dynamic, White L neighborhoods accumulate structured advantage due to Baltimore Apartheid while neighborhoods in the Black Butterfly accumulate structured disadvantages. Baltimore's hypersegregation is the root cause of racial inequity, crime, health inequities/disparities, and civil unrest.

Policies and practices	The White L (structured advantage)	The Black Butterfly (structured disadvantage)
Buses	Charm City Circulator (free for riders)	Maryland Transit Authority (riders must pay)
Charm City Bikeshare	Bike stations in these neighborhoods	No bike stations in these neighborhoods
Highways	Had highways built for downtown access	Had highways built over their neighborhoods, causing displacement
TIF policy	Enriched with 100s of millions in TIF $$	Disinvested, redlined communities languish without being rebuilt
Enterprise Zone policy	Concentrated here for developer benefit	Very few funded Enterprise Zones are located in the Black Butterfly
Bank locations	Traditional banks are concentrated here	Plagued with check cashing, payday lending facilities, and pawn shops
Home mortgage lending	Receive great #'s mortgage originations	Redlined from receiving a proportionate number of mortgage originations
Small business lending	Receive great #'s of small biz loans	Redlined from receiving a proportionate number of small business loans
Big bank prime lending	Homebuyers receive prime rates	Homebuyers receive subprime mortgages, resulting in more foreclosures
Curfew policing in 05/15	BPD begged Hamdenites to leave site	BPD used tear gas against protestors at Penn & North; cleared corner
Normal policing	Courteous, high quality policing	Police brutality, rough rides, zero tolerance, Stop-and-Frisk residents
Public housing sites	Very few found in these neighborhoods	Public housing sites are disproportionately concentrated here
Section 8 vouchers	Very few found in these neighborhoods	The vast majority of Baltimore City Section 8 vouchers are here
Community benefits	CB districts provide extra services	Many neighborhoods that don't have community benefits districts
Public schools	Well-resourced and supported by BCPS	Features 50+ apartheid schools, many school closures, low resources
Property taxes	Property tax privileged, historic tax credit	Property tax punished; pay relatively more taxes while receiving less
Food access	Better access to quality grocery stores	More prone to feature food deserts with fewer quality grocery stores

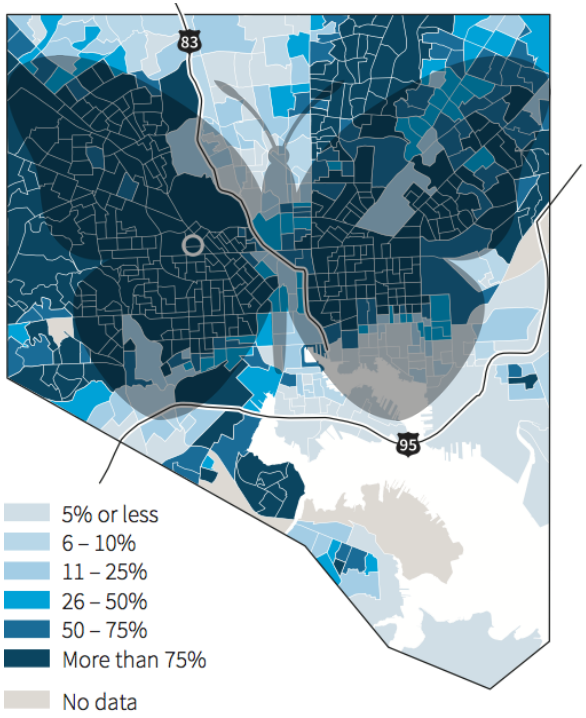
Stresses

Socioeconomics in Baltimore

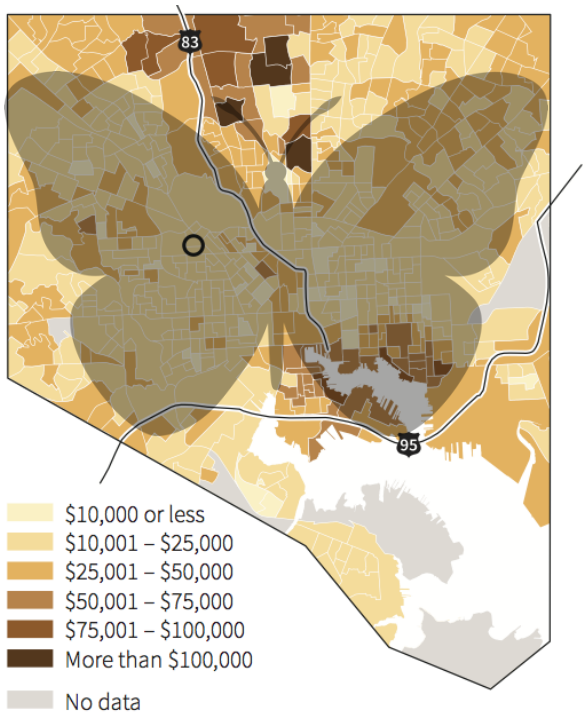
Following the funeral of Freddie Gray, a 25-year-old black man who died after he was injured in police custody, disturbances broke out a few blocks from the site of the service. Demonstrations turned violent and spread through parts of Baltimore on Monday.

