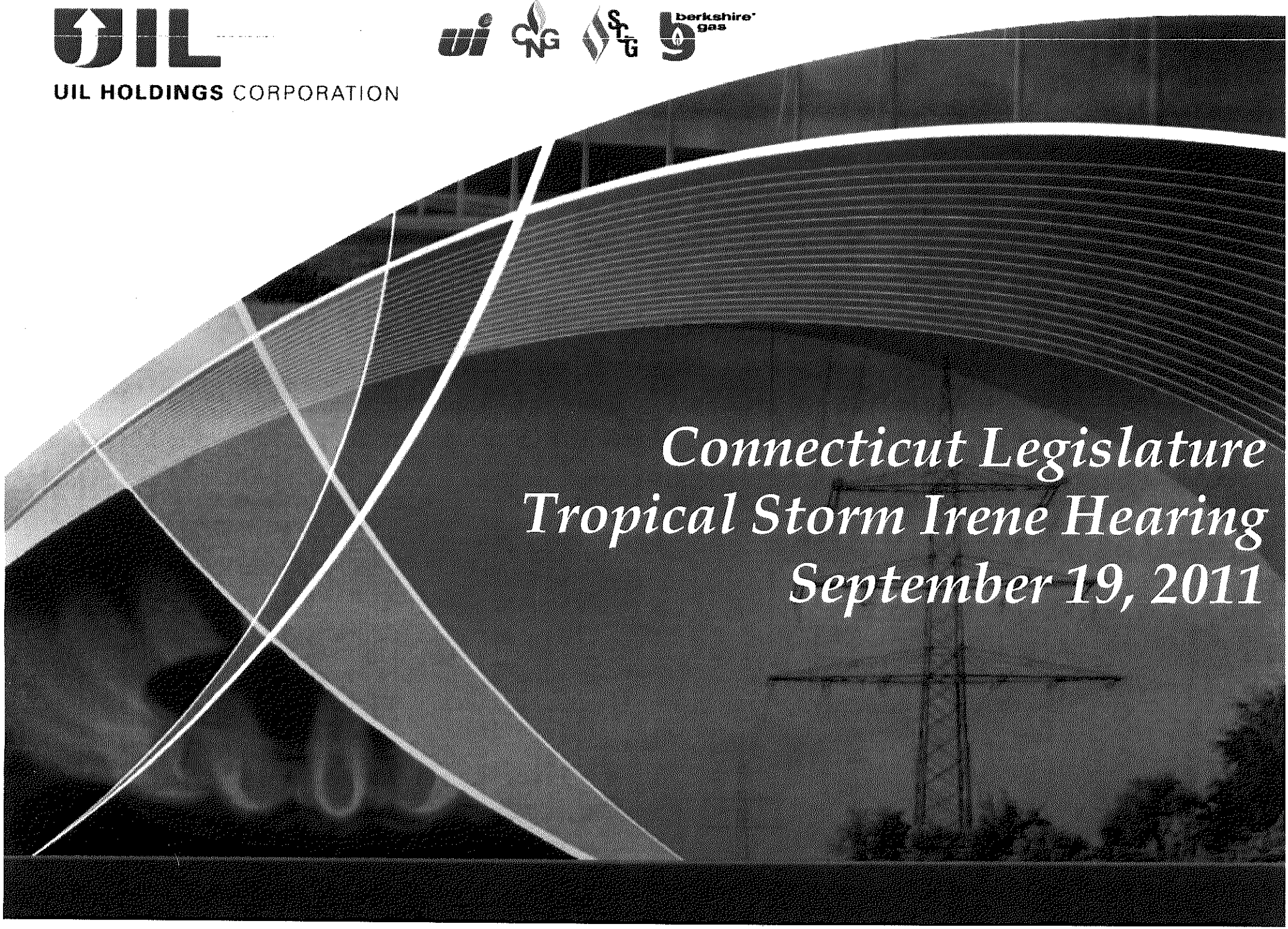
UIL HOLDINGS CORPORATION



Connecticut Legislature
Tropical Storm Irene Hearing
September 19, 2011

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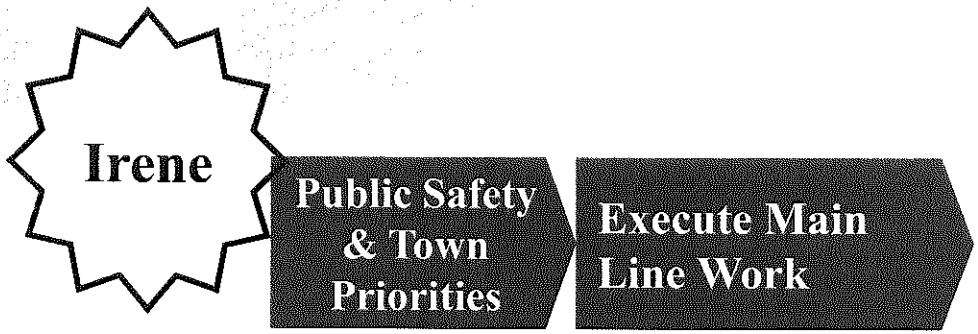
Restoration & Communications Processes



Prior Week | Su, 8/28 | M | T | W | Th | F | Sa | Su

Preparations, e.g.:

- Model predictions
- Mutual assistance coordination
- Communications to government leaders
- Notify towns – 4-7d outages likely

