



*Irvine, CA  
Oakland, CA  
Boulder, CO  
Austin, TX  
Westlake, TX  
Milwaukee, WI  
London, UK  
Paris, France*

July 3, 2019

Floyd Yager, Chair  
**Florida Commission on Hurricane Loss Projection Methodology**  
c/o Donna Sirmons  
Florida State Board of Administration  
1801 Hermitage Boulevard, Suite 100  
Tallahassee, FL 32308

Re: Florida Hurricane Model 2019a

Dear Mr. Yager:

Per the June 13, 2019 Commission meeting to review the CoreLogic Florida Hurricane Model 2019a under the 2017 Standards, we are providing an addendum to our submission. The addendum includes hurricane mitigation measures and secondary structural modifiers in Tables 10 and 11 under Standard A-1, Disclosure 4. The updates to these tables have no impact on loss costs or probable maximum loss levels.

Sincerely,

  
CoreLogic, Inc.  
Justin M. Brolley  
Senior Principal Research Scientist, Model Development, Insurance and Spatial Solutions

## Actuarial Standards

### A-1 Hurricane Modeling Input Data and Output Reports

- A. Adjustments, edits, inclusions, or deletions to insurance company or other input data used by the modeling organization shall be based upon generally accepted actuarial, underwriting, and statistical procedures.**

Adjustments, edits, inclusions, or deletions to insurance company input data used by the modeler are based upon generally accepted actuarial, underwriting, and statistical procedures.

- B. All modifications, adjustments, assumptions, inputs and input file identification, and defaults necessary to use the hurricane model shall be actuarially sound and shall be included with the hurricane model output report. Treatment of missing values for user inputs required to run the hurricane model shall be actuarially sound and described with the hurricane model output report.**

Any assumption or method used by CoreLogic's hurricane loss projection model that relates to a specific insurer's inputs to the model, if any, for the purposes of preparing the insurer's rate filing is clearly identified. Treatment of missing values for user inputs required in the model are actuarially sound.

### Disclosures

4. *Provide a copy of the input form(s) used by the hurricane model with the hurricane model options available for selection by the user for the Florida hurricane model under review. Describe the process followed by the user to generate the hurricane model output produced from the input form. Include the hurricane model name and version identification on the input form. All items included in the input form submitted to the Commission should be clearly labeled and defined.*

An example of the Florida Hurricane Model input form is shown below. The field names are in the first column and arranged into six groups (P for policy information, PC for policy coverage information, PF for policy facultative reinsurance, S for site information, SC for site coverage information, and SF for site facultative reinsurance). The example below has five records of data (policy numbers FLP001 through FLP005). To generate the model output, a user of the model imports the import form using functionality built into the CoreLogic software, selects the relevant analysis options and desired output reports, and executes the analysis.



The input form contains hurricane mitigation measures and secondary structural modifiers.

**TABLE 10. CORELOGIC FLORIDA HURRICANE MODEL 2019A INPUT FORM**  
Product Version: CoreLogic Florida Hurricane Model Version: 2019a