○ New Shiloh Baptist Church (location of Gray's funeral)

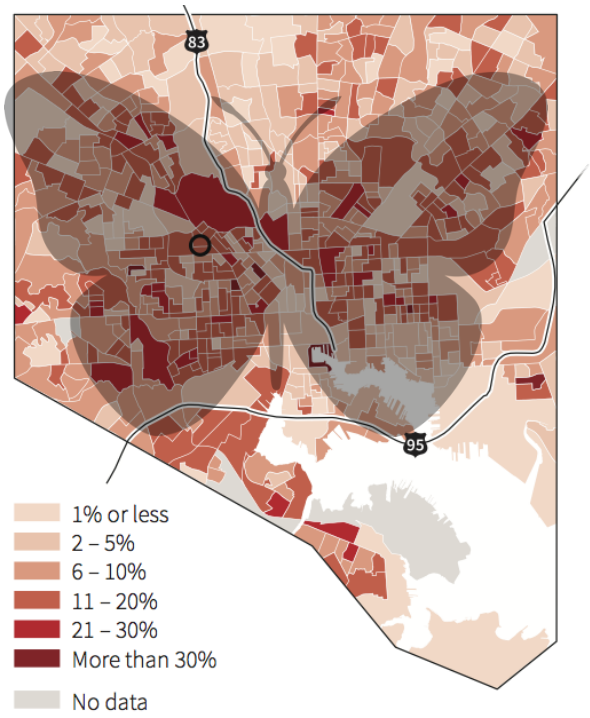
AFRICAN AMERICAN (BLUE)



LOW INCOME (LIGHTER)



UNEMPLOYMENT (RED)



Sources: 2013 American Community Survey estimates, U.S. Census Bureau; Open Baltimore, City of Baltimore; Reuters

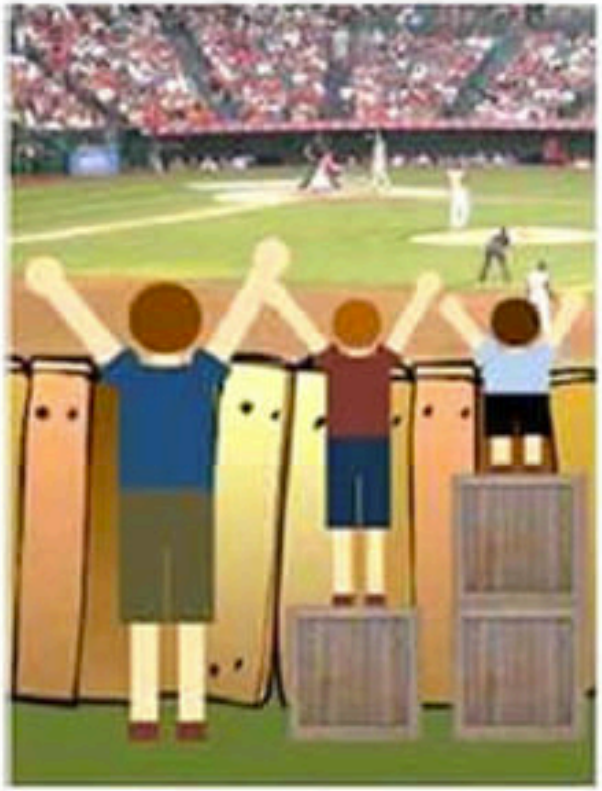
*In civilian labor force, population aged 16 years and above

C.Chan, 28/04/2015

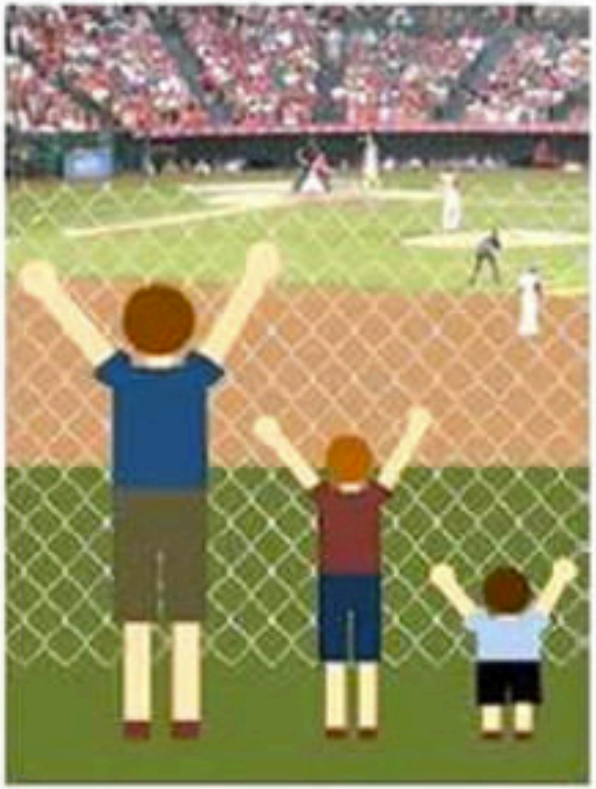
REUTERS

EQUALITY VERSUS EQUITY

In the first image, it is assumed that everyone will benefit from the same supports. They are being treated equally.



In the second image, individuals are given different supports to make it possible for them to have equal access to the game. They are being treated equitably.



In the third image, all three can see the game without any supports or accommodations because the cause of the inequity was addressed. The systemic barrier has been removed.

