

*Governor's Office of
Homeland Security & Emergency Preparedness*

Governor's Homeland Security Advisory Council

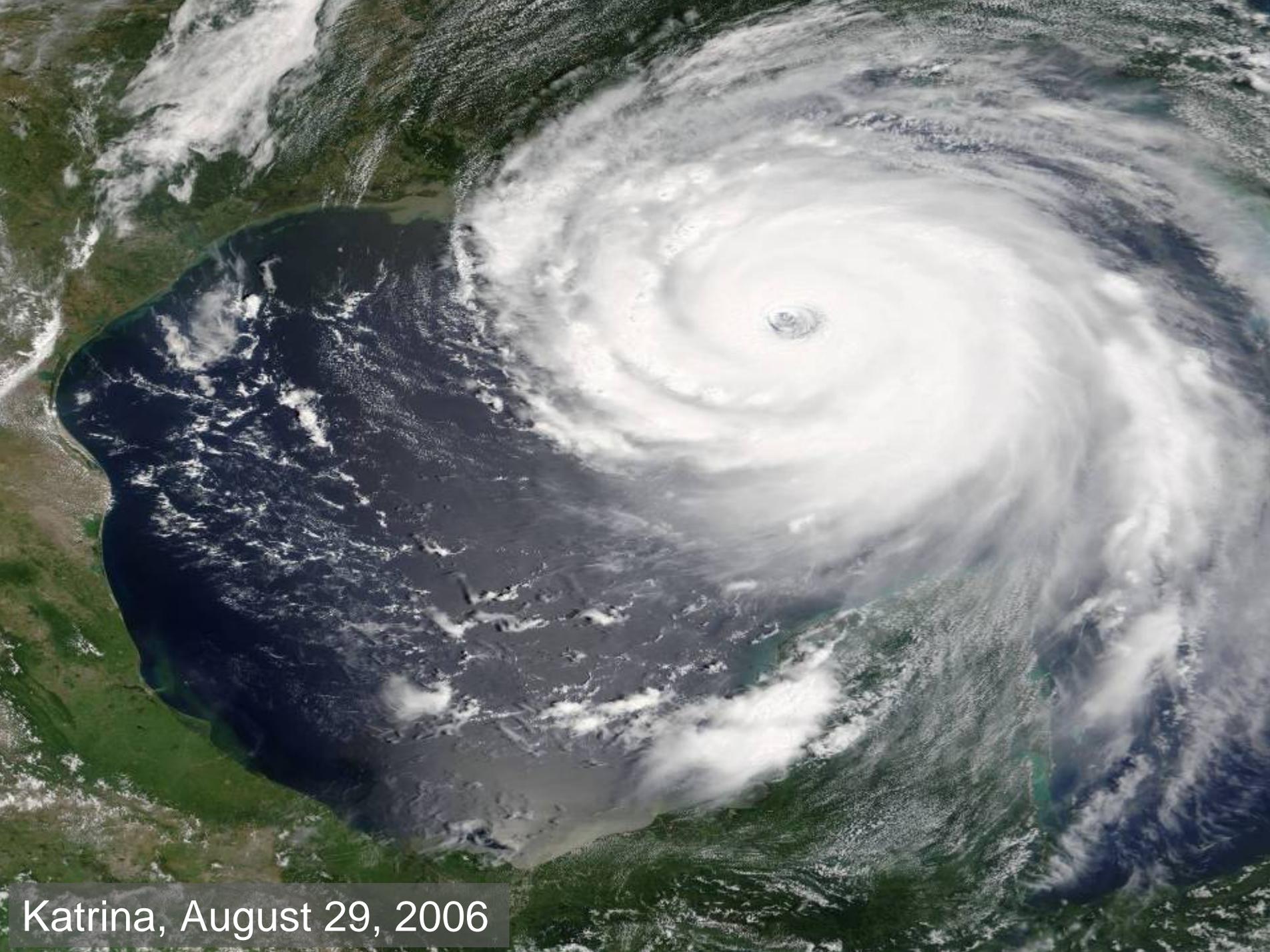


October 11, 2006
COL (Ret) Jeff Smith



- ✓ Hurricane Katrina
- ✓ Lessons Learned
- ✓ Long Term Recovery Challenges

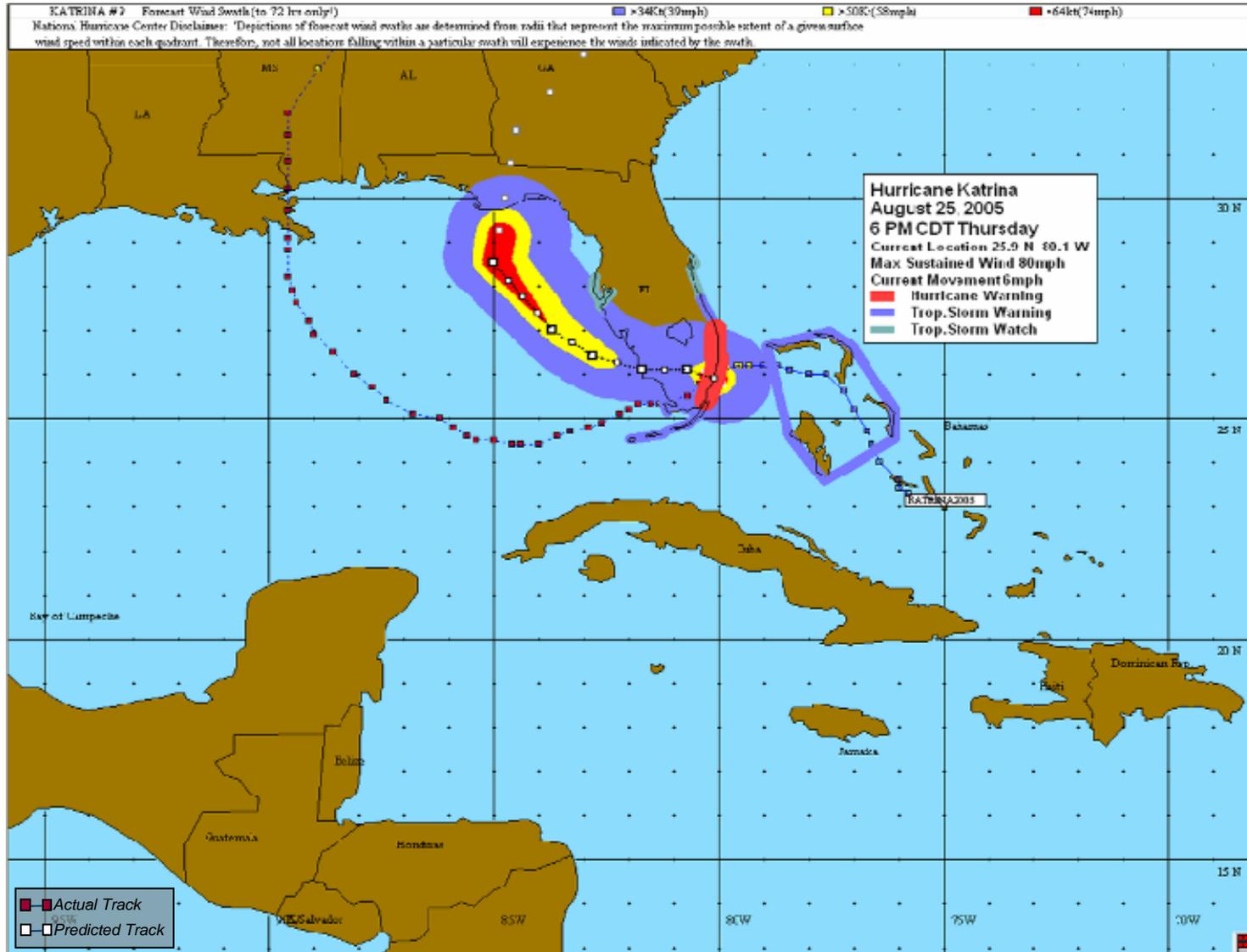
Governor's Office