Damage Assessment: ~ 9500 locations

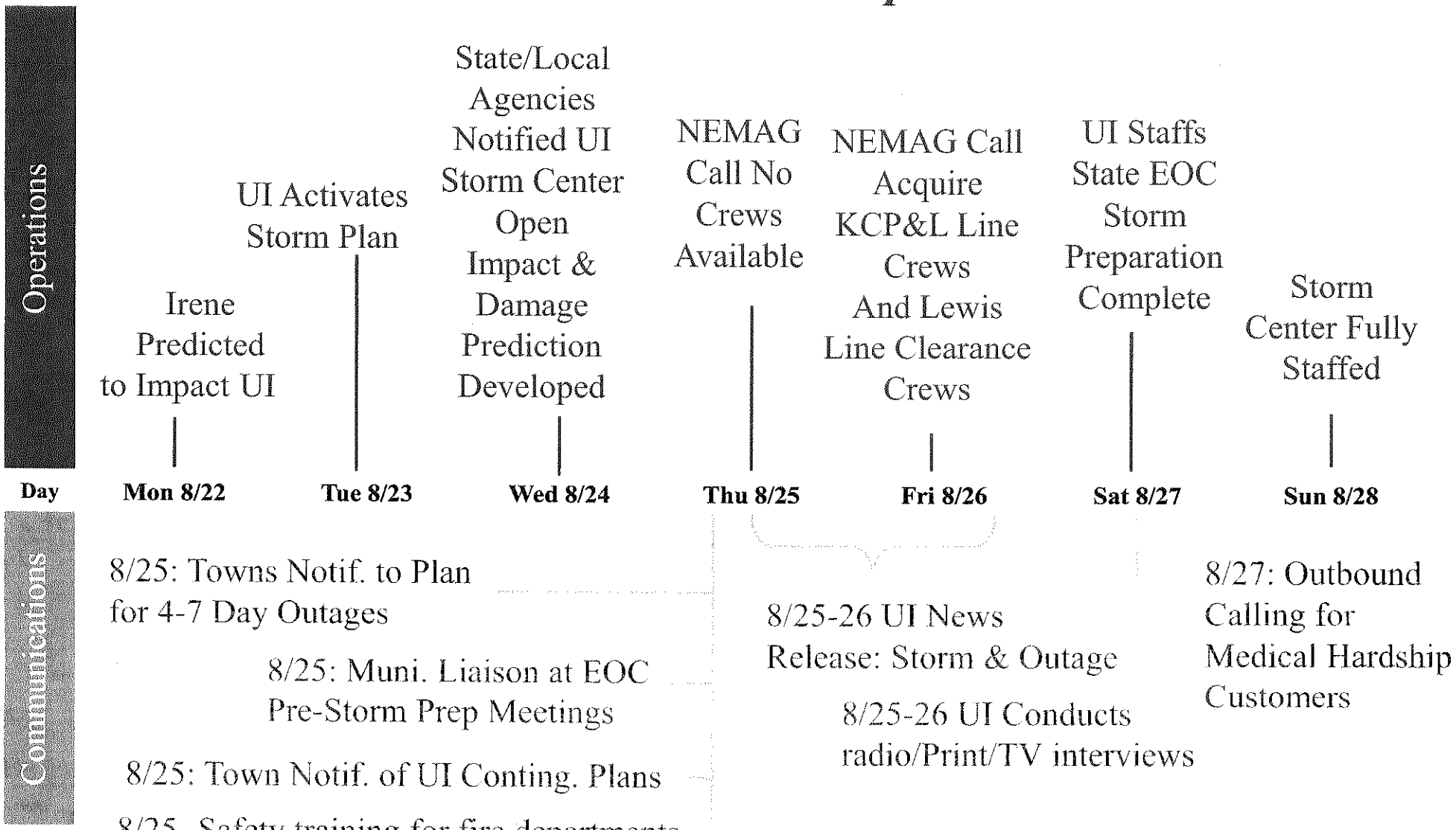
Work: ~ 10,000 locations to sequence & execute work

Communications included: resources deployed, restoration glide path, locations of work, restoration times

Assessment and execution good, but …
Recognize customer / stakeholder desire for more information faster.

Pre-Event Planning

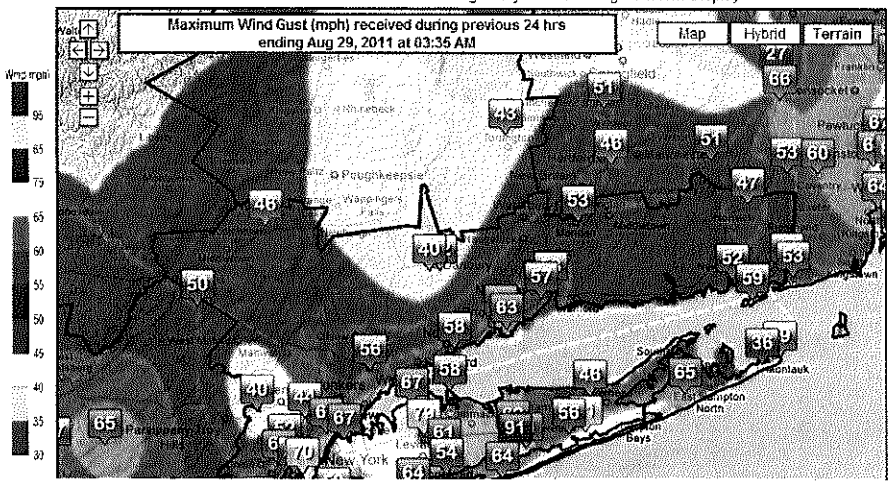
We began planning many days before the storm … here are some examples:



Irene was an extreme event …

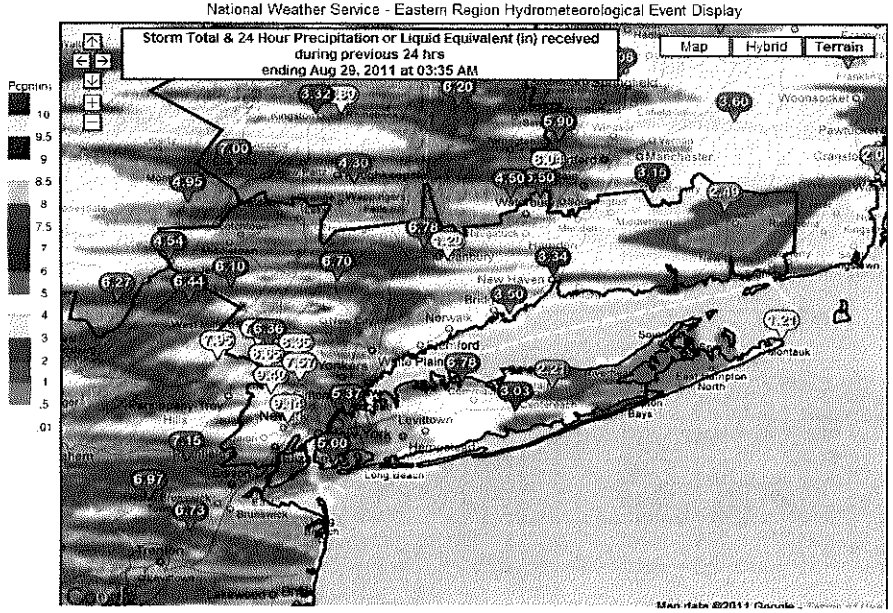
Wind Gust Map with Point Data

National Weather Service - Eastern Region Hydrometeorological Event Display



Rainfall Map

National Weather Service - Eastern Region Hydrometeorological Event Display



Storm Severity:

- 3-6" of rain
- Wind gusts > 60 mph (2 am to 2pm Su.)
- Tidal Flooding

Communications During the Event:

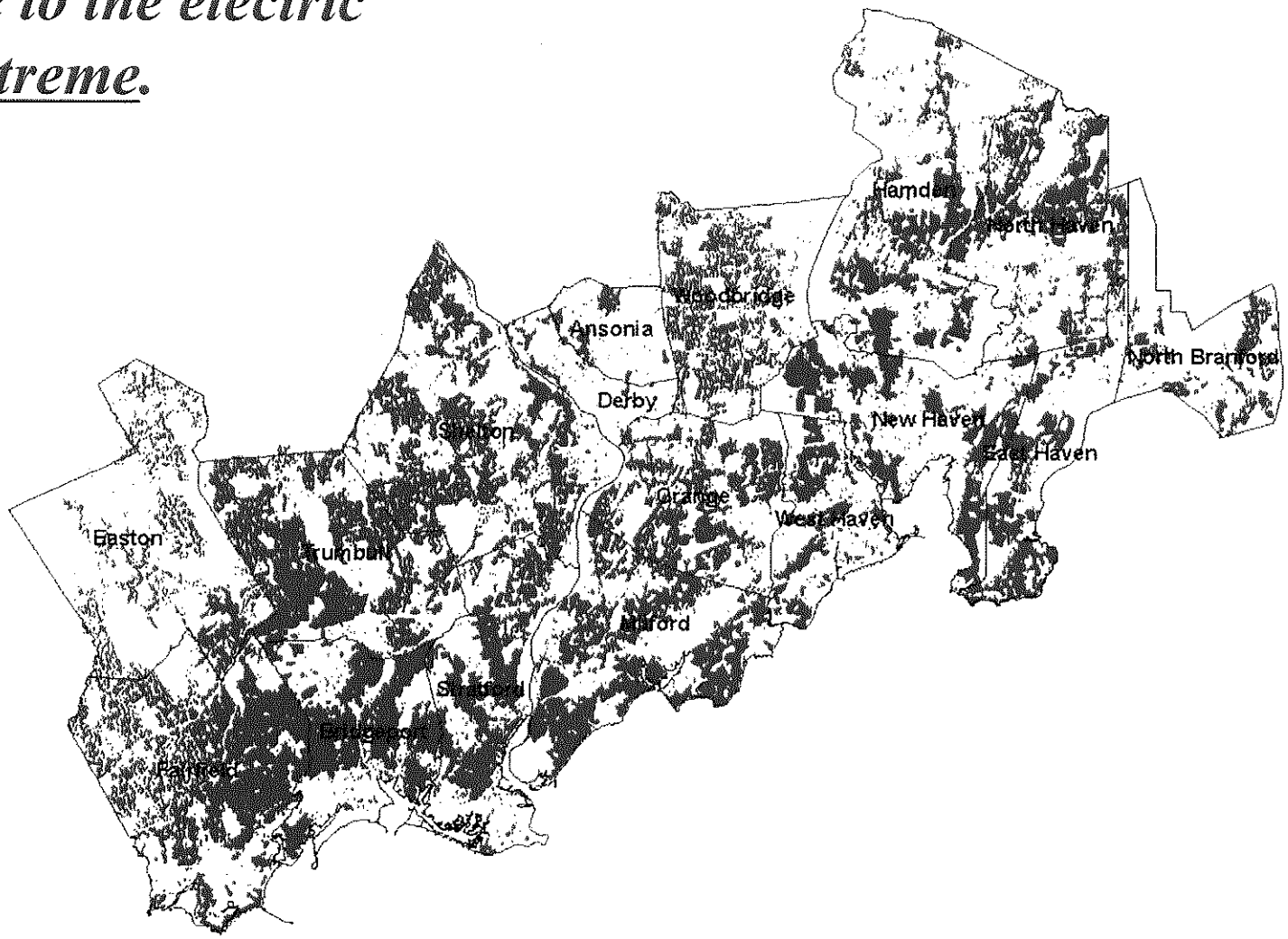
- Storm updates every few hours to Selectman/Mayors/Legislators and EOC Directors. The Company began using social media to disseminate information.
- Multiple news releases per day:
  - Status of electric system
  - Updates on restoration progress and goals.
- UI personnel gave 106 separate interviews with electronic, print, radio and television outlets – local, regional and national.

Damage Across UI's Electric System

… and the damage to the electric system was also extreme.