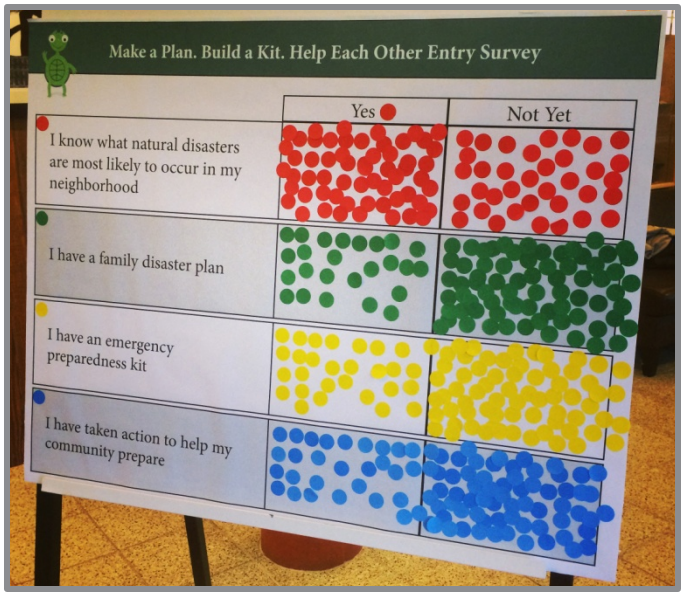
http://culturalorganizing.org/

Equity as a Lens

- Prioritize neighborhoods with highest vulnerability and historic disinvestment
- Actively listen to residents and collect their stories
- Provide job training and green job opportunities as part of most initiatives
- Build trust and relationships = partners in implementation

Active Engagement

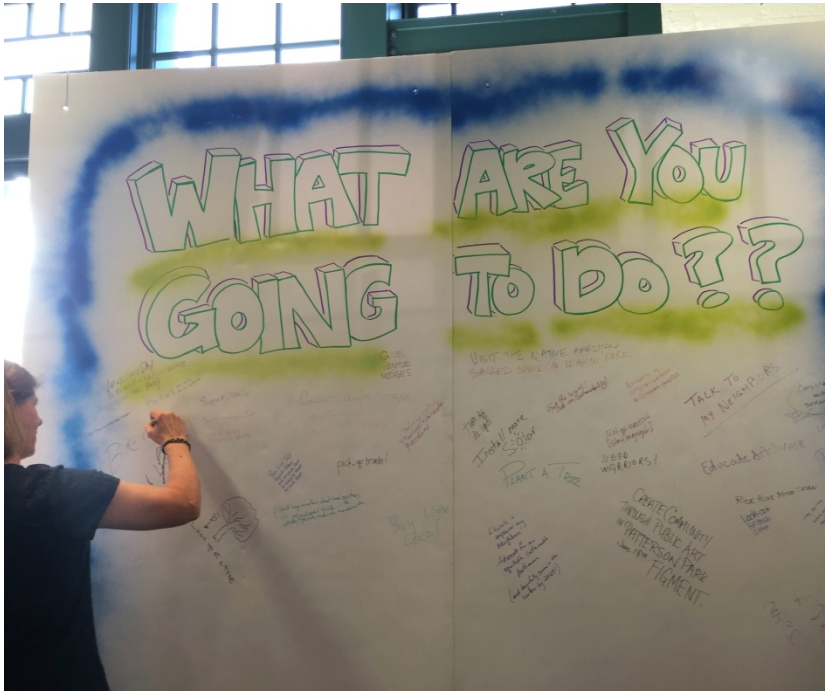
- Interactive events/meetings
- Transportation provided to residents without access to public transit or personal vehicles
- Entirely hands-on. No presentations
- Free food, childcare, resources, and information
- Trusted spaces identified by residents




PAST
1975
1968
1990


EXIT
1932
1937
1936


Sustainability
Discussion
Participation
Equity
Fairness
Awareness
Justice
Opportunity
Outreach
Discrimination
Gender
Age
Safety
Inclusion
Involvement
Community
Identity
Disability
Representation
Feedback
Race
Sustainability
Connectivity
Education
Equity = everyone has full and equal access to opportunities to thrive


WHAT ARE YOU GOING TO DO??


BUILT ENVIROMENT
CLIMATE AND RESILIENCY
COMMUNITY

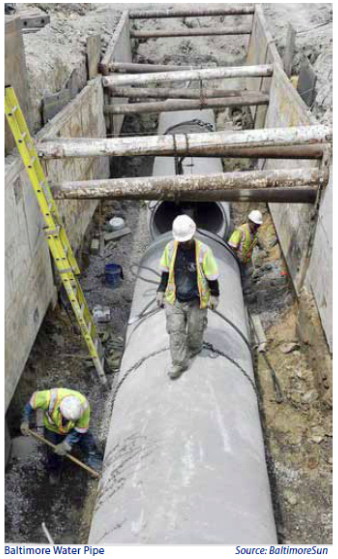
Implementation

Disaster Preparedness Plan

Adopted unanimously in October, 2013

ment that evaluates and improves all pipes' ability to withstand
l cold

em is dated and in need of upgrades. It is important to build extreme weather resilience and disaster prevention into water and wastewater systems by using both adaptation and mitigation actions. Additionally, structural and infrastructural upgrades must be made to reduce loss of water supply from the distribution system.



Baltimore Water Pipe — *Source: BaltimoreSun*

1. Replace old and malfunctioning pipes with new pipes or retrofit existing pipes with new lining

   Pipes that have already begun experiencing problems, or older pipes which are more vulnerable to the impacts of hazards, should be upgraded using the best available technology.

2. Evaluate and utilize new technology that allows for greater flexibility in pipes as they are replaced

   It is essential to prepare for future changes in hazard events and proactively upgrade pipe systems to prevent cracking and bursting.