Katrina, August 29, 2006

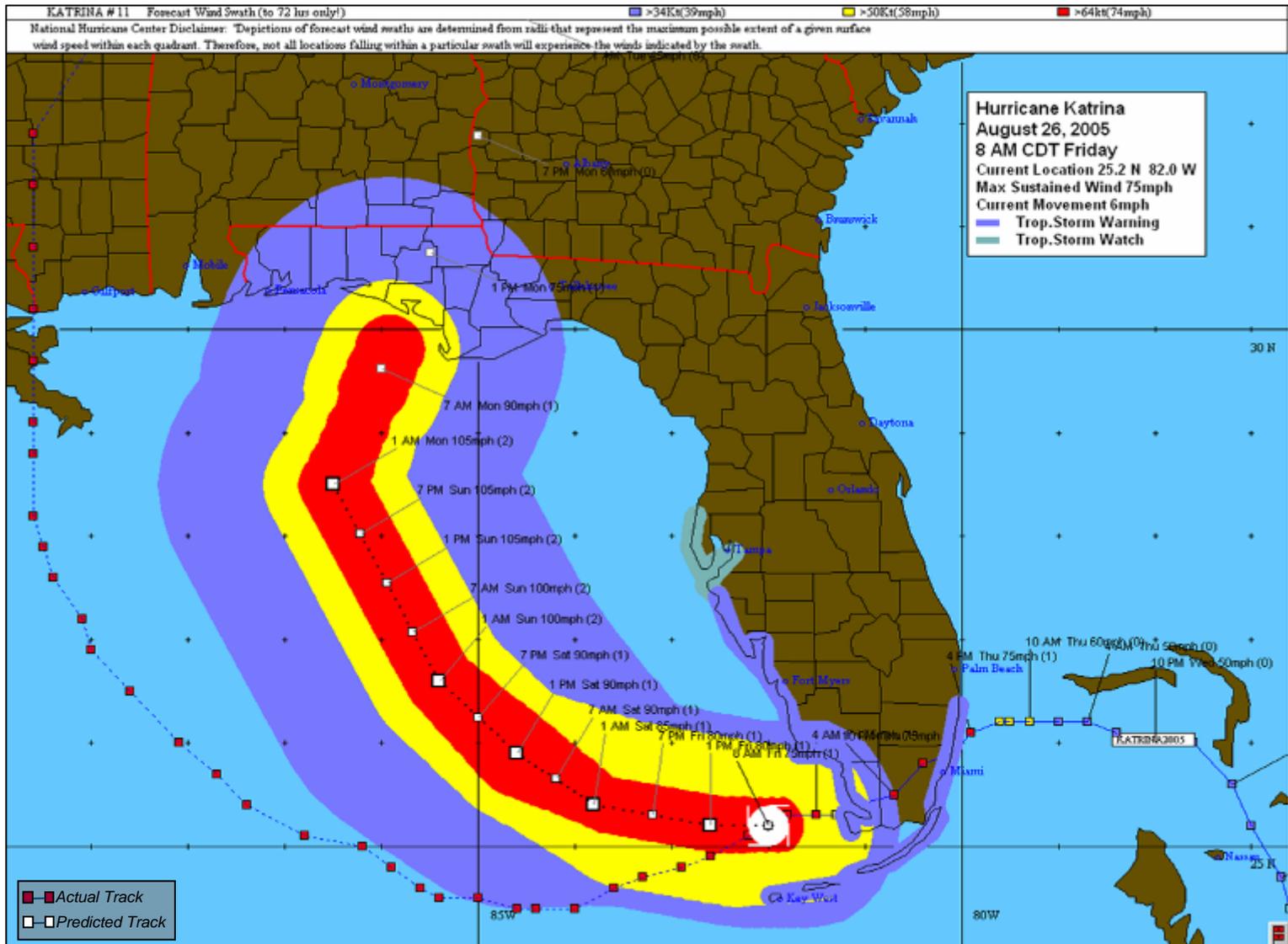


Katrina Timeline



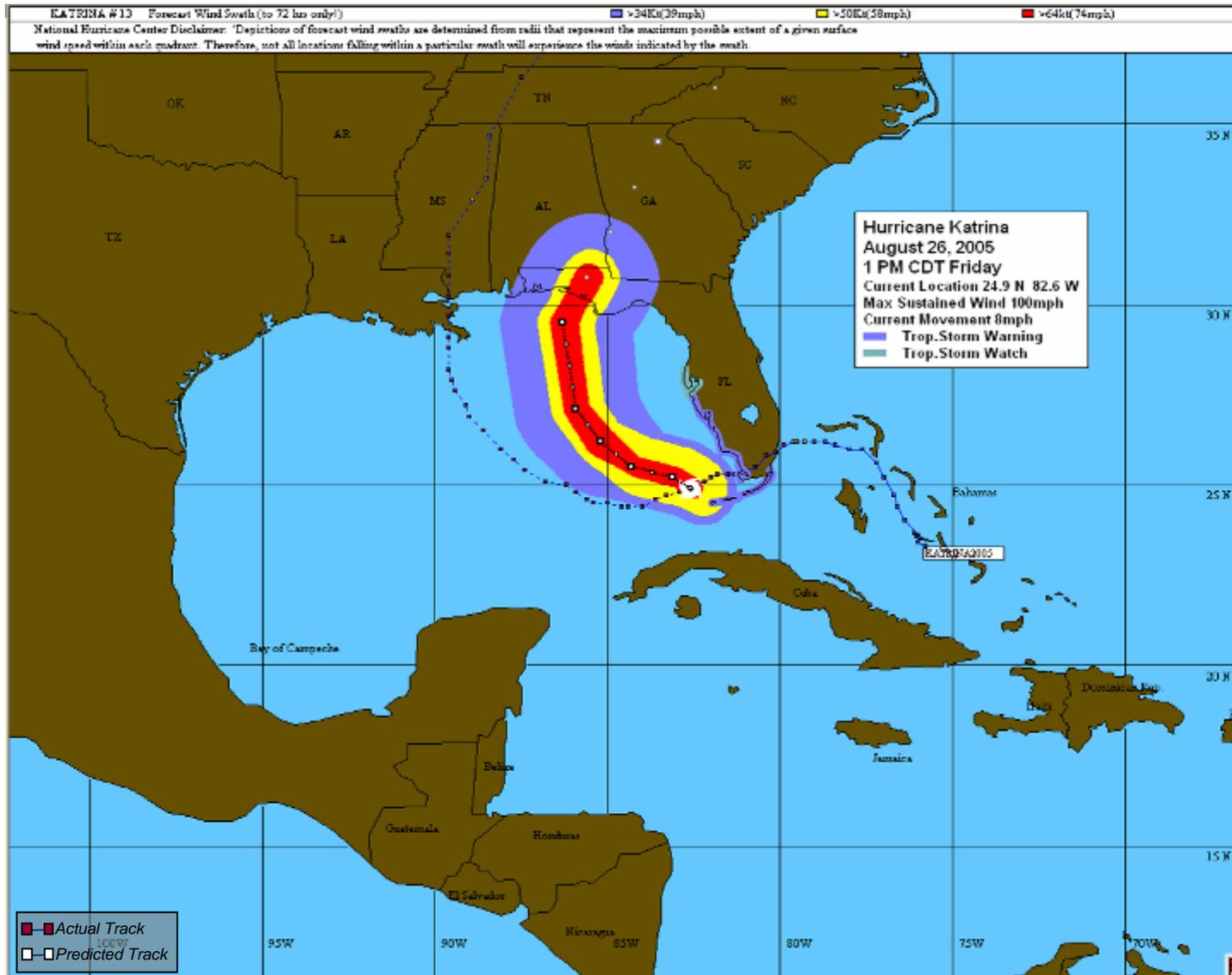


Katrina Timeline





Katrina Timeline

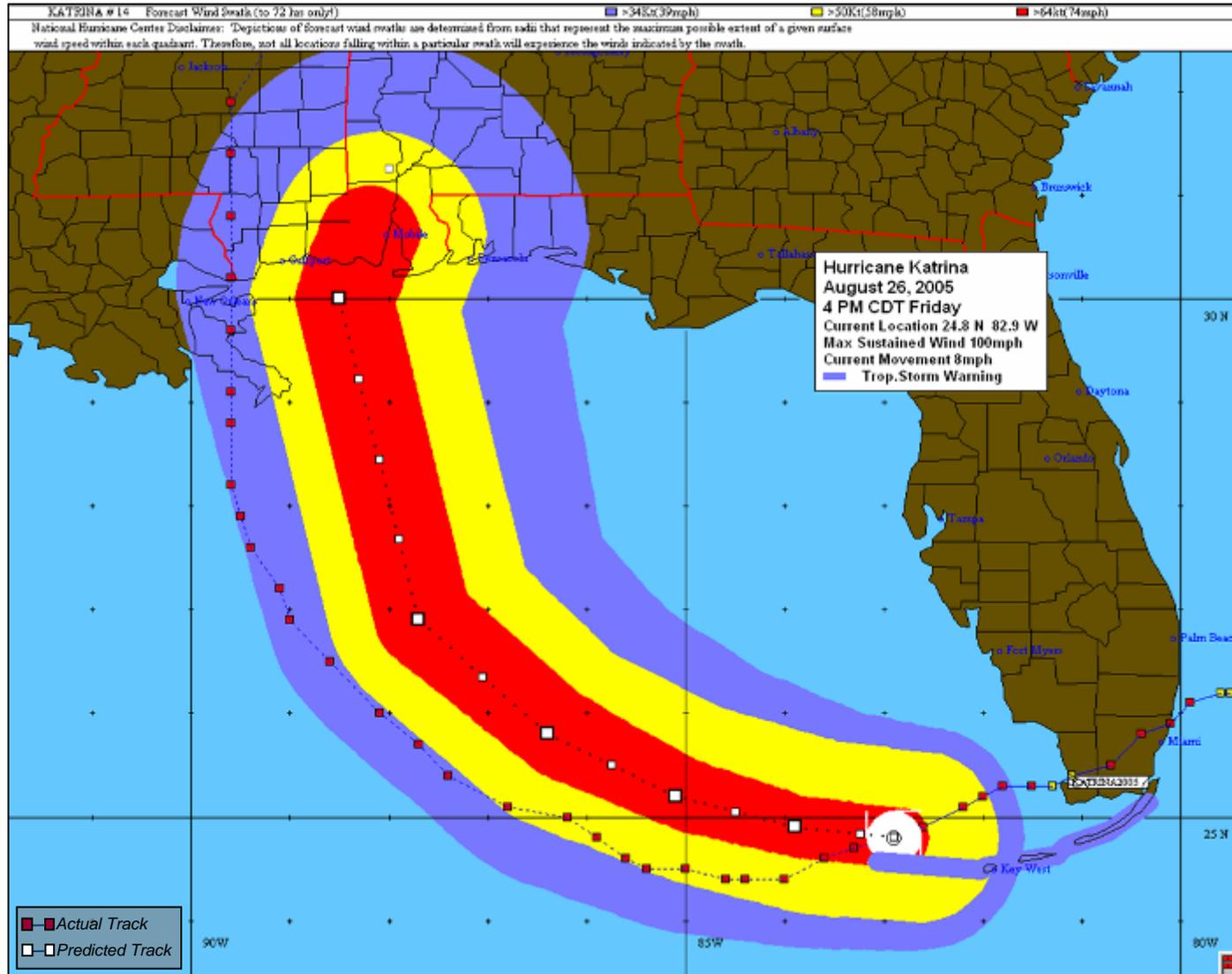




*Friday, August 26th,
between 1 PM & 4 PM,
Hurricane Katrina
takes a dramatic
westward shift toward
Louisiana*



