

Planning for Disaster and Recovery

COVER STORY

One hurricane-battered county shares the successes and shortcomings of its pre-storm disaster plan

By Gregory S. Brown and Kimberly Sessions Spear

“When, not if” may seem to some like a doomsday prophecy or a pessimistic outlook at best, but unfortunately, disaster planning and recovery has become an all-too-common activity for those of us in government in Santa Rosa County, Florida. On the night of September 15, 2004, Hurricane Ivan roared into our county leaving behind \$1.3 billion in property damage and creating tax revenue loss of nearly \$10 million. Then, in the 2005 hurricane season, Tropical Storms Arlene and Cindy, followed by Hurricane Dennis, a category three storm, all came ashore in Santa Rosa County.

As we look toward the 2006 season, the record-setting incidence of named storms may not be a historical anomaly. Forecasters have predicted that these overactive storm seasons could occur for another 10 to 15 years. It is incumbent upon all of us to be prepared.

In fact, every governmental jurisdiction needs a plan, even if the possibility of suffering a catastrophic event is remote. The perfect plan could not have prepared us for what we were about to experience. Without a plan of action, the resulting confusion and chaos is unimaginable.

Unfortunately, there were no hurricane pre-planning seminars or damage assessment appraisal courses that could prepare us for the realities of Hurricane Ivan. Florida offered

no manuals on office preparation or recovery. We had to rely on our own experiences and intuition. We hoped our pre-planning would prove accurate and valuable in the post-storm hours, days, and weeks.

Thankfully, our plans worked. This article will discuss several areas of outstanding successes as well as areas where we were deficient. It will tell how we prepared our disaster plan, not just for weather events but for any crisis; how we integrated our strategies into our normal operations plan; and how a new software program, FITS (Field Inspection Tracking System), enabled us to conduct over 50,000 field inspections in the three months following Hurricane Ivan. This innovation enabled us to repurpose staff, create immediate efficiencies, and provide real-time flexible reporting including productivity statistics.

Pre-Crisis Preparation

Effective damage assessment will depend upon the successful implementation of a crisis management plan. Time is always of the essence during a disaster so any plan should be in place well in advance of a storm or other crisis. The plan should include levels of emergencies which can be categorized by the amount of destruction anticipated. For instance, a level one emergency might be a threat to life, health, or safety affecting the entire county. Level two might be a tornado or wildfire causing destruction in a more limited area. Level three might be a crisis within the office or the administrative complex such as a bomb threat, a bio-materials hazard, or similar potentially harmful circumstance. These levels, as well as the response to each one, should be defined in advance. For example, it may not always be necessary, cost effective, or appropriate to put a level one plan into action if the crisis is not extensive.

It is also incredibly important that the plan be placed into operation prior to any disaster, that it is reviewed annually, and that it includes both strategic and tactical details. Enacting the plan in advance will ensure every member of the response team knows their role, can perform it adequately, and has the necessary resources for execution. In this way, the plan will run smoothly upon implementation.



Figure 1. The storm track followed by Hurricane Ivan brought the most devastating northeast quadrant over Santa Rosa County. Map courtesy of www.wikipedia.org.

Santa Rosa County takes a unique approach to restoration of operations following a major weather event. An alliance between two county entities, the Santa Rosa County Property Appraiser's Office and the Santa Rosa County Board of County Commissioners, builds upon the strengths of each one and has proven to be the cornerstone of success. Within the Santa Rosa County Board of County Commissioners' hierarchy is the county's Building Department. Following a destructive event, an appraiser in the Property Appraiser's Office and an inspector from the Building Department are paired to go into the field. The Building Department focuses on identifying which homes are eligible for power restoration, issuing building permits, and performing the accompanying inspections, while the Property Appraiser's Office concentrates on damage assessment. This approach doubles the number of experts working toward the common goal. The result is an expedient and efficient return to normal operations and is a proactive approach that provides phenomenal results for both the citizens and government agencies.

Each two-person team has well defined responsibilities and understands its contribution to the overall goal. For the Property Appraiser's Office, this on-the-ground model enables real time

data to be collected and incorporated daily into the tax roles and empowers the office to play a vital role in communicating the community's level of distress to federal and state government agencies. Often aid and federal disaster declarations are based, in significant part, upon the information provided by the Property Appraiser. County officials, local taxing authorities, and benevolent associations also turn to the Property Appraiser to help identify the hardest hit areas. In addition, the Property Appraiser can provide valuable assistance in benchmarking revenue expectations for coming tax seasons. Understanding this strategic role in the recovery and aid of the community is paramount and must remain at the forefront of planning.

