



R526

Dear National Fire Academy Student:

Congratulations on your acceptance into the U.S. Fire Administration's National Fire Academy's (NFA) *Fire and Emergency Services Predisaster Long-Term Recovery Planning* (R526) course. This 6-day course will prepare the student to support long term community wide disaster recovery decision making. The course goal is to develop fire and allied emergency service student knowledge and skills as key players and catalysts for long term recovery planning. Interagency and interdisciplinary collaborative approaches are used to identify opportunities for improved community emergency services post disaster outcomes. The target audience is local emergency services personnel from a variety of disciplines. Ideally, 2-5 students would be recruited from a community/ regional planning group or from various elements of an emergency services organization. As an interagency/interdisciplinary team they would focus on their community's hazard analysis and vulnerability assessment and opportunities to reduce life loss and property damage in the post disaster recovery environment. Students will be required to bring information about community/regional disaster history, current planning efforts and anticipated planned growth and development.

In order for the course to be meaningful, you need to do the following fifteen things before coming to Emmitsburg.

1. Read or listen to the book *The Edge of Disaster: Rebuilding a Resilient Nation*. Stephen Flynn, 2007. Random House, ISBN: 978-1-4000-6551-6 This book is available in [Hardcover](#), [Audio CD](#), [Audio Cassette](#), and [Audio Download](#).
2. Read or listen to the book *It's Your Ship: Management Techniques From the Best Damn Ship in The Navy*. Captain D. Michael Abrashoff, 2002. Warner Business Books, ISBN: 0-446-52911-7. This book is available in [Hardcover](#), [Audio CD](#), and [Audio Download](#).
3. Prepare your written responses to *It's Your Ship: Management Techniques From the Best Damn Ship in The Navy* questions. Responses will be collected day-one of the course.
4. Read the article, *Developing Sustainable Communities: The Future Is Now*.
5. Complete the *Developing Sustainable Communities* Activity.
6. Read the article, *Making A City That's So Unique That Everybody Wants To Come*.
7. Read the article, *Building Back Better: Creating A Sustainable Community After Disaster*.
8. Read the text, *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets*.
9. Read the article, *Coping With Disasters By Building Local Resiliency*.
10. Read the review article, *The Tipping Point: How Little Things Can Make A Big Difference*.
11. Read and familiarize yourself with the *Disaster Recovery Vocabulary List*.
12. Read and familiarize yourself with the Stockton Demographics information.
13. Read and familiarize yourself with the Stockton Tornado information
14. Read and familiarize yourself with the Stockton Long-Term Recovery information.
15. Familiarize yourself with the Local Mitigation Strategy Community Guiding Principles Chart.

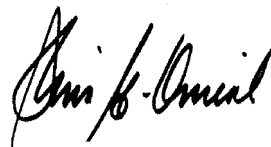
It is important to note that this is a 6-day class, and the first day of class will begin on Sunday at approximately 8 a.m. Subsequent classes will meet daily from 8 a.m. to 5 p.m. with graduation occurring on Friday at 4 p.m. Because of this schedule, you will be provided lodging for Friday night. Evening classes may be required.

End-of-class graduation ceremonies are an important part of the course and you are expected to attend. Please do not make any travel arrangements to leave campus until after you and your classmates graduate.

Increasing numbers of students and instructors are bringing laptop computers to campus. You alone are responsible for the security and maintenance of your equipment. The Academy cannot provide you with computer software, hardware, or technical support to include disks, printers, scanners, etc. You may now bring memory sticks (Thumb Drives) to connect to government computers or networks. There is a limited number of 120 Volt AC outlets in the classrooms. A Student Computer Lab is located in Building D and is available for all students to use. It is open daily with technical support provided in the evenings. This lab uses Windows XP and Office 2007 as the software standard.

Should you need additional information related to course content or requirements, please feel free to contact Ms. Colleen Heilig, Planning and Information Management Curriculum Training Specialist at (301) 447-1613 or email at colleen.heilig@dhs.gov

Sincerely,

A handwritten signature in black ink, appearing to read "Denis Onieal". The signature is written in a cursive style with a large initial "D".

Dr. Denis Onieal, Superintendent
National Fire Academy
U.S. Fire Administration

PRE-COURSE MATERIALS FOR FIRE AND EMERGENCY SERVICES PREDISASTER LONG-TERM RECOVERY PLANNING

Pre-Course Readings

1. Read the article, *Developing Sustainable Communities: The Future Is Now*.
2. Read the article, *Making A City That's So Unique That Everybody Wants To Come*
3. Read the article, *Building Back Better: Creating A Sustainable Community After Disaster*.
4. Read the text, *The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets*.
5. Read the article, *Coping With Disasters By Building Local Resiliency*.
6. Read the review article, *The Tipping Point: How Little Things Can Make A Big Difference*.
7. Read and familiarize yourself with the Stockton Demographics information.
8. Read and familiarize yourself with the Stockton Tornado information
9. Read and familiarize yourself with the Stockton Long-Term recovery information.
10. Familiarize yourself with the Local Mitigation Strategy Community Guiding Principles Chart.

Vocabulary List

Students should read and study the vocabulary list. They will participate in an activity that tests their knowledge and understanding of the vocabulary presented in this list.

Read or Listen to the Books

1. *The Edge of Disaster: Rebuilding a Resilient Nation*.
Stephen Flynn, 2007. Random House, ISBN: 978-1-4000-6551-6 This book is available in [Hardcover](#), [Audio CD](#), [Audio Cassette](#), and [Audio Download](#).
2. *It's Your Ship: Management Techniques From the Best Damn Ship in The Navy*.
Captain D. Michael Abrashoff, 2002. Warner Business Books, ISBN: 0-446-52911-7. This book is available in [Hardcover](#), [Audio CD](#), and [Audio Download](#).

Pre-Course Activities

1. Prepare your written responses to *It's Your Ship: Management Techniques From the Best Damn Ship in The Navy* questions. Responses will be collected day-one of the course.
2. Complete the Developing Sustainable Communities Activity.

Developing Sustainable Communities: The Future is Now

Don Geis and Tammy Kutzmark

1. Define Sustainable.
2. Forces Driving Sustainability? How do they apply to your community?
3. Instead of defining sustainable, local government should...
4. What is the mistake in simply “going somewhere” (development)?
5. What are the ten steps to implementing sustainability?
6. Identify sustainable issues in “Discover Charlotte” page 9.

Developing Sustainable Communities:

The Future is Now

Don Geis and Tammy Kutzmark

We shall require a substantially new manner of thinking if mankind is to survive.

- Albert Einstein

Communities of the future will be very different from the ones we live in today. These communities will need to be different because, as we move through the end of the twentieth century and into the twenty-first, we face a whole new set of socioeconomic, technological, and global forces that are unlike those that brought us to where we are today. The renaissance fueled by these forces will dwarf any we have experienced until now. It will alter dramatically the way we live in our communities, their form and function, and, most critically, the way we plan and develop them. **At stake is the quality of life, not only for us but also for our children and grandchildren.** Local governments will need to understand these forces and to move one step ahead, using this knowledge to maximize the planning and development process and to improve the places in which we live.

Only by applying this knowledge can we sustain our communities and derive benefit from an increasingly complex future. The **challenges that we as a nation face**--economic viability, deteriorating infrastructure, natural disasters, environmental pollution, social disintegration, loss of community, crime and violence, urban blight, and unmanaged growth--**can be viewed either as our shared doom or as our common call to action, a universal opportunity to change, improve, and optimize.** Sustainable communities are nothing less than the key to optimizing our future.

What are sustainable communities? Why are they important? What benefits do they bring? How can we create them? How have communities successfully applied the principles of sustainable development? This article will address these questions and provide local governments with a framework of knowledge that they can use to sustain their communities through the planning and development of the built environment. Its objectives are, first, to demystify and "practicalize" the concept of sustainability and, second, to **explain how local governments can apply the important tools of this process to achieving sustainable communities.**

Origins of Sustainability

The 1994 ICMA Annual Conference in Chicago included a session entitled Planning Sustainable Communities: The Future Is Now. This session was attended by more than 125 ICMA members, a turnout that shows considerable interest in this approach. Over the past five years, sustainable development has found favor with a number of national and international organizations, including the President's Council for Sustainable Development (PCSD), the National Association of Counties, Public Technology, Inc., Concern, Inc., and the United Nations (U.N.). Communities across the nation--from Seattle, Washington, and Portland, Oregon, to Austin, Texas, and Boulder, Colorado, to Valmeyer, Illinois, and Chattanooga, Tennessee--have implemented programs in sustainable development to resolve problems of public transportation, recycling, energy conservation, natural hazard mitigation, and other matters.

Some of the first ideas of sustainability came in the 1950s from Aldo Leopold, who raised concern for an environment's carrying capacity, or its ability to absorb human influence and still sustain all of its life forms and processes. In the 1970s, Garret Harding placed that concern squarely in the community context with his compelling Tragedy of the Commons, which described the destruction of a village green through individual cases of overgrazing.

Webster's dictionary defines **sustainability** as "using a resource so that it is not depleted or permanently damaged." The key words are **resource and use**. Essentially, sustainability is the effective use of resources--natural, human, and technological--to meet today's community needs while ensuring that these resources are available to meet future needs.

The most commonly accepted definition of sustainable development came from a 1987 report by the U.N. World Commission on Environment and Development (UNCED): it is development "**that meets the needs of the present without compromising the ability of future generations to meet their own needs.**" This general definition has been used to identify more specific policies. William D. Ruckelshaus, former administrator of the Environmental Protection Agency, reinforced the integral relationship between economic development and resource conservation in a September 1989 article in *Scientific American*, in which he defined sustainability as "the emerging doctrine that economic growth and development must take place, and be maintained over time, within the limits set by ecology,...the interrelations of human beings and their works, the biosphere and the physical and chemical laws that govern it It follows that environmental protection and economic development are complementary rather than antagonistic processes."

Concern, Inc.'s definition begins actually to detail the sustainable community as one that "...seeks improved public health and a better quality of life for all its residents by limiting waste, preventing pollution, maximizing conservation and promoting efficiency, and developing local resources to revitalize the local economy."

The sustainable community is a model, an ideal set of goals to work toward. But it also is a philosophy for envisioning those goals and a practical problem-solving process for achieving them. The problem is clear: perhaps the most telling reflection of our community's character can be found in the built environment, yet increasingly it reflects disorder and disintegration. People cannot walk and play safely, neighborhoods lack cohesion, buildings are out of scale with their surroundings, human encounters are marked by fear, and the natural environment is overused and polluted.

But we are trying to solve new problems with outdated perceptions and planning. Before local governments can provide the quality of life that their communities will require to survive, they will need to change their perceptions of "community" and to translate those new perceptions into practical methods of planning, developing, and rehabilitating those communities.

This approach--sustainable development--can revolutionize the way local governments guide community growth, socially, environmentally, and technologically. It represents the best possible opportunity to apply the existing tools of the planning and development process toward goal-driven decision making. The practical understanding and application of sustainability are keys to improving the life--and quality, of life--of a community.

Forces Driving Sustainability

While sustainability has its roots in the environmental traditions of the past, it also is influenced greatly by forces unique to this decade. Local governments can recognize these forces from their impacts on a variety of decisions made in their own communities over the last 10 years. Then, they can begin to see these same forces as part of the larger picture of sustainable development, which can unite these decisions in a comprehensive and integrated strategy to guide them into the future. These forces include:

Limited resources. Natural and human resources are finite. Local governments face declining forest and range lands, spiraling utility costs, unskilled workers, and countless other limitations that demand a "more with less" strategy. And where, in the past, a viable economic base or federal dollars would have applied at least a bandage to the problem, communities today face footloose industries, difficult bond markets, and a federal government that mandates more and funds less.

Urbanization. The classic American urban form--strip development, superhighways, and subdivisions--proliferates across the nation's landscape, reaching small towns and rural communities that are unacquainted with and often resistant to this form. At the same time, such traditional urban hubs as Los Angeles, Phoenix, and Washington, D.C.,

experience an exploding population growth that creates spillover and sprawl and overwhelms the urban capacity for clean water and air, affordable housing, and waste management. Ironically, these trends have happened in the name of progress.

Scientific knowledge. The field of data collection and analysis has evolved to provide an improved understanding of the social and environmental impacts of the planning and development actions taken over the last century. With the new tools of the scientific method--land satellite technology, geographic information systems, census data, risk analysis, and others--decision makers have more information and accountability than ever before about how communities work, how decisions have affected them, and what should be done in the future.

Technology. Technology's revolutionary hand is seen in the automobile, high-speed transit, and a communications industry that has devised the CD-ROM, the fax machine, and the Internet. It has created and revolutionized entire industries: cable television, agribusiness, and recyclables, to name a few. If used effectively, a "technology of community" could connect people and their institutions, resolve conflicts, build markets, optimize existing businesses, maintain equal access to goods and services, and begin to achieve other community-driven goals.

Social awareness. American society is increasingly aware of itself, and this awareness is accompanied by both tension and a heightened sense of responsibility. While the political meaning of democracy is that all people are entitled to a good quality of life, the practical reality of democracy is that no community will survive without it. Even more important than acknowledging diversity within communities is empowering them to find solutions and to achieve a higher quality of life.

Health and safety imperatives. Having overcome the 18th- and 19th-century threats to life from poor hygiene, primitive medicine, and urban overcrowding, America's hospitals face new health problems symptomatic of today's urban conditions: handgun violence, AIDS, domestic violence, sick building syndrome, crack babies, chronic alcoholism. What is noteworthy about these threats is not only the severity and epidemic nature of them but also the widespread recognition that they constitute community problems and require community solutions.

New economics. The new economics of the twenty-first century will encompass broader concerns and will have a broader application than in other phases of economic history. It is an economics for ecology and society, for simultaneously conserving and maintaining equal access to resources. It has a local base and a global focus, renews and maximizes existing businesses and materials, uses job creation to reduce unemployment and underemployment, and involves a client base that makes quality-of-life decisions. Most important, it seeks to achieve multiple community goals through economic activity.

All of these forces should be acknowledged for their impacts on and potential opportunities for the community. Properly harnessed, these forces can play important roles in achieving the goals of sustainable communities.

Benefits of Sustainability

Sustainability is good business from the social, economic, and environmental perspectives. When tied to a community's vision, sustainable development can resolve successfully many key issues faced by communities today. Within the context of the built environment, sustainable development is especially effective and in a tangible way.

For example, a park can be a sustainable component of the ecology and a community focal point when it is planned not as a parcel but as a system supportive of and accessible to all kinds of living things. It can be a catch basin for storm water runoff, a means to mitigate flooding and pollution, a centerpiece for economic development initiatives, a place of serene beauty and contemplation, and a showcase and habitat for local plant and animal species.

Across the country, sustainable development has offered practical solutions to common problems. Seattle based its highly effective recycling and waste reduction program on sustainable themes and now applies the concept in its efforts to curb sprawl, to preserve the landscape of the Cascade foothills, and to enlarge the public's role in the planning process. Boulder, Colorado, created urban growth boundaries and improved transportation options to sustain its quality of life and scenic edge. Austin, Texas, established a Green Builder Program to encourage the use

of energy-conserving building practices. Portland, Oregon, launched an initiative for carbon dioxide reduction based on sustainable changes to the built environment. And, Valmeyer, Illinois, used sustainable planning practices to relocate outside the Mississippi floodplain and to mitigate future flood damage.

These communities and others demonstrate the **multiple goals of sustainable development**. Sustainable development can enhance a sense of place, reduce crime, mitigate natural hazards, conserve energy and resources, preserve culture and heritage, improve traffic circulation, and reduce waste. It can attract more viable economic development as competition among communities for high-quality businesses becomes more intense. Perhaps most important, it can help relate and integrate the many components of a community to achieve a synergistic whole.

Role of the Built Environment in Sustainability

"We shape our buildings and then they shape us," said Winston Churchill, in the context of post-World War II reconstruction, speaking as much of neighborhoods and communities as of buildings. Therein, said Vincent Scully, is "read their sense of their own identity... [and] their relationship to fate." Frank Lloyd Wright considered the built environment to be "frozen music." Even more than that, it is frozen philosophy, a manifestation of what the community believes, values, and strives to be, as well as an archive of its own development as a civilization.

The built environment is the infrastructure, civic and service centers, parks and planned open spaces, neighborhoods, landmarks, roads and walkways, and all those public and private places that compose the community and constitute a critical frontier. It is necessary to understand the interactive relationship between people and the built environment and to unite these two elements in a way that optimizes each. The actual physical medium through which sustainable communities are realized is in fact the built environment.

An integral relationship exists between how a community is planned and developed--its form, configuration, and use--and its capacity to meet its social, environmental, and economic needs. Community form, which represents the needs and priorities of the community, directly influences community capacity to sustain itself into the future.

The process for planning and developing a community--how the components and systems of its built environment are created, shaped, and managed--greatly influences the goals that the community can achieve. The planning and development process is an invaluable resource, one that has been vastly underused in the past. Above all, it is a management tool with great potential to aid communities in achieving their goals. This process is guided by local decision making and policy creation and implemented through the tools of the planning development process--development guidelines, comprehensive planning, capital budgeting, zoning, subdivision regulations, and building codes. Local governments make decisions every day, based on the needs and priorities of their communities. Nearly every decision and resulting action at this level affects community form and in turn the community's capacity to serve complex and growing needs.

This integral relationship, as well as how the planning and development process figures in that relationship, gives rise to certain **critical planning considerations**. Among the numerous components and systems that must be considered during this process are: size, scale, height, and density of buildings and infrastructure; ecological considerations like flood zones and indigenous species; meteorological considerations like rainfall and high winds; the role of neighborhoods within the community; arrangement and mix of activities, land uses, developed versus open spaces and public versus private spaces; visual relationships among landmarks, streets, buildings, and other elements of the built form; presence, location, and vitality of community facilities and service centers; public transportation and pedestrian systems; the relationship among urban, suburban, and rural surroundings; and the cohesion of the region in which the community fits.

Research and practical experience over the past few decades have taught us a great deal about the role of the built environment and the potential for this process to create a sustainable community. Natural hazard mitigation, crime prevention, energy conservation, and viable neighborhood development are practical examples of how this process can be used. In short, planning and development are the processes of shaping and managing the built environment to achieve community goals--in this case, a sustainable community.

Envisioning the Sustainable Community

Rather than trying to define sustainability, **local governments should instead begin to envision it.** This approach allows the concept to remain flexible and applicable to a community's unique qualities. Out of that vision come the goals and priorities of the community, which represent the needs it must meet through its planning and development process.

In Lewis Carroll's story *Alice in Wonderland*, Alice asks the Cheshire Cat, "Would you tell me, please, which way I ought to go from here?" The Cat answers, "That depends a good deal on where you want to get to." "I don't much care where," replies Alice, only to be answered by the Cat: "Then it doesn't matter which way you go." "As long as I get somewhere," Alice added as an explanation. "Oh, you're sure to do that," said the Cat, "if you only walk long enough."

Most of America, like Alice, has known or **cared little where it was going with regard to planning and development.** Communities have gotten somewhere after walking, or rather driving, a long time. But "**getting somewhere**" is not good enough: it has, in many cases, been **counterproductive** and just plain bad planning. Communities need to **clarify where they want to go.** The **clear formulation of goals and priorities is the key to sustainable success.**

A sustainable community formulates goals that are rooted in a respect for both the natural environment and human nature and that call for the use of technology in an appropriate way to serve both of these resources. Without this important principle, failure is guaranteed, and with that principle go the fundamental characteristics of a sustainable community.

This kind of community must, therefore, strive to achieve the following **characteristics and goals:**

1. **Places a high value on quality of life.** A sustainable community accepts that communities are first and foremost for people and that the primary objective of the planning and development process is to improve the quality of life of its residents, socially, economically, psychologically, and spiritually. It implements policies to achieve quality of life and does so in a fair, open, and democratic manner.
2. **Respects the natural environment.** A sustainable community recognizes its relationship to nature and sees nature's systems and components as essential to its well-being. It provides access to nature through metropolitan parks, open-space zones, and urban gardens. It understands the sensitive interface between the natural and built environment, develops in a way that will support and complement-not interfere with--nature, and avoids ecological disasters.
3. **Infuses technology with purpose.** A sustainable community uses appropriate technology, while ensuring that technology in the built environment is a means to an end, rather than an end unto itself. It emphasizes learning and understanding how existing and new technology can serve and improve communities, not vice versa. It sets clear and measurable goals for what it wants technology to achieve.
4. **Optimizes key resources.** A sustainable community takes an inventory of its human, natural, and economic resources and understands their finite quality. It ensures that forests are not overused, people are not underemployed, and the places of the built environment are not stagnant and empty. It reduces waste and reuses resources: it creates conditions in which all these resources can be used to their fullest and best potential, without harming or diminishing them.
5. **Maintains scale and capacity.** A sustainable community recognizes the importance of scale and capacity, with regard to the natural and human environment. It ensures that the environment is not overdeveloped, overbuilt, overused, or overpopulated. It recognizes the signs of tension that indicate when the environment is overstressed and can adjust its demands on the environment, to avoid pollution, natural disaster, and social disintegration.
6. **Adopts a systems approach.** A sustainable community understands that the natural and human environments make up a holistic system, comprising individual components that interrelate and affect the whole. Beaches are a part of coastal systems, families are a part of social networks, particulars and currents are a part of air systems, and bus routes are a part of transportation networks. It reviews and implements policies in light of these systems to maintain harmony and balance within the environment.

7. **Supports life cycles.** A sustainable community recognizes life cycles and the functions and elements that support them. It takes into account natural cycles like hydrology and photosynthesis; human cycles like friendship, family, and association; basic cycles like birth and death. It sees the role that the built environment can play in supporting the viability, continuity, and renewability of these cycles, whether through neighborhood preservation, wetland management, or habitat conservation.
8. **Is responsive and proactive.** A sustainable community responds to changing community needs and can change or make new priorities. Whether by mitigating natural hazards, preventing crime, or attracting economic development, it does not simply react to circumstances or events but takes action to prevent threats to community well-being and to maximize good opportunities through the built environment.
9. **Values diversity.** A sustainable community understands that a cross section of the human and natural environment reveals one constant: diversity. Human diversity and biodiversity are essential to a thriving social dynamic and web of life. A sustainable community promotes and implements this truth through its policies regarding the built environment. It does not segregate or segment populations or elements of nature but integrates them into the fabric of the community.
10. **Preserves heritage.** A sustainable community values the indigenous and time-honored aspects of its culture and history. It understands that the built environment grows up through and around such traditions as the village green, the local church, the town library, and Main Street. It celebrates its past and considers it when making the changes necessary to modernize the community.

What implications do these characteristics hold for the built environment? In other words, what needs to be accounted for in the planning and development process for a community to be sustainable? These considerations will vary from community to community, but generally they will include the following: ecological systems like forests, deserts, and wetlands; cycles of geology, hydrology, and meteorology; protection of resources like air and water; habitat conservation and preservation of indigenous flora and fauna; waste management; appropriate management of population; maintenance of the scale of the built form; nearness to nature; security and health; opportunities for solitude, congregation, and recreation; educational and economic opportunities; accessible location of services and mix of uses; access to transportation and communication systems; pedestrian systems and spaces; historic preservation; and cultivation of a sense of community and a sense of place.

Implementing Sustainability

Sustainable community planning and development can provide direction by asking what communities should achieve; by initiating a goal-oriented process of planning and development; and by maximizing the existing development tools and local decision making process. A local government should begin as the Cheshire Cat advises Alice to do: determine where to go, and recognize the importance of getting there.

Map out a number of practical steps:

1. Establish **community goals**, general as well as specific.
2. Assess **specific areas of the community to target them for sustainable development**, for example, a series of neighborhoods, a downtown commercial area, or a transportation system.
3. Identify **indicators of success**, and ensure that these indicators are clearly linked to the community's goals.
4. Build **consensus and collect input** on the goals from throughout the community, that is, from residents, media, businesses, grassroots organizations, civic groups, schools, and so on.
5. Develop a strategic plan for achieving these goals. This plan should **detail specific objectives**, the time frame for accomplishing them, the process through which they will be accomplished, people who will be involved, and ways to build support and publicize accomplishments.
6. Develop a set of **design guidelines** to use in the planning and development process. These guidelines should include state-of-the-art knowledge, literature, personnel, and other **resources** as needed. Each guideline should relate clearly to the community's goals.
7. Identify and acknowledge **potential barriers** to success. It is essential in this process to be aware of the barriers as well as the opportunities, if constructive dialogue and consensus are to occur.
8. Adapt **community processes to act as tools to drive sustainability**. Identify the day-to-day decisions and procedures that will implement sustainability both incrementally and over the long term. These tools of

sustainability include development **guidelines**, capital **budgeting**, the **comprehensive plan**, **zoning**, subdivision **regulations**, **codes**, and other aspects of the community's planning process.

9. Maintain open lines of communication with the public, and keep the process accessible and flexible. Members of the public can provide "buy-in," but even more important, they **can afford constructive, grassroots advice** about necessary changes or adaptations to the plan.
10. Document and **publicize results and successes**, and recognize those people who have assisted in achieving those results.

While the tools and the process will need to be adapted, the community now has a mutually agreed-upon set of goals and a map for getting there. Soon, the community will begin to see results that will indicate a higher quality of life for residents, a more effective use of resources, and an attraction for the kinds of businesses and economic development that will sustain it long into the future. While this concept is spreading, it has yet to become a part of the national culture and consciousness. The tendency has been more to view things separately and independently. **But fragmented thinking cannot support the holistic approach necessary to the planning and development of sustainable communities.** As Churchill's philosophy implies, if we shape our built environment appropriately, based on what we want to achieve as a Community, then that environment will produce a sustainable future for us in our communities.

Perhaps the most important step toward meeting this challenge is simply to **raise sustainability as an issue.** Sustainability will and should be a goal-oriented process. This process will at times be controversial because at its heart, says Professor D. Sterman of the Massachusetts Institute of Technology Sloan School of Management, "it questions the purpose of society [and] the relationship between humans and nature, and demands social justice and equity." But although sustainability is controversial, it also is restorative and therefore essential to guiding communities into the twenty-first century.

Don Geis is program director and Tammy Kutzmark is project manager, Local Government Planning Programs, ICMA, Washington, D.C.

