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# CoreLogic Storm Surge Analysis Identifies More Than 6.6 Million US Homes at Risk of Hurricane Storm Surge Damage in 2015

—Total Reconstruction Cost Value for All Homes is Nearly \$1.5 Trillion—

**IRVINE**, **Calif.**, **June 4**, **2015**—CoreLogic<sup>®</sup> (NYSE: CLGX), a leading global property information, analytics and data-enabled services provider, today released its 2015 storm surge analysis which concludes that more than 6.6 million homes on the Atlantic and Gulf coasts are at risk of hurricane storm surge inundation with a total reconstruction cost value (RCV) of nearly \$1.5 trillion (Table 1).

The <u>CoreLogic analysis</u> examines risk from hurricane-driven storm surge for homes along the Atlantic and Gulf coastlines of 19 states and the District of Columbia, as well as for 84 metro areas. Homes are categorized among five risk levels, including *Low, Moderate, High, Very High* and *Extreme*. In addition to the number of homes at risk, the analysis provides RCVs, which indicate how much is required to rebuild the property, including labor and materials, and assuming worst-case scenario at 100-percent destruction.

At the regional level, the Atlantic Coast has more than 3.8 million homes at risk of storm surge in 2015 with an RCV of \$939 billion, and the Gulf Coast has just under 2.8 million homes at risk and nearly \$549 billion in potential exposure to total destruction damage (Table 2).

"The number of hurricanes each year is less important than the location of where the next hurricane will come ashore," said Dr. Tom Jeffery, senior hazard risk scientist for CoreLogic. "It only takes one hurricane that pushes storm surge into a major metropolitan area for the damage to tally in the billions of dollars. With new home construction, and any amount of sea-level rise, the number of homes at risk of storm surge damage will continue to increase."

Table 3 shows that six states account for more than three-quarters of all at-risk homes nationally. Florida has the highest total number of properties at various risk levels (2,509,812),



followed by Louisiana (760,272), New York (464,534), New Jersey (446,148), Texas (441,304) and Virginia (420,052). Even though Louisiana has the second most homes at risk of storm surge, only one-quarter of these homes are in the extreme or very high storm surge category due, in large part, to the upgrade and expansion of levees in Louisiana.

"The levee system in and around New Orleans is one of the most extensive in the world," said Jeffery. "After Hurricane Katrina in 2005, upgrades were planned for the network of levees and pumping stations to reduce the potential devastation from future storms. Upgrades were completed in 2013, and CoreLogic analysis shows a significant number of homes are now protected from all but the higher category hurricanes as a result."

At the local level, five Core Based Statistical Areas (CBSAs) rank the highest in both number of homes at risk and total RCV. They include New York-Newark, NY-NJ-PA; Miami-Fort Lauderdale-West Palm Beach, FL; Tampa-St. Petersburg-Clearwater, FL; Virginia Beach-Norfolk-Newport News, VA-NC; and New Orleans-Metairie, LA (Table 5).

Additional findings in the CoreLogic storm surge analysis:

- The five states with the highest RCV for homes at risk include: Florida (\$491,119,183,016),
   New York (\$177,398,620,779), Louisiana (\$162,096,659,527) New Jersey (\$126,829,146,685) and Virginia (\$91,049,049,641).
- The five states (including the District of Columbia) with the lowest RCV for homes at risk include: District of Columbia (\$351,443,177), New Hampshire (\$3,215,714,570) Maine (\$5,807,400,656), Rhode Island (\$7,476,741,658) and Alabama (\$9,954,390,796).
- The five states (including the District of Columbia) with the lowest total number of properties at risk include: the District of Columbia (3,668), New Hampshire (12,409), Maine (22,491), Rhode Island (26,490) and Delaware (49,716).
- Virginia Beach-Norfolk-Newport News, VA-NC has the highest percentage of homes (87 percent) at risk of storm surge, but not designated in a FEMA flood zone. Philadelphia-Camden-Wilmington, PA-NJ-DE-MD and Jacksonville, Fla. also top the list at 85 percent and 77 percent, respectively.



The CoreLogic storm surge analysis also complements Federal Emergency Management Agency (FEMA) flood zone information to provide a snapshot of potential damage exposure at the property level, as many properties located outside designated FEMA flood zones are still at risk for storm surge damage. Standard FEMA flood zones are designed to identify areas at risk for both freshwater flooding, as well as storm surge, based on the likelihood of either a 100-year or 500-year flood event. They do not differentiate risk based on storm severity, and as a result, do not accurately define the total extent of potential risk along coastal areas. Homeowners who live outside the FEMA flood zones frequently do not carry flood insurance, given that there is no mandate to do so, and therefore may not be aware of the potential risk storm surge poses to their properties.

To illustrate varying degrees of flood risk exposure, the analysis compares homes that are not located within FEMA 100-year floodplains against the number of homes located in surge inundation zones, as well as those located in both surge and FEMA Special Flood Hazard Areas (SFHA). This data can be found in the full report at:

http://www.corelogic.com/about-us/researchtrends/storm-surge-report

Table 1 – Residential Exposure by Storm Category for the Entire U.S.

