



THE DALLAS INSTITUTE
OF HUMANITIES AND CULTURE

What Makes a Resilient City?

Report of the Conference

April 19, 2013

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Report of the Conference

What makes a resilient city? Over 100 attendees explored that question at Dallas City Hall with complexity and security scholar Dr. Thomas Homer-Dixon and sociologist Dr. Eric Klinenberg, joined by Dr. Gail Thomas and local thought leaders in panel discussions. The Institute is pleased to provide this summary of high points of the conference, which examined resilience at the system, community and individual level.

OPENING REMARKS BY DR. GAIL THOMAS



Two years ago, author Joel Kotkin said Dallas is poised to be one of the most vital cities of the 21st century – perhaps one of the four most vital and most important in the world. Perhaps he was speaking to Dallas’ chief asset: Dallas’ great spirit. Or he may have been referring to our fatal flaw: the mighty hubris of Dallas. The spirit that drives this city also inflates our hubris. A continuing and contagious hubris would prevent any precautions or preparations for becoming resilient, while a conscious recognition of Dallas’ spirit might be the very humus in which such resilience might grow.

Over the past 32 years, the Dallas Institute’s Center for the City has produced programs that speak to Dr. Donald Cowan’s “three moments of learning.” In the 1980s we were *grasping*, with program topics that dealt with ideas about the city. In the 1990s we started *mapping*, with programs about urban design. And in 2007 we began to chart a course for *making* these ideas with programs that showcased the Trinity River plan and the Calatrava bridges and explored the 21st century city.

After the dreaming, the planning, and the building of our house, it’s now time to go to work on the security system, and that brings us to the notion of resilience. Resilience is in both the huge spirit and enormous hubris of Dallas. We are thrust down, and we come back. I believe Dallas has had three foundings: the 1841 founding by John Neely Bryan; the post-assassination era when Mayor Jonsson was determined to remake the image of Dallas; and the era following the cataclysmic turns of 1987 in economics, sports, religion and politics.

We’re now launching a new founding: a turn toward nature. It’s reflected in a desire for a more natural lifestyle: walking or biking instead of driving; outdoor cafes, opening up the Great Trinity Forest with trails, reclaiming the Trinity River, canoeing and kayaking, the green policies and procedures in planning and building. This turn recognizes our human need to honor nature and to acknowledge the fact that we have not done so in our frantic attempts to conquer her.

*And for all this, nature is never spent;
There lives the dearest freshness, deep down things.*

- Gerard Manley Hopkins

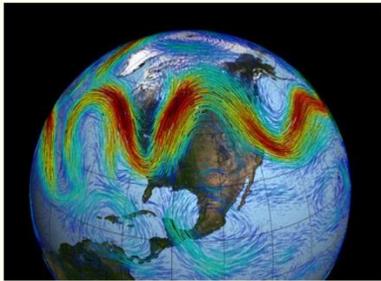
MORNING KEYNOTE BY DR. THOMAS HOMER-DIXON



Dr. Homer-Dixon, complexity scholar and author of *The Upside of Down: Catastrophe, Creativity and the Renewal of Civilization*, identifies two distinct and equally important types of resilience. The first is the concept we're most familiar with, *engineering resilience*: bouncing back to the status quo after a disruptive event. The second and less familiar type, *ecological resilience*, is about adaptation and deep change through creative destruction.

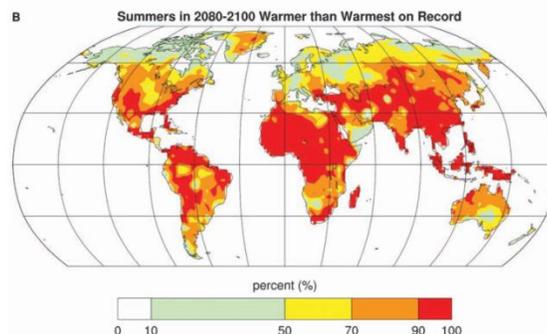
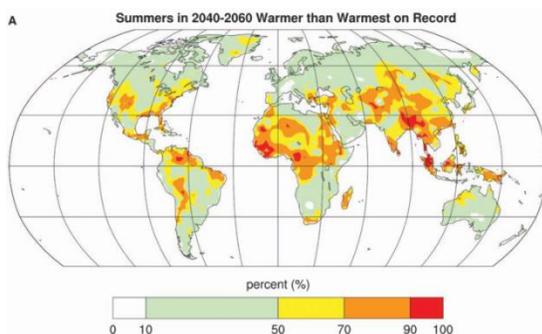
His discussion of Resilience – the “Up” in his book title - was the second of the two major themes of his talk. He began with a discussion of the increasing incidence and severity of shock as our world changes - the “Down” of his book title. It's in confronting shock and crisis that we create resilience and the potential for Up.