Implementing Sustainability

1. Values and Goals – what we care about
2. Target areas – opportunities to improve pre-disaster LTRP
3. Indicators of success – how do we want it to look, measure progress
4. Collective input – constantly involving the public for ideas and support
5. Objectives – what to do and how to do it
6. Resources – available and those needed
7. Barriers and opportunities – contingency planning
8. Identify tools – local tools (zoning, permits, codes, plans)
9. Open communication – keep public and stakeholders informed
10. Publicize results – recognize progress and accomplishments

The logo for Charlotte, NC overview features the text "Charlotte, NC" in a blue serif font, with "overview" in a smaller, grey sans-serif font below it. To the right of the text is a stylized sunburst or starburst graphic composed of numerous small, light purple and pink dots radiating from a central point.

Charlotte, NC

overview

Discover Charlotte

Charlotte is the 19th largest city in the country and is thriving with a strong quality of life, a diverse, vibrant economy, and a very favorable climate. It has always been one of the "New South's" growing urban areas, evolving over the years from a regional textile center in North Carolina's piedmont to become the nation's second largest banking and financial center.

As the home of the New South, Charlotte is a blend of new and traditional, conservative and innovative. It's a dynamic city that combines world class amenities with Southern hospitality. It has demonstrated that it can build off the strengths of the past to grow, evolve, and adapt to be a positive place for business as well as to raise a family. Charlotte has capitalized on its assets of being a transportation hub at the center of the largest consolidated rail system in the U.S., with two major interstates and an international airport with 538 daily departures and 23 million passengers. Because of these assets and Charlotte's strong business climate and quality of life amenities, the City has risen to the top five in the number of Fortune 500 headquarters, with seven Fortune 500 companies selecting Charlotte for their headquarters operations.

Charlotte also uses its warm climate, fine dining, many cultural facilities, and major league sports, including the NFL Panthers, the new NBA Bobcats, WNBA Sting, PGA, and NASCAR to be the number one tourist destination in North Carolina, with 9.4 million visitors each year. There are more than 100 golf courses, 15,000 acres of parks and two major lakes to enjoy. The Smoky Mountains and the Blue Ridge Parkway are only two hours away and the Carolina beaches on the Atlantic Ocean are only three hours away.

More than being a place to visit and engage in commerce, Charlotte is a comfortable place to live. There are a wide range of housing options, tree-lined neighborhoods, great southern cuisine, excellent schools, and a safe environment for the whole family. In 2006, Charlotte will begin light rail service in the first of five designated rapid transit corridors. Money Magazine ranked Charlotte as one of the Top 10 places to live in 2002.

In addition to Charlotte's many attributes, one thing that sets it apart as the home of the New South is that it is open to new people and ideas, as is evident by the influx of new citizens, which has grown 32% over the past decade. The citizens of Charlotte work together with the political and business leadership across racial and economic differences to address community issues and ensure the city remains "livable" not just for today, but for future generations.

Making a city that's so unique that everybody wants to come

September 18, 2005

By [MARK TRAHANT](#)

SEATTLE POST-INTELLIGENCER EDITORIAL

Questions to be covered in the course:

- 1. What cause does the author cite as the “pattern to repetitive damage”?**
- 2. If your city were a “blank slate” what changes would the fire department propose to occur in the recovery?**
- 3. The author writes that good ideas for the recovery may make sense but fail to be accepted. Explain how this can occur and how to overcome opposition to good ideas.**

Making a city that's so unique that everybody wants to come

September 18, 2005

By [MARK TRAHANT](#)

SEATTLE POST-INTELLIGENCER EDITORIAL

Imagine the city as a blank slate. This is about the future. It's the story after the hurricane, after the earthquake or after the flood. The human tragedy has been calmed, and the focus shifts to reconstruction. How do you recreate the urban landscape? Do you follow the existing pattern, even when illogical? **Or do you start over? Can you do better?** And how do citizens decide such things?

"Few events produce such sudden, jarring changes in the urban landscape as natural disasters," wrote Jim Schwab in a 1988 essay in Zoning News magazine. "But few other events also produce the **same longing for a return to the security of the familiar**, which often means returning to our existing land-use patterns. In that contrast lies the source of the **pattern of repetitive damage** that afflicts many communities, whether the danger be from flooding, fires, violent storms, or the trembling of the earth."

New Orleans reopens the security of the familiar beginning this week. Large sections of the city will reopen, followed by the historic French Quarter next week.

"The city of New Orleans ... will start to breathe again," Mayor Ray Nagin was quoted saying by The Associated Press. "My gut feeling right now is that we'll settle in at 250,000 people over the next three to six months, and then we'll start to ramp up over time to the half-million we had before and maybe exceed," he said. **"I imagine building a city so original, so unique, that everybody's going to want to come."**

A city that's so original, so unique, that everybody's going to want to come. Not exactly a blank slate, but close. Consider the story of Stockton, Mo. On May 5, 2003, a tornado destroyed the downtown area of the small town. According to Planning, the magazine of the American Planning Association, the mayor looked at the debris with the despair because "the town had been blown away." Then the now-beleaguered Federal Emergency Management Agency arrived with a new program, one that **focused on long-term recovery "rather than helping a community merely to put things back the way they were."**

"And Stockton has been rebuilt in style," the magazine says. "Backed by FEMA's team of consultants, the city insisted on a three-month moratorium during which it removed debris with financial assistance from FEMA, so that the **rebuilding could be organized and thoughtful.**" The thoughtful recovery included an improved **downtown city park, a town square, and a community center and a retail and business incubator.** Reconstruction also included **higher standards** for tornado-resistant structures.

The city of Kobe, Japan, lost some 80,000 houses during a major earthquake in 1995. The city immediately built some 30,000 **temporary shelters, many of which became homes for several years.** It took that city nearly a decade to build enough residences. Housing -- make that affordable housing -- may be the **most difficult challenge** for any post-disaster city.

After Florida's hurricane season last year -- Charley, Frances, Ivan and Jeanne -- nearly a quarter of Charlotte County's rental units were destroyed or damaged. "The Southwest Florida real estate ... rages on even after the storm, with house prices up more than 200 percent in the past five years," wrote Lee Palermo, a county planner, in Planning magazine. "The options are slim to none for the thousands looking for affordable housing in these parts."

Affordable housing -- and jobs -- will be significant along the Gulf Coast, too. What's left of the old economy? How many of those jobs will wait? **Can new jobs be created that will lift people out of poverty?**

"As all of us saw on television, there is also some deep, persistent poverty in this region as well," President Bush said last week. "And that poverty has roots in a history of racial discrimination, which cut off generations from the opportunity of America. We have a duty to confront this poverty with bold

action. So **let us restore all that we have cherished from yesterday, and let us rise above the legacy of inequality.**"

Poverty complicates any rebuilding -- but it also offers the hope of something better. The president put it this way: **"When communities are rebuilt, they must be even better and stronger than before the storm."**

The Bush administration will test a few conservative ideas to remake the region, such as the Gulf Opportunity Zone and the proposed Urban Homesteading Act. The ideas are worthy of debate. They could work. But the bigger challenge is execution, making every promise so.

On the Gulf Coast, the president said, "Protecting a city that sits lower than the water around it is not easy, but it can and has been done."

This is an area where federal emergency managers have much experience. "The Great Midwest Flood of 1993 was the most destructive in recent history," according to a FEMA publication. "Flooding kept people from returning to their homes for months. Some residents couldn't ever return. Once the waters receded, many homes were uninhabitable because of the mud, mold, and water damage." The town of Grafton, Ill., **moved some of its residents to higher ground, away from the floodplain.** After a recent flood, the mayor reported, "even though we had the inconvenience of road closures, there were probably less than a dozen people whose homes were affected at all."

There are already several proposals to make lowland New Orleans safer from flooding -- some along the lines the ambitious Delta Works in the Netherlands. More than one-third of that nation is built below sea level, protected by a series of dykes and dams. But is a safe city unique? Is it enough? New Orleans starts off with a unique mark on its almost-blank slate, the French Quarter. But can it remake the rest of the city in a logical fashion?

I wondered about this as I drove on Seattle's convoluted streets last week. To reach the Post-Intelligencer by car you must navigate past triangles instead of interchanges. Coming here from downtown, for example, you cannot go north on Elliott -- at least past Broad -- so you have to drive north on Western, turn west at Broad, then north on Elliott. If Seattle were almost a blank slate, would someone fix that? **Could the roads be straight and understandable?**

After the bombings during World War II, the British city of Newcastle upon Tyne was faced with that exact question. A city engineer looked at the "historic, but relatively unstructured, pre-war street pattern, with its medieval core." The idea was to take advantage of the rubble and transform the city to make traffic flow better. Here was a chance to do it over. **The design included streets that made sense, multi-layer roadways for short trips and long trips and grade-separated interchanges.**

"Very few of these reconstruction plans were implemented," wrote Peter J. Larkham in a paper for Urban Perspectives. **"The proposals for radical change met with considerable inertia at best, and often outright opposition." The proposals were too slow, too costly and failed to capture public attention.**

It will be fascinating to watch cities on the Gulf Coast rebuild community. Not just the buildings, but also the very idea of a modern city. Then, this is a conversation every city should have (especially before a disaster). **We can all imagine a city so original, so unique, that everybody would want to come.**

Building Back Better

Creating a Sustainable Community After Disaster

by Jacquelyn L. Monday

Questions to be covered in the course:

1. How does a sustainable recovery affect fire and emergency services?
2. Can you identify examples of mitigation efforts in your community that may have contributed to other risks or caused adverse effects?
3. Sudden disasters are easy to recognize. Identify examples of “disasters” that occur slowly.



Building Back Better

Creating a Sustainable Community After Disaster

by Jacquelyn L. Monday

It is time for an evolutionary nationwide shift in the approach now being used for coping with natural and technological hazards by universally adopting goals that are broader than local loss reduction; by using a revised framework that **links natural hazards to environmental sustainability and to social resiliency; and by modifying hazard mitigation efforts so that they are compatible with that new vision.**

Many hazards specialists in academia, all levels of government, and the private sector have spent much of the last decade promoting **hazard mitigation—the permanent reduction of potential losses from natural and/or technological hazards.** To a gratifying extent, these efforts have been rewarded.



We now have more widespread acceptance—not just among policymakers and specialists, but also to a remarkable degree among the more general public—that **reducing losses before they happen is preferable to cleaning them up over and over again, not to mention avoiding all the disruption and expense they entail.** We have at our disposal an extensive array of mitigation techniques, ranging from engineering projects to construction techniques to insurance to forecasting to mapping. To an extent we would not have dreamed of a decade ago, the idea of mitigation has become intertwined with many public and private initiatives, laws, policies, and programs. There is even funding for mitigation. And yet...

Losses due to hazards continue to rise, and our disasters seem to be getting bigger. Indeed, this reality caused many in the field, a few years ago, to **consider a mutinous thought: Not all “mitigation” is good.**

To be sure, there may be any number of mitigation measures that are ill-conceived or poorly executed—as there inevitably are in any effort. And there are those that begin well but stray from their early vision along the way. But we have begun to realize that even mitigation techniques that are flawlessly designed and executed with the best of intentions and the fondest hopes can, in and of themselves, induce losses elsewhere.

For example, we now have the means to prevent or minimize storm surge damage to a house along the Gulf Coast, by elevating the home above the expected flood level, using certain construction materials and techniques. This combination of mitigation measures is now fairly widespread in both preventing disruption and misery for residents. But is it smart to make it feasible to build a home so close to the ocean? With more of our population converging gradually on the coasts, the potential effects of such mitigation techniques must be considered at a much, much larger scale. **Are we simply setting ourselves up for a bigger disaster when a severe hurricane hits?**

Defining Sustainability

In the late 1980s, the World Commission on Environment and Development (the Brundtland Commission) came up with a definition of global sustainable development that has become widely accepted:

“Sustainable development is development “that meets the needs of the present without compromising the ability of future generations to meet their own needs”

Or to take another instance, at present most of us would consider it wise mitigation to remove tornado-damaged mobile homes from their original site if that site happened to be a flood-prone area. But what if the mobile home park is the only source of low-income housing in a community? **Is that not preventing a flood disaster by creating a financial and housing “disaster” for certain people?**

It is clear from these examples and many other hypothetical situations that **we can no longer afford to consider hazard mitigation in isolation from other aspects of community well-being. A broader context is needed to ensure that the attempts society makes to protect itself from hazards are not simply creating burdens for someone or someplace else, or simply postponing this year’s medium-sized disaster in favor of a really big one in the future.** The concept of “sustainability” can provide an enlarged framework for examining potential mitigation measures—and any other community concerns—in a wider context.

The concept of sustainability is based on the premise that people and their communities are made up of social, economic, and environmental systems that are in constant interaction and that must be kept in harmony or balance if the community is to continue to function to the benefit of its inhabitants— now and in the future. A healthy, balanced society (or nation, or community, depending on the strength of one’s magnifying glass) is one that can endure into the future, providing a decent way of life for all its members—it is a sustainable society. **Sustainability is an ideal toward which to strive and against which to weigh proposed actions, plans, expenditures, and decisions. It is a way of looking at a community or a society or a planet in the broadest possible context, in both time and space.**

Although it adopts a broad perspective, in practice the pursuit of sustainability is fundamentally a local endeavor because every community has different social, economic, and environmental needs and concerns. And in each community the quality, quantity, importance, and balance of those concerns is unique (and constantly changing). For that reason—and because the best mitigation efforts also tend to be locally based—we tend to speak of sustainability mostly in terms of local actions and decisions.

Six Principles of Sustainability

There are six principles of sustainability that can help a community **ensure that it’s social, economic, and environmental systems are well integrated and will endure.** We should remember that, although the list of principles is useful, each of them has the potential to overlap and inter-relate with some or all of the others. A community or society that wants to pursue sustainability will try to:

1. Maintain and, if possible, enhance, its residents’ quality of life. Quality of life—or “livability”—differs from community to community. It has many components: income, education, health care, housing, employment, legal rights on the one hand; exposure to crime, pollution, disease, disaster, and other risks on the other. One town may be proud of its safe streets, high quality schools, and rural atmosphere, while another thinks that job opportunities and its historical heritage is what makes it an attractive place to live. Each locality must define and plan for the quality of life it wants and believes it can achieve, for now and for future generations.

2. Enhance local economic vitality. A viable local economy is essential to sustainability. This includes job opportunities, sufficient tax base and revenue to support government and the provision of infrastructure and services, and a suitable business climate. A sustainable economy is also diversified, so that it is not easily disrupted by internal or external events or disasters, and such an economy does not simply shift the costs of maintaining its good

health onto other regions or onto the oceans or atmosphere. Nor is a sustainable local economy reliant on unlimited population growth, high consumption, or nonrenewable resources.

3. Promote social and intergenerational equity. A sustainable community's resources and opportunities are available to everyone, regardless of ethnicity, age, gender, cultural background, religion, or other characteristics. Further, a sustainable community does not deplete its resources, destroy natural systems, or pass along unnecessary hazards to its great-great-grandchildren.

4. Maintain and, if possible, enhance, the quality of the environment. A sustainable community sees itself as existing within a physical environment and natural ecosystem and tries to find ways to co-exist with that environment. It does its part by avoiding unnecessary degradation of the air, oceans, fresh water, and other natural systems. It tries to replace detrimental practices with those that allow ecosystems to continuously renew themselves. In some cases, this means simply protecting what is already there by finding ways to redirect human activities and development into less sensitive areas. But a community may need to take action to reclaim, restore, or rehabilitate an already-damaged ecosystem such as a nearby wetland.

5. Incorporate disaster resilience and mitigation into its decisions and actions. A community is resilient in the face of inevitable natural disasters like tornadoes, hurricanes, earthquakes, floods, and drought if it takes steps to ensure that such events cause as little damage as possible, that productivity is only minimally interrupted, and that quality of life remains at (or quickly returns to) high levels. A disaster-resilient community further takes responsibility for the risks it faces and, to the extent possible, is self-reliant. That is, it does not anticipate that outside entities (such as federal or state government) can or will mitigate its hazards or pay for its disasters.

6. Use a consensus-building, participatory process when making decisions. Participatory processes are vital to community sustainability. Such a process engages all the people who have a stake in the outcome of the decision being contemplated. It encourages the identification of concerns and issues, promotes the wide generation of ideas for dealing with those concerns, and helps those involved find a way to reach agreement about solutions. It results in the production and dissemination of important, relevant information, fosters a sense of community, produces ideas that may not have been considered otherwise, and engenders a sense of ownership on the part of the community for the final decision.

Applying the principles of sustainability when making decisions can **help communities avoid the pitfalls of adopting a course of action without realizing it will have detrimental impacts at another place or time. Ideally, all communities would routinely adopt a long-term view and incorporate sustainability ideals into all aspects of their comprehensive planning process—whether making development decisions, preparing for a disaster, implementing mitigation, or undertaking any other program.**

In the absence of this ideal situation, however, a person concerned with avoiding losses due to hazards and disasters must look for opportunities to integrate sustainability with mitigation measures wherever possible. One fertile field for this integration is the **disaster recovery period.**

A **disaster brings temporary changes** to a community. **People think about problems** they normally do not consider—the risks they face from hazards, the quality of local housing, ways in which **the community could be better planned** and constructed, the local scenic and other natural resources, livability. At the same time, public officials have the **media attention** that enables them to garner support for innovative ideas. A disaster forces a community to make a seemingly endless series of decisions—some large, some small, some easy, and some quite difficult. **Technical and expert advice becomes available** from public and private sources. **Financial assistance** flows into the community, enabling it to tackle more ambitious projects than would normally be the case.

These **changes can be viewed as opportunities to rebuild in a better way**, instead of succumbing to the natural desire to put things back the way they were as soon as possible. They can provide a chance for a community to implement forward-looking activities that for one reason or another (usually financial or political) have not been undertaken, including improvements in lifestyle, safety, economic opportunity, or the environment. After a disaster,

a community must take action to recover, so incorporating principles of sustainability into that process often does not involve much additional effort.

Hazards managers already work to build mitigation into many recovery activities. For example, they often use the Federal Emergency Management Agency's post disaster programs and other initiatives that in many cases specifically call for mitigation. However, they could go still further, and ensure that the mitigation measures that are put in place promote—or at least do not undermine—sustainable communities.

How can a community take advantage of the opportunity that disaster recovery brings? As a foundation for this effort, a framework for sustainable—or “holistic”—recovery from disaster has been developed within which the **principles of sustainability become decision-making criteria to be applied to each and every recovery decision**—not just those that involve mitigation. On the next page is a sample matrix that can be a guide to decision-making for holistic recovery. The sustainability principles (and some ways of implementing them) are shown on the vertical axis. Across the top of the matrix are listed some of the problem situations that could confront a community in the aftermath of a disaster: utilities must be restored, infrastructure re-established, housing repaired, social services reinstated, and commercial sectors rehabilitated. At the intersection of the problem and the principle there are opportunities for a recovery decision and action that would be more sustainable than a return to the status quo. It should be noted that this matrix is just a sample of a hypothetical disaster in a hypothetical community. A similar matrix developed by a real community to help it in recovery would have a different list of disaster situations across the top, and a different set of boxes marked with X. The principles would be the same as in this sample, as would many of the options for applying them.

This holistic recovery framework can be used either in pre-disaster planning for recovery or during the recovery period itself to ensure that people consider viable, sustainable options as decisions are made. The range of possibilities, alternatives (including returning to the status quo), and impacts of the proposed recovery actions are considered in light of the sustainability principles as decisions are made about recovery, so that sustainable options are considered in each and every disaster recovery opportunity. During this process, a community can tailor a unique set of sustainable activities for its recovery that satisfies its own particular concerns, takes advantage of its strengths, and uses the tools and techniques that are most appropriate to its situation.

This process can result in some unusual combinations of problems and solutions. For example, a stricken community with a damaged freeway overpass might well decide to incorporate seismic-resistant features into the repaired structure. However, a community striving for holistic recovery would also consider demolishing or relocating the overpass to enhance livability in the surrounding neighborhood (principle number 5), or rebuilding it to improve access to, and thus economic vitality for, a nearby commercial area that was previously difficult to reach from the highway (principle number 2). This is just one of many possible outcomes of a systematic process of analyzing recovery in light of the six sustainability principles. The possibilities are endless, because each community has unique attributes, needs, and concerns, and each disaster superimposes a distinct set of impacts.

What is Holistic Recovery?

A holistic recovery from a disaster is one in which the stricken locality systematically considers each of the principles of sustainability in every decision it makes about reconstruction and redevelopment.

This can be more appealing to a community than simply trying to impose mitigation measures, even with financial and other incentives, because it gives the members of a community a way to examine their other day-to-day goals within a broader context. **Mitigation doesn't drive the process—community goals, buttressed by sustainability ideals, do.** But mitigation gets considered in every decision about economic development, infrastructure repair, housing needs, and environmental protection. By the same process, concerns about economic development, local environmental quality, social equity, future generations, and other aspects of a healthy community are considered in every decision about mitigation.

Matrix of Opportunities

(x = an opportunity to devise a recovery strategy that furthers sustainability)

Some Situations a Community Could Face during Disaster Recovery

The Principles of Sustainability & Some Options for Applying Them	DAMAGED TRANSPORT			DAMAGED PUBLIC FACILITIES				DAMAGED UTILITIES			DAMAGED HOUSING			ECONOMIC DISRUPTION			ENVIRONMENTAL DAMAGE			DISRUPTION TO HEALTH & SAFETY			OTHER							
	Roads, bridges, & related infrastructure	Subway, rapid transit	Other	Schools	Downtown, CBD, historic district	Public spaces	Harbor, port, airport	Stormwater system, power plant	Other	Power lines	Phone lines	Water treatment plant	Other	Houses to be repaired	Houses damaged beyond repair	Other	Commercial buildings damaged/destroyed	Businesses disrupted	Unemployment	Loss of work force	Other	Riverine, beach, & dune erosion	Toxic air, water, soil, wellheads	Tree loss, habitat loss	Other	Medical facilities damaged	Social & family services, daycare disrupted	Victims, population traumatized	Other	
1 Maintain & Enhance Quality of Life																														
Make housing available/affordable/better				x		x			x	x			x	x						x									x	
Provide education opportunities	x				x	x											x	x									x	x		
Ensure mobility	x	x		x	x	x	x						x				x	x	x						x					
Provide health & other services					x				x									x			x	x			x	x	x			
Provide employment opportunities			x														x	x	x	x					x	x				
Provide for recreation				x	x	x	x														x	x								
Maintain safe/healthy environs	x	x		x	x		x			x			x	x							x	x	x		x	x	x			
Have opportunities for civic engagement				x	x	x	x												x		x	x					x			
Others																														
2 Enhance Economic Vitality																														
Support area redevelopment & revitalization	x			x	x	x	x	x	x	x	x		x	x			x	x		x					x					
Attract/retain businesses	x	x			x	x							x				x	x	x	x										
Attract/retain work force	x			x		x							x	x			x	x			x	x			x	x	x			
Enhance economic functionality	x	x		x	x	x	x	x		x							x								x	x				
Develop/redevelop recreational, historic, tourist attractions					x	x	x										x		x		x	x								
Others																														
3 Ensure Social & Intergenerational Equity																														
Preserve/conserv natural, cultural, historical resources				x	x	x	x	x			x		x								x	x	x					x		
Adopt a longer-term focus for all planning	x	x		x	x	x	x	x	x	x	x		x	x			x								x	x				
Avoid/remedy disproportionate impacts on groups	x	x		x	x	x				x			x	x			x	x	x	x	x	x			x	x	x			
Consider future generations' quality of life	x	x		x	x				x	x	x		x	x			x				x	x	x					x		
Value diversity				x	x	x	x						x	x						x							x	x		
Preserve social connections in and among groups				x	x	x							x	x						x							x	x		
Others																														
4 Enhance Environmental Quality																														
Preserve/conserv/restore natural resources	x	x		x	x	x	x	x		x			x	x							x	x	x							
Protect open space					x	x				x			x				x				x	x	x							
Manage stormwater						x	x			x			x							x			x	x						
Prevent/remediate pollution	x			x	x	x	x	x	x	x	x		x	x									x					x		
Others																														
5 Incorporate Disaster Resilience/Mitigation																														
Make buildings & infrastructure damage-resistant	x	x		x	x	x	x	x	x	x	x		x	x			x					x			x	x				
Avoid development in hazardous areas	x	x		x	x	x	x		x	x	x		x				x				x		x		x					
Manage stormwater						x	x			x			x							x			x	x						
Protect natural areas	x			x	x	x							x				x				x		x							
Promote & obtain hazard & other insurance	x			x	x					x			x	x			x	x							x			x		
Others																														
6 Use a Participatory Process																														
Use a participatory process in conjunction with all the other principles of sustainability, and in every disaster recovery situation in which it is appropriate.																														

The best way to ensure community sustainability after a future disaster is to have a thorough plan for a holistic recovery.¹ But even without such a plan, there are many things that can be done during recovery that will increase community sustainability, simply by using the holistic recovery framework as a guide and the disaster recovery process as the catalyst. A community must strive to fully coordinate available assistance and funding while seeking ways to accomplish other community goals and priorities. Holistic disaster recovery does not differ from “normal” disaster recovery—it is part of what should be normal disaster recovery. A good recovery engenders a sustainable community.

A community does not need a new or separate planning or recovery process to build sustainability. The sustainability perspective can be accommodated in different ways and to varying degrees within most standard procedures used by localities for comprehensive planning, mitigation planning, disaster recovery, or other efforts.

A good, all-purpose planning process—the so-called **10-Step Planning Process**—is one that is recommended for localities seeking funding, technical assistance, or recognition under such federal programs as the Community Rating System of the National Flood Insurance Program, several flood control programs of the U.S. Army Corps of Engineers, and the Hazard Mitigation Grant Program and the Flood Mitigation Assistance Program administered by the Federal Emergency Management Agency. It follows the basic procedures of gathering information, analyzing problems, setting goals, and finding ways to implement and fund agreed-upon activities

1. An excellent guide for preparing a comprehensive recovery plan before a disaster strikes is Planning for Post-Disaster Recovery and Reconstruction, by Schwab, et al., listed in the [“References and Information Resources.”](#)

2. More detail on how sustainability can be addressed during disaster recovery can be found in Holistic Disaster Recovery: Ideas for Building Local Sustainability after a Natural Disaster, by the Natural Hazards Research and Applications Information Center. The 10-Step Process is described in more detail, with an eye toward minimizing flood damage, in Flood Mitigation Planning: The CRS Approach by French Wetmore and Gil Jamieson. Both of these publications are in the [“References and Information Resources.”](#)

A 10-Step Process for Local Holistic Recovery

1. Get organized. At this stage a community makes a commitment to sustainability by designating appropriate responsibility for the recovery, delegating it to an individual or entity—new or existing—and setting up measures for integrating sustainability into ongoing disaster recovery and other community processes, as necessary. One way to do this would be to appoint a “sustainability liaison” to the planning and decision-making body or the recovery team. The person in this role would be an advocate for considering the principles of sustainability at each step of the process as well as knowledgeable about and supportive of all those principles: environment, social equity, consideration of the future, economic development, quality of life, and disaster resilience.

