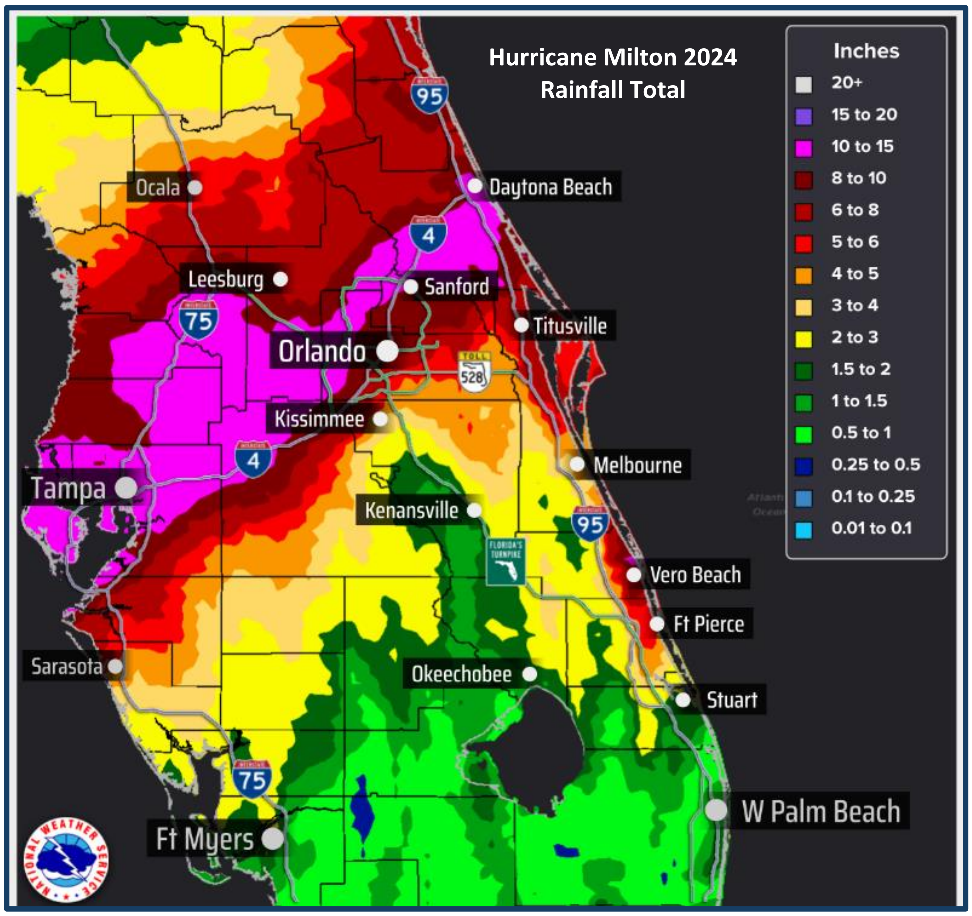
Flood Standards Report of Activities as of November 1, 2025



Florida Commission on Hurricane Loss Projection Methodology

FLORIDA COMMISSION ON HURRICANE LOSS PROJECTION METHODOLOGY

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November 1, 2025

The Honorable Ron DeSantis, Chairman
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Tallahassee, Florida 32399

The Honorable James Uthmeier, Secretary
Attorney General
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Tallahassee, Florida 32399

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Chief Financial Officer
Plaza Level 11, The Capitol
Tallahassee, Florida 32399

State Board of Administration Trustees
November 1, 2025
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Dear Trustees:

As Acting Chair of the Florida Commission on Hurricane Loss Projection Methodology (Commission), I am pleased to present to you the *Flood Standards Report of Activities as of November 1, 2025*. This report documents the Commission's work relating to the development and adoption of flood standards and subsequent revisions.

Section 627.0628, F.S., created the Commission as a panel of experts to be administratively housed in the State Board of Administration but requires the Commission to independently exercise its power and duties. The Commission is required to adopt revisions to "previously adopted actuarial methods, principles, standards, models, or output ranges no less than every four years for flood loss projections." Such revisions were made in compliance with the statute.

If you have any questions or comments regarding the work of the Commission, please call me at (850) 410-6633.

Sincerely,

Sean Martin, Acting Chair
Florida Commission on Hurricane Loss Projection Methodology

Florida Commission on Hurricane Loss Projection Methodology
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INTRODUCTION

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LEGISLATIVE FINDINGS AND INTENT

In 1995, the Florida Legislature enacted s. 627.0628, Florida Statutes (F.S.), creating the Florida Commission on Hurricane Loss Projection Methodology (Commission).[1] The Legislature specifically determined that "reliable projections of hurricane losses are necessary to assure that rates for residential insurance are neither excessive nor inadequate," and that in recent years computer modeling has made it possible to improve on the accuracy of hurricane loss projections. The Legislature found that "it is the public policy of this state to encourage the use of the most sophisticated actuarial methods to ensure that consumers are charged lawful rates for residential property insurance coverage."[2] The Legislature clearly supports and encourages the use of computer modeling as part of the ratemaking process.

In 2014, the Florida Legislature expanded the role of the Commission by passing CS/CS/CS/Senate Bill (SB) 542 creating s. 627.715, F.S., which allowed for authorized insurers in Florida to write flood insurance. Additionally, several existing statutes were amended including the statute creating the Commission, s. 627.0628, F.S., and the insurance rating law statutory section, s. 627.062, F.S., dealing with rate filings. The new legislation tasked the Commission with adopting "actuarial methods, principles, standards, models, or output ranges for personal lines residential flood loss no later than July 1, 2017." The Commission started the process in 2014, and published *Discussion Flood Standards as of December 1, 2015,* which also provided for various types of feedback leading up to the July 1, 2017, statutory deadline for adopting flood standards. The Commission adopted principles, standards, and output ranges for personal lines residential flood loss in June 2017.

Where appropriate, this *Flood Standards Report of Activities* refers to hurricane and attempts to incorporate the references to hurricane in the context of the Commission's duties, but the report does not contain any specific hurricane standards, nor does it specifically address the process of reviewing hurricane models. The hurricane standards and process of reviewing hurricane models is published in the *Hurricane Standards Report of Activities as of November 1, 2025.* Hurricane models will be reviewed separately from flood models using their respective standards as adopted by the Commission. The adoption of hurricane standards and the Acceptability Process for hurricane models is accomplished in parallel with the Commission's role regarding flood models.

THE ROLE OF THE COMMISSION

Although the statutory section creating the Commission is in the Florida Insurance Code, the Commission is an independent body and is administratively housed in the State Board of Administration of Florida (SBA). The role of the Commission is limited to adopting findings relating to the accuracy or reliability of particular methods, principles, standards, models, or

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[1] CS/HB 2619 (Ch. 95-276, Laws of Florida).
[2] Section 627.0628(1)(a), F.S.

output ranges used to project hurricane losses, flood losses, and probable maximum loss calculations.

Section 627.0628(3)(c), F.S., states that "to the extent feasible," the SBA must "employ actuarial methods, principles, standards, models, or output ranges found by the Commission to be accurate or reliable" in formulating reimbursement premiums for the Florida Hurricane Catastrophe Fund (FHCF). Under s. 627.0628(3)(d), F.S., individual insurers are required to use the Commission's findings in order to support or justify a rate filing with the Office of Insurance Regulation (OIR) as follows, "an insurer shall employ and may not modify or adjust actuarial methods, principles, standards, models, or output ranges found by the commission to be accurate or reliable in determining hurricane loss factors and probable maximum loss levels for use in a rate filing under s. 627.062. An insurer may employ a model in a rate filing until 120 days after the expiration of the commission's acceptance of that model and may not modify or adjust models found by the commission to be accurate or reliable in determining probable maximum loss levels. This paragraph does not prohibit an insurer from using a straight average of model results or output ranges for the purposes of a rate filing for personal lines residential flood insurance coverage under s. 627.062."

The Legislature addressed the definition of and the protection of trade secrets used in designing and constructing a hurricane model in 2005 and 2010, and for a flood model in 2014. In s. 627.0628(3)(g), F.S.,[3] the Legislature found that it is a public necessity to protect trade secrets "used in designing and constructing a hurricane or flood loss model," and therefore, allowed an exemption from the public records law requirements and the public meetings law requirements. The goal of this legislation was to enable the Commission to have access to all aspects of hurricane and flood models and to encourage private companies to submit such models for review without concern that trade secrets will be disclosed. The exemption applies to "a trade secret, as defined in s. 688.002, F.S., which is used in designing and constructing a hurricane or flood loss model" being exempt pursuant to s. 627.0628(3)(g), F.S., from the requirements of the public records law s. 119.07(1), F.S., including s. 24(a), Article I of the State Constitution and the public meetings law s. 286.011, F.S., including s. 24(b), Article I of the State Constitution.

In 2010 the Legislature revised the scope of the public records exemption by providing that the definition of "trade secret" in the Uniform Trade Secrets Act would apply in place of the definition in s. 812.081, F.S.[4] The effect of this change was to make the public records exemption for trade secrets consistent with other similar exemptions.

[3] Created in 2005 by HB 1939 (Ch. 2005-264, Laws of Florida).

[4] HB 7119 (Ch. 2010-90, Laws of Florida). The language in s. 812.081, F.S., defines trade secrets which relate to theft, robbery, and related crimes. Under s. 688.002(4), F.S., "trade secret" means information, including a formula, pattern, compilation, program, device, method, technique, or process that:

(a) Derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use; and
(b) Is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

The 2010 legislation also required that all portions of a closed Commission meeting be recorded. No portion of the closed meeting may be off the record. The bill also created a public records exemption for the recordings of closed meetings.

In 2014 the Legislature expanded the definition of trade secrets and the related protection to include those used in designing and constructing a "flood loss model."[5]

In 2019 the Legislature removed the scheduled repeal of the trade secret exemptions making them permanent.[6]

THE WORK OF THE COMMISSION

The Commission was created as a panel of experts to evaluate computer models and other recently developed or improved actuarial methodologies for projecting hurricane losses, flood losses, and probable maximum loss levels so as "to resolve conflicts among actuarial professionals" and "to provide both immediate and continuing improvement in the sophistication of actuarial methods used to set rates."[7]

Sections 627.0628(3)(a) and (b), F.S., define the role of the Commission:

> The commission shall consider any actuarial methods, principles, standards, models, or output ranges that have the potential for improving the accuracy of or reliability of the hurricane loss projections used in residential property insurance rate filings and flood loss projections used in rate filings for personal lines residential flood insurance coverage. The commission shall, from time to time, adopt findings as to the accuracy or reliability of particular methods, principles, standards, models, or output ranges.
>
> The commission shall consider any actuarial methods, principles, standards, or models that have the potential for improving the accuracy of or reliability of projecting probable maximum loss levels. The commission shall adopt findings as to the accuracy or reliability of particular methods, principles, standards, or models related to probable maximum loss calculations.

The statutory language is clear in that those methods or models that have the potential for improving the accuracy or reliability of hurricane loss projections, flood loss projections, and probable maximum loss levels are the ones to be considered by the Commission. "Improving" suggests that the methods or models should be an improvement over the then existing current methods or models used in the residential rate filing process prior to the Commission's enactment.

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[5] SB 1262 (Ch. 2014-98, Laws of Florida).
[6] HB 7091 (Ch. 2019-35, Laws of Florida).
[7] Section 627.0628(1)(b), F.S.

In 2014, the Legislature revised s. 627.0628(3)(e), F.S., establishing a new deadline for the Commission to take action. No later than July 1, 2017, "the Commission shall adopt actuarial methods, principles, standards, models, or output ranges for personal lines residential flood loss." To achieve the requirements of the new statutory mandate, the Commission, in 2014, created a Flood Standards Development Committee. The committee met monthly to develop a set of "discussion flood standards" which were published December 1, 2015. After receiving input during on-site modeling organization feedback visits and further refinement through committee meetings, the Commission adopted flood standards on June 15 & 16, 2017, meeting the statutory deadline.

Those original standards have subsequently been revised and then adopted on the following dates:

October 25, 2017
October 26 & 27, 2021
October 28, 2025

Section 627.0628(3)(f), F.S., requires the Commission to adopt revisions to "actuarial methods, principles, standards, models, or output ranges no less than every 4 years for flood loss projections." The flood standards and procedures in this *Flood Standards Report of Activities* were revised and adopted on October 28, 2025. The Commission will again adopt revisions to the flood standards in 2029.

THE MISSION STATEMENT

At the September 21, 1995, Commission meeting, the following mission statement was adopted:

> The mission of the Florida Commission on Hurricane Loss Projection Methodology is to assess the efficacy of various methodologies which have the potential for improving the accuracy of projecting insured Florida losses resulting from hurricanes and to adopt findings regarding the accuracy or reliability of these methodologies for use in residential rate filings.

The mission statement closely tracks the statute and restates the critical aspects of the Commission's work. Minor revisions to the mission statement were adopted on November 30, 1995.

The mission statement was revised on September 15, 2009, to reflect the Commission's role in reviewing models for their ability to project probable maximum loss levels. Thus, the mission statement was modified, as follows:

> The mission of the Florida Commission on Hurricane Loss Projection Methodology is to assess the effectiveness of various methodologies which have the potential for improving the accuracy of projecting insured Florida losses and probable maximum loss levels resulting from hurricanes and to adopt findings regarding the accuracy or reliability of these methodologies for use in residential rate filings and probable maximum loss calculations.

The mission statement was revised again on October 13, 2015, to reflect the Commission's role in reviewing models for their ability to project flood losses used in rate filings for personal lines residential flood insurance coverage. Thus, the mission statement was modified, as follows:

> The mission of the Florida Commission on Hurricane Loss Projection Methodology is to assess the effectiveness of various methodologies which have the potential for improving the accuracy of projecting insured Florida losses and probable maximum loss levels resulting from hurricanes and floods and to adopt findings regarding the accuracy or reliability of these methodologies for use in residential rate filings (hurricane loss projections), personal lines residential rate filings (flood loss projections), and probable maximum loss calculations.

OVERVIEW

To date, the following flood models have been evaluated by the Commission against the standards for the applicable years listed below and were found acceptable.

Modeling Organization	**Standards**
Florida Public Flood Loss Model	2021
Impact Forecasting	2021
Karen Clark & Company	2017, 2021

PRINCIPLES

PRINCIPLES

(These principles are applicable to the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.)

1. The mission of the Florida Commission on Hurricane Loss Projection Methodology is to assess the effectiveness of various methodologies which have the potential for improving the accuracy of projecting insured Florida losses and probable maximum loss levels resulting from hurricanes and floods and to adopt findings regarding the accuracy or reliability of these methodologies for use in residential rate filings (hurricane loss projections), personal lines residential rate filings (flood loss projections), and probable maximum loss calculations.
   History-New 9/21/95, rev. 11/30/95, rev. 9/15/09, rev. 10/13/15

2. The Commission shall recognize that a modeling organization may develop either a hurricane model, a flood model, or both. As a result, the Commission's adoption of standards and the review of each respective model shall be independent and separate of the other type of model. The acceptability or failure of one type of model shall not have an immediate impact on the acceptability or failure of another type of model from the same modeling organization. Although the review process is similar in context for all types of models, the Commission shall recognize the unique process applicable to a hurricane model review and the unique process applicable to a flood model review. Only one type of model shall be submitted at a time by a modeling organization for review for that type of model (hurricane or flood) except as provided for in the Acceptability Process of its most recent *Hurricane Standards Report of Activities* or *Flood Standards Report of Activities*.
   History-New 6/16/17

3. The Commission shall consider the costs and benefits associated with its review process, including costs and benefits to the State and its citizens, to the insurance industry, and to the modeling organizations.
   History-New 8/18/06

4. The general focus of the Commission shall be on those areas of modeling which produce the most variation in output results and have the most promise of improving the science of modeling.
   History-New 8/18/06

5. The Commission shall pursue and promote research opportunities from time to time when issues need resolution and such research would advance the science of modeling.
   History-New 8/18/06

6. All models or methods shall be theoretically sound.
   History-New 9/21/95, rev. 8/18/06

7. The Commission's review process shall be active and designed to test model output for reasonableness and to test model assumptions.
   History-New 8/18/06

8. Models or methods shall not be biased in a way that overstates or understates results.
   History-New 9/21/95, rev. 8/18/06

9. All trade secret components of models or methods shall be identified.
   History-New 9/21/95, rev. 8/18/06, rev. 10/28/25

10. The trade secret aspects of models or methods being reviewed by the Commission shall be protected.
    History-New 11/30/95, rev. 5/20/96, rev. 9/14/05, rev. 8/18/06

11. Commission members shall have sufficient information concerning model assumptions and factors used in model development, whether trade secret or not, to make a finding about the acceptability of a model or method.
    History-New 8/18/06, rev. 10/28/25

12. The Commission's review process of models or methods shall not restrict competition in the catastrophe modeling industry or thwart innovation in that industry.
    History-New 11/30/95, rev. 5/20/96, rev. 8/18/06

13. The Commission shall consider how advances in science or technology shall be incorporated in its revision of standards, and, where and when appropriate, develop new standards or revise existing standards to reflect these advances.
    History-New 8/18/06, rev. 9/16/09

14. The Commission shall consider how statutory changes shall be incorporated in its revision of standards, and, where and when appropriate, develop new standards or revise existing standards to reflect these statutory changes.
    History-New 8/18/06, rev. 9/16/09

15. The Commission's review of models or methods for acceptability shall give priority to new standards and standards that have been modified.
    History-New 8/18/06, rev. 9/16/09

16. The output of models or methods shall be reasonable, and the modeling organization shall demonstrate its reasonableness.
    History-New 9/21/95, rev. 8/22/03, rev. 8/18/06

17. All adoptions of findings and any other formal action taken by the Commission shall be made at a publicly noticed meeting, by motion followed by a formal member by member roll call vote, all of which shall be transcribed by a court reporter, such transcription to be made a part of the official record of the proceedings of the Commission. The Commission shall not record a transcript for the portion of a Commission meeting where trade secrets used in the design and construction of the model are discussed. No official action or decision shall be made in a closed meeting.
    History-New 11/30/95, rev. 8/22/03, rev. 9/14/05, rev. 8/18/06, rev. 9/15/09, rev. 10/13/15

18. All findings adopted by the Commission are subject to revision at the discretion of the Commission.
    History-New 11/30/95

19. No model or method shall be determined to be acceptable by the Commission until it has been evaluated by the Commission in accordance with the process and procedures which the Commission considers appropriate for that model or method.
    History-New 11/30/95, rev. 5/20/96, rev. 8/18/06

20. The Commission's determination of acceptability of a specific model or method does not constitute determination of acceptability of other versions or variations of that model or method; however, the Commission shall attempt to accommodate routine updating of acceptable models or methods.
    History-New 11/30/95, rev. 5/20/96, rev. 8/18/06

21. The Commission shall consider the educational needs of its members and from time to time implement educational programs that further Commission members' understanding of the science of modeling.
    History-New 8/18/06

COMMISSION STRUCTURE

COMMISSION STRUCTURE

(The Commission Structure is applicable to the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.)

OVERSIGHT

The Commission was created, pursuant to s. 627.0628, F.S., “to independently exercise the powers and duties specified” in that statute. The Commission is administratively housed within the State Board of Administration of Florida (SBA), and as a cost of administration, the Florida Hurricane Catastrophe Fund (FHCF) provides travel reimbursement, expenses, and staff support. The SBA has no governing authority over the Commission; however, the SBA annually appoints one of the Commission members to serve as Chair, appoints one of the Commission members who is the actuary member of the FHCF Advisory Council, and has final approval authority over the Commission’s budget.

MEMBERSHIP AND REQUIRED EXPERTISE

Section 627.0628(2)(b), F.S., requires that the Commission consist of twelve members with the following qualifications and expertise:

1. The Insurance Consumer Advocate,

2. The senior employee of the State Board of Administration responsible for operations of the Florida Hurricane Catastrophe Fund,

3. The Executive Director of the Citizens Property Insurance Corporation or the Executive Director’s designee who must be a full-time employee of the corporation and have actuarial science experience,

4. The Director of the Division of Emergency Management or the Director’s designee who must be a full-time employee of the division,

5. The actuary member of the Florida Hurricane Catastrophe Fund Advisory Council,

6. An employee of the Florida Department of Financial Services, Office of Insurance Regulation who is an actuary responsible for property insurance rate filings and who is appointed by the Director of the Office of Insurance Regulation,

7. Five members appointed by the Chief Financial Officer, as follows:

   a. An actuary who is employed full time by a property and casualty insurer which was responsible for at least 1 percent of the aggregate statewide direct written premium for homeowner’s insurance in the calendar year preceding the member’s appointment to the Commission,

   b. An expert in insurance finance who is a full-time member of the faculty of the State University System and who has a background in actuarial science,

   c. An expert in statistics who is a full-time member of the faculty of the State University System and who has a background in insurance,

   d. An expert in computer system design who is a full-time member of the faculty of the State University System,

   e. An expert in meteorology who is a full-time member of the faculty of the State University System and who specializes in hurricanes,

8. A licensed professional structural engineer who is a full-time faculty member in the State University System and who has expertise in wind mitigation techniques. This appointment shall be made by the Governor.

The licensed professional structural engineer was added by virtue of CS/SB 1770, which was enacted and became law in 2013. This legislation amended the requirements in s. 627.0628(2)(b), F.S., and enhanced the expertise immediately available to the Commission by increasing the membership to provide for the appointment of an additional member with special qualifications and attributes.

In 2023 the Florida Legislature passed CS/CS/CS/SB 418 amending s. 627.0628(2)(b), F.S. to provide that, in lieu of themselves, the Executive Director of the Citizens Property Insurance Corporation and the Director of the Division of Emergency Management, may appoint a designee to be a member of the Commission. The Executive Director of the Citizens Property Insurance Corporation designee must have actuarial science experience.

TERMS OF MEMBERS

The Insurance Consumer Advocate, FHCF Chief Operating Officer, Executive Director of Citizens Property Insurance Corporation, Director of the Division of Emergency Management, and the actuary member of the FHCF Advisory Council shall serve as a Commission member for as long as the individual holds the position listed.

The member appointed by the Director of the Office of Insurance Regulation shall serve until the end of the term of office of the Director who appointed the member, unless removed earlier by the Director for cause. The five members appointed by the Chief Financial Officer shall serve until the end of the Chief Financial Officer's term of office, unless the Chief Financial Officer removes them earlier for cause (s. 627.0628(2)(c), F.S.).

OFFICERS

The officers of the Commission shall be a Chair and a Vice Chair.

Annually, the SBA shall appoint one of the Commission members to serve as the Chair (s. 627.0628(2)(d), F.S.). After the Chair is appointed, the Commission shall, by majority roll call vote, elect a Vice Chair.

Duties of the Chair and Vice Chair:

1. The **CHAIR** shall:

    a. Preside at all meetings except during committee meetings where other Commission members are designated to act as committee chairs,

    b. Conduct a roll call of members at each meeting,

    c. Ensure all procedures established by the Commission are followed,

    d. Designate one of the Commission members to act in the role of Chair at any meeting where the Chair and Vice Chair cannot attend, and

    e. Assign members to serve on committees and appoint committee chairs.

2. The **VICE CHAIR** shall:

    a. In the absence or by request of the Chair, preside at Commission meetings and have the duties, powers, and prerogatives of the Chair.

MEMBER DUTIES AND RESPONSIBILITIES

The purpose of the Commission is to adopt findings relating to the accuracy or reliability of particular methods, principles, standards, models, or output ranges used to project hurricane losses, flood losses, and probable maximum loss levels. This work is extremely technical and requires specialized expertise. Therefore, the Legislature, in s. 627.0628, F.S., limited membership on the Commission to a careful balance of individuals meeting specific employment, education, and expertise requirements. Thus, each member's contribution cannot be underestimated, and each member shall make every effort to attend all meetings, in person, virtually, or by telephone, and be prepared to actively participate.

In particular, each member has the following responsibilities and duties.

1. Fully prepare for each Commission meeting, and committee meeting where the member is designated as a committee member.

2. Attend and participate at each meeting in person, virtually, or by telephone.

3. Give advance notice to SBA staff, if possible, when a member must leave a meeting early or cannot attend at all.

4. Abide by the requirements of Florida's Sunshine Law. A summary of the requirements of the law is outlined in this section.

5. Since it is the SBA's responsibility to fund all Commission activities, all communications related directly to Commission activities shall be referred to SBA staff who are responsible for administrative support of the Commission.

   The following communications, directly related to Commission activities, shall not take place:

   a. Commission members shall not contact Professional Team members or modeling organizations directly, except in conjunction with participation in the on-site visit of a Commission member,

   b. Modeling organizations shall not contact Commission members or Professional Team members directly, except in conjunction with remote participation in a virtual review, and

   c. Professional Team members shall not contact Commission members or modeling organizations directly.

   A committee chair or the Commission Chair may, in conjunction with SBA staff, contact a modeling organization or outside party for the purpose of clarifying or refining input or suggested revisions to the *Hurricane Standards Report of Activities* or *Flood Standards Report of Activities*.

6. Give notice of "special" conflicts of interest where the member, the member's relative, business associate, or any principal by whom he or she is retained stands to reap a direct financial benefit or suffer a potential loss from the issue being voted on. Financial benefit, which is speculative, uncertain, or subject to many contingencies, is not a special benefit

that would preclude a member from voting. See Attorney General's Opinion 96-63 (September 4, 1996) and Commission on Ethics Opinion 94-18 (April 21, 1994).

If a special conflict of interest arises and the special conflict is apparent prior to the meeting, the member must give advance notice to SBA staff. If the special conflict becomes apparent during a meeting, the member shall immediately inform the Commission Chair or Vice Chair. The conflicted member shall recuse himself or herself from any activity of the Commission in the area of the special conflict.

7. Commission members are expected to meet the highest standards of ethical behavior. Commission members may be subject to the Code of Ethics for Public Officers and Employees, ss. 112.311-112.3261, F.S., including, but not limited to, s. 112.313(7), F.S., relating to conflicting employment or contractual relationships; s. 112.3143, F.S., relating to voting conflicts; and s. 112.3145, F.S., relating to disclosure of financial interests.

   It is understood, given the nature of the expertise held by Commission members, that general conflicts of interest are inherent. The conflicts of interest which are addressed in s. 112.3143, F.S., and the conflicts which would preclude a Commission member from voting on an issue are only those conflicts which are special.

   Additionally, Commission members shall be mindful of situations which may arise that have the potential to give an unfair advantage to any modeling organization or result in a particular Commission member having unique information and being in a position to exercise greater influence than other Commission members.

8. No one Commission member shall speak on behalf of the Commission. Members are free to give statements as their own opinion.

NEW MEMBER ORIENTATION AND CONTINUING EDUCATION OF EXISTING MEMBERS

As part of the SBA's administrative support of the Commission, the SBA staff is responsible for new member orientation. The SBA staff may also design programs for continuing education at the request of the Commission. The cost of such programs is subject to approval through the state budgetary process as outlined under ***Budget Consideration***.

ON-SITE VISITS TO THE MODELING ORGANIZATION BY COMMISSION MEMBERS

The 2005 and 2014 legislative changes to s. 627.0628, F.S., specified that the goal was to enable the Commission to have access to all aspects of hurricane and flood models. Since both a public records exemption and a public meetings exemption are provided in the law, Commission members are able to review trade secrets in much more depth and are able to inquire into the underlying nature of the hurricane and flood models without exposing such trade secret information to modeling organization competitors.

Although reliance on the expertise of the Professional Team continues to be necessary in the Commission's review process, Commission members may request to have greater access to the hurricane and flood models by going to the modeling organization location for an on-site visit. The procedure for on-site visits and additional verification review visits requires that the Commission member obtain approval from the Commission and obtain authorization from the SBA for reimbursable travel (due to budget considerations). Commission members requesting to attend on-site visits, which includes any additional verification review visits, shall submit their request to SBA staff seven days prior to the Commission meeting to review modeling organization hurricane model or flood model Submissions in order for the requests to be placed on the meeting agenda. This does not preclude members from requesting to attend on-site visits during the Commission meeting.

Travel arrangements are coordinated through SBA staff and in accordance with the SBA's travel policy. Commission members are responsible for their own transportation arrangements to, from, and during the on-site visits.

The Commission member's on-site visit shall take place at the same time as the Professional Team's on-site or additional verification review. The Commission member's presence shall not disrupt the activities or work of the Professional Team. This procedure will limit Commission members' participation to that of an observer during the Professional Team activities and their review process. The Commission member may ask questions of the modeling organization in meetings separate from those of the Professional Team. Given time and resource constraints, all reasonable attempts will be made to schedule meetings between the modeling organization and Commission members, and the modeling organization shall make its best effort to be available to answer the Commission member's questions.

If any notes are taken by a Commission member, they shall be made in an on-site visit workbook provided by SBA staff or on the digital or hard copy materials provided by the modeling organization. The modeling organization shall review the workbooks for any notes deemed by the modeling organization as trade secret information. Any workbook pages containing notes considered by the modeling organization as trade secret information shall be removed from the workbook by the modeling organization.

Commission members shall refrain from discussing the hurricane or flood model among themselves while on-site and shall be mindful of the requirements of the public meeting laws of Florida. Professional Team members have signed contracts with the SBA that contain a confidentiality clause accepted by the modeling organizations and are prohibited from discussing proprietary information with Commission members.

Trade Secret Documents for Review On-Site by Commission Members: A Commission member may have questions or prefer a more in-depth discussion about a particular standard, disclosure, or audit item. In order for the modeling organization to have the necessary personnel and documents available, Commission members shall identify items from the *Hurricane Standards Report of Activities* or from the *Flood Standards Report of Activities* that they are particularly interested in reviewing on-site. Each Commission member may create a prioritized list of items that shall be provided to SBA staff no later than the Commission meeting to review modeling organizations hurricane or flood model Submissions. The list will be provided to the modeling organization with the Professional Team pre-visit letter in preparation for the member's on-site visit.

All items included in the Audit sections are of equal importance since all are required for verification of the hurricane and flood standards. Because the time needed to review the different audit items will vary, Commission members shall prioritize the items they request to review based upon their expertise and interest. Due to time constraints, it will be the responsibility of the members to allocate their time accordingly while on-site.

DOCUMENTS CONTAINING TRADE SECRETS USED IN THE DESIGN AND CONSTRUCTION OF HURRICANE AND FLOOD MODELS

Material Containing Potential Hurricane or Flood Model Trade Secrets to be Visually Displayed or Discussed during Closed Meetings (Trade Secret Items): The Commission may develop a list of information, documents, and presentation materials that contain potential trade secrets used in the design and construction of the hurricane or flood model that the Commission wants to review during the closed portion of the Commission meeting to review hurricane or flood models for acceptability in addition to the trade secret items identified in the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.

The trade secret material shown to the Commission shall be under the control of the modeling organization. This information, by law, shall be confidential and exempt from the State's public records requirements.

CLOSED MEETINGS FOR THE PURPOSE OF DISCUSSING TRADE SECRETS USED IN THE DESIGN AND CONSTRUCTION OF HURRICANE OR FLOOD MODELS

There is an exemption from public meeting requirements for those portions of a Commission meeting where trade secrets, used in the design and construction of hurricane or flood models, are discussed and reviewed. The closed portion of a Commission meeting where trade secrets are reviewed and discussed will be held prior to the public portion of the Commission meeting to review and vote on hurricane or flood models for acceptability. Voting regarding the acceptability of a hurricane or flood model shall only take place during the public portion of the meeting.

During any closed meeting, Commission members shall confine their discussions to trade secrets related to that particular hurricane or flood model under consideration. Discussions other than those involving trade secrets shall take place during the public portion of the meeting. Only public information that is absolutely essential to the understanding of the trade secret information may be provided along with the trade secret information during the closed meeting. Any such public information shall be discussed during the public portion of the meeting to ensure full access of the public to that information.

In accordance with s. 627.0628(3)(g), F.S., the closed portion of a Commission meeting shall be recorded electronically as per SBA policies and procedures. The recording is exempt from s. 119.07(1), F.S., and s. 24(a), Article 1 of the State Constitution. The Commission Chair shall announce at the beginning of each closed trade secret session that the meeting is being recorded.

Attendees: The only authorized attendees of the closed portion of the Commission meeting to review hurricane or flood models for acceptability shall include Commission members, Commission staff, Professional Team members, and modeling organization designated personnel, staff, and consultants.

Role of Professional Team: The discussion of trade secrets may involve verbal explanations, review of documents, and various types of demonstrations. Although the Professional Team will be present during the discussion of trade secrets, they shall be viewed by the Commission members as a resource to confirm that the information being provided is consistent with the information provided on-site. Questions related to modeling organization trade secrets shall be addressed directly to the modeling organization rather than to Professional Team members.

Room Requirements: Before the closed portion of the Commission meeting to review hurricane or flood models for acceptability begins, the room shall be cleared of all unauthorized persons and all their belongings. No briefcases, cellular phones, laptops, or other electronic devices shall be accessible to the authorized attendees during the closed meeting other than equipment needed by the modeling organization and equipment required by the Commission to accommodate Commission and Professional Team members participating virtually.

All telephone lines and all microphones shall be checked to ensure that discussions cannot be heard, relayed, or recorded beyond the confines of the room. Personnel outside of the meeting room shall be asked to move to a distance where discussions cannot be inadvertently overheard or visual presentations seen. No telephone calls shall be made or received from the meeting room during the discussions of trade secrets other than those needed to meet the needs of the modeling organization. Authorized attendees needing to make or receive telephone calls shall be required to leave the meeting room to handle such communications.

Any notes taken by authorized attendees, other than the modeling organization, shall be collected, along with the presentation hard copies, and given to the modeling organization at the conclusion of the closed meeting and prior to anyone leaving the meeting room.

Teleconference: Due to security reasons, a teleconference call-in number shall only be available to authorized attendees participating virtually.

Breaks: If a break is taken during a closed meeting, authorized attendees shall not discuss any of the proceedings from the time the meeting doors are open until they are closed following the conclusion of the break. No notes or other recorded information shall be taken out of the meeting room during a break. Other than authorized attendees, no one shall be allowed to enter the meeting room during a break with the exception of building maintenance personnel, food or beverage service personnel, or electronic technicians needed to provide services for the meeting room.

Transcript: The Commission will not record a written transcript for the closed portion of a Commission meeting.

Quorum Requirements: A quorum of Commission members is not required to conduct the closed portion of a Commission meeting.

Additional Closed Meetings: Once the initial closed portion of a Commission meeting has concluded, the public portion of the meeting shall begin. Upon a motion, a second, and a majority vote, the Commission may decide to go back into a closed meeting. If such a decision is made by the Commission, all meeting security requirements previously outlined shall apply.

COMMISSION MEETINGS

Quorum: A majority of the twelve Commission members (i.e., seven members) is required to constitute a quorum. A quorum is the number of members necessary to transact the official business of the Commission. "Presence" shall be defined as either a physical presence or as participation by any other means that allows the Commission member to communicate simultaneously with those members who are present.

Voting Abstentions Based on Conflict: For the purpose of determining whether there is a quorum, if a member abstains from voting based on a special conflict of interest (as defined under ***Member Duties and Responsibilities***), that member would still be deemed present for purposes of the quorum requirement (Attorney General's Opinion 75-244; August 29, 1975).

Temporary Absence: "If a member in attendance at a meeting is called away and is unable to return to the meeting, the transcript should reflect the point at which … [the member] left and - if the remaining members constitute a quorum - the meeting should continue." If, however, the member is only temporarily absent, and this member is needed to constitute a quorum, the "appropriate procedure would be to recess the meeting until the member can return or, at least, to postpone a vote on any matter before the body until … [the member's] return" (Attorney General's Opinion 74-289; September 20, 1974).

Meeting Notice: Written notice of a Commission meeting shall be provided to each member as soon as possible, and at a minimum, except in the event of an emergency meeting, at least seven days prior to the date scheduled. Section 286.011, F.S., requires public meetings to be noticed, and the notice must contain a time certain, a date, and the location of the meeting.

If available, an agenda shall be provided. If no agenda is available, it is sufficient if the notice summarizes the subject matter to be covered in the public meeting.

Public Access: Any member of the public shall have access to all Commission meetings that do not involve the discussion of trade secrets used in designing and constructing hurricane or flood models. That portion of a Commission meeting where a trade secret is addressed is confidential and exempt pursuant to s. 627.0628(3)(g)2, F.S., and thus will not be open to the public.

Agenda: An agenda listing topics planned for discussion shall be furnished to each member prior to the meeting. The agenda is to be used merely as a guide and topics not listed may be raised and discussed, and the members may choose not to address an issue or topic listed on the agenda.

Location: Meetings shall be in Tallahassee, Florida, unless special circumstances arise.

Recording: SBA staff shall be responsible for ensuring that all Commission meetings are recorded. The Commission Chair shall announce at the beginning of all Commission meetings that the meeting is being recorded. A written transcribed record shall be taken for all public portions of Commission meetings, and an electronic recording shall be taken for all closed portions of Commission meetings. Commission meeting records shall be maintained by SBA staff in accordance with SBA policies and procedures.

Voting Requirement: Except in the case of a special conflict of interest (as defined under ***Member Duties and Responsibilities***), no Commission member who is present at any meeting at which an official decision or act is to be taken or adopted by the Commission may abstain from voting (s. 286.012, F.S.).

Designation of an Acting Chair: Depending on the circumstances, the Commission Chair or Vice Chair may temporarily appoint any member to act as Chair in those situations where the physical presence of a Chair is desirable to facilitate conducting the meeting.

Purpose and Conduct of Meetings: The Commission holds six types of meetings:

1. Committee meetings to review and revise the hurricane and flood standards, disclosures, audit items, forms, Acceptability Process, and other chapters of the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities*,

2. Commission meetings to adopt revisions to the hurricane and flood standards, disclosures, audit items, forms, Acceptability Process, and other chapters of the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities*,

3. Commission meetings to review hurricane or flood model Submissions,

4. Commission meetings to review hurricane or flood models for acceptability,

5. Commission meetings to consider an appeal by a modeling organization if a hurricane or flood model is not found acceptable by the Commission, and

6. Planning workshops for the purpose of discussing, studying, and educating Commission members on new scientific developments and advances in the fields of meteorology, hydrology, hydraulics, structural engineering, coastal engineering, actuarial science, statistics, and computer/information science.

   The discussions from the planning workshops will be instrumental in planning for future hurricane and flood standards, disclosures, audit items, and forms.

Each type of meeting is discussed below.

Committee Meetings to Review and Revise Hurricane and Flood Standards

Committee meetings are for the purpose of discussing issues, developing hurricane and flood standards, completing necessary groundwork, and reaching a consensus among those present so when the Commission meets later to formally adopt the hurricane and flood standards, the *Hurricane Standards Report of Activities*, and the *Flood Standards Report of Activities,* most of the issues can be easily resolved with less detail and finalizing work required.

Committee meetings provide for an informal workshop environment where Commission members, Professional Team members, SBA staff, modeling organizations, insurers, regulators, and the general public are encouraged to participate and provide input. A working draft of proposed revisions to the hurricane and flood standards, disclosures, audit items, forms, Acceptability Process, and other portions of the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities* is created.

A public notice is required, but it is not necessary that a quorum be present since all official business requiring a vote will be conducted at a Commission meeting.

Committee meetings are also for the purpose of reviewing, determining the scope, and establishing priorities for any ideas, issues, and concepts new or previously presented at Commission meetings, committee meetings, or workshops. The committee may make a recommendation to the Commission on those that could be subjects for current consideration or for future inquiries.

The role of the committee chair is to present the draft of proposed hurricane or flood standards and other relevant documents with the aid of the Professional Team and SBA staff. The role of the other committee members is to thoroughly review the proposed draft and provide input and ideas at the committee meetings. Committee members have the responsibility of preparing in advance and becoming familiar with all the relevant issues. Such members have the responsibility of reading documents, raising questions, forming opinions, and participating in discussions. The role of the other Commission members is to participate, at their option, in all or various committee meetings. In this manner the difficult work will be spread among

Commission members and specific expertise will be utilized when reviewing and revising hurricane and flood standards. It is beneficial for each Commission member to be fully prepared to participate as an active committee member and provide quality input and discussion at the committee stage.

Committee meetings work best when Commission members guide the committee meetings and there is broad participation by the public, modeling organizations, regulators, or other interested parties. Committee chairs shall regularly call upon and solicit input from all interested parties present. A consensus among committee members and others participating is desirable.

The recommended way to conduct a committee meeting for hurricane and flood standards is as follows. For the intent of this section on committee meetings, "standard" includes the standard, purpose, disclosure, audit items, and forms.

1. Each standard shall be taken in order and read in its entirety or presented visually to the members.

2. The committee chair shall read and explain the proposed changes with assistance from the Professional Team and SBA staff.

3. The committee shall determine if:

    a. The standard is relevant and located in the appropriate group of standards, and

    b. Further changes are needed to clarify or eliminate wording issues or ambiguities by better drafting.

4. The committee will identify trade secret information, documents, and presentation materials that contain potential trade secrets used in the design and construction of the hurricane or flood models that the Commission wants the modeling organization to visually display and discuss during the closed portion of a Commission meeting to review hurricane or flood models for acceptability.

5. The committee will discuss, evaluate, and prioritize any ideas, issues, concepts, or inquiries presented at prior Commission meetings, committee meetings, or workshops. The committee will consider the associated costs and time constraints.

The meeting of the Acceptability Process Committee will follow a similar logical pattern as described above. The committee chair will read or present visually the "Process for Determining the Acceptability of a Computer Simulation Hurricane Model," or the "Process for Determining the Acceptability of a Computer Simulation Flood Model" to the members and explain the proposed changes. The committee will determine if additional wording changes or instructions are needed for clarification.

Following the discussion of the Acceptability Process, the Acceptability Process Committee will take up other various chapters of the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities* by considering their appropriateness and relevancy, proposed revisions, and if any modifications or additional wording changes are needed.

As consensus is built and revisions are agreed to, the SBA staff in conjunction with the Professional Team will note the revisions and modifications and produce the draft documents that will be distributed in advance of the Commission meetings that will be held for the purpose of adopting the hurricane and flood standards and finalizing the *Hurricane Standards Report of Activities* for the next odd-numbered year and the *Flood Standards Report of Activities* every four years.