P_PolNum	FLP001	FLP002	FLP003	FLP004	FLP005
P_InsName					
P_AcctNum					
P_AcctName					
P_Company	C1	C1	C1	C1	C1
P_Division	NY	NY	FL	FL	NY
P_Branch	Mia	Mia	Mia	Mia	Mia
P_LineBus	HO	HO	MP	MP	HO
P_PolTyp	COMF	COMF	HO	HO	HO
P_PolStats	IN	IN	IN	IN	IN
P_IncpDate	20020901	20021101	20021201	20020901	20021101
P_ExprDate	20030831	20031031	20031130	20030831	20031031
P_Producer	9912	4412	7413	1284	9912
P_TransID	99	99	99	99	99
PC_PerlTyp	Wind	Wind	Wind	Wind	Wind
PC_CvgTyp	Bldg	Cont	Time	Time	ALE
PC_LmtAmt	500	333	111	222	67
PC_LmtTyp	CovSpec	CovSpec	CovSpec	CovSpec	CovSpec
PC_DedAmt	1000	1000	1000	1000	1000
PC_DedTyp	CovSpec	CovSpec	CovSpec	CovSpec	CovSpec
PC_PolPrm	600	600	600	600	600
PC_AttcPnt	0	0	0	0	0
PC_ProRata	100	100	100	100	100
PF_CertNum					
PF_PerlTyp					
PF_CvgTyp					
PF_ReinApp					
PF_AttPnt					
PF_LayAmt					
PF_CedPcnt					
PF_ReinTyp					
PF_AggLmt					
PF_Reinsr					
PF_Broker					
PF_CertSta					
PF_ReinPrm					
PF_TrtyNum					
S_Number	1	1	1	1	1
S_Name					
S_StrAddr	400 S Greenwood	2040 Whitfield	7400 Nw 19	2801 Rosselle	4586 Palm Ave
S_City	Clearwater	Sarasota	Miami	Jacksonville	Hialeah
S_County	Pinellas	Manatee	Dade	Duval	Dade
S_State	FL	FL	FL	FL	FL
S_Zip_5dg	34616	34243	33147	32205	33012
S_WndStruc	SC52	SC52	SC654	SC654	SC654
S_WndOccpy	OC1	OC1	OC1	OC1	OC1
S_YrBuilt	1968	1980	1934	1942	1960
S_NumStory	1	2	1	1	1
S_NumStruc	1	1	1	1	1



S_RF_MAT	1	1	1	1	1
S_RF_SHE	8	8	8	8	8
S_RF_FLASH_TYP	0	0	0	0	0
S_RF_FLASH_COND	0	0	0	0	0
S_RF_COND	2	2	2	2	2
S_RF_AGE	0	0	0	0	0
S_RF_PROF	3	3	3	3	3
S_RF_SLOP	0	0	0	0	0
S_RF_OHANG	0	3	0	0	0
S_RF_PARA	0	0	0	0	0
S_RF_EQU_AN	0	0	0	0	0
S_RF_EQU_GUA	0	0	0	0	0
S_RF2WALL	4	5	4	4	4
S_FND_ANCH	2	2	2	2	2
S_WL_CLAD	5	5	7	7	7
S_EX_WL_CON	0	4	0	0	0
S_WFR_COND	2	2	0	0	0
S_DR_OPG	1	2	1	1	1
S_DR_OVR	0	2	0	0	0
S_DOOR_REIN	1	1	1	1	1
S_GLAZ_EXT	2	4	2	2	2
S_GL_TYPE	0	1	0	0	0
S_GLA_SIZ	0	2	0	0	0
S_EVIDEN	1	1	1	1	1
S_SHUT	0	0	0	0	0
S_SKY	0	1	0	0	0
S_SKY_TYPE	0	0	0	0	0
S_SL_GL	0	0	0	0	0
S_MH_WALL2FL	0	0	0	0	0
S_MH_WIDTH	0	0	0	0	0
S_WIN_EXP	2	2	2	2	2
S_CODE	1	4	1	1	1
S_CODE_ENFORC	2	2	2	2	2
SC_PerlTyp	Wind	Wind	Wind	Wind	Wind
SC_CvgTyp	Bldg	Cont	Time	Time	ALE
SC_CovQual	50	50	50	50	50
SC_TIV	600	350	150	250	75
SC_LmtAmt	500	333	111	222	67
SC_LmtTyp	CovSpec	CovSpec	CovSpec	CovSpec	CovSpec
SC_DedAmt	1000	1000	1000	1000	1000
SC_DedTyp	CovSpec	CovSpec	CovSpec	CovSpec	CovSpec
SC_Prem	600	600	600	600	600
SF_CertNum					
SF_PerlTyp					
SF_CvgTyp					
SF_ReinApp					
SF_AttPnt					
SF_LayAmt					
SF_CedPcnt					
SF_ReinTyp					
SF_Reinsr					
SF_Broker					
SF_CertSta					
SF_Prem					
SF_TrtyNum					

The table below provides descriptions for each of the input data fields.