Katrina Timeline







Hurricane Katrina

- ✓ Overall area impacted 108,456 square miles
- ✓ 80% of New Orleans submerged
- ✓ 1500+ Louisiana casualties
- ✓ 200,000+ Louisiana homes substantially damaged or destroyed
- ✓ 71,000+ Louisiana businesses impacted
- ✓ 300,000+ job losses in Louisiana



Costliest Atlantic Hurricanes

Total Estimated Property Damage

Source: NOAA

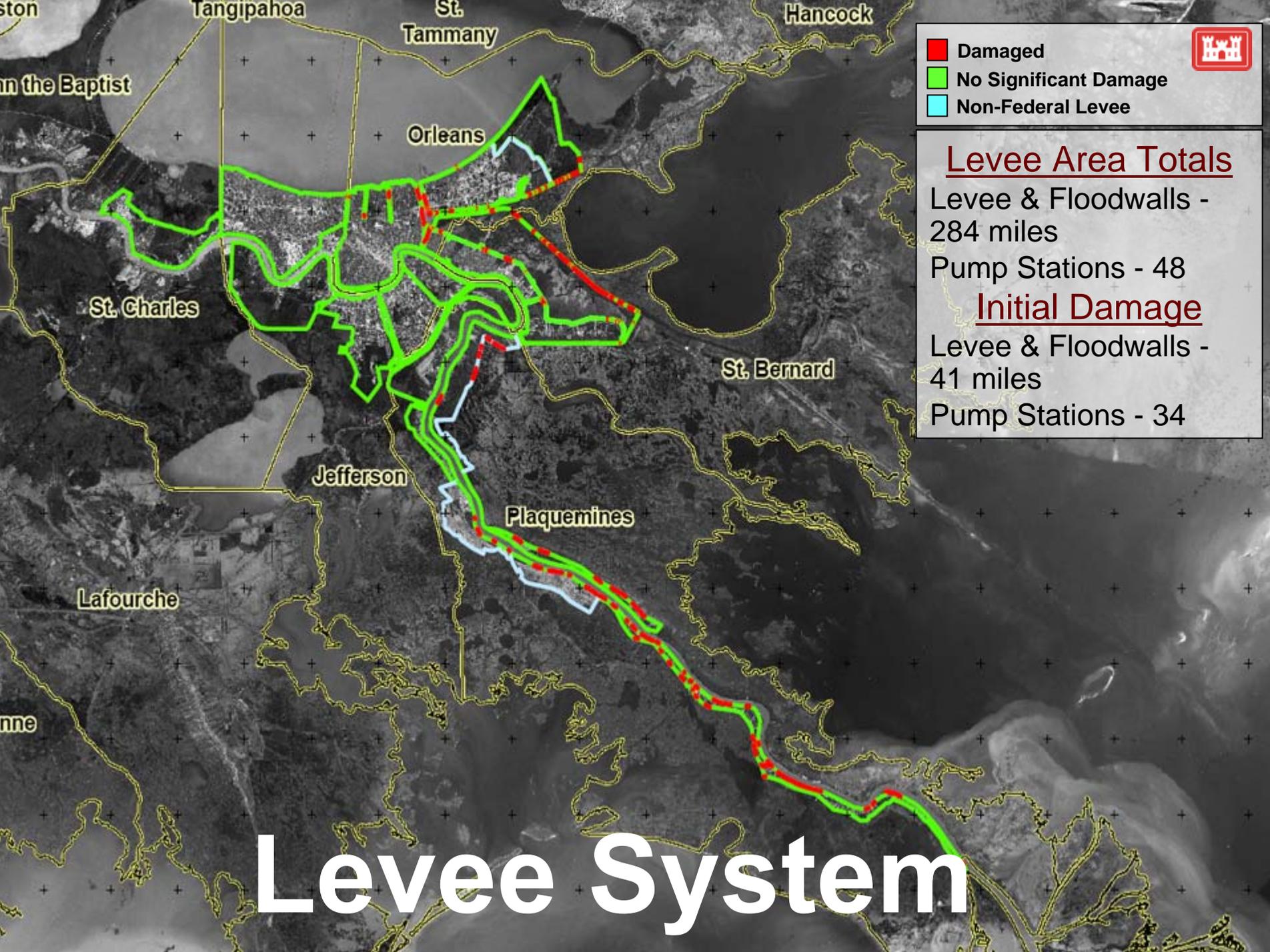
Rank	Hurricane	Year	Cost
1	Katrina	2005	\$100 billion (<i>est. 2005/USD</i>)
2	Andrew	1992	\$43.672 billion (<i>2004 USD</i>)
3	Fifi	1974	\$20 billion (<i>2005 USD</i>)
4	Charley	2004	\$15 billion (<i>2004 USD</i>)
5	Ivan	2004	\$14.2 billion (<i>2004 USD</i>)