Damage:

- 263 circuits w/ outages
- 10,300 locations worked by crews
- 9,700 locations visited to assess damage
- 158,000 peak customers out

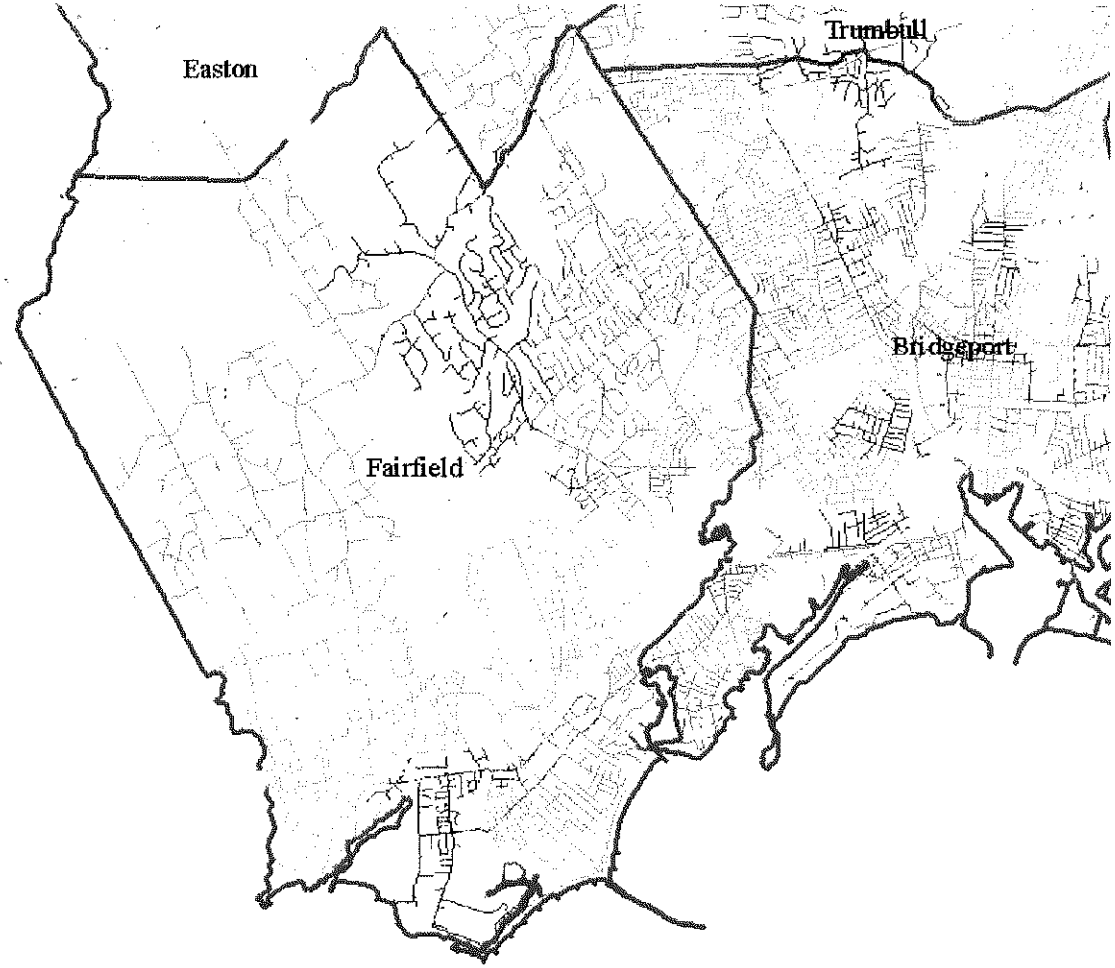


UI's Distribution System Outages*

(UI's System: 443 circuits, 3,275 miles of O/H lines)

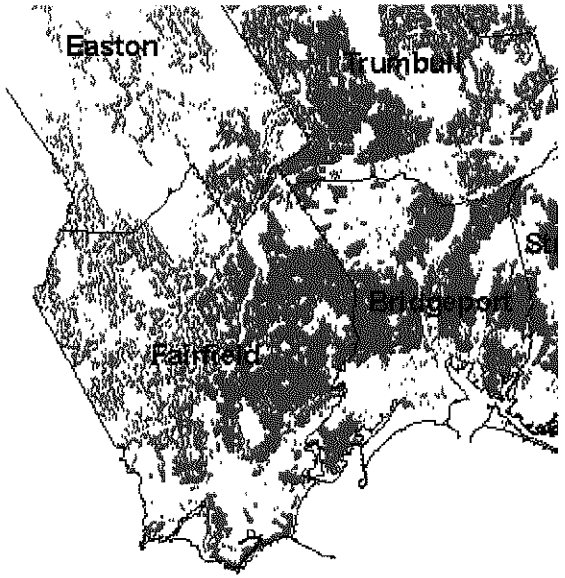
* Total outages shown – includes all over duration of storm and recovery/restoration period.