Shock



Dr. Homer-Dixon began his discussion of shock with climate change, a topic he has studied for 30 years. He explained how warming in the Arctic basin reduces sea ice, which raises the atmospheric pressure. That in turn disrupts the circumpolar vortex that generates the jet streams. The result is that jet streams – known as Rossby waves – are becoming larger in amplitude and staying stationary for long periods of time. In October 2012, Hurricane Sandy made a very unusual left turn over land rather than a right turn toward the Atlantic Ocean. Sandy “bounced off this blocking structure in the atmosphere and headed into land with stunning consequences.” He argues that “this kind of thing is going to become more common in the future” and that resilience is about being prepared for extreme events of various kinds and making sure they don't do enormous damage.

He said that research indicates a high likelihood of extreme summer heat events around the world that will affect food production because many crops are sensitive to short periods of high heat. A 2009 paper looked at the likelihood of summers being warmer than the warmest summer on record as of 2006, the latest data available at the time. In parts of Texas, for any given summer in 2040 to 2060, there is a 70 to 90% chance that the summer will be warmer than the warmest summer on record; during 2080 to 2100 the likelihood rises to 90-100%. Note the predictions for areas of the planet with large human populations.



Even if we're skeptical of climate science we have to recognize that there is significant evidence to suggest that this is a possible future. And if it is, we need to be thinking about buying some insurance. What are we going to do to be able to cope with this future should it come to pass?

He observed that we are seeing more frequent shocks of higher magnitude: not only climate events but shocks like the continuing global economic crisis, failure of technological systems such as electrical grids, and health shocks like avian flu or SARS. There are two major reasons why we're seeing more shocks: the convergence of simultaneous stresses, leading to an overload of our coping capacity; and the rising complexity of social, technological, and human ecological systems. We increasingly have to cope with simultaneous shocks that interact with each other in a multiplier effect that increases their overall severity.

Our world is characterized by complex systems that have *emergent properties*, he explained. They display *nonlinear behavior* and can suddenly flip from one pattern of behavior to another. They have *threshold effects* and can jump from one equilibrium to another, often with very little or even no warning. As a consequence, complex systems cannot be easily managed because their behavior is unpredictable.

He said that we're moving from a world of *risk* to a world of *uncertainty*. In a world of risk, we can look at the possible decision options, analyze the potential costs and benefits along each of those pathways, and make a rational analysis based on the available information. In a world of uncertainty, we don't even know what the pathways are, let alone the potential costs and benefits of going down any of those pathways. We're in a world of deep ignorance – a world of “unknown unknowns.”

Resilience

Resilient people, business, and societies:

- Can withstand shock without catastrophic failure,
- Have the capacity for self-reliance, and
- Are creative in response to novel challenges.

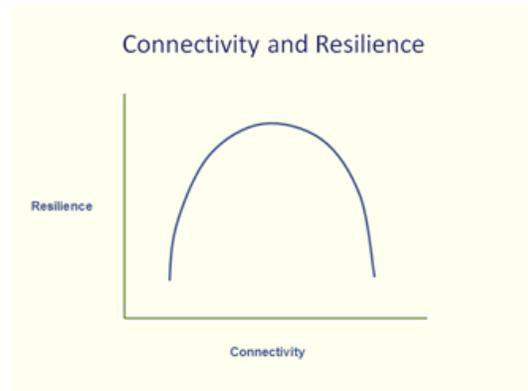
These first two points are elements of engineering resilience – returning to the status quo before the shock. The third is about ecological resilience – innovating in response to a shock. Every community needs to do them both.

There are two main ways to increase *engineering resilience*:

- Diversify sources of critical inputs and forms of problem-solving knowledge.
- Loosen coupling in key systems (reducing connectivity, increasing self-sufficiency in key inputs, and boosting redundancy of key internal components)

The most adaptive systems we know in the world are characterized by high levels of diversity. Different kinds of knowledge within corporations, city administrations and communities isn't waste or slack to be eliminated; it's a very important part of being responsive to situations characterized by a lot of uncertainty.

Because of the emphasis on efficiency and the removal of slack, our systems have become more tightly coupled. Loosening coupling helps ensure that a shock that happens in some distant place doesn't propagate across a tightly coupled network like a row of falling dominoes and hurt us.



