Submitted by Kerby Smithson on Wed, 10/08/2014 - 13:08.

The Problem

The City of Asheville endured its wettest year on record in 2013. The rainfall was especially heavy during summer months, resulting in flooding in low lying areas and landslides along the steeper mountain slopes. Damage to City-owned roadways was extensive, resulting in $2 million worth of urgent repairs due to landslides.Private property damage was also extensive in some cases, causing owners to request that the City take a more proactive approach to mitigate future impacts.

Compounding these natural phenomena, the City's stormwater utility enterprise fund, which maintains stormwater infrastructure, had not had a fee structure adjustment since it was established in 2005. The fund was in major need of a reassessment.

Stakeholders Involved

City of Asheville staff
City Council
Engineering firms hired to complete a stormwater utility assessment
The Asheville community, through a public forum

Actions Taken

In response to citizen concerns, a **public forum** was held on November 20, 2013 to solicit feedback on planning, stormwater and other related services which the City provides. Much of the input centered on a desire for the City to ramp up stormwater maintenance activities and increase capital investment in stormwater infrastructure. Such services are provided by the City's Stormwater Services Division and paid for by fees and charges generated through the City's stormwater utility enterprise fund.

Shortly following the meeting, the city hired two private engineering firms to investigate the current status of the program and to also look at what would be necessary to expand the program to meet the needs the citizens were asking for. The team developed three options for Council's consideration. The most aggressive option was ultimately chosen by City Council.

- Monthly stormwater fee increased from $2.34/ERU (equivalent residential unit) to **$4.00/ERU** for all commercial, industrial, non-profit, multi-family and other non-residential property owners. This brings Asheville up to the state average for large cities.
- For single family residential properties, a tiered stormwater fee was established
    1. Tier I: 225 sq. ft. – 2,000 sq. ft. of impervious surface - $2.50/mo
    2. Tier II: 2,001 sq. ft. – 4,000 sq. ft. of impervious surface - $4.00/mo
    3. Tier III: 4,001 sq. ft. or more of impervious surface - $5.50/mo
- A **second maintenance crew** added to the Stormwater Services Division.
- Citizens will receive a higher level of services from additional maintenance activities.
- Provides higher level of service by prioritizing critical needs of the stormwater system
- Provide preventative maintenance activities which should increase the life cycle of the infrastructure.
- Provides the revenue to implement **larger scale capital projects**, such as the Biltmore Ave Bridge flood plain removal

Outcomes

The process of citizen engagement was successful. Citizens' demands for increased stormwater service were heard by staff and Council, and Council acted promptly to fund increased service in the following fiscal year. Unfortunately it took severe events and property damage for these problems to be addressed, but at least there is tangible forward progress now.

Next Steps

Monitor the impact and fiscal solvency of the stormwater utility fund.

Community Information

Asheville, NC
Maggie Ullman
March, 2014

Information Resources

City of Asheville stormwater information [1]
Stormwater Utility Financial Analysis.pdf [2]

Links
[1] http://www.ashevillenc.gov/Departments/StormwaterServicesUtility.aspx
[2] http://ssdn.nemac.org/sites/default/files/Stormwater%20Utility%20Financial%20Analysis.pdf

Submitted by mwhutchi on Mon, 08/25/2014 - 16:35.

The Problem

In September 2004, Western North Carolina was significantly impacted by floods and landslides caused by two major hurricanes. The cost was high. Eleven lives were lost, 140 homes were destroyed and more than 16,000 homes were damaged in the Asheville area and surrounding counties. In total, there were $200 million in damages and freshwater supply was lost to Asheville for several days due to a break in the water main. These types of severe storms are not unusual in Western North Carolina. In Asheville alone, nine major floods have occurred in the past 100 years, the most serious in 1916 and 2004. Damaging floods occur on an average of every 20 years. As each year goes by, even more people are living in harm's way. Without better planning, the same storm in the future could cause much more damage and loss of life.