**TABLE 11. DESCRIPTION OF INPUT DATA FIELDS**

Field Name	Data Group	Description
P_PolNum	Policy	Policy Number
P_InsName	Policy	Insured Name
P_AcctNum	Policy	Account Number
P_AcctName	Policy	Account Name
P_Company	Policy	Company
P_Division	Policy	Division
P_Branch	Policy	Branch
P_LineBus	Policy	Line of Business
P_PolTyp	Policy	Policy Type
P_PolStats	Policy	Policy Status
P_IncpDate	Policy	Inception Date
P_ExprDate	Policy	Expiration Date
P_Producer	Policy	Producer
P_TransID	Policy	Translation ID
PC_PerlTyp	Policy Coverage	Peril Type
PC_CvgTyp	Policy Coverage	Coverage Type
PC_LmtAmt	Policy Coverage	Limit Amount
PC_LmtTyp	Policy Coverage	Limit Type
PC_DedAmt	Policy Coverage	Deductible Amount
PC_DedTyp	Policy Coverage	Deductible Type
PC_PolPrm	Policy Coverage	Policy Premium
PC_AttcPnt	Policy Coverage	Attachment Point
PC_ProRata	Policy Coverage	Prorata
PF_CertNum	Policy Facultative	Certificate Number
PF_PerlTyp	Policy Facultative	Peril Type
PF_CvgTyp	Policy Facultative	Coverage Type
PF_ReinApp	Policy Facultative	Reinsurance Applies
PF_AttPnt	Policy Facultative	Attachment Point
PF_LayAmt	Policy Facultative	Layer Amount
PF_CedPcnt	Policy Facultative	Ceded Percentage
PF_ReinTyp	Policy Facultative	Reinsurance Type
PF_AggLmt	Policy Facultative	Aggregate Limit
PF_Reinsr	Policy Facultative	Reinsurer
PF_Broker	Policy Facultative	Broker
PF_CertSta	Policy Facultative	Certificate Status
PF_ReinPrm	Policy Facultative	Reinsurance Premium
PF_TrtyNum	Policy Facultative	Treaty Number
S_Number	Site	Site Number
S_Name	Site	Site Name
S_StrAddr	Site	Street Address
S_City	Site	City
S_County	Site	County
S_State	Site	State
S_Zip_5dg	Site	ZIP Code
S_WndStruc	Site	Wind Structure Type
S_WndOccpy	Site	Wind Occupancy Type
S_YrBuilt	Site	Year Built
S_NumStory	Site	Number of Stories
S_NumStruc	Site	Number of Structures
S_RF_MAT	Site	Roof Covering