Commission Meetings to Adopt Hurricane and Flood Standards

The Commission Chair will open the meeting and ask each committee chair, who presided over the revisions to the hurricane and flood standards, to lead the Commission through the suggested revisions by the committee under each hurricane and flood standard. This will not only include the hurricane and flood standard, but also the purpose, the disclosures, the audit items, and the forms. The committee chair, along with the Professional Team and SBA staff, will discuss and comment on revisions to the hurricane and flood standards. The Commission members will ask questions and offer further suggestions if necessary and appropriate. The Commission Chair may also ask for comments from others in attendance including modeling organizations, regulators, insurers, or the general public.

Once the discussion is concluded for a group of hurricane or flood standards, the committee chair shall make a motion that the Commission adopt the group of hurricane or flood standards along with the suggested revisions including those associated with the purpose, list of relevant forms, disclosures, audit items, and forms. Another committee member shall second the motion. The Commission Chair will then ask if there is any further discussion. Once the discussion is completed, the Commission Chair will ask for a roll call vote. Each hurricane and flood standards group shall be voted on separately. At the request of any Commission member, one or more hurricane or flood standards in a group may be designated for a separate vote.

The “Process for Determining the Acceptability of a Computer Simulation Hurricane Model” and the “Process for Determining the Acceptability of a Computer Simulation Flood Model” will each be voted on separately. The Commission Chair will ask the committee chair to explain the revisions to the Acceptability Process. Once this is completed and comments are made by the Professional Team and SBA staff, the committee chair shall make a motion that the Commission adopt the Acceptability Process as amended. Another Acceptability Process Committee member shall second the motion. The Commission Chair will ask if there is any further discussion. After recognizing Commission members for discussion, the Commission Chair will ask for a roll call vote.

The final items to be voted on by the Commission include the remaining chapters of the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities*. If any of these chapters do not change, they can be combined and adopted with one roll call vote. The Acceptability Process Committee will be responsible for these recommendations. The committee chair will discuss any revisions and modifications and shall make a motion to adopt each chapter separately. Another Acceptability Process Committee member shall second the motion. The Commission Chair will recognize Commission members for discussion and questions, and then will ask for a roll call vote.

As a final consideration, the Commission Chair shall consider whether it is appropriate to authorize the SBA staff to make any needed editorial changes consistent with the adopted *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities*. This shall be done by a roll call vote after a Commission member makes a motion that is seconded and after discussion.

Once all voting necessary to finalize the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities* is completed, the Commission may take up other business or may adjourn.

Commission Meetings to Review Hurricane or Flood Model Submissions

The purpose of the meeting to review modeling organization hurricane or flood model Submissions is to identify any deficiencies in the hurricane or flood model Submissions and to create a list of issues to be addressed by each modeling organization.

Modeling organization hurricane or flood model Submissions shall be received by the applicable November 1 deadline. The hurricane or flood model Submissions will have been provided electronically to each Commission member and the Professional Team for their review. SBA staff will work with the Professional Team to identify any deficiencies or issues. Prior to the meeting, the Commission Chair, working with SBA staff and the Professional Team, may request that the modeling organization meet with the Commission (in person or by conference call) or provide additional information to clarify the hurricane or flood model Submission.

Deficiency: A deficiency is defined as a lack of required documentation. A list of deficiencies shall be created if the hurricane or flood model Submission is incomplete, unclear, or non-responsive. Some common deficiencies include failure to respond to all portions of a standard, disclosure, or form; failure to update to the current *Hurricane Standards Report of Activities* language or *Flood Standards Report of Activities* language; omission of supporting scientific references; errors and contradictory material in the Submission; and insufficient detail for review of methodology. Failure to adequately provide a required written response or the necessary public documentation expected by the Commission in the hurricane or flood model Submission shall result in a deficiency. Failure to follow the Acceptability Process requirements shall result in a deficiency.

If necessary, the Commission will attempt to further clarify its expectations by providing additional comments or instructions with the deficiency so that the modeling organization is fully aware of what is expected and will have a reasonable opportunity to correct the deficiency. The Commission shall determine the appropriate time frame for correcting deficiencies. Failure to respond to the deficiency within the time frame specified shall result in the termination of the review process. The Commission Chair has the discretion to extend the time frame for a modeling organization correcting deficiencies if unusual circumstances are involved.

Revised Submission documentation provided to correct deficiencies shall include an annotated list of revisions, including the revision dates, and updated Expert Certification forms as applicable.

Upon receipt and review of the revisions to the Submission to correct deficiencies, an addendum to the pre-visit letter may be sent to the modeling organization on the nature of the corrections, if needed.

Issue: Issues are related to the operation and theoretical soundness of the hurricane or flood model. Issues shall not require a modeling organization to submit additional public documentation that is not required of all modeling organizations.

Issues shall be addressed by the modeling organization with the Professional Team during the on-site review as well as with the Commission when the modeling organization presents the hurricane or flood model to the Commission for acceptability.

If the nature of an issue is such that the Commission feels public documentation is needed, then the documentation shall be added to the disclosure requirements and required of all modeling organizations. Otherwise, some modeling organizations might be put in an awkward position and vulnerable to making more information about their hurricane or flood model public than other modeling organizations thus resulting in a competitive disadvantage. [See Principle #12: *The Commission's review process of models or methods shall not restrict competition in the catastrophe modeling industry or thwart innovation in that industry.*]

In conducting the meeting to review the modeling organizations hurricane or flood model Submissions, the Commission Chair will take up one modeling organization hurricane or flood model Submission at a time as indicated on the agenda for the meeting. The Commission Chair will take up each hurricane or flood standards group and consider all the responses provided under the hurricane or flood standards, including the modeling organization's response to comply with the hurricane or flood standards, the information provided in the disclosures, any response provided to the audit items, and the completeness of the forms.

The first point of discussion will relate to hurricane or flood model Submission deficiencies. SBA staff working with the Professional Team will have provided a report to the Commission members regarding deficiencies that have been identified and that need to be corrected. The Commission shall review those deficiencies and add, delete, or modify the list as appropriate.

Following a discussion of the deficiencies, the Commission will next discuss the issues identified under each group of hurricane or flood standards. SBA staff working with the Professional Team will have provided the Commission members with a list of issues prior to the meeting. The Commission shall review those issues associated with each group of hurricane or flood standards and add, delete, or modify the list as appropriate.

Upon review of all hurricane or flood standards, the Commission Chair will ask if there is a motion and a second to continue the review process subject to the correction of the deficiencies. The motion shall include a specific time frame for correcting any deficiencies in the hurricane or flood model Submissions. The Commission Chair will call for further discussion. After discussion, the Commission Chair will ask for a roll call vote. At any point, the Commission can determine that a modeling organization has not been responsive to the hurricane or flood model Submission requirements and vote to terminate the review process.

The Commission Chair will next ask if there is a motion and a second to approve the list of issues to be addressed by the modeling organizations during the review process. The Commission Chair will call for further discussion. After discussion, the Commission Chair will ask for a roll call vote.

Following a discussion of the issues, the Commission will next determine an approximate time frame needed for the closed portion of the Commission meeting to review and discuss trade secrets based upon the information provided in the hurricane or flood model Submission.

SBA staff shall provide a letter to each modeling organization listing:

1. Deficiencies identified in the hurricane or flood model Submission with the time frame assigned for correcting the deficiencies,

2. Issues to be addressed with the Professional Team during the on-site review and with the Commission during the meeting to review the hurricane or flood model for acceptability,

3. Inquiries to be addressed with the Professional Team during the on-site review, and

4. An approximate time frame for the closed portion of the meeting to review the hurricane or flood model for acceptability.

Commission Meetings to Review Hurricane or Flood Models for Acceptability

The Commission meeting to review a hurricane or flood model for acceptability will begin with the Commission Chair calling upon the modeling organization to provide an overview presentation as required in the Acceptability Process of the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*. The modeling organization shall make a presentation and Commission members may ask questions during and after the presentation.

The next portion of the meeting will be closed to the public and will involve the discussion of trade secrets used in the design and construction of the hurricane or flood model identified in the Acceptability Process of the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*, and identified by the Professional Team during the on-site or additional verification reviews as listed in the Professional Team report to the Commission.

At the public meeting to determine the acceptability of a hurricane or flood model, once a quorum is present, either in person, virtually, or by telephone, all votes shall be by a roll call vote based on the majority vote of those present.

For those circumstances in which a hurricane or flood standard does not apply to a particular hurricane or flood model, if the Commission votes affirmatively that the hurricane or flood standard does not apply, then such a vote shall constitute a determination by the Commission that the hurricane or flood standard is not applicable.

The hurricane standards are categorized under six groups:

1. General Hurricane Standards,
2. Meteorological Hurricane Standards,
3. Statistical Hurricane Standards,
4. Vulnerability Hurricane Standards,
5. Actuarial Hurricane Standards, and
6. Computer/Information Hurricane Standards

The flood standards are categorized under seven groups:

1. General Flood Standards,
2. Meteorological Flood Standards,
3. Hydrologic and Hydraulic Flood Standards,
4. Statistical Flood Standards,
5. Vulnerability Flood Standards,
6. Actuarial Flood Standards, and
7. Computer/Information Flood Standards

The minimum number of vote tallies from a single vote taken to determine the acceptability of a hurricane or flood model shall be one for each group of hurricane or flood standards. If the Commission determines that the hurricane or flood model meets all hurricane or flood standards in a group, the hurricane or flood model is found acceptable with respect to each individual hurricane or flood standard in the group. Hurricane or flood standards with subparts denoted by a notation of A, B, C, etc. are considered one hurricane or flood standard. At the request of any Commission member, one or more hurricane or flood standards in a group may be designated for a separate vote.

Based upon a motion of any member that is duly seconded, the Commission may review and modify the voting requirements for any hurricane or flood model as may be appropriate due to the unique aspects of the hurricane or flood model.

Failure of a modeling organization to provide the trade secret information required in the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities* shall result in a deficiency. If the Commission identifies other deficiencies, the Commission shall specify a time frame for correction of those deficiencies that may include a review by one or more Professional Team members. The corresponding standards will not be voted on by the Commission until the deficiencies have been satisfactorily addressed and reviewed by one or more Professional Team members.

The Commission Chair will read the first hurricane or flood standard title and will call upon the modeling organization to discuss the compliance of the hurricane or flood model with the hurricane or flood standard. The Commission Chair will next call upon the Professional Team to comment after which the Commission Chair will ask Commission members for questions or comments. If there are none, or after all questions have been responded to, the Commission Chair will then proceed to begin reading the next hurricane or flood standard title. Once all the hurricane or flood standards in a group have been presented and discussed, the Commission Chair will ask the Commission members whether there are any hurricane or flood standards that need to be designated for a separate vote. If no response is heard, the Commission Chair will ask for a motion to find the hurricane or flood model acceptable under that group of hurricane or flood standards. A motion will be made and seconded by Commission members. Prior to voting, the Commission Chair will ask if there is any further discussion. If members have questions or comments, they will be recognized. Once the discussion is completed, the Commission Chair will ask for a roll call vote.

Any hurricane or flood standards designated for a separate vote will be voted on separately in a roll call vote.

The Commission Chair will then move to the next group of hurricane or flood standards and begin to read the first hurricane or flood standard title in the group. The review process will follow as indicated in the paragraphs above.

The Commission will have completed its determination of acceptability of the hurricane or flood model when it has completed voting on all hurricane or flood standards. This does not preclude the Commission from revisiting a previous vote or revising the voting procedure as noted above. Upon conclusion of voting on all the hurricane or flood standards, the

Commission Chair will state that the Commission does or does not find the hurricane or flood model to have met all the hurricane or flood standards. If the Commission finds the hurricane or flood model acceptable, the Commission Chair will indicate to the modeling organization that the modeling organization will receive a letter of acceptability as provided in the Acceptability Process of the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.

The voting procedure can be changed only if approved by the Commission members, given a quorum is present. This will require a motion, a second, and approval of a majority by roll call vote.

Commission Meetings to Consider an Appeal by a Modeling Organization if a Hurricane or Flood Model is not Found Acceptable by the Commission

If a hurricane or flood model fails to meet one or more hurricane or flood standards and is not found to be acceptable by the Commission, the modeling organization may file an appeal with the Commission and request a meeting with the Commission in order to provide additional information and data to the Commission to justify that the hurricane or flood model complies with the hurricane or flood standards and other requirements. The appeal process is specified in the Acceptability Process of the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities*.

The purpose of the meeting to consider an appeal by a modeling organization is to review the appeal documentation and determine whether or not to reconsider the hurricane or flood model.

The Commission Chair will call upon the modeling organization to provide a presentation which shall include reasons and justification for reconsideration. Commission members may ask questions during and after the presentation. After discussion, the Commission Chair will ask for a motion to reconsider the hurricane or flood model. A motion will be made and seconded by Commission members. Prior to voting, the Commission Chair will ask if there is any further discussion. Once discussion is completed, the Commission Chair will ask for a roll call vote.

If the motion to reconsider the hurricane or flood model is successfully approved by a majority vote, the Commission shall then determine if additional data and information is necessary prior to reconsideration of the hurricane or flood model. The Commission may formulate additional questions and request additional data and information to be responded to by the modeling organization. Such questions, data, and information may include proprietary information, and if so, may be addressed by the modeling organization in a closed meeting if requested by the modeling organization. If additional data and information is necessary for reconsideration of the hurricane or flood model, the Commission questions, data, and information request shall be provided to the modeling organization in a letter from the Commission Chair no later than ten days after the meeting to consider the appeal request. The Commission may proceed with scheduling a meeting with the modeling organization for reconsideration of the hurricane or flood model.

If the Commission does not specify any follow up questions or identify any additional data or information needed, the Commission may proceed with the reconsideration of the hurricane or flood model. The Commission shall then determine which hurricane or flood standards are to be reconsidered. This may include only the hurricane or flood standards that were previously not found acceptable, or it may include other hurricane or flood standards that have come into question as a result of new information and data which cast doubt as to the accuracy or reliability of the hurricane or flood model. The Commission shall vote on which hurricane or flood standards are to be reconsidered prior to reconsideration of the hurricane or flood model. The modeling organization may request more time to prepare for reconsideration if it feels that the nature of the review has become more complex and that it needs additional resources, time, and data to respond.

In reconsidering an earlier decision regarding hurricane or flood standards, the Commission shall be guided by new information and data which was not previously provided by the modeling organization. Each hurricane or flood standard will be discussed and voted upon separately in a roll call vote. The Commission Chair will read the title of the first hurricane or flood standard being reconsidered and will call upon the modeling organization to present new information and data and to discuss the compliance of the hurricane or flood model with the hurricane or flood standard. The Commission Chair may call upon the Professional Team to comment after which the Commission Chair will ask Commission members for questions or comments. The Commission Chair will ask for a motion as to whether the hurricane or flood model meets the hurricane or flood standard under reconsideration. A motion will be made and seconded by Commission members. Prior to voting, the Commission Chair will ask if there is any further discussion. If members have questions or comments, they will be recognized. Once the discussion is completed, the Commission Chair will ask for a roll call vote.

The Commission Chair will then move to the next hurricane or flood standard being reconsidered, and the review process will follow as indicated in the paragraph above. The Commission will have completed its reconsideration of acceptability of the hurricane or flood model when it has completed voting on all hurricane or flood standards being reconsidered. This does not preclude the Commission from revisiting a previous vote on reconsideration of a hurricane or flood standard or revising the voting procedure as noted above. Upon conclusion of voting on all hurricane or flood standards being reconsidered, the Commission Chair will state that the Commission does or does not find the hurricane or flood model to have met all the hurricane or flood standards being reconsidered. If the Commission finds the hurricane or flood model acceptable under the hurricane or flood standards reconsidered, the Commission Chair will indicate to the modeling organization that the modeling organization will receive a letter of acceptability as provided in the Acceptability Process of the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.

The voting and meeting procedure can be changed only if approved by the Commission members, given a quorum is present. This will require a motion, a second, and approval of a majority by roll call vote.

Planning Workshops

Planning workshops are for the purpose of discussing, studying, and educating Commission members on new scientific developments and advances in the fields of meteorology, hydrology, hydraulics, structural engineering, coastal engineering, actuarial science, statistics, and computer/information science. The discussions from the planning workshops will be instrumental in planning for future hurricane and flood standards, disclosures, audit items, and forms.

The planning workshops will be duly noticed and may require a quorum so that an official vote may be taken on actions resulting from the ideas presented and discussed at the workshop.

The Commission Chair will call the meeting to order and will introduce the ideas for discussion as indicated on the meeting agenda and will solicit any other ideas for discussion from Commission members. The ideas introduced will be discussed, prioritized, and evaluated by the Commission. Included in the discussions will be budget considerations, if any, and further study on the ideas if needed.

OUTSIDE PARTY INPUT REGARDING HURRICANE AND FLOOD STANDARDS, DISCLOSURES, AUDIT ITEMS, FORMS, OR OTHER PROCESSES ADOPTED BY THE COMMISSION

From time to time, parties other than Commission members, Professional Team members, and SBA staff assigned to the Commission make recommendations for the Commission to consider. For the Commission to fully and adequately consider input from outside parties, the following process and organizational framework is established for reviewing such input.

The Commission has a clearly defined statutory responsibility to act as a panel of experts to provide the most actuarially sophisticated guidelines and standards for projection of hurricane and flood losses possible, given the current state of actuarial science. The Commission's role is also narrowly defined as to its scope and purpose. As such, input provided by outside parties shall be considered by the Commission at its sole discretion. Subjects that go beyond the purview of the Commission's jurisdiction shall be rejected without consideration based on a decision by the Commission Chair. The Commission Chair may bring the matter to a vote by the Commission.

In order to enable the Commission and the appropriate committees to evaluate recommended changes, the Commission requires that each recommendation be in the form of an amendment to specific language in the hurricane or flood standards, disclosures, audit items, forms, or processes. The specific amendatory language shall be accompanied by a brief statement of the problem being addressed and how the amendment solves the problem. The problem statement and amendatory language shall be received by the Commission at least ten business days prior to the committee or Commission meeting at which the outside party wishes the amendment to be considered.

Problem Statement: A brief statement of the problem being addressed and justification for the modification shall be provided with all proposed amendatory language.

Amendatory Language: Proposed amendatory language will assure that all recommended revisions to hurricane and flood standards, disclosures, audit items, forms, and processes suggested by outside parties are in a form that allows the Commission and its committee structure to give appropriate consideration to the substance of a particular proposal with minimum time spent resolving ambiguities, drafting questions, and similar issues.

Consideration of any proposed amendment is at the discretion of the committee chair when the input is provided for committee consideration. The proposed amendment may later be accepted or rejected for review by the Commission Chair prior to such input being brought before the Commission for a vote.

While comments and recommendations of a more general nature may be provided by outside parties, such recommendations shall be in the form described above in order to be considered at a committee or Commission meeting called for the purpose of adopting or revising hurricane and flood standards, disclosures, audit items, forms, or processes. Nothing in this paragraph prevents a Commission member from proposing alternative language to address an issue raised by an outside party.

Any topics for general discussion shall be addressed to the Commission Chair who will decide, in his or her sole discretion, whether the topic merits discussion by Commission members, when and how the topic will be discussed, and whether or not to accept public comment. The Commission Chair shall reject any topic for discussion that is beyond the scope of the Commission's purview.

This framework does not restrict the scope of proposals and allows outside parties the flexibility to present the arguments for their proposal in whatever form and at whatever length they desire.

BUDGET CONSIDERATION

All new projects that have a fiscal impact shall be identified prior to January 1 of the calendar year so that appropriate funding can be obtained through the SBA's budgetary review process.

All new projects shall consist of a proposal, an estimated cost, and a time frame for completion. The Commission shall vote on all new proposals for projects. The FHCF will include in its budget the funding for on-going projects and anticipate the potential for new hurricane and flood model Submissions or any fiscal impact that revisions to the Acceptability Process or the hurricane and flood standards might have on the Commission's budget. The Commission's budget is subject to approval by the SBA Trustees for the appropriate fiscal year.

SUNSHINE LAW

Section 286.011, F.S., also known as the "Sunshine Law" or "open meeting law" applies to the Commission.

Scope of the Sunshine Law: In any place where two or more members of the Commission are present, there is the potential for violating the Sunshine Law. This includes the entirety of Commission meetings, encompassing the structured discussions, breaks, and any incidental time around the formal start and end of a Commission meeting.

Any communication, whether in person, by telephone, computer, etc., concerning any information on which *foreseeable action* may be taken by the Commission is a "meeting" that must meet the requirements of Florida's Sunshine Law if the communication takes place between two or more Commission members except as provided in s. 627.0628(3)(g), F.S.

Basic Requirements for Public Meetings: All meetings subject to the Sunshine Law must be:

1. Open to the public,

2. Noticed,

3. Recorded by a court reporter, and

4. Minutes preserved.

The official minutes of the Commission consist of a verbatim transcript unless special circumstances arise. In addition, SBA staff may prepare a summary of the meeting that will be included with the transcript to comprise the minutes of the meeting.

SBA staff ensures that all scheduled public meetings of the Commission are filed for public notice in the Florida Administrative Register and a written transcript is taken and preserved.

TRADE SECRET VIOLATIONS

Section 688.002, F.S., defines misappropriation as "disclosure or use of a trade secret of another without express or implied consent by a person who at the time of disclosure or use, knew or had reason to know that her or his knowledge of the trade secret was acquired under circumstances giving rise to a duty to maintain its secrecy or limit its use."

Section 688.004, F.S., provides for damages as a result of a trade secret violation, "a complainant is entitled to recover damages for misappropriation. Damages can include both the actual loss caused by misappropriation and the unjust enrichment caused by misappropriation that is not taken into account in computing actual loss."

If a trade secret also meets the definition of a trade secret in s. 812.081, F.S., the following penalty provided in that section for violating the confidentiality of trade secrets could still apply:

“(2) It is unlawful for a person to willfully and without authorization, obtain or use, or endeavor to obtain or use, a trade secret with the intent to either temporarily or permanently:

(a) Deprive or withhold from the owner thereof the control or benefit of a trade secret; or

(b) Appropriate a trade secret to his or her own use or to the use of another person not entitled to the trade secret.

A person who violates this subsection commits theft of a trade secret, a felony of the third degree, punishable as provided in s. 775.082, s. 775.083, or s. 775.084.

(3) A person who traffics in, or endeavors to traffic in, a trade secret that he or she knows or should know was obtained or used without authorization commits trafficking in trade secrets, a felony of the second degree, punishable as provided in s. 775.082, s. 775.083, or s. 775.084.”

FINDINGS OF THE COMMISSION

FINDINGS OF THE COMMISSION

(These Findings are applicable to the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.)

CONCERNING MODEL ACCURACY AND RELIABILITY

Background

Sections 627.0628(3)(a), (b), and (f), F.S., instructs the Commission to adopt findings from time to time as to the accuracy or reliability of standards and models, among other things, related to hurricane loss projections used in residential property insurance rate filings, flood loss projections used in rate filings for personal lines residential flood insurance coverage, and probable maximum loss calculations. This section also states that the Commission shall revise previously adopted actuarial methods, principles, standards, models, or output ranges every odd-numbered year for hurricane loss projections and no less than every four years for flood loss projections.

The following findings address the accuracy or reliability of the hurricane standards that the Commission has adopted since 1996 and the flood standards that the Commission has adopted since 2017, and the accuracy or reliability of the computer simulation models that the Commission has reviewed. The Commission thus far has reviewed computer simulation models exclusively because these constitute the only widely accepted approach to estimate residential hurricane loss costs, personal residential flood loss costs, and probable maximum loss levels.

The Commission finds that the computer simulation hurricane and flood models that it reviews are stochastic forecasting models. This means that future hurricane and flood events are stochastically generated, and the associated hurricane and flood loss costs are accumulated, and hurricane and flood probable maximum loss calculations can be made using the applicable model with the consideration of an insurer's unique exposure data. By generating a sufficient body of hypothetical future hurricane and flood events, the sampling uncertainty in the hurricane and flood output ranges owing to the random variate generation process becomes negligible. The Commission finds that an accepted hurricane or flood model will produce accurate and reliable modeled hurricane or flood loss costs and hurricane or flood probable maximum loss levels for the entire state of Florida given the data and scientific research currently available. Hurricane and flood loss costs and hurricane and flood probable maximum loss levels based on the applicable models are based on actuarially sound and theoretically appropriate techniques that also incorporate scientific evidence, findings, and principles from the areas of meteorology, hydrology, hydraulics, structural engineering, coastal engineering, statistics, and computer/information science.

Accurate and Reliable – Defined

The Commission finds that the computer simulation hurricane models that have been reviewed by the Commission and found acceptable include appropriate model representations to simulate hurricanes and the induced damage on residential property in Florida. The basic features of the hurricane model construction are reflected in the six groups of hurricane standards established and refined since June of 1996.

1. General Hurricane Standards addressing the professional status of the hurricane model designers, implementers, and testers, and generic aspects of the hurricane model.

2. Meteorological Hurricane Standards covering all aspects of this infrequent weather phenomenon.

3. Statistical Hurricane Standards addressing the statistical foundation of the hurricane model and the sensitivity and uncertainty assessment of hurricane model outputs as a function of hurricane model inputs.

4. Vulnerability Hurricane Standards assessing the impact of the hurricane winds on residential property.

5. Actuarial Hurricane Standards assessing the damage impact in insurance terms.

6. Computer/Information Hurricane Standards addressing the overall design, construction, and execution of the hurricane model.

The Commission finds and recognizes that the scientific fields underlying hurricane models continue to evolve providing further insights into property damage and insurance implications. As a direct consequence, the Commission reviews and revises the hurricane standards comprising its *Hurricane Standards Report of Activities* every odd-numbered year. Every odd-numbered year is defined as every year ending in an odd number (e.g., 2021, 2023, 2025, 2027, 2029). The Commission finds that the hurricane standards adopted every odd-numbered year represent the current state of actuarial science regarding computer simulation hurricane modeling for purposes of producing hurricane loss costs and hurricane probable maximum loss levels for residential property in Florida that are accurate and reliable.

The Commission finds that the computer simulation flood models that have been reviewed by the Commission and found acceptable include appropriate model representations to simulate floods and the induced damage on personal residential property in Florida. The basic features of the flood model construction are reflected in the seven groups of flood standards established and refined since June of 2017.

1. General Flood Standards addressing the professional status of the flood model designers, implementers, and testers, and generic aspects of the flood model.

2. Meteorological Flood Standards covering all aspects of coastal and compound flooding including wind and other meteorological elements that drive storm surge and waves.

3. Hydrologic and Hydraulic Flood Standards covering all aspects of inland flooding including riverine, lacustrine, surface water, and compound flooding.

4. Statistical Flood Standards addressing the statistical foundation of the flood model and the sensitivity and uncertainty assessment of flood model outputs as a function of flood model inputs.

5. Vulnerability Flood Standards assessing the impact of the coastal, inland, and compound flooding on personal residential property.

6. Actuarial Flood Standards assessing the damage impact in insurance terms.

7. Computer/Information Flood Standards addressing the overall design, construction, and execution of the flood model.

The Commission finds and recognizes that the scientific fields underlying flood models continue to evolve providing further insights into property damage and insurance implications. As a direct consequence, the Commission reviews and revises the flood standards comprising its *Flood Standards Report of Activities* no less than every four years. No less than every four years is defined as every other year ending in an odd number (e.g., 2021, 2025, 2029, 2033). The Commission finds that the flood standards adopted no less than every four years represent the current state of actuarial science regarding computer simulation flood modeling for purposes of producing flood loss costs and flood probable maximum loss levels for personal residential property in Florida that are accurate and reliable.

The words accurate and reliable are used in s. 627.0628, F.S., but are not defined therein. In the context of computer simulation hurricane and flood modeling, accurate means that the hurricane and flood models meet the applicable standards that have been developed and adopted to assure scientifically acceptable hurricane and flood loss cost projections and hurricane and flood probable maximum loss levels. However, accurate cannot necessarily mean that a hurricane or flood model conforms exactly to known facts since that contradicts the nature of the hurricane and flood modeling process. Reliable is defined for computer simulation hurricane and flood models as meaning that the hurricane or flood model will consistently produce statistically similar results upon repeated use without inherent or known bias.

CONCERNING TRADE SECRETS

The Commission finds the following with respect to Principle #10, *The trade secret aspects of models or methods being reviewed by the Commission shall be protected*.

1. Modeling organizations that produce a computer simulation hurricane or flood model may have trade secrets regarding the design and construction of that model.

2. Modeling organizations have been unwilling to reveal those trade secrets to the Commission in the context of the public meetings that the Commission holds because their competitors are part of the audience or can obtain a copy of the publicly available transcript of the meeting.

3. Modeling organizations have been willing to reveal all of their trade secrets if that information can remain confidential and within their control.

4. Since that trade secret information would become publicly available in the context of a meeting in the "Sunshine," the Commission has authorized:

    a. A Professional Team of experts to review the hurricane and flood models on-site at the modeling organization on behalf of the Commission,

    b. On-site visits to the modeling organizations by Commission members, and

    c. Closed meetings for the purpose of discussing and reviewing trade secrets.

5. The law allows an exception from the public records law for trade secrets used in the design and construction of hurricane and flood models.

6. The Commission may require that the modeling organization provide certain documents for direct review by Commission members, or the modeling organization may voluntarily provide documents containing trade secrets for the Commission's review.

7. The law allows for the discussion of trade secrets to be exempt from public meeting requirements.

CONCERNING LAND USE AND LAND COVER DATABASE

The Commission finds that the hurricane models to be submitted under the 2025 hurricane standards shall make use of a land use and land cover (LULC) database consistent with National Land Cover Database (NLCD) 2021 or later. Going forward, it is anticipated that the LULC database shall not differ from the NLCD by more than 5 years of the database validation date.

The Commission finds that the coastal storm surge and inland flood components of flood models to be submitted under the 2025 flood standards shall make use of a LULC database consistent with NLCD 2023 or later. Going forward, it is anticipated that the LULC database shall not differ from the NLCD by more than 5 years of the database validation date.

CONCERNING FHCF EXPOSURE DATA

The Commission finds that the FHCF exposure data shall be updated with the 2025 hurricane standards and is anticipated to be updated on a regular cycle or when additional data fields are included that warrant an update.

CONCERNING PROFESSIONAL ENGINEER EXPERT CERTIFICATION

The Commission finds that the hurricane models to be submitted under the 2025 hurricane standards shall require that the professional engineer certification expert be a Florida licensed professional engineer.

The Commission finds that the flood models to be submitted under the 2025 flood standards shall require that the vulnerability professional engineer certification expert be a Florida licensed professional engineer.

CONCERNING LOSS COMPARISONS BETWEEN A CURRENT ACCEPTED FLOOD MODEL AND A FLOOD MODEL UNDER REVIEW

The Commission finds that the flood models to be submitted under the 2025 flood standards shall provide loss comparisons to the current accepted flood model by County and by Hydrologic Unit Code (HUC). For the 2029 flood standards and going forward, the comparisons shall be by HUC only.

CONCERNING FORM S-6, HYPOTHETICAL EVENTS FOR SENSITIVITY AND UNCERTAINTY ANALYSIS

The Commission finds that a modeling organization shall submit a Form S-6 related to the wind peril under the 2027 hurricane standards, and going forward, not less than every other revision of the hurricane standards (e.g., 2031, 2035, 2039).

The Commission finds that a sensitivity and uncertainty analysis form, analogous to Form S-6, shall be developed for the 2029 flood standards.

CONCERNING INTERACTIVE TRACEABILITY WITHIN SOFTWARE

The Commission finds that interactive traceability within software shall be considered for the 2027 hurricane standards and the 2029 flood standards. It is anticipated that this requirement shall apply to newly developed code and not required for all existing code or research code.

Interactive traceability in the context of computer software auditing and review refers to the dynamic ability to trace and verify the relationships between software artifacts (such as requirements, design elements, code, and test cases) in real-time or through user-driven interactions during an audit or review process.

PROCESS FOR DETERMINING THE ACCEPTABILITY OF A COMPUTER SIMULATION FLOOD MODEL

PROCESS FOR DETERMINING THE ACCEPTABILITY OF A COMPUTER SIMULATION FLOOD MODEL (ACCEPTABILITY PROCESS)

INTRODUCTION

This chapter specifies the Commission's process for the determination of acceptability of a computer simulation flood model (model), and provides guidance to modeling organizations for preparing and submitting required documentation.

Due to the complex and unique nature of flood and hurricane perils, and recognizing that a modeling organization may submit only a flood model or only a hurricane model, the Commission has determined that the review of flood and hurricane models for acceptability shall be independent of each other. Therefore, a flood model and a hurricane model shall be submitted separately and reviewed separately.

The Commission has determined, if a model is found acceptable or fails under one group of standards applicable to flood or hurricane, it shall have no bearing or impact on the other type of model's acceptability or failure under the respective group of standards. A modeling organization submitting both a flood model and a hurricane model shall have each model reviewed separately and independently under the respective unique group of standards applicable to flood or hurricane.

It should be understood that if a modeling organization submits both a flood model and a hurricane model, if an error is found in the course of a review (e.g., internal review, Professional Team on-site review, Commission review) in either the flood model or the hurricane model, that is also likely to co-exist in the other model, then it is incumbent on the modeling organization to report this error in accordance with either the Commission Review of Submission Documentation and Resolution of Deficiencies or the Discovery of Differences in a Model after a Model has been Determined to be Acceptable by the Commission, as appropriate. Consequently, the onus is on the modeling organization to make the correction in both models as appropriate, in keeping with the independence of the two model reviews.

STANDARDS IMPLEMENTATION SCHEDULE

The Commission has determined that prior to November 1 of every other odd-numbered year, new flood standards, revisions to existing flood standards, and revisions to the Acceptability Process will be adopted. The effective date of new or revised flood standards (standards) will be November 1 of that year unless otherwise specified by the Commission.

The standards and procedures published in the *Flood Standards Report of Activities as of November 1, 2025*, will not be scheduled for revision until 2029.

The Commission has further determined that the period between the effective date of new and revised standards and November 1 of the following odd-numbered year (the deadline for notification by the modeling organization) is a reasonable length of time for any modeling organization to comply with the standards adopted by the Commission.

If the Commission determines that this time frame is not sufficient, based on the nature of the revisions to the standards or based on other circumstances that might necessitate a longer period of time for compliance, then the Commission will adjust this period of time accordingly.

If requested by a modeling organization, the Commission Chair shall have the authority to grant a reasonable extension should the Commission Chair determine that an emergency or unusual situation exists that warrants an extension and is determined to be beyond the control of the modeling organization.

The Commission has determined that the Acceptability Process adopted and published in the *Flood Standards Report of Activities as of November 1, 2025,* shall apply to reporting and review of:

1. Editorial errors and differences discovered in models determined acceptable under the 2021 flood standards,

2. Interim model and platform updates, and

3. Updates for consistency of flood and hurricane models.

MODEL SUBMISSION DOCUMENTATION: SCHEDULE, GUIDELINES, AND NOTIFICATION REQUIREMENTS

Any modeling organization that desires to have a model reviewed for compliance with the 2025 flood standards shall notify the Commission in accordance with the requirements set out below by November 1, 2027.

If any deadline provided for within this chapter falls on a Saturday, Sunday, or on a legal State of Florida or federal holiday, then the actual due date shall be the day immediately following the applicable due date which is not a Saturday, Sunday, or legal State of Florida or federal holiday.

The modeling organization shall generate a Submission for model review providing evidence-based information (e.g., discussion, data, figures, tables, references) that clearly demonstrates compliance with each individual standard, disclosure, and form listed in the *Flood Standards Report of Activities*.

Final Submission documentation for a model that has been found acceptable by the Commission is available on the Commission website at *https://fchlpm.sbafla.com/model-submissions/*. A note is posted on the web page with instructions for submitting a public records request to obtain a copy of initial Submission documentation.

Schedule

September 2025	Committee meetings for the 2025 flood standards
October 2025	Adopt 2025 flood standards and the *Flood Standards Report of Activities*
November 2025	*2025 Flood Standards Report of Activities* published
November 1, 2027	Deadline for notification by modeling organization
January 2028	Commission meeting to review Submissions
January – April 2028	On-site reviews
April – May 2028	Additional verification reviews, if necessary
May – June 2028	Commission meetings to review models for acceptability under the 2025 flood standards

Guidelines

An existing modeling organization is defined as an organization whose model was found acceptable by the Commission under the 2021 flood standards. All other modeling organizations are considered new.

The modeling organization shall contact SBA staff for any needed clarification of Submission instructions and requirements, especially if the instructions necessitate additional assumptions.

All modifications, adjustments, assumptions, or other criteria that are included in producing the information required by the Commission in the Submission shall be disclosed and will be reviewed.

Failure to follow the requirements as set forth below shall result in a deficiency. (See Definitions and further details under *Commission Meetings to Review Hurricane or Flood Model Submissions* in the “Commission Structure” chapter.)

The modeling organization shall notify the Commission Chair in writing, as soon as possible, of any unusual circumstances that may impact the model or the model submission.

Notification Requirements

1. A notification letter, which shall include:

    a. The name and version of the model ready for review and the name and version of each platform, with the primary platform designated, on which the model is implemented;

    b. A detailed explanation of any caveats to the certifications (i.e., Forms GF-1 through GF-9); and

    c. A statement that the model is ready to be reviewed by the Professional Team.

2. A Submission document, which shall include:

    a. A statement in support of compliance with each standard and each standard subpart (see *Text Formatting Guidelines,* page 59). For existing modeling organizations, the material shall be updated as appropriate to reflect compliance with the new or revised standards even if the modeling organization submitted this material as part of a determination of acceptability under the previous group of standards; and

    b. All required disclosure and form information.

3. Seven duplexed, bound copies of the Submission document.

4. A link e-mailed to SBA staff providing access to and download capabilities of the complete electronic Submission with all required documentation as a single compressed file.

    A complete electronic Submission shall include:

    a. Form VF-3, Form VF-4, Form VF-5, Form VF-6, Form AF-2, Form AF-4, Form AF-5, and Form AF-8 in Excel format;

    b. Form AF-1 and Form AF-3 in both Excel and PDF format;

    c. Form HHF-3, Form HHF-5, and Form AF-6, if not considered as trade secret by the modeling organization, in Excel format; and

    d. The Submission document in PDF format which shall support highlighting and hyperlinking, and shall be bookmarked by standard, form, and chapter.

    All Submission file names shall include the abbreviated name of the modeling organization, the standards year, and the form name (when applicable).

SUBMISSION ORGANIZATION AND FORMATTING GUIDELINES

The Submission shall be organized as follows:

1. Table of Contents;

2. Pages consecutively numbered from the first page (including cover) using a single numbering system from the beginning to the end of the Submission;

3. Document date in a footer;

4. The modeling organization name in a header or footer;

5. All tables, graphs, equations, and other non-text items consecutively numbered using whole numbers, specifically listed in the Table of Contents, and clearly labeled with abbreviations defined;

6. All forms included in a Submission appendix except for Form AF-1, Form AF-3, and forms designated as a Trade Secret Item. If forms designated as a Trade Secret Item are not considered trade secret by the modeling organization, those forms shall be included in a Submission appendix.

   Failure to provide the forms in a Submission appendix will result in a deficiency.

7. A complete list of all acronyms used in the Submission shall be included and defined in a Submission appendix. Acronyms shall be defined on their first use in the Submission.

Text Formatting Guidelines

Each standard, disclosure, or form shall be stated in *italics* directly followed by the response in non-italics text, following the order as they appear in the *Report of Activities*. The Purpose, Relevant Forms, and Audit portions shall not be restated. Portions of form instructions that do not require a response (e.g., Flood Output Range Specifications) shall not be restated.

The modeling organization response shall include a statement in support of compliance following each standard, including each standard subpart. The response to the standard shall not be a restatement of the standard, but shall rather explain how the model meets the requirements of the standard by including (as appropriate):

(1) a statement in support of compliance with the standard,

(2) a reference to applicable disclosures, or

(3) a general description of applicable trade secret information that will be shown to the Professional Team during the on-site review and how the trade secret information supports compliance with the standard.

If a standard, disclosure, or form has multiple parts, respond to each part separately.

Failure to provide a response to a standard, disclosure, or form, and failure to provide a response for each part separately for standards, disclosures, and forms with multiple parts, shall result in a deficiency.

The disclosures are not designed to require trade secret information. Therefore, the response to a disclosure shall not contain a statement similar to "will be shown to the Professional Team" unless a response to the disclosure has been provided and additional test results, assumptions, and documentation will be available for the Professional Team during the on-site review.

Data Formatting Guidelines

1. Graphs and colormaps shall be accompanied by legends and labels for all elements.

    a. Individual elements shall be clearly distinguishable, whether presented in original or copy form.

    b. For graphs using a log scale axis or axes, annotate significant data points on the graph with their specific axes values.

    c. Map-based data figures shall use color scales with appropriate increments to ensure sufficient gradation across the color legend. Map data colors shall be easily discernable from map backgrounds. Color schemes and scales shall be selected to facilitate comparison among colormaps showing similar information.

       For colormaps that depict a change or difference (e.g., anomalies, deltas), a diverging colormap centered on zero shall be used with grey at the midpoint.

       For other types of data, colormaps shall be logically aligned with the variable type being visualized and selected to facilitate comparison as needed (e.g., sequential colormaps for continuous unidirectional variables (e.g., windspeed), categorical colormaps for discrete classifications).

    d. Relevant geographic boundaries (e.g., counties, Hydrologic Unit Code (HUC) watersheds or subbasins) shall be included in all map-based data figures for which they are relevant.

    e. Minimum and maximum data values and their physical locations shall be plotted on the map-based data figures, when applicable.

    Additional map specifications are indicated on individual disclosures or form instructions.

2. NA shall be used with tabular data to signify no exposure.

3. All units of measurement for model inputs and outputs shall be clearly identified.

4. All model outputs related to flood extent and elevation or depth, flow velocity, flow length, and flood area shall be quantified using English standard units of measurement, as appropriate.

5. Unless otherwise specified, windfields generated by the model shall be used for completing relevant forms and tables in the Submission.

6. All column headings shall be shown and repeated at the top of each subsequent page for forms and tables that span multiple pages.

7. All storm name references shall include the year of the storm.

COMMISSION REVIEW OF SUBMISSION DOCUMENTATION AND RESOLUTION OF DEFICIENCIES

For modeling organization Submissions received by the November 1, 2027, deadline, the Professional Team shall review the Submissions and report to the Commission any deficiencies identified in the Submissions. The Commission shall hold a meeting to review the Submissions and the deficiencies identified by the Professional Team as discussed in the "Commission Structure" chapter of the *Flood Standards Report of Activities*.