IMPLEMENTATION GUIDELINES	
Lead Agency	DPW
Stakeholders	DOT, DPW, Water and Wastewater Utilities
Alignment with Goals	Goal 3
Connection with Existing Efforts	CAP; CRS; MD DNR; ESF-3; ESF-4
Timeframe	

STORMWATER

IN-16 Enhance and expand stormwater infrastructure and systems

Future changes in precipitation frequency and intensity may require reconsideration of the design of existing stormwater infrastructure systems.

Increase resiliency and disaster prevention measures related to stormwater systems by enhancing drainage systems in stream corridors and improving and repairing stormwater conveyance popes and outfalls.

1. Implement the requirements of Baltimore's MS4 (separate stormwater and sewer system) permit (S)

   The City of Baltimore operates under a Municipal Separate Stormwater and Sewer System (MS4) permit, which protects water-quality and requires that Baltimore prevents pollution as much as possible. It is critical that the requirements of these permits are fully met.

2. Prioritize storm drain upgrades and replacement in areas with reoccurring flooding (S)

   While proximity to a floodplain or floodway can increase vulnerability to flooding, certain measures can reduce this vulnerability. Inadequate or older pipes, which cannot accommodate the excessive amounts of stormwater, should be upgraded so as to handle extreme rainfall and storm surge events.

3. Install backflow-prevention devices or other appropriate technology along waterfront to reduce flood risk (M-L)

   Backflow-prevention devices are used to ensure that water does not flow back through drainage infrastructure. Through the installation of backflow-prevention devices, the City can improve the performance of the drainage network and prevent risk of flooding impact along the waterfront.

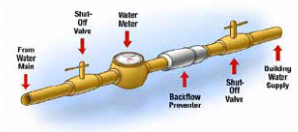
4. Preserve and protect natural drainage corridors (S)

   It is important to utilize natural drainage corridors and green infrastructure to capture more stormwater runoff and enhance the ability of the existing infrastructure to cope with environmental changes.

5. Review and revise storm drain design on a continuous basis, to accommodate projected changes in intense rainfall (O)

   The City's storm drains will require continual revision to incorporate new and projected changes in intense rainfall. This will ensure that the storm drains maintain adequate capacity.

IMPLEMENTATION GUIDELINES	
Lead Agency	DPW
Stakeholders	Community Groups, DOT, DPW, MOEM, MDNR, NGOs, Private Developers, Stormwater Utility
Alignment with Goals	Goals 1, 3, and 6
Connection with Existing Efforts	CRS; MD DNR
Timeframe	



Backflow Preventer — *Source: DemarPlumbingNYC*

Structure

Infrastructure

- Energy
- Liquid Gas
- Communication
- Transportation
- Waterfront
- Wastewater
- Stormwater
- Solid Waste
- Policy

Buildings

- City Codes
- Structural
- Non-Structural

Natural Systems

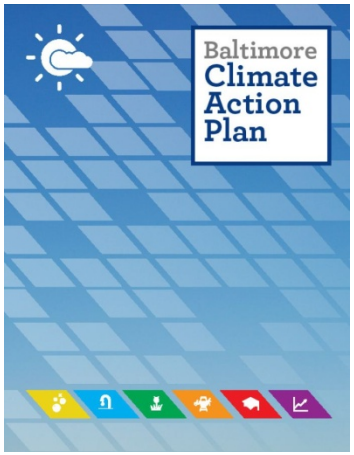
- Urban Parks & Forests
- Water Supply and Management

Public Services

- Emergency Preparedness & Response
- Health
- Education & Outreach
- Food System

Prioritization

MITIGATION



Energy Savings and Supply

Land Use and Transportation

Growing a Green City

RESILIENT + SUSTAINABLE

Drinking water

Renewable Energy

Trees

Building Codes

Energy Grid

Energy Efficiency

Transportation Inf.

ADAPTATION + HAZARD MITIGATION

Infrastructure

Buildings

Natural Systems

Public Services

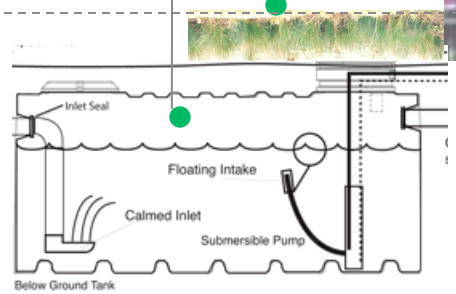
Whole Block Approach

Buildings

- Cool Roofs
- Weatherization
- Energy Education
- Renewable Energy

Natural Systems

- Trees and Greening
- Stormwater
- Heat sensors



Make a Plan, Build a Kit, Help Each Other

Help/Safe Signs

- Builds Neighborhood assistance capacity

- Lets neighbors know if you need assistance by placing appropriate side in window