2. Involve the public. Participatory processes are an essential aspect of sustainability involving the inclusion of all the stakeholders in recovery and in creating the vision of what the community should be like after the recovery is complete. A community that seeks sustainability must be committed to such involvement and, at this point, the community begins to design public participation into all phases of its recovery. There are many techniques from which to choose, from the traditional public hearings and town meetings to lectures, workshops, call-in radio shows, and community-based events like fairs and festivals. To fulfill the goal of social equity, communities should pay particular attention to reaching out to those people who may have been historically excluded from conventional “public notice” techniques because of language differences, cultural constraints, temporal or spatial barriers to attending meetings, or other factors. The opportunities for participation should be publicized through a variety of media, including flyers, posters, local newspapers, local television stations, and the Internet.

3. Coordinate with other agencies, departments, and groups. To mastermind a holistic recovery, a community must expand representation on the recovery team to include those who can contribute expertise regarding each of the principles of sustainability. They could be in-house staffers, local experts, representatives from state or federal agencies, or consultants. Depending on the situation, social services personnel, environmental specialists, engineers, economic development directors, parks or wildlife department personnel, the business community, or social services personnel all might be included. Formal and informal ties need to be developed with every conceivable private entity; non-profit group; neighborhood coalition; church; state, local, federal, and regional agency; and others. This will increase the diversity of ideas and potential solutions, provide a ready-made labor pool (which will be needed when implementation begins), and make problem-solving more imaginative. It also will strengthen local capacity within and across groups and areas of expertise.

4. Identify post-disaster problems. During this step, the recovery team begins to systematically consider ways in which it can build sustainability as it plans for and manages the recovery. The team can start by simply listing all the disaster-caused situations that need to be remedied in the course of recovery. (Some possibilities are listed across the top of the matrix.)

For each problem situation, information should be gathered to gain a full picture. This is a broad exercise that likely will include many sub-steps spread over a wide array of issues, for example:

- Obtaining expert analysis of local economic trends, costs of rebuilding, and opportunities for economic growth, before and after the disaster;
- Mapping an environmentally sensitive area;
- Assessing the community's present and future vulnerability to hazards and disasters;
- Pinpointing social inequity and its impacts within the community, before and after the disaster;
- Determining what quality of life concerns are important to local residents, before and after the disaster.

Obviously it is preferable to have this information in hand before a disaster, rather than having to gather it afterward, when the situation is confused, and time and resources are at a premium. This step will culminate in a list of problem situations, accompanied by supporting information.

5. Evaluate the problems and identify opportunities. The implications of sustainability become clear during this step. The recovery team evaluates each of the problems identified in Step 4 in light of the six principles of sustainability to see where there are opportunities during recovery to enhance community sustainability and move toward the community's vision of its future rather than returning to the status quo. The list of options in the box (and listed on the left side of the matrix) can be used to stimulate thinking about sustainable approaches a locality can use to address each post disaster problem. One or more approaches should be designated as possibilities for each problem, focusing on those that are applicable to the community's situation, needs, and concerns. Note that this is not an exhaustive list and also that some options apply to more than one principle.

This step results in a list of possible ways to combine remedying a disaster-caused problem and addressing an "unsustainable" situation. Each idea represents a way to further one or more aspects of sustainability, without regard (at this point) to cost or feasibility. The list is simply a series of specific things that, ideally, the community would like to do. For example, suppose the community has experienced a flood that, among other impacts, has seriously damaged a neighborhood of low-income houses along a polluted stream. One item identified during this step might be: "Expand storm water management system to better handle street drainage and reduce stream bank erosion" (thereby repairing flood-damaged infrastructure, improving livability by reducing street flooding, minimizing future flood damage by enlarging the carrying capacity of the storm water system, and improving environmental quality by preserving soil and riparian vegetation from erosion). Another item might be: "Incorporate seismic-resistant features and insulation into damaged housing during repair" (thereby improving livability by making the houses warmer and cooler according to the time of year and less expensive to heat or cool, improving disaster resilience by strengthening the housing against earthquakes, and protecting environmental quality by reducing energy consumption). The team tries to consolidate multiple sustainability principles into each possibility it lists.

6. Set goals. During this step the recovery team agrees on what realistically can be done. The team pares down the list of possibilities identified in Step 5 to those measures preferred by most of the stakeholders and most consonant with local needs and situations, public support, cost-effectiveness, availability of technical expertise, other community goals, local regulations, and other factors. A range of possibilities is developed and prioritized in case some cannot be implemented. These final choices become the recovery goals—positive statements of what the community intends to accomplish. By this point it will become clear that the goals established for a holistic recovery are broader and have more far-reaching implications than those for simply returning to the status quo.

This step will result in an agreed-upon set of actions that have reasonable applicability to the community. (It should be noted that in practice, Steps 4, 5, and 6 likely will overlap.)

7. Develop strategies for implementation. Working with the list of goals developed in Step 6, the recovery team reviews the tools, financial support, and expertise available to achieve each of them. For each goal, an implementation strategy is developed that describes

- What is to be accomplished;
- The lead agency/entity and what it will provide or prepare;
- Partnerships that will enhance effectiveness;
- Ways to obtain technical expertise and advice;
- Official local action needed (passage or amendment of zoning or subdivision ordinances, adoption of building codes, etc.); and
- Funding methods.

This will produce a “package” associated with each community goal that outlines what is needed to achieve that goal. This step weeds out the possibilities that are not feasible for whatever reason and results in a set of strategies that realistically can be implemented.

8. Plan for action. During this step the recovery team drafts a complete plan for holistic recovery activities that fits into the recovery plan or becomes part of the community’s comprehensive plan. Like other plans, it should include

- a budget;
- details for obtaining funding;
- a schedule for team meetings, public participation, data collection, report writing, on-the-ground action;
- a monitoring and review process; and
- provision for public review and comment.

This plan should be coordinated with existing comprehensive, development, capital improvement, drainage, transportation, housing, and recreation plans and programs. After public and agency/entity review, the plan should be revised and finalized.

9. Get agreement on the plan for action. Depending on the circumstances, the state, county, and/or local government may formally adopt or approve a holistic recovery plan or otherwise officially incorporate it into the recovery or comprehensive plan. During this stage, the local community should obtain agreement from federal and state agencies as appropriate. It might also enter into memoranda of understanding with other partners. The agreement of other stakeholders, especially historically excluded groups, should be obtained.

10. Implement, evaluate, and revise. This final step ensures that the community maximizes the opportunities that began as a disaster. Having the persons and entities responsible for implementation of various aspects of the recovery actually involved in the decision-making during all the earlier steps helps ensure that the goals and activities agreed upon are actually carried out. As recovery proceeds, it will be clear that some goals and strategies need to be modified. A formal monitoring process helps identify what changes are needed. It also can help keep certain initiatives from simply being abandoned when an unforeseen obstacle is reached. Wherever possible, stakeholders should participate in reviews (at least annually) and help develop indicators of progress.

Principles of Sustainability and Some Options for Applying Them

1. Maintain and enhance quality of life

Options:

- Make housing available/affordable/better
- Provide education opportunities
- Ensure mobility
- Provide health and other services
- Provide employment opportunities
- Provide for recreation
- Maintain safe/healthy environs
- Have opportunities for civic engagement

2. Enhance Economic vitality

Options:

- Support area redevelopment and revitalization
- Attract/retain businesses
- Attract/retain work force
- Rebuild for economic functionality
- Develop/redevelop recreational, historic, tourist attractions

3. Ensure social and intergenerational equity

Options:

- Preserve/conserve natural, cultures, historical resources
- Adopt a longer-term focus for all planning
- Avoid/remedy disproportionate impacts on groups
- Consider future generations' quality of life
- Value diversity
- Preserve social connections in and among groups

4. Enhance environmental quality

Options:

- Preserve/conserve/restore natural resources
- Protect open space
- Manage storm water
- Prevent/remediate pollution

5. Incorporate disaster resilience/mitigation

Options:

- Make buildings and infrastructure damage-resistant
- Avoid development in hazardous areas
- Manage storm water
- Protect natural areas
- Promote and obtain hazard and other insurance

6. Use a participatory process

Options:

- Incorporate with all of the other principles

Some Tools for Community Sustainability

- | | |
|---|--|
| <ul style="list-style-type: none">• Local redevelopment authority• Economic incentives• Loans for businesses• Housing authority• Insurance• Capital improvements• Low interest subsidy loans• Revolving loan funds• Public investment• Redistricting• Subdivision regulations• Building codes• Special ordinances• Tax incentives• Transfer of development rights• Easements• Land purchase• Voluntary agreements• Planning• Habitat protection• Riparian buffers | <ul style="list-style-type: none">• Filter strips and vegetative buffers• Soil conservation and management• Ecosystem restoration• Zoning and rezoning• Public education and awareness campaigns and events• Special protection of critical facilities, utilities, and networks• Preserve and create public spaces• Limit public investment in hazardous areas• Relocation out of hazardous areas• Preservation of natural floodplain, coastal, wetland, and other functions• Private-public partnerships and networks• Ombudspersons• Targeted workshops• Community festivals and other activities |
|---|--|

A Long-Term Outlook

Sustainable practices (and the awareness of the principles of sustainability) introduced during recovery planning or actual recovery can be institutionalized within the community's decision-making, budgeting, and planning processes to ensure that they endure over time. Ideally, a community would develop indicators and a schedule for monitoring and tracking change and needed improvements. Such institutionalization would help build awareness of the many aspects of sustainability as local residents, public officials, city staff, and businesses come and go. The heightened awareness would in turn nurture an acceptance of sustainable practices as a local, public value and a way of life.

Using the holistic recovery framework, applying the sustainability principles, and employing a process like the 10-step procedure create additional benefits for a community. For one thing, they promote links, conceptual and operational, among different community interests and the groups that seek to further them. For example, how many times have people discovered—inadvertently—that those responsible for local parks and recreation actually are interested in the same sort of open space improvements that the wildlife advocates want? This process makes such serendipitous convergence more likely and helps solidify future collaboration, thus making it easier and more cost-effective for the community to accomplish its overall goals and carry out routine activities.

Another benefit to hazards managers is that drawing on the broad range of sustainability principles instead of just thinking about hazards in isolation makes it more likely that the hazard mitigation approaches that are adopted and carried out will actually minimize losses in the long run. It helps ensure that the mitigation measure(s) implemented will be valuable because they are paired with other community desires, and long-lasting, because they do not detract from other aspects of overall sustainability. Losses will not have to be borne, damage repaired, and victims compensated again and again in future disasters.

Conclusion

Throughout the nation, local community, county, state, and federal agencies have become accustomed to thinking in terms of “building in” hazards mitigation during many recovery activities. This movement has been helped by the advent of federal disaster programs and policies that provide legal, technical, and financial support for taking these sensible, long-term, cost-saving measures. As a next step in this evolution, we can begin to incorporate sustainability as another element within disaster recovery, and reap even broader and longer-term benefits.

Besides advancing ideals that improve the livability and appeal of a community, this holistic recovery approach can also help local residents to think and rethink their community goals and ponder the kind of place they want their grandchildren to inherit. It can encourage each locality to carefully balance risk vs. protection, cost vs. benefit, today vs. tomorrow.

The holistic recovery framework described here does not guarantee that every sustainability principle will actually be included in disaster recovery, but it does ensure that they will at least be considered. Holistic recovery is a sensible approach to recovering from a disaster. It helps a community work toward fully coordinating available recovery assistance and funding with measures to accomplish broader community goals and priorities. At the same time, it widens the goals of the recovery to encompass many aspects of a community that may not have been considered before.

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The National Strategy for the Physical Protection of Critical Infrastructures and Key Assets

February 2003

<http://www.whitehouse.gov/pcipb/physical.html>

Entire Strategy Document is 83 pages.

Pages 43 and 44 dedicated to Emergency Services.

The emergency services infrastructure consists of fire, rescue, emergency medical service (EMS), and law enforcement organizations that are employed to save lives and property in the event of an accident, natural disaster, or terrorist incident.

Emergency Services Sector Challenges

Lessons learned from the September 11 attacks indicate that the most pressing problems to be addressed in this sector include: inadequate information sharing between different organizations—particularly between law enforcement and other first responders; telecommunications problems, such as a lack of redundant systems; and the challenge of enhancing force protection through such measures as stronger crime scene control and enhanced security to mitigate secondary attacks. Terrorists pose a major challenge to our national emergency response network. Although the existing infrastructure is sufficient for dealing with routine accidents and regional disasters, the September 11 attacks revealed shortfalls in its specific capabilities to respond to large-scale terrorist incidents and other catastrophic disasters requiring extensive cooperation among local, state, and federal emergency response organizations. Most pressing among these shortfalls has been the inability of multiple first-responder units, such as police and fire departments, to coordinate their efforts—even when they originate from the same jurisdiction. Major emergencies require cooperation by multiple public agencies and local communities. Systems supporting emergency response personnel, however, have been specifically developed and implemented with respect to the unique needs of each agency. Such specification complicates interoperability, thereby hindering the ability of various first responder organizations to communicate and coordinate resources during crisis situations. Robust communications systems are essential for personnel safety and the effective employment of human resources during a crisis or an emergency. Failure of communications systems during a crisis impedes the speed of response and puts the lives of responders at risk.

Another important issue is the extent to which emergency response communications depend on key physical nodes, such as a central dispatcher, firehouse, or 911-call center. Unlike most critical infrastructures, which are closely tied to physical facilities, the emergency services sector consists of highly mobile teams of specialized personnel and equipment. Another challenge for the emergency services sector, therefore, is assuring the protection of first responders and critical resources during emergency response operations. Future terrorist incidents could present unseen hazards at incident sites, including the risk of exposure to CBR (Chemical, Biological, or Radiological) agents. Moreover, past experience indicates that emergency services response infrastructure and personnel can also be the targets of deliberate direct or secondary attacks, a bad scenario that could be made worse by communication difficulties and responding units that are ill-prepared for such a likelihood. Preparedness exercises serve to provide experience and feedback on preparation for response and emergency management activities. Various state and local governments and federal agencies have hosted local or regional exercises. The approaches used vary widely—a fact that could impede the effectiveness of multijurisdictional response efforts. Faced with the threat of a major terrorist attack, no single jurisdiction has the ability to maintain or assemble all of the resources necessary to provide an effective response. Mutual aid agreements facilitate the flow of public safety personnel, equipment, and other vital resources across jurisdictional boundaries to enable local communities to help each other during emergencies and disasters.

Emergency Services Sector Initiatives

Emergency services sector protection and response initiatives include efforts to:

Adopt interoperable communications systems

DHS and DoJ will work with state and local governments and other appropriate entities to study and resolve important communications interoperability issues. This problem is already widely recognized and accepted as a valid concern at the state and local government level. The common, overriding need to assure effective communications during an emergency can be used as a catalyst to drive individual agencies toward a solution.

Develop redundant communications networks

DHS will work with state and local officials to develop redundant emergency response networks to improve communications availability and reliability, especially during a major disruption.

Implement measures to protect our national emergency response infrastructure

DHS will inventory and analyze the vulnerability of our national emergency response infrastructure, including critical personnel, facilities, systems, and functions. DHS will work with states, localities, and other entities to develop plans to assure the safety of personnel during response efforts, as well as the protection of our emergency response critical infrastructure.

Coordinate national preparedness exercises

DHS will work with state and local governments to develop a coordinated national emergency response exercise program. Coordinated preparedness exercises would promote consistency in protection planning and response protocols and capabilities at the regional and national levels, as well as provide a forum for sharing lessons learned and best practices.

Enhance and strengthen mutual aid agreements among local jurisdictions

DHS will work with officials from local communities to strengthen existing mutual aid agreements and develop new ones in regions across the U.S. where needed. Furthermore, it will promote discussion regarding the adoption of common standards and terminology for equipment and training.

Coping with Disasters by Building Local Resiliency

By Jacquelyn L. Monday and Mary Fran Myers

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The old view of disasters as isolated, unpredictable phenomena, gave rise to policies, programs, and activities that actually fostered risk-taking; subsidized hazardous development; took an adversarial stance toward the natural environment; and adopted a narrow, short-sighted view of the world. Recent experience and research have suggested that the increasingly costly and complex natural disasters of the last decade are in large part the result of trying to cope with hazards in isolation from the broader social, economic, environmental, psychological, and political factors that shape our world. In some cases, these external factors have helped to create existing levels of risk and vulnerability in the first place. (See Mileti, 1999 for a full discussion.)

This new interpretation of the causes of disasters has significant implications for local governments. For one thing, it suggests that localities need to acknowledge that they have been creating their own disasters -- not single-handedly, of course, but in collaboration with other governmental, social, and economic policies, norms, and forces.

Second, localities are going to need to bear a larger responsibility for coping with disasters that strike them in the future. Although the disaster aid provided by the federal government has gotten widespread attention in the last five years or so -- and perhaps has even come to be expected by localities and individuals -- in fact such aid is forthcoming only in large disasters, it covers only a portion of the true cost of coping with a disaster (both short and long-term), and it is increasingly resented by taxpayers, who ultimately foot the bill. Further, as disasters become more complex and the amount of losses they cause increases, there may well be cutbacks even in the amount of aid the federal government is willing and/or able to provide.

More and more, the informed thinking on this situation is concluding that the best remedy lies in people and localities becoming more self-sufficient in the face of disasters. To accomplish this, communities and the nation must fully integrate disaster management, mitigation, and recovery with underlying societal and environmental conditions to produce sustainable localities and, ultimately, a sustainable world.

Sustainability

The precepts of sustainability are the subject of much debate, but there is general agreement that it is characterized, at a minimum, by economic vitality, a healthy environment, social equity, resilience in the face of disasters, and a concern for future generations. A key component of the process of building sustainability is a participatory approach that uses consensus-building instead of a "majority rules" mindset, and which begins with grass roots concerns and efforts. Sustainability is consistent with the popular

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slogan, "Think Globally, Act Locally." It also encompasses the idea of "smart growth," which lately has been embraced by many localities.

Prudent communities nationwide are working to build their own disaster resilience. They are finding that, if they incorporate the ideals of sustainability into their ongoing community development plans, policies, and actions, both before and after disasters, they can minimize disaster losses and simultaneously enhance their economic viability, preserve the health of their natural environment, improve the quality of life of their residents, and tackle other community concerns as well.

For example, in Berkeley, California, mitigation is becoming a "social value." Sustainable hazard mitigation, particularly for risks presented by earthquakes, is being incorporated into the city's general development plans for housing, transportation, and land use. In Tulsa, Oklahoma, local officials have combined flood loss reduction efforts with stormwater management and recreational programs to meet not one, but three goals. In Deerfield Beach, Florida, under the auspices of the Federal Emergency Management Agency's (FEMA) "Project Impact" initiative, city officials, in cooperation with corporate partners, are offering courses for local homeowners on steps they can take to protect against future hurricane damage.

Ideas for Localities

The transition to sustainable, disaster-resilient local entities will be a gradual one. But there are many small steps that can be taken now to move toward a comprehensive approach that adopts the precepts of sustainability. From a public policy perspective, communities can consider the following ideas:

- ___ Improve local building codes and construction practices, and add mitigation measures to ongoing infrastructure maintenance programs.
- ___ Find ways to mainstream sustainability and disaster resilience into (1) day-to-day activities and decisions about land use, historic preservation, public safety, urban development, stormwater drainage, housing upgrades, energy efficiency, and economic development; (2) emergency and disaster planning; and (3) plans for post-disaster recovery
- ___ Move citizens out of harm's way whenever possible, even a few buildings at a time. A long-range plan for vacating hazardous areas will eventually reduce risk and damage, and make the local housing stock safer and more desirable overall.
- ___ Promote the purchase of earthquake and flood insurance by community residents, and make sure that public buildings are adequately insured against these and other perils. Insurance improves the ability to bounce back after a disaster.
- ___ Use recovery after an actual disaster to take big steps toward sustainability.

It is important to note that achieving disaster resiliency will only be successful with an evenly balanced set of approaches. Over-reliance on one technique, e.g., insurance or building codes, is likely to detract from, rather than add to, a community's sustainability.

In order to ensure that all possible avenues are explored, communities should initiate local conversations on sustainable development and hazard mitigation, and share information and expertise among localities, especially those that have experienced disasters and have adopted long-term sustainable approaches. Another way to approach this would be to form

partnerships with federal, state, and regional agencies, as well as the private sector and nonprofit entities. They can provide technical, financial, and political support. Further, they are allies.

There are many examples of such partnerships. FEMA's "Project Impact" initiative referenced above has provided funds to communities in every state to build these partnerships. FEMA has also created "Project Impact Partners" with the private sector and non-governmental organizations at the national level. The results of these unions, however, emanate at the local and individual level. For example, as a Project Impact Partner, Fannie Mae offers special loans to homeowners for implementing retrofitting projects (e.g., replacing roofing with fire-resistant materials, or waterproofing exterior walls). The Institute for Business and Home Safety (IBHS) is promoting a partnership to retrofit the nation's child care centers. In Evansville, Indiana, seven of 36 centers already have been retrofitted with volunteer labor and donated supplies and materials.

Building Sustainability after Disaster

Localities that are struck by a serious natural disaster often have an unparalleled chance to take great strides toward sustainability. The period of rebuilding and recovery is an opportune time for change. Not only are residents and local officials more willing to consider alternative approaches to the pre-disaster status quo, but also, under the current scheme, there is often an influx of money and expertise after a disaster that can be targeted toward activities and projects that will build sustainability and future disaster resilience. (See Natural Hazards Center and Disaster Research Institute, 1999, for a discussion of some recovery assistance that helped build disaster resiliency after a major flood.)

Such an opportunity cannot be seized without prior thought and planning, however. Localities should consider the following actions:

- ___ Get training in sustainable recovery for key local officials and staff.
- ___ At a minimum, the community (both citizens and public staff) should anticipate using a post-disaster period for making some changes. They should acknowledge that a return to the status quo after a disaster will not necessarily be the wisest long-range choice.
- ___ The community should at least be receptive to the idea of receiving (and working hard with) outside expertise after a disaster. Although too few in number, there are experts in recovery, reconstruction, and sustainability who can be hired by the community to help its staff plan, orchestrate, and find funding for a sustainable recovery. In addition, a handful of federal agencies (like the U.S. Department of Housing and Urban Development, the U.S. Department of Energy, and the U.S. Department of Commerce's Economic Development Administration) and organizations (e.g., the Urban Land Institute) sometimes offer technical planning expertise for sustainable redevelopment.
- ___ A community should set up some new post-disaster policies ahead of time, even if it cannot formulate a comprehensive plan for long-term recovery. For example, it could establish a law or policy calling for a moratorium on certain kinds of rebuilding after a disaster. Policies that are "on the books" before disaster strikes are easier to defend and implement in the actual event. (See the City of Los Angeles, 1995, for an example of this kind of planning.)

- ___ In an ideal situation, a community would do a full-fledged, comprehensive plan for its disaster recovery and long-term reconstruction, focusing on sustainability - - BEFORE the disaster occurs. (See Schwab et al., 1998 for a thorough description of this process.)

Some Gaps in Fostering Local Sustainability

Not all action toward local sustainability lies in the province of communities. Two notable gaps must be remedied by higher levels of government and other entities:

- ___ State and federal recovery assistance -- both financial and technical -- needs to be better targeted toward building long-term disaster resilience at the local level, rather than just putting things back the way they were.
- ___ There is a tremendous need for training in sustainable recovery, both for localities who are working on getting there on their own, and for state, local, and federal officials and other experts.

Easier Said than Done

This shift toward disaster resiliency and sustainability makes intuitive sense. So why is it the exception and not the rule in this country? Some obstacles are easy to identify, for example, economic and institutional barriers to holistic policies. Others are less easy to define. Key questions that need to be addressed are:

- ___ How, exactly, does a community incorporate hazards issues into day-to-day business?
- ___ Who decides what disaster resilience actually is, i.e., how does a community set an "acceptable level of risk?"
- ___ Who is ultimately responsible for that decision?
- ___ How does one measure the effectiveness of any one or combination of mitigation technique(s)?

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The Tipping Point: How Little Things Can Make a Big Difference

by Malcolm Gladwell, Price: \$8.97

<http://www.amazon.com/Tipping-Point-Little-Things-Difference/dp/0316346624>

In sociology, a tipping point or angle of repose is the event of a previously rare phenomenon becoming rapidly and dramatically more common. The phrase was coined in its sociological use by Morton Grodzins, by analogy with the fact in physics that when a small amount of weight is added to a balanced object, it can cause it to suddenly and completely topple.

The Tipping Point: How Little Things Can Make a Big Difference (ISBN 0-316-31696-2) is a book by Malcolm Gladwell, first published by Little Brown in 2000. Tipping point is a sociological term that refers to the moment when something unique becomes common. The book seeks to explain "social epidemics", or sudden and often chaotic changes from one state to another. For example, he cites the drop in the New York City crime rate in the 1990s. The ability to generate these epidemics is highly-sought in marketing. They are similar, in their mathematical properties, to disease epidemics.

Gladwell identifies three types of people who have the power to produce social epidemics:

Connectors: Those with wide social circles. They are the "hubs" of the human social network and responsible for the small world phenomenon.

Mavens are knowledgeable people. While most consumers wouldn't know if a product were priced above the market rate by, say, 10 percent, mavens would. Bloggers who detect false claims in the media could also be considered mavens.

Salesmen are charismatic people with powerful negotiation skills. They exert "soft" influence rather than forceful power. Their source of influence may be the tendency of others, subconsciously, to imitate them rather than techniques of conscious persuasion.

Other key concepts in The Tipping Point are:

The Law of the Few. Those with the skill sets described above have disproportionate influence over the spread of social phenomena, and without their aid, such dissemination is unlikely ever to occur.