Prior to the Professional Team on-site review and in accordance with the time frame specified by the Commission during the meeting to review the Submissions, the modeling organization shall submit, in electronic format via email to SBA staff, corrections for the deficiencies identified during the meeting. An annotated list of revisions, including the revision dates, shall be provided with the corrections to the deficiencies.

In response to the deficiencies identified, revised pages and forms shall be provided using revision marks as specified under Submission Revisions.

If more than twenty pages (exclusive of forms in a Submission appendix) are impacted by corrections for the deficiencies, then an entire Submission document shall be submitted (seven duplexed, bound copies) in addition to the electronic documentation emailed to SBA staff.

All revised file names shall include the revision date, the abbreviated name of the modeling organization, the standards year, and the form name (when applicable) in the file name.

Revised Submission documentation provided to correct deficiencies shall include updated Expert Certification forms as applicable.

In addition to responding to deficiencies specifically, the modeling organization may opt to make further minor corrections elsewhere in the Submission document. Modeling organizations shall also correct editorial issues noted in the Professional Team pre-visit letter.

Failure of the modeling organization to correct any deficiencies within the time frame specified shall result in the termination of the review process. The modeling organization will be notified in writing that the review process has been terminated. Upon termination of the review process, the modeling organization shall be required to wait until after the next revision or review of the standards before requesting the Commission to review the model.

SUBMISSION OR MODEL REVISIONS NECESSARY PRIOR TO AN ON-SITE REVIEW

If a modeling organization realizes the initial Submission or the model has material errors and needs revision prior to the scheduled on-site review, the modeling organization shall immediately notify the Commission Chair in writing.

The notification shall detail:

1. The nature of the error and revisions to the Submission or the model,
2. When and how the error was discovered,
3. Why the error occurred,
4. How the error was corrected,
5. How the modeling organization plans to mitigate against future errors of the sort, and
6. Any other relevant documentation necessary to describe both the error and the corrections.

The Commission Chair shall:

1. Review the notification and inform the Commission members as soon as possible,
2. Assess, with at least three Professional Team members, the severity of the error, and
3. Determine whether to postpone the scheduled on-site review pending consideration of potential deficiencies and the overall schedule of on-site reviews.

If it is determined to proceed with the originally scheduled on-site review, the modeling organization shall submit revised documentation no less than fourteen calendar days prior to the scheduled on-site review by the Professional Team. The revised documentation shall include an annotated list of the revisions, including the revision dates, and updated Expert Certification forms as applicable. If the modeling organization cannot correct the problems and submit revised documentation fourteen calendar days prior to the scheduled on-site review, then all associated standards shall not be verified during the scheduled on-site review.

PROFESSIONAL TEAM ON-SITE REVIEW: FINDINGS AND RESOLUTION PROCESS

The Professional Team on-site review process is discussed in detail in the "On-Site Review" chapter of the *Flood Standards Report of Activities*.

There are two possible outcomes of the Professional Team on-site review regarding auditing for compliance with the standards.

1. The Professional Team determines that, in its opinion, the model complies with the standards, and so reports to the Commission.

2. The Professional Team determines that, in its opinion, the model does not comply with the requirements in one or more standards.

The Professional Team may react to possible corrections proposed by the modeling organization but shall not tell the modeling organization how to correct the non-compliance.

If the problems can be remedied while the Professional Team is on-site, the Professional Team shall review the corrective actions taken, including revisions to the Submission, before determining verification of a standard.

If the problems cannot be corrected while the Professional Team is on-site, then the modeling organization shall submit to the Commission Chair in writing a request for an additional verification review within seven calendar days from the final day of the on-site review.

The modeling organization shall submit all revised documentation as specified under Submission Revisions within sixty calendar days of the request for an additional verification review, but no later than seven calendar days prior to the additional verification review.

SBA staff shall assemble the Professional Team, or an appropriate subset of the Professional Team, for an additional verification review to ensure that the corrections have been incorporated into the version of the model under review.

If the modeling organization disagrees with the Professional Team as to compliance with one or more standards, the modeling organization has two options:

1. It can proceed to the scheduled Commission meeting to review models for acceptability under the 2025 flood standards and present its arguments to the Commission to determine acceptability, or

2. It can withdraw its request for review. Such a withdrawal shall result in the modeling organization waiting until after the next revision or review of the standards before requesting the Commission review its model.

Discrepancy Discovered after Completion of On-Site Review

If a discrepancy in the model or model Submission is discovered by the modeling organization after the Professional Team has completed its on-site review, then the modeling organization shall without delay notify the Commission Chair in writing providing:

1. A detailed description of the discrepancies,

2. A request for an additional verification review, and

3. An indication of when the modeling organization will be ready for the additional verification review.

The modeling organization shall submit all revised documentation as specified under Submission Revisions.

If an additional verification review has not been conducted, SBA staff shall assemble the Professional Team or an appropriate subset of the Professional Team for an additional verification review to ensure that the corrections have been incorporated into the version of the model under review.

If an additional verification review has previously been conducted, the Commission Chair shall place the modeling organization's request for another additional verification review on the agenda for a special or regularly scheduled Commission meeting.

Regeneration of Form AF-4

If any problem necessitates the regeneration of the flood output ranges in Form AF-4, the modeling organization shall submit a revised Form AF-4 to be received by the Commission no less than fourteen calendar days prior to the initial date of the on-site review or additional verification review. If this is not the case, then Standard AF-8 (along with other related standards depending on the nature of the revision) shall not be verified during the initial on-site review or additional verification review.

In the event that Form AF-4 is modified, the modeling organization shall provide a newly completed Form AF-5 using the initial Submission of Form AF-4 as the baseline for computing the percentage changes.

SUBMISSION REVISIONS

Revised documentation shall include a distinct notification letter with an annotated list of revisions, including the revision dates.

If revisions are the result of an error in the model or the Submission document, the letter shall detail:

1. The nature of the error and revisions to the model or the Submission,
2. When and how the error was discovered,
3. Why the error occurred,
4. How the error was corrected,
5. How the modeling organization plans to mitigate against future errors of the sort, and
6. Any other relevant documentation to describe both the error and the corrections.

Updated Expert Certification forms shall be provided as applicable.

The revision date shall be included on the Submission document cover page and the Model Identification page. If only revised pages are required to be submitted, the revision date shall be included in each revised page footer. If a complete Submission document is required to be submitted, the revision date shall be included in the Submission document footer.

All revised file names shall include the revision date, the abbreviated name of the modeling organization, the standards year, and the form name (when applicable) in the file name. Revisions shall be noted with revision marks, (i.e., words stricken are deletions (~~deletions~~) and words underlined are additions (<u>additions</u>)). If revision marks are provided in color, material deleted and stricken shall be in red, and material added and underlined shall be in blue.

The modeling organization shall avoid the practice of marking whole paragraphs, tables, or sections as deletions, and including whole paragraphs, tables, or sections as replacements or additions, when only portions have been revised. Instead, the modeling organization shall identify the specific words that have been deleted or added.

Revisions in the Submission document shall be all inclusive, showing changes made to the initial Submission in a revised or final Submission. Multiple edits to the same text, figures, etc. need not be reflected.

The Professional Team and the Commission Chair will review the new material upon receipt for deficiencies. The Commission Chair shall notify the modeling organization of any deficiencies and the time frame for correction. An additional verification review will not be held until all deficiencies have been addressed.

The Professional Team may provide the modeling organization with a second pre-visit letter outlining specific issues and requests to be addressed during the additional verification review.

If an additional verification review is requested, revised documentation shall be received within sixty calendar days of the request, but no later than seven calendar days prior to the additional verification review.

Once the on-site review or additional verification review by the Professional Team has concluded, complete final revised documentation shall be provided by the modeling organization to be received no less than ten calendar days prior to the Commission meeting to review the model for acceptability. The modeling organization shall email SBA staff a link where complete electronic final revised documentation, including the revised Submission document with and without revision marks, and all required forms can be downloaded from a single compressed file.

If more than twenty pages are revised (exclusive of forms in a Submission appendix), seven duplexed, bound copies of the Submission document with revision marks for all revisions made to the initial Submission shall be provided. If twenty pages or fewer (exclusive of forms in a Submission appendix) are revised, only seven duplexed, bound copies of the revised pages and forms shall be submitted.

The format of the revised documentation shall be as specified under Submission Organization and Formatting Guidelines.

COMMISSION MODEL REVIEW FOR ACCEPTABILITY

The Commission shall meet at a properly noticed public meeting to determine the acceptability of a model once the modeling organization has provided all required material and the Professional Team has concluded its on-site review or any additional verification review.

If the Commission Chair determines that more preparation time is needed by Commission members, the Commission Chair may reschedule the meeting date to review a model for acceptability, taking into consideration public notice requirements, the availability of a quorum of Commission members, the availability of a meeting room, and the availability of the particular modeling organization.

All trade secret information to be presented to the Commission shall have been reviewed by the Professional Team during the on-site review or additional verification review, and shall not be significantly different from what was reviewed by the Professional Team. If the trade secret information is significantly different from what the Professional Team reviewed during the on-site review or additional verification review, then the Commission shall suspend review of the model until the new information can be thoroughly reviewed by the Professional Team, and the Professional Team can make an informed recommendation to the Commission.

If the Commission determines that meeting one standard makes it impossible to meet a second standard, the conflict shall be resolved by the Commission, and the Commission shall determine which standard shall prevail. If at the meeting a unique or unusual situation arises, the Commission shall determine the appropriate course of action to address that situation, using its sound discretion and adhering to the legislative findings and intent as expressed in s. 627.0628(1), F.S.

Each modeling organization's model shall be reviewed independently of any other modeling organization's model currently accepted or presently applying for review.

Trade secrets used in the design and construction of the model shall be discussed during a closed meeting prior to the Commission voting on the acceptability of the model. No voting regarding the acceptability of a model shall occur during a closed meeting.

Modeling Organization Model Overview and Changes Presentation

All modeling organizations shall make a presentation to the Commission with respect to the model as used for personal residential property ratemaking purposes in Florida. The presentation shall use a medium that is readable by all Commission members. The modeling organization presentation is to help the Commission understand outstanding issues, how the modeling organization has resolved various issues, and to explain the basis for how the model complies with the standards. Various issues may relate to:

1. Informational needs of the Commission as requested in the disclosures and forms,
2. The theoretical soundness of the model,
3. Use of reasonable assumptions, and
4. Other related aspects dealing with accuracy and reliability.

The modeling organization shall present:

1. A general, high-level overview of the model (no more than 20 minutes), and

2. An explanation of revisions to the current accepted model and their effect on flood loss costs and flood probable maximum loss levels.

For a new model that has not previously been determined acceptable, the modeling organization shall give a detailed overview presentation to the Commission (approximately one hour) explaining:

1. How the model is designed to be theoretically sound,

2. How the model meets the criteria of being accurate and reliable, and

3. Indicate which parts of the model are considered proprietary.

The modeling organization shall provide electronic copies of the model overview and changes presentation, in both PowerPoint and PDF format, to SBA staff to be received no later than close of business the day prior to the Commission meeting.

Modeling organization personnel shall distribute nineteen color, duplexed hard copies of the model overview and changes presentation to the Commission and Professional Team members at the start of the meeting. If, due to special circumstances, the meeting is held virtually, the modeling organization shall provide nineteen color, duplexed hard copies of the model overview and changes presentation to SBA staff to be received no less than two business days prior to the Commission meeting.

Following the model overview and changes presentation, the Commission shall hold a closed meeting where trade secrets used in the design and construction of the model will be discussed and reviewed. Modeling organizations that do not utilize the trade secret session shall cover the prescribed material during the public meeting portion.

Closed Meeting Portion

During the closed meeting where trade secrets used in the design and construction of the model are discussed and reviewed, the modeling organization shall present and discuss the audit slides used during the Professional Team on-site review for the following:

1. Standard GF-3: Audits 2 and 4,

2. Standard MF-2: Audit 1,

3. Standard MF-3: Audit 3,

4. Standard MF-4: Audit 8,

5. Standard HHF-1: Audit 1,

6. Standard HHF-2: Audit 16,

7. Standard SF-2: Audit 3,

8. Standard SF-3: Audit 3,

9. Standard VF-1: Audits 1, 9, 10, 11, 20, 24, and 27,

10. Standard VF-2: Audits 1 and 7,

11. Standard VF-3: Audits 1 and 9,

12. Standard VF-4: Audit 1,

13. Standard AF-1: Audit 1,

14. Standard AF-6: Audits 2 and 3,

15. In support of acceptability of Standard HHF-2, a detailed discussion of Form HHF-3 and Form HHF-5,

16. In support of acceptability of Standard AF-8, a detailed discussion of Form AF-6,

17. Trade secret items, including audit items and responses to pre-visit letter requests, identified and recommended by the Professional Team during the on-site and additional verification reviews to be shown to the Commission which will be documented in the Professional Team's report to the Commission, and

18. Issues identified by the Commission at the Meeting to Review Model Submissions that involve trade secret information.

Modeling organization personnel shall distribute nineteen comprehensive color, duplexed hard copies, numbered 1 through 19, of the modeling organization's prepared closed meeting presentation and the trade secret forms to the Commission and Professional Team members at the start of the closed meeting. The trade secret forms shall be printed separately from the presentation. For Form AF-6, only the graphical summaries and the scatter plot shall be printed.

Modeling organization personnel shall collect the hard copies at the conclusion of the closed meeting and prior to anyone leaving the meeting room. If the meeting is held virtually due to special circumstances, the modeling organization is not required to provide hard copies of the prepared closed meeting presentation or the trade secret forms.

All material presented in the closed meeting shall be complete (e.g., all axes on graphs labeled).

Items that the modeling organization is precluded from disclosing due to third party contracts shall be excluded.

Public Meeting Portion

At the conclusion of the closed meeting, the Commission will resume the public meeting to continue the review of the model for acceptability. The modeling organization's presentation for this portion of the meeting shall provide an explanation of how the model complies with the standards:

1. Each standard number and title shall be stated.

2. Explanation and demonstration of how the model complies with each standard, exhibiting appropriate figures, graphs, or tables from the disclosures or forms that support compliance.

Asserting that the model complies with a standard without providing substantive evidence is not acceptable.

Stating what was reviewed on-site by the Professional Team is unnecessary since that information is documented in the Professional Team report.

3. If relevant and non-proprietary, material not provided in the Submission which was presented to the Professional Team during the on-site review or additional verification review.

4. Any non-trade secret information that was provided during the closed meeting in order to facilitate a general understanding of the trade secret information presented to the Commission. That is, if a figure from the Submission document is shown in the trade secret session, the same figure shall be shown on the corresponding standard slides.

The modeling organization shall provide electronic copies of the standards presentation, in both PowerPoint and PDF format, to SBA staff to be received no later than close of business the day prior to the Commission meeting.

Modeling organization personnel shall distribute nineteen color, duplexed hard copies of the modeling organization's public meeting presentation to the Commission and Professional Team members at the start of the public meeting. If the meeting is held virtually due to special circumstances, the modeling organization shall provide nineteen color, duplexed hard copies of the public meeting presentation to SBA staff to be received no less than two business days prior to the Commission meeting.

Acceptability and Notification

To be determined acceptable, the model shall have been found acceptable for all standards. If the model fails to be found acceptable by a majority vote for any one standard, the model shall not be found acceptable. The modeling organization shall have an opportunity to appeal the Commission's decision as specified in Appeal Process to be Used by a Modeling Organization if a Model is Not Found to be Acceptable by the Commission.

Once the Commission has determined that a model is acceptable in accordance with the procedures in the Acceptability Process and that all required documentation as specified in the Acceptability Process has been provided to the Commission, the Commission Chair shall provide the modeling organization with a letter confirming the Commission's action.

The letter shall be in the following format.

Date

(Name and Address of Modeling Organization)

Dear _____:

This will confirm the finding of the Florida Commission on Hurricane Loss Projection Methodology on (date), that the (name of modeling organization) model has been determined acceptable for projecting flood loss costs and flood probable maximum loss levels for personal residential property insurance rate filings in Florida. The determination of acceptability expires on November 1, 2032.

The Commission has determined that the (model name and version identification) on the (platform identification) (*primary platform*) and on the (additional platform identifications) (*functionally equivalent platform*) limited to the specific options acceptable for use in a Florida personal residential flood insurance rate filing identified in Standard AF-5 Disclosure 6, as selected in the input form provided in Disclosure 4, and as reported in the output report provided in Disclosure 5:

1. complies with the flood standards adopted by the Commission on October 28, 2025, and

2. is sufficiently accurate and reliable for projecting flood loss costs and flood probable maximum loss levels for personal residential property in Florida.

On behalf of the Commission, I congratulate you and your colleagues. We appreciate your participation and input in this process.

Sincerely,

(Name), Chair

A copy of the letter shall be provided to the Commissioner of the Office of Insurance Regulation.

APPEAL PROCESS TO BE USED BY A MODELING ORGANIZATION IF A MODEL IS NOT FOUND TO BE ACCEPTABLE BY THE COMMISSION

If a model is not found to be acceptable by the Commission, the modeling organization shall have up to thirty calendar days to file a written appeal of the Commission’s finding.

The appeal shall:

1. Specify the reasons for the appeal,

2. Identify the specific standard or standards in question,

3. Provide appropriate data and information to justify its position, and

4. May request a follow-up reconsideration meeting with the Commission to present any relevant or new information and data to the Commission in either a public or closed meeting format.

Within sixty calendar days of receiving the appeal, the Commission shall hold a public meeting to review the appeal documentation, formulate additional questions to be responded to by the modeling organization, and request additional data and information if necessary.

If the Commission determines additional data and information are necessary for reconsideration of the model, the Commission's questions and request for additional data and information shall be provided to the modeling organization in a letter from the Commission Chair no later than ten calendar days after the meeting to consider the appeal request. The modeling organization shall respond to the Commission within ten calendar days of receiving the Commission Chair's letter. Any proprietary responses, data, or information shall be noted by the modeling organization indicating the response will be discussed in a closed meeting with the Commission.

The Commission shall meet at a properly noticed public meeting to reconsider the acceptability of the model under the 2025 flood standards.

If the Commission Chair determines that more preparation time is needed by Commission members, the Commission Chair may reschedule the meeting date to reconsider the model for acceptability, taking into consideration public notice requirements, the availability of a quorum of Commission members, the availability of a meeting room, and the availability of the modeling organization.

Once the Commission has completed its reconsideration of acceptability and determined that the model complies with all the standards being reconsidered and that all required documentation as specified in the Acceptability Process has been provided to the Commission, the Commission Chair shall provide the modeling organization with a letter confirming the Commission's action as specified under Acceptability and Notification.

If the model fails to be found acceptable by a majority vote for any one standard, the model shall not be found acceptable, and the appeal of the modeling organization shall have failed. In this regard, the findings of the Commission shall be final. The modeling organization shall be required to wait until after the next revision or review of the standards before requesting the Commission to review its model.

DISCOVERY OF EDITORIAL ERRORS OR DISCREPANCIES IN A SUBMISSION AFTER A MODEL HAS BEEN DETERMINED TO BE ACCEPTABLE BY THE COMMISSION

If editorial errors or discrepancies are discovered in a current accepted model Submission, the modeling organization shall immediately notify the Commission Chair in writing.

The notification shall include:

1. An errata detailing the nature of the editorial errors or discrepancies,
2. The corresponding revisions to the Submission, and
3. Updated Expert Certification forms as applicable.

The Commission Chair, in consultation with at least three Professional Team members, shall verify the corrections to the current accepted model Submission. Once the Commission Chair determines that the documentation and explanations provided by the modeling organization are sufficient, no further review by the Commission will be necessary. The Commission Chair shall provide a letter to the modeling organization acknowledging the notification of editorial errors or discrepancies and noting that the Commission accepts the modeling organization's errata and revisions to the current accepted Submission.

DISCOVERY OF DIFFERENCES IN A MODEL AFTER A MODEL HAS BEEN DETERMINED TO BE ACCEPTABLE BY THE COMMISSION

If the modeling organization discovers any differences between the model as found acceptable by the Commission and the model as used by its clients, the modeling organization shall without delay notify the Commission in writing describing the differences and the impact on flood loss costs and flood probable maximum loss levels.

The notification shall indicate:

1. The date the differences were discovered,
2. How the differences were discovered,
3. The underlying cause of the differences,
4. A description of the subsequent revisions to the model, and
5. Plans to mitigate against future differences of the sort.

Additionally, the modeling organization shall state the level of the differences based on the classification scheme below as either Type I, Type II, or Type III differences.

The notification shall be accompanied by:

1. Form VF-3,

2. Form AF-1,

3. Form AF-4 using the applicable modeling-organization-specified, predetermined, and comprehensive exposure dataset, and

4. Form AF-8 using the applicable modeling-organization-specified, predetermined, and comprehensive exposure dataset.

Each form shall be completed for both the current accepted version of the model in which the differences were discovered, and the revised version of the model after correction of the differences. A percentage change comparison between the two versions shall also be provided.

Differences in flood loss costs or flood probable maximum loss levels within spreadsheets shall be computed without explicit rounding or truncation of floating-point values prior to generating the documentation specified above.

For purposes of complying with this requirement, a difference is anything that results in a model not being exactly the same as the model found acceptable by the Commission. It does not include (1) interim model updates addressed in Interim Model Updates after a Model has been Determined to be Acceptable by the Commission, (2) interim platform updates addressed in Interim Platform Updates after the Florida Flood Model has been Determined to be Acceptable by the Commission, and (3) model updates addressed in Model Update for Consistency of Hurricane and Flood Models after the Model has been Determined to be Acceptable by the Commission.

Upon receipt of the modeling organization's notification and documentation as specified above, the Commission Chair shall consult with at least three Professional Team members to investigate, determine, and verify the impact of the differences as reported by the modeling organization.

The type of differences noted shall be classified as falling into one of the following categories:

Type I: The model is not the exact same model as found acceptable, but there are no differences in flood loss costs for any HUC-10 watershed, and there are no differences in flood probable maximum loss levels for any return period.

Type II: There are differences in one or more flood loss costs for a HUC-10 watershed, but such differences do not exceed ± 5%, or there are changes in flood probable maximum loss levels for one or more return periods, but such differences do not occur at the rounded third significant digit of the flood probable maximum loss number.

Type III: There are differences in one or more flood loss costs for a HUC-10 watershed, or there are changes in flood probable maximum loss levels for one or more return periods, that exceed the thresholds set in Type II.

Type I Differences

The modeling organization's notification and response related to differences noted at the Type I level shall only involve providing adequate documentation and shall not involve any further revisions to the model.

1. The modeling organization shall submit an addendum to the Submission for the current accepted model documenting the reasons, causes, and explanations for the differences. The addendum shall also encompass a discussion of why flood loss costs and flood probable maximum loss levels remain valid and have not changed from the current accepted model.

   The addendum shall include:

   a. An annotated list of corrections and revisions to the Submission documentation, including the revision dates, and

   b. Updated Expert Certification forms as applicable.

2. The Commission Chair, in consultation with at least three Professional Team members, shall verify the impact of the differences as reported by the modeling organization, and identify any additional documentation needed by the Commission. In its investigation and review of the issue, the Commission Chair and the Professional Team members shall focus solely on the need for documentation explaining and describing the differences and ensuring that there is no impact on flood loss costs or flood probable maximum loss levels.

3. If the Commission Chair determines that the documentation and explanations provided by the modeling organization are sufficient, no further review is necessary by the Commission. The Commission Chair shall provide a letter to the modeling organization acknowledging the notification of differences and noting that the Commission accepts the modeling organization's addendum to its previous Submission and that the same acceptability expiration date shall apply.

   If the Commission Chair determines that a new model version identification may be needed or that complexity of the reported differences needs to be addressed by the Commission at a special or regularly scheduled meeting, the Commission Chair shall provide the Commission with detailed recommendations, such as the need for additional documentation or the need for further investigation, the potential need for a revised model version identification, or other appropriate recommendations given the circumstances. Additionally, the Commission Chair shall propose what would constitute adequate documentation and when such documentation shall be provided to the Commission.

4. The acceptability of the model shall not be suspended on the basis of Type I differences as long as appropriate documentation is provided to the Commission in a timely fashion. No additional actions or revisions to the model shall be required by the modeling organization with respect to Type I differences.

5. If the modeling organization fails to provide documentation that the Commission deems satisfactory within a time frame specified by the Commission, the acceptability of the model shall be suspended pending receipt and review of the necessary documentation. The Commission Chair shall notify the modeling organization by letter of such suspension.

   Once satisfactory documentation is provided by the modeling organization, the Commission Chair shall review the documentation with at least three Professional Team members, and if the Commission Chair determines that the documentation is appropriate, the Chair shall send a letter to the modeling organization indicating that the documentation is acceptable, and the suspension is lifted.

Type II Differences

1. If the model has been revised or can be revised within fourteen calendar days of notifying the Commission of the discovery of Type II differences, the modeling organization shall submit an addendum to the Submission for the current accepted model documenting the revisions, explaining the reasons for the differences, and providing any necessary backup documentation.

   The addendum shall include:

   a. An annotated list of corrections and revisions to the Submission documentation, including the revision dates, and

   b. Updated Expert Certification forms as applicable.

   If trade secret information is involved, the modeling organization shall include this fact in its notification to the Commission.

2. The Commission Chair, in consultation with at least three Professional Team members, shall determine whether the modeling organization has already revised the model to address the differences to conform to the standards or is capable of addressing the differences within the fourteen-day time frame.

3. The Commission Chair shall place the modeling organization’s notification on the agenda for a special or regularly scheduled meeting of the Commission. The scheduling of the Commission meeting shall depend on the nature of the differences and the time frame for appropriate revisions to be made. The Commission Chair shall provide Commission members with a copy of the modeling organization’s notification and report on the status of the modeling organization’s revision plan if on-going actions are required.

4. The basic process adopted in the current *Flood Standards Report of Activities* chapter "Process for Determining the Acceptability of a Computer Simulation Flood Model" will be followed.

   The Commission letter of acceptability shall be revised to acknowledge the type of differences discovered and the revisions made to the current accepted model. The new model version identification as assigned by the modeling organization shall be noted. The revised model shall supersede the current accepted model, and the same acceptability expiration date shall apply for the revised model.

5. If the modeling organization fails to make the appropriate revisions within the specified time frame, the model shall be suspended until the appropriate revisions are made and the revised model can be reviewed and is found to be in compliance with the standards.

   The Commission Chair shall send a letter to the modeling organization indicating that the acceptability of the model has been suspended until the Commission votes on the acceptability of the revised model and a new model version identification has been assigned by the modeling organization.

   Once the Commission has determined acceptability of the revised model, the revised model shall supersede the current accepted model and shall have the same acceptability expiration date.

Type III Differences

1. The acceptability of the model shall be suspended upon receipt of the notification of Type III differences or at any time during a Commission review where the magnitude of such differences is discovered and can be documented. The Commission Chair shall send the modeling organization a letter indicating that the acceptability of the model has been suspended immediately and shall remain suspended until the Commission investigates and takes action regarding the modeling organization's steps necessary to address the differences in order to bring the model in compliance with the standards.

2. If the model has been revised or can be revised within sixty calendar days of notifying the Commission of the discovery of Type III differences, the modeling organization shall submit an addendum to the Submission for the current accepted model thereby documenting the revisions, explaining the reasons for the differences, and providing any necessary backup documentation.

   The addendum shall include:

   a. An annotated list of corrections and revisions to the Submission documentation, including the revision dates, and

   b. Updated Expert Certification forms as applicable.

If trade secret information is involved, the modeling organization shall include this fact in its notification to the Commission.

3. The Commission Chair, in consultation with at least three Professional Team members, shall determine whether the modeling organization has already revised the model to address the differences necessary to conform the model to the standards or is capable of addressing the differences within sixty calendar days of notifying the Commission, or the discovery of the differences by the Professional Team or Commission during the review cycle.

4. The Commission Chair shall place the modeling organization's notification, or discovery by the Professional Team or Commission during the review cycle, on the agenda for a special or regularly scheduled meeting of the Commission. The scheduling of the Commission meeting shall depend on the nature of the differences and the time frame for appropriate revisions to be made. The Commission Chair shall provide Commission members with a copy of the modeling organization's notification and report on the status of the modeling organization's revision plan if on-going actions are required.

5. The basic process adopted in the current *Flood Standards Report of Activities* chapter "Process for Determining the Acceptability of a Computer Simulation Flood Model" will be followed.

   The Commission letter of acceptability shall be revised to acknowledge the type of differences discovered and the revisions made to the current accepted model version. The new model version identification as assigned by the modeling organization shall be noted. The revised model shall supersede the current accepted model, and the same acceptability expiration date shall apply for the revised model.

6. If the modeling organization fails to make the appropriate revisions within sixty calendar days of the Commission being notified, or the date when the Commission or Professional Team discovered the Type III differences, the acceptability of the model shall be withdrawn subject to the appeal process as specified in Appeal Process to be Used by a Modeling Organization if a Model is Not Found to be Acceptable by the Commission. If there is no appeal or the appeal is unsuccessful, the modeling organization shall be required to wait until after the next revision or review of the standards before requesting the Commission to review its model.

INTERIM MODEL UPDATES AFTER A MODEL HAS BEEN DETERMINED TO BE ACCEPTABLE BY THE COMMISSION

If a modeling organization makes interim updates to the model where (1) the model update scope and utility is unrelated to Florida flood loss costs or Florida flood probable maximum loss levels and does not include the current accepted Florida flood model component, or (2) there are no changes to the Florida flood loss costs or Florida flood probable maximum loss levels in the current accepted Florida flood model, but the flood model version identification has changed, then the following procedure applies.

1. The modeling organization shall notify the Commission Chair detailing the nature of the interim model updates.

   The notification shall include:

   a. The name and version of the updated model,

   b. A statement that the interim model updates have been duly tested and have no impact on the current accepted Florida flood model,

   c. A description of the changes in the model,

   d. A description of internal testing,

   e. An acknowledgement that Forms AF-1, AF-4, and AF-8 completed using the applicable modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model, the updated version of the model, and a percentage change comparison between the two versions to demonstrate no change to the Florida flood loss costs or Florida flood probable maximum loss levels, will be provided upon request of the Commission Chair, and

   f. A completed Interim Model Update Certification Form.

2. The Commission Chair, in consultation with at least three Professional Team members, shall review the interim model updates notification and Interim Model Update Certification Form. If the Commission Chair concurs with the modeling organization that the proposed interim model updates appear functionally equivalent to the current accepted Florida flood model based on the certifications by the modeling organization, then the Commission Chair shall send a letter notifying the status of the interim model updates and that the same acceptability expiration date shall apply as for the current accepted Florida flood model.

   A copy of the Commission letter and Interim Model Update Certification Form shall be provided to the Commissioner of the Office of Insurance Regulation.

3. In the event that the Commission Chair, in consultation with at least three Professional Team members, does not concur with the modeling organization that the proposed interim model updates appear functionally equivalent to the current accepted Florida flood model, the Commission Chair shall request the modeling organization submit the completed forms listed in 1.e. above for review by the Professional Team.

4. The Commission reserves the right to review any and all interim model updates in detail, even if the review of the interim model updates notification and Interim Model Update Certification Form was found favorable.

Geocoding Database Update

1. If a modeling organization updates geocoding databases within the model, the modeling organization shall notify the Commission Chair in writing, detailing the updates, the effect on the modeled results, and include:

    a. Maps showing modeled HUC-10 boundaries (current and updated) for the entire state of Florida,

    b. A sorted list of all modeled HUC-10 boundary movements that affect more than 5% of the area,

    c. The top ten HUC-10 boundary movements that affect between 2-5% of the area,

    d. The corresponding dominant county for each HUC-10 listed ,

    e. A list of the updated geocoding data sources and databases used by the geocoding component of the model,

    f. Updated Standard AF-3 provided with track changes that identifies all changes to the standard and disclosures between the current accepted model and the updated version of the model,

    g. Form AF-1 completed for the current accepted model, the updated version of the model, a percentage change comparison between the two versions, and a narrative confirming a logical relationship between the geocoding database changes and any Form AF-1 loss cost changes exceeding ± 5% at a HUC-10 resolution,

    h. Form AF-4 completed for the current accepted model, the updated version of the model, and a percentage change comparison between the two versions,

    i. Form AF-8 completed for the current accepted model, the updated version of the model, and a percentage change comparison between the two versions, and

    j. Updated Expert Certification forms as applicable.

    If backup documentation required is of a proprietary nature involving trade secrets, the modeling organization shall include this fact in its notification to the Commission.

2. The Commission Chair shall review the notification and assess, with at least three Professional Team members, the geocoding database updates and the regression test results. If there is no change in the underlying acceptable model and changes in the flood loss costs follow a logical, reasonable, and justifiable relationship to the changes in the geocoding database at a HUC-10 resolution, the Commission Chair shall send an updated acceptability letter to the modeling organization denoting that the interim geocoding database update does not produce significant differences in Florida flood loss costs and

Florida flood probable maximum loss levels from the current accepted model and the same acceptability expiration date shall apply as for the current accepted model. As applicable, the new model version identification or the same version identification with a distinction made for the interim geocoding database update as assigned by the modeling organization shall be noted.

3. If the Commission Chair, in consultation with at least three Professional Team members, determines there is a change in the underlying acceptable model or changes in the flood loss costs do not follow a logical, reasonable, and justifiable relationship to the changes in the geocoding database at a HUC-10 resolution, then the Commission Chair shall send a letter to the modeling organization as soon as practical notifying the modeling organization of a pending review by the Commission. The Commission Chair shall determine the need for a special meeting or whether the issue can be addressed at the next regularly scheduled meeting of the Commission. The Commission shall review the interim geocoding database update and any other aspect of the model which might have changed in order to ensure that the model continues to comply with the standards.

4. The basic process adopted in the current *Flood Standards Report of Activities* chapter "Process for Determining the Acceptability of a Computer Simulation Flood Model" will be followed.

   The Commission letter of acceptability shall be revised to acknowledge the interim geocoding database update to the current accepted model. The new model identification as assigned by the modeling organization shall be noted. Once the Commission has determined acceptability of the revised model, the revised model shall supersede the current accepted model, and the same acceptability expiration data shall apply for the revised model.

5. If the proposed interim geocoding database update is not found to be acceptable by the Commission, the Commission Chair shall send a letter to the modeling organization noting such and that the current accepted model shall continue to be acceptable with the original acceptability expiration date.

   The appeal process as specified in Appeal Process to be Used by a Modeling Organization if a Model is Not Found to be Acceptable by the Commission, shall not be applicable. This will require the modeling organization to make any contemplated interim geocoding database updates for the Commission's consideration in the next review cycle as determined by time frames established in the current *Flood Standards Report of Activities*.

INTERIM PLATFORM UPDATES AFTER THE FLORIDA FLOOD MODEL HAS BEEN DETERMINED TO BE ACCEPTABLE BY THE COMMISSION

If a modeling organization makes interim platform updates that have no bearing on the current accepted Florida flood model, but the flood model platform name and identification are changed, then the following procedure applies.

1. The modeling organization shall notify the Commission Chair detailing the nature of the interim platform update.

   The notification shall include:

   a. The name and version of the updated platform,

   b. A statement that the interim platform update has been duly tested and has no impact on the current accepted Florida flood model,

   c. A description of the platform update,

   d. A description of internal testing,

   e. An acknowledgement that Forms AF-1, AF-4, and AF-8 completed using the applicable modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model, the version of the model on the updated platform, and a percentage change comparison between the two versions to demonstrate no change to the Florida flood loss costs or Florida flood probable maximum loss levels, will be provided upon request of the Commission Chair, and

   f. A completed Interim Platform Update Certification Form.

2. Upon notification to the Commission Chair of an interim platform update, the interim platform update may be used up to sixty calendar days as acceptable and functionally equivalent to the current accepted model prior to receiving a letter of acceptability from the Commission Chair.

3. The Commission Chair, in consultation with at least two Professional Team members, shall review the interim platform updates notification and Interim Platform Update Certification Form. If the Commission Chair concurs with the modeling organization that the proposed interim platform updates appear functionally equivalent to the current accepted Florida flood model based on the certifications by the modeling organization, then the Commission Chair shall send a letter notifying the status of the interim platform updates and that the same acceptability expiration date shall apply as for the current accepted Florida flood model.

   A copy of the Commission letter and Interim Platform Update Certification Form shall be provided to the Commissioner of the Office of Insurance Regulation.

4. In the event that the Commission Chair, in consultation with at least two Professional Team members, does not concur with the modeling organization that the proposed interim platform updates appear functionally equivalent to the current accepted Florida flood

model, the Commission Chair shall request the modeling organization to submit the completed forms listed in 1.e. above for review by the Professional Team.

5. The Commission reserves the right to review any and all interim platform updates in detail, even if the review of the interim platform updates notification and Interim Platform Update Certification Form was found favorable.

REVIEW AND ACCEPTANCE CRITERIA FOR FUNCTIONALLY EQUIVALENT MODEL PLATFORMS

If a modeling organization has designed its model to operate on two or more platforms, the Commission may find the model as run on the various platforms acceptable under the following circumstances and procedures.

1. The various model platforms shall be submitted for review at the same time by the designated Submission deadline and shall be capable of being reviewed concurrently by the Commission, including the Professional Team's on-site review, such that all platforms can be reviewed as to their functional equivalence.

2. Functional equivalence shall be recognized as long as no flood loss costs differ with regard to any platform at the rounded third decimal place (thus there shall be no changes in the published Form AF-1 and Form AF-4, and flood probable maximum loss does not differ by more than ± 1% for any flood probable maximum loss level (Form AF-8).

3. The model as implemented on the various platforms shall have the same model version identification with a notation to designate the specific model platforms. The modeling organization shall specify which platform is the primary platform and which platforms are the functionally equivalent platforms. This information shall be disclosed in response to Standard GF-1 Disclosure 1.

4. The modeling organization shall not be allowed to make separate Submissions during a review cycle and any difference between model platforms shall be required to be fully described in the modeling organization's initial Submission.

5. The only differences in modeled results shall be demonstrated to be solely due to the nature of the model platforms or any other technological constraint that would account for no more than the designated variations noted above.

The Commission shall determine functional equivalence of the model platforms during the review of the model for acceptability. The letter of acceptability specifically designates which model platforms were found to be functionally equivalent and acceptable by the Commission.

MODEL UPDATE FOR CONSISTENCY OF HURRICANE AND FLOOD MODELS AFTER THE MODEL HAS BEEN DETERMINED TO BE ACCEPTABLE BY THE COMMISSION

1. If the modeling organization proposes to update a current accepted hurricane or flood model as a result of changes to the other model, the modeling organization shall notify the Commission Chair in writing.

   The notification shall detail:

   a. The nature of the proposed updates, and

   b. The effect on the modeled results (i.e., the impact on flood or hurricane loss costs and flood or hurricane probable maximum loss levels).

   The notification shall also include all Submission materials that are impacted. If trade secret information is involved, the modeling organization shall include this fact in the notification to the Commission.

2. Depending on the nature of the updates, the Commission Chair, in consultation with at least three Professional Team members, will review the notification and materials provided to determine whether to process the proposed updates immediately or defer until the next scheduled model review cycle. Depending on the nature of the updates, the Commission Chair may recommend that the Professional Team conduct an on-site review, or a virtual review provided the modeling organization is in agreement and can provide access to full modeling material.

3. If the Commission Chair, in consultation with at least three Professional Team members, determines that the documentation and explanations provided by the modeling organization are sufficient, no further review is necessary by the Commission. The Commission Chair shall provide an updated acceptability letter to the modeling organization acknowledging the update notification and noting that the model update produces minor differences in flood loss costs and flood probable maximum loss levels from the current accepted model, that the Commission accepts the modeling organization’s addendum to its previous Submission, and that the same acceptability expiration date shall apply as for the current accepted model.

4. If the Commission Chair, in consultation with at least three Professional Team members, determines there are significant differences in the underlying acceptable model or there are significant differences in the modeled results, then the Commission Chair shall send a letter to the modeling organization as soon as practical notifying the modeling organization of a pending review by the Commission. The Commission Chair shall determine the need for a special meeting or whether the issue can be addressed at the next regularly scheduled meeting of the Commission. The Commission shall review the model update and any other aspect of the model which might have changed in order to ensure that the model continues to comply with the standards.

5. The basic process adopted in the current *Flood Standards Report of Activities* chapter "Process for Determining the Acceptability of a Computer Simulation Flood Model" will be followed.

   The Commission letter of acceptability shall be revised to acknowledge the model update to the current accepted model. The new model identification as assigned by the modeling organization shall be noted. Once the Commission has determined acceptability of the revised model, the revised model shall supersede the current accepted model, and the same acceptability expiration date shall apply for the revised model.

6. If the proposed model update is not found to be acceptable by the Commission, the Commission Chair shall send a letter to the modeling organization noting such and that the current acceptable model shall continue to be acceptable with the original acceptability expiration date.

   The appeal process as specified in Appeal Process to be Used by a Modeling Organization if a Model is Not Found to be Acceptable by the Commission shall not be applicable. This will require the modeling organization to make any contemplated model update for the Commission's consideration in the next review cycle as determined by time frames established in the current *Flood Standards Report of Activities*.

EXPIRATION OF A MODEL FOUND ACCEPTABLE

The determination of acceptability of a model found acceptable for the standards contained in the *Flood Standards Report of Activities as of November 1, 2025*, expires on November 1, 2032.

Interim Model Update Certification Form

Name and Version Identification of Current Accepted Florida Flood Model:

____

Current Accepted Florida Flood Model Primary Platform Name and Identification:

____

Updated Name and Version Identification of Florida Flood Model:

____

We hereby certify that the aforementioned interim model update has been reviewed and conclude that there are no differences, other than as described in the interim model update notification letter, from the current accepted Florida flood model and as certified in this form. Hence, we deem this interim model update to be functionally equivalent to the current accepted Florida flood model as given above.

Further we hereby certify that:

1. The interim model update meets all the flood standards for which the current Florida flood model was found acceptable,

2. The interim model update has been duly tested and has no impact on the current accepted Florida flood model,

3. Forms AF-1, AF-4, and AF-8 using the applicable modeling-organization-specified, predetermined, and comprehensive exposure dataset have been generated and agree with their counterparts in the current acceptable Florida flood model,

4. Our review was completed in accordance with the professional standards and code of ethical conduct for our respective professions, and

5. In expressing our opinion, we have not been influenced by any other party to bias or prejudice our opinion.

Interim Model Update Certification Form

Catastrophe Model Senior Officer	Professional Credentials and Title
Signature	Date
Actuary	Professional Credentials
Signature	Date
Statistician	Professional Credentials
Signature	Date
Computer Information Scientist	Professional Credentials
Signature	Date

Interim Platform Update Certification Form

Name and Version Identification of Current Accepted Florida Flood Model:

Current Accepted Florida Flood Model Platform Names and Identifications:

Updated Florida Flood Model Platform Names and Identifications:

We hereby certify that the aforementioned interim platform update has been reviewed and conclude that there are no differences, other than as described in the interim platform update notification letter, from the current accepted Florida flood model and as certified in this form. Hence, we deem this interim platform update to be functionally equivalent to the current accepted Florida flood model as given above.