Missing Piece

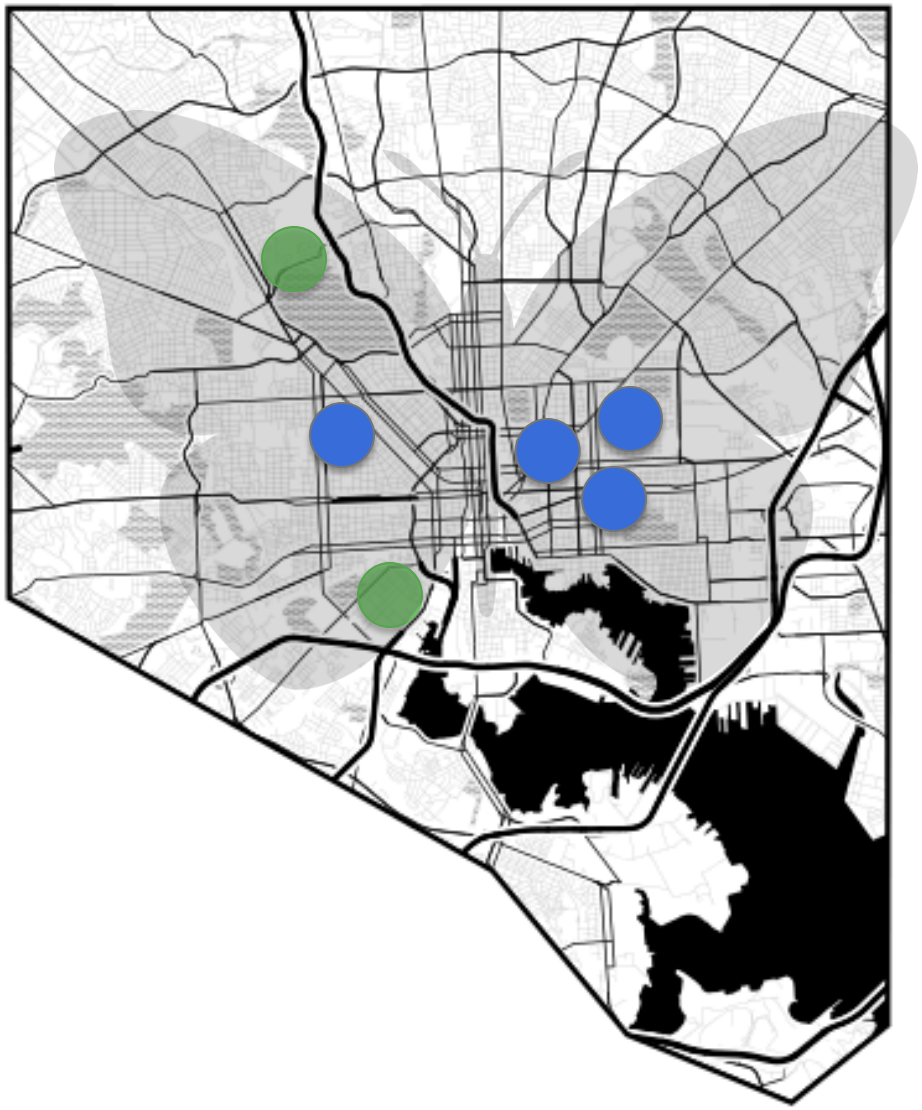
Held over 40 Community Preparedness Meetings. In those meetings, residents identified a need for more than kits and plans. They identified the following missing pieces:

- Safe place to go
- Access to materials and tools
- Access to heat and cooling
- Information center
- Power
- Medical care
- Food and water

Resiliency Hubs

Definition:
A Resiliency Hub consists of a building or set of buildings and neighboring outdoor space that will provide shelter, backup electricity, access to fresh water, and access to resources such as food, ice, charging stations, etc. in the event of an emergency.

Resiliency Hubs



Resiliency Hubs are locations that are used year-round and for other activities

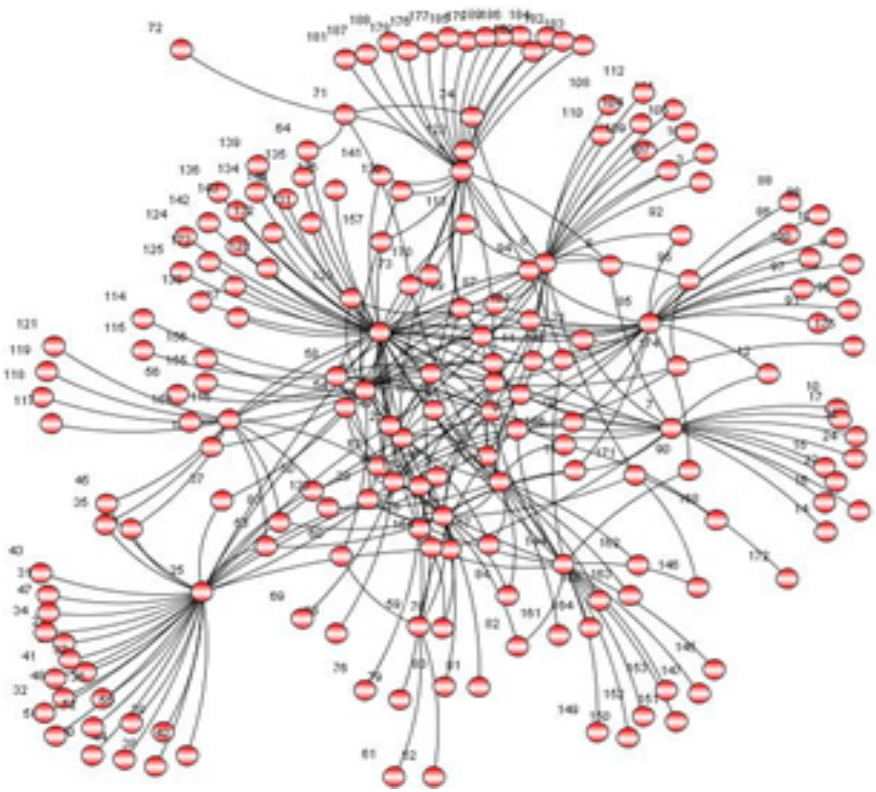
Not City-owned buildings- utilizes existing facilities that are trusted in the community

