Tropical Storm Isaac Flood Event
Pathfinders Task Force

AFTER ACTION REPORT

On August 25th, in preparation for Tropical Storm Isaac, Governor Rick Scott declared a State of Emergency in Florida. Isaac was a large Atlantic weather system that caused extensive flooding to roads and properties in Western Palm Beach County (PBC).

Within 75 minutes of its tasking on August 29th, a Pathfinders Task Force (PTF), Type V team arrived at Palm Beach County Fire Station 28 for its initial briefing. PTF was tasked to support this Incident Command Post (ICP) during its response operations, in conjunction with Palm Beach County's Division of Emergency Management.

The Pathfinders Task Force maintained situational awareness of field operations and conducted statistical analysis of field information. As response turned to recovery, PTF stood down after its 4th Op period at the ICP. This After Action Report summarizes the operations conducted by PTF and includes sample data and photos collected during the response.

| Palm Beach County Division of Emergency Management | Palm Beach County Fire Rescue | Palm Beach County Sheriff | Florida Fish and Wildlife Conservation Commission |

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Operations

**Sample, interactive, Google Earth Map - showing field assessments
conducted with the Pathfinder Rapid Assessment System**

Executive Summary

A PTF crew arrived at PBC Fire Station 28 for its initial briefing within 75 minutes of its tasking. The following morning, after performing a hi-tech upgrade of the ICP, PTF began live monitoring field operations using the Pathfinder Rapid Assessment System (PRAS) (simple cell phones with software which map and track users - without any cell towers (if unavailable)).

Twenty brush trucks, four high wheeled buggies, thirteen 4 x 4 trucks, two airboats, eight fire engines, and ten rescue trucks were mobilized to assess flood damage and meet unmet needs of the homebound, vulnerable population. At the start of each Op period, PTF rapid trained responders from PBC Fire Rescue, PBC Sheriff's Office, Florida's Fish and Wildlife Commission, and PBC Environmental Resource Management on how to use the PRAS units in the field. Several PTF field trainers then accompanied these crews during the Op period.

The ICP's response crews submitted over 125 time/date stamped field observations per hour on the PRAS units, coupled with hundreds of geotagged photos. The ICP Command staff made use of the embedded PTF's tech specialists to monitor operations and respond to unmet needs, relying upon PTF's live and interactive mapping in the ICP. As the operations progressed, responders were also performing survivor contacts, reaching out to the most impacted communities to make affirmative contact with survivors and documenting any unmet needs or special conditions. These unmet needs were resolved by responders who delivered emergency relief supplies to these individuals who were trapped in their houses by the floodwaters.

All of these operations were documented by PRAS. The ICP's Command used the live Intel to shift resources to the communities in the greatest need of humanitarian assistance as the floodwaters began to recede. With one extra PTF tech specialist added to the Type V team for the first two days, PTF helped maintain situational awareness of field operations and conduct statistical analysis of the incoming field photos and forms. The ICP's Command, including its Incident Command, Ops Section, Planning Section Chief, Documentation Unit Leader, PZ&B Liaison Officer, Safety Officer, and Public Information Officers, collectively asked the PTF tech specialists for roughly hourly updates on a host of field intelligence as the local Command became more aware of PTF's capabilities. This part of the PTF team ensured that all data collected in the field was efficiently distributed to the ICP's Fire Command in a timely manner, which in turn provided actionable information when it was needed the most.

Field crews documented 4,000+ floodwater assessments, survivor contacts, unmet needs surveys, and humanitarian aid missions over the course of three operational periods. As response turned to recovery, PTF stood down after its 4th Op period at the ICP.

Though this was a short operation for PTF in its 12 year history, the PBCFR Command and the ICP's field responders collectively were exceptionally good at rapidly integrating and making use of the PTF team. This AAR summarizes the Lessons Learned from PTF Isaac, including the Major Strengths as well as Areas for improvements for any future collaborative responses.

Pathfinders' Lessons Learned

A. Major Strengths

1. Being briefed at the ICP by Command <u>within 75 minutes</u> after tasking was a first.

2. The response protocols of a Type V Pathfinder Liaison Team were validated.

3. Rapid integration by PBC Fire Rescue's local Command staff allowed for the Pathfinder Rapid Assessment System (PRAS) to be efficiently implemented quickly.

4. The synergy among responders from PBC Fire Rescue, PBC Sheriff's Office, Florida's Fish and Wildlife Conservation, PBC ERM, and the Pathfinders Task Force ensured efficient use of the PRAS technology.