Creating Your Own Plan

Here are some basic elements to consider when developing your own plan:

- **Data Backup.** Put procedures in place to backup your computer data and make numerous copies. Agencies can't wait until the last minute to begin this task because it can be time consuming to backup data and graphic files from your Computer-Assisted Mass Appraisal (CAMA) system, your Geographic Information System (GIS) data, and other documents you may be storing. Conduct a trial run to determine when to start the backup in the event of an impending natural disaster. Storms are unpredictable and go/no-go decisions are often made at the last minute. Know how much time you need and perform the backups as a precaution. It is worth the time investment.
- **Off-site Secure Storage.** You should arrange to store one or two copies of your data-file backups off-site in case of major damage to your office facility. Use a bank vault if you can secure a partnership in advance. If that is not feasible, then distribute copies of the data with your senior leadership team or others based on their locales.
- **Additional Backups.** You should also make a backup of your personal computer files including word processing, spreadsheets, and other work-related files.
- **Communication.** Prepare a phone list of all employee's home and cell phone numbers. Know evacuation plans, routes, and contact information for evacuees. Establish a call tree in which each person calls the next one on the list. In times of crisis, communication is most important, but there is little time to devote to it. If possible, arrange with your local cellular provider to heighten your numbers to an emergency frequency so when lines become overloaded you can still communicate with your team. Invest in satellite phones for critical staff and consider checking out two-way radios from your local Emergency Operations Center (EOC).

- **Protect Facilities.** The first order of business is to protect your physical facility. Pack up all important documents, unplug and move equipment away from the windows and off of the floor, and cover important items with plastic. If electricity might be compromised, it is wise to clean out and unplug the staff refrigerator.



Homes with more than 50% structural damage are deemed total losses and must be rebuilt to new building code standards.

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Don't focus your communications plan narrowly by only including

your internal office staff. Rather, extend outward to other government agencies. Build communication channel contingencies to those that support you and to those you support. Make sure the county manager knows your plan.

Post Hurricane Ivan, the local cell phone providers lost use of their cell towers. Communication could only be conducted by word of mouth or by those outside of the area. The limited and ever changing information became a source of frustration for the field appraisers. There was no way to reach them in the field. They resorted to distributing information to citizens via print material, which was outdated almost as soon as it was printed.

You can't do too much to plan your communication strategies. It is vital to an effective recovery.

- **Report-in Procedure.** Establish a time and place for rendezvous of critical staff. Ensure each person knows their role in the recovery plan, where and when they should meet, and how to report if they are unable to take their post. Mobilization as soon as possible is critical to the recovery of the community. Ensure every team member understands the critical role they play.
- **Hierarchy Protocol.** Establish your hierarchy to lower levels than under normal operating procedures. Push decision making to its lowest possible level by empowering employees to do the right thing. Make it clear that you will support sound decisions. Additionally, if you or your deputies are unable to report to duty because of extenuating circumstances, make sure everyone knows the order of hierarchy.
- **EOC Liaison.** Designate at least one staff member to stay in the county emergency operations center. Prepare a set of clearly defined duties for this individual to include communication of key information points both pre- and post-storm. This person should be equipped with a set of the backup data and

can also act as a facilitator in case of major damage to your main office.

- **Supplies.** Prepare to operate without the basic essentials such as electricity, water, and food. The office should consider having on hand generators to power computers and other essential office equipment, fans or stand-alone cooling systems (ensure proper ventilation while operating)

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to cool the staff as much as possible; MREs (Meals Ready to Eat); and water. Ensure assessment teams are equipped with first-aid kits, hard hats, flashlights, tarps, bug spray, and appropriate supplies for working in warlike zones. Carrying MREs and water will enable appraisers to remain in the field, as it is unlikely that restaurants will be open for business.

- **Remote Location.** Consider setting up a satellite office and sending a remote team to manage it. This will

prove extremely valuable in the event your main office, systems, and communications prove uninhabitable or are rendered useless. A partnership with another Property Appraiser is ideal because they will understand your unique operation.