Stakeholders Involved

A Flood Damage Reduction Task Force was formed which included: the City of Asheville, Buncombe County, Universities, local businesses, non-profit organizations, and other local, county, and state agencies. A planning study was conducted by the North Carolina Department of Environment and Natural Resources Division of Water Resources and stakeholders from Biltmore Village, the City of Asheville, and the Swannanoa Watershed with assistance of a project consultant

Actions Taken

The Flood Reduction Task Force identified feasible projects in the Swannanoa watershed and one of the projects selected for implementation was the Lake Craig/Azalea Road on the Swannanoa River. Phase I of the Lake Craig/Azalea Road Improvements Project is an effort to better manage high water during flood events and create new and improved infrastructure for vehicles, pedestrians and bicyclists at one of the City of Asheville's most popular park complexes.

This flood control project involves lowering a streamside multi-use field to give high waters a place to expand when the Swannanoa crests its banks. Another step will install breaks to slow the water down as is passes through the Recreation Park. Both moves protect property and infrastructure downstream.

Because of the surrounding park facilities, work can be conducted in the area with minimum disruption to businesses that line other parts of this section of the river. The location is considered part on an ongoing flood remediation study by the Army Corps of Engineers, says the city's Stormwater Services Manager McCray Coates.

An added benefit is the partnership with NCDOT to make improvements including installation of a traffic signal and turn lane which will benefit users of the nearby Nature Center, Recreation Park and Soccer Complex.

Next Steps

Phase I of the project is expected to be completed by December 2014.

Community Information

Asheville, NC
Maggie Ullman
August, 2014

Information Resources

NEMAC Involvement [1]
Feb. 2014 Update [2]

Links
[1] https://nemac.unca.edu/projects/flood-damage-reduction-task-force-0
[2] http://coablog.ashevillenc.gov/2014/02/azalea-road-project-improves-flood-management-park-access/

Submitted by Nicole_Kaufman-Dyess on Tue, 11/04/2014 - 09:51.

The Problem

The Capital Improvement Planning and construction management processes at the City of Raleigh penalize added-cost measures, creating a barrier for operational departments trying to adopt sustainable and resilient practices and technologies.

Actions Taken

On Thursday, October 30, fifteen City of Raleigh employees sat in a conference room at the LEED-Platinum Wilder's Grove Solid Waste Services Center generating pro formas and attempting to quantify nonfinancial project benefits of replacing streetlights with LEDs. The activity, part of a one-day training on business case evaluations, teaches these project managers and operations directors ways to justify capital investments using long-term operational savings.

"The Capital Improvement Plan or CIP budget funds major facility and equipment needs, but the operation and maintenance of these facilities and equipment is funded through the annual operating budget," explains Office of Sustainability Assistant Manager, Cindy Holmes. This separation of capital and operating budgets makes it difficult for managers to justify the additional capital expense of energy-saving, resilience-improving measures because any savings are redeemed through the operating budget. However, the business case evaluation process brings the capital and operating budgets together and evaluates alternatives based on their full lifecycle cost.

Ivan Dickey, with the City's Parks, Recreation, and Cultural Resources department, explains how his department already benefitted from using the business case evaluation process: "Nobody would've believed that we could collect trash from the parks for less than Solid Waste could. But by using the business case evaluation's schedule of costs and standard accounting practices, we showed the Council that the capital investment in Big Belly trash compactors was well worth it because of the operational savings."

Trainer Adam Sharpe responds, "We typically see that once one department gets their project funded using a business case evaluation, all other City departments want to learn how to use the process."

"That's our hope," replies Holmes, "That's why the Office of Sustainability is funding this training."

Next Steps

An upcoming training will teach executive decision-makers how to enforce quality standards and how to use business case evaluations to inform their prioritization of projects. The Office of Sustainability also plans to offer a multi-week training throughout this winter's budget cycle allowing departmental project managers to work with consultants on the business case evaluations of proposed resilience-improving projects.

Community Information

Raleigh
Paula Thomas
October, 2014

Submitted by ghadwen on Tue, 10/14/2014 - 09:07.