5. Imbedding IT personnel in Station 28's ICP improved the efficiency of creating sit-rep reports, and improved situational awareness of the local Fire Command.

6. The operation validated PRAS's ability to provide real time situational awareness of humanitarian aid, floodwater assessments, and survivor contacts.

7. PTF's three large television monitors and 6-screen display monitor provided instant access to field Intel to the ICP's Command.

8. Rapid Training sessions were conducted quickly and efficiently. The responders were very receptive to documenting their field activity using the simple, PRAS, cell phones.

9. The check in and check out of all PRAS units was quick and efficient.
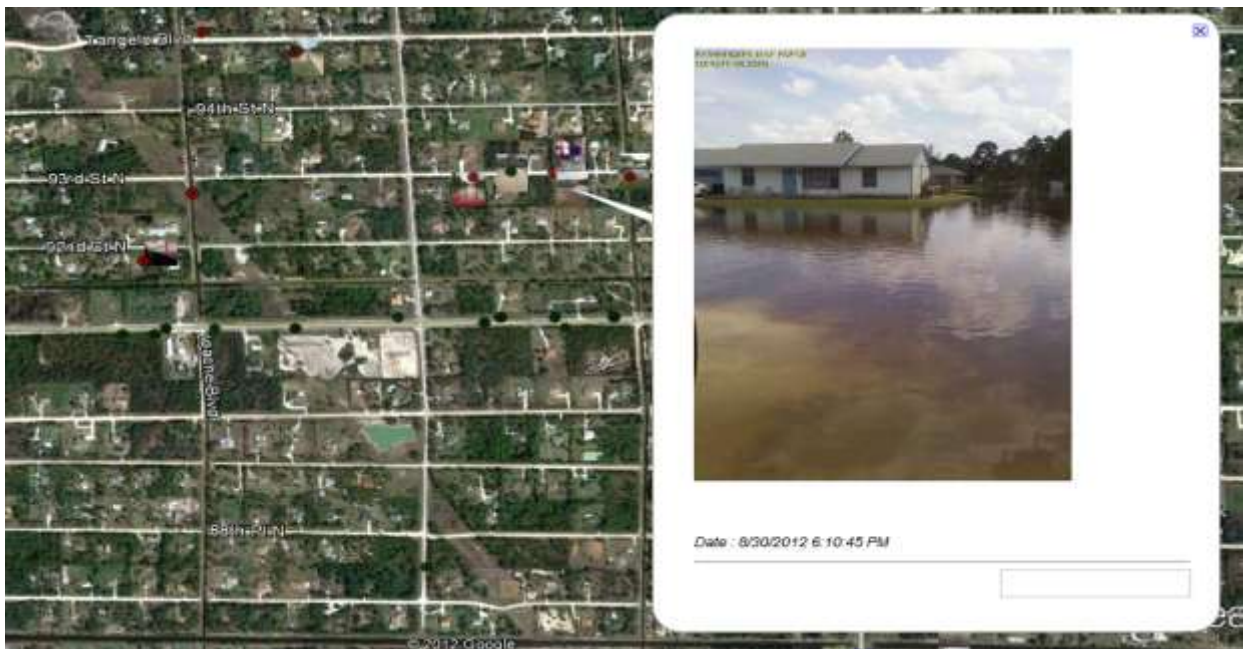
A sample, interactive, zoom view from the ICP of a field time/date stamped form with a geotagged photo on a Google map view

A. **Major Strengths – con't**

10. PTF Executive Summaries from the previous Op period distributed to responders assisted during training sessions and helped motivate ongoing use of the technology.

11. PBCFR Liaison with Planning Building and Zoning was exceptional and had engineering personnel quickly integrating PRAS' GIS data on first day of field operations.

12. PRAS auto-storing 4,000+ forms with location data (lat/long) in two formats (Decimal degrees, Degrees-minutes-seconds) ensured seamless GIS integration.

13. On its fourth Op Period, PTF was able to quickly adapt to changing documentation requirements on the phones, incorporating a new set of forms (Rapid Impact Analysis) in under 30 minutes.

14. Response personnel were able to quickly adapt to new forms during a rapid training session, with a notable, ten-fold escalation in the number of forms submitted.

15. On their own initiative, Safety and PIO Command personnel incorporated PRAS information into safety briefings and PIO releases as live field Intel flowed into the ICP.

16. The ICP's PIO and Command assistance with drafting summaries was exemplary.

17. The Planning Section and Documentation Unit requested almost updates hourly on real time field information from first responders, and embedded PTF tech specialists reacted well. PTF was described as becoming the "eyes and ears" of the ICP.

