



Climate Change Adaptation and Resiliency Workshop: Understanding Impacts and Developing Strategies to Build a More Resilient Dayton

Workshop Overview

On June 5, 2013 The City of Dayton hosted its first Climate Change Adaptation and Resiliency Workshop, focused on advancing understanding and developing strategies to build a more resilient Dayton. This workshop brought together over sixty-five City of Dayton staff, elected officials and key community stakeholders to learn about what a changing climate means for City of Dayton officials and staff, and how the City as a whole and individual departments can take steps to build and maintain an economically vibrant, environmentally healthy, and resilient community. The workshop featured five morning presentations, which provided the participants an overview of the historical changes in climate for the City of Dayton and the larger region, projected changes in future climate, impacts related to climate change, examples of adaptation actions from partner cities across the region, and examples from local partners on how climate and severe weather affect the public health and safety through deteriorating air quality, water quality and quantity, and recreational activities.

Presentations Summaries

Why Climate Change Planning Matters for City Infrastructure, Gordon Garner, CH2M Hill

A long-time public works employee and director, Gordon Garner is currently a Vice-President of the Water Business Group at CH2MHill. His presentation focused on the pressing need for action in response to climate change, especially at the local level, and stressed that the changes occurring today are outpacing historical experiences in terms of heat, severe weather, and air quality. His presentation featured case studies from the following cities:

Louisville, KY

Seattle, WA

Alexandria, VA

New York City and New York State

Chicago, IL

Historical and Projected Climate Trends for the City Of Dayton, Daniel Brown, GLISA

Daniel Brown presented an overview of the historical trends for the City of Dayton and a summary of the projected future changes to the region's climate. The key points from this presentation can be found in the *Historical Climatology: Dayton, OH* and *Dayton Climate and Impacts Executive Summary*. The key impacts that were outlined in the presentation include:

- **Public Health**
 - Increased heat wave intensity and frequency
 - Degraded air quality
 - Reduced water quality
 - Changing ecology, new pests, disease
- **Infrastructure Damage**
 - Stormwater management challenges with increased extreme precipitation and flooding



- Potential changes in the number of freeze-thaw cycles
- Potential changes in the form of winter precipitation

Climate Change Impacts on Municipalities – Adaptation Across the Region, Missy Stults, University of Michigan

Speaking from her experience as the former Climate Director of ICLEI-USA and from her research as a PhD Candidate at the University of Michigan and co-author of the Adaptation Chapter of the forthcoming National Climate Assessment, Missy provided an overview of climate change impacts on various sectors and the climate change adaptation work taking place across the country. The key takeaway from her presentation was that the climate change adaptation process is unique for every place and while we may be able to learn some lessons from peer cities, each community is going to pick the path that matches their unique needs and resources. Missy discussed case studies from the following cities:

Philadelphia, PA – Pushing Green Infrastructure

Ann Arbor, MI – Implementing a Stormwater Utility

Lewes, DE - Integration of Hazard Mitigation and Climate Adaptation

Biloxi, MS - Disaster Response

Responding to Heat and Air Quality Threats in the Dayton Area, John Paul, RAPCA and Matt Lindsay, MVRCP

Presenting together representatives from RAPCA and MVRCP provided an overview of the roles and responsibilities of their respective agencies in the context of preparing for, monitoring, and responding to fluctuations in local air quality conditions. John Paul of RAPCA explained how the air quality index is developed and provided historical information on changes in air quality and ozone levels for the City. Matt Lindsay of MVRCP provided an overview of how heat advisory notices are communicated to City residents and an overview of MVRPC initiatives aimed at reducing emissions and responding to air quality concerns.

Local Impacts of Climate Change on City Assets – Flood Protection, Water Quality, and Recreation, Sarah Hippensteel-Hall and Mike Ekberg, MCD

Presenting together, Mike Ekberg and Sarah Hippensteel- Hall, provided a background on the history of The Miami Conservancy District, its founding and its continued role in the region and in Dayton, today. The presentation also featured key information on the projected changes in temperature and precipitation in the region, and a summary of how these changes may impact the quantity, quality, and accessibility of the water resources throughout the Miami River Watershed.