This is based on an underlying and controversial idea that the relationship between connectivity and resilience looks like an inverted U. As you increase connectivity, resilience does increase up to a point, then it starts to decline. If there's too much connectivity, if a system is tightly coupled, then a shock can cause the whole system to go down. That's not resilient. So the question becomes, what kinds of connectivity can we reduce, and how much, to find something approximating that sweet spot at the top of the curve?

Ecological resilience: adaptation and deep change by

- Decentralizing problem solving
- Boosting the rate of safe-fail experimentation
- Planning in advance for political action when shock occurs

Highly adaptive, innovative systems tend to have decentralized problem solving. They don't centralize the problem solving at the top of a hierarchy, they move it out into a network.

We know from personal experience that we often learn the most from failure. Promote a lot of experimentation, and make sure that when one of these experiments fails, the information about that failure propagates as fast and as far as possible through the network so others in the system can learn from it.

Planning in advance is the most radical idea buried deep within resilience, and it's almost wholly unrecognized. Crisis can create opportunity if we're ready to exploit it. But a community will be much better able to move things down a more positive pathway after a shock if it has thought in advance about what it wants to do and is prepared to exploit the moment of crisis in order to get there. **This is the upside of down**, and planning must be a community effort:

This is about conversations and activities that happen in community groups distributed across the region. It's not something ultimately that can be orchestrated or managed by the leaders of the community; it's a more organic process.

In preparation for the conference, he studied the *North Texas 2050* report from Vision North Texas (www.visionnorthtexas.org), and he characterized it as a "remarkable document, a very impressive piece of work." He said that a litmus test for evaluating communities' resilience planning is to ask about trees because they are extraordinarily vulnerable to climate change. He cited Chicago's urban forest plan as a specific example of good resilience planning.

He concluded his remarks by urging us to view building resilience as a community project:

In the end, thinking about our children gets us thinking about WE – it's a way of reaching out to other people and saying this is what it's really about. It's about building a world for the future, for our children, in which they have the prospect of the same kind of prosperity and potential for flourishing that we've had in our lives. We have to do that together; otherwise there's no possibility of resilience.

During the Q&A session, Janette Monear of Texas Trees Foundation said that during the 2011 drought Texas lost 306 million trees, and she noted the difficulty in finding resources for urban forestry. Dr. Homer-Dixon responded that people mistakenly think that an urban forest is a luxury. He pointed to India, where there's hardly any urban forest: "You see what it's like to not have trees, and it's miserable." Heat has an enormous economic impact in terms of reduced productivity, and trees help mitigate urban heat. "This is not a luxury item," he said. "It's actually essential to the well-being of the city. What you do now will have consequences in the middle of the century."

MORNING PANEL DISCUSSION

Moderator: Dr. Larry Allums, *Dallas Institute of Humanities and Culture*

Panelists:

- Hon. Vonciel Jones Hill, *Dallas City Council member*
- Tony Robinson, *Axis Building Consultants*
- Jack Matthews, *Matthews Southwest*
- Karen Walz, *Strategic Community Solutions*
- Dr. Thomas Homer-Dixon

The conversation revolved around three main themes: our common humanity and responsibility, the role of government, and the need for regional action.

Our common humanity and responsibility

Judge Hill began the conversation with a story that illustrated our common humanity – the sense of WE – which is the soul within, the deep space within us that connects us to each other and allows us to empathize with others. Dr. Homer-Dixon responded that recognizing this shared humanity is the starting point in creating resilience. Tony Robinson pointed out that we are the single species which can have a global and simultaneous impact on the environment. Jack Matthews, considering our lack of response to the warnings about climate change, invoked the image of Cassandra, the prophetess who could see the future whose warnings went unheeded. These observations bear on the topic of our responsibility as *citizens*, which Tony distinguished from *residents*: a resident is self-interested, but a citizen takes responsibility for helping the whole community, and resilience requires exercising citizenship. Karen Walz pointed out that every level of action matters: decisions that people make as individuals, households, businesses, organizations, cities, and as a region are all important because there isn't any single level where sufficient change can happen.

Collective action and the role of government

Dr. Homer-Dixon wove all of these observations together in a response that articulated a role for government in helping a community build resilience:

I admire the American ethos of small government, enormous amounts of individualism and entrepreneurship and individual resilience and creativity, but we face some challenges where those attributes are not actually going to allow us to cope, they're actually making the situation worse. It's a particular challenge in societies where there's a more individualistic as opposed to a more collectivist or communitarian ethos... The foundation for overcoming that collective action problem has got to be that conception of common fate, the WE... Government is a reflection of the collective will. We've learned through past crises that there are some things that we need to do collectively that we can't do individually, and the only way we can coordinate and pay for that action is through government.