U.S. Disasters

FEMA Comparative Cost-Share Per Capita

Disaster	FEMA Cost	State Population	Cost Per Capita
Hurricane Katrina (LA) (2005)	\$43 billion	4.5 million	9,500
World Trade Center (2001)	\$7.4 billion	18.976 million	90
Northridge Earthquake (1994)	\$7.0 billion	29.760 million	235
Hurricane Andrew (1992)	\$1.8 billion	12.938 million	139



 Damaged
 No Significant Damage
 Non-Federal Levee



Levee Area Totals
Levee & Floodwalls - 284 miles
Pump Stations - 48
Initial Damage
Levee & Floodwalls - 41 miles
Pump Stations - 34

Levee System

KATRINA: THE STORM WE'VE ALWAYS FEARED

The Times-Picayune



50 CENTS 169th year No. 221

WEDNESDAY, AUGUST 31, 2005

HURRICANE EDITION

UNDER WATER

LEVEE BREACH SWAMPS CITY FROM LAKE TO RIVER

Population urged to leave; years of cleanup ahead



STAFF PHOTO BY TED JACKSON

NEW ORLEANS: Grasses at Greenwood and Metairie cemeteries mark the waterline of the sheet of water that covered the city from Lake Pontchartrain to nearly the French Quarter on Tuesday.