Storm Surge Risk Level (Storm Category)	Total Homes Potentially Affected	Total Estimated RCV (U.S. dollars)
Extreme (Affected by a Category 1-5 storm)	1,651,978	\$393,494,752,074
Very High (Category 2-5)	1,438,526	\$324,225,419,007
High (Category 3-5)	1,654,925	\$371,135,087,394
Moderate (Category 4-5)	1,178,196	\$267,395,972,220
Low (Category 5)	685,391	\$132,090,242,053
Total	6,609,016	\$1,488,341,472,748

Source: CoreLogic



Table 2 – Residential Exposure by Coastal Region

Region	Atlantic Coast Homes	Atlantic Coast RCV (U.S. Dollars)	Gulf Coast Homes	Gulf Coast RCV (U.S. Dollars)
Extreme	1,018,371	\$264,963,399,509	633,607	\$128,531,352,565
Very High	911,091	\$223,821,396,433	527,435	\$100,404,022,574
High	860,657	\$212,741,476,684	794,268	\$158,393,610,710
Moderate	686,061	\$172,277,118,076	492,135	\$95,118,854,144
Low	332,984	\$65,334,507,800	352,407	\$66,755,734,253
Total	3,809,164	\$939,137,898,502	2,799,852	\$549,203,574,246

Source: CoreLogic

Table 3 – State Table (Ranked by Number of Homes at Risk)

Rank	State	Extreme	Very High	High	Moderate	Low*	Total
1	Florida	793,204	461,632	524,923	352,102	377,951	2,509,812
2	Louisiana	97,760	104,059	337,495	138,762	82,196	760,272
3	New York	127,325	114,876	131,039	91,294	N/A	464,534
4	New Jersey	116,581	178,668	73,303	77,596	N/A	446,148
5	Texas	45,800	70,894	112,189	116,168	96,253	441,304
6	Virginia	94,260	115,770	98,463	84,015	27,544	420,052
7	South Carolina	107,443	57,327	65,885	46,799	30,961	308,415
8	North Carolina	73,463	51,927	48,595	40,155	37,347	251,487
9	Massachusetts	31,420	65,279	74,413	49,325	N/A	220,437
10	Maryland	47,990	39,966	27,591	28,975	N/A	144,522
11	Georgia	41,970	52,281	28,852	19,190	8,465	150,758
12	Pennsylvania	1,467	45,776	37,983	32,426	N/A	117,652
13	Mississippi	14,809	20,643	29,387	27,507	10,588	102,934
14	Connecticut	25,292	23,656	22,230	26,529	N/A	97,707



	Total	1,651,978	1,438,526	1,654,925	1,178,196	685,391	6,609,016
20	District of Columbia	N/A**	N/A**	545	3,123	N/A	3,668
19	New Hampshire	2,514	3,470	4,234	2,272	N/A	12,490
18	Maine	5,159	2,753	7,368	7,211	N/A	22,491
17	Rhode Island	6,595	5,988	6,720	7,187	N/A	26,490
16	Delaware	11,523	10,854	13,528	13,811	N/A	49,716
15	Alabama	7,403	12,707	10,182	13,749	14,086	58,127

Source: CoreLogic

Table 4 – Reconstruction Value of Properties at Risk by State (U.S. Dollars)

Rank	State	Extreme	Very High	High	Moderate	Low	Total
1	Florida	\$166,127,920,621	\$87,593,956,407	\$100,948,271,678	\$66,046,901,592	\$70,402,132,718	\$491,119,183,016
2	New York	\$50,677,202,371	\$43,738,512,048	\$47,941,521,073	\$35,041,385,287	N/A	\$177,398,620,779
3	Louisiana	\$19,219,426,239	\$20,723,521,330	\$73,585,253,144	\$30,455,626,839	\$18,112,831,975	\$162,096,659,527
4	New Jersey	\$32,539,401,471	\$49,279,239,412	\$21,290,996,129	\$23,719,509,673	N/A	\$126,829,146,685
5	Virginia	\$21,749,493,964	\$24,472,282,097	\$20,790,731,449	\$17,769,718,808	\$6,266,823,323	\$91,049,049,641
6	Texas	\$7,378,747,508	\$10,949,102,801	\$19,458,405,318	\$21,932,930,066	\$18,483,135,047	\$78,202,320,740
7	South Carolina	\$27,968,086,462	\$12,767,874,946	\$13,882,875,874	\$9,539,308,384	\$6,213,580,227	\$70,371,725,893
8	Massachuset ts	\$10,293,155,124	\$17,512,619,612	\$21,563,396,990	\$15,311,723,734	N/A	\$64,680,895,460
9	North Carolina	\$13,933,404,480	\$10,330,860,954	\$9,906,870,506	\$7,751,458,704	\$7,201,904,492	\$49,124,499,136
10	Maryland	\$11,764,631,642	\$9,641,288,327	\$6,381,209,263	\$6,920,924,916	N/A	\$34,708,054,148
11	Connecticut	\$9,162,361,469	\$8,157,864,151	\$7,292,127,632	\$8,774,300,132	N/A	\$33,386,653,384

<sup>\*</sup> The "Low" risk category is based on Category 5 hurricanes, which are not likely along the northeastern Atlantic coast. States in that area have N/A designated for the Low category due to the extremely low probability of a Category 5 storm affecting that area.