The Problem

Greater Miami is one of world's regions most vulnerable to sea level rise and hurricanes. The City of Miami was seeking to spark greenhouse gas mitigation and climate resiliency in the community through a financial tool.

Stakeholders Involved

City of Miami and six neighboring municipalities, State of Florida, a third-party program administrator, hundreds of contractors, residents and local businesses

Actions Taken

In 2010 State of Florida passed legislation authorizing municipalities to implement Property Assessed Clean Energy (PACE) programs. Eligible PACE improvements included energy efficiency, renewable energy, and hurricane hardening. In 2012, seven cities in Miami-Dade County joined together to create an interlocal district which established the green corridor PACE program to both residential and commercial property owners. The program was turnkey with a third party administrator hired to implement the program at no cost to participating cities.

Outcomes

To date, the program has completed 87 projects with a total value of almost $4million. Another 159 projects are in the pipeline. There has been some hesitation on inclusion of residential properties because of issues with Fannie Mae and Freddie Mac. The City of Miami currently offers it residential property owners in only two of its five commission districts.

Next Steps

The program is being expanded to include more communities and include more residential properties. We are also assessing whether it may be feasible to include property elevation in the program when coupled with other funding sources.

Lessons Learned

Partnering with other municipalities and utilizing a turnkey no cost approach has greatly reduced the burden on municipalities to implement PACE. The biggest surprise has been that the most popular improvement has been impact resistant windows which suggest are residents are more willing to invest in resiliency than energy efficiency.

Community Information

City of Miami
Glen Hadwen
April, 2012

Information Resources

Program website [1]

Links
[1] https://ygrene.us/fl/green_corridor

Submitted by EBGill on Mon, 10/13/2014 - 11:28.

The Problem

Knoxville typically experiences several severe storms each year that bring severe winds, rain, and often hail to the area. Climate change is expected to increase the frequency and intensity of storms in Knoxville. Often, in the first several hours after a disaster, emergency response professionals do not have the capacity to respond to damages or impacts to individuals; they may be tied up dealing with larger-scale community priorities or may be unable to reach individuals due to blocked roadways or other impediments. In these “golden hours” after a disaster, neighbors become the first line of response to fellow neighbors who may need assistance. However, in order to respond most effectively and be most resilient, neighbors need to be connected and coordinated—both at the family-unit level, as well as the neighborhood-level.

Stakeholders Involved

City of Knoxville Office of Neighborhoods; Knoxville Emergency Management Agency; Local Emergency Preparedness Committee; American Red Cross; Knoxville Police Department; Knoxville Fire Department; Knoxville Utilities Board; Knox County Health Department.

Actions Taken

The City’s Office of Neighborhoods has launched a new pilot Neighborhood Disaster Preparedness Program (NDPP) that enables resident-led neighborhood groups to develop neighborhood-level emergency preparedness plans, equipping them with the skills they need to act as effective first responders if professional emergency personnel cannot reach the scene. NDPP offers training classes, a speaker series, and technical assistance to neighborhoods in order to encourage proactive planning for dealing with a disaster.
NDPP emphasizes two critical actions:
1) Helping neighbors become better acquainted with members of their neighborhood, building bonds of collective responsibility and sharing expertise and resources pertinent to a disaster response.
2) Providing tangible action steps for neighbors to take following a disaster, empowering them to confidently and immediately respond to situations until professional disaster response arrives on the scene.

Outcomes

The Office of Neighborhoods has drafted the Neighborhood Disaster Preparedness Guide, designed to facilitate neighborhood efforts to develop a disaster response and preparedness plan. Office of Neighborhood’s Americorps staff are in charge of helping neighborhoods understand the guide and work through the planning process.
To-date, it has been difficult to attract a lot of attention from neighborhoods. A few have taken advantage of the speaker series, but none have committed to working through the entire planning process. This has been a challenge, and the Office of Neighborhoods is looking for strategies to encourage greater participation. One potential selling point is that this process can be a way to bring new faces into a neighborhood association (something many neighborhood leaders are interested in).