- **Identification.** Give significant thought to the means of identification you provide for your team. Official identification becomes very important for the safety of your staff especially when entering areas of mass destruction. Law enforcement officials may not allow appraisers to enter devastated areas without proper identification. Citizens will tolerate and appreciate government personnel in the vicinity of their destroyed homes but are intolerant of sightseers or looters. In Santa Rosa County, we have identifying shirts, identification badges, logo hardhats, business cards, and cars with county logos to allow recognition of appraiser employees. We also have magnetic emblems for automobiles in case we have to use private autos or leased vehicles for damage assessment.
- **An Expanded Role.** In times of crisis, consider ways you can expand your contribution beyond strictly job-related efforts. With the proper balance, and while maintaining our focus on damage assessment, we provided critical aid to our com-



The unobstructed view through this home's entryway illustrates the destructive power of hurricane storm surges.

munity. We played a unique role, more so than many other government agencies, because of our large mobilization of forces post disaster. We would go into areas where the storm surge had destroyed all means of transportation leaving citizens place bound with no way to get basic supplies or information. We loaded our vehicles with food and water from the Federal Emergency Management Agency (FEMA), and printed emergency information from the county's EOC for distribution in the most devastated areas or to those citizens who had no other means of retrieval.

- **Alliance-Building.** Too often in government agencies, bureaucracy and red tape results in complacency and inefficiencies. However, during a crisis situation, it takes a committed team willing to go the extra mile to achieve normalcy. The team spirit that emerges after a community has collectively experienced a disaster is something that can't be described, only experienced. People want to work together, they want to help, and they are committed to the recovery. With some forethought and planning, you can leverage this momentum to reach astounding heights. Build your partnerships early, define roles and responsibilities, and ensure everyone understands the strategic goal and how their part contributes to the overall success.
- **Experience-Sharing.** If your jurisdiction has experienced a cataclysmic event, you should communicate with other jurisdictions about your successes and failures during the crisis. State associations should hold conferences on this subject because post-planning is a long and rocky road.

Our Plan in Action

When it came time to effect our plan, several recent developments in the Santa Rosa County Property Appraiser's Office positioned us well to deal with the aftermath of Hurricane Ivan. The plan and all of its elements were

not tried and tested. In fact, some of the processes that proved germane to our successful recovery were not developed primarily for crisis response. The following describes our actual response to the disaster.

The Partnership

Immediately following the storm, the expert teams from the Property Appraiser's Office and the Building Department convened and paired into groups of two to go into the field. Each pair was equipped with a computer

With all the devastation that accompanied this category-three hurricane, we had expected property values to drop. Just the opposite occurred.

tablet that included all of the county's property values in a spreadsheet. This strategy enabled the appraisers to immediately record their determined percentage of damage to the overall structure or building values. It was also an efficient model for the Building Department inspectors in their endeavor to assess readiness for power restoration.

Our approach in performing the damage assessment was to estimate an overall percentage of damage for an entire neighborhood or subdivision. The county was divided into workable areas. Rather than doing a house-by-house inspection in each area, the appraisers were instructed to give an estimate that approximated the level of damage throughout the subdivision or neighborhood. The building values had been separated from the land values, so the appraiser's estimation was applied only to the total building value for that particular area to derive the estimate of damage for that subdivision or neighborhood. These cu-

mulative amounts were summed daily to provide an up-to-date estimation of damage caused by the hurricane.

Our initial damage assessment within the first 10 days after the storm was \$ 1.3 billion. Our neighborhood approach seemed to work very well in producing damage estimates in a short timeframe. This early estimate did not include governmental or tangible properties. However, these items should be included and up-to-date values should be available prior to a disaster.

Once the initial drive-by estimates were complete, we initiated a house-by-house damage assessment to determine the impact on the ad valorem taxable value of the county. A point to note is that damage value does not equal loss in assessed or appraised value. A home could have roof damage of \$15,000 to \$25,000, but once repaired, it would not sustain any loss in assessed value. Therefore, our initial damage assessment does not equal our actual loss in the taxable value for the county.

In previous times, the process would have been long and very tedious requiring maps and correlated property record cards for each geographical area. Fortunately, the Santa Rosa County Property Appraiser had recently developed some innovative field software.