Stickiness: Ideas or products found attractive or interesting by others will grow exponentially for some time.

The Power of Context: Human behavior is strongly influenced by external variables of context. For example, "zero tolerance" efforts to combat minor crimes such as fare-beating and vandalism on the New York subway led to a decline in more violent crimes; the perception of increased vigilance altered the behavior and attitudes of the passengers. Gladwell also describes the bystander effect.

The Magic Number 150: The research behind Dunbar's number suggests an individual can only have genuine social relationships with 150 people. Likewise, groups larger than 150 are prone to fragmentation, and it is often best for the group's health that it split. Most extant hunter-gatherer villages, as well as military companies also stay just shy of this number.

The New Product Cycle: According to the model of Everett Rogers, there is a bell curve of adaptation to the new phenomenon: first are innovators, then early adopters, early majority, late majority, and laggards. Each category corresponds to one standard deviation worth of width, and the apex of the bell curve is between the early and late majorities. Innovators lie 2 or more standard deviations to the left of the mean, while early adopters are between 1 and 2 standard deviations to the left, and so on. Laggards, the last group to adopt a new fad, lie at least 1 standard deviation to the right of the mean, thus make up about 16 percent of the population.

1. What is The Tipping Point about?

It's a book about change. In particular, it's a book that presents a new way of understanding why change so often happens as quickly and as unexpectedly as it does. For example, why did crime drop so dramatically in New York City in the mid-1990's? How does a novel written by an unknown author end up as national bestseller? Why do teens smoke in greater and greater numbers, when every single person in the country knows that cigarettes kill? Why is word-of-mouth so powerful? What makes TV shows like Sesame Street so good at teaching kids how to read? I think the answer to all those questions is the same. It's that ideas and behavior and messages and products sometimes behave just like outbreaks of infectious disease. They are social epidemics. The Tipping Point is an examination of the social epidemics that surround us.

2. What does it mean to think about life as an epidemic? Why does thinking in terms of epidemics change the way we view the world?

Because epidemics behave in a very unusual and counterintuitive way. Think, for a moment, about an epidemic of measles in a kindergarten class. One child brings in the virus. It spreads to every other child in the class in a matter of days. And then, within a week or so, it completely dies out and none of the children will ever get measles again. That's typical behavior for epidemics: they can blow up and then die out really quickly, and even the smallest change -- like one child with a virus -- can get them started. My argument is that it is also the way that change often happens in the rest of the world. Things can happen all at once, and little changes can make a huge difference. That's a little bit counterintuitive. As human beings, we always expect everyday change to happen slowly and steadily, and for there to be some relationship between cause and effect. And when there isn't -- when crime drops dramatically in New York for no apparent reason, or when a movie made on a shoestring budget ends up making hundreds of millions of dollars -- we're surprised. I'm saying, don't be surprised. This is the way social epidemics work.

3. Where did you get the idea for the book?

Before I went to work for The New Yorker, I was a reporter for the Washington Post and I covered the AIDS epidemic. And one of the things that struck me as I learned more and more about HIV was how strange epidemics were. If you talk to the people who study epidemics--epidemiologists--you realize that they have a strikingly different way of looking at the world. They don't share the assumptions the rest of us have about how and why change happens. The word "Tipping Point", for example, comes from the world of epidemiology. It's the name given to that moment in an epidemic when a virus reaches critical mass. It's the boiling point. It's the moment on the graph when the line starts to shoot straight upwards. AIDS tipped in 1982, when it went from a rare disease affecting a few gay men to a worldwide epidemic. Crime in New York City tipped in the mid 1990's, when the murder rate suddenly plummeted. When I heard that phrase for the first time I remember thinking--wow. What if everything has a Tipping Point? Wouldn't it be cool to try and look for Tipping Points in business, or in social policy, or in advertising or in any number of other nonmedical areas?

4. Why do you think the epidemic example is so relevant for other kinds of change? Is it just that it's an unusual and interesting way to think about the world?

No. I think it's much more than that, because once you start to understand this pattern you start to see it everywhere. I'm convinced that ideas and behaviors and new products move through a population very much like a disease does. This isn't just a metaphor, in other words. I'm talking about a very literal analogy. One of the things I explore in the book is that ideas can be contagious in exactly the same way that a virus is. One chapter, for example, deals with the very strange epidemic of teenage suicide in the South Pacific islands of Micronesia. In the 1970's and 1980's, Micronesia had teen suicide rates ten times higher than anywhere else in the world. Teenagers were literally being infected with the suicide bug, and one after another they were killing themselves in exactly the same way under exactly the same circumstances. We like to use words like contagiousness and infectiousness just to apply to the medical realm. But I assure you that after you read about what happened in Micronesia you'll be convinced that behavior can be transmitted from one person to another as easily as the flu or the measles can. In fact, I don't think you have to go to Micronesia to see this pattern in action. Isn't this the explanation for the current epidemic of teen smoking in this country? And what about the rash of mass shootings we're facing at the moment--from Columbine through the Atlanta stockbroker through the neo-Nazi in Los Angeles?

5. Are you talking about the idea of memes, that has become so popular in academic circles recently?

It's very similar. A meme is an idea that behaves like a virus--that moves through a population, taking hold in each person it infects. I must say, though, that I don't much like that term. The thing that bothers me about the discussion of memes is that no one ever tries to define exactly what they are, and what makes a meme so contagious. I mean, you can put a virus under a microscope and point to all the genes on its surface that are responsible for making it so dangerous. So what happens when you look at an infectious idea under a microscope? I have a chapter where I try to do that. I use the example of children's television shows like Sesame Street and the new Nickelodeon program called Blues Clues. Both those are examples of shows that started learning epidemics in preschoolers, that turned kids onto reading and "infected" them with literacy. We sometimes think of Sesame Street as purely the result of the creative genius of people like Jim Henson and Frank Oz. But the truth is that it is carefully and painstakingly engineered, down to the smallest details. There's a wonderful story, in fact, about the particular scientific reason for the creation of Big Bird. It's very funny. But I won't spoil it for you.

6. How would you classify *The Tipping Point*? Is it a science book?

I like to think of it as an intellectual adventure story. It draws from psychology and sociology and epidemiology, and uses examples from the worlds of business and education and fashion and media. If I had to draw an analogy to another book, I'd say it was like Daniel Goleman's *Emotional Intelligence*, in the sense that it takes theories and ideas from the social sciences and shows how they can have real relevance to our lives. There's a whole section of the book devoted to explaining the phenomenon of word of mouth, for example. I think that word of mouth is something created by three very rare and special psychological types, whom I call Connectors, Mavens, and Salesmen. I profile three people who I think embody those types, and then I use the example of Paul Revere and his midnight ride to point out the subtle characteristics of this kind of social epidemic. So just in that chapter there is a little bit of sociology, a little of psychology and a little bit of history, all in aid of explaining a very common but mysterious phenomenon that we deal with every day. I guess what I'm saying is that I'm not sure that this book fits into any one category. That's why I call it an adventure story. I think it will appeal to anyone who wants to understand the world around them in a different way. I think it can give the reader an advantage--a new set of tools. Of course, I also think they'll be in for a very fun ride.

7. What do you hope readers will take away from the book?

One of the things I'd like to do is to show people how to start "positive" epidemics of their own. The virtue of an epidemic, after all, is that just a little input is enough to get it started, and it can spread very, very quickly. That makes it something of obvious and enormous interest to everyone from educators trying to reach students, to businesses trying to spread the word about their product, or for that matter to anyone who's trying to create a change with limited resources. The book has a number of case studies of people who have successfully started epidemics--an advertising agency, for example, and a breast cancer activist. I think they are really fascinating. I also take a pressing social issue, teenage smoking, and break it down and analyze what an epidemic approach to solving that problem would look like. The point is that by the end of the book I think the reader will have a clear idea of what starting an epidemic actually takes. This is not an abstract, academic book. It's very practical. And it's very hopeful. It's brain software.

Beyond that, I think that *The Tipping Point* is a way of making sense of the world, because I'm not sure that the world always makes as much sense to us as we would hope. I spent a great deal of time in the book talking about the way our minds work--and the peculiar and sometimes problematic ways in which our brains process information. Our intuitions, as humans, aren't always very good. Changes that happen really suddenly, on the strength of the most minor of input, can be deeply confusing. People who understand *The Tipping Point*, I think, have a way of decoding the world around them. |

If you want to read a bit about how word-of-mouth trends get started and grow, you'll like *The Tipping Point: How Little Things Can Make A Big Difference* by Malcolm Gladwell.

Gladwell says that things spread in popularity due to three factors.

Gladwell says that not all people are equally important in launching a new trend. Rather, there are a few key people called 'connectors' who tend to be very social and outgoing. These connectors have diverse social networks and a significant ability to spread information, trends, and products. Trends and epidemics spread when they are adopted by connectors.

Mavens are another type of people involved in spreading a trend. Mavens are people who like helping people and who take a particular interest in evaluating the quality of products or ideas. Because they are so well-informed about things, mavens are often the first to promote quality products. Mavens might also be the early adopters of trends. Often, Gladwell writes, some maven or connector must modify something to make it more acceptable to the larger population.

With connectors and mavens in place, the next ingredient for a trend to take off is for the message to be memorable or 'sticky.' Some messages don't stick in the minds of those who hear them while other messages do.

The best way to create a 'sticky' message is to test the message. Gladwell discusses children's TV--Sesame Street and a show called Blue's Clues, which were designed from the start to be 'sticky.'

For example, educators tested two skits designed to help children read. Both involved having children read (or see read) the word 'hug.' Each letter was uncovered and the sound it represented made.

Oscar the Grouch wasn't too effective in teaching kids the word. As Oscar read the word, Oscar was waving his hands around and making all sorts of fuss that distracted the children from the task at hand. They weren't concentrating on the word, they were concentrating on Oscar.

Another skit where a more subdued puppet slowly uncovered each letter as he read it proved to be much more effective.

How did Sesame Street producers know whether kids were paying attention to the word? Eye movement photography. The producers strapped little kids into chairs and photographed what part of the television screen they were watching. Gladwell tells us that they were watching Oscar, not the letters. But, with the subdued puppet, the children focused upon the letters.

Gladwell explains that we can only focus upon one thing at a time: "the receptors that process what we see--are clustered in a small region in the very middle of the retina called the fovea."

Gladwell says that eye movement photography is quite important in advertising. He writes: "If you can track where someone's fovea is moving and what they are fixating on... you can tell with extraordinary precision what they are actually looking at and what kind of information they are actually receiving. The people who make television commercials, not surprisingly, are obsessed with eye tracking. If you make a beer commercial with a beautiful model, it would be really important to know whether the average twenty-two-year old male in your target audience fixates only on the model or eventually moves to your can of beer."

So, in case you're wondering why Britney Spears is holding her Pepsi can in some particular location in her Super Bowl ad, now you know! It's based upon the location of the fovea! (How do they direct this stuff? "Hey Britney, move the can a bit lower. It's not quite aligned properly with the fovea." SLAP! Britney slaps the director.)

Do we really want people tracking the movement of our foveas? Remember, this was happening thirty years ago for the nefarious purpose of teaching kids to read. What about today?

We learn some other disturbing things. For example, Cookie Monster was a pitch man for Frito-Lay. If you can't trust the Cookie Monster, who can you trust?

This is what I found deeply disturbing about the attempt to try to create trends and 'social' epidemics. In particular, Gladwell discusses the failure of anti-smoking campaigns targeted to teenagers. Having adults tell teenagers not to smoke in TV commercials didn't work. Go figure!

But, by studying the nature of the mavens and connectors who unintentionally tend to encourage teenagers to smoke, Gladwell suggests that we can aim to prevent smoking from a more powerful position. I don't really like this social engineering. Whose business is it, anyway? Why should taxpayers' money be spent to promote social policies that a small group decides is correct for us? I find this too politically correct and too meddling of individual freedoms.

And, this isn't the first time social engineers felt they knew what was better for the population and adopted such methods of trying to influence social behavior. For example, similar techniques were used in 1933 by the Nazis (read, for example, the academic book, *Backing Hitler: Consent And Coercion In Nazi Germany* by Robert Gellately).

Gladwell's third factor is context. Gladwell argues that the specific context of a situation will have a powerful impact upon whether or not a trend will spread.

Tipping points

What were the decisions that made the Ozarks what it is today?

By Karen E. Culp, News-Leader.com | Springfield, Mo.

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The Ozarks is a long success story filled with engaging subplots. But no single chapter made the region what it is today. Key moments in the Ozarks history — dubbed "tipping points" by journalist Malcolm Gladwell — created an area with a steady economy and strong work ethic.

Ask anyone about such tipping points and you'll get many different answers. Peruse the region's history, and you'll find many examples.

Decades ago, the Frisco Railroad brought people and jobs to the area. When Route 66, the "mother road," swept through Springfield, it brought in national travelers. And Branson's shows and parks have entertained generations of visitors.

"This was a century in the making," said Lisa Rau, spokeswoman for Silver Dollar City.

The Ozark Mountains' abundant natural beauty, its streams, hills and lakes, have long been a draw for both tourists and new residents. But it was the collaboration of the area's leaders that made the region what it is today, said Jan Horton, community leader and lifelong Ozarks resident.

In the 1950s and '60s, a group of local businesspeople made a concerted effort to bring major employers — big factories, such as what is now Solo Cup — to town. These were to be solid, good-paying jobs for locals, and they were for many years. But when those major manufacturers began to leave town, the region had to change. By 1992, Zenith, a major local factory, had moved 5,000 jobs out of Springfield to Mexico. Other plants including Fasco Industries in Ozark also cut their employment rolls during the '90s as manufacturers sought cheaper labor outside the United States. The changes led representatives from City Utilities, the Springfield Area Chamber of Commerce, the Springfield Business and Development Corp. and the city of Springfield to form a partnership in 1991 that would develop two industrial parks.

Those parks would each hold multiple employers and many manufacturing jobs. The handful of giant employers were leaving, those leaders saw, so they had to make sure Springfield's jobs were spread among many smaller employers instead. Today, the east-side Partnership Industrial Center is nearly full, making up for the jobs lost by Zenith's departure.

"Our city has been so forward-thinking about so many things," Horton said.

Anyone who has worked in a convenience store or restaurant in Springfield has heard the question. "How do I find that Bass Pro Shops?"

In 1972, John L. Morris decided to start selling fishing gear out of one of his father's liquor stores. Twelve years later, the company broke ground on what is now its flagship store at Sunshine Street and Campbell Avenue. And out-of-town anglers have been meandering the streets of Springfield ever since, looking for the granddaddy of all outdoor stores. To Springfield's south, Branson was humming along, spurred by the big ideas of the Herschend family, who made Marvel Cave a tourist attraction and then developed Silver Dollar City; the Presley family, whose theater, along with the Baldknobbers, provided early entertainment spots in the city; and the Trimble family, who turned the Shepherd of the Hills into a tourist draw.

In the early 1990s, the nation took notice. A "60 Minutes" television program featured the city, and many point to that moment as one that sparked the development that followed.

"We literally went from 'Ozarks what?' and 'Branson where?' to 'Hello, Time; hello, Newsweek,'" Silver Dollar City's Rau said. But she's quick to caution that the piece wasn't the beginning of Branson's life as a tourist destination.

"It wasn't as though '60 Minutes' came and then, bam, Branson became what it is today," Rau said. "There were plenty of people here long, long before that."

New life for downtown

During the 1980s, developer John Q. Hammons saw it was time for Springfield to have a 20-plus-story building. And in 1986, he built Hammons Tower, the city's tallest building, and the upscale office building quickly filled with high-profile law firms and nationally known accountancy firms.

What the city didn't know at the time was that the shape of the region surrounding the tower would change forever in the late 1990s and early part of the 21st century. In 1998, the city asked its citizens to approve a hotel-room tax increase to fund Jordan Valley Park, a downtown redevelopment project to revitalize the area. And the voters said yes.

In the years since, Jordan Valley Park, an urban park featuring greenspace, an exposition center and a \$32 million baseball stadium have sprouted in the area. Now, Springfield is getting a minor league Cardinals franchise, and the exposition center is bustling with a new event almost every weekend. Just a short distance away, Springfield's downtown has come back to life, after suffering through the 1980s. A group of entrepreneurs saw bistros and bars where vacant structures once loomed.

"The entrepreneurs were the early pioneers downtown," Horton said. Now, downtown boasts restaurants, clubs and shops.

'Medical mile'

A stretch of National Avenue between St. John's Hospital and Cox South hospital has sprouted with specialty clinics and medical offices. Its moniker: "Medical Mile."

The nickname reveals the importance of health care to Springfield's economy. It is the city's major employer, and the health systems here serve a broad section of counties in southwest Missouri and northwest Arkansas.

In 1985, Cox South was built to be a hospital for women and children, said Norb Bagley, chief operating officer for CoxHealth. But the health center's leaders quickly figured out that it needed to be more.

"The population growth in the area has fueled the growth in health care," Bagley said. "It's been a synergistic event, in my mind."

Over the years, a succession of health care centers have cropped up along National Avenue, and "Medical Mile" is now as common in Ozarks parlance as "Glenstone Avenue" or "Sunshine Street."

The rapid rise of the area's Hispanic population has also brought much change to the region. Greene County's Hispanic population grew from 1,775 in 1990 to 4,434 in 2000, a 149.8 percent change.

Barry County, which contains the city of Monett, saw a jump from 152 Hispanics in 1990 to 1,713 in 2000, a 1,027 percent change. In Monett and many other towns across the Ozarks, the new residents have found places to live, work and play, and have brought their rich culture and history to the Ozarks.

Still more tipping points may be quite significant to Ozarkers themselves, though not as apparent to the world outside. Our favorite food spots have grown up nicely, including thriving local eateries Clary's restaurant and Andy's Frozen Custard. Andy's will soon be a part of other towns; the company sold five franchises in 2004, in Missouri, Arkansas and Illinois.

"It's a very down-home, Americana product," owner Andy Kuntz said. "If we can duplicate what we've done here in other areas, the sky's the limit."

Much as it is for the Ozarks.

Disaster Recovery – It's Your Ship - Questions

- 1. What do you believe was secret to success that Captain Abrashoff's utilized in his command?**
- 2. Did Captain Abrashoff take the view that the Benfold's crew was government property or did he view it as human capital?**
- 3. What do you feel were the key linkages between the approach that Captain Abrashoff's used and that of the sailors':**
 - a. values and attitudes**
 - b. loyalty**
 - c. organizational commitment**
 - d. job satisfaction**
 - e. re-enlistment rate**
 - f. job performance**
- 4. Would you like to work for a boss like Captain Abrashoff? Why or why not?**
- 5. How do your own personal values, management style and ethics to guide you in your decision making?**
- 6. How would you lead in order for your department to be the best ship in your own organizational fleet?**
- 7. Do you think Captain Abrashoff's unconventional management style will be widely imitated in the U.S. Navy? Why or why not?**
- 8. Could Captain Abrashoff's management style work in your organization? Why or why not?**
- 9. What is the one thing that you will personally take away from having read this book and try to apply it to your own situation, personally or professionally?**

Disaster Recovery – Vocabulary List

"100-Year" Floodplain: The area of a floodplain that historically and statistically has a 1 percent chance of significant inundation in any given year or the area of inundation by the "100-year" flood (also known as the "Base Flood").

Americans with Disabilities Act (ADA): The ADA guarantees equal opportunity for individuals with disabilities in employment, public accommodations, transportation, state and local government services, and telecommunications.

Annual Flood: The annual flood is considered the most significant flood event in a one-year cycle of a floodplain.

Applicant: The applicant is a state agency, local government, and any political subdivision of the state, including Native American Indian tribes and Alaskan native villages that apply for FEMA post-disaster assistance. Applicants may also be private non-profit organizations such as medical, emergency (fire and rescue), utility, educational, custodial care, zoos, community centers, libraries, homeless shelters, and senior citizens' centers.

Automated Deployment Database (ADD): The ADD is a system that provides a means of deploying disaster workers to locations for disaster operations. All FEMA employees, both DAEs and PFTs, are part of the ADD. The ADD system uses specific job titles and descriptions, and is accessible through FEMA's Wide Area Network (WAN).

Base Flood: The Base Flood is defined by FEMA as the flood having a 1 percent probability of being equaled or exceeded in any given year; also referred to as the "100-year" flood.

Base Flood Elevation (BFE): The BFE is defined by FEMA as the height of the base ("100-year") flood in relation to a specified datum, usually the National Geodetic Vertical Datum of 1929 or North American Vertical Datum of 1988. Generally speaking, this is the elevation of the 100-year flood waters relative to "mean sea level."

Building Performance Assessment Team (BPAT): The BPAT is deployed by FEMA in response to disasters to conduct on-site field investigations. BPATs include representatives of public and private sector entities who are experts in specific technical fields, such as structural and civil engineering, building design and construction, and building code development and enforcement. Activities include inspecting disaster-induced damage to residential and commercial buildings and other manmade structures; evaluating local design practices, construction methods and materials, building codes, and building inspection and code enforcement processes; and making recommendations regarding design, construction, and code issues.

Catastrophic Disaster Response Group (CDRG): The CDRG is a national-level group with representatives from the Federal departments and agencies under the FRP; serves as the centralized coordinating group supporting on-scene Federal response and recovery efforts.

Charrette: A charrette is an intensive planning and/or design workshop involving people working together under compressed deadlines. Charrettes provide an interactive forum in which planners, designers, community representatives, and other interested and appropriate parties participate in proposing alternative visions that can help the group understand, evaluate and determine future plans and options.

Coastal Barrier Resources Act (CoBRA): CoBRA is Federal legislation identifying particular coastal areas that are environmentally sensitive and are subject to rules prohibiting certain Federal expenditures within them.

Coastal Zone: The coastal zone is defined as the area along the shore where the ocean meets the land as the surface of the land rises above the ocean. This land/water interface includes barrier islands, estuaries, beaches, coastal wetlands, and land areas having direct drainage to the ocean.

Coastal Zone Management Act (CZMA): In recognition of the increasing pressures of over-development upon the nation's coastal resources, Congress enacted the CZMA in 1972. The CZMA encourages states to preserve, protect, develop, and, where possible, restore or enhance valuable natural coastal resources such as wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitats. A unique feature of the CZMA is that participation by states is voluntary. To encourage states to participate, the Act makes Federal financial assistance available to any coastal state or territory, including those on the Great Lakes, that is willing to develop and implement a comprehensive coastal management program.

Community Assistance Program - State Support Services Element (CAP-SSSE): The CAP-SSSE provides funding to meet negotiated objectives for reducing flood hazards in NFIP communities. The Program requires that participating communities identify, prevent, and resolve floodplain management issues before the issues require compliance action by FEMA. Available CAP funding is provided on a 75 percent Federal maximum and 25 percent minimum state cost sharing basis through the annual FEMA EMPG.

Community Assistance Visit (CAV): FEMA arranges for periodic CAVs with local officials to provide technical assistance regarding compliance with NFIP floodplain management requirements.

Community Development Block Grants (CDBG): Administered by the Department of Housing and Urban Development (HUD); the objective of the CDBGs is to develop viable urban communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for low to moderate-income people. Disaster-related assistance can be eligible under this program depending on state priorities; mitigation activities have been funded under this program.

Community Rating System (CRS): The CRS is an NFIP program that provides incentives for NFIP communities to complete activities that reduce flood hazard risk. When the community completes specified activities, the insurance premiums of these communities are reduced.

Community Relations (CR): CR is a FEMA support function within the DFO that provides disaster information to victims of a disaster especially in remote areas and to low income, welfare recipients, elderly, or handicapped victims. CR ensures assistance opportunities are made available to all affected on an equal basis and provides the ERT management with information on ethnic and cultural diversity within the affected populations.

Congressional Liaison: The Congressional Liaison is a FEMA official within the Office of Congressional and Legislative Affairs who answers questions and concerns from Members of Congress and other elected officials during a disaster.

Cooperative Agreement (CA): The CA is a mechanism whereby FEMA can reimburse states to utilize state resources to expedite the completion of a specific task associated with damage occurring from a disaster.

Damage Survey Report (DSR): The DSR (currently referred to as Project Worksheet, PW) is the public assistance inspector's report that is reviewed by FEMA and is the basis for approving Public Assistance.

Deputy Federal Coordinating Officer for Mitigation (DFCO-M): As part of the FCO's command staff, the DFCO-M manages and directs the mitigation component of either the regional ERT or ERT-N. The DFCO-M advises the FCO, manages the mitigation operation, and provides Federal leadership by forging partnerships to integrate effective planning and program implementation activities in the disaster operation.

Disaster Assistance Employee (DAE): DAEs are trained temporary employees that augment permanent FEMA personnel in disaster operations in the field.

Disaster Declaration: A disaster declaration is a Presidential determination that a jurisdiction of the United States may receive Federal aid as a result of damages from a major disaster or emergency.

Disaster Field Office (DFO): The DFO is established in or near a designated disaster site to support Federal and state response and recovery operations. It is the operating site for the ERT.

Disaster Housing: Disaster Housing (formerly called Temporary Housing) is temporary housing supplied by emergency management officials to disaster victims whose homes are no longer inhabitable due to damages sustained in a declared disaster.

Disaster Information Systems Clearinghouse (DISC): The DISC provides centralized control, deployment, and accountability of disaster information systems. It is located at FEMA's Mount Weather Emergency Assistance Center in Bluemont, VA

Disaster Recovery Center (DRC): The DRC is a location within or near the disaster site at which disaster assistance clients can obtain information about assistance programs and check on the status of their teleregistration for assistance.

Disaster Recovery Manager (DRM): The DRM is the FEMA official (normally the FCO) who has the delegated authority from the Regional Director to manage authorities under the Stafford Act, including incurring financial obligations.

Early Implementation Strategy: The Strategy is a report that is jointly developed by FEMA, state, and local governments immediately after the initial disaster response to address immediate recovery needs and their potential implications for supporting long-term mitigation and redevelopment goals. FEMA's long-term goal is to implement mitigation as the foundation for establishing disaster-resistant and sustainable communities. The Strategy provides a framework for activities to be undertaken during the weeks immediately following the event, and serves as a starting point for in-depth consideration through the IHMT and/or state mitigation planning process.

Earthquake: An earthquake is a sudden motion or trembling of the earth caused by the abrupt release of slowly accumulated strain upon tectonic plates. *Synonym: Seismic Event.*

Economic Development Administration (EDA): The EDA, part of the Department of Commerce, is the Federal agency that assists communities with grants and technical assistance for economic development.