With NDPP's design and preliminary resources completed, the next year will be focused on recruiting participants.

Next Steps

Encouraging interest from neighborhood groups is a key next step – the NDPP resources won't have an impact if no one uses them.
In addition to trying to increase interest, the Office of Neighborhoods is also developing additional resources, such as informational videos

Lessons Learned

It is critical to enlist the support of emergency response organizations in this type of neighborhood-response effort. You don't want to give emergency responders (or neighborhoods) the impression that a neighborhood's response is a substitute for professional assistance. It's important to convey that while neighbors can help each other "fill the gap" between when a disaster occurs and when help arrives, these actions should not conflict with those of emergency responders.
If this type of program is being run by a government entity, leave plenty of room for neighborhoods to lead the process without intense oversight by staff. One of the early stages of response planning is identifying needs and resources—such as who has a medical condition or special needs, who has a chainsaw, or who is certified to perform CPR. In Knoxville, we heard a bit of criticism from neighborhoods who did not want to provide "the government" with this type of information.

Community Information

Knoxville
Erin Gill
October, 2014

Information Resources

Neighborhood Disaster Preparedness Program Website [1]

Links
[1] http://www.cityofknoxville.org/development/neighborhoods/prepared.asp

Submitted by robincox on Thu, 10/02/2014 - 18:09.

The Problem

On April 27th 2011 over 60 tornadoes struck Alabama in entrained patterns resulting in 240 deaths, 2,200 injured and 14,000 homes destroyed. North Alabama suffered 2,200 unemployment claims and power outages caused massive inventory losses and impacted 194,000 workers. Eight TVA transmission feeds serve Huntsville and all 8 were down. The City was without power for 9 - 12 days. The ten surrounding counties were also without power for much of that time. Infrastructure support for critical services were lacking; In addition, Huntsville is home to several 24/7 operations that are mission specific: the International Space Station Command Center, the Army Material Command, and the Alabama Supercomputer Authority. Redstone Arsenal's critical energy demand was 65MW/day, only 4MW/day was avail thru its direct feed. The event and its lessons learned galvanized the community and its leadership around the notion of "how do we work together and prepare better" for the next natural disaster or cyber security attack.

Stakeholders Involved

Responsible parties to respond included TVA & Huntsville Utilities, our local distributor; Weather Services; Federal and municipal public officials, Hospital Administrators, EMA, Redstone Arsenal Garrison Command; Sheriff, Huntsville Police and Fire, first responders (HEMSI), CERT's and other volunteer organizing entities, area school administrators, and business community

Actions Taken

Hosted Infrastructure Resiliency Summit on June 28th 2011 to assess from stakeholders what happened, its impact, and suggestions for preparedness, response, recovery and mitigation.
Economic impact assessment was prolonged in its completion due to estimated 2 year length of full recovery. It took until July 10th to get all systems at TVA back online.
A report on the summit briefing was generated outlining each sectors challenges and plans to be better prepared. Highlighted goals for each sector are described below:

Computing Authority - increase amount of on-site power generation w/renewables and redundancy
Congressional - improve funding for local infrastructure improvements, train search & rescue teams
Commercial - improve infrastructure and have better contingency plan, establish cell phone charging centers and battery distribution for lights, radios and emergency devices
Weather Service - construct community buildings safe for EF-5, improve employee emergency contact list, and improve Emergency Alert System (too many for residents to follow)
Utilities - build more grid feeds, shore up existing, improve spare parts inventory, improve training for operators and line crews
Hospital - Develop renewable energy source, create shelter for employees close by to meet basic needs, create a evac and recovery plan if no shelter in place allowed, beef up 96 hour generator back-up plan
EMA - improve communications and geolocation ability among responders, develop debris management plan, streamline EMS messaging to public, develop building codes to improve safety
Redstone Arsenal - develop alternate power source onsite and interconnect to Cummings Research Park
Police - develop alternate power source for siren alert, establish counseling for responders, coordinate expanded regional response, develop food and suppliers plan for responders
DOE - integrate with state assurance plan, be prepared to last 3 days w/no support, engage DOE and DHS immediately, form partnerships to recovery efforts, engage in continuous disaster recovery

planning and drills

As is customary with disasters of this magnitude, the EMA appointed a Long Term Recovery Committee that worked until December 2013 on recovery specific to this event. This case study does not include the outcomes of that committee's work.