Further we hereby certify that:

1. The interim platform update meets all the flood standards for which the current Florida flood model was found acceptable,

2. The interim platform update has been duly tested and has no impact on the current accepted Florida flood model,

3. Forms AF-1, AF-4, and AF-8 using the applicable modeling-organization-specified, predetermined, and comprehensive exposure dataset have been generated and agree with their counterparts in the current acceptable Florida flood model,

4. Our review was completed in accordance with the professional standards and code of ethical conduct for our respective professions, and

5. In expressing our opinion, we have not been influenced by any other party to bias or prejudice our opinion.

Interim Platform Update Certification Form

Catastrophe Model Senior Officer	Professional Credentials and Title
Signature	Date
Actuary	Professional Credentials
Signature	Date
Statistician	Professional Credentials
Signature	Date
Computer Information Scientist	Professional Credentials
Signature	Date

ON-SITE REVIEW OF A COMPUTER SIMULATION FLOOD MODEL BY THE PROFESSIONAL TEAM

ON-SITE REVIEW OF A COMPUTER SIMULATION FLOOD MODEL BY THE PROFESSIONAL TEAM

GENERAL PURPOSE

The purpose of the on-site review is to evaluate the compliance of the flood model with the flood standards. The on-site review is conducted in conjunction with the chapter "Process for Determining the Acceptability of a Computer Simulation Flood Model." It is not intended to provide a preliminary peer review of the flood model. The goal of the Professional Team's efforts is to provide the Commission with a clear and thorough report of the flood model as required in the Acceptability Process, subject to non-disclosure conditions.

All aspects of the flood model described in the disclosures shall be available for review. All trade secret material, modifications, adjustments, assumptions, or other criteria that were included in producing the information required by the Commission in the Submission shall be disclosed to the Professional Team to be reviewed.

A flood model component custodian, or designated proxy, shall be available for the review of each component during the on-site review.

The Professional Team shall begin the review with a briefing to modeling organization personnel to discuss the review schedule and to describe the review process.

The on-site review by the Professional Team involves the following:

1. Due diligence review of information submitted by the modeling organization. For existing modeling organizations, the due diligence review concentrates on (1) any changes in the disclosures and forms from the current accepted flood model, and (2) selected parts of the flood model that have not been updated.

2. On-site tests of the flood model under the control and supervision of the Professional Team. The objective is to observe the flood model in operation and the results it produces during a "real time" run. This is necessary in order to avoid the possibility that the modeling organization could recalibrate the flood model solely for producing desirable results.

3. Data and code review which shall be readily available in an agreeable time frame when requested for review by the Professional Team.

4. Verification that information provided by the modeling organization in the disclosures and forms is valid and is an accurate and fairly complete description of the flood model.

5. Review for compliance with the flood standards.

6. Review of trade secret data and information.

Feedback regarding compliance of the flood model with the flood standards shall be provided to the modeling organization throughout the review process.

PREPARATION FOR ON-SITE REVIEW

The Professional Team assists the Commission and SBA staff in determining if a modeling organization is ready for an on-site review.

The Professional Team assists the modeling organization in preparing for the on-site review by providing a detailed pre-visit letter with requests outlining specific issues to be addressed by the modeling organization unique to the Submission. The Professional Team makes every effort to identify substantial issues with the flood model or the Submission to allow the modeling organization adequate time to prepare for the on-site review.

As the Professional Team continues to prepare for the on-site review, it may discover issues not originally covered in the pre-visit letter prior to the on-site review. Such issues may be addressed in an addendum to the pre-visit letter, or will be introduced during the opening briefing of the on-site review.

The discovery of errors in the flood model by the Professional Team is a possible outcome of the review. It is the responsibility of the modeling organization to ensure the validity and correctness of the flood model and the Submission.

Telephone Conference Call: Prior to the on-site review, at the request of the modeling organization, SBA staff will arrange a telephone conference call between the modeling organization and the Professional Team or a subset of the Professional Team. The purpose of the call is to answer any questions the modeling organization has regarding the upcoming on-site review, the pre-visit letter, and the material, data files, and personnel that need to be available during the on-site review. The pre-visit conference call does not preclude the Professional Team from asking for additional information during the on-site review that was not discussed during the conference call or included in the pre-visit letter. The conference call is the only scheduled opportunity for the modeling organization to clarify any questions directly with the Professional Team prior to the on-site review.

Scheduling: SBA staff is responsible for scheduling on-site review dates. Each modeling organization will be notified at least two months prior to the scheduled review. The actual length of the review may vary depending on the preparedness of the modeling organization and the depth of the inquiry needed for the Professional Team to obtain an understanding of the flood model. The Commission expects the modeling organization to be well-prepared for a review by the Professional Team. In particular, it is suggested that a modeling organization conduct a detailed self-audit to ensure that it is ready for the Professional Team review.

Electronic Material Access Testing: A test session shall be conducted with the modeling organization, the Professional Team, SBA staff, and Commission members attending the on-site review prior to the deadline for providing access to electronic materials. SBA staff is responsible for scheduling a test session with the modeling organization.

Materials: The modeling organization shall have all necessary materials and data on-site for review. All material referenced in the Submission as "will be shown to the Professional Team" and all material that the modeling organization intends to present to the Commission, including trade secret data and information, shall be presented to the Professional Team during the on-site review.

All documentation shall be easily accessible from a central location in order to be reviewed.

All primary scientific literature and technical literature, including modeling organization specific publications cited, that describe the underlying flood model theory and implementation (where applicable) shall be available if requested in the course of the on-site review, in electronic form or hard copy if not available electronically.

The modeling organization shall have available for the Professional Team's consideration, all insurance claims data received or newly processed since the previous Submission, and be prepared to describe any processes used to amend or validate the data as it impacts the flood model.

The modeling organization shall have available for the Professional Team's review, all engineering data (e.g., post-event site investigations, laboratory or field-testing results) received since the previous review by the Professional Team, and be prepared to describe any processes used to develop, amend, or validate the flood model that incorporates this data.

Printed Materials: The modeling organization shall provide upon arrival of the Professional Team, and <u>***before the review can officially commence***</u>, six printed copies of the following materials:

1. Modeling organization presentations, printed two slides per page, duplexed, and

2. Form AF-6 graphical summaries for the flood model under review demonstrating the sensitivity for each Notional Set and the scatter plot of the flood loss costs (*y*-axis) against distance to closest coast (x-axis) for slab foundation owners frame buildings (Notional Set 6).

Presentations: A new modeling organization shall first provide a high-level overview of each flood model component. The next set of presentations shall be organized by standards group starting with detailed explanations of the model component followed by responses to the pre-visit letter requests and each audit item for each flood standard. Pre-visit letter requests and audit items requiring details on the meteorological, hydrologic, hydraulic, vulnerability, and actuarial components do not need to be repeated.

An existing modeling organization shall first provide a presentation with a high-level overview of the model changes listed in Standard GF-1 Disclosure 7. The next set of presentations shall be organized by standards group starting with detailed explanations of the model changes followed by responses to the pre-visit letter requests and each audit item for each flood standard. Pre-visit letter requests and audit items requiring details on changes to the meteorological, hydrologic, hydraulic, vulnerability, and actuarial components do not need to be repeated.

If changes are made in any part of the model or the modeling process from the descriptions as provided in the Submission document, the presentation shall also include a complete and detailed explanation of those changes, the reasons for the changes (e.g., an error was discovered), and any revised disclosures and forms. For each revised form, an additional form with cell-by-cell differences between the revised and the original submitted values shall be provided electronically.

Electronic Materials: The modeling organization shall provide electronic files as follows:

1. The modeling organization presentations,

2. The tables required in Standard CIF-3 Audit 4,

3. All figures with scales for the *x*- and *y*- axes labeled that are not so labeled in the Submission document. The figures shall be identified with the same figure number as given in the Submission document,

4. Form HHF-3 for the flood model under review and for the current accepted flood model,

5. Form HHF-5 for the flood model under review and for the current accepted flood model,

6. The Excel spreadsheet required in Standard AF-1 Audit 4,

7. Form AF-6 for the flood model under review and for the current accepted flood model, including:

    a. the Excel worksheets,

    b. the graphical summaries demonstrating the sensitivity for each Notional Set, and

    c. the scatter plot of the flood loss costs (*y*-axis) against distance to closest coast (*x*-axis) for slab foundation owners frame buildings (Notional Set 6),

8. Flowchart standard documents if internally developed, or references to published standards,

9. Software engineering practice and coding guidelines if internally developed, or references to published standards,

10. List of all externally acquired flood model-specific software and data assets required in Standard CIF-3 Audit 3,

11. Requirements documentation that specifically relates to each model change identified in Standard GF-1 Disclosure 7 required in Standard CIF-4 Audit 2,

12. Complete and thorough verification procedures and output from the model changes identified in Standard GF-1 Disclosure 7 required in Standard CIF-7 Audit 9, and

13. Artificial Intelligence Software Engineering (AI-SWE) Policy and procedures required in CIF-2 Audits 1 and 2.

The modeling organization shall provide electronic spreadsheets of all forms. Spreadsheets containing numbers shall be populated with the maximum precision allowed in the flood model implementation. This procedure shall hold even if the requested format for some forms specifies a limited number of decimal places.

The electronic files shall be provided to SBA staff and designated Professional Team members, in a location provided by the modeling organization, to be received no later than close of business two business days prior to the start of the on-site review (e.g., 5pm modeling organization time on Thursday before the start of an on-site review on Monday).

The Professional Team and SBA staff shall attest at the end of the on-site review that all trade secret material and digital notes on their personal computers have been deleted and that the recycle bin or its equivalent has been emptied.

Internet Access: The Professional Team shall be provided access to the internet through the Professional Team members' personal computers.

REMOTE REVIEW

If government-mandated travel-related restrictions are imposed at the time of the on-site review, then the review shall be held remotely and shall abide by the on-site review process as detailed above. For other unique scenarios that would limit or restrict travel, the Commission shall consider holding the on-site review remotely. For situations unique to a remote review, the following procedures shall apply.

A test session shall be conducted prior to the deadline for providing access to electronic materials, to familiarize participants with the functionality of the software to be used during the remote review. This test session shall include, at a minimum, members of the modeling organization team, the Professional Team, SBA staff, and any Commission members who will be participating in the remote review.

Physical hard copy documents provided by a modeling organization to the Professional Team containing trade secret data and information shall be clearly designated on each page as trade secret through watermarks, footers, stamping, or other means as appropriate.

The modeling organization shall provide electronic trade secret data and information on an electronic storage location as specified by the modeling organization.

The modeling organization shall provide all necessary materials and data for review, whether in physical hard copy, electronic format, or virtually, as agreed upon with the Professional Team and SBA staff. All materials and data provided by the modeling organization directly to SBA staff, a Professional Team member, or a Commission member shall not be reproduced, recorded, copied, or duplicated in any manner by SBA staff, a Professional Team member, or a Commission member.

The modeling organization shall provide to SBA staff, and each Professional Team and Commission member as designated by SBA staff, one set of physical hard copy materials and the required electronic data (via an electronic storage location provided by the modeling organization) to be received no later than close of business two business days prior to the start of the remote review (e.g., 5pm modeling organization time on Thursday before the start of a remote review on Monday). The objective is for Professional Team members to receive the required materials prior to the start of the remote review to facilitate officially commencing the review on time, rather than to start the remote review one business day earlier.

Within one business day after completion of the remote review, SBA staff, Professional Team members, and Commission members shall ship to the modeling organization via overnight delivery all physical hard copy materials provided by the modeling organization, and the remote review workbook provided by SBA staff.

SBA staff, Professional Team members, and Commission members shall thoroughly review all physical hard copy and electronic storage locations that were utilized during the remote review to ensure that all materials provided by the modeling organization are being returned or destroyed, and that no record, copy, duplicate, derivative, or compilation of the information is within their possession.

Each Professional Team member, Commission member, and SBA staff shall provide a written confirmation to the Commission Chair via email to SBA staff stating that (1) a comprehensive review has been performed of all physical hard copy and electronic storage locations utilized during the remote review process, (2) all materials and information provided by the modeling organization in support of the remote review have been shipped to the modeling organization via overnight delivery or destroyed, and (3) the materials and data provided by the modeling organization have not been reproduced, recorded, copied, or duplicated in any manner or stored on any medium including personal computers or other devices. SBA staff shall provide a copy of each signed written confirmation to the modeling organization.

PROFESSIONAL TEAM REPORT

After completing its review of the flood model for compliance with the flood standards, the Professional Team shall conduct an exit briefing with the modeling organization. During this briefing, the Professional Team shall provide a preliminary draft of the Professional Team report.

If the on-site review is held remotely, a preliminary draft of the Professional Team report shall be emailed by SBA staff to the modeling organization. The email shall include the SBA disclosure, "This communication may contain confidential, proprietary, and/or privileged information. It is intended solely for the use of the addressee. If you are not the intended recipient, you are strictly prohibited from disclosing, copying, distributing, or using any of this information. If you received this communication in error, please contact the sender immediately and destroy the material in its entirety, whether electronic or hard copy. Additionally, please note that Florida has a very broad public records law. This communication (including your email address, any attachments and other email contents) may be subject to disclosure to the public and media."

The modeling organization has the right to expunge any trade secret information. The modeling organization shall also have the opportunity to check for any factual errors. The Professional Team shall consider modeling organization suggestions for changes in its draft to correct factual errors. If the modeling organization and the Professional Team dispute a particular item as a factual error, then the report shall adopt the phrasing, "In the opinion of the Professional Team…."

Any information within the preliminary draft of the Professional Team report deemed proprietary by the modeling organization shall be noted and expunged from the final Professional Team report. If there is a disagreement between the modeling organization and the Professional Team over the proprietary nature of the expunged information, then the expunged information shall be placed in a sealed envelope labeled "Contains Content Designated as Trade Secret Information by (Name of Modeling Organization)" with the date, time, and Professional Team leader's signature across the seal.

If the on-site review is held remotely, SBA staff shall print and place the expunged information in a sealed envelope labeled "Contains Content Designated as Trade Secret Information by (Name of Modeling Organization)" with the date, time, and SBA staff's signature across the seal.

The sealed envelope shall be retained by SBA staff in accordance with Florida Public Records Law in a secure location. SBA staff shall bring the sealed envelope to the Commission closed meeting to discuss trade secrets where it will be unsealed and distributed for use during the closed meeting. At the conclusion of the closed meeting, the information shall be placed in an envelope labeled "Contains Content Designated as Trade Secret Information by (Name of Modeling Organization)" and sealed. The sealed envelope shall be retained by SBA staff in a secure location until the records retention schedule has been met at which time the sealed envelope shall be destroyed and the modeling organization informed.

The Professional Team report shall include:

1. A list of participants,

2. A summary of significant revisions in the flood model under review from the current accepted flood model,

3. A verification that all deficiencies identified by the Commission have been resolved,

4. A copy of the pre-visit letter,

5. A verification of compliance with the flood standards, making note under any standards where issues or concerns were worked through in order to be verified,

6. A description of material reviewed in support of compliance with the flood standards that gave the Professional Team confidence in making the decision to verify compliance with the flood standards,

7. A list of trade secret data and information, audit items, and pre-visit letter request responses that the Professional Team recommends be presented to the Commission during the closed meeting portion of the Commission meeting to review the flood model for acceptability, to facilitate the Commission's understanding of the flood model under review,

8. Any recommended change to the time duration of the closed meeting established by the Commission during the Commission meeting to review Submissions, and

9. A statement indicating where proprietary information has been removed, if applicable.

The Professional Team report shall not include information deemed as trade secret by the modeling organization.

After leaving the modeling organization's premises, the Professional Team, in coordination with SBA staff, will finalize its report and provide it to Commission members in advance of the meeting to review the flood model for acceptability.

Any disparate opinions among Professional Team members concerning compliance with the flood standards will be duly noted and explained in the final report.

ADDITIONAL VERIFICATION REVIEW

It is possible that a subset of the flood standards or changes made to the flood model, disclosures, forms, or trade secret data and information may require further review by the Professional Team or a subset of the Professional Team. In such cases, SBA staff will arrange an additional verification review, in accordance with the Acceptability Process, to verify those flood standards.

Non-trade secret materials shall be received by SBA staff within sixty calendar days of the request for an additional verification review, but no later than seven calendar days prior to the additional verification review.

Electronic trade secret materials shall be provided to SBA staff and designated Professional Team members, in a location provided by the modeling organization, to be received no later than close of business two business days prior to the start of the additional verification review (e.g., 5pm modeling organization time on Thursday before the start of an additional verification review on Monday). Additional materials may be requested on-site by the Professional Team in order to verify the flood standards. The Professional Team members and SBA staff shall attest at the end of the additional verification review that all trade secret material and digital notes on their personal computers have been deleted and that the recycle bin or its equivalent has been emptied.

If an additional verification review is held remotely, the same procedures shall apply as during the initial verification review. The modeling organization shall provide to SBA staff and each Professional Team member as designated by SBA staff, one set of physical hard copy materials prepared for the additional verification review, along with the physical hard copy materials and the electronic data from the initial remote review, to be received no later than close of business two business days prior to the start of the remote additional verification review (e.g., 5pm modeling organization time on Thursday before the start of an additional verification review on Monday). New or revised electronic data shall be added to the electronic data on the electronic storage location provided by the modeling organization that was utilized during the initial remote review.

If a Commission member approved to attend the initial on-site review elects to attend the remote additional verification review, then the modeling organization shall provide to the Commission member one set of physical hard copy materials prepared for the additional verification review, along with the physical hard copy materials from the initial verification review, to be received no later than close of business two business days prior to the start of the remote additional verification review (e.g., 5pm modeling organization time on Thursday before the start of an additional verification review on Monday).

Within one business day after completion of the remote additional verification review, SBA staff, Professional Team members, and Commission members shall ship to the modeling organization via overnight delivery all physical hard copy materials provided by the modeling organization (the set of physical hard copy materials from the initial and the additional verification reviews), and the remote review workbooks.

SBA staff, Professional Team members, and Commission members shall thoroughly review all physical hard copy and electronic storage locations that were utilized during the remote additional verification review to ensure that all materials provided by the modeling organization are being returned or destroyed, and that no record, copy, duplicate, derivative, or compilation of the information is within their possession.

Each Professional Team member, Commission member, and SBA staff shall provide a written confirmation to the Commission Chair via email to SBA staff stating that (1) a comprehensive review has been performed of all physical hard copy and electronic storage locations utilized during the remote additional verification review process, (2) all materials and information provided by the modeling organization in support of the remote additional verification review have been shipped to the modeling organization via overnight delivery or destroyed, and (3) the materials and data provided by the modeling organization have not been reproduced, recorded, copied, or duplicated in any manner or stored on any medium including personal computers or other devices. SBA staff shall provide a copy of each signed written confirmation to the modeling organization.

TRADE SECRET DATA AND INFORMATION

While on-site or during a remote review, the Professional Team members are expected to have access to trade secret data and information. It is the responsibility of the modeling organization to identify to all Professional Team members and SBA staff what is a trade secret and is not to be made public.

All written documentation provided by the modeling organization to the Commission is considered a public record with the exception of documents provided during the closed meeting where trade secrets used in the design and construction of the flood model are discussed and reviewed.

The modeling organization shall provide any additional information directly to the Commission rather than give it to Professional Team members or SBA staff to be brought back with them. Documents that the modeling organization indicates are trade secret that are viewed by Professional Team members, Commission members, and SBA staff are confidential and exempt from Florida's public records law.

Professional Team members, Commission members, and SBA staff shall use a workbook provided by SBA staff, or the digital or hard copy materials provided by the modeling organization, for notes. The modeling organization shall review the workbooks for notes the modeling organization deems as trade secret information. Any workbook pages containing notes considered by the modeling organization as trade secret information shall be removed from the workbook by the modeling organization. SBA staff shall place the removed workbook pages in a sealed envelope labeled “Contains Content Designated as Trade Secret Information by (Name of Modeling Organization)” with the date, time, and Professional Team leader’s signature across the seal. The sealed envelope shall be retained by SBA staff in accordance with Florida Public Records Law in a secure location. SBA staff shall bring the sealed envelope to the Commission closed meeting to discuss trade secrets where it will be unsealed and distributed for use during the closed meeting.

Professional Team members, Commission members, and SBA staff shall attest at the end of the on-site review that all trade secret material and digital notes on their personal computers have been deleted and that the recycle bin or its equivalent has been emptied.

Trade secrets of the modeling organization learned by a Professional Team member or SBA staff shall not be discussed with Commission members.

Professional Team members and SBA staff shall agree to respect the trade secret nature of the flood model and not use trade secret information in any way detrimental to the interest of the modeling organization.

Professional Team members shall not discuss other flood and hurricane models being evaluated while they are on-site or remotely reviewing a particular flood model.

During a remote review, Professional Team members, Commission members, and SBA staff shall use a workbook prepared and provided by SBA staff, or the digital or hard copy materials provided by the modeling organization, for notes. At the completion of the remote review, the workbooks shall be shipped to the modeling organization with the materials provided in advance of the remote review by the modeling organization. The modeling organization shall review the remote review workbooks for notes the modeling organization deems as trade secret information and remove those pages from the workbook.

ON-SITE REVIEW RESULTS

The Professional Team shall present the results of the on-site review to the Commission and answer questions related to their review.

The job of the Professional Team is to verify information and make observations. It is not part of the Professional Team’s responsibilities to opine or draw conclusions about the appropriateness of a particular flood model or a component part of a flood model.

Refer to the chapter “Process for Determining the Acceptability of a Computer Simulation Flood Model” for additional information regarding the on-site review.

PROFESSIONAL TEAM

COMPOSITION AND SELECTION OF THE PROFESSIONAL TEAM

A team of professional experts, known as the Professional Team, conducts on-site reviews at modeling organizations seeking a determination of acceptability for their flood model by the Commission. The Professional Team consists of experts having professional credentials in the following disciplines with each area represented by one or more individuals:

- Meteorology
- Hydrology and Hydraulics
- Statistics
- Engineering
- Actuarial Science
- Computer/Information Science

SBA staff selects the Professional Team members in accordance with the SBA's procurement policy for contractual services. The SBA enters into contracts with each individual selected.

Selection of the Professional Team members is an aggressive recruiting process to seek out highly qualified experts who are capable of working closely with the Commission and who are available during specified time frames in order for the Commission to meet its deadlines. Consideration is given to the following factors:

- Professional credentials, qualifications, and specialized experience
- Ability to provide the scope of services
- Reasonableness of fees
- Availability and commitment to the Commission
- Lack of conflicts of interest

RESPONSIBILITIES OF THE PROFESSIONAL TEAM

Team Leader: SBA staff designates one member of the Professional Team as the team leader. The team leader is responsible for coordinating the activities of the Professional Team and overseeing the development of reports to the Commission. The team leader also:

1. Provides leadership, support, and guidance to team members, fostering collaboration, developing team strengths, and creating a supportive team environment.

2. Leads the on-site review and conducts the opening and exit briefings.

3. Helps ensure compliance with the Commission's processes and the Professional Team's audit guidelines.

4. Assists and collaborates with designated SBA staff responsible for managing the Professional Team.

5. Leads the review of interim flood model and platform updates.

6. Coordinates and prepares responses to modeling organization questions regarding the flood standards, disclosures, forms, and audit items.

Team Members: Responsibilities of Professional Team members include:

1. Participate in preparations and discussions with the Commission and SBA staff prior to the on-site reviews.

2. Study, review, and develop an understanding of responses and materials provided to the Commission by the modeling organizations.

3. Participate with the Commission and SBA staff in developing, reviewing, and revising flood model tests and evaluations.

4. Participate in on-site reviews to verify, evaluate, and observe the data, methodologies, techniques, and assumptions used in the flood models for each member's area of expertise.

5. Identify and observe how various assumptions affect the flood model so as to identify to the Commission various sensitive components and aspects of the flood model.

6. Discuss the flood model with the modeling organization's professional staff to gain a clear understanding and confidence in the operation of the flood model and its description as provided to the Commission.

7. Participate in the preparation of written reports and presentations to the Commission.

8. Participate in Commission meetings.

RESPONSIBILITIES OF SBA STAFF

The Professional Team reports to designated SBA staff. SBA staff manages the Professional Team and coordinates their pre-on-site planning activities, on-site reviews and activities, and post-on-site activities.

These responsibilities include:

1. Setting up meetings with Professional Team members individually and as a group. These meetings include conference calls and virtual meetings depending on circumstances and needs of the Commission.

2. Coordinating and scheduling on-site reviews and additional verification reviews, including remote reviews.

3. Coordinating and scheduling pre-on-site review conference calls.

4. Coordinating and scheduling electronic material access testing prior to on-site reviews.

5. Working with the Commission and Professional Team members in developing, reviewing, and revising flood model tests and evaluations.

6. Overseeing the supervision and administration of specified on-site tests and evaluations.

7. Working with the modeling organization to determine which professionals with the modeling organization shall be available during the on-site review.

8. Briefing and de-briefing the Professional Team members prior to, during, and after the on-site review.

9. Coordinating the preparation of written reports and presentations to the Commission.

10. Coordinating the reimbursement of expenses per s. 112.061, F.S., for Professional Team members, Commission members, and SBA staff.

2025 FLOOD STANDARDS, DISCLOSURES, AUDIT ITEMS, AND FORMS

Florida Commission on
Hurricane Loss Projection Methodology

Flood Model Identification

Name of Flood Model: ____

Flood Model Version Identification: ________________________________

Flood Model Platform Names and Identifications with Primary Flood Model Platform and Identification Listed First:____

____

____

Name of Modeling Organization: ____________________________________

Street Address: ____

City, State, ZIP Code: ____

Mailing Address, if different from above: ____________________________

____

Contact Person: ____

Phone Number: ____

Email Address: ____

Date: ____

Flood Model Submission Data

The following input data shall be made available to modeling organizations.

Input Data

Name	Description
NotionalInput25_Flood.xlsx	Notional structures and Grid F1 and Grid F2 location points for Forms SF-1 and AF-6
FLmodHUC8_boundaries.zip	Shapefile of Florida Modified HUC-8 boundaries for Standard GF-1 Audit 5, Standard SF-4, Standard SF-4 Audit 1, Standard AF-8 Audit 1, Form HHF-2, Form HHF-3, Form HHF-4, Form HHF-5, Form AF-4, and Form AF-6
VFEventFormsInput.xlsx	Sample personal residential exposure data for 26 stillwater flood depths and 8 reference buildings defined in Forms VF-1 and VF-2
2025FormAF1.xlsx	Standard flood policy loss cost data format for Form AF-1
2025FormAF3.xlsx	Standard flood policy loss data format for Form AF-3
2025FormAF4.xlsx	Flood output ranges format for Form AF-4
2025FormAF5.xlsx	Percentage change in flood output ranges format for Form AF-5
GridF1&F2_2025ROAflood.zip	Shapefiles of Grid F1 and Grid F2 location points for Form AF-6
2025FormAF6F1.xlsx	Logical relationship to flood risk exhibits format for Form AF-6 using Location Grid F1
2025FormAF6F2.xlsx	Standard flood policy loss cost data format for Form AF-6 using Location Grid F2

Output shall be provided in specified output files as listed below. XXX denotes the abbreviated name of the modeling organization.

Output Data

Name	Description
XXX25FormHHF3.xlsx	Output data from Form HHF-3
XXX25FormHHF5.xlsx	Output data from Form HHF-5
XXX25FormVF3.xlsx	Output data from Form VF-3
XXX25FormVF4.xlsx	Output data from Form VF-4

Name	Description
XXX25FormVF5.xlsx	Output data from Form VF-5
XXX25FormVF6.xlsx	Output data from Form VF-6
XXX25FormAF1.xlsx and XXX25FormAF1.pdf	Standard flood policy loss cost data from Form AF-1
XXX25FormAF2.xlsx	Output data from Form AF-2 using the current accepted model and the model under review exposure data
XXX25FormAF3.xlsx and XXX25FormAF3.pdf	Output data from Form AF-3 using the current accepted model and the model under review exposure data
XXX25FormAF4.xlsx	Flood output ranges from Form AF-4 using the current accepted model and the model under review exposure data
XXX25FormAF5.xlsx	Output data from Form AF-5
XXX25FormAF6F1.xlsx	Output data from Form AF-6 using Location Grid F1
XXX25FormAF6F2.xlsx	Output data from Form AF-6 using Location Grid F2
XXX25FormAF8.xlsx	Output data from Form AF-8 using the current accepted model and the model under review exposure data

The modeling organization shall run various scenario flood events through the flood model on the modeling-organization-specified, predetermined, and comprehensive exposure data. The referenced output forms shall be completed, and flood loss files provided in Excel and PDF format as specified.

Forms designated as a Trade Secret Item shall be provided in a Submission appendix if not considered as trade secret by the modeling organization.

The file names shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Revised files shall also include the revision date.

Notional Sets

Notional Set 1 – Deductible Sensitivity

Name	Policy Form/Occupancy	Construction	Year Built	Number of Stories	Building Limit (A)	Personal Property Limit (B)	Event Deductible
Frame Owners	Owners	Frame	1989	1	100,000	40,000	0
Frame Owners	Owners	Frame	1989	1	100,000	40,000	1,000
Frame Owners	Owners	Frame	1989	1	100,000	40,000	1,500
Frame Owners	Owners	Frame	1989	1	100,000	40,000	2,000
Frame Owners	Owners	Frame	1989	1	100,000	40,000	5,000
Frame Owners	Owners	Frame	1989	1	100,000	40,000	10,000
Masonry Owners	Owners	Masonry	1989	1	100,000	40,000	0
Masonry Owners	Owners	Masonry	1989	1	100,000	40,000	1,000
Masonry Owners	Owners	Masonry	1989	1	100,000	40,000	1,500
Masonry Owners	Owners	Masonry	1989	1	100,000	40,000	2,000
Masonry Owners	Owners	Masonry	1989	1	100,000	40,000	5,000
Masonry Owners	Owners	Masonry	1989	1	100,000	40,000	10,000
Manufactured Homes	Manufactured Homes	Manufactured Homes	1989	1	50,000	25,000	0
Manufactured Homes	Manufactured Homes	Manufactured Homes	1989	1	50,000	25,000	1,000
Manufactured Homes	Manufactured Homes	Manufactured Homes	1989	1	50,000	25,000	1,500
Manufactured Homes	Manufactured Homes	Manufactured Homes	1989	1	50,000	25,000	2,500
Manufactured Homes	Manufactured Homes	Manufactured Homes	1989	1	50,000	25,000	5,000
Frame Renters	Renters	Frame	1989	1	-	50,000	0
Frame Renters	Renters	Frame	1989	1	-	50,000	1,000
Frame Renters	Renters	Frame	1989	1	-	50,000	1,500
Frame Renters	Renters	Frame	1989	1	-	50,000	2,500
Frame Renters	Renters	Frame	1989	1	-	50,000	5,000
Masonry Renters	Renters	Masonry	1989	1	-	50,000	0
Masonry Renters	Renters	Masonry	1989	1	-	50,000	1,000
Masonry Renters	Renters	Masonry	1989	1	-	50,000	1,500
Masonry Renters	Renters	Masonry	1989	1	-	50,000	2,500
Masonry Renters	Renters	Masonry	1989	1	-	50,000	5,000
Frame Condo Unit	Condo Unit	Frame	1989	3	5,000	50,000	0
Frame Condo Unit	Condo Unit	Frame	1989	3	5,000	50,000	1,000
Frame Condo Unit	Condo Unit	Frame	1989	3	5,000	50,000	1,500
Frame Condo Unit	Condo Unit	Frame	1989	3	5,000	50,000	2,500
Frame Condo Unit	Condo Unit	Frame	1989	3	5,000	50,000	5,000
Masonry Condo Unit	Condo Unit	Masonry	1989	3	5,000	50,000	0
Masonry Condo Unit	Condo Unit	Masonry	1989	3	5,000	50,000	1,000
Masonry Condo Unit	Condo Unit	Masonry	1989	3	5,000	50,000	1,500
Masonry Condo Unit	Condo Unit	Masonry	1989	3	5,000	50,000	2,500
Masonry Condo Unit	Condo Unit	Masonry	1989	3	5,000	50,000	5,000

Notional Set 2 – Reserved for Future Use

Notional Set 3 – Reserved for Future Use

Notional Set 4 – Reserved for Future Use

Notional Set 5 – Year Built Sensitivity

Name	Policy Form/Occupancy	Construction	Year Built	Number of Stories	Building Limit (A)	Personal Property Limit (B)	Deductible
Frame Owners	Owners	Frame	1960	1	100,000	40,000	0
Frame Owners	Owners	Frame	1981	1	100,000	40,000	0
Frame Owners	Owners	Frame	2012	1	100,000	40,000	0
Frame Owners	Owners	Frame	2018	1	100,000	40,000	0
Masonry Owners	Owners	Masonry	1960	1	100,000	40,000	0
Masonry Owners	Owners	Masonry	1981	1	100,000	40,000	0
Masonry Owners	Owners	Masonry	2012	1	100,000	40,000	0
Masonry Owners	Owners	Masonry	2018	1	100,000	40,000	0
Manufactured Homes	Manufactured Homes	Manufactured Homes	1974	1	50,000	25,000	0
Manufactured Homes	Manufactured Homes	Manufactured Homes	1992	1	50,000	25,000	0
Manufactured Homes	Manufactured Homes	Manufactured Homes	2004	1	50,000	25,000	0
Manufactured Homes	Manufactured Homes	Manufactured Homes	2012	1	50,000	25,000	0
Frame Renters	Renters	Frame	1960	1	-	50,000	0
Frame Renters	Renters	Frame	1981	1	-	50,000	0
Frame Renters	Renters	Frame	2012	1	-	50,000	0
Frame Renters	Renters	Frame	2018	1	-	50,000	0
Masonry Renters	Renters	Masonry	1960	1	-	50,000	0
Masonry Renters	Renters	Masonry	1981	1	-	50,000	0
Masonry Renters	Renters	Masonry	2012	1	-	50,000	0
Masonry Renters	Renters	Masonry	2018	1	-	50,000	0
Frame Condo Unit	Condo Unit	Frame	1960	3	5,000	50,000	0
Frame Condo Unit	Condo Unit	Frame	1981	3	5,000	50,000	0
Frame Condo Unit	Condo Unit	Frame	2012	3	5,000	50,000	0
Frame Condo Unit	Condo Unit	Frame	2018	3	5,000	50,000	0
Masonry Condo Unit	Condo Unit	Masonry	1960	3	5,000	50,000	0
Masonry Condo Unit	Condo Unit	Masonry	1981	3	5,000	50,000	0
Masonry Condo Unit	Condo Unit	Masonry	2012	3	5,000	50,000	0
Masonry Condo Unit	Condo Unit	Masonry	2018	3	5,000	50,000	0

Notional Set 6 – Foundation Type Sensitivity

Name	Policy Form/Occupancy	Construction	Year Built	Number of Stories	Building Limit (A)	Personal Property Limit (B)	Deductible	Foundation Type
Basement	Owners	Frame	1981	1	100,000	40,000	0	1 Story Basement
Slab Foundation	Owners	Frame	1981	1	100,000	40,000	0	Slab-on-Grade
Elevate 1	Owners	Frame	1981	1	100,000	40,000	0	Elevated with Closed Area
Elevate 2	Owners	Frame	1981	1	100,000	40,000	0	Elevated with Breakaway Wall
Elevate 3	Owners	Frame	1981	1	100,000	40,000	0	Elevated with Open Area
Weak	Manufactured Homes	Manufactured Homes	1974	1	50,000	25,000	0	Untied Foundation
Medium	Manufactured Homes	Manufactured Homes	1992	1	50,000	25,000	0	Unknown
Strong	Manufactured Homes	Manufactured Homes	2004	1	50,000	25,000	0	Tied Foudation

Notional Set 7 – Number of Stories Sensitivity

Name	Policy Form/Occupancy	Construction	Year Built	Number of Stories	Building Limit (A)	Personal Property Limit (B)	Deductible
Frame Owners	Owners	Frame	1981	1	100,000	40,000	0
Frame Owners	Owners	Frame	1981	2	100,000	40,000	0
Masonry Owners	Owners	Masonry	1981	1	100,000	40,000	0
Masonry Owners	Owners	Masonry	1981	2	100,000	40,000	0
Frame Renters	Renters	Frame	1981	1	-	50,000	0
Frame Renters	Renters	Frame	1981	2	-	50,000	0
Masonry Renters	Renters	Masonry	1981	1	-	50,000	0
Masonry Renters	Renters	Masonry	1981	2	-	50,000	0

Notional Set 8 – Lowest Floor Elevation of Residential Structure Sensitivity

Name	Policy Form/Occupancy	Construction	Year Built	Number of Stories	Building Limit (A)	Personal Property Limit (B)	Deductible	First Floor Height Above Ground
Frame Owners	Owners	Frame	1981	1	100,000	40,000	0	2 ft
Frame Owners	Owners	Frame	1981	1	100,000	40,000	0	4 ft
Frame Owners	Owners	Frame	1981	1	100,000	40,000	0	6 ft
Frame Owners	Owners	Frame	1981	1	100,000	40,000	0	8 ft
Masonry Owners	Owners	Masonry	1981	1	100,000	40,000	0	2 ft
Masonry Owners	Owners	Masonry	1981	1	100,000	40,000	0	4 ft
Masonry Owners	Owners	Masonry	1981	1	100,000	40,000	0	6 ft
Masonry Owners	Owners	Masonry	1981	1	100,000	40,000	0	8 ft
Manufactured Homes	Manufactured Homes	Manufactured Homes	2004	1	50,000	25,000	0	2 ft
Manufactured Homes	Manufactured Homes	Manufactured Homes	2004	1	50,000	25,000	0	4 ft
Manufactured Homes	Manufactured Homes	Manufactured Homes	2004	1	50,000	25,000	0	6 ft
Manufactured Homes	Manufactured Homes	Manufactured Homes	2004	1	50,000	25,000	0	8 ft
Frame Renters	Renters	Frame	1981	1	-	50,000	0	2 ft
Frame Renters	Renters	Frame	1981	1	-	50,000	0	4 ft
Frame Renters	Renters	Frame	1981	1	-	50,000	0	6 ft
Frame Renters	Renters	Frame	1981	1	-	50,000	0	8 ft
Masonry Renters	Renters	Masonry	1981	1	-	50,000	0	2 ft
Masonry Renters	Renters	Masonry	1981	1	-	50,000	0	4 ft
Masonry Renters	Renters	Masonry	1981	1	-	50,000	0	6 ft
Masonry Renters	Renters	Masonry	1981	1	-	50,000	0	8 ft
Frame Condo Unit	Condo Unit	Frame	1981	3	5,000	50,000	0	2 ft
Frame Condo Unit	Condo Unit	Frame	1981	3	5,000	50,000	0	4 ft
Frame Condo Unit	Condo Unit	Frame	1981	3	5,000	50,000	0	6 ft
Frame Condo Unit	Condo Unit	Frame	1981	3	5,000	50,000	0	8 ft
Masonry Condo Unit	Condo Unit	Masonry	1981	3	5,000	50,000	0	2 ft
Masonry Condo Unit	Condo Unit	Masonry	1981	3	5,000	50,000	0	4 ft
Masonry Condo Unit	Condo Unit	Masonry	1981	3	5,000	50,000	0	6 ft
Masonry Condo Unit	Condo Unit	Masonry	1981	3	5,000	50,000	0	8 ft

Comparison of 2025 Flood Standards to 2021 Flood Standards

Standard	Title	Comments
General		
GF-1	Scope of the Flood Model and Its Implementation	Significant Revision
GF-2	Qualifications of Modeling Organization Personnel and Consultants Engaged in Development and Implementation of the Flood Model	Significant Revision
GF-3	Artificial Intelligence Use	New Standard
GF-4	Editorial Compliance	Significant Revision
Meteorological		
MF-1	Flood Event Data Sources	Significant Revision
MF-2	Flood Model Meteorological Overview and Parameters (Inputs)	Significant Revision
MF-3	Wind and Pressure Fields for Storm Surge	Significant Revision
MF-4	Flood Characteristics (Outputs)	Significant Revision
MF-5	Flood Probability Distributions	Significant Revision
Hydrologic and Hydraulic		
HHF-1	Flood Parameters (Inputs)	Significant Revision
HHF-2	Flood Characteristics (Outputs)	Significant Revision
HHF-3	Modeling of Major Flood Control Measures	Significant Revision
HHF-4	Logical Relationships Among Flood Parameters and Characteristics	Significant Revision
Statistical		
SF-1	Modeled Results and Goodness-of-Fit	Significant Revision
SF-2	Sensitivity Analysis for Flood Model Output	Significant Revision
SF-3	Uncertainty Analysis for Flood Model Output	Significant Revision
SF-4	Flood Model Loss Cost Convergence by Florida Modified HUC-8	Significant Revision
SF-5	Replication of Known Flood Losses	Significant Revision
Vulnerability		
VF-1	Development of Flood Building Vulnerability Functions	Significant Revision
VF-2	Development of Flood Contents Vulnerability Functions	Significant Revision
VF-3	Development of Flood Time Element Vulnerability Functions	Significant Revision
VF-4	Flood Mitigation Measures	Significant Revision
Actuarial		
AF-1	Modeled Flood Loss Cost and Flood Probable Maximum Loss Level Considerations	Significant Revision
AF-2	Independence of Flood Model Components	Significant Revision
AF-3	Insured Exposure	Significant Revision
AF-4	Flood Events Resulting in Modeled Flood Losses	Significant Revision
AF-5	Flood Model Input Data and Output Reports	Significant Revision
AF-6	Flood Coverages	Significant Revision
AF-7	Flood Policy Limits and Deductibles	Significant Revision
AF-8	Flood Loss Outputs and Logical Relationships to Risk	Significant Revision
Computer/Information		
CIF-1	General System Traceability and Change Tracking	New Standard
CIF-2	Artificial Intelligence-Based Software Engineering	New Standard
CIF-3	Flood Model Documentation	Significant Revision
CIF-4	Flood Model Requirements	Significant Revision
CIF-5	Flood Model Organization and Component Design	Significant Revision
CIF-6	Flood Model Implementation	Significant Revision
CIF-7	Flood Model Implementation Verification	Significant Revision

Standard	Title	Comments
CIF-8	Human-Computer Interaction	Significant Revision
CIF-9	Flood Model Maintenance and Revision	Significant Revision
CIF-10	Flood Model Security	Significant Revision

Note: *Significant revisions are those that include new or revised (non-editorial) standard requirements, disclosures, forms, or audit items.*

GENERAL FLOOD STANDARDS

GF-1 Scope of the Flood Model and Its Implementation*

*(*Significant Revision)*

A. The flood model shall project accurate and reliable loss costs and probable maximum loss levels for primary damage to insured personal residential property from flood events.