FITS to the Rescue

A desire to provide the most efficient mechanism for field appraisers to conduct their everyday business resulted in the most unequivocal success for the Property Appraiser's Office. Just prior to the storm, the office had embarked on a project to develop field appraisal software to replace what we had identified as archaic systems and inefficient processes.

The new software was envisioned as a tool to allow field appraisers to use pen-based tablets to collect and enter building data in the field. Santa Rosa County contains nearly 100,000 properties within a geographical area of over 1,000 square miles. Prior

to the software's development, two full-time data-entry operators were required to enter the data collected in the field. The Property Appraiser was convinced, however, that the field appraisers could input their own data while in the field. In addition, the system would permit field access to building information via the GIS. The software also would enable tracking of building permits and reviews and minimize lost or misplaced files. We called our system FITS for Field Inspection Tracking System (figure 2). With a little luck, FITS proved to be our road map for success in the days after the storm.

Just days before Ivan made landfall, we downloaded our county's appraisal information onto four computer tablets. Because the FIT system was still considered in development mode, we had only ordered four to use during the initial trial phase. We quickly moved from trial to transition, from test to implementation, from development to production. Disasters have a way of moving things to unanticipated levels. Thus, in the days following Ivan, we immediately needed 12 tablets to use in the damage assessment of our county.

First, however, we needed to shift paradigms. Change is difficult, and coupled with a lack of an adjustment period and minimal training equaled anxiety. After Hurricane Ivan, the field staff wanted to conduct damage assessment the old-fashioned way, the familiar way—with printed maps and cards. The first print run, after we connected the printer to a generator, produced 6,000 field cards. The task was enormous and chaotic. Trying to coordinate cards to maps in an understandable format so that two people working together could review properties was an unbelievable job.

Emotions were already running high, as the entire county had been traumatized. Trying to deal with this minutia under these circumstances actually fostered the willingness to try a new methodology. The team quickly became overwhelmed with the task of doing things “the way we’ve always

done them.” After a short explanation of the initial thought process and design of the FIT system, everyone understood its potential. The system enabled us to import building permits and building reviews into our GIS mapping. This would correlate our building information to parcels on our mapping system, which indicated parcels requiring inspection. There was no need to manually pull permits, staple them to the cards, and correlate cards to the map order. Because the building information and the maps were already in the tablets, the former time-consuming method and its associated costs were eliminated (figures 3 and 4).

The FIT system provided a mechanism for recording the percentage of damage to a structure. Our appraisal software, CAMAUSA by ACS, allows flexible user-defined areas. Thus, we customized our screens for percentage adjustments to the structure. This enabled reports identifying damage assessment by parcel or in a total summation. We could easily determine the amount of damage to a geographic area, the number of buildings damaged, and the total amount of damage caused by the hurricane.

With the FIT system, the Property Appraiser's staff conducted nearly 50,000 drive-by inspections of properties within the 1,000-square-mile

county area in a little more than three months following Hurricane Ivan. The FIT system enabled 12 field and land appraisers to note nearly 3,774 structures totally destroyed or rendered uninhabitable by the hurricane. This number does not include the thousands of homes that had partial damage or lost their roof coverings.

The Elements of FITS

Following are some of the features of the FIT system.

- **Color Coded Parcels.** The system uses color-coding to indicate required actions or status of parcels. For instance, parcels requiring building review are given a different color than those having been issued building permits. We request a building review when one of three things occurs: a taxpayer asks for reconsideration of value; changes in the component parts of a building occur; or other changes not caused by the issuance of a building permit dictate an inspection of the property. Once a parcel is inspected and the permit closed, the parcel highlighting is eliminated. (See figure 5.)
- **Aerial Maps.** The FIT system holds the aerial maps using MRSIDS with our shape files. The software contains all building and ownership information enabling the field appraiser to display a parcel, with