Emergency: As defined in Title V of Public Law 93-288, Section 1.02(l), an emergency is "...any occasion or instance for which, in the determination of the President, Federal assistance is needed to

supplement state and local efforts and capabilities to save lives and protect property and public health and safety."

Emergency Management Performance Grant (EMPG): An EMPG is the mechanism by which FEMA provides funding to states to develop and maintain emergency management programs. States develop a "self-assessment" of their emergency management needs, including mitigation, and a 5-year plan to meet those needs. Based on the plan, FEMA provides various levels of funding through a FEMA/State Cooperative Agreement (CA).

Emergency Response Team (ERT): The ERT is an interagency team consisting of the lead representative from each Federal department or agency assigned primary responsibility for an ESF, and members of the FCO's staff mobilized to carry out the FCO's duties.

Emergency Response Team - Advanced (ERT-A): The ERT-A is the portion of the ERT deployed first to the field to respond to a disaster incident.

Emergency Response Team - Mitigation (ERT-M): The ERT-M is the portion of the ERT responsible for field mitigation operations that support sustained actions that will eliminate or reduce long-term risk to people and property from hazards and their effects.

Emergency Response Team -National (ERT-N): The ERT-N is a national-level field response team.

Emergency Support Function (ESF): ESF is the term used to indicate a functional area of response activity established to facilitate the delivery of Federal assistance required during the immediate response phase of a disaster to save lives and protect property and public health.

Emergency Support Team (EST): The EST is an interagency group operating from FEMA headquarters in Washington, DC to oversee the national level response effort and coordinate activities with the ESF primary and support agencies in supporting the Federal response requirements in the field. The EST consists of the lead representatives from each Federal department or agency assigned a primary ESF responsibility and members of the EST Director's staff.

ESF-5 - Information and Planning Section: ESF-5 is the section of the ERT responsible for collecting, processing, analyzing, and disseminating information about disaster operations in order to support planning and decision making at both the field operations and Headquarters levels. The ESF-5 also coordinates short- and long-term planning at the field operations level.

Executive Order 11988 (Floodplain Management): E.O. 11988 requires that no Federally assisted activities be conducted in or have the potential to affect identified Special Flood Hazard Areas, unless there is no practicable alternative.

Executive Order 11990 (Protection of Wetlands): The companion to E.O. 11988, it requires that no Federally assisted activities be conducted in or have the potential to affect identified wetlands, unless there is no practicable alternative.

Executive Orders 12699 and 12941 (Seismic Safety): E.O. 12699 requires 29 Federal agencies to issue regulations or procedures, and adopt minimum design and construction standards for seismic safety. E.O. 12941 requires seismic rehabilitation of Federally owned or leased buildings.

Executive Order 12898 (Environmental Justice): E.O. 12898 requires Federal agencies to make environmental justice part of their mission by identifying and addressing disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority

and low-income populations.

Fault: A fault is a fracture or fracture zone in the earth's surface, along which there has been displacement or the junction of two tectonic plates.

Federal Coordinating Officer (FCO): The FCO is the responsible official who initiates action immediately to ensure Federal disaster assistance is provided in accordance with the declaration, applicable laws, regulations, and the FEMA-State Agreement; appointed by the President, FEMA Director, or FEMA Associate Director for Response and Recovery.

Federal Emergency Management Agency (FEMA): FEMA is an executive agency whose mission is to reduce loss of life and property and protect our nation's critical infrastructure from all types of hazards through a comprehensive, risk-based, emergency management program of mitigation, preparedness, response, and recovery.

Federal Insurance Administration (FIA): The FIA is the branch of FEMA that administers the National Flood Insurance Program (NFIP), providing flood insurance to individuals and communities that would otherwise not be protected.

Federal Response Plan (FRP): The Federal Response Plan facilitates the Federal response to disasters in the United States, territories, and other jurisdictions. The Plan outlines the planning assumptions, policies, and concepts of operations, organizational structures, and specifies responsibility assignments of Federal departments and agencies prior to and during disasters.

FEMA-State Agreement: A FEMA-State Agreement is a binding statement of the understandings, commitments, assurances, and conditions for assistance under which FEMA disaster assistance shall be provided to states. This Agreement imposes binding obligations on FEMA, states, and their local governments in the form of conditions for assistance, which are legally enforceable.

Fire Potential Index (FPI): The FPI was developed by USGS and USFS to assess and map fire hazard potential over broad areas. Based on such geographic information, national policy makers and on-the-ground fire managers establish priorities for prevention activities in the defined area to reduce the risk of managed and wildfire ignition and spread. Prediction of fire hazard shortens the time between fire ignition and initial attack by enabling fire managers to pre-allocate and stage suppression forces to high fire risk areas.

Flash Flood: A flash flood is a flood event occurring with little or no warning where water levels rise at an extremely fast rate.

Flood Insurance Rate Map (FIRM): A FIRM is the official FEMA-prepared map of a community that shows base flood elevations along with special flood hazard areas and the flood insurance risk premium zones.

Flood Mitigation Assistance (FMA) Program: The FMA Program provides annual funding for states and local governments that are planning or taking action to reduce or eliminate long-term risk of flood damage to buildings, manufactured homes, and other insured structures. Grants may be awarded for planning assistance, implementation of mitigation strategies, and technical assistance.

Floodplain: Floodplains are low-lying areas adjacent to rivers and streams that naturally experience periodic inundation due to rainfall, snowmelt, or dam or levee failure.

Fujita Scale of Tornado Intensity: The Fujita Scale rates tornadoes with numeric values from F0 to F6 based on tornado severity and damage sustained. An F0 indicates minimal damage such as broken tree limbs or signs, while an F6 indicates severe damage sustained.

Gap Legislation: Gap legislation authorizes the U.S. Army Corps of Engineers to assist communities with limited emergency work, providing 100 percent funding for up to 10 days after a disaster. The legislation was developed to provide a "fast-track" disaster assistance "revenue stream" for those instances where it might otherwise take 10-14 days for FEMA and the President to determine whether or not FEMA assistance is warranted.

Geographic Information System (GIS): Computer software that links geographic information (where things are) with descriptive information (what things are like).

Hazard Identification and Risk Assessment (HIRA): The HIRA attempts to identify all the hazards that potentially threaten a community and provide an analysis of each hazard to determine the degree of threat posed by each. HIRA activities include identifying and mapping flood hazard areas; characterizing the impact of hurricanes using storm surge and wind decay models, mapping earthquake hazards, and using this hazard data to identify where damages may occur within a community.

Hazard Mitigation: Hazard mitigation is a sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Hazard Mitigation Grant Program (HMGP): Authorized under Section 404 of the Stafford Act, this Program provides funding for cost-effective hazard mitigation projects in conformance with the post-disaster mitigation plan required under Section 409 of the Stafford Act. Section 404 authorizes the President to contribute up to 75 percent of the cost of mitigation measures that are determined to be cost effective and substantially reduce the risk of future damage or loss in states affected by a major disaster. The remaining 25 percent of the cost may be a combination of state, local, and other non-Federal contributions.

Hazard Mitigation State Administrative Plan: The Hazard Mitigation State Administrative Plan is required to be developed to describe the state procedures for administering the HMGP.

Hazard Mitigation Technical Assistance Program (HMTAP): HMTAP is a nationwide contract to support FEMA, states, territories, and local governments with technical assistance to enhance the effectiveness of their natural hazard mitigation program efforts. HMTAP may be used to support post-disaster program needs in cases of large, unusual, or complex projects; situations where resources are not available; or where technical assistance is needed.

Hazards United States (HAZUS): HAZUS is a PC-based GIS software that implements a standardized, nationally applicable earthquake loss estimation methodology (computer model). Flood and hurricane loss estimation models are currently under development.

HOME Investment Partnerships Program: This Program is sponsored by HUD and provides permanent housing for low income homeowners or renters in large cities and urban counties. Funds can be used for acquisition, new construction, and rehabilitation.

Human Services (HS): *(Formerly Individual Assistance, IA)* HS, formerly known as IA, provides supplementary Federal assistance (under the Stafford Act (408)) to individuals and families adversely affected by a major disaster or emergency.

Hurricane: Hurricanes are part of a family of weather systems known as "tropical cyclones."

Depending on the strength of the winds extending in a counter-clockwise formation from the eye of the hurricane, it can be classified as a Category 1, to Category 5 hurricane, with 5 being the most severe.

Hurricane Program (HP): HP is a FEMA program that provides funds to states at risk from hurricanes for the following:

- activities that establish, enhance, and maintain basic levels of preparedness and mitigation capabilities;
- activities that promote effective mitigation measures to reduce damage to public and private property;
- HIRA and evacuation studies;
- post-storm analyses to evaluate the effectiveness of mitigation measures; training and exercises; and
- activities that promote public awareness and education.

Increased Cost of Compliance (ICC): ICC is a component of the standard flood insurance policy which provides up to \$15,000 coverage for complying with the cost of meeting substantial damage requirements or towards eliminating flood damage to a structure that has had repetitive flood insurance claims paid.

Individual and Family Grant Program (IFG): IFG is a FEMA program that provides monetary aid to individuals and families to meet disaster-related expenses for necessary items or for serious needs.

Infrastructure: Infrastructure is a term that refers to the public services of a community that have a direct impact on the quality of life. Infrastructure refers to communication technology such as phone lines or Internet access, vital services such as public water supplies and sewer treatment facilities, and includes an area's transportation system, regional dams or bridges, etc.

Infrastructure Support (IS): IS (also known as Public Assistance, PA) is Federal financial assistance provided by FEMA under the Stafford Act (Section 406) to state and local governments or to eligible private non-profit organizations for disaster-related requirements.

Intensity: Intensity is a measure of the effects of an earthquake at a particular place. Intensity depends not only on the earthquake magnitude, but also on the distance from the earthquake epicenter and on the local geology.

Interagency Hazard Mitigation Team (IHMT): IHMT is the mitigation team usually activated following major disasters, pursuant to the Office of Management and Budget directive and subsequent Federal Interagency Agreement. Shortly following a Presidential declared disaster, the IHMT, composed of Federal, state, and local officials, develops a report identifying post-disaster mitigation opportunities and common post-disaster recovery policies.

Landslide: A landslide refers to the processes and landforms involving the downslope movement, under gravity, of masses of soil and rock material.

Magnitude: Magnitude is a measure of the strength of an earthquake or the strain of energy released, as determined by seismic observations.

Major Disaster: As defined under Public Law 93-288, a major disaster is any natural catastrophe (including any hurricane, tornado, storm, flood, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or... any fire, flood, or

explosion in any part of the United States, which in the determination of the President, causes damage of sufficient severity and magnitude to warrant major disaster assistance under the Stafford Act.

Mission Assignment: Mission Assignments are mechanisms whereby FEMA can task another Federal entity to provide specified resources beyond their usual authorities and resources. Mission Assignments are appropriate in situations where the required resource or expertise is of a critical nature, unique, time sensitive, and where the nature of the requirement can be best met by an OFA.

Mitigation: Mitigation refers to sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their effects.

Mobile Emergency Response Support (MERS): MERS is a rapidly deployable resource operated by FEMA that provides immediate communications, logistics, and life support capabilities at a disaster site.

Mobile Mitigation Assistance Vehicle (MMAV): An MMAV is a recreational vehicle (RV) equipped with educational tools and assigned trained mitigation counselors. The MMAV is used to implement a mobile community-based mitigation outreach program; it allows FEMA staff to provide damage prevention guidance and information to disaster-affected individuals in scattered locations and provides ancillary support to disseminate information about the Disaster Assistance Tele-registration process.

National Earthquake Hazards Reduction Program (NEHRP): Created by Congress in 1977 to mitigate earthquake losses by providing technical and educational assistance to communities threatened by earthquakes, NEHRP is intended to mitigate earthquake losses through development and implementation of seismic design and construction standards and techniques; technical assistance materials; education and risk reduction programs; centers addressing specific aspects of the earthquake problem; and dissemination of earthquake information.

National Emergency Management Information Systems (NEMIS): NEMIS is a computer-based data management and communications network that links FEMA and states. The network provides necessary databases, e-mail, and software applications to enable on-line case management and request processing. It also serves to simplify program management responsibilities.

National Environmental Policy Act (NEPA): Passed by Congress in 1970, this Act established a national policy for the protection and maintenance of the environment by mandating a planning process that all Federal agencies must follow. NEPA requires that FEMA carry out its responsibilities in a manner that ensures that all practical means and measures are used to protect, restore, and enhance the quality of the environment or to avoid or minimize adverse environmental consequences (44 CFR Part 10).

National Flood Insurance Program (NFIP): NFIP makes flood insurance available to property owners in exchange for the local adoption and enforcement of a minimum floodplain management ordinance that regulates new and substantially damaged or improved development in designated flood hazard areas.

National Historic Preservation Act (NHPA): Consideration of cultural resources by Federal agencies is mandated under Section 106 of the NHPA, as implemented under 36 CFR Part 800. Requirements include identifying significant historic properties that may be impacted by a proposed project.

National Interagency Emergency Operations Center (NIEOC): NIEOC is the focal point for national-level coordination and response activities; it receives and disseminates information on natural and man-made disasters, prepares daily reports on emergency activities, and houses and provides direct support to the EST in operations and exercises.

National Mitigation Strategy: Introduced in 1995 by FEMA to focus national attention on mitigation, the Strategy encourages all levels of government and the private sector to identify potential hazards and take steps to reduce the risks.

National Weather Service (NWS): The NWS prepares and issues flood, severe weather, and coastal storm warnings and can provide technical assistance to Federal and state entities in preparing weather and flood warning plans.

Nor'easter: Nor'easters are low-pressure systems that move along the eastern seaboard, picking up moisture from the gulf stream as they move from the central states to the northeast. There, the storm drops the accumulated moisture in the form of heavy rain or snow. Severe flooding and erosion can be associated with the rains, winds, and waves that are part of this type of storm system.

Operations Section: The Operations Section of the ERT coordinates the delivery of Federal assistance and manages the activities of various emergency teams.

Preliminary Damage Assessment (PDA): The PDA is the basis for a state's request for Presidential disaster declaration. It is a joint FEMA/State verification of actual damages and an estimate of additional resources that will be needed because of a disaster.

Preparedness: Preparedness refers to steps taken to decide what to do if essential services break down, developing a plan for contingencies, and practicing the plan. Preparedness ensures that people are ready for a disaster and will respond to it effectively.

Probability: Probability is the numeric likelihood of an event. Theoretically, the probability of the occurrence of an event is between zero (indicating that the event never occurs) and one (indicating that the event always occurs).

Project Impact: Project Impact is a FEMA initiative to demonstrate the economic, social, and environmental benefits of pre-disaster mitigation to states, local communities, businesses, and individuals. This nationwide initiative emphasizes long-term mitigation at the local level through partnering with businesses, industry, residents, and NGOs.

Project Worksheet (PW): The PW (formerly known as the Damage Survey Report, DSR) is the public assistance inspector's report that is reviewed by FEMA and is the basis for approving public assistance.

Public Assistance (PA): PA is the supplementary Federal assistance provided by FEMA, under the Stafford Act, to state and local governments or certain private, non-profit organizations (other than assistance for the direct benefit of individuals and families). PA deals with repair, restoration, and replacement of damaged public infrastructure and facilities and damaged private non-profit facilities.

Rapid Needs Assessment Team (RNA Team): The RNA Team is a small, self-sufficient, regionally based interagency team designed to deploy to the disaster location within 12 hours of activation. The Team focuses on conducting a rapid assessment to determine potential requirements for immediate resources needed for basic human needs and protection of property.

Reconstruction Information Center (RIC): RICs are centralized facilities established by FEMA to provide individuals affected by a disaster with mitigation information on reconstruction and rebuilding techniques. A RIC may be set up at a fixed or mobile location.

Recovery: Recovery activities include rebuilding homes, businesses, and public facilities; permanent repair of roads and bridges; and restoring water, sewer, and other essential services. These activities may receive Federal supplemental disaster recovery assistance under a Presidential disaster declaration.

Regional Operations Center (ROC):

The ROC is the operations facility for the coordination of Federal response and recovery activities and is often located at the FEMA regional office. The ROC staff manages Federal field response until the DFO becomes operational.

Regional Response Plan (RRP): The RRP applies the emergency management components of the FRP to the geographic and demographic characteristics of each of the ten Federal Regions.

Response: Response activities address the immediate and short-term effects of an emergency or disaster. Response activities include immediate actions to save lives, protect property, meet basic human needs, and restore water, sewer, and other essential services.

Richter Scale: The Richter Scale is a numerical scale of earthquake magnitude devised by seismologist C.F. Richter in 1935. Small or microearthquakes can have negative magnitude values. In theory there is no limit to the upper scale an earthquake can reach, but because of rock strength there is an actual upper limit of slightly less than 9.

Section 404 of the Stafford Act (Hazard Mitigation): Section 404 of the Stafford Act authorizes the Hazard Mitigation Grant Program (HMGP), which provides funding for cost-effective, environmentally sound hazard mitigation measures.

Section 409 of the Stafford Act (State Hazard Mitigation Plan): Section 409 requires states to prepare a Mitigation Plan prior to receiving any FEMA assistance under the Act. The Plan must identify and evaluate the hazards in the areas where Federal disaster relief proceeds are provided, and set forth a plan of action to mitigate those hazards.

Seismicity: The likelihood of an area being subject to earthquakes.

Situation Report (SitRep): Daily or weekly summaries of the disaster situation, status of operations, and identification of future priorities for response and recovery operations are known as SitReps.

Small Business Administration (SBA): In a Presidential or SBA-declared disaster, SBA can provide additional low-interest loans for mitigation measures up to 20 percent above what an eligible applicant would otherwise qualify for.

Special Flood Hazard Areas (SFHAs): SFHAs are areas designated on Flood Insurance Rate Maps (FIRM) in which specific NFIP requirements apply.

Stafford Act: The Robert T. Stafford Disaster Relief and Emergency Assistance Act, PL 100- 107 was signed into law November 23, 1988 and amended the Disaster Relief Act of 1974, PL 93-288. The Stafford Act is the statutory authority for most Federal disaster response activities, especially as they pertain to FEMA and its programs.

State Coordinating Officer (SCO): The SCO is appointed by the Governor to act in cooperation with the FCO.

State Hazard Mitigation Officer (SHMO): The SHMO is the representative of state government who is the primary point of contact with FEMA, other state and Federal agencies, and local units of government in the planning and implementation of pre- and post-disaster mitigation activities.

State Hazard Mitigation Team (SHMT): The SHMT is composed of key state agency representatives, local units of government, and other public or private sector bodies or agencies. The purpose of the SHMT is to evaluate hazards, identify strategies, coordinate resources, and implement measures that will reduce the vulnerability of people and property to damage from hazards.

State Mitigation Plan: The State Mitigation Plan is a systematic evaluation of the nature and extent of vulnerability to the effects of natural hazards typically present in the state and includes a description of actions needed to minimize future vulnerability to hazards.

Strike-Slip Fault: A fault that strikes or slips parallel with the strike of the adjacent strata involved.

Sustainability Desk: The Sustainability Desk disseminates information promoting the integration of the principles and practices of sustainable development in the post-disaster recovery process. This information is developed by FEMA, in partnership with the state and through coordination with other agencies and organizations (Federal or non-Federal). There may or may not be an actual desk in the DFO or the DRCs at which an individual works or distributes publications.

Sustainability/Sustainable Development: Sustainable development maintains or enhances economic opportunity and community well being while respecting, protecting and restoring the natural environment upon which people and economies depend. Disaster resistance should be considered an important element of sustainability.

Sustainable Re-development: Sustainable re-development incorporates the concepts and practices of sustainable development into the disaster recovery process.

Tectonic Plate: Tectonic plates are torsionally rigid, thin segments of the earth's lithosphere that may be assumed to move horizontally and adjoin other plates. It is the friction between plate boundaries that causes seismic activity.

Teleregistration: Teleregistration refers to telephone applications for individual assistance by disaster victims. Individuals may also register for assistance in person, but Teleregistration is FEMA's preferred approach.

Thrust Fault: A thrust fault has a dip of 45° or less over much of its extent. Horizontal compression rather than vertical displacement is its characteristic feature.

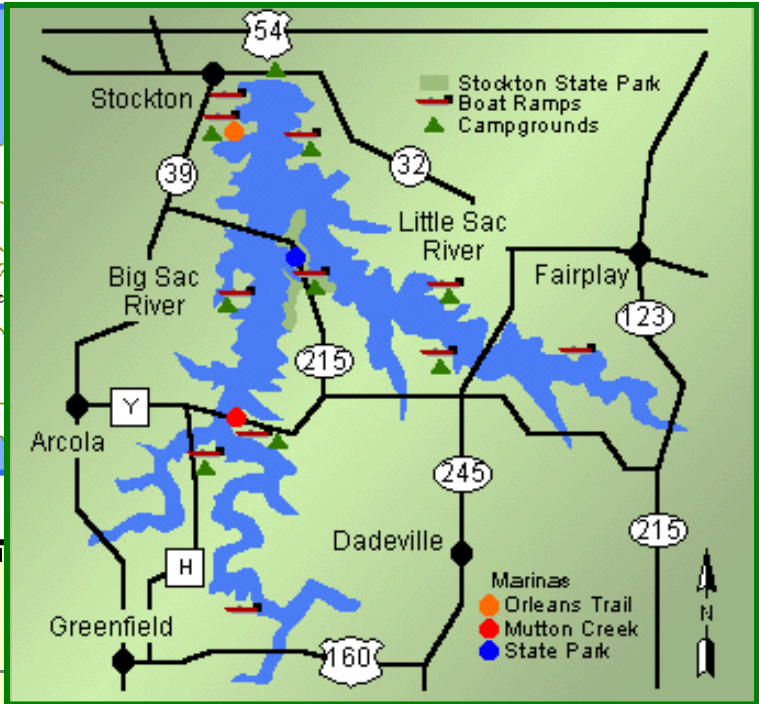
Tornado: A tornado is a violently rotating column of air, pendant from a cumulonimbus cloud, and nearly always observable as a "funnel cloud." Tornadoes are measured in intensity by the Fujita Scale (see Fujita Scale of Tornado Intensity).

Tsunami: A tsunami is a long-period (usually 15-60 minutes) wave caused by a large-scale movement of the sea floor (from a volcanic eruption, submarine earthquake, or landslide). Although usually barely noticeable at sea, its velocity may be as high as 400 knots so that it travels great distances and in shoal water may reach heights of up to 15 meters.

Volunteer Agency (VOLAG): A VOLAG is any chartered or otherwise duly recognized tax-exempt local, state, or national organization or group that provides needed services to the states, local government, or individuals in coping with a disaster.

Wide Area Network (WAN): A WAN interconnects computer users in a geographic area larger than those serviced by local area networks.

Stockton, Missouri Demographics



Stockton, Missouri

Stockton is a city in Cedar County, Missouri. Stockton is the county seat.

The city has a total area 2.1 square miles.

Elevation is 948 feet.

The estimated population in 2003 was 1,954.

Stockton, Missouri was formed in 1846 and is the county seat of Cedar County Missouri. Stockton is governed by a mayor/council form of government with a mayor and 4 alderpersons. The original county seat was called Lancaster. In 1847 the name was changed to Fremont, in honor of the "Pathfinder", but in 1856 Gen. Fremont became the Republican candidate for President, and the following winter the Democratic Legislature changed the name to Stockton, in honor of Commodore Richard Stockton, of the navy, who had arrested Fremont during the Mexican War, and sought to have him disgraced.

The Stockton School District is rated AAA, the highest rating given in Missouri. The largest festival of the year for Stockton Missouri is the Black Walnut Festival, which includes 4 days of activities. Stockton also has a senior center and offers a wide array of other activities and organizations.

Stockton Lake was formed in 1969 when the dam east of Stockton was closed. The lake reached its normal pool elevation of 867 feet above sea level in December 1971. It is operated by the U.S. Army Corps of Engineers and has 25,000 surface acres of water and 33,000 acres of public land. Stockton Lake has 3 marinas, each providing a wide variety of services. Stockton lake is "Missouri's best kept secret". With 300 miles of shoreline and no commercial or residential development with the exception of 3 secluded marinas and various swimming beaches and campgrounds. Stockton lake is also 1 of the top 10 lakes in the United States for sailing.

Stockton local median household income is \$25,353.

National median household income is \$41,994.

The population density was 922 per square mile.

There were 968 housing units at an average density of 455 per square mile.

The racial makeup of the city was 95.66% White, 0.41% African American, 0.51% Native American, 1.12% Asian, 0.51% from other races, and 1.79% from two or more races. Hispanic or Latino of any race were 1.94% of the population.

There are 814 households, and 473 families residing in the city. Of the 814 households 25.4% had children under the age of 18 living with them, 46.8% were married couples living together, 8.6% had a female householder with no husband present, and 41.8% were non-families. 38.9% of all households were made up of individuals and 23.7% had someone living alone who was 65 years of age or older. The average household size was 2.14 and the average family size was 2.85.