B. Differences between historical and modeled flood losses shall be reasonable using available flood loss data.

C. A documented process shall be maintained to ensure continual agreement and correct correspondence of databases, data files, and computer source code to presentation materials, current scientific literature, current technical literature, and modeling organization documents.

D. All software, data, and flowcharts (1) located within the flood model, (2) used to validate the flood model, (3) used to project modeled flood loss costs and flood probable maximum loss levels, and (4) used to create forms required by the Commission in the Flood Standards Report of Activities shall comply with the Computer/Information Flood Standards.

E. The modeling-organization-specified, predetermined, and comprehensive exposure dataset used for projecting personal residential flood loss costs and flood probable maximum loss levels shall be justified. The exposure dataset shall include for each location the latitude and longitude coordinates, the Florida county name, the Florida 10-digit Hydrologic Unit Code (HUC-10), and the ground elevation at each latitude and longitude.

F. Vintage of data, code, scientific literature, and technical literature used shall be justified.

Purpose: This standard yields a high-level view of the flood model that projects loss costs and probable maximum loss levels for primary damage to insured personal residential property from flood events.

The definition of flood as used in this standard is based on Section 627.715(1)(b), Florida Statutes, and is not limited to any specific subsets or types of flood peril. The flood model applies to all types of flooding at a location where frequencies and severities of such events are available and can be projected.

Relevant Forms: GF-1, General Flood Standards Expert Certification
HHF-1, Historical Coastal and Inland Event Flood Extent and Elevation or Depth Validation Maps
HHF-2, Coastal Flood Characteristics by Annual Exceedance Probability
HHF-3, Coastal Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
HHF-4, Inland Flood Characteristics by Annual Exceedance Probability
HHF-5, Inland Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
SF-2, Examples of Flood Loss Exceedance Estimates (Coastal and Inland Combined)
AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
AF-2, Statewide Standard Flood Policy Losses
AF-3, Personal Residential Standard Flood Policy Losses
AF-4, Flood Output Ranges
AF-5, Percentage Change in Flood Output Ranges
AF-6, Logical Relationships to Flood Risk (Trade Secret Item)
AF-8, Flood Probable Maximum Loss for Florida

Disclosures

1. Specify the flood model name and version identification. If the flood model is implemented on more than one platform, specify each flood model platform identifying the primary platform and the distinguishing aspects of each platform.

2. Provide an executive summary of the flood model. This summary shall include an overview of each major component (meteorological, hydrologic, hydraulic, vulnerability, actuarial) used to project loss costs and probable maximum loss levels for insured primary damage to personal residential property from flood events causing damage in Florida. The executive summary shall not take the place of providing detailed information in the disclosures of relevant subsequent standards.

3. Provide a fully labeled flowchart, concept map, or semantic network that illustrates interactions among, and the network organization of, major flood model components.

4. If the flood model is implemented on multiple platforms, provide detailed information for each platform. Submit Forms AF-1, AF-4, and AF-8, from each platform, including additional calculations showing differences between implementations.

5. Provide in a Submission appendix a comprehensive list of all references pertinent to the flood model under review by standards group. Each reference shall be complete and provided using professional citation standards. Provide a hyperlink here to the location of the references.

6. Describe the modeling-organization-specified, predetermined, and comprehensive exposure dataset used for projecting personal residential flood loss costs and flood probable maximum loss levels. Justify the dataset composition and vintage.

7. Provide the following information related to changes in the flood model from the current accepted flood model to the initial Submission under the 2025 flood standards.

   A. Flood model changes:

      1. A summary description of changes that affect the personal residential flood loss costs or flood probable maximum loss levels,

      2. A list of all other changes, and

      3. The rationale for each change.

   B. Percentage difference in average annual zero deductible statewide flood loss costs based on the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted flood model for:

      1. All changes combined, and

      2. Each individual flood model component change.

   C. Color-coded maps by the rating area or zone used in the current accepted flood model reflecting the percentage difference in average annual zero deductible statewide flood loss costs based on the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted flood model for each flood model component change.

   D. Color-coded map by the rating area or zone used in the current accepted flood model reflecting the percentage difference in average annual zero deductible statewide flood loss costs based on the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted flood model for all flood model component changes combined.

Audit

1. Compliance with the requirements in Standard GF-1.C will be reviewed.

2. Maps, databases, and data files relevant to the Submission will be reviewed as encountered.

3. Justification for the differences in modeled versus historical flood losses will be reviewed.

4. The modeling-organization-specified, predetermined, and comprehensive exposure dataset used for projecting personal residential flood loss costs and flood probable maximum loss levels will be reviewed.

5. For any changes made in the flood model since the initial Submission, color-coded maps by Florida Modified Hydrologic Unit Code-8 (HUC-8) reflecting the percentage difference in average annual zero deductible statewide flood loss costs based on the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted model for each flood model component change, between the initial Submission and the revised Submission, and between any intermediate revisions and the revised Submission, will be reviewed.

6. For any modifications to Form AF-4 using the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted flood model resulting from changes in the flood model since the initial Submission, a newly completed Form AF-5 with the initial Submission as the baseline for computing the percentage changes, and with any intermediate revisions as the baseline for computing the percentage changes, will be reviewed.

7. If the output ranges in Form AF-4 using the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the model under review are regenerated since the initial Submission, a Form AF-5 based on the output range percentage changes using the exposure dataset for the model under review with the initial Submission as the baseline for computing the percentage changes, and with any intermediate revisions as the baseline for computing the percentage changes, will be reviewed.

GF-2 Qualifications of Modeling Organization Personnel and Consultants Engaged in Development and Implementation of the Flood Model*

*(*Significant Revision)*

A. Flood model development, testing, and evaluation shall be performed by modeling organization personnel or consultants who possess the necessary skills, formal education, and experience to develop the relevant components for flood loss projection methodologies.

B. The flood model and Submission documentation shall be reviewed by modeling organization personnel or consultants with requisite experience in the following professional disciplines: hydrology (advanced degree or current licensed professional engineer), hydraulics (advanced degree or current licensed professional engineer, with experience in coastal and inland flooding), meteorology (advanced degree in a relevant discipline), statistics (advanced degree or equivalent experience), vulnerability (current licensed Florida professional engineer, with experience in the effects of coastal and inland flooding on buildings), actuarial science (Associate or Fellow of Casualty Actuarial Society or Society of Actuaries), and computer/information science (advanced degree or equivalent experience and certifications). These individuals shall certify Expert Certification Forms GF-1 through GF-8 as applicable.

Purpose: Professional disciplines with requisite experience necessary to develop the flood model shall be represented among relevant modeling organization staff and consultants. Academic or professional designations are required but not necessarily sufficient for the personnel involved in flood model development, implementation, and preparation of material for review by the Commission.

Relevant Forms: GF-1, General Flood Standards Expert Certification
GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
GF-5, Statistical Flood Standards Expert Certification
GF-6, Vulnerability Flood Standards Expert Certification
GF-7, Actuarial Flood Standards Expert Certification
GF-8, Computer/Information Flood Standards Expert Certification

Disclosures

1. Modeling Organization Background

   A. Describe the ownership structure of the modeling organization engaged in the development of the flood model. Describe affiliations with other companies and the nature of the relationship, if any. Indicate if the modeling organization has changed its name and explain the circumstances.

B. If the flood model is developed by an entity other than the modeling organization, describe its organizational structure and indicate how proprietary rights and control over the flood model and its components are exercised. If more than one entity is involved in the development of the flood model, describe all involved.

C. If the flood model is developed by an entity other than the modeling organization, describe the funding source for the development of the flood model.

D. Describe any services other than flood modeling provided by the modeling organization.

E. Indicate if the modeling organization has ever been involved directly in litigation or challenged by a governmental authority where the credibility of one of its U.S. flood model versions for projection of flood loss costs or flood probable maximum loss levels was disputed. Describe the nature of each case and its conclusion.

2. Professional Credentials

A. Provide in a tabular format (a) the highest degree obtained (discipline and university), (b) employment or consultant status and tenure in years, and (c) relevant experience and responsibilities of individuals currently involved in the Acceptability Process or in any of the following aspects of the flood model:

1. Meteorology
2. Hydrology
3. Hydraulics
4. Statistics
5. Vulnerability
6. Actuarial Science
7. Computer/Information Science
8. Editorial

B. Identify any new employees or consultants (since the previous Submission) engaged in the development or implementation of the flood model or the Acceptability Process.

C. Provide visual business workflow documentation connecting all personnel related to flood model design, testing, execution, maintenance, and decision-making.

3. Independent Peer Review

A. Provide reviewer names and dates of external independent peer reviews that have been performed on the following components as currently functioning in the flood model:

1. Meteorology
2. Hydrology
3. Hydraulics
4. Statistics
5. Vulnerability
6. Actuarial Science
7. Computer/Information Science

B. Provide documentation of independent peer reviews directly relevant to the modeling organization responses to the 2025 flood standards, disclosures, or forms. Identify any unresolved or outstanding issues as a result of these reviews.

C. Describe the nature of any on-going or functional relationship the modeling organization has with any of the persons performing the independent peer reviews.

4. Provide completed Expert Certification Forms GF-1 through GF-8 in a Submission appendix. Provide hyperlinks here to the location of the forms.

Audit

1. The professional vitae of new employees and consultants (since the previous Submission) engaged in the development or implementation of the flood model under review and responsible for the Submission will be reviewed.

GF-3 Artificial Intelligence Use*

*(*New Standard)*

A. The modeling organization policy on the use of Artificial Intelligence (AI) shall be documented as it relates to projecting Florida flood loss costs and flood probable maximum loss levels.

B. The use of AI in model development and implementation shall be documented.

1. The categories of AI models (e.g., in-house, proprietary, open source) shall be documented.

2. The use cases of AI models, including data collection, training procedures, inference procedures, and measures of effectiveness, shall be documented.

Purpose: To provide an overview of the modeling organization AI use policy and uses of AI in the meteorology, hydrologic, hydraulic, vulnerability, and actuarial components of the flood model.

Relevant Forms: GF-1, General Flood Standards Expert Certification
GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
GF-5, Statistical Flood Standards Expert Certification
GF-6, Vulnerability Flood Standards Expert Certification
GF-7, Actuarial Flood Standards Expert Certification
GF-8, Computer/Information Flood Standards Expert Certification

Audit

1. The modeling organization AI use policy will be reviewed.

2. The use of AI in flood model development and implementation will be reviewed.

3. AI model category documentation will be reviewed.

4. AI model use cases will be reviewed.

GF-4 Editorial Compliance*

*(*Significant Revision)*

The Submission and any revisions provided to the Commission throughout the review process shall be reviewed and edited by a person or persons with experience in reviewing technical documents who shall certify on Form GF-9 that the Submission has been personally and rigorously reviewed, and is editorially correct.

Purpose: A quality control process with regard to creating, maintaining, and reviewing all documentation associated with the flood model shall be maintained.

Persons with experience in reviewing technical documents for grammatical correctness, typographical accuracy, and accurate citations, charts, or graphs shall have reviewed the Submission and certify that the Submission is in compliance with the Acceptability Process.

Relevant Forms: GF-1, General Flood Standards Expert Certification
GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
GF-5, Statistical Flood Standards Expert Certification
GF-6, Vulnerability Flood Standards Expert Certification
GF-7, Actuarial Flood Standards Expert Certification
GF-8, Computer/Information Flood Standards Expert Certification
GF-9, Editorial Review Expert Certification

Disclosures

1. Describe the process used for document control of the Submission. Describe the process used to ensure that the paper and electronic versions of specific files are identical in content.

2. Describe the process used by the signatories on the Expert Certification Forms GF-1 through GF-8 to ensure that the information contained under each group of flood standards is accurate and complete.

3. Provide completed Form GF-9 in a Submission appendix. Provide a hyperlink here to the location of the form.

Audit

1. An assessment that the person who has reviewed the Submission has experience in reviewing technical documentation and that such person is familiar with the Submission requirements as set forth in the *Flood Standards Report of Activities as of November 1, 2025,* will be made.

2. Confirmation that the Submission has been rigorously reviewed by the signatories on the Expert Certification Forms GF-1 through GF-9 for editorial compliance will be assessed.

3. The modification history for Submission documentation will be reviewed.

Form GF-1: General Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the General Flood Standards (GF-1–GF-4) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version __________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the General Flood Standards (GF-1–GF-4);
2. The disclosures and forms related to the General Flood Standards 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; and
4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date
______________________________	______________________________
Signature (final Submission)	Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

______________________________	______________________________
Signature (revisions to Submission)	Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-1 in a Submission appendix.

Form GF-2: Meteorological Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Meteorological Flood Standards (MF-1–MF-5) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version ___________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the Meteorological Flood Standards (MF-1–MF-5);

2. The disclosures and forms related to the Meteorological Flood Standards 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; and

4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date
______________________________	______________________________
Signature (final Submission)	Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

______________________________	______________________________
Signature (revisions to Submission)	Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-2 in a Submission appendix.

Form GF-3: Hydrologic Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Hydrologic Flood Standards (HHF1–HHF-4) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version ___________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the hydrologic requirements of the Hydrologic and Hydraulic Flood Standards (HHF-1–HHF-4);

2. The disclosures and forms related to the Hydrologic Flood Standards 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; and

4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
	Professional License Type:________________
	State:________ Expiration Date:___________
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date

Signature (final Submission) Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

Signature (revisions to Submission) Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-3 in a Submission appendix.

Form GF-4: Hydraulic Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Hydraulic Flood Standards (HHF-1–HHF-4) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version ___________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the hydraulic requirements of the Hydrologic and Hydraulic Flood Standards (HHF-1–HHF-4);
2. The disclosures and forms related to the Hydraulic Flood Standards 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; and
4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

____
Name

____
Professional Credentials (Area of Expertise)

Professional License Type:________________

State:________ Expiration Date:___________

____
Signature (initial Submission)

____
Date

____
Signature (response to Deficiencies, if any)

____
Date

____
Signature (revisions to Submission, if any)

____
Date

Signature (final Submission) Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

Signature (revisions to Submission) Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-4 in a Submission appendix.

Form GF-5: Statistical Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Statistical Flood Standards (SF-1–SF-5) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version __________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the Statistical Flood Standards (SF-1–SF-5);

2. The disclosures and forms related to the Statistical Flood Standards 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; and

4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date
______________________________	______________________________
Signature (final Submission)	Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

_______________________________________ _______________________________________
Signature (revisions to Submission) Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-5 in a Submission appendix.

Form GF-6: Vulnerability Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Vulnerability Flood Standards (VF-1–VF-4) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ____________________________
(Name of Flood Model)
Version __________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the Vulnerability Flood Standards (VF-1–VF-4);

2. The disclosures and forms related to the Vulnerability Flood Standards 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; and

4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise) Florida Professional Engineer License Number:______________________________ Expiration Date: ________________________
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date

Signature (final Submission) | Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

Signature (revisions to Submission) | Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-6 in a Submission appendix.

Form GF-7: Actuarial Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Actuarial Flood Standards (AF-1–AF-8) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version ____________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the Actuarial Flood Standards (AF-1–AF-8);
2. The disclosures and forms related to the Actuarial Flood Standards 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 to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date
______________________________	______________________________
Signature (final Submission)	Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

Signature (revisions to Submission)	Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-7 in a Submission appendix.

Form GF-8: Computer/Information Flood Standards Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Computer/Information Flood Standards (CIF-1–CIF-10) in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ____________________________
(Name of Flood Model)
Version __________________ for compliance with the 2025 Flood Standards adopted by the Florida Commission on Hurricane Loss Projection Methodology, and hereby certify that:

1. The flood model meets the Computer/Information Flood Standards (CIF-1–CIF-10);
2. The disclosures and forms related to the Computer/Information Flood Standards 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; and
4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date
______________________________	______________________________
Signature (final Submission)	Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

Signature (revisions to Submission)	Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-8 in a Submission appendix.

Form GF-9: Editorial Review Expert Certification

Purpose: This form identifies the signatory or signatories who have reviewed the current Submission for compliance with the Notification Requirements in the Acceptability Process chapter and Standard GF-4 in accordance with the stated provisions.

I hereby certify that I have reviewed the current Submission of ______________________________
(Name of Flood Model)
Version ___________________ for compliance with the "Process for Determining the Acceptability of a Computer Simulation Flood Loss Model" adopted by the Florida Commission on Hurricane Loss Projection Methodology in the *Flood Standards Report of Activities as of November 1, 2025*, and hereby certify that:

1. The Submission is in compliance with the Notification Requirements in the Acceptability Process chapter and Standard GF-4;

2. The disclosures and forms related to each flood standards group 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, grammatical correctness, the exclusion of extraneous data/information, and typographical errors;

3. There are no incomplete responses, charts or graphs, inaccurate citations, or extraneous text or references; and

4. In expressing my opinion, I have not been influenced by any other party to bias or prejudice my opinion.

______________________________	______________________________
Name	Professional Credentials (Area of Expertise)
______________________________	______________________________
Signature (initial Submission)	Date
______________________________	______________________________
Signature (response to Deficiencies, if any)	Date
______________________________	______________________________
Signature (revisions to Submission, if any)	Date

Signature (final Submission)	Date

An updated signature and form are required following any modification of the flood model and any revision of the initial 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 using the following format:

Signature (revisions to Submission)	Date

Note: A facsimile or any properly reproduced signature shall be acceptable to meet this requirement.

Include Form GF-9 in a Submission appendix.

METEOROLOGICAL FLOOD STANDARDS

MF-1 Flood Event Data Sources*

*(*Significant Revision)*

A. The modeling of flood events in Florida from tropical cyclones and non-tropical storms shall involve meteorological, hydrologic, hydraulic, and other relevant data sources required to model coastal and inland flooding.

B. The flood model shall incorporate relevant data sources for events occurring either inside or outside of Florida that result in, or contribute to, flooding in Florida.

C. Coastal, inland, and compound (if modeled or approximated) flood model calibration and validation shall be justified based upon historical data consistent with current peer reviewed or publicly developed data sources.

D. Any trends, weighting, or partitioning shall be justified and consistent with current scientific literature and current technical literature.

Purpose: Storm tide is the dominant source of coastal flooding, and precipitation is the dominant source of inland flooding. The modeling of coastal flooding requires consideration of wind and other meteorological elements that drive storm surge, which combines with astronomical tide to form storm tide. The phenomena to be represented include surge, tides, waves, and related processes, as well as the propagation of coastal flood waters over land.

The modeling of inland flooding requires consideration of precipitation. Inland flooding includes riverine, lacustrine, and surface water flooding. The modeling or approximation of compound flooding requires a method to combine coastal and inland flooding in areas where both occur.

It is important that utilized data sources associated with each type of flooding be documented and the data sources underpinning the stochastic flood event set be scientifically defensible. If other flood sub-perils are included, they are to be identified.

This standard is applicable to coastal, inland, and compound flood events in Florida from tropical cyclones and other storms occurring inside or outside of Florida.

Relevant Forms: GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
HHF-2, Coastal Flood Characteristics by Annual Exceedance Probability
HHF-3, Coastal Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
HHF-4, Inland Flood Characteristics by Annual Exceedance Probability
HHF-5, Inland Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
AF-2, Statewide Standard Flood Policy Losses
AF-3, Personal Residential Standard Flood Policy Losses

Disclosures

1. Specify relevant data sources, their release dates, and the time periods used to develop and implement flood frequencies for coastal and inland flooding into the flood model.

2. Where the flood model incorporates modification, partitioning, or adjustment of the historical data leading to differences between modeled climatological and historical data, justify each modification and describe how it is incorporated.

3. Describe how historical sea-level rise is treated in the flood model validation. If sea-level rise is not used in flood model validation, justify its omission.

4. Describe if and how projected sea-level rise is treated in the flood model.

5. Describe any assumptions or calculations used in the flood model relating to climate adjustment (e.g., changes in precipitation patterns, changes in storm frequency or severity).

6. Describe if and how historical changes in topography, bathymetry, and land use land cover are treated in the flood model validation.

7. Describe the underlying data used for modeling precipitation.

8. Identify the data sources used to develop and support bottom friction for storm surge modeling.

9. If compound flooding is modeled or approximated, describe how it is handled in the flood model.

10. Describe any additional datasets used in the flood model.

Audit

1. The data sources and datasets used for developing the flood model, and any modifications to the data sources and datasets from the current accepted flood model will be reviewed.

2. Justification for any modification, partitioning, or adjustment to historical data and the impact on flood model parameters and characteristics will be reviewed.

3. The datasets used for calibration and validation of the flood model will be reviewed.

4. Any treatment of the input data for the flood model that is related to projected changes in sea level and precipitation will be reviewed.

5. Historical data used as the basis for the flood model flood extent and elevation or depth will be reviewed. Historical data used as the basis for the flood model flood velocity, as available, will be reviewed.

6. The modeled coincidence and interaction of inland and coastal flooding will be reviewed. If it is not modeled, justification will be reviewed.

MF-2 Flood Model Meteorological Overview and Parameters (Inputs)*

*(*Significant Revision)*

A. The flood model shall be developed based on parameters that are appropriate for modeling coastal and inland flooding. The modeling organization shall justify the use of all flood parameters based on information documented in current scientific literature and current technical literature.

B. Differences in the treatment of flood parameters between historical and stochastic events shall be justified.

C. Grid cell size(s) used in the flood model shall be justified.

Purpose: Flood parameters are inputs to the flood model to define or determine the nature, severity, and physical characteristics associated with coastal and inland flooding. Scientifically defensible information is to be used for determining flood parameters relevant to the modeled hazard.

Relevant Forms: GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
SF-1, Distributions of Stochastic Flood Parameters (Coastal and Inland)

Disclosures

1. Provide high-level flowcharts of the meteorological flood model components for modeling coastal, inland, and, if modeled or approximated, compound flooding from tropical cyclone and non-tropical storm flood events.

2. Provide a comprehensive technical description of the flood model meteorological components, including theoretical basis, assumptions, data, methods, and processes used in the development of the meteorological components.

3. Provide details of modifications to the meteorological components of the flood model since the current accepted flood model.

4. For coastal and inland flood model components, identify and justify the various flood parameters used in the flood model. If compound flooding is modeled or approximated, identify and justify the flood parameters used.

5. For coastal and inland flood model components, describe and justify the dependencies among flood model parameters.

6. If compound flooding is modeled or approximated, describe any additional dependencies among the flood model components.

7. Identify whether physical flood parameters are modeled as random variables, functions, or fixed values for the stochastic flood event generation. Provide rationale for the choice of parameter representations.

8. Describe if and how any physical flood parameters are treated differently in the historical and stochastic flood event sets, and provide rationale.

9. If there is explicit modeling of precipitation-driven flooding, then describe how precipitation extent, duration, and rate are modeled. If the effects of precipitation are implicitly incorporated into the flood model, describe the method and implementation.

10. For coastal flood analyses, describe how the coastline is segmented (or partitioned) in determining the parameters for flood frequency used in the flood model.

11. For coastal flooding, describe how astronomical tides are incorporated and combined with storm surge to obtain storm tide.

12. Describe if and how any flood parameters change or evolve during an individual flood life cycle (e.g., astronomical tide, representation of Manning's roughness varying with flood depth).

13. For coastal modeling, describe any wave assumptions, calculations, or proxies, and their impact on flood elevations.

14. Provide the source, resolution, datum, and accuracy of the topography and bathymetry throughout the flood model domain.

15. Describe the grid geometries used in the flood model (e.g., storm surge, fluvial, pluvial, non-tropical precipitation).

16. If the modeling organization has developed methods accounting for climate adjustment in the flood model, justify the applicability to modeling Florida flood events based on current scientific literature and current technical literature.

17. Describe if and how flood model parameters are based on or depend on National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM) or Flood Insurance Study (FIS) data.

18. Describe the spatial and temporal resolution of the data used for flood model development. Justify their use for high intensity, short duration events.

Audit

1. Supporting material for changes to the meteorological components in Disclosure 3 will be reviewed.

2. All flood parameters used in the flood model, including any climate-adjusted parameters, will be reviewed.

3. The vintage of meteorological-related data, code, scientific literature, and technical literature used in development and implementation of the meteorological components will be reviewed as encountered.

4. Detailed flowcharts of the meteorological flood model components for modeling coastal, inland, and, if modeled or approximated, compound flooding from tropical cyclone and non-tropical storm flood events will be reviewed.

5. For explicit representation of precipitation, calibration and evaluation will be reviewed.

6. For implicit representation of precipitation, justification, method, and implementation will be reviewed.

7. Graphical depictions (e.g., histogram, scatter plot, schematic) of flood parameters as used in the flood model will be reviewed. Descriptions and justification of the following will be reviewed:

    A. The dataset basis for any fitted distributions, the methods used, and any smoothing techniques employed,

    B. The modeled dependencies among correlated parameters in the flood model and how they are represented, and

    C. The dependencies between the coastal and inland flooding analyses.

8. The initial and boundary conditions for coastal flood events will be reviewed.

9. The basis or dependence of flood model parameters on NFIP FIRM or FIS data will be reviewed.

MF-3 Wind and Pressure Fields for Storm Surge*

*(*Significant Revision)*

A. Modeling of wind and pressure fields shall be employed to drive storm surge models due to tropical cyclones, and shall be consistent with wind and pressure field features of historical storms affecting Florida.

B. The wind and pressure fields shall be based on current scientific literature, current technical literature, and scientifically defensible methods.

C. Physically based simulation of atmosphere-ocean interactions resulting in storm surge shall be conducted over a sufficiently large domain so that storm surge height is realistically represented for the entire region impacted by a storm.

Purpose: Wind is the dominant feature of tropical cyclones that drives storm surge, and storm surge is frequently the dominant component of the associated flooding. The representation of the windfield and related pressure field is, therefore, crucial to storm surge modeling, as is the propagation of these fields along storm tracks, which determines their duration over ocean waters relevant for surges affecting Florida.

Relevant Forms: GF-2, Meteorological Flood Standards Expert Certification
AF-2, Statewide Standard Flood Policy Losses
AF-3, Personal Residential Standard Flood Policy Losses

Disclosures

1. Describe the modeling of the wind and pressure fields for tropical cyclones. State and justify the choice of the parametric forms and the distribution of parameter values.

2. Provide the historical data used to estimate parameters and to develop stochastic storm sets.

3. Describe the general process for calculating the surface wind.

4. Provide a tangential (*y*-axis) versus radius (*x*-axis) plot of the average or default wind and pressure fields for tropical cyclones used in the flood model. Provide a similar plot for the largest and smallest radius of maximum wind (Rmax) in the dataset used as the basis of the stochastic storm set. Provide a similar plot illustrating any other parameters in the dataset that are used as the basis of the stochastic storm set. Justify the choice of the wind and pressure fields used. If the tropical cyclone wind and pressure fields represent a modification from the current accepted flood model, plot the current accepted and modified wind and pressure fields on the same figure using consistent axes.

5. Describe variations between the current accepted model and the model under review wind and pressure fields with references to historical tropical cyclones.

6. Provide the same type of plots in Disclosure 4 for non-tropical storms, if non-tropical storms are modeled explicitly. If the non-tropical storm wind and pressure fields represent a modification from the current accepted flood model, plot the current accepted and modified wind and pressure fields on the same figure using consistent axes.

7. If wind and pressure fields are modeled above the surface and translated to the surface to drive storm surge, describe this translation (e.g., via planetary boundary layer models or empirical surface wind reduction factors and inflow angles). Discuss the associated uncertainties.

8. Describe how the inverse barometer effect is modeled.

9. Describe how storm translation is accounted for when computing surface wind and pressure fields.

10. Describe how storm surge due to non-tropical storms is accounted for in the flood model. If it is not accounted for, explain why.

11. Describe and justify the averaging time of the windspeeds used to drive the storm surge model.

12. Describe and justify the treatment of marine surface roughness in the flood model.

13. For methods in which storm surge is produced by physically based simulation of atmosphere-ocean interactions and where the methodology has not been documented in current scientific literature or current technical literature, describe the process for verifying convergence of storm surge height as a function of domain size. State the convergence criteria.

14. Describe how upstream land roughness impacts the windfield offshore and onshore, and whether roughness over land is adjusted as grid cells become flooded.

Audit

1. External data sources that affect the modeled wind and pressure fields associated with storm surge, and their appropriateness, will be reviewed.

2. Calibration and evaluation of wind and pressure fields will be reviewed. Scientific comparisons of simulated wind and pressure fields to historical storms will be reviewed.

3. A detailed flowchart or other illustration depicting the process and order of operations in the surface wind calculation will be reviewed. Justification for the order of the calculation and whether the steps, if applicable, account for averaging time and storm translation, whether reduction factors are based on axisymmetric or storm-relative data, when friction factors are applied (with the corresponding averaging times), and when gust factors are applied (with the corresponding averaging times) will be reviewed.

4. The sensitivity of flood extent and depth results to changes in the representation of wind and pressure fields will be reviewed.

5. The over-land evolution of simulated wind and pressure fields and its impact on the simulated flooding will be reviewed.

6. The modeling of surface wind stress will be reviewed. If a surface drag coefficient is employed, its relationship to surface windspeed will be reviewed and compared to current scientific literature and current technical literature.

7. The uncertainties in the factors used to convert from a reference windfield to a geographic distribution of surface winds and the impact of the resulting winds upon the storm surge will be reviewed and compared with current scientific literature and current technical literature.

8. If wind and pressure fields are modeled above the surface and translated to the surface to drive storm surge, a detailed flowchart or other illustration depicting the translation process will be reviewed.

9. The influence of upstream roughness on the windfield will be reviewed.

MF-4 Flood Characteristics (Outputs)*

*(*Significant Revision)*

A. Flood extent and elevation or depth generated by the flood model shall be consistent with observed historical floods affecting Florida.

B. Methods for deriving flood extent and elevation or depth shall be scientifically defensible and technically sound.

C. Methods for modeling or accounting for wave conditions in coastal flooding shall be scientifically defensible and technically sound.

D. Modeled flood characteristics shall be sufficient for the calculation of flood damage.

Purpose: Flood characteristics are outputs of the coastal, inland, and compound flood model components, such as flood extent and elevation or depth. In addition to providing input to other flood model components, flood characteristics are used for flood model evaluation and calibration by comparison to observations. Flood characteristics shall be determined using scientifically defensible information and methods, and they shall be representative of historical floods in Florida.

Relevant Forms:
GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
HHF-1, Historical Coastal and Inland Event Flood Extent and Elevation or Depth Validation Maps
HHF-2, Coastal Flood Characteristics by Annual Exceedance Probability
HHF-3, Coastal Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
HHF-4, Inland Flood Characteristics by Annual Exceedance Probability
HHF-5, Inland Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)

Disclosures

1. Demonstrate that the coastal flood model component incorporates flood parameters necessary for simulating storm-tide-related flood damage in Florida.

2. For coastal flooding, describe how the presence, size, and transformation of waves are modeled or taken into consideration.

3. For coastal flooding, describe if and how the flood model accounts for flood velocity, flood duration, flood-induced erosion, floodborne debris, salinity, and contaminated floodwaters.

4. For coastal flooding, describe the factors that affect inland propagation of storm tide, and how it is modeled.

5. Describe if and how inland flooding affects the inland propagation of modeled storm tide. Describe if and how coastal flood propagation affects inland flooding.

6. Provide a high-level flowchart illustrating how the characteristics of each flood model component are utilized in other components of the flood model.

7. Describe and justify the appropriateness of the databases and methods used for the calibration and validation of flood extent and elevation or depth.

8. Provide justification for validation of the coastal flood model component using any historical events not specified in Form HHF-1.

9. Describe any variations in the treatment of the coastal flood model flood extent and elevation or depth for stochastic versus historical floods, and justify this variation.

10. Describe any variations in the treatment of the inland flood model flood extent and elevation or depth for stochastic versus historical floods, and justify this variation.

11. Describe the effects of storm size, bathymetry, and windspeed on storm surge height and its variation along the coast for the coastal flood model.

12. Describe the effects of windspeed, depth, fetch, and wind duration on locally generated wave heights or wave proxies for the coastal flood model.

Audit

1. The method and supporting material for determining flood extent and elevation or depth for coastal flooding, inland flooding, and if modeled or approximated, compound flooding will be reviewed.

2. The inland propagation of coastal flood and the effect of coastal flood propagation on inland flood will be reviewed.

3. Any modeling-organization-specific research performed to calculate the flood extent and elevation or depth and wave conditions will be reviewed, along with the supporting databases.

4. The comparison of the calculated characteristics with historical flood events will be reviewed. The selected locations and corresponding storm events will be reviewed to verify sufficient representation of the varied geographic areas. If a single storm is used for both coastal and inland flooding validation, then its appropriateness will be reviewed.

5. Consistency of the flood model stochastic flood extent and elevation or depth with reference to historical flood data will be reviewed. Consistency of the flood model stochastic flood velocity, as available, with reference to historical flood data will be reviewed.

6. Calculation of relevant characteristics in the flood model, such as flood extent, elevation or depth, and waves, will be reviewed.

7. A detailed flowchart and the methods by which each flood model component utilizes the characteristics of other flood model components will be reviewed.

8. Temporal evolution of coastal flood characteristics will be reviewed.

9. Comparisons of the flood-induced flow calculated in the flood model with records from United States Geological Survey (USGS) or Florida Water Management District (FWMD) gauging stations will be reviewed.

MF-5 Flood Probability Distributions*

*(*Significant Revision)*

A. Flood probability, its geographic variation, and the associated flood extent and elevation or depth shall be scientifically defensible and shall be consistent with flooding observed for Florida. Differences shall be justified.

B. Flood probability distributions for storm-tide-affected areas shall include tropical cyclone, and if modeled, non-tropical storms.

C. Probability distributions for coastal wave conditions, if modeled, shall arise from the same events as the storm tide modeling.

D. Flood probability distributions shall account for tropical cyclone and non-tropical precipitation extremes.

E. Additional probability distributions of flood parameters and modeled characteristics shall be consistent with historical flood events for Florida. Differences shall be justified.

Purpose: The probabilities of flood occurrence, flood extent and elevation or depth, vary geographically across Florida. Meteorological phenomena affecting coastal flood probabilities are tropical cyclone and non-tropical storm surge, waves driven by the tropical cyclones and non-tropical storms, and tides. The phenomena affecting inland flood probabilities are precipitation in Florida and precipitation in adjacent states (e.g., the Chattahoochee River watershed in North Georgia contributing to Apalachicola River flooding).

Regardless of the modeling approach, the probability distributions of flood parameters and characteristics shall be consistent with those documented in official meteorological, hydrologic, and hydraulic databases and with historical floods affecting Florida. Consistent means that spatial distributions of modeled flood probabilities accurately depict those in Florida and neighboring states.

Relevant Forms:
GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
HHF-2, Coastal Flood Characteristics by Annual Exceedance Probability
HHF-3, Coastal Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
HHF-4, Inland Flood Characteristics by Annual Exceedance Probability

HHF-5, Inland Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
SF-1, Distributions of Stochastic Flood Parameters (Coastal and Inland)
AF-2, Statewide Standard Flood Policy Losses
AF-3, Personal Residential Standard Flood Policy Losses

Disclosures

1. Describe how non-tropical storm and tropical cyclone coastal storm tide flood probability distributions are combined, if applicable. Provide an example demonstrating the process.

2. Provide a brief rationale for each of the probability distributions used for assigning relevant flood parameters and characteristics, including any assumptions that go into the use or interpretation of the distributions.

3. Demonstrate that simulated flood elevation or depth frequencies are consistent with historical frequencies.

4. Describe how precipitation due to tropical cyclones is modeled or accounted for in the flood model.

5. Describe how precipitation due to non-tropical storms is modeled or accounted for in the flood model.

Audit

1. The consistency in accounting for similar flood parameters and characteristics across Florida and segments in adjacent states will be reviewed.

2. The method and supporting material for generating stochastic coastal and inland flood events will be reviewed.

3. Any modeling-organization-specific research performed to develop the functions used for simulating flood model parameters and characteristics or to develop databases will be reviewed.

4. Comparisons with the historical record of modeled flood probabilities and characteristics for Florida flood events will be reviewed.

5. Modeled probabilities from any subset, trend, or fitted function will be reviewed, compared, and justified against the historical record. In the case of partitioning, modeled probabilities from the partition and its complement will be reviewed and compared with the historical record.

6. The modeling of precipitation from tropical cyclones and non-tropical storms will be reviewed.

HYDROLOGIC AND HYDRAULIC FLOOD STANDARDS

HHF-1 Flood Parameters (Inputs)*

*(*Significant Revision)*

A. Treatment of land use and land cover (LULC) effects shall be consistent with current scientific and current technical literature. Treatment of LULC in coastal storm surge and inland flooding shall reflect LULC conditions as of 2023 or later. Any LULC database used shall be consistent with the National Land Cover Database (NLCD). Use of alternate datasets shall be justified, provided they are consistent with NLCD.

B. Treatment of soil effects on inland flooding shall be consistent with current scientific literature and current technical literature.

C. Treatment of watersheds and hydrologic basins shall be consistent with current scientific literature and current technical literature.

D. Treatment of hydraulic systems, including conveyance, storage, and hydraulic structures, shall be consistent with current scientific literature and current technical literature.

E. Treatment of coastal boundary conditions for inland flooding shall be consistent with current scientific literature and current technical literature.

F. Modification of Hydrologic Unit Code (HUC) boundaries shall be consistent with the current state of the science.

Purpose: Inland flooding includes riverine, lacustrine, and surface water flooding. In some cases, inland flooding can be affected by its coincidence with coastal flooding and the coastal boundary conditions.

Flood parameters are inputs to the flood model and are needed by the flood model to determine the nature, severity, and physical characteristics associated with inland flooding. The appropriate use and consideration of flood parameters in the calculation of inland flood directly impacts the predicted flood damage. The effects of LULC and soil type are necessary considerations in the evaluation of other hydrologic parameters, such as infiltration, and in the calculation of precipitation runoff, which influences inland flooding. The effects of watersheds, hydrologic basins, and hydraulic systems are necessary for calculating other hydraulic parameters, such as flood flow and depth.

Relevant Forms: GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
SF-1, Distributions of Stochastic Flood Parameters (Coastal and Inland)

Disclosures

1. Provide a high-level flowchart of the hydrologic and hydraulic model component.

2. Provide a comprehensive technical description of the flood model hydrologic and hydraulic component, including theoretical basis, assumptions, data, methods, and processes used in the development of the hydrologic and hydraulic component.

3. Provide details of modifications to the hydrologic and hydraulic component of the flood model since the current accepted flood model.

4. Characterize the hydrologic and hydraulic mathematical models used. Provide the corresponding sources.

5. Demonstrate that the inland flood model component incorporates flood parameters necessary for simulating inland flood damage and accommodates the varied geographic, geologic, hydrologic, hydraulic, and LULC conditions in Florida.

6. For inland flood analyses associated with riverine and lacustrine flooding,

   A. Describe how the rivers, lakes, and associated floodplains are segmented (or partitioned) in determining the parameters for flood frequency used in the flood model;

   B. Describe how the interaction between riverine and lacustrine components are represented in the flood model; and

   C. If groundwater is accounted for in the flood model, describe how the interaction between groundwater and inland flooding is represented.

7. For inland flood analyses associated with surface water flooding, describe how the affected area is segmented (or partitioned) in determining the parameters for flood frequency used in the flood model.

8. Describe any assumptions or calculations used in the inland flood model relating to initial and boundary conditions (e.g., groundwater levels, lake levels, river flows and discharge locations, tides, river confluences, soil moisture).

9. Document the sensitivity of the inland flood model results to assumptions for values of initial and boundary conditions, including soil moisture, lake level, and tide height if relevant.

10. Describe how the flood model models or approximates compound flooding, including any interactions between coastal and inland flooding.

11. For all topographic information used in the flood model,

    A. Describe the source and representation;

    B. Identify the date of the represented topography;

    C. Describe the horizontal resolution and the vertical accuracy;

    D. Identify the horizontal and vertical datum;

    E. Describe any modeling organization modifications to the topographic information or its representation; and

    F. Describe the sensitivity of simulated floods to uncertainties in the topographic representation.

12. Provide the grid resolution or other area partitioning used to model the inland flood extent and elevation or depth and how the hydrologic and hydraulic characteristics are determined on these scales.

13. Describe any assumptions or calculations used in the inland flood model relating to flood-induced erosion or topographic changes.

14. Identify the data sources used to develop and support the land-use evaluation methodology.

15. Provide the collection and publication dates of the LULC and soil data used in the flood model. Justify the applicability and timeliness of the data for Florida.

16. Describe the methodology used to convert LULC information into a spatial distribution of hydrologic parameters, including roughness coefficients, throughout the flood model domain.

17. Describe the methods used to account for soil infiltration and percolation rates and soil moisture conditions in the inland flood model, if applicable. Identify the data sources used to develop and support the soil infiltration and percolation rates and soil moisture conditions methodology. Justify the selection of antecedent soil conditions.

18. Describe the methods used to develop watershed and hydrologic basin boundaries, and the hydrologic connectivity in the flood model.

19. Describe the HUC boundaries in the flood model and any differences from the published USGS HUC boundaries.

20. Describe the methods used to develop the hydraulic network (e.g., riverine, lacustrine) in the flood model, the treatment of hydraulic structures (e.g., bridges, culverts) within the hydraulic network, and any assumptions used in lieu of the physical representation of a hydraulic network or hydraulic structures in the flood model.

21. Provide justification for validation of the inland flood model component using any historical events not specified in Form HHF-1.

Audit

1. Supporting material for the changes in the hydrologic and hydraulic component in Disclosure 3 will be reviewed.

2. The hydrologic and hydraulic mathematical models used will be reviewed.

3. Any modeling-organization-specific research performed to develop hydrologic and hydraulic equations used in the flood model, and the variables and constants used in these equations, will be reviewed.

