



## Hurricane Irma: Infrastructure Impact Summary – South Florida 1715 EDT September 7, 2017

### Assessment

This Infrastructure Impact Summary addresses impacts from Hurricane Irma to South Florida, specifically Miami north to Melbourne. As of 0800 EDT, September 7, 2017, the Department of Homeland Security/Office of Cyber and Infrastructure Analysis (OCIA) electric power modeling approximates 7.1 to 7.6 million people may be affected by electric power outages. OCIA assesses medium to high local impacts to several Critical Infrastructure Sectors (table 1). Some short term national impacts are possible within the Maritime Sector. OCIA will continue to monitor and will provide updates as warranted.

As of 1100 EDT, September 7, 2017, the National Hurricane Center (NHC) continues to classify Hurricane Irma as a Category 5 hurricane, located approximately 110 miles north of Punta Cana, Dominican Republic moving west northwest at 16 miles per hour (mph). Maximum sustained winds have continued to be reported at 175 mph with higher gusts. The storm is forecasted to move just north of the coast of Hispaniola today, September 7, 2017, and will be near the Turks and Caicos and southeastern Bahamas by the evening of today, September 7, 2017. On Friday, September 8, 2017, Hurricane Irma will be near the central Bahamas. Some fluctuations in intensity are likely during the next several days, but Hurricane Irma is forecasted to remain a powerful Category 4 or 5 hurricane during the period of September 7-9, 2017. According to the 1100 EDT September 7, 2017, NHC report, Hurricane Irma is expected to make landfall on the southeastern tip of Florida by Sunday September 10, 2017. Figure 1 shows the NHC forecast track and cone of uncertainty. All Caribbean islands within the forecast track are currently under a hurricane warning and South Florida is under a hurricane watch.

Rain, flooding, and wind generated by Hurricane Irma is expected to produce medium to high local impacts to critical infrastructure across southern and central Florida. Based on current National Oceanographic and Atmospheric Administration (NOAA) projections, local impacts to Florida will likely be due to storm surge inundation, flooding businesses and residences, and producing widespread damage to critical infrastructure sectors in the area. High-speed winds will disrupt segments of power distribution systems, as well as damage physical structures, further delaying recovery.