The city population is spread out with 27.5% under the age of 18, 6.7% from 18 to 24, 20.7% from 25 to 44, 18.7% from 45 to 64, and 26.4% who were 65 years of age or older. The median age was 41 years. For every 100 females there were 93.1 males. For every 100 females age 18 and over, there were 77.4 male

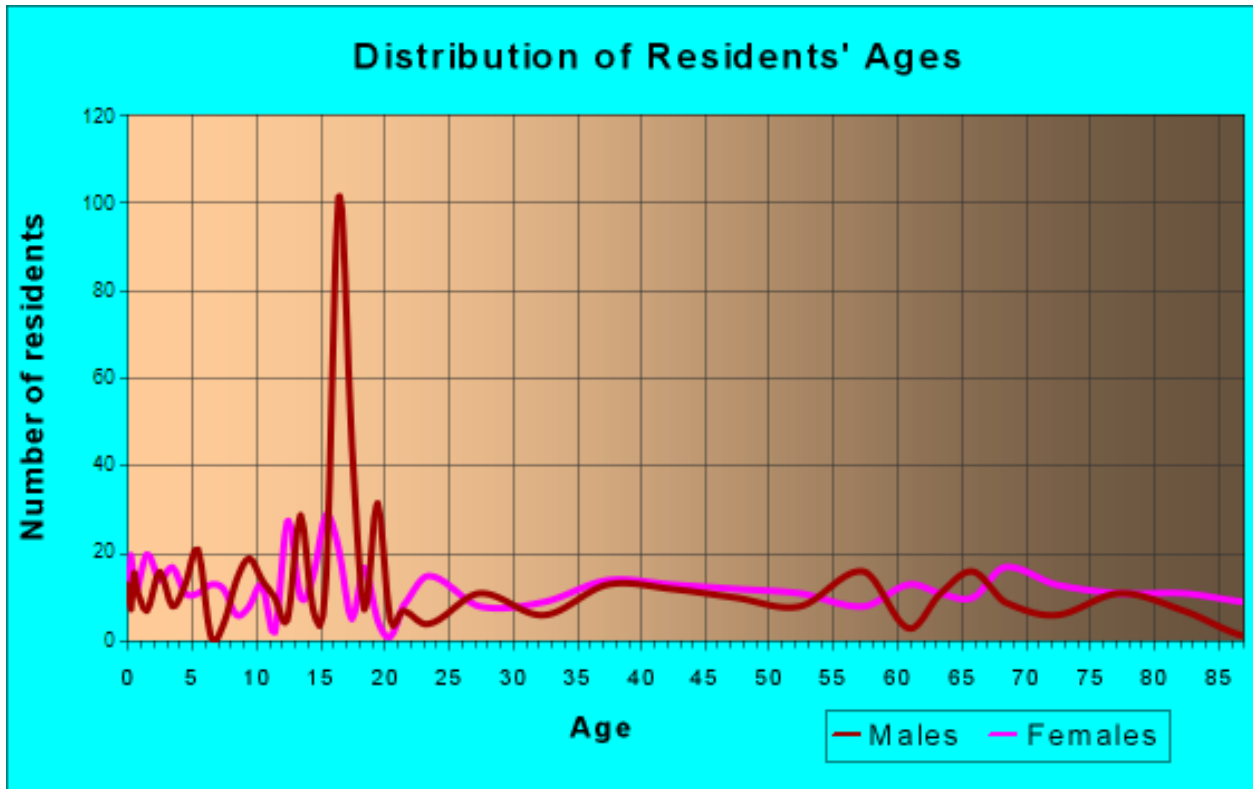
In nonfamily households: 351 (86 male householders (86 living alone)), 256 female householders (246 living alone)), 9 nonrelatives

In group quarters: 217 (73 institutionalized population)

Size of family households: 255 2-persons, 89 3-persons, 87 4-persons, 39 5-persons, 10 6-persons, 5 7-or-more-persons

The median income for a household in the city was \$25,353, and the median income for a family was \$34,427. Males had a median income of \$22,574 versus \$19,688 for females. The per capita income for the city was \$14,540. About 7.0% of families and 14.8% of the population were below the poverty line, including 21.0% of those under age 18 and 10.5% of those age 65 or over.

Total population: 1,972



Houses: 957 (807 occupied: 577 owner occupied, 230 renter occupied)

Median price asked for vacant for-sale houses in 2000: \$45,000

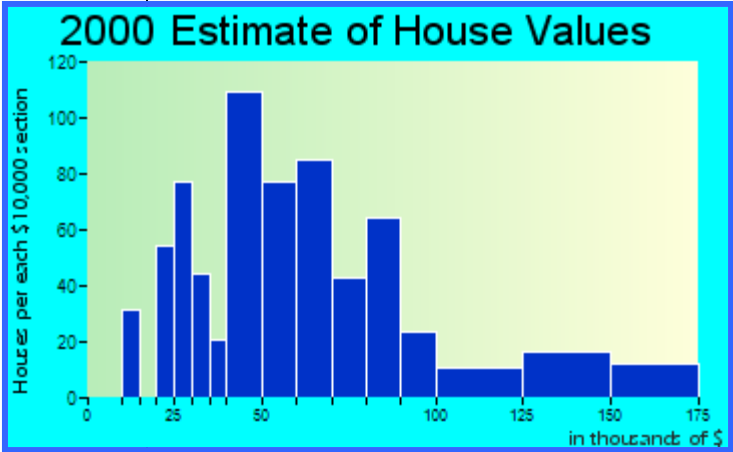
Median rent asked for vacant for-rent units in 2000: \$271

Median gross rent in Stockton, MO in 2000: \$310

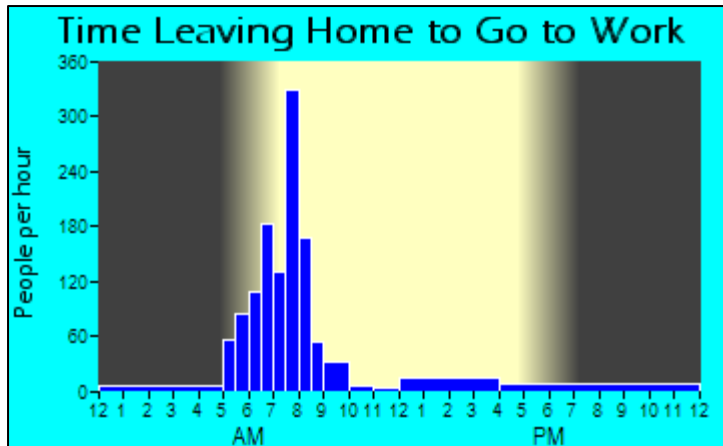
Housing units in Stockton with a mortgage: 270 (20 second mortgage, 3 home equity loan, 4 both second mortgage and home equity loan)

Houses without a mortgage: 205

Estimate of home value of owner-occupied houses in 2000 in Stockton, MO:	Year house built:
Less than \$10,000: 0 \$10,000 to \$14,999: 12 \$15,000 to \$19,999: 0 \$20,000 to \$24,999: 21 \$25,000 to \$29,999: 30 \$30,000 to \$34,999: 17 \$35,000 to \$39,999: 8 \$40,000 to \$49,999: 85 \$50,000 to \$59,999: 60 \$60,000 to \$69,999: 66 \$70,000 to \$79,999: 33 \$80,000 to \$89,999: 50 \$90,000 to \$99,999: 18 \$100,000 to \$124,999: 20 \$125,000 to \$149,999: 32 \$150,000 to \$174,999: 23 \$175,000 to \$199,999: 0 \$200,000 to \$249,999: 0 \$250,000 to \$299,999: 0 \$300,000 to \$399,999: 0 \$400,000 to \$499,999: 0 \$500,000 to \$749,999: 0 \$750,000 to \$999,999: 0 \$1,000,000 or more: 0	1999 to March 2000: 46 1995 to 1998: 66 1990 to 1994: 99 1980 to 1989: 123 1970 to 1979: 239 1960 to 1969: 118 1950 to 1959: 92 1940 to 1949: 64 1939 or earlier: 110



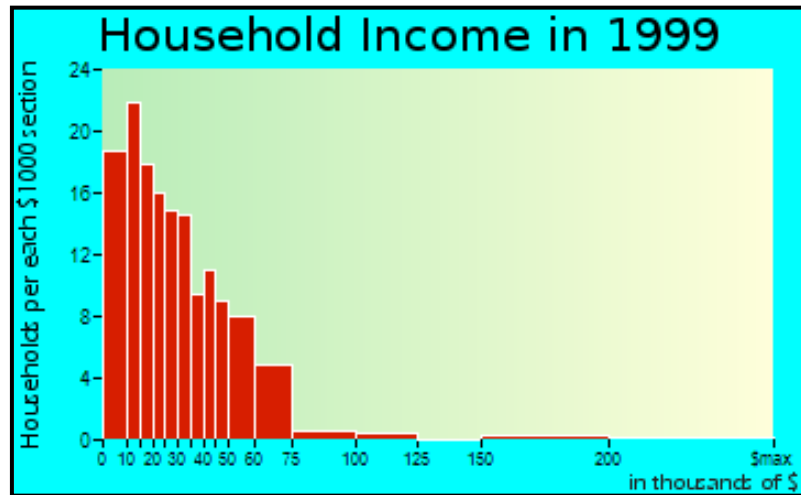
Rent paid by renters in 2000 in Stockton:																																																																	
Less than \$100: 28 \$100 to \$149: 23 \$150 to \$199: 30 \$200 to \$249: 26 \$250 to \$299: 64 \$300 to \$349: 25 \$350 to \$399: 10 \$400 to \$449: 9 \$450 to \$499: 0 \$500 to \$549: 0 \$550 to \$599: 0 \$600 to \$649: 0 \$650 to \$699: 0 \$700 to \$749: 0 \$750 to \$799: 0 \$800 to \$899: 0 \$900 to \$999: 0 \$1,000 to \$1,249: 0 \$1,250 to \$1,499: 0 \$1,500 to \$1,999: 0 \$2,000 or more: 0 No cash rent: 12	<p>Rent Paid by Renters in 2000</p> <p>This histogram shows the distribution of rent paid by renters in Stockton, MO, in 2000. The x-axis represents rent in dollars, ranging from 0 to 450. The y-axis represents the number of renters per each \$100 section, ranging from 0 to 150. The distribution is unimodal and right-skewed, with a peak between \$250 and \$300.</p> <table border="1"> <caption>Estimated Data for Rent Paid by Renters in 2000</caption> <thead> <tr> <th>Rent Range (\$)</th> <th>Count (Renters per \$100 section)</th> </tr> </thead> <tbody> <tr><td>0-100</td><td>28</td></tr> <tr><td>100-150</td><td>23</td></tr> <tr><td>150-200</td><td>30</td></tr> <tr><td>200-250</td><td>26</td></tr> <tr><td>250-300</td><td>64</td></tr> <tr><td>300-350</td><td>25</td></tr> <tr><td>350-400</td><td>10</td></tr> <tr><td>400-450</td><td>9</td></tr> <tr><td>450-500</td><td>0</td></tr> <tr><td>500-550</td><td>0</td></tr> <tr><td>550-600</td><td>0</td></tr> <tr><td>600-650</td><td>0</td></tr> <tr><td>650-700</td><td>0</td></tr> <tr><td>700-750</td><td>0</td></tr> <tr><td>750-800</td><td>0</td></tr> <tr><td>800-850</td><td>0</td></tr> <tr><td>850-900</td><td>0</td></tr> <tr><td>900-950</td><td>0</td></tr> <tr><td>950-1000</td><td>0</td></tr> <tr><td>1000-1100</td><td>0</td></tr> <tr><td>1100-1200</td><td>0</td></tr> <tr><td>1200-1300</td><td>0</td></tr> <tr><td>1300-1400</td><td>0</td></tr> <tr><td>1400-1500</td><td>0</td></tr> <tr><td>1500-1600</td><td>0</td></tr> <tr><td>1600-1700</td><td>0</td></tr> <tr><td>1700-1800</td><td>0</td></tr> <tr><td>1800-1900</td><td>0</td></tr> <tr><td>1900-2000</td><td>0</td></tr> <tr><td>2000+</td><td>0</td></tr> <tr><td>No cash rent</td><td>12</td></tr> </tbody> </table>	Rent Range (\$)	Count (Renters per \$100 section)	0-100	28	100-150	23	150-200	30	200-250	26	250-300	64	300-350	25	350-400	10	400-450	9	450-500	0	500-550	0	550-600	0	600-650	0	650-700	0	700-750	0	750-800	0	800-850	0	850-900	0	900-950	0	950-1000	0	1000-1100	0	1100-1200	0	1200-1300	0	1300-1400	0	1400-1500	0	1500-1600	0	1600-1700	0	1700-1800	0	1800-1900	0	1900-2000	0	2000+	0	No cash rent	12
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Number of people working at home: 53 (8.0% of all workers)

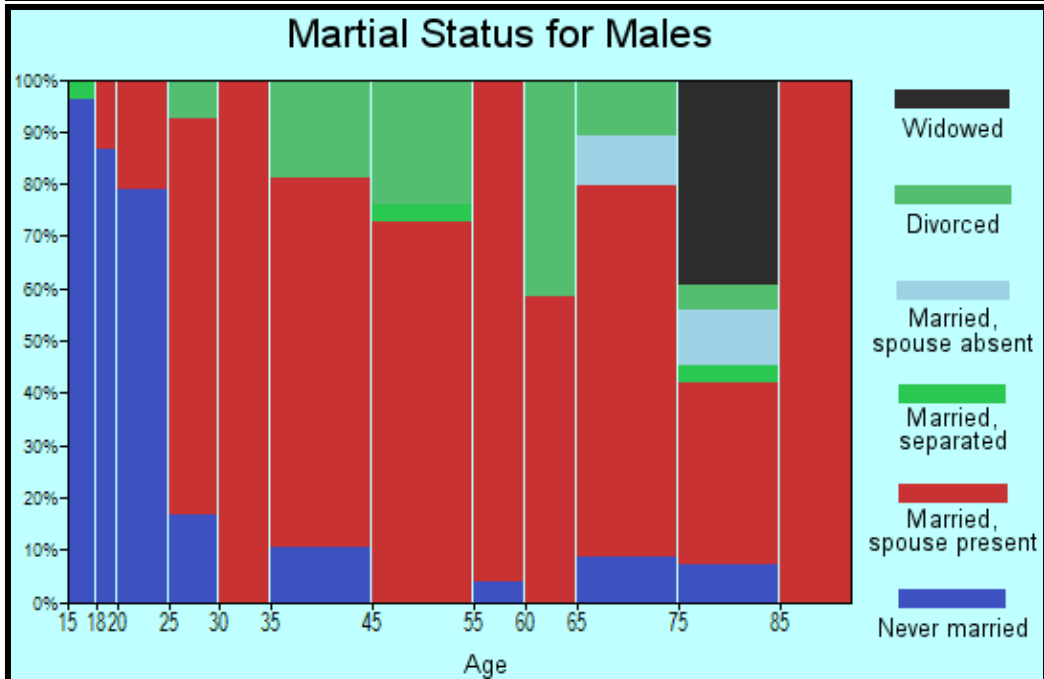
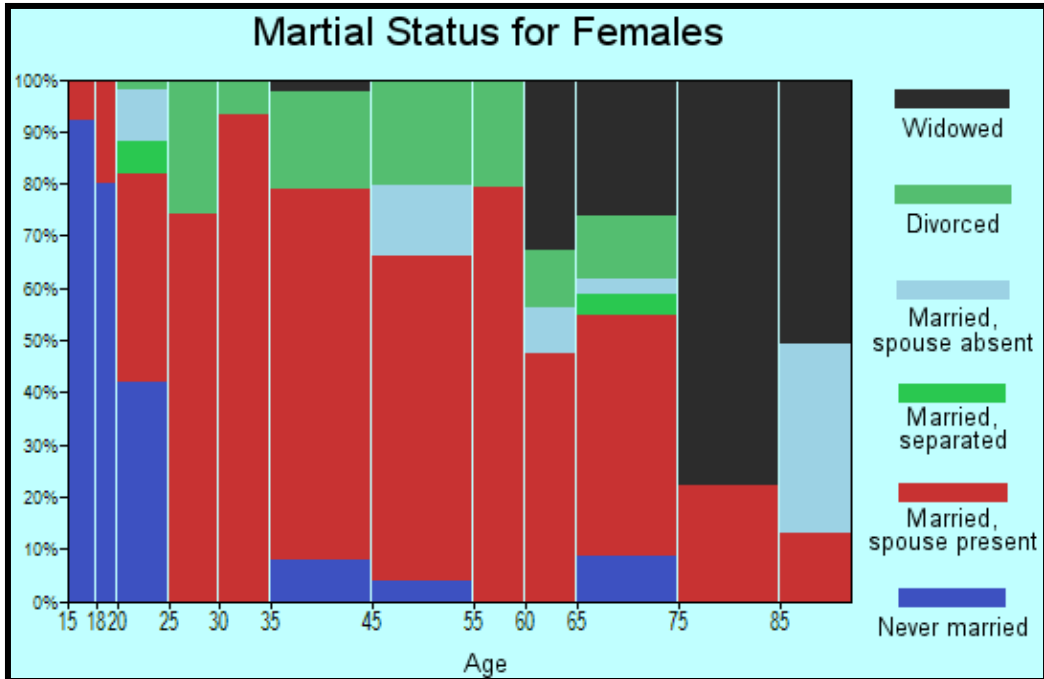
Household income:

Less than \$10,000: 164
 \$10,000 to \$14,999: 96
 \$15,000 to \$19,999: 78
 \$20,000 to \$24,999: 70
 \$25,000 to \$29,999: 65
 \$30,000 to \$34,999: 64
 \$35,000 to \$39,999: 41
 \$40,000 to \$44,999: 48
 \$45,000 to \$49,999: 39
 \$50,000 to \$59,999: 70
 \$60,000 to \$74,999: 63
 \$75,000 to \$99,999: 10
 \$100,000 to \$124,999: 8
 \$125,000 to \$149,999: 0
 \$150,000 to \$199,999: 7
 \$200,000 or more: 4



Education attainment for males 25 years and older:	Education attainment for females 25 years and older:
No schooling: 0	No schooling: 14
Nursery to 4th grade: 0	Nursery to 4th grade: 0
5th and 6th grade: 0	5th and 6th grade: 10
7th and 8th grade: 34	7th and 8th grade: 82
9th grade: 19	9th grade: 18
10th grade: 14	10th grade: 19
11th grade: 30	11th grade: 28
12th grade, no diploma: 40	12th grade, no diploma: 29
High school graduate (or equivalency): 242	High school graduate (or equivalency): 312
Less than 1 year of college: 33	Less than 1 year of college: 49
Some college more than 1 year, no degree: 43	Some college more than 1 year, no degree: 53
Associate degree: 25	Associate degree: 18
Bachelor's degree: 50	Bachelor's degree: 75
Master's degree: 24	Master's degree: 21
Professional school degree: 12	Professional school degree: 0
Doctorate degree: 0	Doctorate degree: 0

Unemployment rate for White non-Hispanic males: 1.5%
 Unemployment rate for White non-Hispanic females: 3.2%
 Median household income in 1999 for:
 White non-Hispanic householders: \$25,481
 Asian householders: \$2,499
 Median household income in 1999, Hispanic or Latino race: \$14,063



Stockton, Missouri Tornado

On May 4th, 2003, a large, destructive tornado severely damaged the city of Stockton. After decimating the historic business district and damaging or destroying over 250 homes the tornado proceeded east through the countryside. The storm also caused the deaths of three Stockton residents and injuries of numerous others. The Stockton tornado began in Vernon County, near Nevada, Missouri and moved eastward through Cedar and Polk counties before dissipating east of the Dallas County line. Pierce City, Missouri was also severely damaged by a similar storm in which five residents lost their lives.



Denzil Roberts stands in a field surrounded by large pieces of twisted metal, much of it from a shop and other outbuildings that once stood on his Polk County farm.

Not far away Roberts' house still stands but is heavily damaged. Roberts and his wife, Donna, survived the passing of a huge tornado hunkered down in a bathroom in the back of the house.

"We were watching (severe weather reports on) TV and I said, 'Donna, that's heading right for us!'" says Roberts.

They tried to reach a cellar behind their home, but the ferocity of the storm blocked their escape.

"I was afraid to step out. I've seen tornados where you get out in them and they pick you up and carry you away. It was over in 15 seconds. You go from having \$200,000 worth of buildings to having nothing."

Hundreds of similar stories, many even more harrowing, have surfaced since that Sunday evening, May 4, when Missouri found itself in the bull's-eye of a major outbreak of tornados that swept in from Kansas and devastated huge areas of Missouri.

Over the next 10 days storm after storm, including a dozen more tornados, struck Missouri. From Jackson in southeast Missouri to Jefferson City in central and De Soto in eastern Missouri, as well as in Canton in the northeast corner of the state, storms wreaked havoc across 50 counties leaving 19 dead. And Missouri was not alone. In a record-breaking period, the National Weather Service reported more than 400 tornados nationwide in the first 10 days of May. Storms killed 44 people in five states including those in Missouri. Not only was the number of tornados staggering, but so was the size and intensity of many of the twisters.

“We had two F4 tornados, which is very unusual,” says Mike Hudson, a meteorologist for the National Weather Service Forecast Office in Pleasant Hill. An F4 tornado packs winds of 207 to 260 mph causing devastating damage.

“These types of long tract tornados of a very violent nature are rare events here. In a common year across the entire country we average maybe 20 F4 to F5 category ratings,” says Hudson.

Hudson says a combination of events came together to make the first week and a half of May unusually explosive for super cell thunderstorms and their accompanying tornados. An unusually strong jet stream remained in place over the central United States that steered strong storm systems right into eastern Kansas and Missouri.

“All the elements came together ironically not once or twice, but three times in the course of that time and we had tornados on the 4th (of May), the 8th and the 10th.”

Sunday, May 4 will be long remembered as the day when storm after storm ripped through southwest and western Missouri and struck a large area of metropolitan Kansas City. Tornados made direct hits on the towns of Pierce City and Stockton, nearly wiping both off the map. Gladstone and Liberty suffered extensive damage north of Kansas City. All but one of the state’s 19 fatalities occurred on that first day of the storm outbreaks.

Two days later central and western Missouri were hit by several severe storms with high winds and tornados, which heavily damaged a large part of De Soto in Jefferson County. In Jackson, near Cape Girardeau, flooding damaged the buildings housing the city’s fire and police departments, which had to be abandoned.

On May 8, storms again rolled through western and central Missouri threatening Whiteman Air Force base near Knob Noster where B2 stealth bombers are based. The billion-dollar planes are kept in hangers designed to withstand winds of 120 mph and escaped damage.

A final series of storms and tornados hit northeast Missouri on May 10 causing widespread damage to Canton including Culver-Stockton College that lost a number of buildings including its field house. All told, the storms have caused more than \$400 million in damage, according to the Missouri Department of Insurance.

Taking the brunt of the storms were more than a dozen Missouri electric cooperatives which, all together, lost power to nearly 35,000 members when storms and tornados broke hundreds of power poles and damaged several high voltage transmission lines. Crawford Electric Cooperative, Bourbon, lost power to more than half its 18,000 members, many of whom were without electricity for nearly a week.

“Two of these big storm cells hit simultaneously on our system and then met before hitting De Soto,” says Crawford General Manager Dan Blesi. “We’ve got a lot of work to do yet on permanent repairs, but we’re just thankful that everyone has service and nobody was hurt.”

Steve Skopec, manager of operations for Southwest Electric Co-op in Bolivar, says he was shocked when he first saw the damage, which stretched 50 miles across the co-op’s system in Polk and Dallas counties.

“Normally tornados come across the country and pick up and set down, but this one stayed on the ground for so long and the width of it was amazing,” says Skopec. “The damage is about three quarters of a mile wide everywhere it went.”

Just to the west, in Cedar County, Sac Osage Electric Cooperative suffered even worse damage and crews had to contend with getting around the devastation in Stockton, the county’s main crossroads community.

“I’ve been here 40 years and it’s the worst I’ve ever seen,” says Sac Osage General Manager Ben Harper. “I knew it was bad when the boys radioed in that Stockton was gone. I knew then that we were in for a real time.”

In all areas hit by storms, the immediate problem was getting co-op crews into areas with downed power lines. Damage to trees was near total in some areas and often roads and highways were blocked for miles by downed timber. Often electric co-op crews, with the help of locals and the Missouri Department of Transportation, had to cut and bulldoze their way through the mess to reach downed lines.

As in other serious storms that hit Missouri’s electric cooperatives, the Association of Missouri Electric Cooperatives initiated an emergency response procedure to get crews and equipment from co-ops unaffected by the storms into areas needing help. In all 13 Missouri electric cooperatives provided aid to other co-op systems .

This outbreak of tornadoes reminds Pat Slattery, with the National Weather Service Central Region office in Kansas City, of a similar super outbreak that spawned 147 tornadoes in 13 states in 1974. The big difference, says Slattery, is the 1974 outbreak killed 307 people compared to 42 this May.

“We attribute that to better technology and better communications and being able to get information to people a lot faster,” says Slattery, who adds that Weather Service meteorologists predicted the May 4 tornado outbreak two days earlier and warned the media and emergency planners that something big was coming together.

Slattery also gives credit in Missouri to the partnership between the National Weather Service, the State Emergency Management Agency and Missouri’s electric cooperatives which has placed numerous weather radio transmitters in areas not able to receive weather alerts in the past.

“That partnership played a big role in our getting information out to people a lot faster.”

Thousands of people in Missouri continue to clean up the mess and pick up the pieces, literally, of their lives. In hard hit Stockton, Charlie Meeks, the editor of the Cedar County Republican, says she's inspired by the spirit of the people of Stockton who are already beginning to rebuild homes and businesses. Merchants were particularly hard hit in Stockton where every business on the courthouse square was destroyed or severely damaged. But what has impressed Meeks the most is how people have come together to help each other and how that spirit has remained weeks after the disaster.

"The first thing you saw around you after the tornado was the concern people had for their neighbors," says Meeks. "The attitude and spirit of the people are just incredible."

Local adjuster deals with aftermath of Missouri tornadoes

by Caroline Porter

The residents of Stockton, Missouri were lucky it was Sunday when a tornado hit their community of 1600 on May 4th, because the tornado ripped through the downtown and leveled 25 buildings, mostly containing businesses. The tornado reportedly was on the ground for 45 miles, at least, and ripped a path through Cedar County from the Southwest corner to the Northeast.

George Knapp, of Wataga, is a Catastrophe Adjuster for Grinnell Mutual Reinsurance Company and worked claims in Cedar County from May 6 until May 19. There were seven claims adjusters from Grinnell Mutual alone who worked steadily for two weeks in a county of only 13,700 population. Each adjuster worked about five or six claims a day. This is in addition to adjusters at the site representing companies such as American Family Insurance and State Farm. By the end of the first week, Grinnell Mutual had doled out \$3 million dollars, a hefty amount for an area with so little population.

"We stayed in Bolivar, about 20 miles east of Stockton, because there were no motels left in Stockton," said Knapp. "The first morning, when we drove west over the hill and saw the town, it reminded me of what it looked like after the Battle of the Bay of Manila during World War II. Another veteran with us said the same thing. And the tornado was probably through Stockton in about two minutes."

There were three casualties, two from one family insured by Grinnell Mutual. A woman was not able to get her physically disabled husband to the basement. He was blown away with the house and his body found some distance away. The woman's father, who was ill, died two days later, his condition probably exacerbated by the stress.

