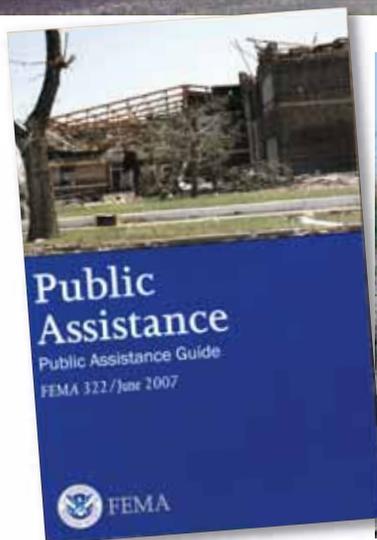


# KATRINA & BILOXI

## THE TAKEAWAY

A capsule examination of Biloxi's encounter with Hurricane Katrina

April 2012



Biloxi/Ocean Springs Bridge

### Preparation is the key

When Hurricane Katrina came ashore on Aug. 29, 2005, Biloxi was better prepared than at any other time in the city's 300-year history.

In April of that year, just as we do two months before hurricane season each year, we initiated a series of internal and external meetings to discuss hurricane preparedness for the upcoming hurricane season. Included in the planning are a review of the previous year's storm activity and an evaluation of the local response.

We updated internal and external emergency contact lists, procedures, and contingencies.

In fact, in 2005, our preparations included public outreach notices that the 2005 storm season was shaping up to be a record-breaking year in numbers of storms and their severity. We advised residents and business owners to take the same action as the city – to prepare, to have a storm plan and to follow that plan.

The city was one of the first local governments in the Southeast to have a FEMA-approved pre-storm plan in place, which included a so-called 70-hour "push contract," where a contractor was on standby to clear major public thoroughfares of debris to allow access for emergency vehicles and first responders. The plan also included a

permanent debris removal contract, and a contract for debris-removal monitoring.

Additionally, the city had purchased a \$10 million business interruption insurance policy, another first of its kind in Mississippi, that would replace up to six months of gaming revenue lost because of a storm.

The city's storm plan was overwhelmed by the catastrophic storm.

### What we saw

Twelve hours of driving wind and rain. Pounding waves from a 28-foot-plus storm surge that inundated three-quarters of the Biloxi peninsula.

More than 5,000 of the city's 25,500 homes and businesses were destroyed. Debris covered nearly every stretch of the Biloxi peninsula.

Fifty-two people were killed in Biloxi.

Electrical service was out for most areas of the city. A handful of city facilities that had generators – the Lopez-Quave Public Safety Center and all but two of the city's eight fire stations – were operating from generator-supplied power.

Phone service – landlines and cellular service – was sporadic at best. Police and fire radios and the city's 911 dispatch centers at the communications center and the backup at our

EOC kept our own public safety personnel in contact with each other, but the radio frequencies were not networked with other law-enforcement agencies. This was a handicap when out-of-state agencies arrived in town.

On the day after Katrina, every one of the city's 114 wastewater pump stations, devices that pump sewage from neighborhoods to the city's three wastewater treatment facilities, were out of service.

Two of the three wastewater treatment plants sustained major damage.

In the sweltering days after Hurricane Katrina, amid the fields of debris where neighborhoods once stood, hundreds of water pipes once connected to homes were spewing water. Since the city's two-dozen water wells were down or destroyed in the wake of the storm, this meant the water was draining from the city's water towers and not being replaced.

Members of the Biloxi Fire and Public Works departments, many of whom saw their homes destroyed or severely damaged, faced the staggering task of capping each of these leaking pipes, which were crippling the city's water pressure, and, thus, diminishing the city's firefighting capability. Additionally, broken gas lines increased the danger of explosions.

**About this report** – David Staehling, Biloxi's Director of Administration, presented this report to the annual conference of the Southern Consortium of University Public Service Organizations, a gathering held in Biloxi on April 3, 2012. This particular report was drafted by Biloxi Public Affairs Manager Vincent Creel, who reviewed testimony Staehling provided to the U.S. Senate Committee on Homeland Security & Governmental Affairs in January 2006, a mere five months after Katrina. For detailed information about Biloxi and Katrina, and the city's continuing progress visit online at [biloxi.ms.us](http://biloxi.ms.us)

*The view from City Hall on the afternoon of Aug. 29, 2005.*

# Public Assistance

Public Assistance Guide



Federal Emergency Management Agency  
FEMA 322



*A block south of City Hall, on Water Street of all places, the impact of the wind and water was evident.*

## What we did

Public Works personnel and the city's stand-by contractor used heavy equipment to clear major thoroughfares for emergency vehicles and those helping to coordinate utility repairs.