Currently working on four pilot hubs in Baltimore City

Peer-to-Peer Engagement & Network

Ambassador Network

- Divided the City into 10 districts with similar population sizes
- Develop a support network in each district. Team Leaders, Lead Ambassadors and Community Ambassadors
- Ask them to recommend people who are interested in improving their neighborhood
- Ongoing peer-to-peer network that grows (including youth)



Ambassadors

TRAININGS

- One 3-hour training required for each Ambassador
- Extra 90 minute training required for each Lead Ambassador
- Trainings on equity and sustainability
- Hosting three primary trainings with 25 participants maximum
- Interactive and engaging

TOOLKITS

- Surveys
- Neighborhood-specific data & information
- Draft Presentations
- Suggestions for Engagement
- Suggestions for locations to engage with people

Every Story Counts

Baltimore Office of Sustainability
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@baltimoresustainability

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- About
- **Photos**
- Reviews
- Likes
- Events
- Videos

Liked | Message | Save | More | Contact Us

Every Story Counts

6 Photos · Updated 5 days ago

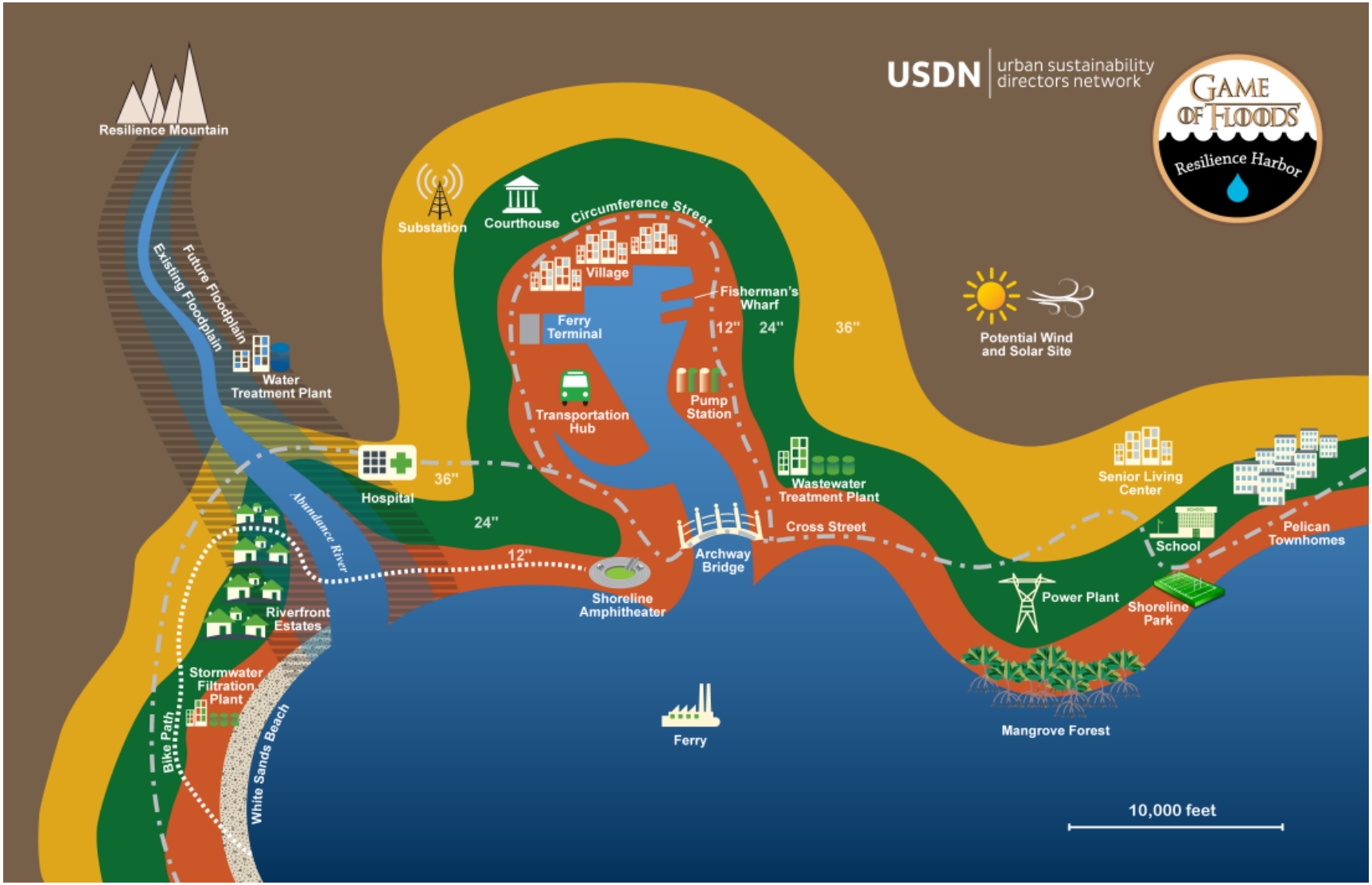
You don't have to be a climate scientist or city planner to create sustainability + resilience. Everyone has a story to tell about making Baltimore a stronger, fairer and safer place for all of us. Be a part of our Every Story Counts Campaign by sharing yours on Twitter or Instagram using the hashtag #EveryStoryCounts or #ItsAboutUs, or by sharing your words and pictures through our website at http://tiny.cc/everystory. Join the many people who've shared their stories already at http://tiny.cc/everystory so that the whole city can see how we're making a difference together, and so we can match you with the resources to do even more.