4. The vintage of hydrologic and hydraulic-related data, code, scientific literature, and technical literature used will be reviewed as encountered.

5. A detailed flowchart of the hydrologic and hydraulic model component will be reviewed.

6. The initial and boundary conditions for flood events will be reviewed.

7. If modeled or approximated, compound flooding will be reviewed.

8. The topographic representation will be reviewed.

9. Any modeling-organization-specific methodology used to incorporate LULC information into the flood model will be reviewed.

10. Any modeling-organization-specific research performed to develop the soil infiltration and percolation rates or soil moisture conditions used in the flood model will be reviewed.

11. The watershed and hydrologic basin boundaries in the flood model, and the methods for developing these boundaries, or any equivalent assumptions, will be reviewed. A map of the basin boundaries will be reviewed.

12. The hydraulic network and treatment of hydraulic structures in the flood model will be reviewed. A map of the hydraulic network with modeled hydraulic structures indicated on the map will be reviewed.

13. The relationships between time steps used in the hydrologic and hydraulic components of the flood model will be reviewed, if applicable.

HHF-2 Flood Characteristics (Outputs)*

*(*Significant Revision)*

A. Flood extent and elevation or depth generated by the flood model shall be consistent with observed historical floods affecting Florida.

B. Methods for deriving flood extent and depth shall be scientifically defensible and technically sound.

C. Modeled flood characteristics shall be sufficient for the calculation of flood damage.

Purpose: The extent and depth of flooding predicted by the flood model are fundamental factors in assessing flood damage to buildings. Variations in the extent or depth can significantly change the estimated damage. Flood characteristics other than extent and depth can also be used to determine flood damage. While the data for historical flood events may be limited, the comparison of predicted characteristics to available historical information shall be made to help inform the methods and approaches to calculating flood damage.

Relevant Forms:
GF-2, Meteorological Flood Standards Expert Certification
GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
HHF-1, Historical Coastal and Inland Event Flood Extent and Elevation or Depth Validation Maps
HHF-2, Coastal Flood Characteristics by Annual Exceedance Probability
HHF-3, Coastal Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)
HHF-4, Inland Flood Characteristics by Annual Exceedance Probability
HHF-5, Inland Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)

Disclosures

1. Provide comparisons of the modeled and historical flood extents and elevations or depths for the storm events listed in Form HHF-1. Supplemental historical storms may be added at the modeling organization's discretion.

2. For each of the storm events in Form HHF-1 resulting in inland flooding, provide a comparison of the modeled flood flow to recorded flow data from selected USGS or FWMD gauging stations. Provide the rationale for gauging station selections.

3. Identify all hydrologic and hydraulic variables that affect the flood extent, elevation, depth, and other flood characteristics. Provide the units of these variables.

4. For inland flood modeling, describe if and how the flood model accounts for flood velocity, flood duration, flood-induced erosion, floodborne debris, and contaminated floodwaters.

5. Describe the effect of any assumptions or calculations relating to initial and boundary conditions on the flood characteristics.

6. For locations affected by both coastal and inland flooding, describe how the combined flood extent and elevation or depth are modeled or approximated in the area of overlap.

7. In areas where coastal and inland flooding overlap, describe how the combined flood extent and elevation or depth differ from those of coastal flooding alone and from those of inland flooding alone. For locations outside the area of overlap, describe how the flood extent and elevation or depth of inland flooding are affected by coastal flooding.

8. Describe and justify the appropriateness of the databases and methods used for the calibration and validation of flood extent and elevation or depth.

9. Describe and justify any variations in the simulation of flood extent and elevation or depth for stochastic versus historical floods.

10. Identify whether flood characteristics are based on or depend on NFIP FIRM or FIS data.

11. Provide completed Forms HHF-1, HHF-2, and HHF-4 in a Submission appendix. Provide hyperlinks here to the location of the forms.

12. If not considered as trade secret, provide completed Forms HHF-3 and HHF-5 in a Submission appendix. Provide hyperlinks here to the location of the forms.

Audit

1. The method and supporting material for determining flood extent and elevation or depth for flooding will be reviewed.

2. The method and supporting material for determining the flood extent and elevation or depth for locations affected by both inland and coastal flooding will be reviewed.

3. The method and supporting material for modeling or approximating the compound flooding extent and elevation or depth will be reviewed.

4. Any modeling-organization-specific research performed to calculate the flood extent and elevation or depth will be reviewed along with the associated databases.

5. Any modeling-organization-specific research performed to derive the hydrologic characteristics associated with the topography, LULC distributions, soil conditions, watersheds, and hydrologic basins for the flood extent and elevation or depth will be reviewed.

6. Historical data used as the basis for the flood model flood extent and elevation or depth will be reviewed. Historical data used as the basis for the flood model flood flow and velocity, if applicable, will be reviewed.

7. The comparison of the calculated characteristics with historical inland flood events will be reviewed. The selected locations and corresponding storm events will be reviewed to verify sufficient geographic distribution of both tropical cyclone and non-tropical storms.

8. The comparison of the calculated characteristics with historical coastal flood events will be reviewed. The selected locations and corresponding storm events will be reviewed to verify sufficient geographic distribution.

9. The comparison of the calculated characteristics with historical compound flood events will be reviewed. The selected locations and corresponding storm events will be reviewed to verify sufficient geographic distribution of both tropical cyclone and non-tropical storms.

10. Consistency of the flood model stochastic flood extent, elevation or depth, flow, and velocity with historical flood data will be reviewed.

11. For the historical flood events given in Form HHF-1, the flood characteristics, including temporal and spatial variations contributing to modeled flood damage, will be reviewed with reference to historical data.

12. Trade Secret Forms HHF-3 and HHF-5 will be reviewed.

13. Comparisons of modeled frequencies with the observed spatial distribution of flood frequencies across Florida using methods documented in current scientific and current technical literature will be reviewed.

14. Comparison of the inland, coastal, and, if modeled or approximated, compound flood model 0.01 and 0.002 annual exceedance probability flood extents with the flood extents from FEMA will be reviewed.

15. The basis or dependence of flood characteristics on NFIP FIRM or FIS data will be reviewed.

16. Temporal evolution of inland flood characteristics will be reviewed.

17. Calculation of relevant characteristics in the flood model, such as flood extent and elevation or depth, will be reviewed. The methods by which each flood model component utilizes the characteristics of other flood model components will be reviewed.

18. The selected time steps representing peak flood extents and elevations or depths will be reviewed. Any assumptions used to account for peak flood extents and elevations or depths for flood events with shorter durations than the selected time steps will be reviewed.

HHF-3 Modeling of Major Flood Control Measures*

*(*Significant Revision)*

A. Treatment of major flood control measures and their performance shall be consistent with available information and current state of the science.

B. Major flood control measures depicted in the flood model shall be updated to reflect changes in available data.

C. Treatment of the potential failure of major flood control measures shall be based upon current scientific literature, current technical literature, empirical studies, or engineering analyses.

Purpose: Major flood control measures are those measures undertaken outside the building footprint and on a larger scale, to reduce the presence, depth or energy of flow or waves that affect personal residential structures. The presence of major flood control measures can reduce the flood damage to buildings. The failure of major flood control measures during a flooding event can cause damage to buildings equal to or in excess of the damage that would occur if the measures were not present. Modeling of major flood control measures includes consideration of dams, levees, and floodwalls, and the associated location, dimensions, strength, and performance thereof.

Relevant Forms: GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification

Disclosures

1. List the major flood control measures incorporated in the flood model and the sources of all data employed.

2. Describe the methodology to account for major flood control measures in the flood model and indicate if these measures can be set (either to on or off) in the flood model.

3. Describe if and how major flood control measures that require human intervention are incorporated into the flood model.

4. Describe and justify the methodology used to account for the potential failure or alteration of major flood control measures in the flood model and if the level of failure can be adjusted in the flood model.

5. Discuss how treatment of major flood control measures differs between historical and stochastic flooding events.

6. Provide examples of the flood extent and elevation or depth showing the potential impact of a major flood control measure failure. Indicate the location and dimensions of the failure, and demonstrate the resulting changes in flood extent and depth resulting from the failure.

Audit

1. Treatment of major flood control measures incorporated in the flood model will be reviewed.

2. The documented procedure addressing the updating of major flood control measures as necessary will be reviewed.

3. The methodology and justification used to account for the potential failure or alteration of major flood control measures in the flood model will be reviewed.

4. Examples of flood extent and depth showing the potential impact of major flood control measure failures will be reviewed.

HHF-4 Logical Relationships Among Flood Parameters and Characteristics*

*(*Significant Revision)*

A. At a specific location, water surface elevation shall increase with increasing terrain roughness at that location, all other factors held constant.

B. Rate of discharge shall increase with increase in steepness in the topography, all other factors held constant.

C. Rate of discharge shall increase with increase in imperviousness of LULC, all other factors held constant.

D. Inland flood extent and depth associated with riverine and lacustrine flooding shall increase with increasing discharge, all other factors held constant.

E. The coincidence of storm tide and inland flooding shall not decrease the flood extent and depth, all other factors held constant.

Purpose: The parameters used in the inland flood model and the resulting characteristics calculated by the flood model, such as rate of discharge, flood extent and elevation or depth, are related through logical relationships. Consideration and evaluation of these logical relationships can help inform the methods and approaches to calculate flood damage and identify errors in the calculations.

Relevant Forms: GF-3, Hydrologic Flood Standards Expert Certification
GF-4, Hydraulic Flood Standards Expert Certification
GF-8, Computer/Information Flood Standards Expert Certification

Disclosures

1. Provide a graph of water surface elevation and discharge versus time associated with inland flooding for at least two modeling-organization-defined geographically diverse locations within each region in Florida identified in *Figure 1*. Discuss how the flood characteristics exhibit logical relationships.

2. Describe the analysis performed in order to demonstrate the logical relationships in this standard.

3. For HHF-4.A-D, indicate the change in flood parameters that are used to demonstrate logical relationships between flood parameters and characteristics.

Audit

1. The analysis performed to demonstrate logical relationships will be reviewed.
2. Methods (including any software) used in verifying logical relationships will be reviewed.

Form HHF-1: Historical Coastal and Inland Event Flood Extent and Elevation or Depth Validation Maps

Purpose: While the data for historical flood events may be limited, the comparison of simulated characteristics to available historical information shall be made to help inform the methods and approaches for calculating flood damage. This form illustrates the flood model's ability to simulate historical flood events driven by both storm surge and precipitation.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form HHF-1.

B. Provide color-coded contour or high-resolution maps with appropriate base map data illustrating modeled coastal and inland flood extents and elevations or depths for the following historical Florida flood events. Supplemental historical storms may be added at the modeling organization's discretion.

Hurricane Andrew (1992)
Hurricane Ivan (2004)
Tropical Storm Fay (2008)
Unnamed Storm in Panhandle (July 2013)
Hurricane Matthew (2016)
Hurricane Irma (2017)
Hurricane Michael (2018)
Tropical Storm Eta (2020)
Hurricane Ian (2022)
Unnamed Storm in Fort Lauderdale (April 2023)

C. Indicate the resolution of the flood model elevation or depth grid used on each contour or high-resolution map.

D. Validation points shall be selected to demonstrate how the flood model results compare with observational data from credible sources (e.g., local, state, or federal agencies, or other documented flood conditions obtained from universities, news reports, or social media, where observations are geolocated for comparisons). The number of validation points used will be storm dependent, will vary based on geographic extent of the storm's impact, and shall be sufficient to demonstrate model validation.

E. Plot the locations and values associated with validation points (e.g., maximum flood elevations or depths from observations such as gauge data, high-water marks) on each contour or high-resolution map for the historical events. Provide a table with the locations and values of maximum flooding from both the flood model and observations.

F. Provide scatter plots of simulated versus observed elevation or depth at the validation points.

G. Demonstrate the consistency of the modeled flood extent and elevation or depth with observed flood extent and elevation or depth for each historical event.

H. Explain any differences between the modeled flood extent and elevation or depth and the historical floods observations. Include an explanation of any differences impacted by major flood control measures.

I. List assumptions necessary to complete Form HHF-1. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

J. Include Form HHF-1 in a Submission appendix.

Form HHF-2: Coastal Flood Characteristics by Annual Exceedance Probability

Purpose: The graphical and visual depiction of flood characteristics simulated by the flood model can better inform the evaluation of the flood model results. This form illustrates the simulations of key coastal flood characteristics at a range of locations for an annual exceedance probability.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form HHF-2.

B. Define one study area subject to coastal flooding within each of the five Florida geographic regions identified in *Figure 1*. The extent of each study area is to be determined by the modeling organization and shall be large enough to encompass at least one Florida Modified HUC-8. The modeling organization is to create the underlying grid for Form HHF-2.

C. Provide, for each study area, color-coded contour or high-resolution maps showing the modeled flood extent and elevation or depth corresponding to 0.01 annual exceedance probability. Flood extent and elevation or depth shall incorporate waves or wave proxies, if modeled.

D. List flood sources and assumptions necessary to complete Form HHF-2. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

E. Include Form HHF-2 in a Submission appendix.

Form HHF-3: Coastal Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)

Purpose: The graphical and visual depiction of flood characteristics simulated by the flood model can better inform the evaluation of the flood model results. This form illustrates the simulations of key coastal flood characteristics at a range of locations and annual exceedance probabilities.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form HHF-3.

B. Provide the following information for each study area defined in Form HHF-2.

1. Color-coded contour or high-resolution maps of the study area showing modeled flood extent and elevation or depth corresponding to the 0.1, 0.02, 0.01, and 0.002 annual exceedance probabilities. Flood extent and elevation or depth shall incorporate waves or wave proxies, if modeled.

2. Color-coded contour or high-resolution maps of the study area showing modeled flood extent corresponding to the 0.01 and 0.002 annual exceedance probabilities, compared with the NFIP flood extents. Maps shall be color-coded to clearly distinguish between different annual exceedance probabilities.

3. Graphs and tables showing flood model results at 10 or more locations within the study area and representative of the range of flood conditions in the study area. A map of the 10 locations shall be included. Tables shall be provided in Excel format, and shall include the county and the Florida Modified HUC-8 of each location. The following flood characteristics shall be included for the 0.1, 0.02, 0.01, and 0.002 annual exceedance probabilities:

    a. Stillwater flood elevations also depicted on a color-coded contour map, with the ground elevation identified at each location, and the color-scheme consistent for all maps and the scale remaining constant for each location,

    b. Coastal wave heights or wave proxies,

    c. If the flood vulnerability functions require explicit representation of flood-induced erosion effects, the erosion depth (original ground elevation minus eroded ground elevation),

    d. If the flood vulnerability functions require explicit representation of flow velocity effects, the flow velocities, and

e. If the flood vulnerability functions require explicit representation of flood inundation duration effects, the duration of flood inundation.

C. List flood sources and assumptions necessary to complete Form HHF-3. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

D. If not considered as trade secret, provide Form HHF-3 in a Submission appendix and the tables required in B.3 in Excel format. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name.

Form HHF-4: Inland Flood Characteristics by Annual Exceedance Probability

Purpose: The graphical and visual depiction of flood characteristics simulated by the flood model can better inform the evaluation of the flood model results. This form illustrates the simulations of key inland flood characteristics at a range of locations for an annual exceedance probability.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form HHF-4.

B. Define one study area subject to inland flooding within each of the five Florida geographic regions identified in *Figure 1*. The extent of each study area is to be determined by the modeling organization and shall be large enough to encompass at least one Florida Modified HUC-8. The modeling organization is to create the underlying grid for Form HHF-4.

C. Provide, for each study area, color-coded contour or high-resolution maps showing the modeled flood extent and elevation or depth corresponding to the 0.01 annual exceedance probability. Flood extent and elevation or depth shall incorporate the effects of flood-induced erosion, if modeled. For locations subject to both inland and coastal flooding, this information shall reflect only inland flooding.

D. List assumptions necessary to complete Form HHF-4. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

E. Include Form HHF-4 in a Submission appendix.

Form HHF-5: Inland Flood Characteristics by Annual Exceedance Probabilities (Trade Secret Item)

Purpose: The graphical and visual depiction of flood characteristics simulated by the flood model can better inform the evaluation of the flood model results. This form illustrates the simulations of key inland flood characteristics at a range of locations and annual exceedance probabilities.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form HHF-5.

B. Provide the following information for each study area defined in Form HHF-4. For locations subject to both inland and coastal flooding, this information shall reflect only inland flooding.

   1. Color-coded contour or high-resolution maps for each study area showing modeled flood extent and elevation or depth corresponding to the 0.1, 0.02, 0.01, and 0.002 annual exceedance probabilities. Flood extent and elevation or depth shall incorporate the effects of flood-induced erosion, if modeled.

   2. Color-coded contour or high-resolution maps for each study area showing modeled flood extent corresponding to the 0.01 and 0.002 annual exceedance probabilities, compared with the NFIP flood extents. Maps shall be color-coded to clearly distinguish between different annual exceedance probabilities.

   3. Graphs and tables, based on the underlying gridded data, showing flood model results at 10 or more locations within the study area and representative of the range of flood conditions in the study area. A map of the 10 locations shall be included. Tables shall be provided in Excel format, and shall include the county and Florida Modified HUC-8 of each location. The following flood characteristics shall be included for the 0.1, 0.02, 0.01, and 0.002 annual exceedance probabilities:

      a. Flood elevations also depicted on a color-coded contour map, with the ground elevation identified at each location, and the color-scheme consistent for all maps and the scale remaining constant for each location,

      b. Flood depths,

      c. If the flood vulnerability functions require explicit representation of flood-induced erosion effects, the erosion depth (original ground elevation minus eroded ground elevation),

      d. If the flood vulnerability functions require explicit representation of flow velocity effects, the flow and flow velocities, and

e. If the flood vulnerability functions require explicit representation of flood inundation duration effects, the duration of flood inundation.

C. Provide color-coded contour or high-resolution maps for areas surrounding the following six locations, showing modeled flood extent and elevation or depth corresponding to the 0.1, 0.02, 0.01, 0.002 annual exceedance probabilities.

1. Panama City Beach (The Glades, 30.18685/-85.81320)

2. Fernandina Beach (Egans Creek, 30.63935/-81.44037)

3. Winter Park (Chain of Lakes, 28.62245/-81.34538)

4. Key West (District 5, 24.55319/-81.78150)

5. Naples (Golden Gate Estates, 26.26381/-81.56417)

6. Fort Lauderdale (New River, 26.11091/-80.11226)

The extent of each area is to be determined by the modeling organization and shall be sufficient to determine inland flooding conditions for the location. For locations subject to both inland and coastal flooding, this information shall reflect only inland flooding. Flood extent and elevation or depth shall incorporate the effects of flood-induced erosion, if modeled.

D. List assumptions necessary to complete Form HHF-5. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

E. If not considered as Trade Secret, provide Form HHF-5 in a Submission appendix and the tables required in B.3 in Excel format. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name.

STATISTICAL FLOOD STANDARDS

SF-1 Modeled Results and Goodness-of-Fit*

*(*Significant Revision)*

A. The use of historical data in developing the flood model shall be supported by rigorous methods published in current scientific literature and current technical literature.

B. Modeled results shall reflect statistical agreement with historical data using current scientific and statistical methods for the academic disciplines appropriate for the various flood model components. Differences shall be justified.

Purpose: Many aspects of flood model development and implementation involve fitting a probability distribution to historical data (or to climate-adjusted historical data) for use in generating stochastic floods. Such fitted models shall be checked to ensure that the distributions are reasonable. The chi-square goodness-of-fit test may not be sufficiently rigorous for demonstrating the reasonableness of models.

Relevant Forms:
- GF-5, Statistical Flood Standards Expert Certification
- HHF-1, Historical Coastal and Inland Event Flood Extent and Elevation or Depth Validation Maps
- SF-1, Distributions of Stochastic Flood Parameters (Coastal and Inland)
- SF-2, Examples of Flood Loss Exceedance Estimates (Coastal and Inland Combined)
- AF-4, Flood Output Ranges
- AF-8, Flood Probable Maximum Loss for Florida

Disclosures

1. Provide completed Form SF-1 in a Submission appendix. Provide a hyperlink here to the location of the form.

2. Provide an assessment of uncertainty in flood probable maximum loss levels and in flood loss costs for flood output ranges using confidence intervals or other scientific characterizations of uncertainty.

3. Justify any differences between the historical and modeled results using current scientific and statistical methods in the appropriate disciplines.

4. Provide graphical comparisons of modeled and historical data and goodness-of-fit tests. Examples to include are flood frequencies, flow, elevations or depths, and physical damage.

5. Provide a completed Form SF-2 in a Submission appendix. Provide a hyperlink here to the location of the form.

Audit

1. The modeling organization characterization of uncertainty for damage estimates, annual flood loss, and flood probable maximum loss levels will be reviewed as encountered.

2. Regression analyses performed will be reviewed, including parameter estimation, graphical summaries and numerical measures of the quality of fit, residual analysis and verification of regression assumptions, outlier treatment, and associated uncertainty assessment.

3. The vintage of statistical-related data, code, scientific literature, and technical literature used will be reviewed as encountered.

SF-2 Sensitivity Analysis for Flood Model Output*

*(*Significant Revision)*

The modeling organization shall have assessed the sensitivity of temporal and spatial outputs with respect to the simultaneous variation of input variables using current scientific and statistical methods in the appropriate disciplines and shall have taken appropriate action.

Purpose: Sensitivity analysis involves the quantification of the magnitude of the output (e.g., flood extent and depth, flood loss cost) by identifying and quantifying the input variables that impact the magnitude of the output when the input variables are varied simultaneously. The simultaneous variation of all input variables enables the modeling organization to detect interactions and to properly account for correlations among the input variables. Neither of these goals can be achieved by using one-factor-at-a-time variation; hence, such an approach to sensitivity analysis does not lead to an understanding of how the input variables jointly affect the flood model output.

The simultaneous variation of the input variables is an important diagnostic tool and provides needed assurance of the robustness and viability of the flood model output.

Relevant Form: GF-5, Statistical Flood Standards Expert Certification

Disclosures

1. Identify the flood model inputs to which the outputs are most sensitive and the basis for making this determination.

2. Identify other input variables that impact the magnitude of the output when the input variables are varied simultaneously. Describe the degree to which these sensitivities affect output results, and illustrate with an example.

3. Describe how other aspects of the flood model may have a significant impact on the sensitivities in output results and the basis for making this determination.

4. Describe and justify action or inaction as a result of the sensitivity analyses performed.

Audit

1. The sensitivity analysis for the flood model will be reviewed.

2. Statistical techniques used to perform the sensitivity analysis will be reviewed.

3. The results of the sensitivity analysis displayed in graphical format (e.g., contour or high-resolution plots with temporal animation) will be reviewed.

SF-3 Uncertainty Analysis for Flood Model Output*

*(*Significant Revision)*

The modeling organization shall have performed an uncertainty analysis on the temporal and spatial outputs of the flood model using current scientific and statistical methods in the appropriate disciplines and shall have taken appropriate action. The analysis shall identify and quantify the extent that input variables impact the uncertainty in flood model output as the input variables are simultaneously varied.

Purpose: Uncertainty analysis involves the quantification of the output (e.g., flood extent and depth, flood loss costs) through a variance calculation or by use of confidence intervals. While these statistics provide useful information, uncertainty analysis goes beyond a mere quantification of these statistics by quantifying the expected percentage reduction in the variance of the output that is attributable to each of the input variables. Identification of those variables that contribute to the uncertainty is the first step that can lead to a reduction in the uncertainty in the output.

It is important to note that the key input variables identified in an uncertainty analysis are not necessarily the same as those in a sensitivity analysis nor are they necessarily in the same relative order. As with sensitivity analysis, uncertainty analysis is an important diagnostic tool and provides needed assurance of the robustness and viability of the flood model output.

Relevant Form: GF-5, Statistical Flood Standards Expert Certification

Disclosures

1. Identify the major contributors to the uncertainty in flood model outputs and the basis for making this determination. Provide a full discussion of the degree to which these uncertainties affect output results, and illustrate with an example.

2. Describe how other aspects of the flood model may have a significant impact on the uncertainties in output results and the basis for making this determination.

3. Describe and justify action or inaction as a result of the uncertainty analyses performed.

Audit

1. The uncertainty analysis for the flood model will be reviewed.

2. Statistical techniques used to perform the uncertainty analysis will be reviewed.

3. The results of the uncertainty analysis displayed in graphical format (e.g., contour or high-resolution plots with temporal animation) will be reviewed.

SF-4 Flood Model Loss Cost Convergence by Florida Modified HUC-8*

*(*Significant Revision)*

At a Florida Modified HUC-8 level of aggregation, the contribution to the error in flood loss cost estimates attributable to the sampling process shall be negligible for modeled coastal, inland, and, if modeled or approximated, compound flooding.

Purpose: The intent of this standard is to ensure that sufficient runs of the simulation have been made, or a suitable sampling design invoked so that the contribution to the error of the flood loss cost estimates due to its probabilistic nature is negligible.

Relevant Forms: GF-5, Statistical Flood Standards Expert Certification
AF-2, Statewide Standard Flood Policy Losses
AF-3, Personal Residential Standard Flood Policy Losses
AF-4, Flood Output Ranges

Disclosures

1. Describe the sampling plan used to obtain the average annual flood loss costs and flood output ranges. For a direct Monte Carlo simulation, indicate steps taken to determine sample size. For an importance sampling design or other sampling scheme, describe the underpinnings of the design and how it achieves the required performance.

2. Describe the nature and results of the convergence tests performed to validate the expected flood loss projections generated. If a set of simulated flood events or simulation trials was used to determine these flood loss projections, specify the convergence tests that were used and the results. Specify the number of flood events or trials that were used.

Audit

1. An exhibit of the standard error by each Florida Modified HUC-8 will be reviewed.

SF-5 Replication of Known Flood Losses*

*(*Significant Revision)*

The flood model shall estimate incurred flood losses in an unbiased manner on a sufficient body of past flood events, including the most current data available to the modeling organization. The replications shall be produced on an objective body of flood loss data by an appropriate level of geographic detail.

Purpose: This standard applies to personal residential exposures and to the combined effects of flood hazard, vulnerability functions, and loss estimation. Given a past flood event and a book of insured properties at the time of the flood event, the flood model shall be able to provide expected flood losses.

Relevant Forms: GF-5, Statistical Flood Standards Expert Certification
AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
AF-2, Statewide Standard Flood Policy Losses
AF-3, Personal Residential Standard Flood Policy Losses

Disclosures

1. Describe the nature and results of the analyses performed to validate the flood loss projections generated for personal residential flood losses. Provide a table with modeled versus actual losses for Florida coastal and inland flooding from Hurricane Andrew (1992), Tropical Storm Fay (2008), Hurricane Irma (2017), Hurricane Michael (2018), and Hurricane Ian (2022).

2. Provide a map of the geographic boundaries used to aggregate the flood loss data for validation of personal residential flood losses.

Audit

1. The geographic aggregation of flood loss data used for personal residential flood loss validation will be reviewed.

Form SF-1: Distributions of Stochastic Flood Parameters (Coastal and Inland)

Purpose: This form identifies the probability distributions used in the stochastic coastal, inland, and, if modeled or approximated, compound flood model, and provides their justification.

A. Provide the probability distribution functional form used for each stochastic flood parameter in the flood model (one each for coastal, inland, and, if modeled or approximated, compound flooding).

B. Provide a summary of the justification for each functional form selected for each general classification and for the goodness-of-fit tests used. Specify the relevant classification (coastal, inland, or, if modeled or approximated, compound flooding) for each distribution.

   Year Range Used for Fitting refers to the year range of data upon which the flood model distribution parameters are estimated.

   Year Range Used for Validation refers to the year range of data upon which the goodness-of-fit statistics are based.

C. Identify the form of the probability distributions used for each function or variable, if applicable. Identify statistical techniques used for estimation and the specific goodness-of-fit tests applied along with the corresponding *p*-values. Describe whether the fitted distributions provide a reasonable agreement with available historical data.

D. Include Form SF-1, in a Submission appendix.

Stochastic Flood Parameter (Function or Variable)	Classification: Coastal, Inland, or Compound	Functional Form of Distribution	Data Sources	Year Range Used		Justification for Functional Form, Parameter Estimates, and Goodness-of-Fit Tests
				For Fitting	For Validation	

Form SF-2: Examples of Flood Loss Exceedance Estimates (Coastal and Inland Combined)

Purpose: This form provides the modeling organization flood loss exceedance estimates for coastal, inland, and, if modeled or approximated, compound flood losses combined.

A. One or more automated programs or scripts shall be used to generate and format the data in Form SF-2.

B. Provide estimates of the annual aggregate personal residential insured flood losses for coastal, inland, and, if modeled or approximated, compound flooding for various probability levels using the notional risk exposure datasets given in the Form AF-1 table in Form AF-1.D, the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model, and the exposure dataset for the model under review.

C. Provide the total average annual flood loss for the loss exceedance distribution. If the modeling methodology does not allow the flood model to produce a viable answer for certain return periods, state so and why.

D. Describe how double counting is avoided when combining coastal and inland flooding.

E. Include Form SF-2 in a Submission appendix.

Part A

Return Period (Years)	Annual Probability of Exceedance	Estimated Flood Loss Notional Risk Dataset	Estimated Flood Loss Modeling Organization Current Accepted Model Exposure Dataset	Estimated Flood Loss Modeling Organization Model Under Review Exposure Dataset
Maximum Annual Loss	N/A			
10,000	0.0001			
5,000	0.0002			
2,000	0.0005			
1,000	0.0010			
500	0.0020			
250	0.0040			
100	0.0100			
50	0.0200			
20	0.0500			
10	0.1000			
5	0.2000			

Part B

	Estimated Flood Loss Notional Risk Dataset	Estimated Flood Loss Modeling Organization Current Accepted Model Exposure Dataset	Estimated Flood Loss Modeling Organization Model Under Review Exposure Dataset
Mean (Total Average Annual Flood Loss)			
Median			
Standard Deviation			
Interquartile Range			
Sample Size			

VULNERABILITY FLOOD STANDARDS

VF-1 Development of Flood Building Vulnerability Functions*

*(*Significant Revision)*

A. Development of the flood building vulnerability functions shall be based on a combination of available insurance company flood claims data and (1) rational engineering analysis supported by laboratory testing, field testing, or post-event site investigations, (2) current scientific literature and current technical literature, or (3) expert opinion.

B. The development of flood building vulnerability functions and the treatment of associated uncertainties shall be theoretically sound and consistent with fundamental engineering principles.

C. Residential building stock classification shall be representative of Florida construction for personal residential buildings.

D. The following flood characteristics shall be accounted for in the development of flood building vulnerability functions: flood depth above ground for all flood events, and in coastal flood events, damaging wave action.

E. The treatment of waves shall be physically reasonable and based on rational engineering analysis.

F. The following primary building characteristics shall be used or accounted for in the development of flood building vulnerability functions: lowest floor elevation relative to ground, foundation type, primary construction materials, number of stories, and year of construction.

G. Flood building vulnerability functions shall be separately developed for personal residential buildings, appurtenant structures, and manufactured homes.

Purpose: Both flood and building characteristics affect flood building vulnerability functions. The development of flood building vulnerability functions shall be supported by historical or other relevant data.

In coastal areas, the effects of damaging wave action shall be incorporated into flood building vulnerability functions by explicit wave modeling or by wave proxies. If explicit wave modeling is not conducted, the treatment of waves shall be physically reasonable and supported by rational engineering analysis. Assuming depth-limited waves throughout the entire area inundated with storm surge shall not be considered physically reasonable.

The data and methods used to develop flood building vulnerability functions, and the treatment of associated uncertainties, affect the modeled flood loss costs and flood probable maximum loss levels. Their development and documentation are essential parts of the flood model.

The adoption year and enforcement of statewide and local building codes and floodplain management regulations affect the flood building vulnerability functions.

Relevant Forms: GF-6, Vulnerability Flood Standards Expert Certification
VF-1, Coastal Flood with Damaging Wave Action
VF-2, Inland Flood by Flood Depth
AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
AF-6, Logical Relationships to Flood Risk (Trade Secret Item)

Disclosures

1. Provide a high-level flowchart documenting the process for development and implementation of the flood building vulnerability functions.

2. Provide a comprehensive technical description of the flood building vulnerability functions, including theoretical basis, assumptions, data, methods, and processes used in the development of the flood building vulnerability functions.

3. Provide details of modifications to the flood building vulnerability functions since the current accepted flood model.

4. As applicable, describe the nature and extent of insurance company flood claims data used to develop the flood building vulnerability functions.

5. Describe any new insurance company flood claims data received and reviewed since the current accepted flood model. Indicate whether any new data have been incorporated in the flood building vulnerability functions. If new data have not been incorporated, explain why.

6. Summarize post-event site investigations, including the sources, and provide a detailed description of how the data from site investigations were used in the development of flood building vulnerability functions.

7. Describe how the flood building vulnerability functions incorporate depth of flooding (above ground and above lowest floor). Define depth of flooding for inland, coastal, and, if modeled or approximated, compound flooding.

8. For coastal areas:

   A. Describe the rational engineering analysis used for the treatment of waves.

   B. Define the thresholds indicating the presence of damaging wave action for buildings and manufactured homes.

   C. Describe the area over which flood building vulnerability functions for damaging wave action or wave proxies are applied.

   D. Describe how the treatment of waves is physically reasonable.

9. State if the following flood characteristics are considered in the development of the flood building vulnerability functions, and if so, how; if not considered, explain why:

   a. Flood velocity,
   b. Flood duration,
   c. Flood-induced erosion,
   d. Flood-borne debris,
   e. Salinity (saltwater versus freshwater flooding), and
   f. Contaminated floodwaters.

10. Describe how the flood building vulnerability functions incorporate the following primary building characteristics:

    a. Lowest floor elevation relative to ground,
    b. Foundation type,
    c. Primary construction materials,
    d. Number of stories, and
    e. Year of construction.

11. State if the following building characteristics are considered in the development of the flood building vulnerability functions, and if so, how; if not considered, explain why:

    a. Use of each story (e.g., living area, parking, storage, other),
    b. Presence of basement,
    c. Replacement value of building,
    d. Structure value by story,
    e. Square footage of living area,
    f. Other construction characteristics, as applicable, and
    g. Distance from building to flood source(s) (e.g., river, lake, coast).

12. Describe the process by which local construction practices and statewide and local building code and floodplain management regulation adoption and enforcement are considered in the development of the flood building vulnerability functions.

13. Provide the total number of flood building vulnerability functions available for use in the flood model. Describe the flood building vulnerability functions that are used for each of personal residential buildings, manufactured homes, condo unit owners, and apartment renters.

14. Describe the assumptions, data (including available insurance company flood claims data), methods, and processes used to develop flood building vulnerability functions when:

    A. Personal residential construction types are unknown, or

    B. One or more primary building characteristics are unknown, or

    C. Building input characteristics are conflicting.

15. Describe similarities and differences in how the flood building vulnerability functions are developed and applied for coastal, inland, and, if modeled or approximated, compound flooding.

16. Describe how building damage caused by water infiltration (precipitation) is separated from building damage caused by flood.

17. Describe if and how flood building vulnerability functions are based on or depend on NFIP FIRM or FIS data.

18. For a building in an area subject to both coastal and inland flooding, describe how the flood model calculates and reports flood damage for each type of flooding. Provide a high-level flowchart of the process.

19. If compound flooding is modeled or approximated, for a building in an area subject to both coastal and inland flooding, describe how the flood model calculates and reports flood damage. Describe how the flood building vulnerability functions address compound flooding. Provide a flowchart of the process.

20. Describe the basis, development, modeling, and treatment of uncertainties associated with the flood building vulnerability functions.

21. Provide completed Forms VF-1 and VF-2 in a Submission appendix. Provide hyperlinks here to the location of the forms.

Audit

1. Supporting material, including motivations, data, methods, and assumptions for changes to the flood building vulnerability functions in Disclosure 3 will be reviewed.

2. Comparisons of the modified flood building vulnerability functions with those in the current accepted flood model will be reviewed.

3. The vintage of vulnerability-related data, code, scientific literature, and technical literature used will be reviewed as encountered.

4. A detailed flowchart documenting the process for development and implementation of the flood building vulnerability functions will be reviewed.

5. Multiple samples of flood building vulnerability functions for personal residential buildings, appurtenant structures, and manufactured homes will be reviewed.

6. Documentation and justification for the method of development and data on which the flood building vulnerability functions are based will be reviewed.

7. Comparison of flood building vulnerability functions for Form VF-1 and Form VF-2 reference structures will be reviewed (16 comparisons total, 8 for each form).

8. If the flood model uses component-based flood building vulnerability functions, comparisons of the individual component-based flood building vulnerability functions will be reviewed for each of the reference structures in Form VF-1 and Form VF-2.

9. Flood building vulnerability functions that incorporate waves or wave proxies will be reviewed. Thresholds for damaging wave action will be reviewed. The area over which flood building vulnerability functions for damaging waves or wave proxies are applied will be reviewed. The treatment of waves for physical reasonableness will be reviewed.

10. The breakdown of insurance company exposure data used to develop the flood building vulnerability functions into number of insurers, number of policies, number of locations, and amount of dollar exposure by policy type will be reviewed.

Policy Type	Number of Insurers	Number of Policies	Number of Locations	Exposure Value ($)
Personal Residential				
Manufactured Homes				

11. The breakdown of insurance company flood claims data used to develop the flood building vulnerability functions into events (year and storm name), number of insurers, number of policies, number of locations, number of claims, and amount of loss separated by policy type will be reviewed.

Year	Storm Name	Number of Insurers		Number of Policies		Number of Locations		Number of Claims		Loss Amount ($)	
		Personal Residential	Manufactured Homes	Personal Residential	Manufactured Homes	Personal Residential	Manufactured Homes	Personal Residential	Manufactured Homes	Personal Residential	Manufactured Homes

12. Insurance company flood claims data will be reviewed with explanations for any changes made and descriptions of how missing or incorrect data were handled.

13. The process for incorporating new insurance company flood claims data will be reviewed.

14. Accounting for the claim practices of insurance companies when insurance company flood claims data are used to develop flood building vulnerability functions will be reviewed. The level of damage the insurer considers a loss to be a total loss, claim practices of insurers with respect to concurrent causation, the impact of public adjusting, and the impact of the legal environment in the claims data analyses will be reviewed.

15. The modeling of uncertainty associated with flood building vulnerability functions for wood frame, masonry, and manufactured homes construction classes will be reviewed.

16. Accounting for the uncertainties in flood depth and damaging wave action for an individual flood event at a given location in the flood building vulnerability functions damage estimates will be reviewed.

17. Accounting for the uncertainties in flood extent and depth in cases of compound flooding will be reviewed.

18. Rational engineering analyses and calculations used to develop flood building vulnerability functions will be reviewed.

19. Post-event site investigation reports will be reviewed. Other scientific literature, technical literature, and expert opinion summaries will be reviewed.

20. The goodness-of-fit of the flood building vulnerability functions will be reviewed.

21. Justification for the personal residential building construction classes and characteristics used will be reviewed.

22. Documentation and justification for the effects on the flood building vulnerability functions due to applicable building codes, floodplain management regulations, and their enforcement will be reviewed.

23. The percentage of damage at or above which the flood building vulnerability functions assume a total building loss will be reviewed.

24. The treatment of law and ordinance in flood building vulnerability functions will be reviewed.

25. The treatment of water intrusion in flood building vulnerability functions will be reviewed.

26. The basis or dependence of flood building vulnerability functions on NFIP FIRM or FIS data will be reviewed.

27. A detailed flowchart documenting the process for calculating and reporting flood damage for a building in an area subject to both coastal and inland flooding will be reviewed.

28. The process to account for FEMA's change in flood insurance premium rating to Risk Rating 2.0 will be reviewed, if applicable.

VF-2 Development of Flood Contents Vulnerability Functions*

*(*Significant Revision)*

A. Development of the flood contents vulnerability functions shall be based on a combination of available insurance company flood claims data and (1) rational engineering analysis supported by laboratory testing, field testing, or post-event site investigations, (2) current scientific literature and current technical literature, or (3) expert opinion.

B. The relationship between the flood building and contents vulnerability functions shall be reasonable.

Purpose: Flood contents vulnerability functions and flood losses are affected by various flood, contents, and building characteristics. The development of flood contents vulnerability functions shall be supported by historical or other relevant data.

In coastal areas, the effects of damaging wave action shall be incorporated into flood contents vulnerability functions by explicit wave modeling or by wave proxies. If explicit wave modeling is not conducted, the treatment of waves shall be physically reasonable and supported by rational engineering analysis. Assuming depth-limited waves throughout the entire area inundated with storm surge shall not be considered physically reasonable.

The development of flood contents vulnerability functions shall be documented with respect to the methods and sources.

A reasonable representation of flood contents vulnerability is necessary in order to address policies that cover flood contents losses.

Relevant Forms: GF-6, Vulnerability Flood Standards Expert Certification
AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
AF-6, Logical Relationships to Flood Risk (Trade Secret Item)

Disclosures

1. Provide a high-level flowchart documenting the process by which the flood contents vulnerability functions are developed and implemented.

2. Provide a comprehensive technical description of the flood contents vulnerability functions, including theoretical basis, assumptions, data, methods, and processes used in the development of the flood contents vulnerability functions.

3. Provide details of modifications to the flood contents vulnerability functions since the current accepted flood model.

4. Describe the relationship between flood contents and building vulnerability functions.

5. Describe the basis, development, modeling, and treatment of uncertainties associated with the flood contents vulnerability functions.

6. Provide the total number of flood contents vulnerability functions available for use in the flood model. Describe whether different flood contents vulnerability functions are used for personal residential buildings, manufactured homes, unit location for condo owners and apartment renters, and various building classes.

7. Describe any relationships between flood characteristics and flood contents vulnerability functions.

8. State the minimum threshold at which flood contents damage is calculated (e.g., flood contents damage is estimated for building damage greater than *x* percent or flood depth greater than *y* inches). Provide documentation of assumptions and available validation data to verify the approach used.

9. Describe similarities and differences in how flood contents vulnerability functions are developed and applied for coastal, inland, and if modeled or approximated, compound flooding.

10. Describe if and how flood contents vulnerability functions are based on or depend on NFIP FIRM or FIS data.

11. Describe how the damages to contents caused by water infiltration (precipitation) is separated from the damages to contents caused by flood.

Audit

1. Supporting material for changes to the flood contents vulnerability functions in Disclosure 3 will be reviewed.

2. Comparisons of the modified flood contents vulnerability functions with those in the current accepted flood model will be reviewed.