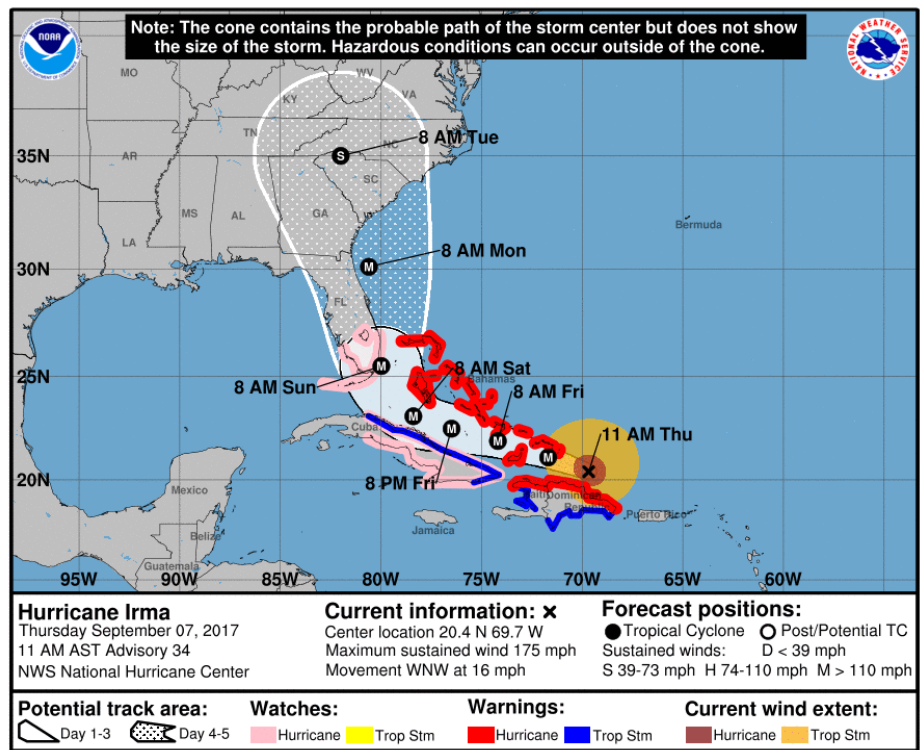


FIGURE 1—NOAA HURRICANE IRMA TRACK AND FORECAST CONE: NHC ADVISORY 34, 1100 EDT SEPTEMBER 7, 2017

TABLE I— HURRICANE IRMA IMPACTS TO INFRASTRUCTURE SECTORS

INFRASTRUCTURE	LOCAL/ REGIONAL IMPACT LEVEL	NATIONAL IMPACT LEVEL	IMPACT: ● Low ● Medium ● High
Food and Agriculture	●	●	Hurricane force winds will likely damage citrus orchards and crops such as sugar cane, tomatoes, and peppers. Livestock will be impacted by wind and flooding.
Financial Services	●	●	Local banking and ATM access will be disrupted in affected areas due to power outages, resulting in disruptions to consumer banking services and the ability to access cash.
Chemical: Plants	●	●	Impacts to the Chemical Sector are expected to have medium local and regional consequences, and low national consequences.
Dams	●	●	There is low to medium risk of overtopping or failure of high-hazard dams located in South Florida based on current rainfall forecasts and reservoir levels. The United States Army Corps of Engineers is releasing water and monitoring water levels for Lake Okeechobee, the largest lake in the area of concern, to reduce the risk from potential storm surge that may develop from high winds on the lake.
Commercial Facilities	●	●	Facilities within impacted areas will experience physical damage from wind a rainfall-runoff flooding. Storm surge flooding is likely to cause additional damage.
Emergency Services	●	●	Emergency response will be impacted by blocked and flooded roads. Loss of 911 call centers will result in difficulty reaching emergency services. Emergency Alert Systems will be impacted, likely causing delay in response and recovery efforts. Fire and Rescue and emergency medical service teams in the storm surge area will be limited in the service they are able to provide. This is based on potential damage and the large number of volunteer departments in rural areas where responders may be storm affected as citizens.
Energy: Electric Power	●	●	Service disruptions to electric power distribution customers will occur during this event. Previous storm hardening and preparedness investments may reduce the duration electric power outages, but damage to transmission and distribution infrastructure could still occur at current forecasted wind speeds in excess of 150 mph.
Energy: Nuclear	●	●	Two nuclear generator facilities (Turkey Point and Saint Lucie) are located on the east coast of Florida and may experience hurricane force winds. Turkey Point and Saint Lucie have a combined generation outputs of approximately 3,500 megawatts.
Energy: Petroleum	●	●	Physical damage to port facilities from wind or flooding will cause disruptions to fuel distribution networks. Local gasoline shortages have occurred and will continue as evacuations take place in advance of the storm.
Healthcare and Public Health: Hospitals	●	●	Hospitals may lose power, but typically store at least 2 or 3 days of fuel for backup generation to support critical functions. Physical damage to facilities will occur where wind speeds are high.
Communications: Wireline	●	●	Degradation of wired communications will occur because of the disruption of electric power service. Flooding will damage facilities that have not been hardened and wash out fiber optic lines. Prolonged power outages could exhaust backup generator fuel reserves.
Communications: Wireless	●	●	Coverage loss from electric power disruptions and tower and antenna damage from high winds is anticipated. Backup generator power could be insufficient if a facility is not designed to withstand extended power disruptions.
Transportation Systems: Road/Rail	●	●	Interstates, state highways, and local roads will experience flooding and debris that will hinder evacuations and emergency response. Rail services have been suspended in the region until the storm passes. Rail tracks will experience significant physical damage. Debris and loss of power will hinder restoration.
Transportation Systems: Airports	●	●	Flights cancellations will continue until the storm passes. Medium physical damage is anticipated due to wind damage and debris.
Transportation Systems: Maritime	●	●	Significant physical damage to the Port of Miami, Port Everglades, Port of Palm Beach, and Port Canaveral is highly likely, with recovery potentially taking weeks. Short-term national impacts to shipping are possible due to the number of ports impacted and the storm potentially closing ports north of Florida later in the week.
Water and Wastewater Systems	●	●	Wastewater mains along barrier islands, shorelines and bridge crossings are at increased risk of damage due to their exposed nature from wind and storm surge damage.

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Very Satisfied (5)	Somewhat Satisfied (4)	Neither Satisfied Nor Dissatisfied (3)	Somewhat Dissatisfied (2)	Very Dissatisfied (1)
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