Tony cited the historic role of government in helping to launch emerging technologies and industries, such as the public/private partnership that made Bell Labs an unequalled source of innovation. Government helps bear the initial risks then “gets out of the way and lets the free market system do what it does best, which is to innovate through competition.” Dr. Homer-Dixon cited the U.S. Department of Energy’s ARPA-E program as a good example of government support for basic research around energy and encouraged the audience to look at the website (<http://arpa-e.energy.gov/>).

The need for regional action

Jack pointed out how conflict can arise when a city tries to address a legitimate common interest by restraining development. Similarly, conflicts arise between cities that compete with each other for development. Dr. Homer-Dixon has seen it elsewhere:

Developers who want to do the right thing find themselves at an incredible disadvantage. Cities that want to do the right thing undermine their tax base because businesses will flee or people will live somewhere else because taxes are higher. There's only one way to deal with this: there has to be a level playing field across the region, and it comes back to the issue of WE – the region needs to see this as a collective challenge and act together.

Karen described Vision North Texas as a process where stakeholders from all over the region came together to visualize a “better than business as usual” future:

There's a lot to be said for the idea that the more urban parts of the region play an important role in encouraging more compact development and still find a way to maintain some of the open space around the edges. Whether it's traditional agriculture, urban agriculture, local distributed renewable energy - there are a lot of alternatives to business as usual. But that requires regional action and implementation, and it requires leadership at all levels.

AFTERNOON KEYNOTE BY DR. ERIC KLINENBERG



Dr. Klinenberg began by praising the Institute for hosting this “cutting edge conversation,” pointing out that the challenge we’re facing is “profoundly a cultural challenge about our values, our beliefs, our practices and our ways of organizing our lives and communities.”

The motivating idea for his presentation was that “events can matter.” They can be turning points that set us onto a new course, but they can “not matter also” if they’re swept over as if they never happened. He focused on two big climate events and their lessons: the Chicago heat wave of 1995 and Hurricane Sandy in 2012.

Chicago Heat Wave - 1995

Dr. Klinenberg’s 2002 book chronicling this 2 ½ day climate event and its lessons is *Heat Wave: A Social Autopsy of Disaster in Chicago*. The temperature rose to 106° with heat index as high as 126°. Nighttime temperatures stayed about 80°. The city set a record for energy consumption as people ran air conditioning, and 250,000 homes lost power. The city also experienced a water shortage as thousands of hydrants were opened by residents who lacked air conditioning in an effort to stay cool. Infrastructure became stressed: streets buckled, plates on bridges expanded, and trains started to derail.

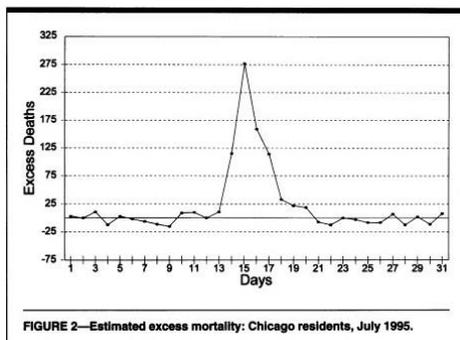


FIGURE 2—Estimated excess mortality: Chicago residents, July 1995.

Heat waves kill more people in a typical year than hurricanes, tornadoes, earthquakes and floods combined, and this heat wave created a public health crisis for which the city was unprepared. People got sick by the thousands with heat-related illnesses and filled up emergency rooms. Ambulances full of patients drove around looking for open ERs, and the city refused to call in additional ambulances from suburban areas where they were available. The result was a massive spike in

mortality: 739 excess deaths were attributed to the heat.

Although Chicago prides itself on its community life, hundreds died alone. Deaths were clustered in the high poverty, segregated neighborhoods on the south and west sides. It’s not surprising that disasters typically target vulnerable people in vulnerable places, but three of the ten neighborhoods that had the lowest death rates were almost entirely African-American, poor with high crime. Statistically, these neighborhoods were strikingly similar to neighborhoods with high death rates. So something else was going on.