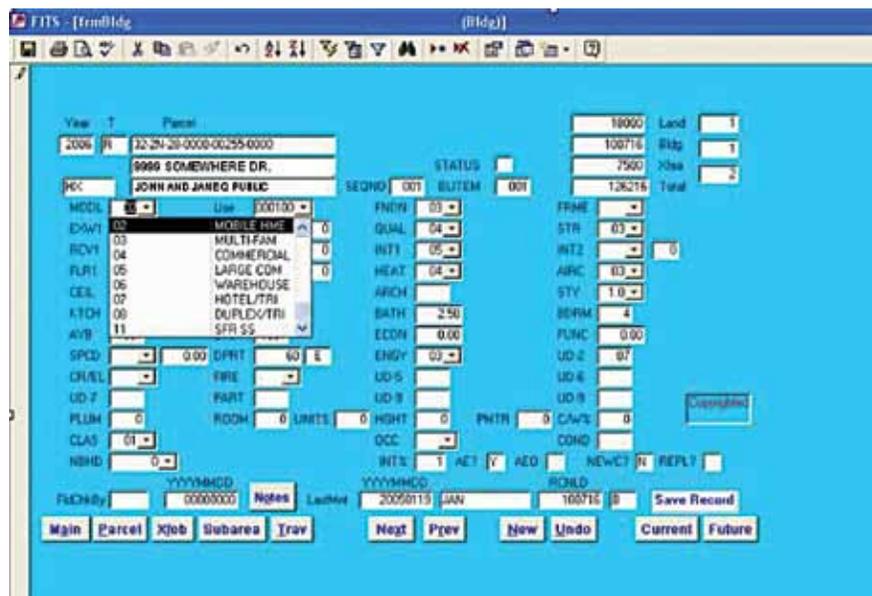


Figure 2. Field inspection tracking system (FITS) for collecting appraisal data.

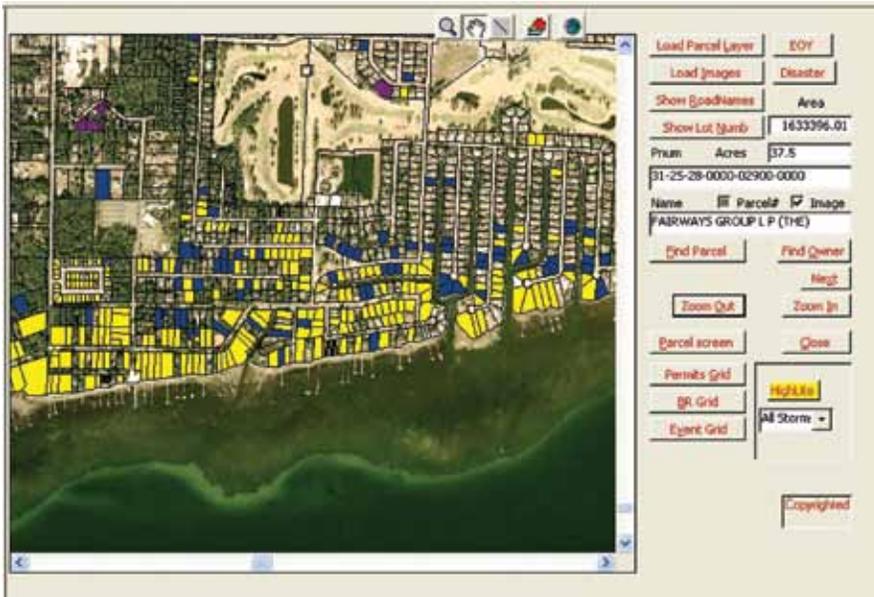


Figure 3. Color-coded map in FITS allows easy access to general parcel information.

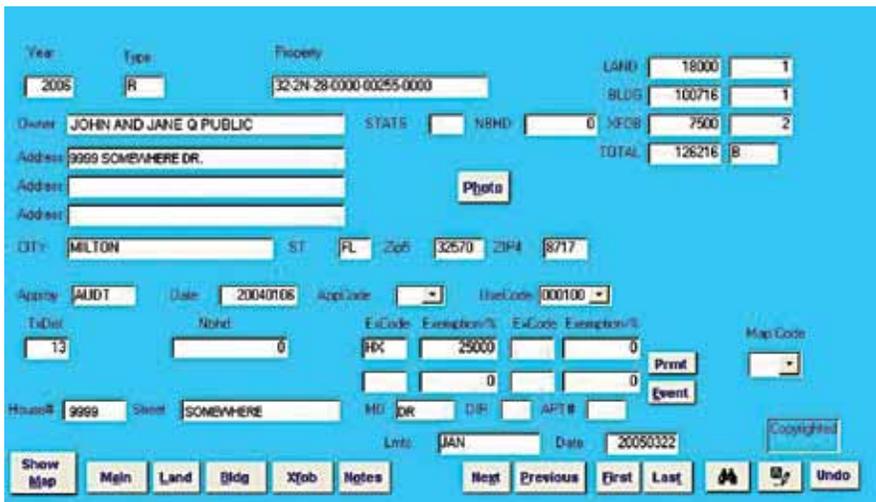


Figure 4. An individual property's data are tied to the parcel layer for easy access.