Police and fire personnel, aided by Florida Urban Search and Rescue teams, performed search and rescue and recovery operations. During these operations, Fire and Public Works personnel capped broken water lines amid debris.

Public Works personnel assessed damage to city water wells and lift stations. In many cases, bypass pumps were used for lift stations and portable generators were used to operate municipal water wells. Purchase or lease of temporary emergency equipment, as well as temporary stabilization measures such as fencing or securing, were coordinated with FEMA.

Community Development personnel performed windshield damage assessments for four-, 12- and 48-hour reporting thresholds. This information is vital to disaster declarations.

City administration reported damage levels to the public and to minimize the threat to public safety and public health, access was initially limited to areas of the city, primarily east Biloxi and along the front beach.

The next priority was infrastructure repair and maintenance to public utilities, (i.e., water, electrical, communication and sewer systems). The city immediately implemented Incident Plan activities with Harrison County, FEMA, MEMA, Salvation Army, and Red Cross to assist our response to the civilian population by providing food, shelter, water and ice.

This multi-disciplined effort was coordinated through a joint field office at the Harrison County Emergency Operations Center. This initial response brought stability to public health and safety issues, as well as a level of coordination needed to assist the civilian population.

The city, which had set up its own temporary feeding station for public safety workers, also assisted the Red Cross and Salvation Army in site location and coordination of the necessary utility hookups for their relief operations. The city communicated with MEMA, FEMA and SBA to stand up two disaster relief centers for Biloxi. These Disaster Relief Center operations provided grant funds, temporary housing assistance, unemployment compensation, social security assistance and technical advice on assessing other emergency entitlements.

Information about emergency services and the status of vital functions, such as water

service, was communicated to residents through newsletters distributed by relief workers and emergency personnel.

## The big-ticket items

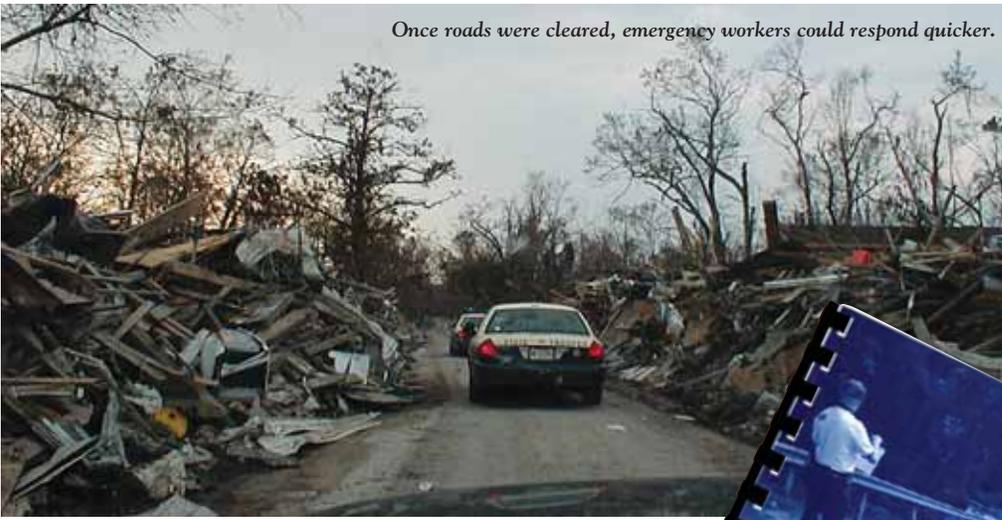
Because of the catastrophic impact to the city's tax base – resulting in a 60 percent loss of revenue – Biloxi notified FEMA of the city's intent to apply for Public Assistance and began immediate dialogue with FEMA's assigned Public Assistance Coordinator.

The city then began a massive damage assessment initiative that consisted of the identification of damaged assets, full descriptions of damages incurred, scope of work necessary to repair damaged assets, and cost estimates.