Every Story Counts


©Lynn Hunter

Training with Games



Training with Games

Team Scenario 1

Planning Horizon: 2050
Sea Level Rise: Mid range (12" by 2050)
Precipitation: 20% increase in precipitation intensity

Town History:
Originally settled by longline fisherman in the 1890s, the area became heavily farmed in the 1930s, and transitioned to a resort community during the economic boom of the 1980s. The town's economy is now based on a mix of technology-related industry, tourism, fishing, and agriculture.

Current Resident Population = 225,000

City Planning and Sustainability

Role: City Planner and Sustainability Director

You represent the interests of the Resilience Harbor Planning Department. It is your role to ensure the recommendations and decisions made ensure a safe, healthy, and sustainable path for Resilience Harbor to continue to grow and function in the face of future climate change.

Asset Condition Cards

Historic Courthouse

The Historic Courthouse is a registered landmark beloved by the community and frequently used for weddings. Because it is a historic structure, the building cannot be elevated or

Asset Condition Cards

Riverfront Estates

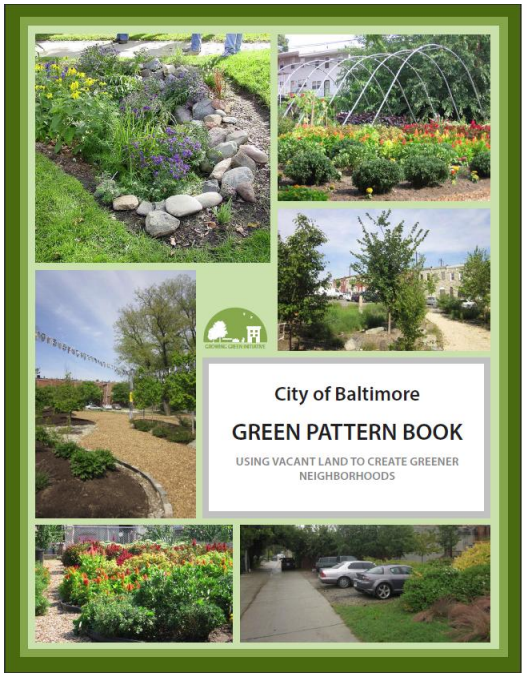
Originally settled in the 1890s by fishermen, the Estates neighborhood has tripled over the last two decades and now comprises 300 homes. Housing styles range from original Craftsmen to sprawling 1950s ranch homes to new, luxury vacation estates. This neighborhood is home to many wealthy residents. The Abundance River has overflowed its banks twice in the last decade, causing millions of dollars worth of damage.

Built gradually, 1890s-present.

Integrating Other Initiatives

Growing Green Initiative

Hubs will include additional elements such as a place to grow local food & increase tree canopy for shade and cooling. GGI is an effort focused on re-using vacant land to green neighborhoods, reduce stormwater runoff, grow food, & create spaces that mitigate negative impacts of vacancies