9th Ward, New Orleans



17th Street Canal

Before



After





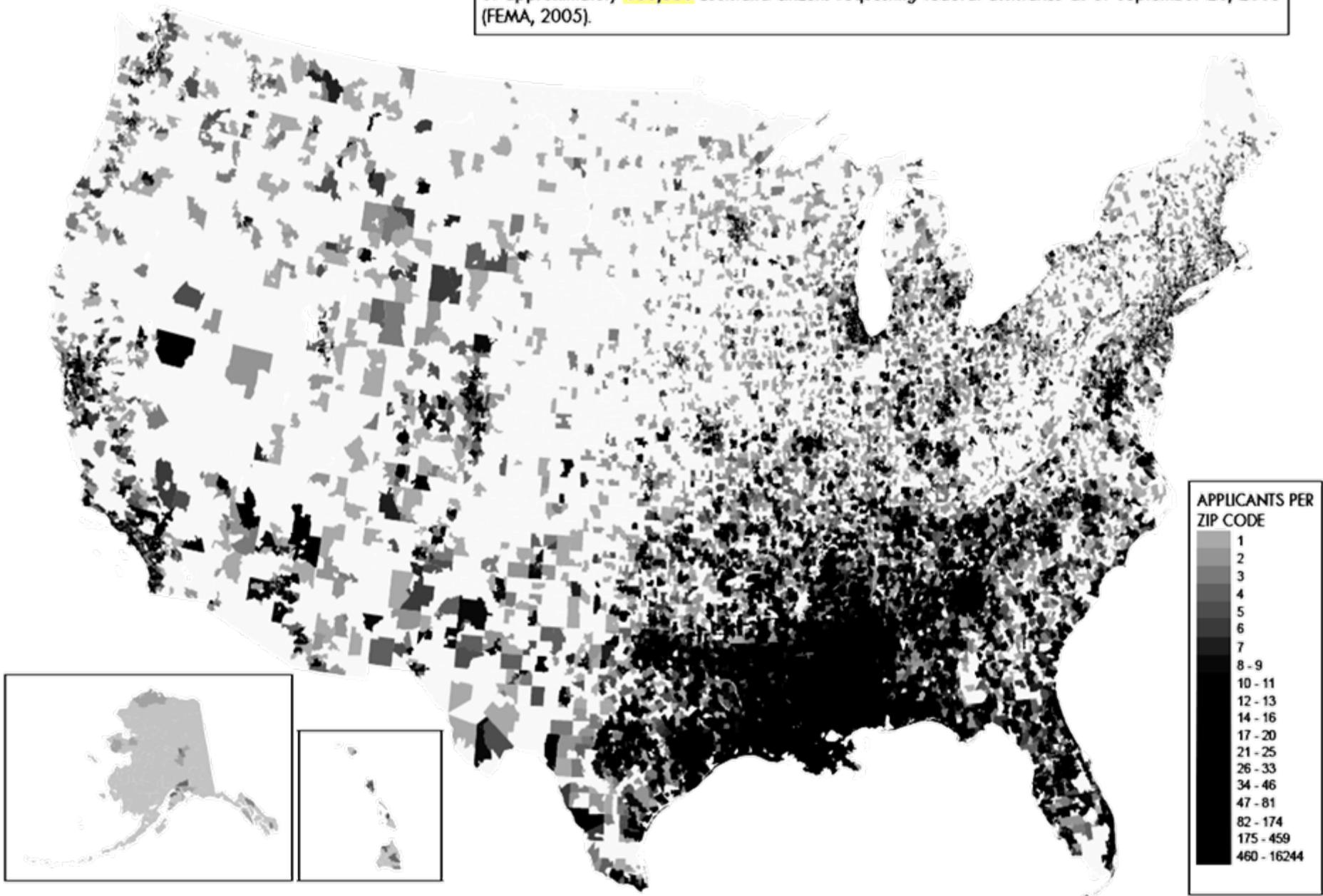
New Orleans Superdome





LOUISIANA DIASPORA

The number of people displaced by Hurricane Katrina is staggering. Using information collected by the Federal Emergency Management Agency, the map below depicts the evacuated location (by ZIP code) of approximately 800,000 Louisiana citizens requesting federal assistance as of September 20, 2005 (FEMA, 2005).





Infrastructure & Economic Impact





Utilities

- ✓ Entergy - 1.1 Million Customers Affected
 - Estimated 123,000 customers in New Orleans area received substantial structural or flood damage
- ✓ Cleco - 80,800 Customers Affected
 - St. Tammany & Washington Parishes
- ✓ BellSouth Telephone - 58.21% of lines out-of-service
- ✓ As of December 2005, **174,000** customers still without service because of damaged homes.





Infrastructure & Economic Impact



- ✓ Insurance losses
 - Estimated at \$20.8 billion
- ✓ National Flood Insurance losses
 - Estimated at \$23 billion
- ✓ Destroyed motor vehicles
 - Estimated at 300,000 to 350,000
- ✓ Direct tourism dollars lost
 - \$1 billion by Dec. 31



Infrastructure & Economic Impact

- ✓ Businesses Damaged or Destroyed - nearly 71,000
 - 4 in 10 of the State's businesses were damaged or destroyed by the storms (*SBA*)
 - 90% of the affected businesses are small businesses
 - Represents about 30% of State's total economy



Infrastructure



- ✓ Roads & Bridge Infrastructure Damages - estimated at \$5.5B (*DOTD*)

Before



After



LA Wildlife & Fisheries

- ✓ The Office of Fisheries preliminary revenue loss estimates
 - Potential \$1.29B loss in retail fisheries revenue over the next year
 - Amount increases to \$1.3B when 2-year retail oyster sales losses are added
 - Over \$400M in estimated losses for the recreational fishing industry





LA Wildlife & Fisheries

- ✓ Forester estimates:
 - Timber losses at \$27M on state wildlife management areas, mainly in the Florida Parishes
 - 960,000 acres of wildlife management areas & refuges impacted



Oil & Gas



- ✓ Loss in oil production from Aug 26 - Nov 10
 - 82,735,894 barrels or 15% of Gulf annual production
- ✓ Natural gas loss from Aug 26 - Nov 10
 - 426.43B cubic feet, almost 12% of Gulf annual production



Oil Spills

- ✓ Total spills - 8M gallons
- ✓ More than 1M gallons at Murphy Oil
- ✓ Exxon Valdez was 11M gallons





Coastal Erosion - Chandeleur Islands





Total Grants Processed

From 1991 Until Katrina

Individual Assistance

\$ 306,313,000

Public Assistance

\$ 352,410,500

Hazard Mitigation

\$ 78,401,500 (*HMGP*)

\$ 22,000,000 (*FMA*)