Damage – An Example in One Town



UI's Distribution System in Fairfield

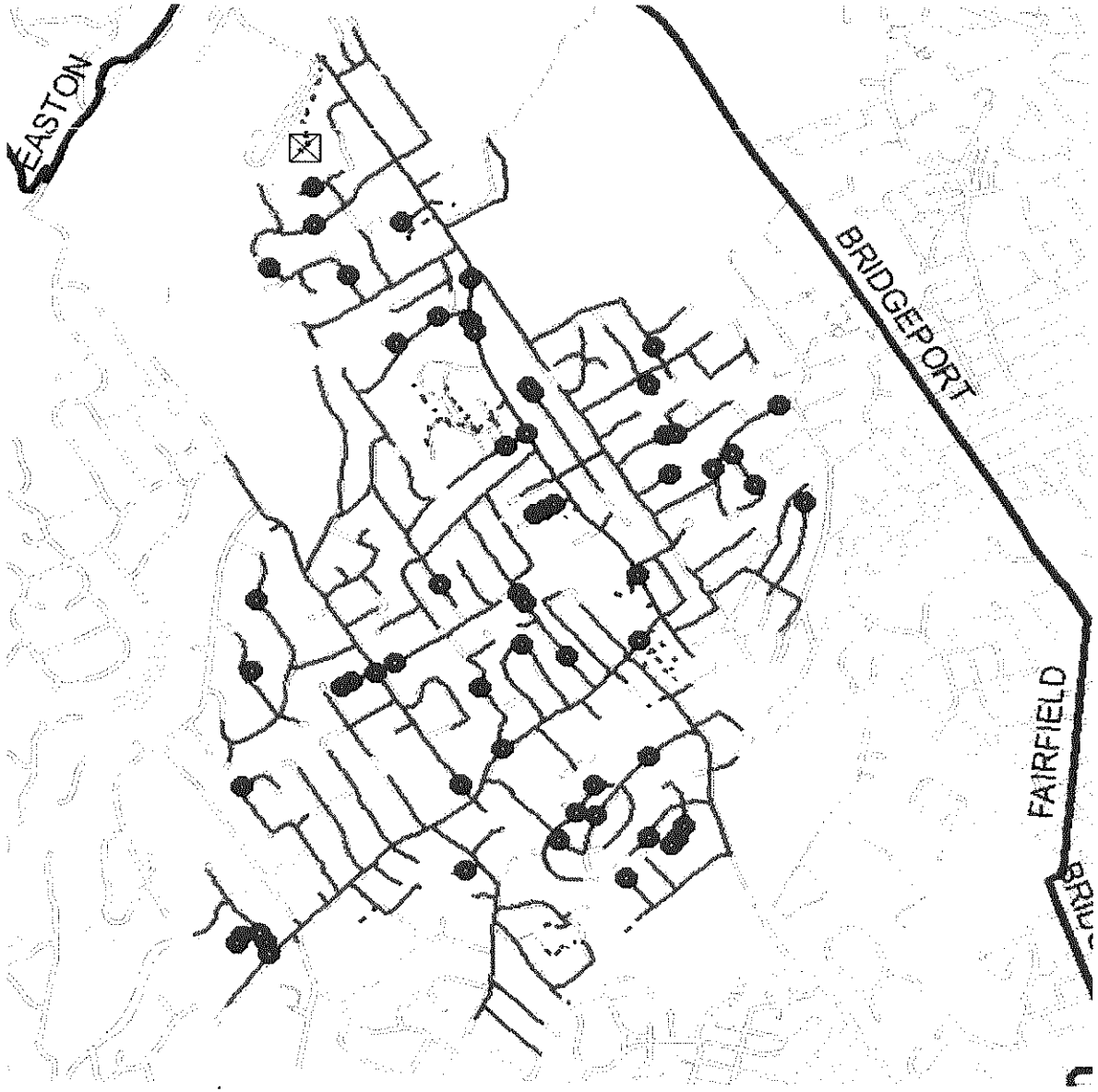
(Fairfield is served by numerous circuits - see colors above)



Damage in Fairfield:

- 570 interrupting devices reported open (circuit breakers, fuses, transformers)
- Each may have required 1 or more work locations to resolve.

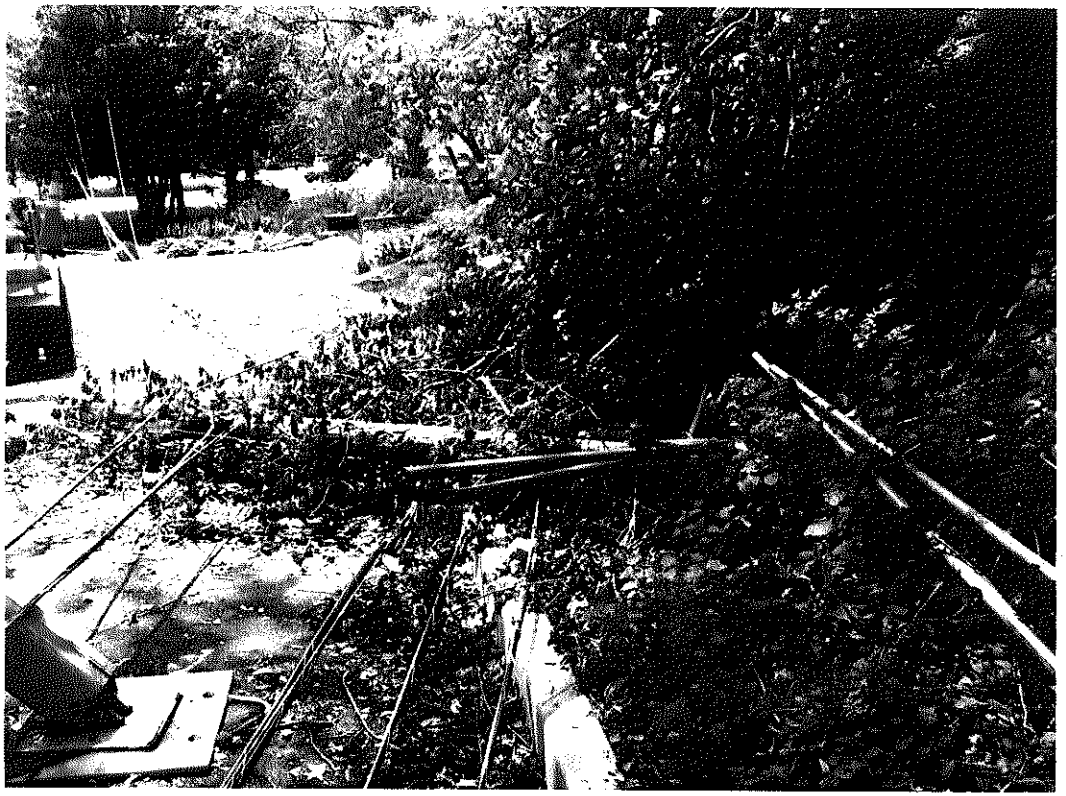
Damage – One Circuit, in One Town



Damage On One Circuit:

- In Eastern Fairfield
- Circuit 2686
- 70 Isolating devices reported open
- 113 work locations