<sup>\*\*</sup> Washington, D.C. has no Atlantic coastal properties, but can be affected by larger hurricanes that push storm surge into the Potomac River. Category 1 and 2 storms will likely not generate sufficient storm surge to affect properties in Washington, D.C.



	Total	393,494,752,074	324,225,419,007	371,135,087,394	267,395,972,220	132,090,242,053	1,488,341,472,748
20	District of Columbia	N/A	N/A	\$62,715,469	\$288,727,708	N/A	\$351,443,177
19	New Hampshire	\$546,389,684	\$785,968,562	\$1,255,120,636	\$628,235,688	N/A	\$3,215,714,570
18	Maine	\$1,247,207,669	\$728,679,536	\$1,966,851,214	\$1,864,662,237	N/A	\$5,807,400,656
17	Rhode Island	\$1,819,637,687	\$1,759,354,804	\$1,917,701,002	\$1,980,048,165	N/A	\$7,476,741,658
16	Alabama	\$1,266,591,391	\$2,252,764,464	\$1,761,389,904	\$2,420,261,918	\$2,253,383,119	\$9,954,390,796
15	Delaware	\$3,604,927,907	\$3,338,893,060	\$4,202,564,034	\$3,823,191,061	N/A	\$14,969,576,062
14	Pennsylvania	\$314,850,616	\$5,812,076,371	\$6,283,697,262	\$4,819,045,458	N/A	\$17,229,669,707
13	Mississippi	\$2,828,758,155	\$3,858,574,230	\$5,351,501,617	\$4,850,283,320	\$1,766,898,284	\$18,656,015,606
12	Georgia	\$11,052,557,614	\$10,521,985,895	\$5,291,887,200	\$3,457,728,530	\$1,389,552,868	\$31,713,712,107

Source: CoreLogic

Table 5 - Storm Surge Risk for Top 5 Metro Areas

Rank	Metropolitan Area	Total Properties Potentially Affected By All Categories of Hurricane	Total RCV (U.S. Dollars)
1	New York, NY	685,152	\$244,312,501,442
2	Miami, FL	564,913	\$105,134,042,455
3	Tampa, FL	447,990	\$78,191,384,320
4	Virginia Beach, VA-NC	395,341	\$86,393,517,790
5	New Orleans, LA	380,120	\$84,242,355,537

Source: CoreLogic

Additional CBSA data, market rankings, regional, state and local-level maps are available upon request.

### Methodology

The 2015 CoreLogic storm surge analysis encompasses single-family residential structures including mobile homes, duplexes, manufactured homes and cabins, among other non-traditional home types. Year-over-year changes in the number of homes at risk and RCV can be the result of several variables, including new home construction, improved public records, enhanced modeling techniques, fluctuation in labor, equipment and material costs, and even potential rise in sea level. As a result, direct year-over-year comparisons should be avoided. To estimate the value property exposure of the single-family residences CoreLogic utilized it's proprietary Marshall & Swift/Boeckh reconstruction cost valuation methodology. This methodology estimates the cost to rebuild the property in the event of a total loss and is not to



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be confused with property market values or new construction cost estimation. Reconstruction cost estimates more accurately reflect the actual cost of damage or destruction of residential buildings that would occur from hurricane-driven storm surge since they include the cost of materials, equipment and labor needed to rebuild, and also factor in geographical pricing differences. Actual land values are not included in the estimates. The values are based on 100-percent or total destruction of the residential structure. Depending upon the amount of surge water from a given storm, there may be less than 100 percent damage to the residence, which would result in a lower realized reconstruction cost value.

Storm surge is triggered primarily by the high winds and low pressure associated with hurricanes, which cause water to amass inside a storm as it moves across the ocean before releasing as a powerful rush overland when the hurricane moves onshore. In addition to the property damage and potential lives lost to flooding, the speed and force associated with storm surge waves can significantly increase geographic and economic impact in hurricane disaster areas.

## **About CoreLogic**

CoreLogic (NYSE: CLGX) is a leading global property information, analytics and data-enabled services provider. The company's combined data from public, contributory and proprietary sources includes over 3.3 billion records spanning more than 40 years, providing detailed coverage of property, mortgages and other encumbrances, consumer credit, tenancy, location, hazard risk and related performance information. The markets CoreLogic serves include real estate and mortgage finance, insurance, capital markets, and the public sector. CoreLogic delivers value to clients through unique data, analytics, workflow technology, advisory and managed services. Clients rely on CoreLogic to help identify and manage growth opportunities, improve performance and mitigate risk. Headquartered in Irvine, Calif., CoreLogic operates in North America, Western Europe and Asia Pacific. For more information, please visit www.corelogic.com.

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