Outcomes

Since 2011, the community stakeholders have collectively and independently proceeded toward improving readiness, response and recovery. The Madison County Emergency Response Team comprised of local stakeholders and volunteers continue to meet quarterly to review progress and report updates. Drills and table top exercises are continuous and feedback immediate across the response teams.
Another significant outcome has been the ongoing work of the stakeholder community through its Cyber, Geo and Energy Huntsville Initiatives. In 2014, a rapid disaster response regional pilot program known as "Blueprint for Safety" was launched by the Geo-Huntsville Responder Working Group to integrate disparate technologies, platforms, and data models to ensure seamless communications of data, voice, and imagery in real time among responding agencies. (See attached document)

The team has incorporated multi-level access and cyber security capabilities that facilitate better situational awareness and understanding of events at a municipal or local government level.
This pilot project was designed in direct response to the after action reports and interviews of the first responders. A scenario similar to the 2011 event has been developed into a table top exercise slated for execution in late October 2014 at the EMA's Operations Center. The technology will be tested, reviewed and revised based on the input from players, observers and evaluators invited to participate. This scenario constitutes the first "use case" of the "Blueprint for Safety" toolkit, a component of a larger program called "Exemplar City".

Next Steps

Funding at the local level for resiliency coordination, training and infrastructure upgrades are still an issue. At the coordination level, "Blueprint for Safety" needs core funding and man-power to refine the tools and expand its applicability. This event provides only one use case for the tool. The potential to include aspects of "Blueprint for Sustainability" use cases around sustainability topics like energy systems, transportation and food security are worthy and relevant to expanding the Exemplar City model. The objective is to build safe, secure and sustainable communities using an integrated location-based technology foundation. As such, Exemplar City intends to test geospatial technology integration methods, create best practices (or use cases around the issues) that share geospatial data, and build workflows for automated information dissemination. The mission is to use geospatial intelligence to protect the local economy and security of its citizens to remain viable during a crisis. It is possible that the "Blueprint for Sustainability" model will be integrated into the city's long range urban plan that is currently under development, tied to its benchmarks and metrics, and funded through its capital improvement budgets in future years.

Lessons Learned

We are vulnerable.

Energy surety and security are vital to our community and national security.
There are economic opportunities in the challenges to overcome.
Third party and collaborative partnerships are essential at the micro and macro levels.
The learning is continuous.

Community Information

City of Huntsville, Alabama
Operation Green Team Director Joy McKee, Submitted by Robin Cox
October, 2014

Information Resources

BlueprintforSafetyConceptPaper-FINALDraft.pdf [1]
Huntsville-ExemplarCity-GEOINT-collateral-v2.pdf [2]
Critical Infrastructure Summit Report 2011.pdf [3]

Source URL: http://ssdn.nemac.org/node/34

Links
[1] http://ssdn.nemac.org/sites/default/files/BlueprintforSafetyConceptPaper-FINALDraft.pdf
[2] http://ssdn.nemac.org/sites/default/files/Huntsville-ExemplarCity-GEOINT-collateral-v2.pdf
[3] http://ssdn.nemac.org/sites/default/files/Critical%20Infrastructure%20Summit%20Report%202011.pdf

Submitted by pnierengarten on Thu, 09/04/2014 - 14:28.

The Problem

Fayetteville is in one of the most prosperious areas of the State. Despite this,19% of the population is food insecure, we have the second highest food stamp usage in the state and have seen a recent 300% increase in Food Bank use.

Further investigation uncovered that access to healthy local food is limited by Unified Development Ordinance. Fayetteville Citizens were limited in their abilty to sell home grown or home produced products from their residences. Citizens were also limited in the number of farm animals that they could keep on their property.