SBA Loans

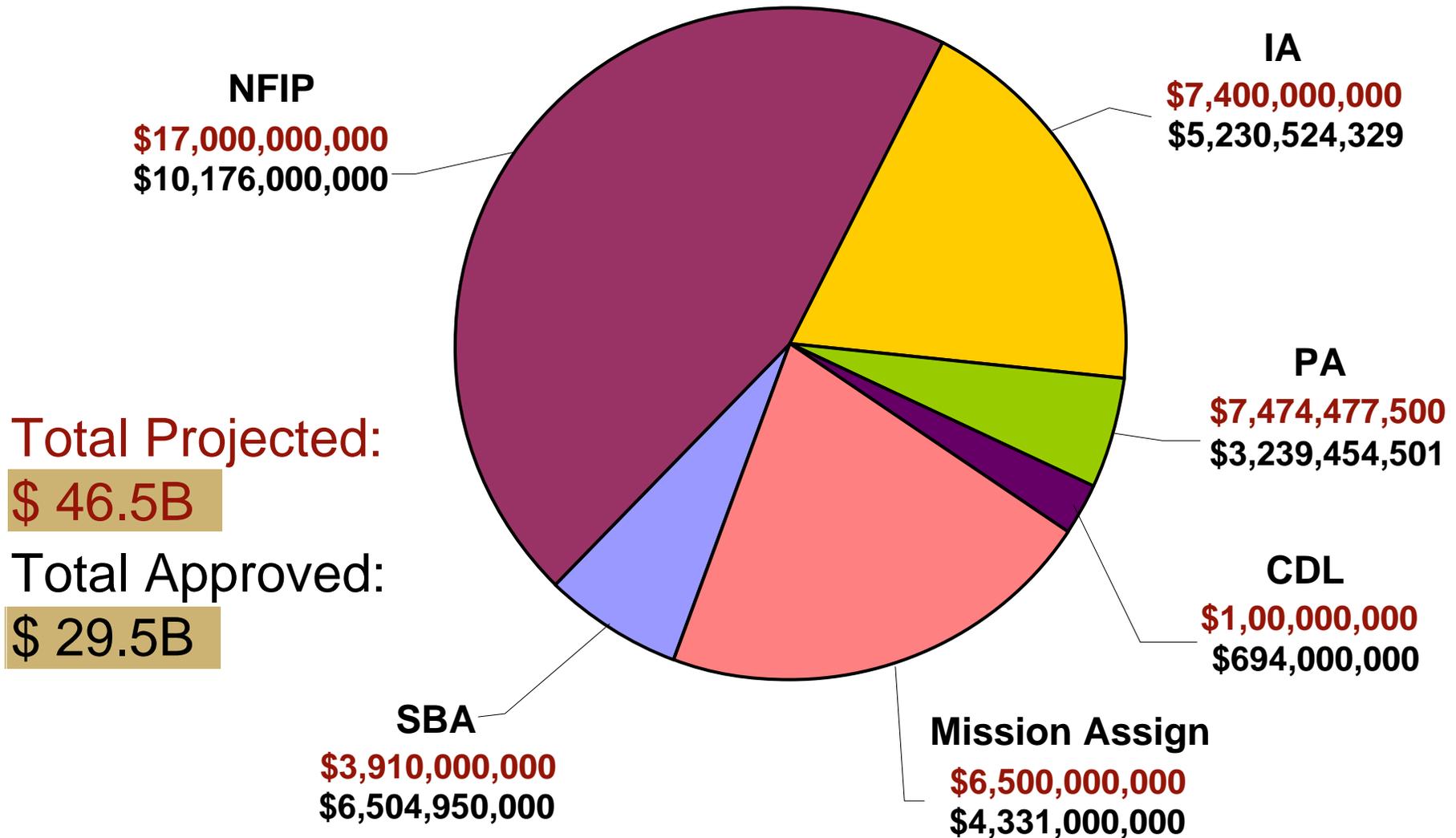
\$ 247,401,500

Total **\$1,006,626,500**





Projected/Approved 1603/1607





Projected Hazard Mitigation Funds

\$ 1,930,833,187



Lessons Learned



Continuity Of Operations

✓ Challenge

- Near total loss of governmental function in some parishes

✓ Louisiana Solution

- Incident Action Teams
- Mobile Command Post
- Education on COG



Command & Control

✓ Challenge

- 3 Federal chains of command
 - PFO
 - FCO
 - DOD
- Catastrophic Incident Annex not implemented
- Federal resources could have self-deployed

✓ Remediation

- Follow the National Response Plan



Command & Control

✓ Challenge

- Unified Command not properly exercised
- All levels of government

✓ Louisiana Solution

- Local buy-in for ICS & Unified Command
 - Leveraging NIMS mandate & Federal grant restrictions
- State EOP improved integration of resources of all state departments
 - ICS Framework - Unified Command Structure



Operable & Interoperable Communications

✓ Challenge

- Critical communications infrastructure destroyed
 - Loss of Towers
 - Antennas & Repeaters lost
 - Flooded land telephone lines
 - Satellite connectivity intermittent
 - 2500 First Responders overloaded 800 MHz radio system
- Loss of communication on demand

✓ Louisiana Solution

- Increase redundancy & provide rapid restoration capability
 - 700 MHz radio system for coastal parishes
 - RapidCom Units
 - Portable Towers
 - National Guard ASOS



Pre-Storm Evacuation

✓ Challenge

- Potential bottle necks on urban roads & highways
- Limited multi-lane highways
- Short window to evacuate

✓ Louisiana's Preparedness

- Contraflow for Southeast Louisiana
 - Designed after Hurricane Ivan (2004)
 - 1M maps distributed before 2005 hurricane season
 - 1.3M self-evacuated within 40 hours

✓ Louisiana's Enhancement

- Contraflow for Southwest Louisiana
 - Program created for 2006 hurricane season
 - Maps printed & distributed