Field Name	Data Group	Description
S_RF_SHE	Site	Roof Sheathing
S_RF_FLASH_TYP	Site	Roof Flashing Type
S_RF_FLASH_COND	Site	Roof Flashing Condition
S_RF_COND	Site	Roof Condition
S_RF_AGE	Site	Roof Age
S_RF_PROF	Site	Roof Profile
S_RF_SLOP	Site	Roof Slope
S_RF_OHANG	Site	Roof Overhang
S_RF_PARA	Site	Roof Parapet
S_RF_EQU_AN	Site	Roof Equipment Anchorage
S_RF_EQU_GUA	Site	Roof Equipment Guard
S_RF2WALL	Site	Roof-to-Wall Connection
S_FND_ANCH	Site	Wall-to-Floor Foundation Anchorage
S_WL_CLAD	Site	Wall Cladding
S_EX_WL_CON	Site	Exterior Wall Condition
S_WFR_COND	Site	Condition of Wood Framing
S_DR_OPG	Site	Entryway Door Opening
S_DR_OVR	Site	Overhead Doors
S_DOOR_REIN	Site	Door Reinforcements
S_GLAZ_EXT	Site	Glazing Extent
S_GL_TYPE	Site	Glazing Type
S_GLA_SIZ	Site	Glazing Size
S_EVIDEN	Site	Evidence of Glazing Standards
S_SHUT	Site	Shutters
S_SKY	Site	Skylight Extent
S_SKY_TYPE	Site	Skylight Type
S_SL_GL	Site	Sliding Glass Door
S_MH_WALL2FL	Site	Manufactured Home Wall-to-Floor Anchorage
S_MH_WIDTH	Site	Manufactured Home Width
S_WIN_EXP	Site	Wind Exposure
S_CODE	Site	Design Code
S_CODE_ENFORC	Site	Code Enforcement
SC_PerlTyp	Site Coverage	Peril Type
SC_CvgTyp	Site Coverage	Coverage Type
SC_CovQual	Site Coverage	Coverage Quality
SC_TIV	Site Coverage	Total Insured Value
SC_LmtAmt	Site Coverage	Limit Amount
SC_LmtTyp	Site Coverage	Limit Type
SC_DedAmt	Site Coverage	Deductible Amount
SC_DedTyp	Site Coverage	Deductible Type
SC_Prem	Site Coverage	Premium
SF_CertNum	Site Facultative	Certificate Number
SF_PerlTyp	Site Facultative	Peril Type
SF_CvgTyp	Site Facultative	Coverage Type
SF_ReinApp	Site Facultative	Reinsurance Applies
SF_AttPnt	Site Facultative	Attachment Point
SF_LayAmt	Site Facultative	Layer Amount
SF_CedPcnt	Site Facultative	Ceded Percentage
SF_ReinTyp	Site Facultative	Reinsurance Type
SF_Reinsr	Site Facultative	Reinsurer
SF_Broker	Site Facultative	Broker
SF_CertSta	Site Facultative	Certificate Status
SF_Prem	Site Facultative	Reinsurance Premium
SF_TrtyNum	Site Facultative	Treaty Number



**Form G-1: General Standards Expert Certification**

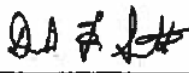
Purpose: This form identifies the signatory or signatories who have reviewed the current submission for compliance with the General Standards (G-1 - G-5) in accordance with the stated provisions.

I hereby certify that I have reviewed the current submission of CoreLogic Florida Hurricane Model Version 2019a for compliance with the 2017 Hurricane Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology and hereby certify that:

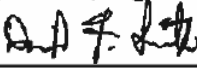
- 1) The hurricane model meets the General Standards (G-1 – G-5);
- 2) The disclosures and forms related to the General Standards section are editorially and technically accurate, reliable, unbiased, and complete;
- 3) My review was completed in accordance with the professional standards and code of ethical conduct for my profession;
- 4) My review involved ensuring the consistency of the content in all sections of the submission; and
- 5) In expressing my opinion, I have not been influenced by any other party in order to bias or prejudice my opinion.

David Smith, Senior Director  
Name

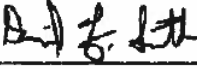
M.S., Geophysics  
Professional Credentials (Area of Expertise)

  
Signature (original submission)

October 31, 2018  
Date

  
Signature (response to deficiencies, if any)

JANUARY 17, 2017  
Date

  
Signature (revisions to submission, if any)

FEBRUARY 6, 2019  
Date

  
Signature (final submission)

JULY 2, 2019  
Date

*An updated signature and form are required following any modification of the hurricane model and any revision of the original submission. If a signatory differs from the original signatory, provide the printed name and professional credentials for any new signatories. Additional signature lines shall be added as necessary with the following format:*

\_\_\_\_\_  
Signature (revisions to submission)

\_\_\_\_\_  
Date

NOTE: A facsimile or any properly reproduced signature will be acceptable to meet this requirement. Include Form G-1, General Standards Expert Certification, in a submission appendix.