Knapp related the story of a gentleman farmer about 85 years of age leading his only companion, his dog, to the storm cellar when the dog bolted away. The farmer was chasing him when the tornado struck. Miraculously, the man was found in a field, black with bruises from head to foot, but alive. The dog was also found alive. Knapp says a nurse in the hospital said to the man, "I can't believe you'd do that for a dog - would you do it again?"

"Why, hell, yes," he said. "We've been friends for years."

One of the buildings completely demolished that Sunday evening contained the Cedar County office of Grinnell Mutual. Fortunately for them, a commercial building was for sale four miles south of town and they purchased it within the week.

"This is cattle country, with lots of fences," said Knapp. "Farmers lost cattle and miles of fence. Much of the cattle died - they were found up in trees and in Stockton Lake south of town. Farmers will be finding debris for years. It will be hard mowing hay this summer."

Tombstones in the town cemetery were flattened and the Stockton park was stripped of foliage and destroyed. Those things can probably be replaced, but the devastation in the center of Stockton will have long-term economic effects. A local Chevrolet dealer and Pamida discount store have already decided not to rebuild in Stockton.

There are always weird stories after tornadoes. Near Stockton Lake owners of a new home had a riding horse in a steel corral. The corral wasn't touched, but the horse was found in fine condition about 3/4 mile away. A machine shed disappeared, leaving the machinery inside still neatly lined up and untouched. The roof and front of a clothing store blew away, but the clothes were still on the racks. One bank was totally destroyed except for the vault, which stood unscathed in the midst of the ruins.

Knapp said, "I didn't see panic, just a lot of good people. One man who had lost everything said, 'The Lord lets us use some of this stuff for awhile, then he takes it away.'"

This is the third time George Knapp has worked tornado-related claims, the other two events being in Minnesota and Southern Illinois. And shortly after he arrived home from Missouri, he headed for Iowa to assess severe hail damage. This is Knapp's "retirement" job, after years of farming and owning and managing a family

business named Knapco. Knapp and his wife, Kathy, are also the owners of the Hawthorne Centre Mall in Galesburg.

At the end of the interview, Knapp's wife added a new dimension to the conversation when she said of her husband's experience, "It was pretty emotional." Knapp hadn't talked about his personal reactions to the devastation, but his expression suddenly revealed the pain he had seen. "There were some pretty sad stories ----," he said, "when you talk to so many people who have lost everything."

Death, damage reported in twisters' wake New tornado warnings issued Monday

Monday, May 5, 2003

(CNN) -- The death toll climbed Monday as rescuers combed through twisted wreckage and crumbled buildings after an "extremely rare" outbreak of tornadoes Sunday and early Monday killed at least 39 people in Missouri, Kansas and Tennessee.

Thousands of residents from Kansas to Tennessee were without power late Monday. Many of them faced the formidable task of rebuilding homes wiped out in the storms.

President Bush offered his condolences to the tornado victims at a stopover in Little Rock, Arkansas, a state that also suffered tornado damage over the weekend.

"The federal government will move as quickly as we possibly can where help is needed," Bush said. "Nature is awfully tough at times. And the best we can do is to pray for those who suffered."

Severe weather continued to pound parts of the nation through Monday, with tornado warnings in Michigan, Tennessee, Alabama and Mississippi in effect in the evening. The National Weather Service issued a tornado watch for northern Georgia, including the metro Atlanta area, until 3:30 a.m. A storm at the Georgia-Alabama border prompted a tornado warning for the Anniston, Alabama, area. Two twisters were reported in northeastern Mississippi shortly before 8 p.m. Monday [9 p.m. EDT]. The National Weather Service radar indicated a tornado three miles west of Paynes, Mississippi, moving eastward. Radar also indicated another twister 13 miles west of Velma moving northeast. And in northwest Tennessee, radar indicated tornadoes three miles northwest of Millsfield and four miles south of Greenfield. Sunday evening, 83 twisters were sighted in central and southeastern states, said Dick Hainje, a regional director of the Federal Emergency Management Agency.

"This is a huge, huge outbreak," Hainje said Monday. "Once in a while, you'll get like two or maybe three super cells with very big tornadoes, but numbers like this are extremely rare."

Officials said seven people died in Sunday night's twisters in Kansas, at least 18 in Missouri and at least 14 in Tennessee. Other people thought to be in the storm's path were reported missing. No deaths were reported in Arkansas.

One northeast Kansas resident told CNN that the fast-moving tornado bearing down on her Sunday night "sounded like a huge boulder rolling down the street."

City is 'almost completely gone'

The tornadoes were spawned from an unstable air mass ahead of a developing storm system over the Central Plains, forming a "very potent" line between dry and moist air, Dan McCarthy of the Storm Prediction Center said.

"When you get those kinds of conditions and you get a jet stream that is moving right into that area, that is exactly what we're looking for in environmental conditions that can produce a ... tornado outbreak like we had yesterday," McCarthy added.

There are two major tornado seasons in the Midwest and South -- spring and fall. The spring season lasts until about June. Kansas and Missouri are among the most tornado-prone states.

Lawrence County in southwest Missouri was severely hit Sunday. Pierce City, a town of 1,400, looked like a war zone after a tornado spent 30 minutes gutting it.

"It's not even recognizable," said Missouri state Rep. Jack Goodman. "There's not one building that hasn't been significantly damaged. Many of them are gone entirely, and very few -- if any -- will be salvageable."

Councilman Thomas Majors -- who said he heard a loud hum before the storm -- said residents were suffering "total shock." Many of the town's buildings were 200 years old.

"It pretty much took the tops off everything," he said.

Statewide emergency declared in Missouri

Missouri Gov. Bob Holden declared a statewide emergency, and said he asked Bush to declare 39 of the state's 120 counties federal disaster areas.

"We're finding devastation throughout the western part of the state. My folks are telling me it's the most widespread series of tornadoes in the history of this state.

"It's very widespread from southwest Missouri all the way over to north Kansas City," he said.

Holden said the Red Cross, Salvation Army, and 175 National Guardsmen were working to help in the aftermath. The storms moved east through Arkansas and into Tennessee, leaving a swath of destruction, deaths and injuries.

"It's like downtown Baghdad," lawyer Joe Byrd told The Associated Press after he and his law clerk emerged from the basement after a twister ripped through Jackson, Tennessee.

Weather Service officials will not know the category of the storms until they do a site survey, said Ryan Jewell, a meteorologist with the National Weather Service.

F-3 tornadoes have winds of between 158 and 206 mph and are capable of severe damage, with roofs and some walls torn off well-constructed houses, and most trees uprooted. F-5 is the highest on the scale.

Stockton, Missouri Long-Term Disaster Recovery

1. Should the Fire/Rescue Department be included as a member of the long-term recovery planning team? Explain your answer.
2. Identify the process that led to the recovery in Stockton.
3. Identify the critical issues in Stockton's long-term recovery.
4. Identify the "tipping points" and that occurred during the recovery.
5. Identify how the recovery process could have failed.

Stockton, Missouri Recovery

From October to December of 2003 our topic is the rebuilding process in Stockton, Missouri. We will look in depth at the people and events that have played a role in the process and who have helped to make it a success. In addition to Stockton we will see how other communities have coped with the disaster and how they too, have begun the long and difficult task of rebuilding.

Stockton, along with several other communities in Southwest Missouri, was devastated by tornadoes on May 4th of this year (2003). Three members of the community were killed when the storms cut through the town leaving the majority of the buildings downtown either damaged or completely leveled. The city's park, a source of great pride in the community, was stripped bare of the trees that once shaded the numerous festivals and events held there and in only a few minutes people's lives were turned upside down. Facing challenges like this would be tough for any community, but Stockton, with a mayor who had barely been on the job for a month and no real plan for a disaster of this scale seemed to be facing an insurmountable task. Through the efforts of volunteers, FEMA and organizations like, the red cross, the salvation army, and the community foundation of the Ozarks, Stockton has taken on the challenge of rebuilding and in the six months since the disaster has begun to turn this tragedy into an opportunity, an opportunity to not only rebuild the town but to renew the community.

Towns make comeback after tornadoes

New buildings in Pierce City and Stockton boost residents' morale

By Ryan Slight, News-Leader.com | Springfield, Mo.

Published Sunday, February 27, 2005

Mounds of debris no longer cover the streets. Fresh brick businesses line the downtown squares. Yet the sounds and sights of hammering and sawing linger in Pierce City and Stockton. Construction continues nearly two years after tornadoes ripped through southwest Missouri on a Sunday evening, reducing many longtime establishments to rubble.

Forty-two of the city's 45 downtown businesses were destroyed. But with more new structures than vacant space dotting the area, Gene Kluck felt life outside his rebuilt Pierce City's hardware store windows finally appeared normal again.

"It's been a godsend to them, I think," the Friendly Supply owner said of the city's revitalization. "Everybody's happy to see people get back in business so they don't have to drive so far."

When the sun rose to reveal massive ruins on May 5, 2003, residents faced a choice on how to respond to the disaster. Officials recalled people wanting downtown rebuilt bigger and improved.

"It's not like everybody came and saw the disaster and had their heads in the sand," said Ron Bertalotto, Pierce City Chamber of Commerce president. From that moment on, the city adopted a "contagious" cooperative effort and began fund-raising efforts, he said.

Armed with collection buckets, Pierce City residents raised more than \$23,000 during the 2003 Memorial Day holiday to help maintain city services, which took a hit from lost sales taxes, Mayor Mark Peters recalled. More than \$3 million in federal and state funding seemed to fuel the community's efforts, officials said.

"If they see the state recovery people are here and going to be here for a while, then they know investing in Pierce City and Stockton isn't putting money down a rathole," Peters said.

Carmen Archer, who saw her home, antique business, rental apartments and her husband's music studio destroyed, said the city's determination to rebuild developed quickly the day after the tornado.

"We're survivors, and just knew that we would be all right," she said.

Residents initially had more than the sight of scattered rubble to discourage them. Cars became valuable commodities as residents had to drive to nearby cities just to purchase groceries, Kluck recalled.

"You couldn't get a loaf of bread, or a gallon of gas, or nothing in town. It was all gone. Everything," he said.

That changed when Casey's convenience store opened in late 2003. Suddenly there was not only gasoline, food and drinks, the mayor said, but a considerable boost in city morale.

"It was a convenience store opening, for goodness' sake, but we had a party," Peters said. "The town was down there and we partied."

Other structures have since opened, such as Doug Thompson's pharmacy, and Town & Country Supermarket, which gave residents a place to grocery shop. Some buildings still await completion dates, including the National Guard Armory, and a firehouse and storm shelter.

On a snowy February day, Peters glanced out his office window at the city's new bandstand on the downtown square, which he wished had been rebuilt earlier than last year.

While no music played, it was what the mayor didn't hear that pleased him. Since its construction, people stopped saying downtown was too depressing, he said.

Residents no longer said they were entering and leaving Pierce City from the north to avoid the sight of fallen buildings, the mayor recalled.

"It was amazing how people responded to that," Peters said of the bandstand. "It was a piece of Pierce City that actually looked the way it did before."

While her antique business is no longer part of that sight, Archer said her husband's studio is rebuilt and they moved into a house.

"We're doing fine," she said. "You just get up every day and you don't think about the past. You think about today and tomorrow."

Approaching Stockton from a distance, one can see the whole town, which was once partially obscured by massive trees in a pre-tornado landscape, Ray Zumwalt observed.

What he also sees is familiar businesses like his pharmacy — the first to open on the rebuilt square — and a few that hadn't existed before.

"Most of them are doing even better than they were before," Zumwalt said. "That's given me some optimism."

Even the downtown intersection outside his building is wider, giving vehicles more room to turn. Zumwalt expected the square to be resurfaced this year and have more efficient storm runoff. His pharmacy is among 70 new or remodeled businesses that Stockton Mayor Ralph Steele expects to be complete by next year. The tornado destroyed 80 businesses. Future projects include a community center and library. A post office and a hospital are under construction.

Yet some confusion existed shortly after the disaster, the mayor said. Individuals were wanting to put up any structure they could to get back in business, he said.

A Downtown Business Community group made a decision two weeks after the tornadoes to temporarily suspend all building. The mayor said an exception was allowed for an insurance agent who had to operate.

Steele said he considered the moratorium a pivotal factor in downtown's successful return. It kept people from quickly erecting structures that would later have to be torn down and built correctly, he said.

"After they got it done, they now say it was the best thing they ever made us do," Steele said.

Residents' spirits were lifted when a brick-front building containing Zumwalt's Pharmacy, Virgil Beasley's real estate business and income tax service and Cedar County's weekly newspaper opened in late 2003, the mayor recalled.

Stockton's transformation has been more than external, the mayor indicated. Many residents apparently also faced a spiritual change as local churches reported significant attendance increases, he said.

"In my deepest mind, I was fighting the idea that it would never be the same, it would never work," Steele said of his hometown. "But they made it work. So it's coming back strong."

A New Breath of Life for Stockton

We begin with the rebuilding of Stockton Missouri, one of the communities that was nearly destroyed on May 4th, 2003 when a band of killer tornadoes plowed through the Ozarks.

Although the center of the town was all but obliterated, the **people of Stockton joined together** and with the talents of **several individuals** was able to turn the devastation of that spring evening into a **new breath of life** for the community.

Brian Fogle, the vice President of Community Development for Great Southern, and who played a key role in the rebuilding of Stockton sat down with me to explain how it all got started. Brian Fogle has years of experience working with small communities and he was able to bring this expertise to the table in the **critical early weeks after the disaster**. He immediately began working with members of the community in Stockton and with the Stockton Community foundation in order to develop the much needed infrastructure that would allow this town to be reborn.

When we think of volunteerism most people tend to think of the individual, and rarely think of it on the organizational level. In the case of Stockton we see people and organizations volunteering their

professional skills, in ways that we don't often think of. **Adversity is often the seed of change** and in this case it has not only brought change, but a renewed sense of community and the beginning of a new era of growth and hope for the people of Stockton. Over the next three months we'll visit with the people involved in rebuilding Stockton. We'll see how the community has been affected and explore the challenges that are still ahead. In addition to Stockton we'll find out about growth and rebuilding in other Ozarks communities devastated by the tornadoes.

Three members of the community were killed when the storms cut through the town leaving the majority of the buildings downtown either damaged or completely leveled. The city's park, a source of great pride in the community, was stripped bare of the trees that once shaded the numerous festivals and events held there and in only a few minutes people's lives were turned upside down. Facing challenges like this would be tough for any community, but Stockton, with a **mayor who had barely been on the job for a month and no real plan for a disaster of this scale seemed to be facing an insurmountable task.** Through the **efforts of volunteers**, FEMA and organizations like, the red cross, the salvation army, and the community foundation of the Ozarks, Stockton has taken on the challenge of rebuilding and in the **six months since the disaster has begun to turn this tragedy into an opportunity, an opportunity to not only rebuild the town but to renew the community. Immediately after the disaster members of the community, downtown business owners and city officials gathered to help forge a plan to rebuild.** Brian Hammons a native of Stockton and CEO of Hammons Products Inc. in Stockton, says that the first step in the rebuilding was to simply have a meeting and begin the process of planning the recovery:

That direction came from Brian Fogle, Vice-President of Community Development for Great Southern. He was contacted by Members of the Community Foundation of the Ozarks and its affiliate Stockton Community Foundation and asked to volunteer his expertise to help plan the rebuilding process. He says that it quickly became apparent that even with the assistance already on the ground in Stockton, the scale of this disaster and the needs of the community would require a **detailed plan for reconstruction:** That **team of volunteer planners** included people from Missouri State, Ozark, Branson and communities all over the region. The disaster in Stockton was unique for a city planner to contend with, normally a city is not experiencing a crisis, but even with the challenges of the present a great opportunity had been presented to Stockton: **The town could be rebuilt with a coordinated effort that would allow the city to reap economic and community benefits for years to come.** The first step in achieving this potential was for Fred May's team to began a **public process that included input meetings**, focus groups and large community meetings to see **what needed to be done.** He says that they started in Stockton like they would start in any community, but **the need to overcome the present and develop a plan for the future was imperative:**

As the plan to rebuild Stockton began to form the downtown **business owners had a lot of different ideas about what should be done** and how to do it, but as Mayor Ralph Steele explains, differences were quickly resolved and with the help of FEMA the plans for a new downtown began to materialize:

A source of funding was still needed to pay for the architects who would design downtown Stockton. Brian Hammons says that with the efforts of the Community Foundation they were able to arrive at a solution: With the help of FEMA the Community Foundation's efforts would soon help to **realize another vision of the planning.**

Fred May, who led the group of volunteer planners that helped to get the recovery process in Stockton underway, says that there were several features that give Stockton some very unique opportunities:

The understanding that **Stockton Lake was a resource** that could benefit the community in many ways became a focus of the planning project. But a delicate **balance must be struck between the community benefits and the economic gains of a sudden increase in tourism.** The people of Stockton want to maintain the **quiet small town feel** while at the same time providing all of the **services that tourists visiting the lake will require.**

As Stockton Mayor Ralph Steele explains, the **economic potential of the lake is motivating** those who need to rebuild as well as those whose businesses are still intact. Just because the economic potential is there, however, doesn't mean that that people can automatically take advantage of it. Any new and existing business owners in Stockton would have a limited amount of funds available to them from sources such as **insurance, personal funds and some government assistance** in the form of SBA loans. Brian Hammons a native of Stockton and CEO of Hammons Products Inc. in Stockton, says that a **source of funding for**

private businesses had to be found, and that led to the creation of the Stockton Community Development Corporation.

In late May and early June discussions about **founding a community development corporation** were held with the banks in the area as well as some of the local industries. **Once an infrastructure for development and a solid rebuilding plan was established businesses were able to really start on the road to recovery.** The local pharmacy, owned by Jane and Ray Zumwalt is currently rebuilding. Mid-America Bank held a groundbreaking construction in October.

On November 4, 2003 the community of Stockton gathered to celebrate the six month anniversary of the on May 4th tornadoes. In those **six months cooperation, volunteer efforts and a tenacious will** to overcome this tragedy had formed the basis for a long term recovery plan that would take Stockton well into the next decade and drive the town to greater heights of prosperity.

Gov. Bob Holden, Stockton's State representative Ronnie Miller, and several representatives of the state and federal governments were in attendance. Lisa Rau, from Silver Dollar City presented Mayor Steele with a flag to fly over the rebuilt city of Stockton. That wasn't the only flag they would receive during the celebration, Gov. Bob Holden had a couple of gifts for the community.

Gov. Holden said that the state of Missouri was able to provide assistance like this because the community and the citizens of Stockton, and other communities devastated on May 4th, stood up and said they wanted to and would rebuild. The **grants** Gov. Holden delivered included \$400,000 for the completion of the senior center, \$100,000 for the Stockton Area Disaster Recovery Committee, \$350,000 toward completion of the new library and Community Center and \$400,000 for the Stockton Community Development Corporation and Stockton Community Foundation.

Mayor Ralph Steele said that Fred May, who started the planning process in Stockton as a volunteer and has since retired from the city of Springfield to join FEMA as Stockton's recovery manager, was able to keep these grants a complete surprise.

The building that Mayor Steele was referring to is the new location of the Great Southern Branch in Stockton. As a part of the six month celebration Brian Fogle, who is the vice president for community development for Great Southern along with Charlotte Haden, and the other employees of Great Southern in Stockton held a ground breaking on the foundation of building leveled during the tornado, that foundation will become the new Great Southern Branch and with ceremonial shovels held high they dug into a pile of dirt, commemorating the rebirth of another part of the community of Stockton.

Charlotte Haden was the Executive Director of the Chamber of Commerce in Stockton when the tornadoes hit six months ago, her tell-it-like-it-is attitude, came in handy as she helped to secure more funding from FEMA for local businesses during the early stages of the cleanup process in Stockton. Her unceasing optimism and ability to get the job done caught the eye of Brian Fogle and he eventually asked her to join the Great Southern Team in Stockton. Her enthusiasm for Stockton is obvious as she describes what she sees in the future for her community.

And this seems to be the theme for Stockton, **to rebuild, be bigger and better and turn this disaster into an opportunity for the people of Stockton that will benefit the community for years to come.**

Residents envision new Stockton after tornado

Jun 13, 2003 <http://www.dailyjournalonline.com/articles/2003/06/13/missouri/state2.txt>

Weeks after their town was devastated by a tornado, residents of Stockton gathered to **discuss their vision for the future.** More than 100 residents attended a community meeting Thursday night to give feedback to a focus group working to **prioritize the needs of the town.** One of those residents, Betty Johnson, said **she would like to see a "pretty little town"** replace the one that was swept away by the tornadoes. But she would also like to see progress.

"We have never been confronted by anything like this before," Johnson said. "But the mood here has been so upbeat. ... Everyone has dusted themselves off and said **we can do this.**"

Lance Hedrick, president of the Mid-Missouri Bank, organized the focus group.

"We're five, six weeks into the process now, and **it's easier than it was a week after the tornado,**" Hedrick said. "Those first two weeks, you were just picking up the pieces, but now we're getting back to our daily business, plus **we're planning ahead.**"

Thursday night, poster board placards lined the perimeter of a cafeteria that serves Stockton's school population. **Residents placed small stickers next to ideas they agreed with.**

"You have to leave the rubble behind - just for a little bit," said **Brian Fogel**, vice president of community development for Great Southern Bank. **You have to think about the future. This is your time and your place in history. You have the responsibility of thinking about what this community will be for your children and your children's children."**

Focus group members and volunteers from Springfield will take the **community feedback and present a strategic plan within the next two weeks.**

Mayor Ralph Steele urged residents to be patient with the process. **"In three to five or seven years, people will look back and say, 'We're glad we took our time, and we made a good city out of this,'"** Steele said.

Remaining patient over the past six weeks hasn't always been easy. With **business owners eager to reopen**, Steele issued a **moratorium that prohibited building immediately following the storms.** "We didn't want to put up a wood shack or tin frames," Steele said. "We wanted them to take their time and **build something that would be pleasing to the community.** We don't want to be a tourist trap."

The town's proximity to Stockton Lake has helped the town's economy. Residents, recognizing the importance of the lake to the community's livelihood, voted heavily on suggestions for an action plan that would **guarantee the environmental quality of the lake area.** Other high priorities were placed on:

1. Rebuilding businesses.
2. Establishing a robust downtown area with accessible parking and an activity center.
3. Making sure that the design of the downtown area reflects the small-town character.
4. Repairing the community building needed for the Black Walnut Festival.
5. Widening the state highway that runs through town, making it more conducive to tourist traffic.
6. Building a new high school and passing a bond issue that would pay for its construction.

Voters here earlier this month failed to pass a bond issue that would have provided a new high school.

FEMA's Missouri Tornado Sustainable Recovery Initiative Aids Stockton And Pierce City After Devastating May Tornadoes

August 11, 2003

The U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) and the Missouri State Emergency Management Agency (SEMA) have established the Missouri Tornado Sustainable Recovery Initiative to assist in the recovery of Pierce City and Stockton, Missouri. The tornadoes that hit the state in early May devastated the two cities.

"When I visited Pierce City and Stockton two days after the tornado, it was immediately apparent that these two communities would have tremendous needs," said Dick Hainje, regional director for FEMA Region VII. "We started planning for a more extensive recovery project in the first days after the tornado." FEMA mission-assigned the U.S. Economic Development Agency to complete a rapid economic assessment of 10 tornado-damaged communities - three in Kansas and seven in Missouri. The assessments looked at the disaster impact to residential, business and public facilities. The report, completed June 25, identified Pierce City and Stockton as the most severely impacted communities of the 10.

The Sustainable Recovery Initiative has three major components:

1. developing Comprehensive Recovery Plans for both Pierce City and Stockton;
2. providing a local recovery manager for one year in each community to provide guidance and expertise to the mayor, work with state and federal agencies on grant applications, and oversee and manage major infrastructure projects;
3. encouraging intergovernmental cooperation in streamlining delivery of federal and state resources for the recovery of Pierce City and Stockton.

The Comprehensive Recovery Plan achieves a single objective: identify projects that significantly support and promote revitalization of the community. The Plans will provide each community with three options for every rebuilding issue: Basic, provides minimum acceptable function or level of service; Replacement, restore facility or service to pre-disaster functionality; Progressive, improvements to pre-disaster condition in order to stimulate enhanced economic activity and to accommodate planned growth. Two teams of eight to ten technical specialists (engineers, architects, planners, economic development experts) have worked in the cities since early July developing draft Comprehensive Recovery Plans. FEMA

tasked teams to identify issues and potential solutions in conjunction with community leaders and the general public.

FEMA unveiled drafts of the Comprehensive Recovery Plans for each this week. On August 5, approximately 250 Pierce City residents attended the public meeting to view architectural renderings; nearly 300 residents of Stockton attended the August 7 meeting.

FEMA has hired a local recovery manager to work with Stockton for one year. Fred May, currently the Director of Planning and Development for the City of Springfield, was introduced to residents at the August 7 meeting. May, a professional city planner with more than 25 years in local government, will provide guidance and expertise to the mayor of Stockton; work with state and federal agencies on grant applications; and oversee and manage major infrastructure projects.

FEMA Delivers Comprehensive Recovery Plans to Pierce City and Stockton

August 27, 2003

Springfield, MO -- Officials of the U.S. Department of Homeland Security's Federal Emergency Management Agency (FEMA) delivered final Comprehensive Recovery Plans to the cities of Stockton and Pierce City. FEMA presented the plans at each city's weekly council meeting, Monday, August 25.

The tornadoes and severe storms of May devastated many parts of the Midwest, but The U.S. Department of Commerce Economic Development Agency (EDA) identified Pierce City and Stockton as being severely impacted communities. In response to the EDA analysis, FEMA implemented a Sustainable Recovery Initiative for the two cities. The Comprehensive Recovery Plan is one key component of that initiative.

"The Sustainable Recovery Initiative is an effort to help these devastated communities take the first step on the road to recovery," FEMA Region VII director Richard Hainje said. "I've witnessed the incredible optimism and enthusiastic spirit of the people of these two proud communities and, in the long run, that is going to carry them through to a better tomorrow."

FEMA deployed teams of technical specialists to develop plans to address the specific recovery issues of each city. Since the first week of July, engineers, architects, landscape architects, and economic development specialists have completed extensive field research, listened to community input, and analyzed the opportunities and constraints of each city. These plans identify projects which, when implemented, support and promote revitalization of the communities.

FEMA presented draft plans to the communities within one month after beginning the initiative August 5 in Pierce City and August 7 in Stockton. Residents, local, state and federal officials had until August 14 to submit comments on the draft. Following that open comment period, the specialists finalized the plans.