Post-Storm Evacuation & Sheltering

✓ Challenge

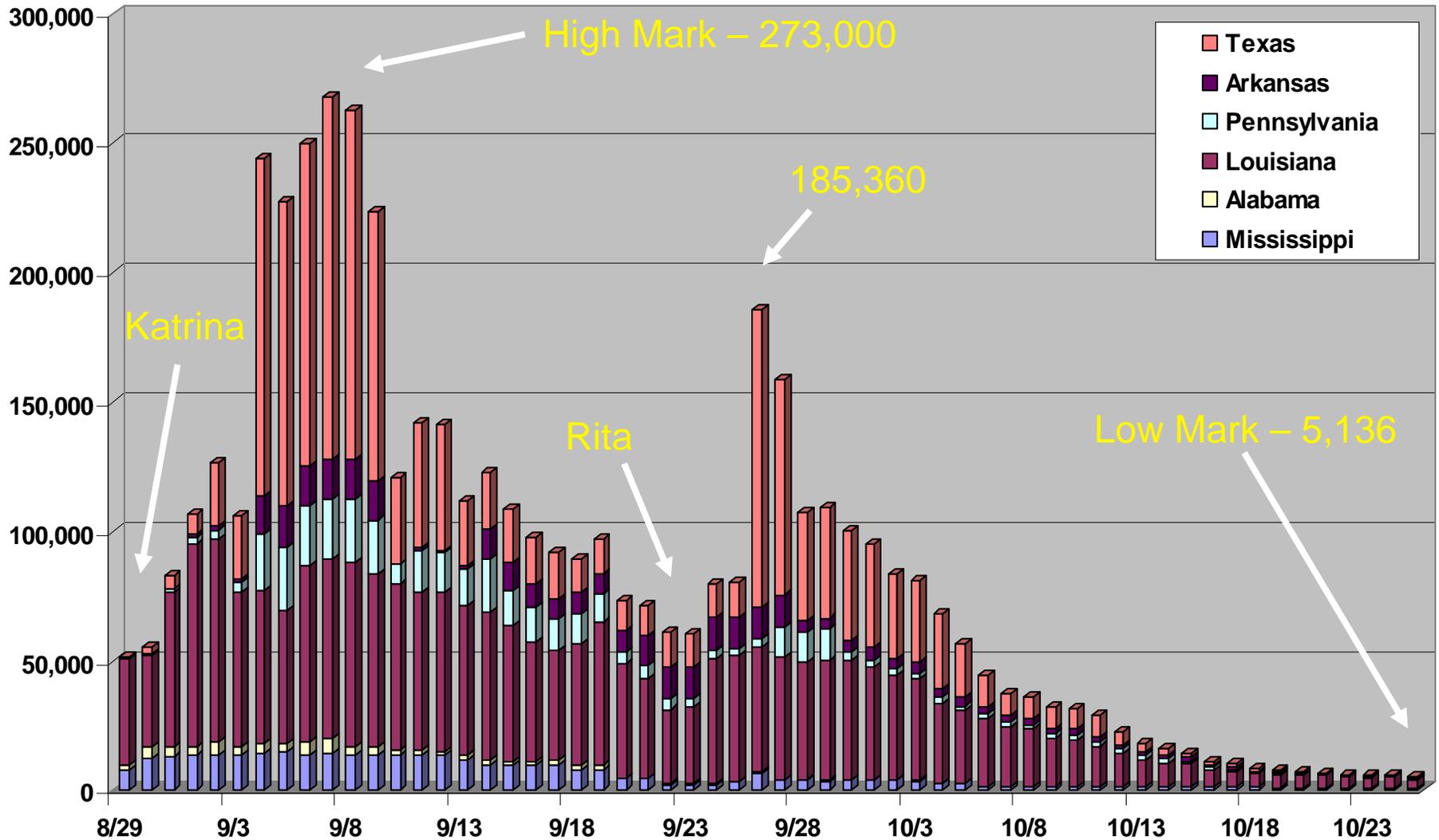
- 78,000 ambulatory citizens evacuated in 5 days

✓ Louisiana's Solution

- Pre-storm evacuation of at-risk Parishes
- State support of Parish Evacuation Plans
 - Local buses transport citizens to Parish pick-up points
 - ❖ Registration & screening of evacuees
 - State buses transport citizens/pets out of risk areas



Total Consolidated Shelter Population





Houston, Texas



Post-Storm Evacuation & Sheltering

✓ Challenge

- Insufficient in-state shelter space (10% of pop.)

✓ Louisiana's Solution

- State support of Shelter Task Force
 - American Red Cross assistance for site evaluations (88,000 capacity)
- State-established shelters (10,000 capacity)
 - Capital Outlay Project to build permanent shelter(s)
- MOU's with several states for additional capacity

Hurricane Katrina Long Term Recovery Challenges





Long Term Recovery Challenges



Risk Assessment

What is your State's Achilles's Heel?



Levees
Dams
Rivers
Earthquakes



What is long term...

1 Year?

2 Years?

Beyond?



**When 123,000
housing units are
needed...**



Financial Impact

- ✓ Insurance:
 - Availability - Few, if any, carriers
 - Affordability - Premiums skyrocketing
- ✓ Banks & Other Lenders:
 - Reducing exposure in the market place
 - Fewer small business loans
 - **NO INSURANCE = NO MORTGAGE**



Economic Disruption

✓ Labor Market:

■ Pre-Katrina

- Service Industry supports tourism
 - ❖ Today - few jobs

■ Post-Katrina

- Cleanup & construction
 - ❖ Today - inadequate pool of trained workers



Continuity of Government

Loss of Population
Loss of Business
Loss of Property
Values

=

Loss
of
Tax
Base



Supply & Demand

Adequate labor & materials

*Housing for construction
trades*

Trained/qualified inspectors



Decision Points

Levees

*Advisory Base Flood
Elevation*

*Debris removal & demolition
Sequencing restoration of
basic services*



Debris



- ✓ Current – 55M cubic yards
- ✓ Estimated total - *80M to 120M cubic yards

**Related totals will vary pending outcome of Yellow Tag Structure decision*



**What Happens When
50% of The Medical
Specialists & Available
Hospitals Are Lost?**



New Orleans Pre-Katrina

Healthcare Mecca

Serviced 1.2M Of 4.5M population

State's load of complicated cases

Level one trauma hospital

Charity Hospital - 11,500 ER visits per month

37 hospitals

200 mental health beds (100 public)



New Orleans Healthcare Post-Katrina

19 hospitals open - 18 remain closed

Level One Trauma

Available - Non-accredited

Loss of all public mental health beds

Few private mental health beds

Medical specialists & medical school professors relocating out of state



*For the next Catastrophic
Disaster.....*

Are you Prepared?

Is the Nation Prepared?



Governor's Office