18. Issues with PBC EOC GIS Systems were resolved in less than 5 minutes of troubleshooting with the face to face assistance of a PTF tech specialist at the EOC.

19. County IT staff was cooperative and helpful in establishing wireless internet connections.

20. The PTF Lead met with five ICP Command Staff to debrief following PTF operations and solicited input for the strengths and areas of improvements listed here.

21. The local deployment ensured the quick response time and validated the model of relying upon local small businesses in a response phase.

While the ICP's Deputy Ops was fielding phone inquiries about an oil spill, this geotagged photo live streamed across the PTF monitors, allowing the ICP Command to instantly view the scale of the spill.

B. **Areas of Improvement**

1. Integration of PRAS' new Smart and Dumb phone software does work but needs additional testing to accommodate more verifiable, accurate mass data inflows.

2. On the third day regarding the use of the PTF field data, it became apparent that a gap in communications existed from the ICP to the EOC.

3. In any future response, the flow of information and/or feedback from the EOC back to PTF needs improvement.

4. Rapid training sessions of Pathfinder Rapid Assessment System should be accompanied with a short, concise operational manual – a "cheat sheet."

5. The 15 minute, rapid training sessions were completed faster when waiting responders assisted in the PRAS sign-out process. Need to implement from the start.

6. PRAS units shifting between areas of cellphone reception and disconnected environments led to occasional delays in documentation.

7. A decline in total number of forms submitted on Field Operations Day 2 was the result of not having proper documentation requirements ahead of time (Rapid Impact Analysis form). When the new forms were integrated, the data jumped dramatically.

8. For future responses in PBC, immediate access to the PBC internet portals would help substantially as the initial operations relied upon PTF's own MiFi unit alone.

9. Having large GIS maps with PTF data on the weekend would have been helpful to Command.
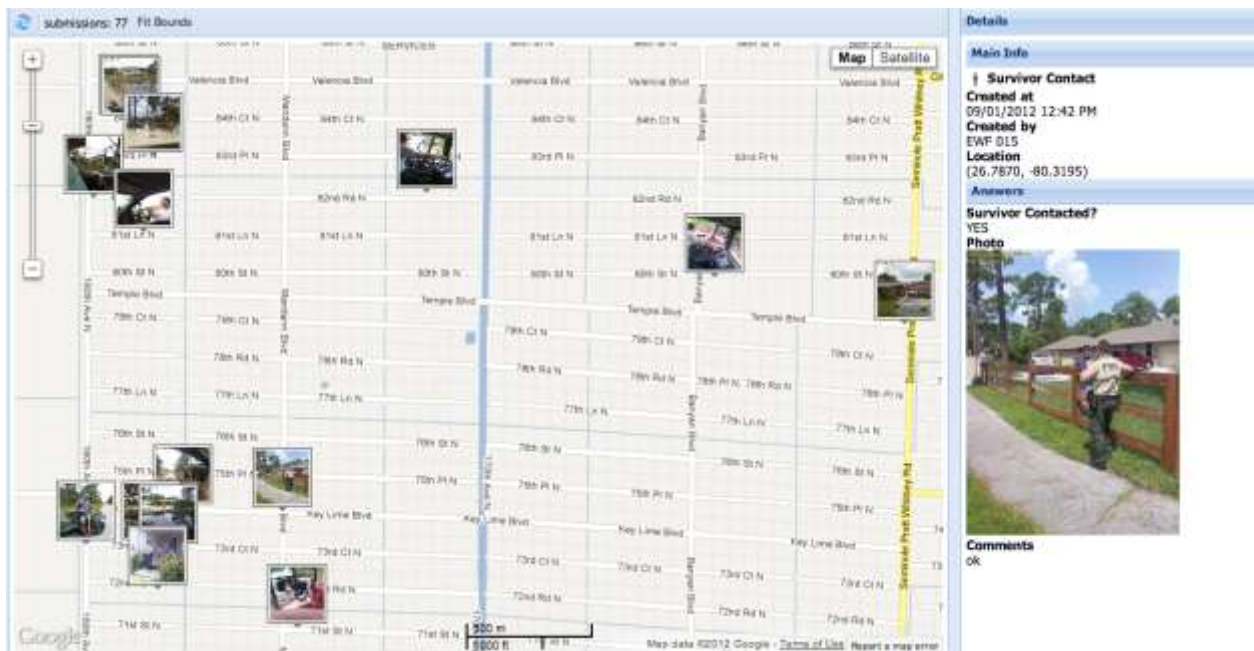
Time/date stamped photos documented survivor contacts by responders both for accountability and the ability to rebut claims of any lack of service by responders

Humanitarian Aid Missions

The ICP's response personnel used PRAS to document Humanitarian Aid Missions following Isaac. Homebound survivors who were identified to have significant unmet needs received emergency relief supplies at their doorsteps over the course of several days.