3. Documentation and justification for the method of development, the underlying data, and assumptions on which the flood contents vulnerability functions are based will be reviewed.

4. A detailed flowchart documenting the process by which the flood contents vulnerability functions are developed and implemented will be reviewed.

5. Multiple samples of flood contents vulnerability functions for personal residential buildings and manufactured homes will be reviewed.

6. Flood contents vulnerability functions that incorporate waves or wave proxies will be reviewed.

7. The goodness-of-fit of the flood contents vulnerability functions will be reviewed.

8. The modeling of uncertainty associated with flood contents vulnerability functions for wood frame, masonry, and manufactured homes construction classes will be reviewed.

9. Justification and documentation for the dependence of flood contents vulnerability functions on construction type or occupancy type will be reviewed.

10. The combination of available insurance company flood claims data and other information used to develop the flood contents vulnerability functions will be reviewed.

11. The basis or dependence of flood contents vulnerability functions on NFIP FIRM or FIS data will be reviewed.

VF-3 Development of Flood Time Element Vulnerability Functions*

*(*Significant Revision)*

A. Development of the flood time element vulnerability functions shall be based on a combination of available insurance company flood claims data and (1) rational engineering analysis supported by laboratory testing, field testing, or post-event site investigations, (2) current scientific literature and current technical literature, or (3) expert opinion.

B. The relationship among the flood building, contents, and time element vulnerability functions shall be reasonable.

C. Flood time element vulnerability functions development shall consider the estimated time required to repair or replace the property.

Purpose: Flood time element vulnerability functions and flood losses are affected by various flood, contents, and building characteristics, as well as external factors that affect the ability to repair or replace a structure. The development of flood time element vulnerability functions shall be supported by historical and other relevant data.

In coastal areas, the treatment of damaging wave action in flood time element vulnerability functions may be important.

The development of flood time element vulnerability functions shall be documented with respect to the methods and sources employed.

A reasonable representation of flood time element vulnerability is necessary to address policies that cover flood time element losses.

Policies can provide varying types of personal residential time element coverage and insurance company policies may pay for personal residential time element claims irrespective of flood damage to the insured property.

Relevant Forms: GF-6, Vulnerability Flood Standards Expert Certification
AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
AF-6, Logical Relationships to Flood Risk (Trade Secret Item)

Disclosures

1. Provide a high-level flowchart documenting the process by which the flood time element vulnerability functions are developed.

2. Provide a comprehensive technical description of the flood time element vulnerability functions, including theoretical basis, assumptions, data, methods, and processes used in the development of the flood time element vulnerability functions.

3. Provide details of modifications to the flood time element vulnerability functions since the current accepted flood model.

4. Describe the relationships among flood building, contents, and time element vulnerability functions.

5. Describe the basis, development, modeling, and treatment of uncertainties associated with the flood time element vulnerability functions.

6. Characterize the flood time element vulnerability functions available for use in the flood model. Describe whether different flood time element vulnerability functions are used for personal residential buildings, manufactured homes, unit location for condo owners and apartment renters, and various building classes.

7. Describe similarities and differences in how flood time element vulnerability functions are developed and applied for coastal, inland, and if modeled or approximated, compound flooding.

8. Describe any relationships between flood characteristics and flood time element vulnerability functions.

9. Describe how government mandates associated with flood events (e.g., evacuation and re-entry) are incorporated in the flood time element vulnerability functions. Describe the incorporation of damage to local and regional infrastructure in the flood time element vulnerability functions.

Audit

1. Supporting material for changes to the flood time element vulnerability functions in Disclosure 3 will be reviewed.

2. Comparisons of the modified flood time element vulnerability functions with those in the current accepted flood model will be reviewed.

3. Documentation and justification for the method of development, the underlying data, and assumptions on which the flood time element vulnerability functions are based will be reviewed.

4. A detailed flowchart documenting the process by which the flood time element vulnerability functions are developed will be reviewed.

5. Multiple samples of flood time element vulnerability functions for personal residential building structures and manufactured homes will be reviewed.

6. Flood time element vulnerability functions that incorporate waves or wave proxies will be reviewed.

7. The combination of available insurance company flood claims data and other information to develop the flood time element vulnerability functions will be reviewed.

8. The modeling of uncertainty associated with flood time element vulnerability functions for wood frame, masonry, and manufactured homes construction classes will be reviewed.

9. The goodness-of-fit of the flood time element vulnerability functions will be reviewed.

10. The methodology and validation for determining the extent of infrastructure flood damage and governmental mandate and their effect on flood time element vulnerability functions will be reviewed.

VF-4 Flood Mitigation Measures*

*(*Significant Revision)*

A. Modeling of flood mitigation measures to improve a building's flood resistance, and the corresponding effects on flood vulnerability and associated uncertainties shall be theoretically sound and consistent with fundamental engineering principles. These measures shall include design, construction, and retrofit techniques that affect the flood resistance or flood protection of personal residential buildings.

B. All flood mitigation measures considered by the flood model shall be justified.

C. Application of flood mitigation measures that affect the performance of personal residential buildings and the damage to contents shall be justified as to the impact on reducing flood damage whether done individually or in combination.

Purpose: Flood mitigation measures are those measures undertaken at an individual building level, usually within the building footprint, and may include the following:

- Elevating the building,
- Adding flood openings to enclosure walls,
- Wet or dry floodproofing,
- Permanent elevation or protection of equipment and utilities,
- Flood barriers, and
- Pumps

Multiple flood mitigation measures shall be considered and their combined effect on flood damage shall be estimated.

Relevant Forms: GF-6, Vulnerability Flood Standards Expert Certification
VF-3, Flood Mitigation Measures, Changes in Coastal Flood Damage
VF-4, Flood Mitigation Measures, Changes in Inland Flood Damage
VF-5, Differences in Flood Mitigation Measures – Coastal
VF-6, Differences in Flood Mitigation Measures – Inland
AF-6, Logical Relationships to Flood Risk (Trade Secret Item)

Disclosures

1. Provide high-level flowcharts documenting the procedures used to calculate the impact of flood mitigation measures and implementation of flood mitigation measures in the flood vulnerability functions.

2. Provide a comprehensive technical description of the flood mitigation measures vulnerability functions, including theoretical basis, assumptions, data, and the procedures used to calculate the impact of flood mitigation measures, including software, its identification, and current version.

3. Describe any modifications to flood mitigation measures vulnerability functions since the current accepted flood model. Provide details of modifications to the procedures used to calculate the impact of flood mitigation measures since the current accepted flood model.

4. Provide completed Forms VF-3, VF-4, VF-5, and VF-6 in a Submission appendix. Provide hyperlinks here to the location of the forms.

5. Provide a description of all flood mitigation measures implemented in the flood vulnerability functions, whether or not they are listed in Forms VF-3 and VF-4.

6. Describe how building and contents flood losses, and the treatment of associated uncertainties, are affected by installation of flood mitigation measures. List major assumptions.

7. Describe how flood time element losses are affected by performance of flood mitigation measures. List major assumptions.

8. Describe how the effects of multiple flood mitigation measures are combined in the flood vulnerability functions and the process used to ensure that multiple flood mitigation measures are correctly combined.

Audit

1. Supporting material for changes to the flood mitigation measures vulnerability functions in Disclosure 3 will be reviewed.

2. Comparisons of the modified flood mitigation measures vulnerability functions with those in the current accepted flood model will be reviewed.

3. Detailed flowcharts documenting the procedures used to calculate the impact of flood mitigation measures and implementation of flood mitigation measures in the flood vulnerability functions will be reviewed.

4. Flood mitigation measures included in the flood vulnerability functions, whether or not referenced in Forms VF-3 and VF-4, will be reviewed for theoretical soundness and reasonability.

5. Procedures used to calculate the impact of flood mitigation measures, and their implementation will be reviewed.

6. The effect of individual flood mitigation measures on flood damage will be reviewed.
7. Variations in the change in flood damage over the range of flood depths above ground for individual flood mitigation measures will be reviewed.
8. The combination of available insurance company flood claims data and other information used to support the assumptions and implementation of flood mitigation measures vulnerability functions will be reviewed.
9. How flood mitigation measures affect the uncertainty of flood vulnerability functions will be reviewed.
10. The methodology and implementation of multiple flood mitigation measures in the flood vulnerability functions will be reviewed.
11. The combined effects of multiple flood mitigation measures on flood damage will be reviewed. Any variation in the change in flood damage over the range of flood depths above ground for multiple flood mitigation measures will be reviewed.

Form VF-1: Coastal Flood with Damaging Wave Action

Purpose: This form provides an illustration of the aggregate damage/exposure ratios by flood depth and by construction type for a specific set of reference buildings subject to coastal flooding with damaging wave action.

A. One or more automated programs or scripts shall be used to generate and format the data in Form VF-1.

B. Sample personal residential exposure data for 8 reference buildings as defined in the table below and 26 stillwater flood depths (0-25 feet at 1-foot increments) are provided in the file "*VFEventFormsInput.xlsx*."

   Model the sample personal residential exposure data provided in the file versus the stillwater flood depths, and provide the damage/exposure ratios summarized by flood depth and construction type. Estimated Damage for each individual flood depth is the sum of ground up loss to all reference buildings in the flood depth range, excluding demand surge.

   Personal residential contents, appurtenant structures, or time element coverages are not included.

Reference Buildings

Wood Frame	Masonry	Manufactured Home
#1 One story Crawlspace foundation Top of foundation wall 3-feet above grade	#4 One story Slab foundation Top of slab 1-foot above grade Unreinforced masonry exterior walls	#7 Manufactured post 1994 Dry stack concrete foundation Pier height 3-feet above grade Tie downs Single unit
#2 Two story Slab foundation Top of slab 1-foot above grade 5/8" diameter anchors at 48" centers for wall/slab connections	#5 Two story Slab foundation Top of slab 1-foot above grade Reinforced masonry exterior walls	#8 Manufactured post 1994 Reinforced masonry pier foundation Pier height 6-feet above grade Tie downs Single unit
#3 Two story Timber pile foundation Top of pile 8-feet above grade Wood floor system bolted to piles	#6 Two story Concrete pile foundation Concrete slab Top of pile 8-feet above grade Reinforced masonry exterior walls	

C. Confirm that the buildings used in completing Form VF-1 are identical to those in the above table for the reference buildings.

D. List assumptions necessary to complete Form VF-1. Provide the rationale and a detailed description of how the assumptions are reflected in the flood vulnerability functions.

E. Provide a plot of the stillwater flood depth versus estimated damage/subject exposure data.

F. Include Form VF-1 in a Submission appendix.

Stillwater Flood Depth (Feet) Above Ground Level	Estimated Damage/ Subject Exposure
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

Form VF-2: Inland Flood by Flood Depth

Purpose: This form provides an illustration of the aggregate damage/exposure ratios by flood depth and by construction type for a specific set of reference buildings subject to inland (inundation) flooding.

A. One or more automated programs or scripts shall be used to generate and format the data in Form VF-2.

B. Sample personal residential exposure data for 8 reference buildings as defined in the table below and 26 flood depths (0-25 feet at 1-foot increments) are provided in the file "*VFEventFormsInput.xlsx*."

Model the sample personal residential exposure data provided in the file versus the flood depths, and provide the damage/exposure ratios summarized by flood depth and construction type. Estimated Damage for each individual flood depth is the sum of ground up loss to all reference buildings in the flood depth range, excluding demand surge.

Personal residential contents, appurtenant structures, or time element coverages are not included.

Reference Buildings

Wood Frame	Masonry	Manufactured Home
#1 One story Crawlspace foundation Top of foundation wall 3-feet above grade	#4 One story Slab foundation Top of slab 1-foot above grade Unreinforced masonry exterior walls	#7 Manufactured post 1994 Dry stack concrete foundation Pier height 3-feet above grade Tie downs Single unit
#2 Two story Slab foundation Top of slab 1-foot above grade 5/8" diameter anchors at 48" centers for wall/slab connections	#5 Two story Slab foundation Top of slab 1-foot above grade Reinforced masonry exterior walls	#8 Manufactured post 1994 Reinforced masonry pier foundation Pier height 6-feet above grade Tie downs Single unit
#3 Two story Timber pile foundation Top of pile 8-feet above grade Wood floor system bolted to piles	#6 Two story Concrete pile foundation Concrete slab Top of pile 8-feet above grade Reinforced masonry exterior walls	

C. Confirm that the buildings used in completing Form VF-2 are identical to those in the above table for the reference buildings.

D. List assumptions necessary to complete Form VF-2. Provide the rationale and a detailed description of how the assumptions are reflected in the flood vulnerability functions.

E. Provide a plot of the flood depth versus estimated damage/subject exposure data.

F. Include Form VF-2 in a Submission appendix.

Flood Depth (Feet) Above Ground Level	Estimated Damage/ Subject Exposure
0	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

Form VF-3: Flood Mitigation Measures, Changes in Coastal Flood Damage

Purpose: This form illustrates the changes in coastal flood damage ratios for three specific reference buildings subject to individual flood mitigation measures and to combinations of flood mitigation measures.

A. One or more automated programs or scripts shall be used to generate and format the data in Form VF-3.

B. Provide the change in the personal residential reference building coastal flood damage ratio (not loss cost) for each individual flood mitigation measure listed in Form VF-3 as well as for the combination of the flood mitigation measures. Personal residential contents, appurtenant structures, or time element coverages are not included. Supplemental flood depth categories may be included.

C. List assumptions necessary to complete Form VF-3. Provide the rationale and a detailed description of how the assumptions are reflected in the flood vulnerability functions.

D. Place the coastal reference buildings at the following location, with latitude and longitude referenced to the World Geodetic System of 1984 (WGS84) datum.

    Gulf of America
    Latitude: 27.9957517
    Longitude: -82.8277373

E. Provide the ground elevation used from the flood model elevation database for the coastal reference point.

F. Provide Form VF-3 in Excel format without truncation. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form VF-3 in a Submission appendix.

Reference Buildings

<table>
<tr><th>Wood Frame</th><th>Masonry</th></tr>
<tr><td>#1
One story
Crawlspace foundation
Top of foundation wall 3-feet above grade</td><td rowspan="2">#4
One story
Slab foundation
Top of slab 1-foot above grade
Unreinforced masonry exterior walls</td></tr>
<tr><td>#3
Two story
Timber pile foundation
Top of pile 8-feet above grade
Wood floor system bolted to piles</td></tr>
</table>

Form VF-3: Flood Mitigation Measures, Changes in Coastal Flood Damage

INDIVIDUAL FLOOD MITIGATION MEASURES		CHANGES IN COASTAL FLOOD DAMAGE (REFERENCE DAMAGE RATIO - MITIGATED DAMAGE RATIO)									
		TWO-STORY WOOD FRAME STRUCTURE					MASONRY STRUCTURE				
		FLOOD DEPTH (FT) ABOVE GROUND					FLOOD DEPTH (FT) ABOVE GROUND				
		7	**9**	**11**	**13**	**15**	**1**	**3**	**5**	**7**	**9**
	REFERENCE STRUCTURE	—	—	—	—	—	—	—	—	—	—
ELEVATE STRUCTURE	Elevate Floor 1 Foot						—	—	—	—	—
	Elevate Floor 2 Feet						—	—	—	—	—
	Elevate Floor 3 Feet						—	—	—	—	—
UTILITY EQUIPMENT	Elevate or Protect 1 Foot										
	Elevate or Protect 2 Feet										
	Elevate or Protect 3 Feet										
FLOODPROOFING	Wet 1 Foot										
	Wet 2 Feet										
	Wet 3 Feet										
	Dry 1 Foot	—	—	—	—	—					
	Dry 2 Feet	—	—	—	—	—					
	Dry 3 Feet	—	—	—	—	—					
FLOOD OPENINGS		ONE-STORY WOOD FRAME STRUCTURE									
		FLOOD DEPTH (FT) ABOVE GROUND									
		1	**3**	**5**	**7**	**9**					
	Flood Openings in Foundation Walls						—	—	—	—	—

FLOOD MITIGATION MEASURES IN COMBINATION	CHANGES IN COASTAL FLOOD DAMAGE (REFERENCE DAMAGE RATIO - MITIGATED DAMAGE RATIO)									
	TWO-STORY WOOD FRAME STRUCTURE					MASONRY STRUCTURE				
	FLOOD DEPTH (FT) ABOVE GROUND					FLOOD DEPTH (FT) ABOVE GROUND				
	7	**9**	**11**	**13**	**15**	**1**	**3**	**5**	**7**	**9**
Elevate Utility Equipment 2 Feet Above Floor and Wet Floodproof Structure to 2 Feet										

Form VF-4: Flood Mitigation Measures, Changes in Inland Flood Damage

Purpose: This form illustrates the changes in inland flood damage ratios for three specific reference buildings subject to individual flood mitigation measures and to combinations of flood mitigation measures.

A. One or more automated programs or scripts shall be used to generate and format the data in Form VF-4.

B. Provide the change in the personal residential reference building inland flood damage ratio (not loss cost) for each individual flood mitigation measure listed in Form VF-4 as well as for the combination of the flood mitigation measures. Personal residential contents, appurtenant structures, or time element coverages are not included. Supplemental flood depth categories may be included.

C. List assumptions necessary to complete Form VF-4. Provide the rationale and a detailed description of how the assumptions are reflected in the flood vulnerability functions.

D. Place the inland reference buildings at the following location, with latitude and longitude referenced to WGS84 datum.

St. Johns River
Latitude: 29.3768881
Longitude: -81.6190223

E. Provide the ground elevation used from the flood model elevation database for the inland reference point.

F. Provide Form VF-4 in Excel format without truncation. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form VF-4 in a Submission appendix.

Reference Buildings

<table>
<tr><th>Wood Frame</th><th>Masonry</th></tr>
<tr><td>#1
One story
Crawlspace foundation
Top of foundation wall 3-feet above grade</td><td rowspan="2">#4
One story
Slab foundation
Top of slab 1-foot above grade
Unreinforced masonry exterior walls</td></tr>
<tr><td>#3
Two story
Timber pile foundation
Top of pile 8-feet above grade
Wood floor system bolted to piles</td></tr>
</table>

Form VF-4: Flood Mitigation Measures, Changes in Inland Flood Damage

INDIVIDUAL FLOOD MITIGATION MEASURES		**CHANGES IN INLAND FLOOD DAMAGE (REFERENCE DAMAGE RATIO - MITIGATED DAMAGE RATIO)**									
		TWO-STORY WOOD FRAME STRUCTURE					**MASONRY STRUCTURE**				
		FLOOD DEPTH (FT) ABOVE GROUND					**FLOOD DEPTH (FT) ABOVE GROUND**				
		7	**9**	**11**	**13**	**15**	**1**	**3**	**5**	**7**	**9**
	REFERENCE STRUCTURE	—	—	—	—	—	—	—	—	—	—
ELEVATE STRUCTURE	Elevate Floor 1 Foot						—	—	—	—	—
	Elevate Floor 2 Feet						—	—	—	—	—
	Elevate Floor 3 Feet						—	—	—	—	—
UTILITY EQUIPMENT	Elevate or Protect 1 Foot										
	Elevate or Protect 2 Feet										
	Elevate or Protect 3 Feet										
FLOODPROOFING	Wet 1 Foot										
	Wet 2 Feet										
	Wet 3 Feet										
	Dry 1 Foot	—	—	—	—	—					
	Dry 2 Feet	—	—	—	—	—					
	Dry 3 Feet	—	—	—	—	—					
FLOOD OPENINGS		**ONE-STORY WOOD FRAME STRUCTURE**									
		FLOOD DEPTH (FT) ABOVE GROUND									
		1	**3**	**5**	**7**	**9**					
	Flood Openings in Foundation Walls						—	—	—	—	—

FLOOD MITIGATION MEASURES IN COMBINATION	**CHANGES IN INLAND FLOOD DAMAGE (REFERENCE DAMAGE RATIO - MITIGATED DAMAGE RATIO)**									
	TWO-STORY WOOD FRAME STRUCTURE					**MASONRY STRUCTURE**				
	FLOOD DEPTH (FT) ABOVE GROUND					**FLOOD DEPTH (FT) ABOVE GROUND**				
	7	**9**	**11**	**13**	**15**	**1**	**3**	**5**	**7**	**9**
Elevate Utility Equipment 2 Feet Above Floor and Wet Floodproof Structure to 2 Feet										

Form VF-5: Differences in Flood Mitigation Measures – Coastal

Purpose: This form illustrates the impact of changes in the flood mitigation measures on coastal flood damage from the current accepted flood model.

A. One or more automated programs or scripts shall be used to generate and format the data in Form VF-5.

B. Provide the differences relative to the equivalent data from the current accepted flood model.

C. List assumptions necessary to complete Form VF-5. Provide the rationale and a detailed description of how the assumptions are reflected in the flood vulnerability functions.

D. Provide a summary description of the differences.

E. Provide Form VF-5 in Excel format without truncation. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form VF-5 in a Submission appendix.

Form VF-5: Differences in Flood Mitigation Measures – Coastal

INDIVIDUAL FLOOD MITIGATION MEASURES		DIFFERENCES IN FORM VF-3 RELATIVE TO CURRENT ACCEPTED FLOOD MODEL									
		TWO-STORY WOOD FRAME STRUCTURE					MASONRY STRUCTURE				
		FLOOD DEPTH (FT) ABOVE GROUND					FLOOD DEPTH (FT) ABOVE GROUND				
		7	9	11	13	15	1	3	5	7	9
	REFERENCE STRUCTURE	—	—	—	—	—	—	—	—	—	—
ELEVATE STRUCTURE	Elevate Floor 1 Foot						—	—	—	—	—
	Elevate Floor 2 Feet						—	—	—	—	—
	Elevate Floor 3 Feet						—	—	—	—	—
UTILITY EQUIPMENT	Elevate or Protect 1 Foot										
	Elevate or Protect 2 Feet										
	Elevate or Protect 3 Feet										
FLOODPROOFING	Wet 1 Foot										
	Wet 2 Feet										
	Wet 3 Feet										
	Dry 1 Foot	—	—	—	—	—					
	Dry 2 Feet	—	—	—	—	—					
	Dry 3 Feet	—	—	—	—	—					
FLOOD OPENINGS		ONE-STORY WOOD FRAME STRUCTURE									
		FLOOD DEPTH (FT) ABOVE GROUND									
		1	3	5	7	9					
	Flood Openings in Foundation Walls						—	—	—	—	—

FLOOD MITIGATION MEASURES IN COMBINATION	DIFFERENCES IN FORM VF-3 RELATIVE TO CURRENT ACCEPTED FLOOD MODEL									
	TWO-STORY WOOD FRAME STRUCTURE					MASONRY STRUCTURE				
	FLOOD DEPTH (FT) ABOVE GROUND					FLOOD DEPTH (FT) ABOVE GROUND				
	7	9	11	13	15	1	3	5	7	9
Elevate Utility Equipment 2 Feet Above Floor and Wet Floodproof Structure to 2 Feet										

Form VF-6: Differences in Flood Mitigation Measures – Inland

Purpose: This form illustrates the impact of changes in the flood mitigation measures on inland flood damage from the current accepted flood model.

A. One or more automated programs or scripts shall be used to generate and format the data in Form VF-6.

B. Provide the differences relative to the equivalent data from the current accepted flood model.

C. List assumptions necessary to complete Form VF-6. Provide the rationale and a detailed description of how the assumptions are reflected in the flood vulnerability functions.

D. Provide a summary description of the differences.

E. Provide Form VF-6 in Excel format without truncation. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form VF-6 in a Submission appendix.

Form VF-6: Differences in Flood Mitigation Measures – Inland

INDIVIDUAL FLOOD MITIGATION MEASURES		**DIFFERENCES IN FORM VF-4 RELATIVE TO CURRENT ACCEPTED FLOOD MODEL**									
		TWO-STORY WOOD FRAME STRUCTURE					**MASONRY STRUCTURE**				
		FLOOD DEPTH (FT) ABOVE GROUND					**FLOOD DEPTH (FT) ABOVE GROUND**				
		7	**9**	**11**	**13**	**15**	**1**	**3**	**5**	**7**	**9**
	REFERENCE STRUCTURE	—	—	—	—	—	—	—	—	—	—
ELEVATE STRUCTURE	Elevate Floor 1 Foot						—	—	—	—	—
	Elevate Floor 2 Feet						—	—	—	—	—
	Elevate Floor 3 Feet						—	—	—	—	—
UTILITY EQUIPMENT	Elevate or Protect 1 Foot										
	Elevate or Protect 2 Feet										
	Elevate or Protect 3 Feet										
FLOODPROOFING	Wet 1 Foot										
	Wet 2 Feet										
	Wet 3 Feet										
	Dry 1 Foot	—	—	—	—	—					
	Dry 2 Feet	—	—	—	—	—					
	Dry 3 Feet	—	—	—	—	—					
FLOOD OPENINGS		**ONE-STORY WOOD FRAME STRUCTURE**									
		FLOOD DEPTH (FT) ABOVE GROUND									
		1	**3**	**5**	**7**	**9**					
	Flood Openings in Foundation Walls						—	—	—	—	—

FLOOD MITIGATION MEASURES IN COMBINATION	**DIFFERENCES IN FORM VF-4 RELATIVE TO CURRENT ACCEPTED FLOOD MODEL**									
	TWO-STORY WOOD FRAME STRUCTURE					**MASONRY STRUCTURE**				
	FLOOD DEPTH (FT) ABOVE GROUND					**FLOOD DEPTH (FT) ABOVE GROUND**				
	7	**9**	**11**	**13**	**15**	**1**	**3**	**5**	**7**	**9**
Elevate Utility Equipment 2 Feet Above Floor and Wet Floodproof Structure to 2 Feet										

ACTUARIAL FLOOD STANDARDS

AF-1 Modeled Flood Loss Cost and Flood Probable Maximum Loss Level Considerations*

*(*Significant Revision)*

A. The methods, data, and assumptions used in the estimation of flood loss costs and flood probable maximum loss levels shall be actuarially sound.

B. Flood loss cost projections and flood probable maximum loss levels shall not include expenses, risk load, investment income, premium reserves, taxes, assessments, or profit margin.

C. Flood loss cost projections and flood probable maximum loss levels shall not make a prospective provision for economic inflation.

D. Flood loss cost projections and flood probable maximum loss levels shall not include any explicit provision for wind losses.

E. Damage caused from inland and coastal flooding shall be included in the calculation of flood loss costs and flood probable maximum loss levels.

F. Flood loss cost projections and flood probable maximum loss levels shall be capable of being calculated from exposures at a geocode (latitude and longitude) level of resolution including the consideration of flood extent and depth.

G. Demand surge shall be included in the flood model calculation of flood loss costs and flood probable maximum loss levels using relevant data and actuarially sound methods and assumptions.

H. For flood loss costs and flood probable maximum loss level estimates derived from and validated with historical insured flood losses or other input data and information, the assumptions in the derivations concerning (1) construction characteristics, (2) policy provisions, and (3) contractual provisions shall be appropriate based on the type of risk being modeled.

Purpose: Flood loss costs and flood probable maximum loss levels are to be based on an actuarially sound methodology. The actuarial soundness resulting from compliance with the standard is particularly important to capital markets, insurers, reinsurers, and rating agencies that frequently use flood probable maximum loss levels.

The flood loss costs and flood probable maximum loss levels from the flood model shall reflect flood losses paid by the insurance company as insurance claims resulting from flood damage from an event as defined in Standard AF-4.

Flood probable maximum loss levels can be either on an annual aggregate, an annual occurrence, or an event basis. All bases can be useful for understanding the flood loss distribution produced by the flood model.

Flood loss costs represent the expected annual loss per $1,000 of exposure. Other expense and profit loads, such as those listed in AF-1.B may be included in insurance company rate filings, but are outside the scope of these standards.

Insured flood loss severity may be influenced by supply and demand factors applicable to material and labor costs. This is generally known as demand surge which occurs at the time of a large catastrophic event and is recognized as an important element for flood modeling.

Insured flood losses may also be influenced (although perhaps differently from demand surge) by general price inflation. This is a type of economic inflation that is associated with past insured flood loss experience that has been used to develop and validate flood loss projection models. The standard does not allow for future economic inflation or price inflation.

Relevant Forms: GF-7, Actuarial Flood Standards Expert Certification
AF-4, Flood Output Ranges
AF-8, Flood Probable Maximum Loss for Florida

Disclosures

1. Provide high-level flowcharts documenting the processes for calculating flood loss costs and flood probable maximum loss levels.

2. Provide a description of the flood model actuarial component, including processes used in calculating flood loss costs and flood probable maximum loss levels.

3. Provide details of modifications to the actuarial component of the flood model since the current accepted flood model.

4. Describe the method(s) used to estimate annual flood loss costs and flood probable maximum loss levels and the treatment of associated uncertainties. Identify any source documents used and any relevant research results.

5. Identify all possible resolutions available for the reported flood output ranges. Identify the finest level of resolution (i.e., the most granular level) for which flood loss costs and flood probable maximum loss levels can be provided.

6. Describe how the flood model incorporates demand surge in the calculation of flood loss costs and flood probable maximum loss levels. Indicate if there are any differences in the manner that demand surge is incorporated for coastal and inland flooding.

7. Provide citations to published papers or modeling-organization studies that were used to develop how the flood model estimates demand surge in a Submission appendix (see Standard GF-1 Disclosure 5).

8. Describe how economic inflation has been applied to past insurance experience to develop and validate flood loss costs and flood probable maximum loss levels.

9. Describe the calculation of uncertainty intervals in Form AF-8.

10. Provide citations to published scientific literature and technical literature or modeling-organization studies that were used to estimate flood probable maximum loss levels in a Submission appendix (see Standard GF-1 Disclosure 5).

Audit

1. Supporting material for the actuarial component changes in Disclosure 3 will be reviewed.

2. Detailed flowcharts documenting the processes for calculating flood loss costs and flood probable maximum loss levels will be reviewed.

3. The vintage of actuarial-related data, code, scientific literature, and technical literature used will be reviewed as encountered.

4. The data and methods used for flood probable maximum loss levels for Form AF-8 will be reviewed. An Excel spreadsheet of 5,000 years descending from the maximum annual loss (corresponding to Form AF-8) showing the value of each event separately will be reviewed.

5. The frequency distribution and the individual event severity distribution, or information about the formulation of events, underlying Form AF-8 will be reviewed.

6. The flood model's handling of expenses, risk load, investment income, premium reserves, taxes, assessments, profit margin, economic inflation, and any criteria other than direct personal residential property insurance company flood claim payments will be reviewed.

7. The method of determining flood probable maximum loss levels will be reviewed.

8. The uncertainty in the estimated annual flood loss costs (Form AF-4) will be reviewed. Details on the calculation of uncertainty intervals in Form AF-8 and their justification will be reviewed.

9. The data and methods used to incorporate individual aspects of demand surge on personal residential flood losses for coastal and inland flooding, inclusive of the effects from building material costs, labor costs, contents costs, and repair time will be reviewed. The vintage of the underlying demand surge data and references will be reviewed.

10. The treatment of economic inflation and the claims and legal environments (social inflation) will be reviewed.

11. How the flood model determines flood loss costs associated with coastal flooding will be reviewed.

12. How the flood model determines flood probable maximum loss levels associated with coastal flooding will be reviewed.

13. How the flood model determines flood loss costs associated with inland flooding will be reviewed.

14. How the flood model determines flood probable maximum loss levels associated with inland flooding will be reviewed.

15. The methods used to ensure there is no systematic over-estimation or under-estimation of flood loss costs and flood probable maximum loss levels from coastal and inland flooding will be reviewed.

AF-2 Independence of Flood Model Components*

*(*Significant Revision)*

The meteorology, hydrologic, hydraulic, vulnerability, and actuarial components of the flood model shall each be theoretically sound without compensation for potential bias from other components.

Purpose: The primary components of the flood model shall be individually sound and operate independently. In other words, the flood model shall not allow adjustments to one component to compensate for deficiencies in other components (compensation which could inflate or reduce flood loss costs and flood probable maximum loss levels). A flood model shall not meet this standard if an unjustifiable calibration or adjustment has been made to improve the match between flood model output and the flood event data sources for a specific flood event.

In addition to each component of the flood model meeting its respective flood standards, the interrelationship of the flood model components as a whole shall be reasonable, logical, and justifiable.

Relevant Form: GF-6, Actuarial Flood Standards Expert Certification

Audit

1. The flood model components will be reviewed for adequately portraying flood phenomena and effects (damage, flood loss costs, and flood probable maximum loss levels) as encountered. Attention will be paid to an assessment of the theoretical soundness of each component and the basis of the integration of each component into the flood model.

AF-3 Insured Exposure*

*(*Significant Revision)*

A. Exposure locations in the flood model shall reference the Hydrologic Unit Code (HUC) hierarchical numbering system.

B. Exposure location information input into the flood model shall be verified by the modeling organization for accuracy and timeliness. The exposure location information data source shall be documented and the vintage justified.

C. If any flood model components are dependent on databases pertaining to location, a logical process shall be maintained for ensuring these components are consistent with the recent exposure location database updates.

D. Geocoding of the exposure location shall be justified.

Purpose: Flood model outputs, including flood loss costs and flood probable maximum loss levels, are sensitive to insured exposure locations and topography. Accurate insured exposure locations are necessary for projecting flood loss costs and flood probable maximum loss levels. Appropriate methods shall be used when converting location information to latitude and longitude, when associating the elevation, and when aggregating results.

Relevant Forms:
GF-7, Actuarial Flood Standards Expert Certification
GF-8, Computer Information Flood Standards Expert Certification
AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
AF-3, Personal Residential Standard Flood Policy Losses
AF-4, Flood Output Ranges

Disclosures

1. Provide a description of the geographic information system (GIS) software and tools used for geocoding.

2. List and provide a brief description of the current data sources and databases used by the geocoding component of the flood model, and the flood model components that are used when geocoding a location. Provide the effective dates corresponding to the geocoding data sources and databases.

3. Describe the process for updating the geocoding component of the flood model, including how geocoding data sources and databases are updated.

4. Describe how exposure locations are assigned to HUC designations.

5. Describe in detail how invalid location data (e.g., parcels, addresses) used by the flood model are handled.

6. Describe any methods used for subdividing or disaggregating the location input data and any variations in the treatment of populated versus unpopulated areas.

7. Describe the data, methods, and process used in the flood model to convert exposure location information to geocode locations (latitude and longitude).

8. Describe in detail the methods by which ground elevation data at the insured exposure location (e.g., building) is associated with the location databases, how consistency of ground elevation data is confirmed with location databases, and how this associated data is used in the flood model.

9. For each parameter used in the flood model, provide the horizontal and vertical projections and datum references. If any horizontal or vertical datum conversions are required, provide conversion factors, and describe the conversion methodology used.

Audit

1. Geographic displays of the spatial distribution of insured exposures will be reviewed. The treatment of any variations for populated versus unpopulated areas will be reviewed.

2. Third party vendor information, if applicable, and a complete description of the process used to create, validate, and justify geographic grids will be reviewed.

3. The process for ensuring the accuracy and timeliness of geocoding data sources and databases in the flood model will be reviewed. Documentation and vintage of the geocoding data sources and databases will be reviewed.

4. The process for ensuring consistency between geographic locations and associated elevations will be reviewed.

5. The treatment of exposures over water or other uninhabitable terrain will be reviewed.

6. The process for geocoding complete and incomplete street addresses will be reviewed.

7. The process for assigning exposure locations to HUC designations will be reviewed.

AF-4 Flood Events Resulting in Modeled Flood Losses*

*(*Significant Revision)*

A. Modeled flood loss costs and flood probable maximum loss levels shall reflect insured flood related damages from both coastal and inland flood events impacting Florida.

B. The modeling organization shall have a documented procedure for distinguishing flood-related losses from other peril losses.

Purpose: Flood loss costs and flood probable maximum loss levels shall reflect the flood losses insurers pay as a result of a flood event (coastal and inland flooding). Note: the flood event may originate outside of Florida and may involve multiple circumstances or a confluence of events (e.g., meteorological, hydrologic, and hydraulic events) that contribute to flooding in Florida. Coastal flooding includes storm tide, and inland flooding includes riverine, lacustrine, and surface water flooding.

Flood loss costs and flood probable maximum loss levels shall only include insured flood-related losses and time element flood losses in Florida resulting from an event modeled as a flood event consistent with s. 627.715, F.S., and consistent with the different flood policies, contracts, and endorsements. The event shall include all such insured flood-related damage due to a flood event causing flood loss in Florida.

Relevant Forms:
- GF-7, Actuarial Flood Standards Expert Certification
- AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
- AF-2, Statewide Standard Flood Policy Losses
- AF-3, Personal Residential Standard Flood Policy Losses
- AF-4, Flood Output Ranges
- AF-5, Percentage Change in Flood Output Ranges
- AF-6, Logical Relationship to Flood Risk (Trade Secret Item)
- AF-8, Flood Probable Maximum Loss for Florida

Disclosures

1. Describe how damage from flood model generated floods (originating either inside or outside of Florida) is excluded or included in the calculation of flood loss costs and flood probable maximum loss levels for Florida.

2. Describe how wind losses associated with coastal and inland flooding are treated in the calculation of flood loss costs and flood probable maximum loss levels for Florida.

3. Describe how the flood model considers the correlation and potential overlap of flood losses associated with coastal and inland flooding.

4. Describe which non-flood water losses are considered flood losses from water intrusion or water infiltration. Describe how water intrusion and water infiltration losses are considered in the calculation of flood loss costs and flood probable maximum loss levels for Florida.

Audit

1. The flood model will be reviewed to evaluate whether the determination of flood losses and flood probable maximum loss levels are consistent with this standard.

2. The documented procedure for distinguishing flood-only losses from other peril losses will be reviewed.

3. The documented procedure for distinguishing flood losses between coastal and inland flooding, and any adjustments for when coastal and inland flooding overlap, will be reviewed.

4. The flood model will be reviewed to determine that meteorological, hydrologic, and hydraulic events originating either inside or outside of Florida are modeled for flood losses occurring in Florida and that such effects are considered in a manner which is consistent with this standard.

5. The flood model will be reviewed to determine how the flood model takes into account any damage resulting directly and solely from wind and water infiltration.

6. The flood model will be reviewed to determine how flood losses from water intrusion are identified and calculated.

AF-5 Flood Model Input Data and Output Reports*

*(*Significant Revision)*

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.

B. All modifications, adjustments, assumptions, inputs and input file identification, and defaults necessary to use the flood model shall be actuarially sound and shall be included with the flood model output report.

C. Treatment of missing values for user inputs required to run the flood model shall be actuarially sound and described with the flood model output report.

Purpose: Modeled flood loss costs and flood probable maximum loss levels rely on certain insurance company input data assumptions. Implicit assumptions may or may not be appropriate for a given entity using the flood model, depending on the circumstances.

Different flood modeling approaches may require different input data.

Compliance with this standard will be readily demonstrated through documented rules and procedures.

Relevant Form: GF-7, Actuarial Flood Standards Expert Certification

Disclosures

1. Identify insurance-to-value assumptions and describe the methods and assumptions used to determine the property value and associated flood losses. Provide a sample calculation for determining the property value.

2. Identify depreciation assumptions and describe the methods and assumptions used to reduce insured flood losses on account of depreciation. Provide a sample calculation for determining the amount of depreciation and the actual cash value (ACV) flood losses.

3. Describe the different flood policies, contracts, and endorsements as specified in s. 627.715, F.S., that are modeled.

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

5. Disclose, in a flood model output report, the specific inputs required to use the flood model, and the options of the flood model selected for use in a personal residential property flood insurance rate filing in Florida. Include the flood model name, version identification, and platform identification on the flood model output report. All items included in the flood model output report shall be clearly labeled and defined.

6. Provide the specific set of options acceptable for use in preparing a Florida flood insurance rate filing.

7. Explain the differences in flood model data input and output required for coastal and inland flood modeling, and, if modeled or approximated, for compound flood modeling.

8. Describe the process employed to ensure the validity of insurer or other input data used for flood model inputs or for validation/verification.

9. Disclose if changing the order of the flood model input exposure data produces different flood model output or results.

10. Disclose if removing or adding policies from the flood model input file affects the flood model output or results for the remaining policies.

Audit

1. Quality assurance procedures, including methods to assure accuracy of insurance company or other input data, will be reviewed.

2. All flood model inputs and assumptions will be reviewed to determine that the flood model output report appropriately discloses all modifications, adjustments, assumptions, and defaults used to produce the flood loss costs and flood probable maximum loss levels.

3. The differences in flood model data input and output for coastal and inland flood modeling, and if modeled or approximated, for compound flood modeling, will be reviewed.

4. A live demonstration of the human-computer interface relevant to input data and output reports and corresponding nomenclature used for Florida personal residential property insurance flood rate filings shall be given.

AF-6 Flood Coverages*

*(*Significant Revision)*

A. The methods used in the calculation of building flood loss costs, including the effects of law and ordinance coverage or Increased Cost of Compliance (ICC) coverage, shall be actuarially sound.

B. The methods used in the calculation of appurtenant structure flood loss costs shall be actuarially sound.

C. The methods used in the calculation of contents flood loss costs shall be actuarially sound.

D. The methods used in the calculation of time element flood loss costs shall be actuarially sound.

Purpose: A reasonable representation of personal residential building, appurtenant structure, contents, and time element flood losses is necessary in order to address how the different flood policies, contracts, and endorsements handle flood losses.

Relevant Form: GF-7, Actuarial Flood Standards Expert Certification

Disclosures

1. Describe the methods used in the flood model to calculate flood loss costs for building coverage associated with personal residential properties.

2. Describe the methods used in the flood model to calculate flood loss costs for appurtenant structure coverage associated with personal residential properties.

3. Describe the methods used in the flood model to calculate flood loss costs for contents coverage associated with personal residential properties.

4. Describe the methods used in the flood model to calculate flood loss costs for time element coverage associated with personal residential properties.

5. Describe the methods used in the flood model to account for law and ordinance coverage and ICC coverage associated with personal residential properties.

Audit

1. The methods used to produce building, appurtenant structure, contents, and time element flood loss costs will be reviewed.

2. The treatment of law and ordinance coverage will be reviewed, including the 25% and 50% coverage options for personal residential policies, if accounted for in the flood model.

3. The treatment of ICC coverage will be reviewed, if accounted for in the flood model.

AF-7 Flood Policy Limits and Deductibles*

*(*Significant Revision)*

A. The methods used in the development of mathematical models to reflect the effects of deductibles, policy limits, and flood policy exclusions shall be actuarially sound.