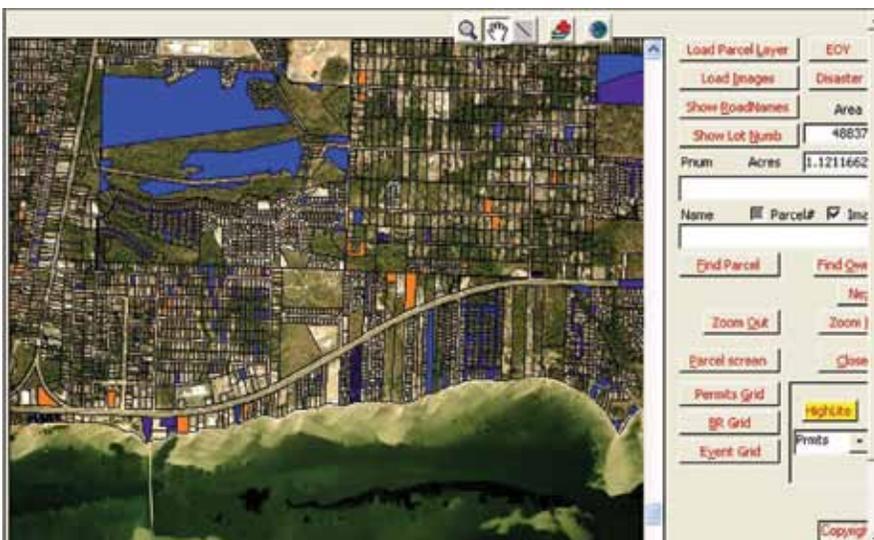


Figure 5. This parcel map shows color-coded permit information.

all relevant information and photographs, without going into parcel sequence.

- Automated Permit Review.** The FIT system enables routing of a building permit or building review to the field appraiser without human intervention. This is accomplished by entering the geographic area covered by each field appraiser within the system. Once the permit has an identifying parcel number, the system delivers the permit electronically to the appraiser responsible for that particular area. This greatly reduces the filing process and the opportunity for a building permit to be misplaced. The FIT system also tracks whether a parcel has been inspected in a reasonable time, which is 60 days after issuance for Santa Rosa County. This procedure allows us to view the inside of a structure before the improvement is finished.
- Error Minimization.** The FIT system has the ability to traverse a structure in the field and note any closure errors. All the available fields have drop down applications for ease of access.
- Auditing Improvements.** With FITS, there is no possibility of losing a permit, and once the permit is entered into the system, field supervisors can easily track it for auditing purposes. Also, parcels that require an audit can be color coded and prioritized accordingly. The State of Florida requires all properties be inspected once every three years. These annotated properties are noted as part of the field appraisers' work assignments for their area.
- Reporting.** The FIT system enables expedient, flexible, and robust reporting. For instance, the data can be categorized by taxing districts, market areas, use code type, value, damage assessment, and number of homesteaded properties. The upload process only takes two to three minutes per tablet and thus data is quickly available for reporting.

(continued on p. 25)

(continued from p. 8)

- **Proactive Workload-Capacity Measures.** The supervisor has the ability to determine where additional staff may be needed due to an increased number of building inspections before the area's appraiser falls behind in completing assigned tasks.
- **Cost Savings.** The FIT system creates immediate efficiencies and cost savings. In Santa Rosa County, two data-entry positions were reallocated to differing priorities immediately upon implementation of the FIT system. The workload for inspections has grown exponentially since Hurricane Ivan but instead of hiring additional personnel for field appraisals, the data-entry positions fill the gap. The efficiencies created in the field are monumental and help to minimize the number of additional appraisers needed as the county grows.
- **Property Photographs.** The FIT system contains photographs of properties like the one shown in figure 6. This feature enables field appraisers to view the photographs during their review process. This capability aided appraisers in making their damage estimates.
- **State-of-the-Art Hardware.** The FIT system utilizes hardware technology to store and process the information quickly. The tablet stores the CAMA data, MRSIDS maps files, the GIS layer overlays, and attached photo-

graphs with the ability to process this information instantaneously in the field. Santa Rosa County stores information for nearly 100,000 parcels with an immediate response time.