"Governor Holden established the Missouri Long Term Recovery Task Force, which will coordinate state resources and give the cities of Stockton and Pierce City the expertise needed to help rebuild and once again become robust communities," said Jerry B. Uhlmann, State Emergency Management Agency director.

For each rebuilding issue addressed, the plans define three levels of recovery options for the two cities: basic, restore and progressive. Option 1 (Basic) describes the basic alternative needed to provide minimum acceptable function or level of service; Option 2 (Restore) describes the alternative needed to restore the facility or service to pre-disaster functionality; or Option 3 (Progressive) describes improvements that are intended to expand upon pre-disaster condition in order to enhance economic activity and to accommodate planned growth.

FEMA finalized the Comprehensive Recovery Plans, however, the agency will remain in two towns and continue to work with the local communities, state and other federal agencies to obtain needed funding and other assistance.

Stockton: Learning through helping

Although not as newsworthy as helping clear away the debris of a tornado that struck Stockton, Missouri, there is much volunteer work going on behind the scenes to help the people of that community to return to a normal life after their homes were destroyed.

It was working as such a volunteer that I learned a lot about the camaraderie that has occurred in that community. I talked with a survivor, met the volunteers who came to help from all over the country and learned just how much goes on behind the scenes to help a community up off its knees.

It was a bright sunny day as three members of Schweitzer Methodist Church drove to Stockton to help. I had visited the town numerous times in the 1960s during the planning and construction of Stockton Dam. Even having seen the media coverage of the tornado I was not ready for the sight that greeted me as we approached on Highway 32 from the east. The tornado pretty much followed the highway as it weaved its path of destruction through Stockton. There was no Stockton as I had known it, only piles of rubble and denuded trees. How could so many have survived with their lives from this disaster?

The three of us after checking in with the United Methodist Christian Relief representative were assigned to the Emergency Distribution Center operated by the Salvation Army and the Seven Day Adventists just to northwest of the area of destruction. The Center is like a giant department store making available to victims such necessities of life as food, clothing, furniture, cleaning products, and many other items we all take for granted in our daily life. The agencies were lucky to have available for their purpose a large building which had once been a garment manufacturing plant, complete with floor to ceiling shelves.

Our job: sorting through the tons of clothing that had been donated from around the country to resupply families who lost everything in the terrible storm. A day's work made only a small dent in the massive sorting and boxing chore. In another part of the large distribution site other volunteers were laying out the clothing on display tables.

Some of the volunteers were local people but many more had come in from all over the country to help out. Georgette, who supervised the clothing area, was from Canada. She is a perennial volunteer who, along with her husband, goes from one disaster to another helping those in need. Other volunteers came from throughout the Midwest.

Among the volunteers was a young man named Jody who had been pressed into the rather mundane task for moving paper goods from large supply boxes to the shelves where they would be accessible. Over a bologna sandwich, Jody talked about his experience with the tornado. He said the tornado did some damage to his house but the family could still live in it. Where was he when the tornado came? "I was sitting on a sofa in the basement," he said. Did it make a lot of noise? "It sound just like they say, just like a freight train." It was apparent from talking with Jody that he had perhaps a learning disability which kept him from understanding some things. It was also apparent that he had no trouble understanding and remembering what happened on that fateful May evening.

More detailed information about what had happened and was happening in Stockton in the past few weeks came from Kenny, an older man who had lived in the community for the past 27 years. He lived at the southwest edge of Stockton and waited out the tornado in the basement of a neighbor's house. It took the top off his house. Kenny surmises that the tornado may have still not taken completely to ground or both houses would be gone. "The devastation was so great in the area," Kenny said, "that all I could do the next day was cry."

It didn't take long for the shock to wear off, however, and Kenny started figuring out how to survive. He said he was lucky to find a place south of town that was for rent. "There just aren't many places in the area for rent and the town's only motel was also destroyed." With the help of friends, neighbors, and family he started picking up the debris and deciding where to go from there. Luckily, Kenny says, the insurance will cover the cost of getting the house back into livable condition and maybe even restoring it.

"Stockton is a great little place," Kenny said, "and we all pull together for each other in this situation." The friendliness of the town played a big role in his resettling here to get away from the turmoil of Kansas City.

This survivor figured he'd get along all right but he was worried about other senior citizens in town since the senior citizen center was also destroyed by the tornado. "A lot of these people depend upon Meals On Wheels which operated out of the center," Kenny said. "I don't know what's going to happen to them."

Munching on a homemade cookie, which he knows is always available at the Distribution Center, Kenny had good words for the Red Cross in this disaster. "No one better bad-mouth the Red Cross to me," he said. "They were there when we needed help most. I can't say enough good about them." It was obvious that the folks at the Distribution Center were also high on Kenny's list. It was obvious that he considered

the place a second home - where a fellow could always get something to eat - and was grateful for the items they were providing that helped people get back on their feet.

Although it is not possible to make conclusions based on a brief encounter but it seemed to me that the city of Stockton and its residents, with a little help from its friends, was going to get back on their feet in the very near future.

September 17th, 2003 Stockton:

MICHELE SKALICKY:

"People are going to see a lot of new things now. People like to come to a new city and see the progress, and they like to live in a new city and see the progress that's being built up around them. And if they come to live in the city and do business in the city...there's two families coming in because they're going to be running the Radio Shack--a new industry in our town, and they're going to be pleasantly surprised with the spirit of this town. We may have been blown away in the mid section of it--from west to east and hurt a lot of people financially. It actually destroyed the lives of 3 people, which we deeply regret and one hasn't completely recovered (from injuries), but people are going to see that Stockton is really trying to be a little boom town here."

"The pharmacy's coming back, the realty's coming back. An abstract office was lost, and he's got his ground cleared and he's coming back. Mid-Missouri bank is coming back, Johnson Insurance, Squeeze Inn, Vernal-Henry Insurance, Dennis Reeves, attorney and there could be some I don't know about and a couple of the ones that have relocated have expressed an interest in coming back if someone builds a building for them...so, for the most part, everyone's on their way back."

"The ability to rebuild a nicer, better building--a newer building--takes extra money. The ability to build a business and locate a business that's good for the community is harder to do now than maybe it was to continue such a business, and so, some of those folks need additional financing beyond what they can get from their lenders or insurance proceeds, and so the CDC exists to provide that gap financing--to work with people who have something that will be good for the community--a business that will be important for the community to have long-term--to make it possible for those folks to do that business."

"I think we're in a transition point. Obviously, the tornado changed our community. We have the opportunity to make that change be extremely positive for our community so that five years from now Stockton will be much more vibrant and alive and growing and prosperous than it ever could have been otherwise. That's the opportunity. We are still in the wilderness as I call it. We're not in the Promised Land. We're still working thru a lot of issues, but the hope is there. The spirit is there. And the cooperation and the attitude is there. We've had a tremendous amount of help from people all over. A lot of it's been unexpected, and things just build on each other. The FEMA planning team that came down was a tremendous boost to us. Part of our challenge now is to take that process and that interest and that plan and the funds that will be available as a result of that plan and use them for the benefit of our community."

"I think about 7:30 Sunday night May 4 right after the tornado left several people decided that, by golly, we've just got to have the festival again...sometime after Charlotte Haden looked at the town and resolved that it's going to be better and it's going to be built back. I think many of us sensed certainly on the Monday after the storm that our community was going to go thru a rough time cleaning up and coming back and recovering but we have a sense of that community that says we will recover and we will come back and the Black Walnut Festival is such a part of our community. People count on it, people look forward to it. It's been a terrific success over the years, that we need the festival to celebrate our community, to continue our community, to share stories, to talk together. We really needed that."

"I hope Stockton will be the example of a community that is devastated by an event like this but that resolves to come back better than ever and maybe we'll be a textbook example of how to do that. I don't know if we will. We're just trying to do the right things, the things as best we can, and we'll let the history reviewers tell us how well it went and what we could have done differently or better. But I think people can do better than we have done in the past, and we've just got to keep our eyes focused on that vision--the possibilities that are out there."

APPENDIX A
COMMUNITY GUIDING PRINCIPLES

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
1. Protect the health, safety and welfare of the public.	1.1. Inform and educate the public about potential hazards.	Ongoing initiative within Pasco County and the municipalities. Distribution of “All Hazards Guide” occurs annually.	Continue to address civic organizations, homeowners associations and local businesses. Explore funding options in order to provide printed material, media coverage and web site information.
	1.2. Encourage homebuyers to research and determine if property/parcel is located within a flood prone area.	Flood zone information and identification of flood prone areas is available to the public through Pasco County Development Services Branch and the building departments within the municipalities.	Continue to provide information through the County and the City departments. Coordinate with local Realtors in the provision of flood zone information to homebuyers. Continue to implement the Community Rating System Program.
	1.3. Ensure new development and redevelopment complies with all applicable federal, state and local regulations.	Ongoing initiative within Pasco County and the municipalities.	Sources for implementation: Local Comprehensive Plans, Land Development Regulations, Coastal Construction Codes, Stormwater Management Plan and Floodplain Management Plan.
	1.4. Provide hurricane shelter for the population at risk.	Tampa Bay Regional Hurricane Evacuation Study (April 2000) estimates the 2005 Population at Risk (high occupancy) in Pasco County at 212,508 for a Category 3 event, 259,611 for a Category 4 event and 290,863 for a Category 5 event.	Encourage a review of the impact of new development on hurricane sheltering capabilities and the implementation of a public health, safety and welfare fee.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
2. Promote hazard awareness and education.	2.1. Develop Hazard Information Library.	Coordinate with Pasco County departments and the municipalities to determine types of materials available to the public. Incorporate this information and the Local Mitigation Strategy into a comprehensive Hazard Information Library.	Disseminate the Hazard Information Library to the libraries, public buildings, homeowners associations and businesses. Include the program on Pasco County's web site.
	2.2. Encourage homeowners and renters to purchase flood insurance/renters contents insurance (for wind and flood) inside and outside flood zones.	Recommendations are made during public presentations by Pasco County Office of Emergency Management and by Pasco County Development Director.	Continue to encourage the purchase of flood insurance through presentations, printed material, media and the web site. Also, encourage insurance companies to educate all occupants of dwelling units to purchase insurance.
	2.3. Educate the public and business/industry about property protection measures.	Ongoing initiative by Pasco County and the municipalities. Limited by staff availability and funding.	Continue to address civic organizations and local businesses. Include information on Pasco County's web site. Explore funding options in order to develop educational materials.
	2.4. Educate the public about disaster preparedness, evacuation procedures and shelter availability.	Ongoing initiative by Pasco County and the municipalities. Limited by staff availability and funding.	Continue to address civic organizations, homeowners associations and local businesses. Explore funding options in order to develop additional publications. Provide web site information.
	2.5. Coordinate with Pasco County Utilities Department regarding an educational program for the safe storage and disposal of household and commercial hazardous materials.	Ongoing initiative by Pasco County Utilities Department. Limited by staff availability.	Continue to provide countywide educational information to homeowners and businesses through publications, the media, and presentations/work shops.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
3. Develop mitigation initiatives that protect business and industry.	3.1. Minimize business interruptions through disaster preparedness and education.	Ongoing initiative by Pasco County and the municipalities. Limited by staff availability.	Coordinate with local businesses, Chambers of Commerce, Rotary Clubs and the Small Business Administration. Participate in “Business Development Week” displays.
	3.2. Assist business and industry in the preparation of Hazardous Materials Plans.	Ongoing initiative by Pasco County Office of Emergency Management, in accordance with Title 3 of the Superfund Amendment Reauthorization Act.	Continue coordination initiative.
4. Encourage economic diversification and development.	4.1. Assist and encourage new economic development and post-disaster redevelopment.	Pasco County Economic Development Council is responsible for attracting new business and industry. Post-Disaster Redevelopment initiatives will need to be coordinated with the Council.	Implement coordination initiative.
	4.2. Encourage public-private partnerships.	Coordinate with business and industry on the development of a plan that addresses business interests/concerns for Post-Disaster Redevelopment.	Encourage a business/industry representative to participate in the Emergency Operations Center. Coordinate with the Tampa Bay Regional Planning Council (TBRPC) on the development of a Business Recovery Plan.
5. Maintain high state of preparedness/coordination to mitigate disaster incidents.	5.1. Maintain and update (as necessary) the Comprehensive Emergency Management Plan.	The Comprehensive Emergency Management Plan is reviewed in accordance with Chapter 252, Emergency Management, Part I- General Provisions, Florida Statutes (FS).	Continue to update and revise the Comprehensive Emergency Management Plan as required by Florida Statutes. Coordinate with the Tampa Bay Regional Planning Council (TBRPC) on the revision of the Regional Evacuation Plan.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	5.2. Coordinate emergency evacuation procedures.	Ongoing initiative by Pasco County Office of Emergency Management.	Accomplished through the implementation of the Comprehensive Emergency Management Plan, the Emergency Support Function Coordinating Officers and Standard Operating Procedures.
	5.3. Coordinate inter-jurisdictional resources during recovery efforts.	Municipalities must coordinate through Pasco County for mutual aid assistance.	Representatives from the municipalities participate in any actions conducted by the Emergency Operations Center. Participation in the Emergency Operations Center is important for receiving mutual aid assistance.
	5.4. Conduct annual updates and revisions (as deemed necessary) to the Local Mitigation Strategy.	The Hazard Mitigation Committee will annually review and update (as deemed necessary) the Local Mitigation Strategy. Resolution No. 211 establishing the Hazard Mitigation Planning Committee adopted July 14, 1998 requires an annual review. Each of the municipalities has agreed to this condition.	Meetings will be coordinated by the Pasco County Office of Emergency Management and held at least annually with the Hazard Mitigation Committee to assess and develop a status report of the Local Mitigation Strategy.
	5.5. Coordinate and prioritize applications for Hazard Mitigation and Flood Mitigation Assistance Program (FMAP) Grants.	Encourage application submittals for each grant cycle.	Convene Hazard Mitigation Committee to review and prioritize the grant applications for each event.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
6. Develop and implement guidelines for Post-Disaster Redevelopment.	6.1. Expedite Post-Disaster Recovery through the development of a Post-Disaster Recovery Ordinance.	Develop a Post-Disaster Recovery Ordinance that addresses: streamlining permitting procedures, provisions for temporary housing, availability of sanitary facilities, debris removal, licensing enforcement, licensing procedures, road side vendor licensing and business operation of critical commercial facilities (i.e., hardware stores, lumber stores, and grocery stores).	Ordinance will be implemented in Pasco County and the municipalities in the event of a Presidential Declaration.
	6.2. Enable small businesses to utilize public property in the event of a disaster.	Develop a provision in the Post-Disaster Recovery Ordinance that addresses this objective.	Ordinance will be implemented in Pasco County and the municipalities in the event of a Presidential Declaration.
	6.3. Advocate property acquisition in repetitive loss areas, substantially damaged areas and for the purpose of ensuring public health, safety and welfare.	Funding is made available though the Hazard Mitigation Grant Program and the Flood Mitigation Assistance Program. Project identification and completion is dependent upon grant approval and match funding availability.	Initiative can be accomplished if the project proves cost-effective, residents are agreeable to the proposal and funding is available.
	6.4. Encourage mitigation initiatives in the Coastal High Hazard Area.	Project identification and prioritization will be accomplished in the development and implementation of the Local Mitigation Strategy.	Initiative will be addressed in the Local Mitigation Strategy.
	6.5. Establish and implement a plan for long-term temporary housing.	Develop a provision in the Post-Disaster Recovery Ordinance that addresses this objective.	Ordinance will be implemented in Pasco County and the municipalities in the event of a Presidential Declaration.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	6.6. Request waivers of the normal regulatory barriers for Community Development Block Grant funds to expedite disaster recovery.	Current process involves a program amendment, which is a two-month process. A request for waiver will take less than two months to process.	Initiative will be implemented through the Community Development Division in the event of a disaster.
	6.7. Create and support Community Emergency Response Teams (CERT) that are capable of performing public education, warning and notification, damage assessment and coordination of service delivery into the neighborhoods.	Consider application for grant funding from the Emergency Management, Preparedness and Assistance Trust Fund Grant Program to train and equip the CERT teams.	Initiative will be processed through the Office of Emergency Management. Teams will be recruited, trained and prepared to conduct emergency response in the event of a disaster, in order to augment County and City staff.
	6.8. Develop a Debris Management Plan to handle controlled burns after a disaster.	Standard Operating Procedures (SOPs) for Emergency Support Function (ESF) 3, Public Works and Engineering describe the plan to manage debris, however, a review of this plan is necessary in order to pre-identify County-wide burn sites.	Coordinate with Pasco County Public Works on the amendment to the Debris Management Plan to address Countywide burn sites in the event of a disaster.
	6.9. If funding is available, land use densities/intensities will be reviewed and amended in disaster-stricken areas.	Concern exists regarding property rights legislation and the potential for lawsuits from a “taking” of private property. If acquisition of property becomes necessary, funding will need to be available to local governments from outside sources to offset the cost of acquisition.	Local Comprehensive Plans and Land Development Regulations.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
7. Establish Pre- and Post- Disaster Mitigation Initiatives (programs and projects) through the Local Mitigation Strategy.	7.1. Manage public expenditures that encourage new development in the Coastal High Hazard Area to ensure consistency with the local government Comprehensive Plans.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	7.2. Encourage capital improvement expenditures for critical evacuation routes.	Participate in the review of the Pasco County Long-Range Cost-Affordable Transportation Plan. Rule 9J-2.0256(c), Florida Administrative Code (FAC) states, "When a development is proposed in a Hurricane Vulnerability Zone and the proposed development's anticipated evacuation traffic will utilize twenty-five (25) percent or more of an identified hurricane evacuation route's level of service E hourly directional maximum service volume based on the Florida Department of Transportation's Generalized Peak Hour/Peak Direction Level of Service Maximum Volumes presented in the Florida Highway Systems Plan Level of Service Standards and Guidelines Manual and hereby incorporated by reference, the proposed development will be determined by the Department to have a significant regional impact on hurricane evacuation".	Local Comprehensive Plans.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

PRE- AND POST- DISASTER PLANNING

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	7.3. Encourage development and implementation of a Stormwater Management Program.	Coordinate with Pasco County Public Works Department and Engineering on the feasibility of a program.	Local Comprehensive Plans, Land Development Regulations and local ordinances.
	7.4. Utilize project evaluation criteria identified in the Local Mitigation Strategy to determine the ranking of Pre- and Post-Disaster mitigation initiatives.	Currently being done as part of the Local Mitigation Strategy.	Local Mitigation Strategy.
	7.5. Identify and pursue available grant funds and other funding sources for hazard mitigation activities.	Hazard Mitigation Grant Program (HMGP), Flood Mitigation Assistance Program (FMAP), Emergency Management, Preparedness and Assistance (EMPA) Trust Fund and the Project Impact Grants.	Federal and State grants.
	7.6. Provide sufficient shelter space to satisfy in-County demand.	The shelter deficit for a Category 3 Hurricane is approximately 30,000 spaces. Grant applications have been filed with the State of Florida for funds to provide more shelters. If approved, the grant money will reduce the deficit by approximately 10,000 spaces.	Coordinate with the counties in the region and the Tampa Bay Regional Planning Council (TBRPC) on addressing the shelter deficit. Encourage the adoption and implementation of an ordinance for new development that addresses the provision of shelters for the residents at risk or a comparable alternative. Continue submitting applications for shelter grants.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

RESOURCE PROTECTION

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
8. Encourage the protection of Natural Resources.	8.1. Participate with the State in the acquisition of lands and/or development rights for environmental protection.	Ongoing initiative by Pasco County and the municipalities.	Preservation 2000 Program, Conservation and Recreation Lands Program and Southwest Florida Water Management District program.
	8.2. Conserve and improve wetlands.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	8.3. Limit discharge and protect natural resources from toxic substances and harmful pollutants.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	8.4. Protect the functions of natural drainage features and surficial aquifer recharge areas.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	8.5. Restrict infrastructure-supporting expansion to offshore islands, coastal swamps, marshlands and beaches.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	8.6. Minimize the impacts of Public Facilities and Utilities on the natural environment.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	8.7. Wetland loss shall be mitigated in accordance with the local Comprehensive Plans.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
9. Encourage the conservation of historical and cultural resources.	9.1. Identify and document historical and cultural resources.	Owners of historical structures and cultural resources should be encouraged to add these properties to the historical registry of resources maintained by the local governments.	Approved Historical Preservation Ordinance and/or historical registry of resources.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

RESOURCE PROTECTION

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	9.2. Prioritize funding for Post-Disaster Redevelopment of property that is currently listed on the National Register of Historic Places or eligible for inclusion on the National Register of Historic Places.	The Local Mitigation Strategy includes the development of ranking criteria for County and City programs and projects. Guidelines will be established which consider historical/cultural properties impacted by a disaster in the ranking criteria.	Local Mitigation Strategy.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

REGULATION OF NEW DEVELOPMENT AND REDEVELOPMENT

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
10. Encourage the resolution of stormwater quantity and quality problems.	10.1. Develop or maintain a Stormwater Management Plan that identifies and recommends solutions to stormwater problems.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans and Stormwater Management Plans.
	10.2. Encourage the creation of a Stormwater Utility for the management of storm drainage.	Ongoing initiative by Pasco County Public Works Department and Stormwater Management, and the municipalities. Currently, there is no Stormwater Utility in Pasco County. County and City departments maintain drainage areas associated with publicly maintained roadways. Homeowners Associations are responsible for the maintenance of drainage detention/retention areas in subdivisions, and developers are required to maintain these areas for commercial/industrial development.	Local Comprehensive Plans and local ordinances.
	10.3. Maintain or improve existing drainage systems.	Ongoing initiative by Pasco County and the municipalities.	Stormwater Management Plan.
	10.4. Require all new development and redevelopment to regulate the rate and volume of stormwater runoff.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans, Land Development Regulations, Stormwater Management Plan and Rules 40D-4 and 40D-40, administered by the Southwest Florida Water Management District.
	10.5. Regulate on-site management of stormwater runoff.	Ongoing initiative by Pasco County and the municipalities.	Stormwater Management Plan and Rules 40D-4 and 40D-40 administered by the Southwest Florida Water Management District.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

REGULATION OF NEW DEVELOPMENT AND REDEVELOPMENT

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	10.6. Protect the function of natural drainage features and surficial aquifer recharge areas.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans and the Stormwater Management Plan.
	10.7. Protect and preserve wetlands, floodplains and coastal lands.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
11. Reduce property damage caused by flooding.	11.1. Elevate all construction above the Base Flood Elevation and 16 inches above the crown of the road, unless an alternative is provided.	Ongoing initiative by Pasco County and the municipalities.	Land Development Regulations and Building Codes.
	11.2. Encourage the provision of one to two feet of free board on all construction for added insurance benefits.	Ongoing initiative through public awareness and education under the National Flood Insurance Program.	Disseminate information through public education/information efforts.
	11.3. Identify and correct local flooding conditions.	Ongoing initiative by Pasco County and the municipalities.	Stormwater Management Plan and Drainage Basin Studies.
	11.4. Ensure compliance with the National Flood Insurance Program.	Ongoing initiative by Pasco County and the municipalities.	Land Development Regulations and Floodplain Management Plan.
	11.5. Continue to improve the ratings under the Community Rating System.	Ongoing initiative by Pasco County and the municipalities.	Floodplain Management Plan.
	11.6. Control development in the 25- and 100- year floodplain.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans and Land Development Regulations.
	11.7. Implement substantial damage provisions.	Ongoing initiative by Pasco County and the municipalities.	Coastal Construction Code and Land Development Regulations.
	11.8. Maintain and update the Floodplain Management Plan.	Ongoing initiative by Pasco County and the municipalities.	Annually update the Floodplain Management Plan.
12. Regulate the impacts of new development and redevelopment through code enforcement.	12.1. Prohibit expansion/placement of mobile home parks/subdivisions in the Coastal High Hazard Area.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

REGULATION OF NEW DEVELOPMENT AND REDEVELOPMENT

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	12.2. Prohibit new development of Critical Care Facilities in the Coastal High Hazard Area.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans.
	12.3. Ensure compliance with the Coastal Construction Code for all construction.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans and Land Development Regulations.
	12.4. Provide and encourage preservation of open space.	Ongoing initiative by Pasco County and the municipalities.	Building Codes (stormwater retention/detention areas and clustering of structures)
	12.5. Preserve and encourage use of native vegetation.	Ongoing initiative by Pasco County and the municipalities.	Local Comprehensive Plans and Land Development Regulations.
	12.6. Ensure new development and redevelopment complies with Federal Flood Insurance Regulations.	Ongoing initiative by Pasco County and the municipalities.	Land Development Regulations.
	12.7. Encourage the inclusion of opening protection standards (windows, doors and garage doors).	Currently local governments require wind load structural design standards for new construction.	Implement Building Codes or Hurricane Wind Protection Ordinance.
	12.8. Require lot-grading plans, which address drainage with each building permit.	Ongoing initiative by Pasco County and the municipalities.	Land Development Regulations.
	12.9. Encourage mitigation for repetitive loss properties.	Public information is provided about the availability of grant funding for retrofitting property and acquisition of property.	Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance Program (FMAP) are two resources, however, other funding alternatives should be explored.
	12.10 Encourage owners/developers of mobile homes, mobile home parks (subdivisions) and recreational vehicle parks to provide hurricane shelters in clubhouses (outside the Hurricane Vulnerability Zone).	New initiative.	Local Mitigation Strategy and Land Development Regulations.

**LOCAL MITIGATION STRATEGY
COMMUNITY GUIDING PRINCIPLES**

REGULATION OF NEW DEVELOPMENT AND REDEVELOPMENT

GOAL	OBJECTIVE	ANALYSIS/ASSESSMENT	IMPLEMENTATION MECHANISMS
	12.11. Enforce Wellhead Protection Ordinances.	Ongoing initiative for Pasco County and the municipalities.	Land Development Regulations.
13. Regulate and prioritize the construction of critical facilities.	13.1. Maintain or improve critical evacuation routes.	Reviewed annually in the Pasco County Long-Range Cost-Affordable Transportation Plan.	Local Comprehensive Plans (Capital Improvements Element).
	13.2. Prioritize and retrofit existing critical facilities.	Assessed by Pasco County Office of Emergency Management, subject to funding availability.	Local Mitigation Strategy.