Damage – Single Locations



Example:

- Ferncliff Rd., Fairfield, CT
- Pole down
- Electric wires down
- Phone/Com wires down
- UG service to house damaged

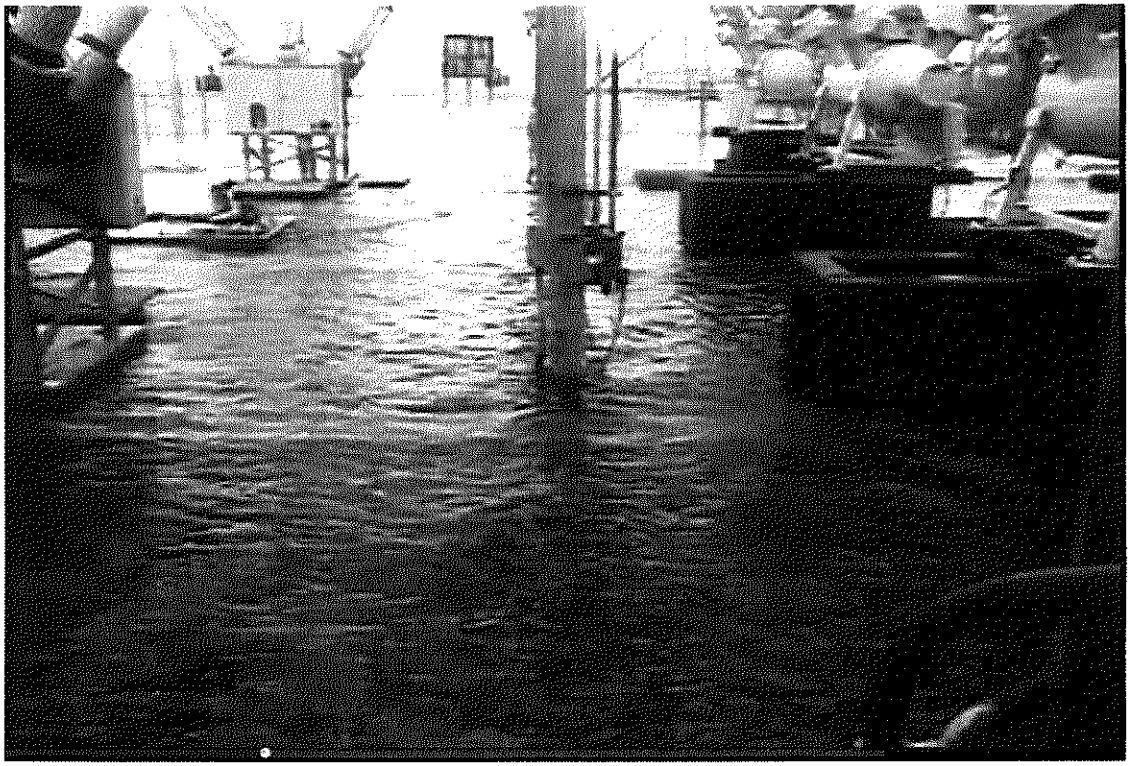
Example:

- Catamount Rd., Fairfield, CT
- In addition to the damage …
- Note how completely the tree canopy blankets the area.

Damage – Single Locations

Examples:

- Peak of storm roughly coincidental with high tide.
- Extensive flooding at two substation properties
- One of two flooded substations taken off line as a precautionary measure.
- Put back in service quickly



- Substations affect large numbers of customers
- Permanent damage limited, but …
- Impractical to work in station during the event (if that had been necessary)

Assessment & Commencement of Repair

Assessment is critical …and was performed exceptionally quickly …

Public Safety, Town Priorities

Restoration, main line work

Restoration, branch line work

Sun.	Mon.	Tues.	Wed.	Th.
8/28	8/29	8/30	8/31	9/1

… It must be complete to:

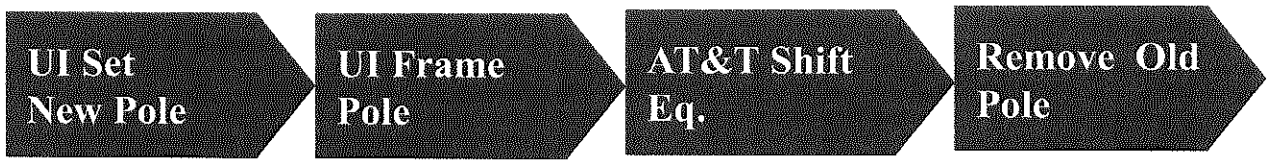
- *Identify quantity, location, nature of work*
- *Assign resources efficiently*
- *Provide information, predict restoration times*

Coordinate the Work, Ensure Safety

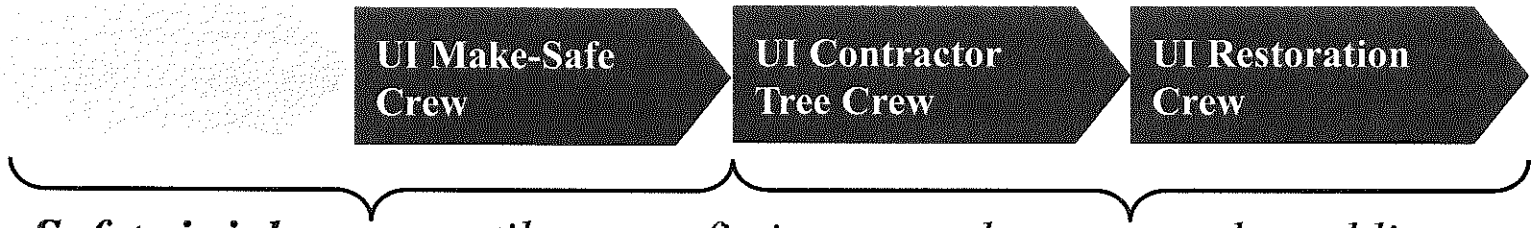
Much of the work required extensive coordination both within the company and among companies