Breakout Sessions Summaries

Following the morning presentations, the workshop format shifted to sub- group discussions focused around key service areas which the full group identified throughout the morning. Five service areas were discussed: Water Systems, Public Health Systems, Natural Systems, Emergency Management Systems, and Infrastructure/Transportation/Energy Systems. Each group was asked to identify key impacts that



would affect their system, both positively and negatively, and strategies to cope with these impacts. Each sub-group reported the lead impacts and top strategies to the full group.

Water System

Impacts

- Need power to run the facilities
- Localized flooding (if the river is up and storm water gates are closed and we get a rain event, could have potential issues with localized flooding)

Strategy

- Advocacy with legislators and EPA to be more flexible with dealing with issues as they arise
- Investing in infrastructure improvements/rehabilitation/replacement (one going on now for sanitary collection systems) Report out emerging themes noticeable from the notes

Public Health Systems

Impacts

- Identifying the vulnerable populations in terms of heat and other issues
- Identifying global threats to the overall population. Food, water, and energy for anyone that needs it

Strategy

- Empower people to help us - there aren't enough of us as is but we could re-implement the Citizens Emergency Response Team (CERT)
- Neighborhood leadership teams - get the alumni back and active. Report out emerging themes noticeable from the notes

Natural Systems

Impacts

Loss of habitat and diversity in surface waters

- Plant and animals
- Recreation
- Invasive species

Less precipitation, especially when demand is high (summer)

- For people and ecosystems. Water tables drop

Strategies

Update codes and ordinances

- Green roofs, permeable surface, reclamation
- Comprehensive – strategic tree plan

Report out emerging themes noticeable from the notes

Infrastructure/Transportation/Energy Systems



Impacts

- Deregulation of utilities
- Needs more day to day response equipment and resources especially in an emergency
- Internal Plumbing Problems (IPP) from infiltration and sanitary back-up

Strategies:

- Empower departments to purchase material and allow staff to respond outside of their formal job descriptions at time of emergency (labor negotiations)
- Build a public engagement campaign around IPP; encourage lateral inspections
- Pressure utility companies to improved maintenance

Report out emerging themes noticeable from the notes

Emergency Management systems

Impacts

- Special needs or most vulnerable populations. Getting them out of residential or institutional places to a location where they can be safe and taken care of
- Water supply services being uninterrupted (fire, drinking water supply, but also to make sure that WWT plant is able to operate so we have sanitary conditions)

Strategy

- People and equipment to respond
- Emergency planning and revitalization
- Public affairs - expand to citizens, engage citizens. Having public information portal during times of emergency

Ranking Strategies

Following the report-out by each sub-group on the key impacts and potential strategies their team identified, all the participants were asked to review all of the suggested strategies and to rank them according to first priority, second priority, third priority. Participants were provided three colored dots, one green (first), one yellow (second), and one red (third), which they placed next to the strategies, which they felt should be considered, first, second, and third ranking considerations. The results are shown below.

Strategy	Green	Yellow	Red
Investing in infrastructure improvements/rehabilitation /replacement	13	1	2
Ensure we have people and equipment to respond to a disaster.	5	5	4
Empower Community members to respond to emergencies	3	1	3
Update codes and ordinances to allow for green infrastructure (green roofs, permeable surfaces, water reclamation)	2	10	3
Create a comprehensive and strategic tree plan	2	3	5
Build leadership from the top for inter-departmental and regional collaboration	1	2	0
Empower departments to purchase materials to respond outside of their job in an emergency	1	0	1
Recreate Citizens' emergency response team	0	3	1



Advocacy with legislators and EPA to encourage more flexibility (water)	0	1	1
Emergency planning revitalization	0	0	3
Build a public awareness campaign around internal plumbing problems	0	0	3

Top Ranking Strategies

- Investing in infrastructure improvements/rehabilitation /replacement
- Update codes and ordinances to allow for green infrastructure (green roofs, permeable surfaces, water reclamation)
- Ensure we have people and equipment to respond to a disaster.

Report appendix

- Workshop Overview and Discussion