Where appropriate, and under the guidance of FEMA, the city applied for the use of 404 and 406 Hazard Mitigation Grant Funding to promote measures that would reduce future loss to life and property, protect federal investment in public infrastructure, and help rebuild disaster-resistant communities. The damage assessment was segregated into four categories:

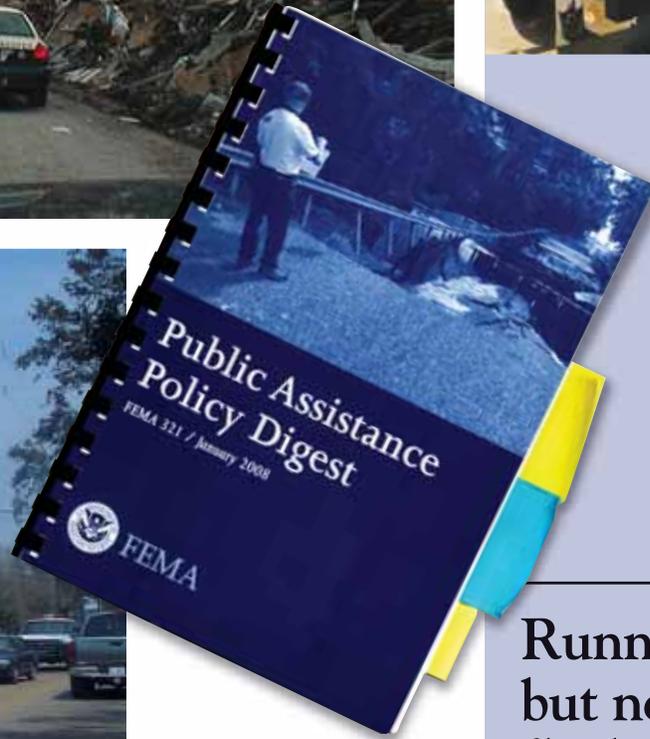
1. Water/Sewer, Drainage
2. Streets/Roads/Traffic Signals
3. Marinas/Piers/Harbors
4. Public Buildings/Facilities/Parks/Recreation Fields

Once roads were cleared, emergency workers could respond quicker.



Bypass pumps were put into service where Katrina's storm surge destroyed the electrical panels and pumps that drove the pump stations. Note the elevated platform in the background of the photo. Obvious question: So why are these pump stations placed in harm's way, so near the Biloxi beach? In order to be effective, they must be situated at or near the lowest point. The city is reducing the number of pumping stations and hardening those that must remain in harm's way.

Once streets were cleared, utility crews could begin to replace power poles and restore electricity to those who could receive it.



## Running water, but not for flushing commodes

Residents dealing with the immediate aftermath of Katrina could tell their electricity was off because when they flipped the light switch, nothing happened. The room remained dark.

Knowing that there was a problem with the public water and wastewater systems was not as evident to John Doe Homeowner. Many still had faint water pressure, and if they flushed the toilet it might actually flush. Or, to their horror, it might back up or create more problems for their neighbors.

One of the city's immediate challenges was to educate residents on the basics. They would have to be told not to drink the water until the city had given the OK, which would come after samples were tested. They also would have to be told how to go to the restroom.

Said the city in newsletters and media interviews:

"Although water service is being restored to parts of the city, residents must refrain from flushing commodes because of heavy damage to the city's wastewater system.

"Tip for using the restroom: Place a plastic supermarket bag in the bowl of your commode, with the handles of the bag overhanging the rim of the bowl. After use, tie the handles of the bag and drop it into your blue BFI trash receptacle."

The City experienced a major transportation challenge immediately after the storm. U.S. 90, the city's major east-west corridor, was virtually destroyed and two of the three major bridges to the Biloxi peninsula were either destroyed or sustained significant damage. For the Popp's Ferry bridge, which was maintained by the city, city leaders immediately contacted the Federal Highway Administration, the Mississippi Department of Transportation and FEMA for public assistance and technical advice. The result was procurement of engineering services to provide design and construction repairs through a competitive request for proposals. These projects were fast-tracked under the oversight of FHA and MDOT, and bids were received and contracts executed to allow reconstruction of those direly-needed transportation roadways.

### Among the lessons learned:

- Enhanced elevation of new construction; hardened existing structures.
- Continue to have FEMA-approved push and debris removal contracts in place before each storm season.
- Continue to have FEMA-approved debris-monitoring contract in place before each storm season.

- Continue business interruption insurance to protect largest revenue stream.
- Disperse heavy equipment and other vehicles to higher elevations at strategic areas of the city, considering the possibility of bridge outages.
- Upgraded generators at city locations and added generators at more locations.
- Key public safety employees must submit annually updated storm plans for their families, listing evacuation plans, contact numbers, etc.
- Continue arranging for post-storm fuel and other supplies, including emergency contact information for key vendors.