Approximately **9,700 locations** were investigated by damage assessment crews

Example - Replace Broken Pole:



Example - Wires Down/Make Safe:



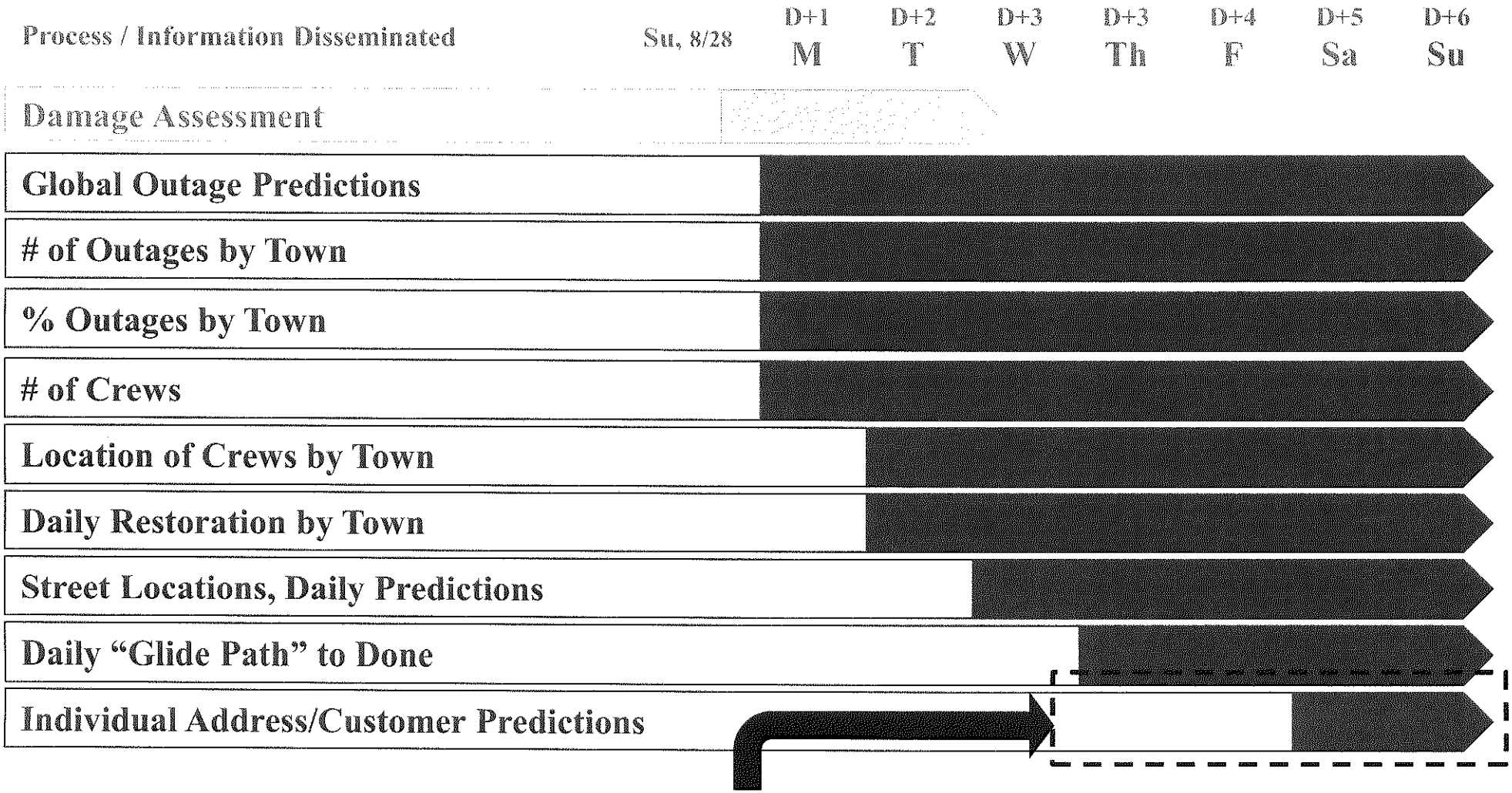
Safety is job-one *– until we can fix it, we need to protect the public, and we cannot sacrifice safety for speed.*

- *1115 workers safety trained during the event.*
- *39,000 restoration crew hours of work without a lost-time accident.*

Approximately **10,300 locations** were visited by overhead line crews, line clearance crews, and service crews

Communications – Irene Performance, Future Objective

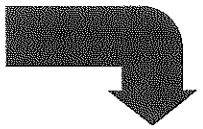
The ultimate objective: provide accurate status & predictions earlier … both to government leaders and individuals.