Floodwater Assessments - Property

PRAS was used to geocode a total of 3,850 floodwater assessments throughout Western Palm Beach County. Residential neighborhoods were surveyed by responders and all the information was automatically time/date stamped and geocoded at the location of the survey. Excel sortable lists were shared with Command both on request and at the end of each Op period. KMZ files also were exported by PTF tech specialists, allowing rapid integration into PZ&B's own GIS unit, which in turn supplied large field maps for the ICP's Command.

Hundreds of homeowners found to be stranded by these encroaching floodwaters were documented and their occupants surveyed for unmet needs.

Floodwater Assessments – Roadways

The Pathfinders Rapid Assessment System was used to document roadways that were found to be impassable due to encroaching floodwater and were reported directly to PBC Fire Command.

About

Pathfinder Rapid Assessment System (PRAS)

The Pathfinder Rapid Assessment System is an application that is loaded onto PTF's cache of 300+ cell phones and used by first responders to document field operations in the 100% disconnected environment typically found post-disaster. Historical tracks, easily customized forms, and pictures can be entered without any cell towers or internet connectivity, and automatically are time/date stamped and geocoded.

This data was uploaded to the PRAS servers in the field was used to create Executive Summaries that concisely displayed maps, graphs, pictures, and data in a way that Emergency Management personnel were able to glance over an Executive Summary and attain complete situational awareness for any ongoing field operations. Google Earth integration made remote viewing with zoom and filter views easy to manage.
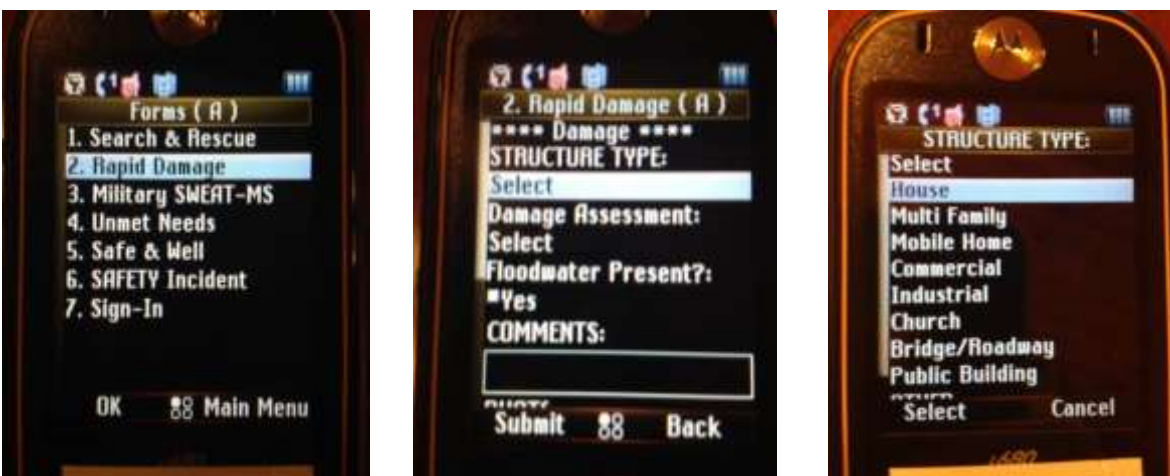
Sample views from PTF's cache of 300+ military spec. cell phones. PTF currently has a Beta version already published out of the Apple and Android stores for Smart phones.

The Pathfinders Task Force (PTF)

PTF is an all-hazards disaster response team based out of West Palm Beach. PTF specializes in mass care and situational awareness and has been tasked to several of the most catastrophic disasters in recent history, including Katrina, Floyd, Ike, Gustav, and Irene, the Haitian Earthquake, Deepwater Horizon (BP) Oil Spill, and the Japanese Earthquake/Tsunami.

PTF focuses on the coordination of local spontaneous volunteers to perform rapid damage and critical infrastructure assessments following catastrophic incidents, followed by door to door missions seeking out the unmet needs of the vulnerable populations of the homebound survivors. The Pathfinders Task Force is sponsored by a public-private partnership between The Eagles Wings Foundation, Inc. and Disaster Solutions, LLC.

For more information, see: www.pathfinders.cc or call (561) 389-9667 or (202) 681-5205