His explanation is that the *social infrastructure* of a place helps determine peoples’ capacity to live or die. The areas with high death rates weren’t just poor, segregated and African-American; they were *abandoned*. In the decades leading up to the heat wave, they had lost population, mom & pop stores, grocery stores, maintained sidewalks, services, and jobs – they were scenes of destitution. Neighborhoods like this become dangerous; they encourage people to “hunker down” at home for safety rather than drawing the vulnerable out into public spaces.



By contrast, even poor neighborhoods can provide a density that encourages people to integrate their lives in powerful ways. (Photo: the Little Village in the South Lawndale neighborhood.)

As we anticipate the next disaster, we should ask, how do we target resources to places that are most in need?

If what you want to do is get bang for your policy buck and drill down and find the places that are really vulnerable versus the places that are going to be a little better, you have to recognize that there's variation among those neighborhoods. There are certain places that are more vulnerable because of the characteristics of those neighborhoods.

He charged Chicago's leaders not just with failure to follow the heat plan that had been prepared before the event but with trying to make sure that "this incredible catastrophe" passed with as little notice and study as possible. The city refused to hold public hearings, instead organizing a commission to publish a report that was largely ignored.

In 2003, one year after *Heat Wave* was published, an even more devastating heat wave assaulted Europe for three weeks, and it seemed that the leaders had learned no lessons from the Chicago event. The estimates of excess heat-related deaths range from 35,000 to 50,000.

Hurricane Sandy - 2012



The photographs are striking: destroyed neighborhoods, power lines felled by trees, flooded streets and subways, and a large part of Manhattan in the dark. He described an "incredibly vulnerable" communications network and how frightening it is to be in a crisis and not have access to information. With 1/3 of U.S. households not having no land line telephone and so many people dependent on cellular phones, we need to examine how well our

communications infrastructure will work in times of crisis.

Another thing to consider is the power infrastructure's ability to perform in crisis. Above-ground power lines are vulnerable to trees. Con Ed's retaining wall was lower than the storm surge, and its generators were flooded. The backup generators at NYU Hospital were in the basement and flooded. We probably can't fully "climate-proof" our cities, but we need to talk about our cities' vulnerabilities and address the challenges. He emphasized "dual use" options for design, such as a park in Rotterdam that can be transformed into a reservoir. How might Dallas store excess water and convert it for real needs – turn the threat of flooding into an opportunity?

Social connections are as important as physical infrastructure. He described the surf club in Rockaways that became a hub for the community after Sandy, organizing 6,000 volunteers to serve tens of thousands of people. “Our capacity to organize matters,” he said. A neighborhood that has a rich set of community organizations will be more resilient than one that doesn’t, and the difficulty of sustaining community organizations in abandoned neighborhoods is a policy challenge that needs to be addressed.

Social organization doesn’t necessarily involve the use of technology. He described a Chicago neighborhood that’s creating community gardens out of abandoned spaces, bringing people together to deal with multiple issues at the same time, involving young people and providing much-needed fresh produce.

He concluded by challenging us to bring together visions of physical and social resilience so that events like Sandy don’t become “non-events” because of our failure to learn their lessons:

Right now it feels to me like Sandy could be that moment; it feels to me like Sandy could be a turning point. We might be starting a new conversation about how to make cities and communities in light of the threats that we face. But we also might not.

AFTERNOON PANEL DISCUSSION

Moderator: Hon. Lois Finkelman, *former Dallas City Council member*

Panelists:

- Dr. Andrew Shatté, *Phoenix Life Academy*
- Alfreda Norman, *Federal Reserve Bank of Dallas*
- Brent Brown, *bc Workshop*
- Eric Klinenberg

Individual resilience

Andrew Shatté pointed out the connection between personal resilience and a resilient community. We learned from Dr. Klinenberg that resilient communities have a strong social infrastructure, and individual resilience comes from making connections. However, what builds individual resilience is the connection to something larger than oneself. He pointed to research on a group of people who were economically devastated by the 2008 recession yet were happy, well adjusted, and satisfied with their lives. What made them resilient? They all scheduled beauty and humor into their day. But most importantly, they grounded themselves in something bigger than themselves. “They connected to a slice of eternity: something that was here before they arrived and would be here after they had gone.”