Service Aids Citizen Recovery

Following Hurricane Ivan, we enabled citizens to report damage to their property on the Property Appraiser's Web site. Each property owner's entry generated a building review for field inspection.

FITS once again proved invaluable when the state legislature passed a bill to provide reimbursement to damaged homestead properties. Most homes had already been inspected and were noted as uninhabitable or destroyed; thus the homeowner was not required to produce documentation because we had already completed it for them.

Additionally, our office took 2,383 ad valorem tax reimbursement applications from citizens whose homesteaded properties suffered enough damage to require displacement for 60 days or longer. The reimbursement application process took approximately two to three minutes for the homeowner to complete if we had already inspected the property and determined it was uninhabitable. We would then print an application for signature and a receipt copy for the homeowner. Without the FIT system and online capabilities, the process would have been arduous and frus-

trating for the already traumatized citizens.

We were also able to take our service to the next level by making it easier for citizens to report over the Internet. In addition to taking damage reports online as previously mentioned, we posted a change of address form and offered the ability to print the reimbursement form all from the Property Appraiser's Web site. These services were very important in a time when large numbers of county citizens lived in alternate or temporary residences.

Lessons Learned

Once we had the experience of putting our disaster plan into action, we discovered the missing elements. One shortcoming we experienced in our office was a lack of up-to-date aerial maps and complementing GIS information. One of the major causes of damage during Hurricane Ivan was the storm surge. It is estimated that the surge reached 16 feet in some areas and was accompanied by wave action that had a devastating effect on structures. Our county's major Interstate connector was impassable because entire sections were destroyed; one can image the impact on a residential home. It would have been an asset to use GIS information containing X, Y, and Z coordinates or having elevation notation to identify the areas that potentially suffered storm surge.

Another difficulty was that the storm surge had turned many homes into what we called doll houses. The front of the building looked perfectly intact, but the back of the home, and often the contents, had been completely swept away. It took days before we could drive down some of the streets. It would have been helpful to have aerial reconnaissance. A review from the sky could have revealed which areas to target first for damage assessment.

Finally, although we were able to calculate an overall damage estimate fairly quickly, the total did not include governmental or tangible properties. These items, however, should be in-



Figure 6. The photographs of individual properties available through the FIT system proved particularly useful during damage assessment in the field.



The fronts of homes did not always reveal the extensive damage behind and within the house.

cluded. A recent on-site inspection with measurements of these property types should be available with an up-to-date value assigned prior to a disaster.

Expected Impacts vs. Reality

When Hurricane Ivan hit Santa Rosa County, it was the 10th fastest-growing county in the state and the 78th in the nation. Our values were increasing at a rapid rate. With all

the devastation that accompanied this category-three hurricane, we had expected property values to drop. Just the opposite occurred. For example, as a result of Hurricane Ivan, the opportunity to purchase waterfront property increased. Many older and less expensive homes were destroyed, paving the way for people to purchase the vacant property for rebuilding of new waterfront homes.

The shortage of rental homes or homes available for purchase drove the average sale price of single-family residences up nearly 20% in three months. Supply-and-demand economics was in full force after Hurricane Ivan. With a large number of residential homes destroyed, many families displaced, and torrents of relief personnel needing temporary dwellings, the remaining housing supply was quickly absorbed. Thus, one can't assume a decline in value because of a devastating event.

Disaster Plan Revisions

A review and assessment of our crisis plan following Hurricane Ivan resulted in some plan improvements which we put in place prior to Hurricane Dennis in 2005. The FIT system was invaluable post Ivan, but because its implementation had jumped from development straight to production, we did not pre-populate pertinent data into the relevant screens. We used multiple screens for a single assessment, and there was no standardization of estimates of damage.