**Form G-5: Actuarial Standards Expert Certification**

Purpose: This form identifies the signatory or signatories who have reviewed the current submission for compliance with the Actuarial Standards (A-1 - A-6) in accordance with the stated provisions.

I hereby certify that I have reviewed the current submission of CoreLogic Florida Hurricane Model Version 2019a for compliance with the 2017 Hurricane Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology and hereby certify that:

- 1) The hurricane model meets the Actuarial Standards (A-1 – A-6);
- 2) The disclosures and forms related to the Actuarial Standards section are editorially and technically accurate, reliable, unbiased, and complete;
- 3) My review was completed in accordance with the Actuarial Standards of Practice and Code of Conduct; and
- 4) In expressing my opinion, I have not been influenced by any other party in order to bias or prejudice my opinion.

<u>Howard Kunst, Chief Actuary</u>	<u>FCAS, MAAA</u>
Name	Professional Credentials (Area of Expertise)
<u>Howard Kunst</u>	<u>10-29-2018</u>
Signature (original submission)	Date
<u>Howard Kunst</u>	<u>1-17-2019</u>
Signature (response to deficiencies, if any)	Date
<u>Howard Kunst</u>	<u>2-6-2019</u>
Signature (revisions to submission, if any)	Date
<u>Howard Kunst</u>	<u>7-2-2019</u>
Signature (final submission)	Date
_____	_____
Signature (revisions to submission)	Date

An updated signature and form is required following any modification of the model and any revision of the original submission. If a signatory differs from the original signatory, provide the printed name and professional credentials for any new signatories. Additional signature lines shall be added as necessary with the following format:

NOTE: A facsimile or any properly reproduced signature will be acceptable to meet this requirement. Include Form G-5, Actuarial Standards Expert Certification, in a submission appendix.





**Form G-7: Editorial Review Expert Certification**

Purpose: This form identifies the signatory or signatories who have reviewed the current submission for compliance with the Notification Requirements and General Standard G-5, Editorial Compliance, in accordance with the stated provisions.

I hereby certify that I have reviewed the current submission of CoreLogic Florida Hurricane Model Version 2019a for compliance with the "Process for Determining the Acceptability of a Computer Simulation Hurricane Model" adopted by the Florida Commission on Hurricane Loss Projection Methodology in its *Hurricane Standards Report of Activities as of November 1, 2017*, and hereby certify that:

- 1) The hurricane model submission is in compliance with the Notification Requirements and General Standard G-5 (Editorial Compliance);
- 2) The disclosures and forms related to each hurricane standards section are editorially accurate and contain complete information and any changes that have been made to the submission during the review process have been reviewed for completeness, for grammatical correctness, and for typographical errors;
- 3) There are no incomplete responses, charts or graphs, inaccurate citations, or extraneous text or references;
- 4) The current version of the hurricane model submission has been reviewed for grammatical correctness, typographical errors, completeness, the exclusion of extraneous data/information and is otherwise acceptable for publication; and
- 5) In expressing my opinion, I have not been influenced by any other party in order to bias or prejudice my opinion.

Justin Brolley, Senior Principal Research Scientist

Name

Justin Brolley  
Signature (original submission)

Justin M. Brolley  
Signature (response to deficiencies, if any)

Justin M. Brolley  
Signature (revisions to submission, if any)

Justin M. Brolley  
Signature (final submission)

Ph.D., Meteorology

Professional Credentials (Area of Expertise)

31 October 2018  
Date

18 January 2019  
Date

7 February 2019  
Date

3 July 2019  
Date

**An updated signature and form are required following any modification of the hurricane model and any revision of the original submission. If a signatory differs from the original signatory, provide the printed name and professional credentials for any new signatories. Additional signature lines shall be added as necessary with the following format:**

\_\_\_\_\_  
Signature (revisions to submission)

\_\_\_\_\_  
Date

NOTE: A facsimile or any properly reproduced signature will be acceptable to meet this requirement. Include Form G-7, Editorial Review Expert Certification, in a submission appendix.