### Know the rules

Biloxi was careful to submit proper documentation and accounting on all damage evaluations and procurement of services to ensure reimbursement from FEMA. The City could not possibly survive on a long-term basis without federal reimbursement of all categories. Biloxi went to great lengths to ensure complete compliance with all policies, procedures and regulations required for federal assistance.

In short: know what FEMA wants and how it wants it.



# Storm Recovery News

September 2005

FOR UPDATES, CALL THE RECOVERY INFO LINE AT 435-6300

## BILOXI IS COMING BACK

My fellow Biloxian:  
It's been 18 days since Hurricane Katrina devastated Biloxi and our neighboring communities, and I want to say how proud I am of the way our city employees and our city residents have handled this crisis.

Employees in the Biloxi Police, Fire and Public Works departments were on the job before, during and since the storm, and, in many cases, neglecting their families and personal losses to focus on the safety and welfare of the citizens of Biloxi. All city departments and available offices are working as part of the recovery effort.  
The City Council and I



churches have reached out to their congregations; civic and community groups have made donations of clothing, cash and food; and social service agencies such as the American Red Cross and Salvation Army have set up aid stations to help the needy.

As Bishop Thomas Rodi told our city workers during a service the other day at the Lopez-Quave Public Safety Center: "This is a time when you all become instruments of God, when He performs His work through you."

Just as our ancestors did in generations before us, we are overcoming the huge challenge of recovering from an unprec-

### Chúng ta đang đương đầu với những thử thách hàng ngày

Thưa quý vị,  
Đã gần 100 ngày trôi qua kể từ ngày 29 tháng 8, ngày mà chúng ta nhìn thấy cuộc sống cách sống và thành phố thân yêu của chúng ta thay đổi mãi mãi.  
Chúng ta tiếp tục lên tiến trên nhiều vấn đề xây dựng lại nhà cửa, một số doanh nghiệp thương mại đã xây dựng lại và mở cửa hoạt động.



Việc sửa chữa những xe ô tô và cầu chôn công đang tiến triển tốt, và hàng trăm công nhân thu dọn đống sáo hàng tấn vỏ gạch vụn khỏi những đường phố và khu dân cư nhân khắp thành phố. Các công ty, nhà thờ, hội đoàn và cá nhân từ những thành phố trên khắp nước vẫn dẫn đưa từ Biloxi những thiện nguyện viên và vật liệu xây dựng.

Tôn thần vroom lên của thành phố chúng ta đã khuyến khích những cá nhân tốt bụng này. Từ sự nỗ lực vroom lên và chúng ta sẵn sàng đương đầu với thử thách.

Biloxi đang trở mình - lớn hơn và tốt hơn. Thử thách lớn nhất hiện nay là phải cân bằng giữa những vấn đề hàng ngày và việc hoạch định cho một sự khởi phục lâu dài.

Chúng ta nhận thức được những vấn đề trước mắt - nhà ở tạm, giao thông trên những xa lộ bị hạn chế đi lại, khôi phục những phương tiện cần thiết. Chúng ta cũng đối đầu với công việc áp dụng những chủ nhà ở khu đất ngập lụt nhưng đồng ý công nhận giảm thiểu mức độ của tổn hại trong.

Để nhận vấn đề quan trọng nhất là chúng ta cần phải công bằng nhất về một vấn đề cảnh sát trong tương lai của thành phố. Kế hoạch này phải bao gồm và cũng có những sinh chất mà sao năm qua đã làm cho thành phố Biloxi một nơi thật đặc biệt - và chúng ta tiếp tục duy trì chúng cho những thế hệ con cháu.

Vấn cảnh này phải tạo ra những đường từ phần vũng và sử dụng đất đúng đắn để bảo vệ và phát huy sự hấp dẫn của một thành phố như Biloxi cũng như cuộc sống tuyệt vời mà chúng ta trân trọng.

Tập trung nhất trên kế hoạch này là một công việc khó khăn, nhưng hãy nhớ rằng chúng ta đã biến thành phố Biloxi thành một nơi mà chúng ta đã biến thành một sự kiện đặc biệt. Chúng ta đang ở vào một vị trí chưa từng có và sẽ tiếp tục nhận được sự ủng hộ của chúng ta và sự phấn khởi của chúng ta về một phần nhỏ của sự cố gắng và tình thân ái khắp của người dân Biloxi trong ngày tháng qua đã làm cho tôi rất tự hào được phục vụ trong cương vị thị trưởng của quý vị.