Quickly seeing the need to streamline these processes, we populated all data including the ability of the appraiser to choose the appropriate selection for each data point. We assigned percentage of damage standards prior to the storm. For example, 5% is loss of roof shingles; 10% would be roof damage; 25% included more external damage; and 50% and above was considered extensive damage and constituted a total loss. Santa Rosa County utilizes a 50% rule that requires buildings with more than 50% damage to be rebuilt to current, often more stringent, building code standards. All of this data is uploaded and calculates the overall damage assessment, which can be categorized in numerous ways. An example of the information the disaster form contains is shown in figure 7.

In addition, we are developing our reporting methods to track workforce capacity and efficiencies. Our field department requires that an inspection on all issued building permits be performed within 60 days of issuance.

Figure 7. Damage assessment experience gained during Hurricane Ivan led to the development of this FITS disaster form which codifies the level-of-damage percentages and allows real-time property value recalculations.

All permits are color-coded and those requiring a higher priority for exceeding the 60-day limit are coded accordingly. Also, an appraiser can enter a future inspection date into the system and this information will be available for all relevant reports. We are planning for each supervisor, along with each appraiser, to receive a report on all properties that have not been inspected within the required time period. This will aid the supervisor in determining whether an area needs additional assistance in field inspections. We believe these reports will increase productivity, improve communication channels, and ensure a timely and proactive process.

Another improvement was the move to a distributed model for uploading and downloading of field appraisal data. Appraisers can now perform the upload/download process themselves without assistance from already much-in-demand information technology personnel.

Conclusion

The incredible destruction our county

experienced did not go unnoticed; and in many ways, Hurricane Ivan set the stage for national awareness of the devastating effects of hurricanes. Federal and state legislative agendas are beginning to include funding for crisis management. It is now understood that local natural disasters produce effects that are far reaching and indeed become national problems. More than ever before we must work together to prepare not only the Gulf Coast communities, but the nation, for the uncertainties and havoc unleashed by Mother Nature.

It is certain that the landscape of Santa Rosa County will be forever changed by the ravages of Hurricane Ivan. However, the human spirit, tenacity, and steadfast resolve of the citizens of this county will always be an inspiration to those of us working in damage assessment. The experience not only taught us professional lessons but humbled us to be better public servants, to remember and rekindle our calling to focus on public service, and to strive for excellence in all that we endeavor. It served as a reminder that as

constitutional officers of our respective counties, we must be visionary, we must be leaders, we must be committed, but above all, we must be prepared. ■

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The following brief excerpt is reprinted from the National Oceanic and Atmospheric Administration (NOAA) Web site and is a publication of the NOAA Central Library.

Alexander Hamilton, first Secretary of the Treasury of the United States, aide-de-camp to General George Washington during the Revolutionary War, and recipient of a fatal bullet in a duel with Aaron Burr, was fifteen years old and living in the town of Christiansted, St. Croix, when the great hurricane of August 31, 1772, struck the island. From Hamilton's description, the eye of this storm passed directly over Christiansted. The following is excerpted from a letter written by Hamilton to his father on September 6, 1772.

Honored Sir,

I take up my pen, just to give you an imperfect account of one of the most dreadful hurricanes that memory or any records whatever can trace, which happened here on the 31st ultimo at night. It began about dusk, at north, and raged very violently till ten o'clock. Then ensued a sudden and unexpected interval which lasted about an hour. Meanwhile the wind was shifting round to the south west point, from whence it returned with redoubled fury and continued till nearly three in the morning. Good God! what horror and destruction—it's impossible for me to describe—or you to form any idea of it. It seemed as if a total dissolution of nature was taking place. The roaring of the sea and wind—fiery meteors flying about in the air—the prodigious glare of almost perpetual lightning—the crash of falling houses—and the ear-piercing shrieks of the distressed were sufficient to strike astonishment into Angels. A great part of the buildings throughout the island are leveled to the ground—almost all the rest very much shattered—several persons killed and numbers utterly ruined - whole families wandering about the streets, unknowing where to find a place of shelter—the sick exposed to the keenness of water and air—without a bed to lie upon - or a dry covering to their bodies—and our harbors entirely bare. In a word, misery, in its most hideous shapes, spread over the whole face of the country....

In: *The Virgin Islands Our New Possessions and the British Virgin Islands.* by Theodoor De Booy and John T. Faris. 1918. Philadelphia: J. B. Lippincott Company. 205-206.