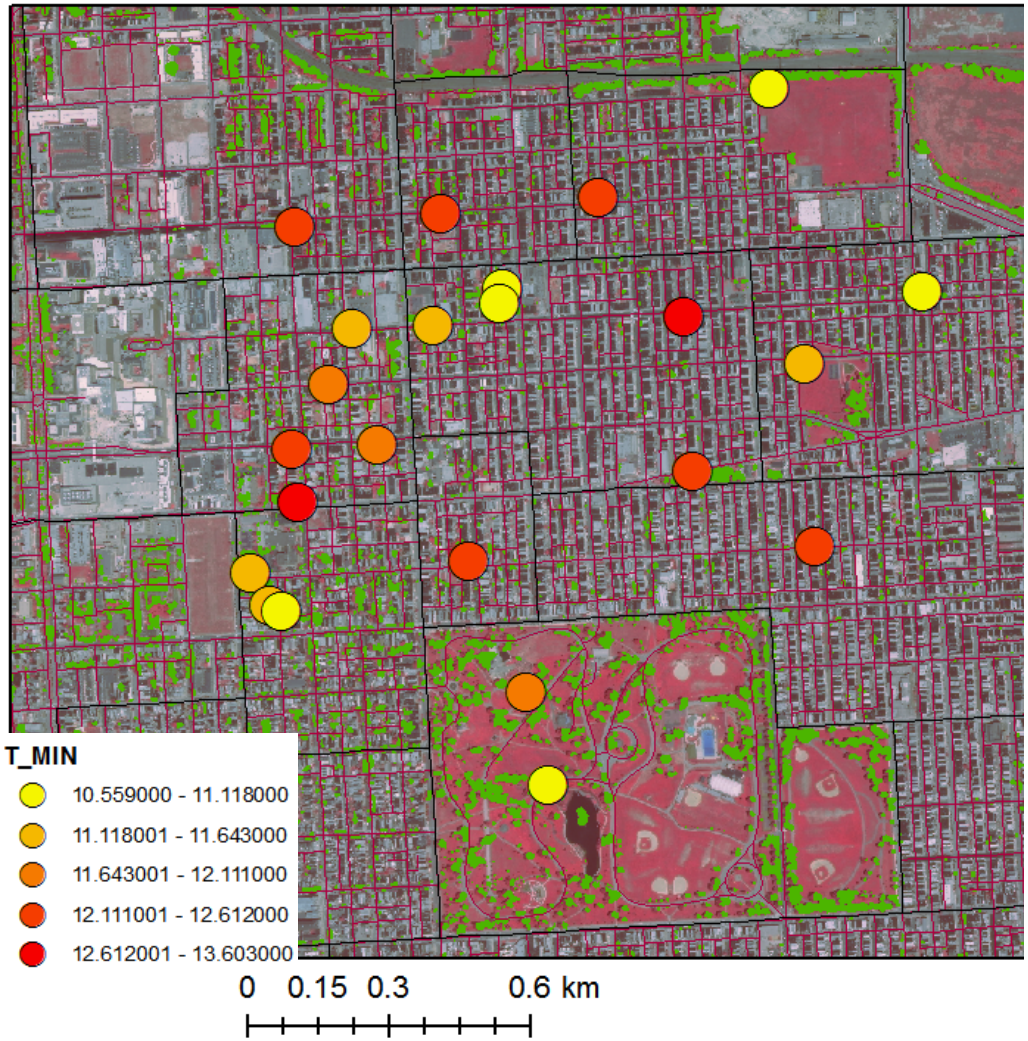


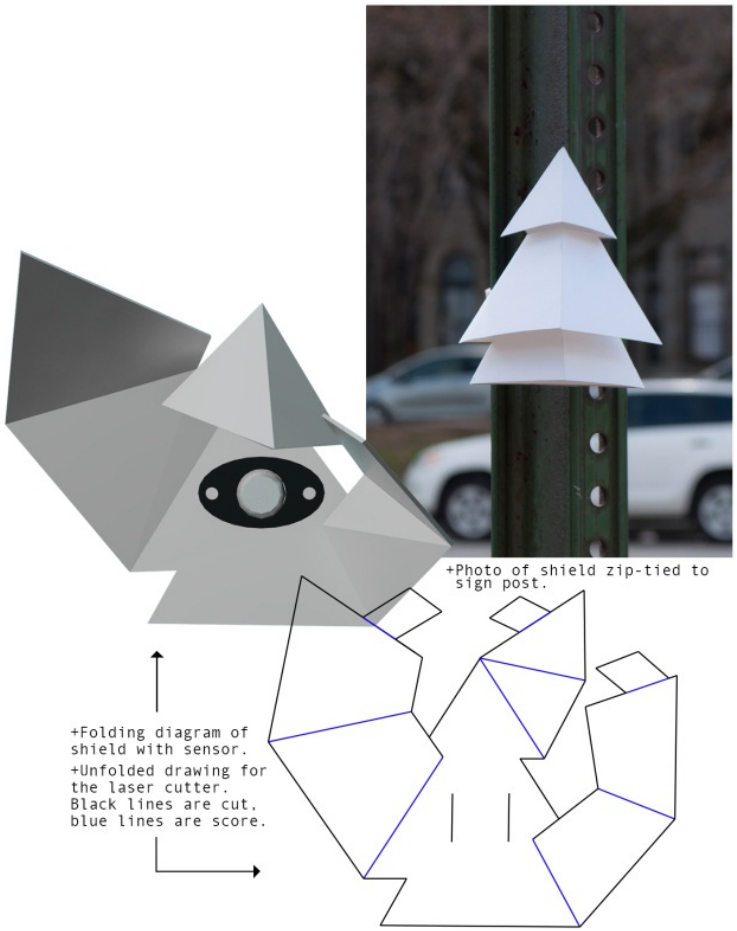
Green Network Plan

Baltimore's Opportunity to Create a Green Network

Heat Islands and Sensors

Minimum Temperature (^{O}C)

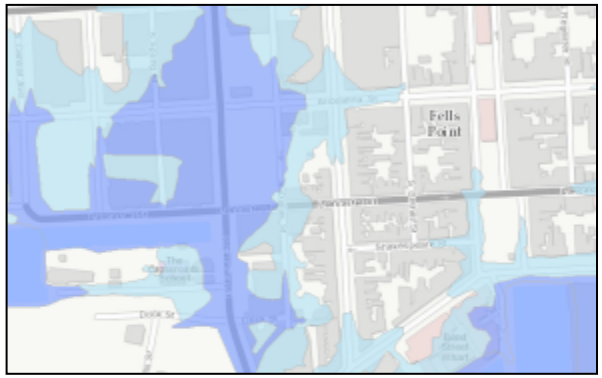




Floodplain Regulations

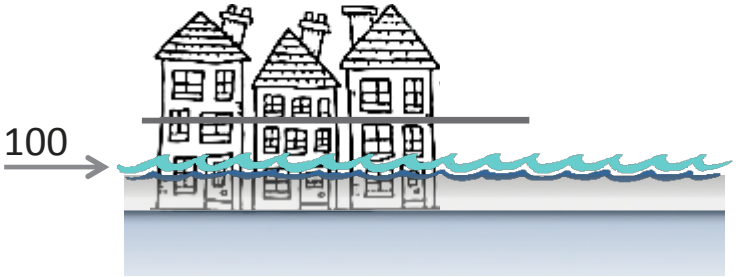
- **The City of Baltimore regulates to the height <u>and</u> extent of the 500-year flood in tidal areas**

Both 100 and 500



Extent

In non-tidal areas, the City regulates to the height of the 100-year flood and to the extent of the 500-year flood



Both 100 and 500

Community Trainings

TreeKeepers

- Several levels and types of classes that teach citizens to care for their trees and environment

Weed Warriors

- Removal of invasive species by trained environmental stewards

Community Emergency Response Teams

- CERT Leaders assigned to each Resiliency Hub to assist with assisting people requiring additional help and care

Thank you!

Kristin Baja
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