Thượng Đệ ban phúc lành cho quý vị và cho Biloxi.

A.J. Holloway  
Thị trưởng A.J. Holloway



## Bản Tin Khôi Phục

### Thành phố dọn vôi gạch



Bảng thông báo trên một khu vực Point Cadet nơi mà các công nhân dọn vôi gạch vụn đi khỏi.

Hơn một triệu thước tây vuông các vỏ gạch vỡ của bão Katrina đã được dọn ra khỏi các đường phố và khu vực của Biloxi và những khu nhà nào vẫn còn có vỏ gạch vỡ thì chúng tôi khuyến khích chủ nhà ký một bản đồng ý cho phép thành phố vào dọn dẹp chúng.

Thành phố đã hoàn tất 2 trong 4 vùng quét dọn trên toàn thành phố và tiến trình quét dọn với Point và Holly Hills đã bắt đầu với dự định là sẽ vào dọn dẹp các tư gia ở trên khắp thành phố khi tiến trình này tiếp tục.

Mặc dù các đội dọn dẹp vỏ gạch vỡ đã dọn được hơn một triệu thước tây vuông - đủ để đổ đầy một sân football cao lên đến 47 tầng nhà - thì khoảng 3 triệu thước tây vuông vẫn còn lại.

Ngày một tuần kể từ khi họ bắt đầu công việc từ ngày 7 tháng 8, Holloway nói, "và tôi tự hào về những công việc họ đã làm, nhưng chúng ta vẫn còn nhiều công việc ho ta sẽ tiếp tục cho đến chúng nào xong việc làm. Chúng tôi theo kế hoạch dọn dẹp của thành phố thì có khoảng từ 30 đến 50 đội quét dọn bắt đầu khi những vỏ gạch vụn." Cải thiện môi trường vỏ gạch vụn trang 6

### Các khu giải trí sông bãi dự định vào tháng 12

Thị trưởng A.J. Holloway tuyên bố rằng kỹ nghệ giải trí sông bãi của thành phố, thu hút hàng triệu du khách và hoạt động lại trong vòng việc làm ở Biloxi, sẽ bắt đầu mở cửa vào tháng 12.

Holloway nói cuộc bàn thảo với các công nhân sông bãi ở Biloxi rất đáng khích lệ.

Thị trưởng A.J. Holloway

# Communication is essential

One of the most important steps in getting the city up and running was a constant flow of information to residents. We told them what we knew, what we didn't know, and what we were working on. When we couldn't offer help, we offered hope. In the beginning, we printed one-page newsletters, "A New Day," on copy machines, and had them distributed by Red Cross and Salvation Army staffers, and by police officers. Thirteen days after the storm, we published "Storm Recovery News," a four-page newsletter that the Postal Service delivered to temporary postal boxes it had set up. It contained a Q&A on recovery issues, an explanation of the search and recovery operations, and a general update on the progress in restoring day-to-day services. The constant flow of information through the local media and newsletters helped Biloxi residents realize that city government was continuing to operate, and work was being done to restore services.



- Mayor A.J. Holloway
- and the Biloxi City Council
- George Lawrence
- William "Bill" Stallworth
- Lucy Denton
- Clark Griffith
- Tom Wall
- Edward "Ed" Gemmill
- David Fayard



**A New Day**  
HURRICANE KATRINA RECOVERY NEWS FROM THE CITY OF BILOXI

My fellow Biloxian:  
I'm writing to provide information to help you deal with the issues that we are all facing after the aftermath of Hurricane Katrina. The most important thing for you to know is your city workers, police, fire, public works, and ALL departments - are on the job and working tirelessly to provide life-sustaining supplies and assistance to you and your neighbors.

Additionally, President Bush toured our city Friday and has promised the full resources of the federal government are being marshaled to bring aid to our community. Meantime, we must remain patient and understanding - streets being cleared, supply lines being restored, and improvements - streets being cleared, supply lines being restored.

You can already see improvements - streets being cleared, supply lines being restored. You can already see improvements - streets being cleared, supply lines being restored.

Since Katrina made landfall 100-plus hours ago, our neighbors. You can already see improvements - streets being cleared, supply lines being restored.

And keep this one final thought in mind: The city and its citizens have endured obstacles over the years, and this storm is providing an opportunity for us to again show the unparalleled resilience of this community. Keep the faith, and God bless you.

Water system still cri...