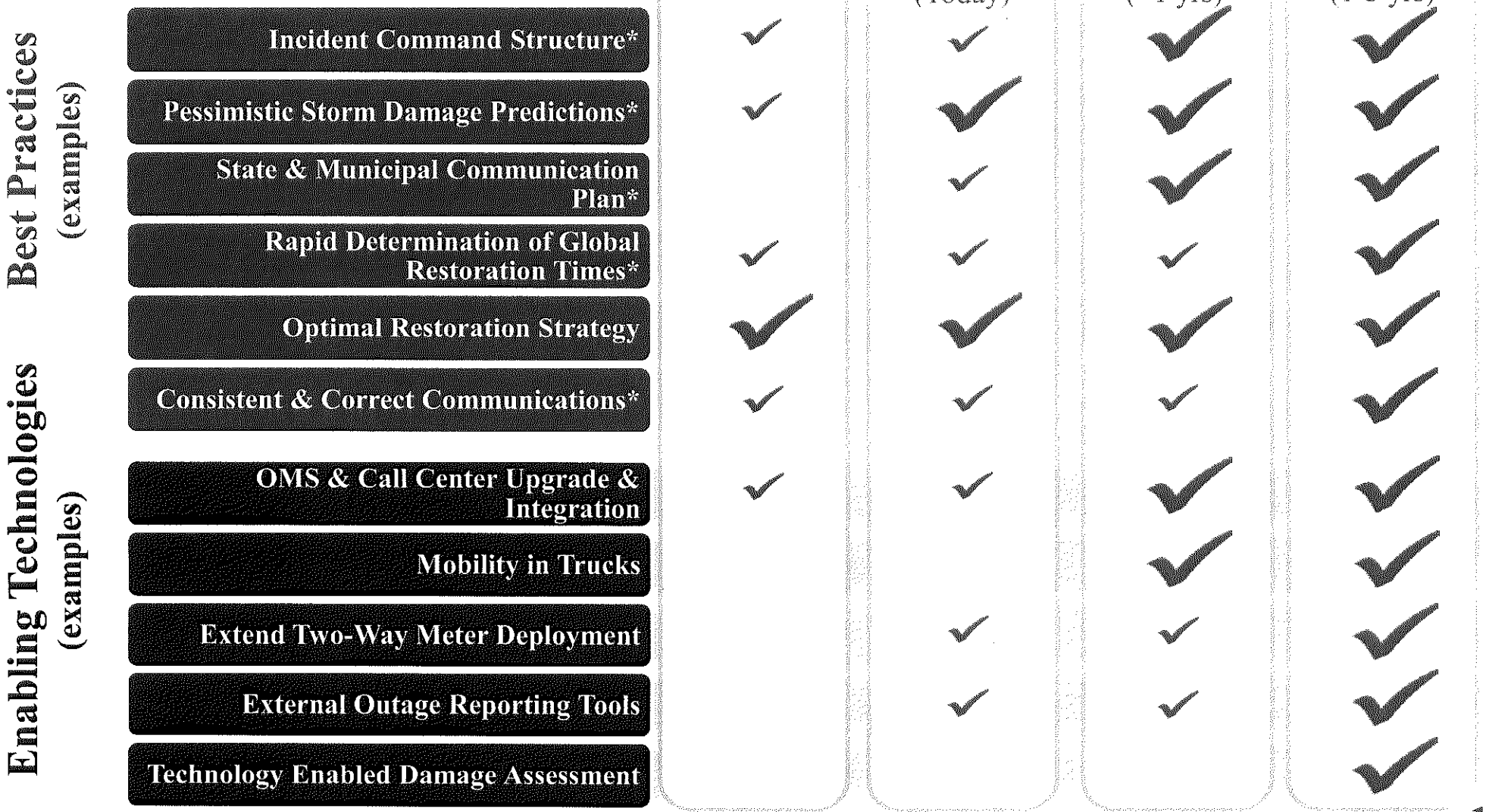


Customers & government leaders want this to commence sooner, and our customers want us to advise them "we know you're out" so they're not wondering.

Best Practices, Enablers, Plan for the Future

Ultimate Objectives: (1) restore faster, (2) preserve current level of safety, (3) provide earlier, accurate status & predictions to individual customers & government leaders.

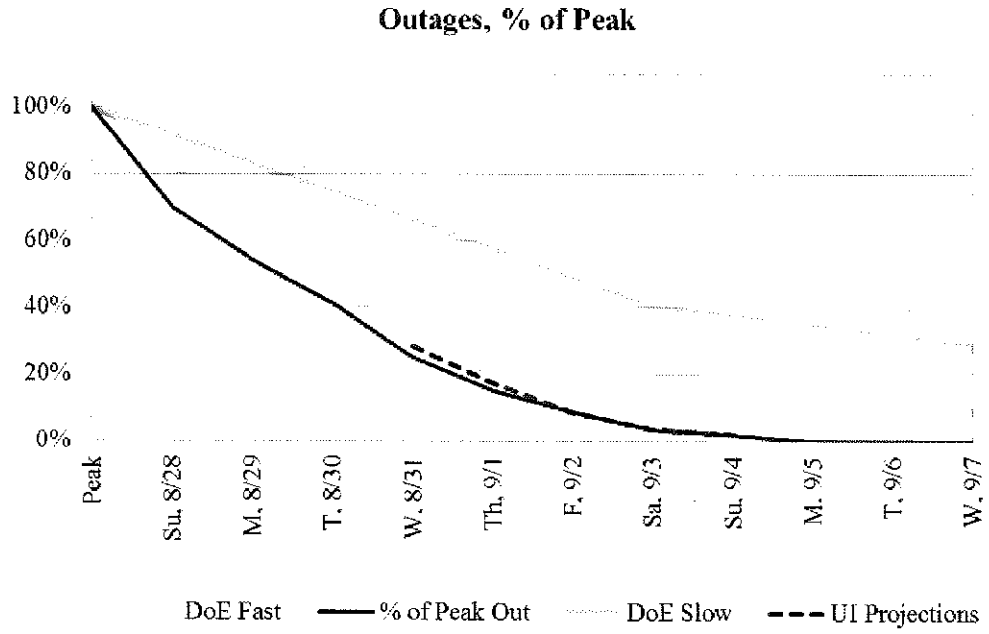




*Included Recommendations from October 2010 Jacobs Report to DPUC

Results and Lessons Learned

Communications expectations are rising – we'll respond.



Lessons Learned

- As well as we did, restoration could be shorter if damage can be reduced ...
  - *More aggressive tree management*
- We didn't always meet the information-expectations of our customers and government leaders …
  - *Need to further develop and add methods & processes for conveying useful information.*

Lessons Learned, Continued

- Event revealed some technology-related weaknesses.
- We need to continue to improve communication & coordination with towns, especially during the early stages of the event.

Plan, Next Steps

- Conduct customer survey(s)
- Meet with each of our towns/cities
- Complete our after action assessment
- Accelerate UI's technology implementation plans (see slide 14).
  - During future event(s), at completion of the assessment phase, accelerate conversion of results/data to useful information and disseminate more rapidly.