He shared research about seven specific elements of resilience that can be measured and strengthened, with dramatic results:

- Emotion regulation: the ability to control your feelings when you’ve gone through an adversity and remain goal-focused
- Impulse control: your ability to control your behaviors in the midst of an adversity and remain goal-focused
- Causal analysis: your ability to see all the causes of a problem when you’re hit by it, determine what you’re able to control and deploy your resources accordingly

- Self-efficacy: a belief in yourself, that you have mastery in the world
- Optimism that is reality-based
- Empathy
- Reaching-out: the positive side of resilience, the ability to milk an opportunity

Alfreda Norman shared some research from a recent Federal Reserve conference on resilience in low-income communities. (See the evidence-based research and information at http://www.frbatlanta.org/news/conferences/13resilience_rebuilding_agenda.cfm.) She stressed the importance of stories in helping us empathize with people in fragile situations, allowing us to cut through the abstractions of poverty and understand how resilient they need to be just to get through every day.

Strengthening neighborhoods through collaboration and design

Brent Brown pointed out that we have neighborhoods in Dallas that resemble the abandoned neighborhoods in Chicago described by Dr. Klinenberg. Solving the social challenges of the city has a lot to do with how we physically build our city. Neighborhood design offers a way to advance the public interest, but it has to be done by combining technical expertise with the local expertise of the community residents. Alfreda added that, because of the complex nature of the problem, people from multiple disciplines - sociologists, artists, health professionals, community development professionals – have to be included in the conversations.

Dr. Klinenberg pointed to research that says people who live in abandoned neighborhoods like those in Chicago that he described have life spans that are shorter by five years than people who live in intact neighborhoods. Brent added that research from the Centers for Disease Control that says the primary impact on health is a person's physical environment.

Dr. Klinenberg criticized Chicago for failing to invest in community gardens because they are the kind of places that generate local connection that matters, including in time of crisis. Cities need to invest in neighborhoods and encourage people to participate in local events. For example: cities have cut programs like senior centers that are crucial places where vulnerable older people can establish neighborhood level connections.

What's next?

Brent thinks we are at a turning point in Dallas history:

We are at a special place in the history of our city – in the next 10 years I believe we have great opportunity for Dallas. I'm not talking about it just from a development or economic standpoint. I'm talking about the way we shape our city socially and physically to be healthier, more loved, and joyful.

Dr. Klinenberg observed that not very many communities are coming together to think about this problem, and it's exciting that we are here right now. The question is, What comes next?

*Are there organizations in Dallas and North Texas that are going to take on this problem in a specific and productive way? What do you make of the day? Wouldn't it be cool if we could come back here a few years from now and say, **that started at this meeting?***

Appendix

Lunch Exercise April 19, 2013

The lunch exercise engaged 88 participants at 11 tables in a structured conversation around the following question: *What things should North Texans do to make our region more resilient?*

Think about actions that can be taken by:

- *Individuals*
- *Community organizations (neighborhoods, nonprofits, foundations, faith communities)*
- *City governments*
- *Businesses*

Scribes at each table captured the comments, all of which are collected here and organized by category. Some comments responded to the framing of the question and suggested actions by individuals, community organizations, governments and businesses. Other comments focused on the types of actions rather than the actor. We have organized the comments to show the patterns and areas of greatest concern. Repetitive comments are included as evidence of the level of concern or interest: some topics came up in many conversations. Please note that this exercise occurred after Dr. Homer-Dixon's talk and before Dr. Klinenberg's talk.

SUMMARY OF COMMENTS

Some comments responded to the framing of the question and suggested actions by individuals, community organizations, governments and businesses and included the following:

- **Individuals:** Familiar actions that promote sustainability such as recycling, ride sharing and public transit, conserving water and energy, consuming less.
- **Communities:** Use technology to network and engage all stakeholders.
- **Government:** Economic incentives, regulations and code reform, mass transit, recycling.
- **Business:** Reduce packaging, engage in conscious capitalism, lead city leaders.

Other comments focused on the types of actions rather than the actor. Ideas included:

- **Leadership, citizenship and collaboration:** Collaborate with all stakeholders for collective impact, help "residents" become "citizens" through active participation, engage vulnerable populations.
- **Regional action:** Increase collaboration and minimize competition through a coordinating vehicle with enforcement authority, look at other regional examples.
- **Education:** Educate both children and adults for resilience.
- **Communication and messaging:** Define resilience and sustainability, respect the local culture, make the economic case for businesses and individuals, de-politicize the subject, learn from local successes, use existing organizations and networks.
- **Water conservation:** Encourage conservation with tiered pricing.
- **Food and agriculture:** School and community gardens, food emergency planning.
- **Natural infrastructure:** Leverage watershed, plant trees, reduce impervious surfaces.
- **Built environment:** Re-evaluate development patterns, encourage density, retrofit existing infrastructure.

Email Ann Drumm at anndrumm@swbell.net for the complete list of comments.