In order to build a more resilient food system in Fayetteville these problem would need to be addressed.

Stakeholders Involved

Local Farmers, University of Arkansas, Fayetteville Farmers Market, Fayetteville Forward Local Foods Group, Feed Fayetteville, TriCycle Farms, National Center for Appropriate Technology, City Council, Planning Commission

Actions Taken

In March 2013, the Fayetteville City Council passed a Resolution that requested City staff to review the Unified Development Ordinance and prepare amendments to allow residents to raise farm animals and sell corps, animals and animal products in non-agriculturally zoned areas of the City.

Staff spend the next year working with stakeholder and developing recommended changes that would allow greater food security and improve community food resilience.

Outcomes

In March 2014 the Fayetteville City Council passed the Urban Agriculture Ordinance (by a vote of 6 - 2) that would allow citizens greater ease in selling home grown or home produced produces from their residences and would allow greater numbers of farm animals on their property.

Metrics: Adoption of this policy helped Fayetteville achieve credit in STAR under Health & Safety 4: Food Access & Nutrition, Local Action #2: Food Policy and Code Adjustment.

Next Steps

City staff is working with local non-profit to provide education about how to properly keep farm animals in the City.

City Staff is working on revisions to rules and policies related to community gardens in attempt to increase participation.

Lessons Learned

Political strategy - Be willing to make necessary changes to the ordinance in order to get needed votes
Compromise - Get what you can, not necessarially what you would want in a perfect world
Messaging - Focus on the helping to decrease food insecurity and increase community food resilience

Community Information

Fayetteville, AR
Peter Nierengarten
March, 2014

Information Resources

Urban Ag FAQs.pdf [1]
Urban Agriculture - Peer to Peer Exchange [Compatibility Mode].pdf [2]

Source URL: http://ssdn.nemac.org/node/14

Links
[1] http://ssdn.nemac.org/sites/default/files/Urban%20Ag%20FAQs.pdf
[2] http://ssdn.nemac.org/sites/default/files/Urban%20Agriculture%20-%20Peer%20to%20Peer%20Exchange%20%5BCompatibility%20Mode%5D.pdf

Submitted by Carolee on Fri, 09/12/2014 - 14:53.

The Problem

Many businesses and work places want to be better stewards of resources and make more efficient use of their investments. Sometimes they feel that just one business can't make a big difference. However, the collective impact of multiple business can make a significant difference. Charleston being located just above sea level means that everyone has a stake in climate change as it relates to nuisance flooding, our changing eco system and sea level rise. This program gives individual workplaces the framework of 50 strategies to annually consider and more important, set goals for which they are held accountable, to some extent.

Stakeholders Involved

The Green Business Challenge (GBC) was created in 2010 by the City of Charleston through a partnership with our Chamber of Commerce, the Sustainability Institute, our local Green Fair, Charleston County, Lowcountry Local First and later the Medical University of South Carolina. This is a voluntary metro area program.

Actions Taken

Thus far we have completed 3 years of the GBC. There are 50 strategies and 100 points in the following categories;
Management & Operations
Energy Efficiency
Water Conservation
Waste Minimization and Recycling
Transportation Efficiency and Air Quality
Green and Local Purchasing
Eco Options and Community
Innovations

Outcomes

Over 3 years:
20 million sq ft participated
1400 new strategies were implemented
$120,000 in savings were reported (note not everyone reports results)
Saved enough energy to power 700+ homes for 1 year
Conserved enough water to supply 100 homes for 1 year
Reduced waste = 100+ trash trucks full
Additional Recycling = 165 trucks full

Next Steps

We are starting our 4th year of the GBC.

Lessons Learned

Celebrate successes!
Encourage data to be shared.
Learn from each other.
Look to others and partnerships for trainings

Community Information

Charleston SC

Information Resources

Charleston GBC [1]
GBC Brochure 2014.pdf [2]

Links
[1] http://www.charlestongbc.com
[2] http://ssdn.nemac.org/sites/default/files/GBC%20Brochure%202014.pdf