B. Deductible calculations for flood loss costs shall be actuarially sound.

C. The relationship among the modeled deductibles for flood loss costs shall be reasonable.

Purpose: For a given flood event and personal residential policy type, flood losses may fall below the deductible or above the policy limit; and therefore, the distribution of flood losses is important.

Section 627.715, F.S., presents a number of options regarding deductibles and loss settlement options. Flood policy exclusions are also an important consideration.

The determination of insurance coverage for a condo unit owners policy is dependent upon the contractual responsibility of the condo unit owner or condo unit renter and that of the condominium association and the building owner. It is important that these responsibilities be appropriately accounted for in modeling flood loss cost projections and flood probable maximum loss levels.

Relevant Forms: GF-7, Actuarial Flood Standards Expert Certification
AF-4, Flood Output Ranges
AF-5, Percentage Change in Flood Output Ranges
AF-6, Logical Relationships to Flood Risk (Trade Secret Item)

Disclosures

1. Describe the methods used in the flood model to treat deductibles, policy limits, and insurance-to-value criteria when projecting flood loss costs and flood probable maximum loss levels. Discuss data or documentation used to validate the method used by the flood model.

2. Specify the loss settlement options available for manufactured homes (i.e., replacement cost value, actual cash value).

3. Describe if and how the flood model treats policy exclusions and loss settlement provisions.

Audit

1. The extent that historical data are used to develop mathematical models of deductibles, policy limits, policy exclusions, and loss settlement provisions for flood coverage will be reviewed.

2. The extent that historical data are used to validate the flood model results will be reviewed.

3. Justification for the changes from the current accepted flood model in the relativities among corresponding deductible amounts for the same coverage will be reviewed.

AF-8 Flood Loss Outputs and Logical Relationships to Risk*

*(*Significant Revision)*

A. Flood loss costs shall not exhibit an illogical relation to risk, nor shall flood loss costs exhibit a significant change when the underlying risk does not change significantly.

B. Flood loss costs cannot increase as the building flood damage resistance increases, all other factors held constant.

C. Flood loss costs cannot increase as flood hazard mitigation measures incorporated in the building increase, all other factors held constant.

D. Flood loss costs shall be consistent with the effects of major flood control measures, all other factors held constant.

E. Flood loss costs cannot increase as the flood resistant design provisions increase, all other factors held constant.

F. Flood loss costs cannot increase as building code enforcement increases, all other factors held constant.

G. Flood loss costs shall decrease as deductibles increase, all other factors held constant.

H. The relationship of flood loss costs for individual coverages (e.g., building, appurtenant structure, contents, and time element) shall be consistent with the coverages provided.

I. Flood output ranges shall be logical for the type of risk being modeled and apparent deviations shall be justified.

J. All other factors held constant, flood output ranges produced by the flood model shall in general reflect lower flood loss costs for buildings that have a higher elevation versus those that have a lower elevation.

Purpose: Modeled flood loss costs shall vary according to risk. If the risk of loss due to floods is higher for one area or building type, then the flood loss costs shall also be higher. Likewise, if there is no difference in risk, there shall be no difference in flood loss costs. Flood loss costs not having these properties do not have a logical relationship to risk.

Changes to the flood output ranges resulting from revisions to the flood model shall be reasonable. This standard requires that the impacts on flood loss costs be attributable to revisions to the flood model.

Relevant Forms:
- GF-7, Actuarial Flood Standards Expert Certification
- HHF-1, Historical Coastal and Inland Event Flood Extent and Elevation or Depth Validation Maps
- SF-2, Examples of Flood Loss Exceedance Estimates (Coastal and Inland Combined)
- AF-1, Zero Deductible Personal Residential Standard Flood Policy Loss Costs
- AF-2, Statewide Standard Flood Policy Losses
- AF-3, Personal Residential Standard Flood Policy Losses
- AF-4, Flood Output Ranges
- AF-5, Percentage Change in Flood Output Ranges
- AF-6, Logical Relationships to Flood Risk (Trade Secret Item)
- AF-8, Flood Probable Maximum Loss for Florida

Disclosures

1. Provide completed Forms AF-1 and AF-3 in both Excel and PDF format.

2. Provide completed Forms AF-2, AF-4, AF-5, and AF-8 in a Submission appendix. Provide hyperlinks here to the location of the forms.

3. Provide completed Form AF-6 in a Submission appendix if not considered as Trade Secret. Provide a hyperlink here to the location of the form.

4. Explain any differences between the values provided in Form AF-8 and those provided in Form SF-2 using the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted model.

5. Explain any differences between the values provided in Form AF-8 and those provided in Form SF-2 using the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the model under review.

6. Provide an explanation for all flood loss costs that are not consistent with the requirements of this standard.

7. Provide an explanation of the differences in flood output ranges between the current accepted flood model and the flood model under review using the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted model.

Audit

1. Graphical representations of flood loss costs by Florida Modified HUC-8 will be reviewed.

2. The procedures used by the modeling organization to verify the individual flood loss cost relationships will be reviewed. Methods (including any software) used in verifying Standard AF-8 will be reviewed.

3. The flood loss cost relationships among deductible, year of construction, foundation type, number of stories, and lowest floor elevation will be reviewed. Apparent reversals in the flood output ranges and their justification will be reviewed.

4. For coastal flooding, the flood loss cost relationship with distance to the closest coast will be reviewed.

5. Justification for all changes in flood loss costs from the current accepted flood model based on the modeling-organization-specified, predetermined, and comprehensive exposure dataset used in the current accepted model will be reviewed.

6. Trade Secret Form AF-6 will be reviewed.

Form AF-1: Zero Deductible Personal Residential Standard Flood Policy Loss Costs

Purpose: This form and the associated maps illustrate the range and variation by HUC-10 of zero deductible standard flood policy loss costs across Florida for personal residential building property separately for frame owners, masonry owners, and manufactured homes.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form AF-1.

B. Provide three maps, color-coded by HUC-10 (with a minimum of seven value ranges), displaying zero deductible personal residential standard flood policy loss costs per $1,000 of exposure for frame owners, masonry owners, and manufactured homes.

Note: Standard Flood Policy in Florida is equivalent to the NFIP.

C. Provide, in the format given in the file "*2025FormAF1.xlsx*," in both Excel and PDF format, the standard flood policy loss costs, rounded to three decimal places, used to generate the maps in B. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name.

D. Create exposure sets by modeling the frame owners, masonry owners, and manufactured homes given in the table below, reported by HUC-10, as provided in the flood model. Provide the dominant county name, the HUC-10 code, and HUC-10 watershed name. Refer to the Notional Standard Flood Policy Specifications following G. for additional modeling information.

Construction	Year Built	Number of Stories	Building Limit A	Personal Property Limit B	Deductible
Frame	1989	1	100,000	40,000	0%
Masonry	1989	1	100,000	40,000	0%
Manufactured Homes	1989	1	50,000	25,000	0%

E. Explain any assumptions, deviations, and differences from the prescribed exposure information.

F. Describe if and how law and ordinance or ICC coverage is included in Form AF-1.

G. List assumptions necessary to complete Form AF-1. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

Notional Standard Flood Policy Specifications

<u>**Policy Type**</u>	<u>**Assumptions**</u>
Owners	**Coverage A = Building Property** • Replacement cost equal to Coverage A limit • Excludes all appurtenant structures **Coverage B = Personal Property (Contents)** • Actual cash value equal to Coverage B limit

- ✧ Flood loss costs per $1,000 shall be related to the Coverage A limit

Manufactured Homes	**Coverage A = Building Property** • Replacement cost equal to Coverage A limit **Coverage B = Personal Property (Contents)** • Actual cash value equal to Coverage B limit

- ✧ Flood loss costs per $1,000 shall be related to the Coverage A limit

Form AF-2: Statewide Standard Flood Policy Losses

Purpose: This form illustrates the modeling organization's ability to reasonably replicate historical flood losses for a modeling-organization-specified, predetermined, and comprehensive exposure dataset.

A. One or more automated programs or scripts shall be used to generate and format the data in Form AF-2.

B. Provide the total personal residential insured flood loss assuming zero deductible policies for individual historical flooding events using the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model and the exposure dataset for the model under review. The list of flooding events in Form AF-2 shall include meteorological and hydrologic events and circumstances occurring inside or outside of Florida that resulted in or contributed to flooding in Florida included in the modeling organization flood-event dataset (e.g., Florida and bypassing hurricanes, tropical storms that caused flood losses in Florida, non-tropical storm precipitation events that caused flood losses in Florida).

   The table below contains the tropical cyclones from HURDAT2 (Hurricane Data 2nd Generation), tropical storms, and non-tropical storm precipitation events to be included in the modeling organization flood-event dataset. The modeling organization shall populate the table with its own flood-event dataset. Each tropical cyclone, tropical storm, and non-tropical storm precipitation event have been assigned an ID number. Additional tropical cyclones, tropical storms, and non-tropical storm precipitation events included in the modeling organization flood-event dataset shall be added to the table in order of year and assigned an intermediate ID number within the bounding ID numbers. For flood events resulting in zero loss, the table entry shall be left blank.

   As defined, a bypassing (ByP) hurricane is a hurricane which does not make landfall in Florida, but produces storm surge or precipitation resulting in flooding in Florida. For the bypassing hurricanes included in the table only, the hurricane category entered is based upon the maximum sustained windspeed at closest approach to Florida as a hurricane, not the windspeed over Florida.

C. List assumptions necessary to complete Form AF-2. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

D. Provide Form AF-2 in Excel format. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form AF-2 in a Submission appendix.

ID	Flood Event Date	Year	Name	Hurricane Landfall Region as defined in *Figure 7* - Category	Personal Residential Insured Flood Losses ($) Current Accepted Model Exposure Data	Personal Residential Insured Flood Losses ($) Model Under Review Exposure Data
005	10/25/1921	1921	TampaBay06-1921	B-3		
010	09/18/1926	1926	GreatMiami07-1926	C-4/A-3		
015	09/17/1928	1928	LakeOkeechobee04-1928	C-4		
020	09/03/1935	1935	LaborDay03-1935	C-5/A-2		
025	08/31/1950	1950	Baker-1950	F-1/ByP-1		
030	09/05/1950	1950	Easy-1950	A-3		
035	10/18/1950	1950	King-1950	C-4		
040	09/26/1953	1953	Florence-1953	A-1		
045	10/09/1953	1953	Hazel-1953	B-1		
050	09/25/1956	1956	Flossy-1956	A-1		
055	09/10/1960	1960	Donna-1960	B-4		
060	09/15/1960	1960	Ethel-1960	F-1		
065	08/27/1964	1964	Cleo-1964	C-2		
070	09/10/1964	1964	Dora-1964	D-2		
075	10/14/1964	1964	Isbell-1964	B-2		
080	09/08/1965	1965	Betsy-1965	C-3		
085	06/08/1966	1966	Alma-1966	ByP-3/A-1		
090	10/04/1966	1966	Inez-1966	C-2		
095	10/19/1968	1968	Gladys-1968	A-2		
100	08/18/1969	1969	Camille-1969	F-5		
105	06/19/1972	1972	Agnes-1972	A-1		
110	09/23/1975	1975	Eloise-1975	A-3		
115	09/03/1979	1979	David-1979	C-2/E-2		
120	09/13/1979	1979	Frederic-1979	F-3/ByP-3		
125	09/02/1985	1985	Elena-1985	F-3/ByP-3		
130	11/21/1985	1985	Kate-1985	A-2		
135	10/12/1987	1987	Floyd-1987	B-1		
140	08/24/1992	1992	Andrew-1992	C-5		
145	03/13/1993	1993	Superstorm-1993	---		
150	08/02/1995	1995	Erin-1995	C-1/A-1		
155	10/04/1995	1995	Opal-1995	A-3		
160	07/19/1997	1997	Danny-1997	F-1		
165	09/03/1998	1998	Earl-1998	A-1		
170	09/25/1998	1998	Georges-1998	B-2/F-2		
175	10/15/1999	1999	Irene-1999	B-1		
180	06/04/2001	2001	Tropical Storm Allison-2001	---		
185	08/13/2004	2004	Charley-2004	B-4		
190	09/05/2004	2004	Frances-2004	C-2		

ID	Flood Event Date	Year	Name	Hurricane Landfall Region as defined in *Figure 7* - Category	Personal Residential Insured Flood Losses ($) Current Accepted Model Exposure Data	Personal Residential Insured Flood Losses ($) Model Under Review Exposure Data
195	09/16/2004	2004	Ivan-2004	F-3/ByP-3		
200	09/26/2004	2004	Jeanne-2004	C-3		
205	07/10/2005	2005	Dennis-2005	A-3		
210	08/25/2005	2005	Katrina-2005	C-1		
215	09/20/2005	2005	Rita-2005	ByP-2		
220	10/24/2005	2005	Wilma-2005	B-3		
225	08/18/2008	2008	Tropical Storm Fay-2008	---		
230	05/19/2009	2009	Unnamed Storm in East Florida-May 2009	---		
235	07/03/2013	2013	Unnamed Storm in Panhandle-July 2013	---		
240	09/02/2016	2016	Hermine-2016	A-1		
245	10/07/2016	2016	Matthew-2016	ByP-3		
250	09/10/2017	2017	Irma-2017	B-4		
255	10/08/2017	2017	Nate-2017	F-1		
260	10/10/2018	2018	Michael-2018	A-5		
265	09/04/2019	2019	Dorian-2019	ByP-2		
270	09/16/2020	2020	Sally-2020	F-2		
275	10/28/2020	2020	Zeta-2020	ByP-3		
280	11/11/2020	2020	Eta-2020	ByP-1		
285	07/07/2021	2021	Elsa-2021	ByP-1		
290	08/16/2021	2021	Tropical Storm Fred-2021	---		
295	06/04/2022	2022	Tropical Storm Alex-2022	---		
300	09/28/2022	2022	Ian-2022	B-4		
305	11/10/2022	2022	Nicole-2022	C-1		
310	04/12/2023	2023	Unnamed Storm in Fort Lauderdale-April 2023	---		
315	08/30/2023	2023	Idalia-2023	A-3		
320	06/12/2024	2024	Unnamed Storm in South Florida-June 2024	---		
325	08/05/2024	2024	Debby-2024	A-1		
330	09/27/2024	2024	Helene-2024	A-4		
335	10/10/2024	2024	Milton-2024	B-3		
Total						

Form AF-3: Personal Residential Standard Flood Policy Losses

Purpose: This form illustrates the modeling organization's ability to reasonably replicate zero deductible standard flood policy losses for a specified set of historical flood events.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form AF-3.

B. Provide the percentage of total personal residential zero deductible standard flood policy loss, rounded to four decimal places, and the modeled loss from the events listed below.

   For Part A, use the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model, and for Part B, use the exposure dataset for the model under review.

   Hurricane Andrew (1992)
   Hurricane Ivan (2004)
   Tropical Storm Fay (2008)
   Unnamed Storm in Panhandle (July 2013)
   Hurricane Matthew (2016)
   Hurricane Irma (2017)
   Hurricane Michael (2018)
   Tropical Storm Eta (2020)
   Hurricane Ian (2022)
   Unnamed Storm in Fort Lauderdale (April 2023)

C. Provide maps, color-coded by HUC-10 depicting the percentage of total personal residential standard flood policy loss from each flood event using the following interval coding:

Red	> 5%
Light Red	> 2% to 5%
Pink	> 1% to 2%
Light Pink	> 0.5% to 1%
Light Blue	> 0.2% to 0.5%
Medium Blue	> 0.1% to 0.2%
Blue	> 0% to 0.1%
Grey	0%

D. Plot the relevant storm track on each map, if applicable.

E. List assumptions necessary to complete Form AF-3. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

F. Provide, in the format given in the file *"2025FormAF3.xlsx,"* in both Excel and PDF format, the total standard flood policy losses by HUC-10. Provide the HUC-10 code, HUC-10 watershed name, and dominant county. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name.

Part A – Current Accepted Model Exposure Data

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Hurricane Andrew (1992)		Hurricane Ivan (2004)		Tropical Storm Fay (2008)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Unnamed Storm in Panhandle (July 2013)		Hurricane Matthew (2016)		Hurricane Irma (2017)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Hurricane Michael (2018)		Tropical Storm Eta (2020)		Hurricane Ian (2022)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Unnamed Storm in Fort Lauderdale (April 2023)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

Part B – Model under Review Exposure Data

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Hurricane Andrew (1992)		Hurricane Ivan (2004)		Tropical Storm Fay (2008)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Unnamed Storm in Panhandle (July 2013)		Hurricane Matthew (2016)		Hurricane Irma (2017)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Hurricane Michael (2018)		Tropical Storm Eta (2020)		Hurricane Ian (2022)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)	Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

HUC-10 Code	HUC-10 Watershed Name	Dominant County	Unnamed Storm in Fort Lauderdale (April 2023)	
			Personal Residential Modeled Loss ($)	Percent of Total Loss (%)

Form AF-4: Flood Output Ranges

Purpose: This form provides an illustration of the projected personal residential modeled standard flood policy loss costs by Florida Modified HUC-8 and provides a means to review for appropriate differentials among deductibles, coverages, and construction types.

A. One or more automated programs or scripts shall be used to generate the personal residential flood output ranges in the format shown in the file *"2025FormAF4.xlsx."*

B. Provide Form AF-4 in Excel format. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form AF-4 in a Submission appendix.

C. Provide standard flood policy loss costs, rounded to three decimal places, by Florida Modified HUC-8 (*Figures 2* and *3*). Within each Florida Modified HUC-8, standard flood policy loss costs shall be shown separately per $1,000 of exposure for frame owners, masonry owners, frame renters, masonry renters, frame condo unit owners, masonry condo unit owners, and manufactured homes. For each of these categories using HUC-10, the flood output ranges shall show the highest standard flood policy loss cost, the lowest standard flood policy loss cost, and the weighted average standard flood policy loss cost.

   For Part A, the aggregate personal residential exposure data shall be the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model, and for Part B, the exposure dataset for the model under review. Insured values and deductibles shall be based on the flood output range specifications following H.

   When calculating the weighted average flood loss costs, weight the flood loss costs by the total insured value. Include the statewide range of flood loss costs (i.e., low, high, and weighted average).

D. If a modeling organization has flood loss costs for a HUC-10 for which there is no exposure, give the flood loss costs zero weight (i.e., assume the exposure in that HUC-10 is zero). Provide a list of the HUC-10s where this occurs.

E. If a modeling organization does not have flood loss costs for a HUC-10 for which there is some exposure, do not assume such flood loss costs are zero, but use only the exposures for which there are flood loss costs in calculating the weighted average flood loss costs. Provide a list of the HUC-10s where this occurs.

F. NA shall be used in cells to signify no exposure.

G. Describe how law and ordinance or ICC coverage is included in the flood output ranges.

H. List assumptions necessary to complete Form AF-4. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

Flood Output Range Specifications

Coverage Values

Policy Type	Limit A	Deductible Coverage A	Limit B	Deductible Coverage B
Owners	100,000	1,500	40,000	1,000
Renters	---	---	50,000	1,000
Condo Unit Owners	5,000	---	50,000	500
Manufactured Homes	50,000	500	25,000	---

Policy Type | **Assumptions**

Owners

Coverage A = Building Property
- Replacement cost equal to Coverage A limit

Coverage B = Personal Property (Contents)
- Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the Coverage A limit

Renters

Coverage B = Personal Property (Contents)
- No coverage for tenant improvements
- Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the Coverage B limit

Condo Unit Owners

Coverage A = Building Property
- Replacement cost equal to Coverage A limit

Coverage B = Personal Property (Contents)
- Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the Coverage B limit

Manufactured Homes

Coverage A = Building Property
- Replacement cost equal to Coverage A limit

Coverage B = Personal Property (Contents)
- Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the Coverage A limit

Form AF-5: Percentage Change in Flood Output Ranges

Purpose: This form illustrates the impact of changes in the flood model on the flood loss cost output ranges from the current accepted flood model.

A. One or more automated programs or scripts shall be used to assist in generation and formatting the data in Form AF-5.

B. Provide Form AF-5 in Excel format. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include all Form AF-5 tables and maps in a Submission appendix.

C. Provide summaries of the percentage change in average standard flood policy loss cost output range data compiled in Form AF-4, Part A, relative to the equivalent data compiled from the current accepted flood model, in the format shown in the file *"2025FormAF5.xlsx."*

   For the percentage change in flood output ranges, provide the summary (1) by region as defined in *Figure 1* (Panhandle, North Florida, Southwest Florida, East Florida, and Southeast Florida), and (2) statewide (overall percentage change). The East Florida Region boundary in Orange and Polk Counties is based on the South Florida Water Management District boundary.

D. Provide color-coded maps by county reflecting the percentage change in the average standard flood policy loss costs with specified deductibles for frame owners, masonry owners, frame renters, masonry renters, frame condo unit owners, masonry condo unit owners, and manufactured homes from the flood output ranges as reported in the current accepted flood model.

   Counties with a negative percentage change (reduction in flood loss costs) shall be indicated with shades of blue; counties with a positive percentage change (increase in flood loss costs) shall be indicated with shades of red; and counties with no percentage change shall be grey. The larger the percentage change in the county, the more intense the color-shade.

Percentage Change in $0 Deductible Flood Output Ranges (Current Accepted Model Exposure Data)							
Region	Frame Owners	Masonry Owners	Frame Renters	Masonry Renters	Frame Condo Unit Owners	Masonry Condo Unit Owners	Manufactured Homes
Panhandle							
North							
Southwest							
East							
Southeast							
Statewide							

Percentage Change in Specified Deductible Flood Output Ranges (Current Accepted Model Exposure Data)							
Region	Frame Owners	Masonry Owners	Frame Renters	Masonry Renters	Frame Condo Unit Owners	Masonry Condo Unit Owners	Manufactured Homes
Panhandle							
North							
Southwest							
East							
Southeast							
Statewide							

Form AF-6: Logical Relationships to Flood Risk (Trade Secret Item)

Purpose: This form provides an illustration of the standard flood policy loss cost relationships among deductible, year of construction, foundation type, number of stories, lowest floor elevation, and for coastal flooding, the standard flood loss cost relationship with distance to the closest coast.

A. One or more automated programs or scripts shall be used to generate and format the exhibits in Form AF-6.

B. Provide the logical relationship to flood risk exhibits in the format shown in the file *"2025FormAF6F1.xlsx."*

C. Create exposure sets for each exhibit by modeling all of the flood coverages from the appropriate Notional Set listed in the table below at each of the locations in Location Grid F1 provided in the file *"NotionalInput25_Flood.xlsx."*

   Refer to the Notional Standard Flood Policy Specifications following L. for additional modeling information.

Exhibit	Notional Set
Deductible Sensitivity	Set 1
Reserved for Future Use	Set 2
Reserved for Future Use	Set 3
Reserved for Future Use	Set 4
Year Built Sensitivity	Set 5
Foundation Type Sensitivity	Set 6
Number of Stories Sensitivity	Set 7
Lowest Floor Elevation of Residential Structure Sensitivity	Set 8

D. Explain any assumptions, deviations, and differences from the prescribed exposure information. Explain how the treatment of unknown is handled in each sensitivity exhibit.

E. Provide a map with the Location Grid F1 points plotted.

F. Provide graphical summaries, as illustrated in *Figures 8* and *9,* to demonstrate the sensitivities for each Notional Set for three construction types (frame owners, masonry owners, and manufactured homes). When two deductible values produce nearly coincident curves, ensure that both curves are easily visible (e.g., unique line types and colors).

   In *Figure 8,* the locations along the *x*-axis are sorted left to right in descending order to the $0 deductible value. In *Figure 9*, the locations along the *x*-axis are sorted alphabetically.

Note: The *x*-axis in example *Figures 8* and *9* uses the Grid A location points from the 2021 Notional Dataset. The 2025 Notional Dataset corresponds to the Florida Modified HUC-8 subbasins. Therefore, the *x*-axis tick labels shall correspond to the Florida Modified HUC-8 subbasin labels, and the *x*-axis label shall be "Location F1 Grid Points."

G. Create an exposure set for slab foundation frame owners and masonry owners buildings, and for manufactured homes (Notional Set 6) for each of the points in Location Grid F2 provided in the file *"NotionalInput25_Flood.xlsx*,*"* and provide the standard flood policy loss cost results in the format shown in the file *"2025FormAF6F2.xlsx."*

H. Flood models shall treat points in Location Grid F1 and Location Grid F2 as coordinates that would result from a geocoding process. Flood models shall treat points by simulating flood loss at exact location or by using the nearest modeled parcel/street/cell in the flood model. Report results for each of the points in Location Grid F1 and Location Grid F2 individually, unless specified. Standard flood policy loss cost per $1,000 of exposure shall be rounded to three decimal places.

   Note: All flood deductibles are $0 except for the Deductible Sensitivity.

I. Provide a scatter plot of the coastal flood loss costs (*y*-axis) against distance to closest coast (*x*-axis).

J. Describe how law and ordinance or ICC coverage is included in the flood loss costs.

K. List assumptions necessary to complete Form AF-6. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

L. If not considered as Trade Secret, provide Form AF-6 in Excel format and in a Submission appendix. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name.

Notional Standard Flood Policy Specifications

Coverage Values

Policy Type	Limit A	Limit B
Owners	100,000	40,000
Renters	---	50,000
Condo Unit Owners	5,000	50,000
Manufactured Homes	50,000	25,000

Policy Type	**Assumptions**
Owners	**Coverage A = Building Property** • Replacement cost equal to Coverage A limit **Coverage B = Personal Property (Contents)** • Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be specified for each coverage limit

Renters	**Coverage B = Personal Property (Contents)** • No coverage for tenant improvements • Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the Coverage B limit

Condo Unit Owners	**Coverage A = Building Property** • Replacement cost equal to Coverage A limit **Coverage B = Personal Property (Contents)** • Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the Coverage B limit

Manufactured Homes	**Coverage A = Building Property** • Replacement cost equal to Coverage A limit **Coverage B = Personal Property (Contents)** • Actual cash value equal to Coverage B limit

✧ Flood loss costs per $1,000 shall be related to the coverage limit

Form AF-8: Flood Probable Maximum Loss for Florida

Purpose: This form provides an illustration of the distribution of flood losses and illustrates that appropriate calculations were used to produce both expected annual flood losses and flood probable maximum loss levels.

A. One or more automated programs or scripts shall be used to generate and format the data in Form AF-8.

B. Complete Part A using the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the current accepted model, and Part B using the modeling-organization-specified, predetermined, and comprehensive exposure dataset for the model under review.

C. Provide the expected flood loss and 10% (lower bound) and 90% (upper bound) flood loss levels for each of the Personal Residential Annual Exceedance Probabilities given in Part A.1 and Part B.1, Annual Aggregate and Part A.2 and Part B.2, Annual Occurrence.

D. Describe how the uncertainty in flood vulnerability functions has been propagated to the uncertainty in portfolio loss and how it relates to the 10% and 90% flood loss levels. If the modeling methodology does not allow the flood model to produce a viable answer for certain exceedance probabilities, state so and why.

E. List assumptions necessary to complete Form AF-8. Provide the rationale and a detailed description of how the assumptions are reflected in the flood model.

F. Provide Form AF-8 in Excel format. The file name shall include the abbreviated name of the modeling organization, the flood standards year, and the form name. Also include Form AF-8 in a Submission appendix.

Part A.1 – Personal Residential Standard Flood Policy Probable Maximum Loss for Florida Annual Aggregate (Current Accepted Model Exposure Data)

Annual Aggregate Exceedance Probability	Expected Flood Loss Level	10% Loss Level	90% Loss Level
Maximum Annual Loss			
0.001			
0.002			
0.004			
0.01			
0.02			
0.05			
0.10			
0.20			

Part A.2 – Personal Residential Standard Flood Policy Probable Maximum Loss for Florida Annual Occurrence (Model under Review Exposure Data)

Annual Occurrence Exceedance Probability	Expected Flood Loss Level	10% Loss Level	90% Loss Level
Maximum Event Loss			---
0.001			
0.002			
0.004			
0.01			
0.02			
0.05			
0.10			
0.20			

Part B.1 – Personal Residential Standard Flood Policy Probable Maximum Loss for Florida Annual Aggregate (Current Accepted Model Exposure Data)

Annual Aggregate Exceedance Probability	Expected Flood Loss Level	10% Loss Level	90% Loss Level
Maximum Annual Loss			
0.001			
0.002			
0.004			
0.01			
0.02			
0.05			
0.10			
0.20			

Part B.2 – Personal Residential Standard Flood Policy Probable Maximum Loss for Florida Annual Occurrence (Model under Review Exposure Data)

Annual Occurrence Exceedance Probability	Expected Flood Loss Level	10% Loss Level	90% Loss Level
Maximum Event Loss			---
0.001			
0.002			
0.004			
0.01			
0.02			
0.05			
0.10			
0.20			

COMPUTER/INFORMATION FLOOD STANDARDS

CIF-1 General System Traceability and Change Tracking*

*(*New Standard)*

A. Flood model meteorology, hydrologic, hydraulic, vulnerability, and actuarial requirements shall be traceable through code segments related to said requirements through CIF-3, CIF-4, CIF-5, CIF-6, and CIF-7 in sequence, and shall be demonstrated through Code Dives.

B. All source code, scripts, test code, and documentation shall be located in central repositories controlled by repository software. Repository software shall support track changes, versioning, and collaborative editing.

Purpose: To provide a method for the modeling organization to demonstrate end-to-end traceability linking the varying levels of flood model design, implementation, and testing.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Audit

1. Code Dives created and documented by the modeling organization prior to the on-site review on the flood model changes provided in Standard MF-2 Disclosure 3, Standard HHF-1 Disclosure 3, Standard VF-1 Disclosure 3, and Standard AF-1 Disclosure 3 will be reviewed. If model changes within any of these standards involve multiple topics, the on-site review pre-visit letter provided to the modeling organization shall clearly identify which specific areas of the changes should be the focus of the associated Code Dive.

2. The explicit methods employed by the modeling organization to link together various levels of abstraction of the selected requirements and their implementation will be reviewed.

3. Additional Code Dives may be initiated at the request of the Professional Team during the on-site review and will be performed within each relevant standards group as encountered.

4. The central repositories and their associated version control systems will be reviewed.

5. Verification that documentation is created separately from, and is maintained consistently with, the source code in version-controlled central repositories will be reviewed.

CIF-2 Artificial Intelligence-Based Software Engineering*

*(*New Standard)*

A. An Artificial Intelligence (AI) Policy document specifying where and how AI is used in software engineering (SWE) shall be maintained.

B. AI use within the software engineering process shall be fully documented with guidelines for:

1. Acceptable and prohibited uses of AI, including language models and generative AI within software engineering,

2. The quality checks or testing procedures in place to help mitigate potentially erroneous model output during the artificial intelligence software engineering (AI-SWE) process,

3. AI-SWE incident reporting, ongoing monitoring, and policy updates,

4. Data security and privacy concerns,

5. Use of available commercial and open-source AI-SWE tools,

6. Protocols for handling data, including collection, storage, and processing,

7. Accountability within the modeling organization for AI-SWE development, deployment, and monitoring,

8. Designation of responsible individuals or teams to oversee AI-SWE use in software engineering, and

9. Immediate reporting of any AI-SWE system malfunctions, misuse, or breaches.

C. An established review cycle to assess the AI-SWE policy relevance and effectiveness shall be maintained.

D. Training on the AI-SWE policy and the responsible use of AI shall be established and completed.

Purpose: To ensure there are clearly defined policies and procedures on what constitutes AI and its acceptable uses (e.g., development, implementation, testing, data analysis, documentation) within the software engineering process for the flood model.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosure

1. Provide a description of AI use cases for assisting in the engineering of software for the flood model.

Audit

1. The AI-SWE Policy document will be reviewed.

2. The documented procedures on AI-SWE for the flood model (e.g., development, implementation, testing, data analysis, documentation) will be reviewed.

3. The AI-SWE model types, learning algorithms, training data, testing data, measures of effectiveness, and output quality checks will be reviewed.

4. Any AI-SWE model training performed, whether fine-tuning or from scratch, will be reviewed.

CIF-3 Flood Model Documentation*

*(*Significant Revision)*

A. Flood model functionality and technical descriptions shall be formally documented in an archival format separate from the use of correspondence including emails, presentation materials, and unformatted text files.

B. All computer software relevant to the flood model shall be consistently documented and dated.

C. The following shall be maintained: (1) a table of all changes in the flood model from the current accepted flood model to the initial Submission under the 2025 flood standards, and (2) a table of all substantive changes since the initial Submission.

D. Documentation shall be created separately from the source code.

E. A list of all externally acquired, currently used, flood model-specific software and data assets shall be maintained. The list shall include (1) asset name, (2) asset version number, (3) asset acquisition date, (4) asset acquisition source, (5) asset acquisition mode (e.g., lease, purchase, open source), and (6) length of time asset has been in use by the modeling organization.

Purpose: To capture all aspects of *documenting* the flood model. Documentation enables the modeling organization personnel to create a shared, formal flood model organizational structure of all information specifically related to the flood model. This structure (1) may include many forms of media such as printed documentation, diagrams, and time-based media such as animations, and (2) may be implemented on one or more platforms.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosures

1. Provide a description of the software engineering methodologies (e.g., Scrum, Agile, Waterfall, Hybrid) utilized for the software lifecycle.

2. Document compliance with external international, national, or organizational standards and certifications, where applicable to the Computer/Information Flood Standards.

Audit

1. Modeling organization personnel, or their designated proxies, responsible for each aspect of the software (i.e., user interface, quality assurance, engineering, actuarial, verification) shall be present when the Computer/Information Flood Standards are reviewed. Internal users of the software will be interviewed.

2. Complete user documentation, including all recent updates, will be reviewed.

3. The list of all externally acquired flood model-specific software and data assets will be reviewed.

4. The tables specified in Standard CIF-3.C that contain the items listed in Standard GF-1 Disclosure 7 will be reviewed. The tables shall contain the item number in the first column. The remaining five columns shall contain specific document or file references for affected components or data relating to Computer/Information Flood Standards CIF-4, CIF-5, CIF-6, CIF-7, and CIF-9.

CIF-4 Flood Model Requirements*

*(*Significant Revision)*

A complete set of requirements for each software component, as well as for each database or data file accessed by a component, shall be maintained. Requirements shall be updated whenever changes are made to the flood model.

Purpose: To define an initial stage of flood model development. Software development begins with a thorough *specification of requirements* for each component, database, or data file accessed by a component. These requirements are frequently documented informally in natural language, with the addition of illustrations that aid both users and software engineers in specifying components, databases, or data files accessed by a component for the software product and process. Requirements drive the subsequent design (Standard CIF-5), implementation (Standard CIF-6), and verification (Standard CIF-7) of the flood model.

A typical division of requirements into categories would include:

1. ***Interface:*** For example, use the web browser Internet Explorer, with ActiveX technology, to show county and HUC maps of Florida. Allow text search commands for browsing and locating counties and HUC watersheds.

2. ***Human Factors:*** For example, HUC watershed boundaries and contents can be scaled to the extent that the average user can visually identify personal residential home exposures marked with small circles.

3. ***Functionality:*** For example, make the software design at the topmost level a data flowchart containing the following components: FLOODS, TERRAIN, FLOOD ELEVATION AND DEPTH, WAVE CONDITIONS, FLOOD EXTENT, DAMAGE, and FLOOD LOSS COSTS. Write the low-level code in Java.

4. ***Network Organization:*** For example, the use of multiple platforms, client-server layout, and cloud services.

5. ***Documentation:*** For example, use Acrobat PDF for the layout language, and add PDF hyperlinks in documents to connect the sub-documents.

6. ***Data:*** For example, store the flood vulnerability data in an Excel spreadsheet using a different sheet for each construction type.

7. ***Human Resources:*** For example, assigning individuals tasked with the six-month coding of the flood extent and depth simulation. Ask others to design the user-interface by working with the Quality Assurance team.

8. ***System Models:*** For example, models with representations of software, data, and associated human collaboration will use Business Process Model and Notation (BPMN), Unified Modeling Language (UML), or Systems Modeling Language (SysML).

9. ***Security:*** For example, store electronic backups and tapes off-site, with incremental daily backups. Password-protect all source files.

10. ***Quality Assurance:*** For example, filter new insurance company flood claims data against norms and extremes created for the last project.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosure

1. Provide a description of the flood model and platform(s) documentation for interface, human factors, functionality, system documentation, data, human and material resources, security, and quality assurance.

Audit

1. Maintenance and documentation of a complete set of requirements for each software component, database, and data file accessed by a component will be reviewed.

2. Requirements documentation specifically relating to each model change identified in Standard GF-1 Disclosure 7 will be reviewed.

CIF-5 Flood Model Organization and Component Design*

*(*Significant Revision)*

A. The following shall be maintained and documented: (1) detailed control and data flowcharts and interface specifications for each software component, (2) schema definitions for each database and data file, (3) flowcharts illustrating flood model-related flow of information and its processing by modeling organization personnel or consultants, (4) network organization, and (5) system model representations associated with (1)-(4) above. Documentation shall be to the level of components that make significant contributions to the flood model output.

B. All flowcharts (e.g., software, data, and system models) in the Submission or in other relevant documentation shall be based on (1) a referenced industry standard (e.g., UML, BPMN, SysML), or (2) a comparable internally developed standard which is separately documented.

Purpose: To *design* the flood model once requirements (Standard CIF-4) have been specified. The software system (comprised of code and data) and the business process (composed of people and information flows) are designed as a collection of interconnected components. Flood models are designed to function over networks and sometimes are embedded in more than one platform. Networks include component nodes such as router, client, server, and cloud.

Flood model components are frequently specified in hierarchical flowcharts and diagrams. Example components might include: FLOOD, TERRAIN, FLOOD ELEVATION OR DEPTH, WAVE CONDITIONS, FLOOD EXTENT, DAMAGE, and FLOOD LOSS COSTS, and the major sub-components of each. The purpose of each example component is, as follows:

1. FLOOD accepts historical flood event data sources and generates historical and stochastic flood events,

2. TERRAIN accepts topographic, bathymetric, and land use/land cover data and produces ground surface characteristics used by FLOOD ELEVATION OR DEPTH, WAVE CONDITIONS, and FLOOD EXTENT,

3. FLOOD ELEVATION OR DEPTH accepts the output from FLOOD and TERRAIN and produces a stillwater flood surface and site-specific flood depths throughout the area inundated by a flood event,

4. WAVE CONDITIONS accepts the output from FLOOD, TERRAIN, FLOOD ELEVATION OR DEPTH, and produces wave characteristics and wave elevations throughout the area inundated by a coastal flood event,

5. FLOOD EXTENT accepts the output from TERRAIN, FLOOD ELEVATION OR DEPTH, and WAVE CONDITIONS and generates the horizontal limits of flooding for a flood event,

6. DAMAGE accepts the output from FLOOD ELEVATION OR DEPTH and WAVE CONDITIONS and generates damage to personal residential property, and

7. FLOOD LOSS COSTS accepts output from DAMAGE and generates flood loss costs.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Audit

1. The following will be reviewed:

   A. A flowchart defining the process for form creation,

   B. Detailed control and data flowcharts, completely and sufficiently labeled for each component,

   C. Interface specifications for all components in the flood model,

   D. Documentation for schemas for all data files, along with field type definitions,

   E. Each network flowchart including components, sub-component flowcharts, arcs, and labels,

   F. Flowcharts illustrating flood model-related information flow among modeling organization personnel or consultants (e.g., BPMN, UML, SysML, or equivalent technique including a modeling organization internal standard), and

   G. If the flood model is implemented on more than one platform, the detailed control and data flowcharts, component interface specifications, schema documentation for all data files, and detailed network flowcharts for each platform.

2. The flowchart reference guide or industry standard reference will be reviewed.

3. Flowcharts as encountered will be reviewed for compliance with the flowchart standard.

CIF-6 Flood Model Implementation*

*(*Significant Revision)*

A. A complete procedure of coding guidelines consistent with accepted practices shall be maintained. Coding guidelines shall be referenced for each programming language used in the flood model or Submission document. Coding guidelines shall be enforced through automated tools or documented review procedures.

B. Network organization documentation shall be maintained.

C. A complete procedure used in creating, deriving, or procuring and verifying databases or data files accessed by components shall be maintained.

D. With the exception of Forms GF-1 through GF-9 and Form SF-1, all forms required by the Flood Standards Report of Activities shall be produced through an automated procedure or procedures as indicated in the respective form instructions.

E. A table of all software components affecting flood loss costs and flood probable maximum loss levels shall be maintained with the following table columns: (1) component name, (2) number of lines of code, minus blank and comment lines, and (3) number of explanatory comment lines.

F. Each component shall be sufficiently and consistently commented so that a software engineer unfamiliar with the code shall be able to comprehend the component logic at a reasonable level of abstraction.

G. The following documentation shall be maintained for all components or data modified by items identified in Standard GF-1 Disclosure 7:

1. ***A list of all equations and formulas used in documentation of the flood model with definitions of all terms and variables, and***

2. ***A cross-referenced list of implementation source code terms and variable names corresponding to items within G.1 above.***

H. Flood model code and data shall be accompanied by documented review plans, testing plans, and if needed, update plans through regularly scheduled intervals. The vintage of the flood model code and data shall be justified.

I. The static and dynamic program analysis tools used to aid in the implementation of the flood model shall be documented.

Purpose: To *implement* the flood model based on requirements (Standard CIF-4) and design (Standard CIF-5). The flood model implementation is created using computer software (i.e., code) and data. Elements formed in the design stage shall be fully traceable to components of the implementation. The design stage serves as an abstract, and often visual, representation of the underlying implementation comprised of code and data.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosure

1. Specify the hardware, operating system, and essential software required to use the flood model on a given platform.

Audit

1. Portions of the code, not necessarily related to recent changes in the flood model, will be reviewed.

2. Code and data implementations, for at least the meteorology, hydrology, hydraulics, vulnerability, and actuarial components, will be reviewed.

3. The documented coding guidelines, including procedures for ensuring readable identifiers for variables, constants, and components, and confirmation that these guidelines are uniformly implemented will be reviewed.

4. Enforcement practices for coding guidelines involving automated tooling or review procedures will be reviewed.

5. The procedure used in creating, deriving, or procuring and verifying databases or data files accessed by components will be reviewed.

6. The traceability among components at all levels of representation will be reviewed.

7. The following information will be reviewed for each component, either in a header comment block, source control database, or the documentation:

   a. Component name,
   b. Date created,
   c. Dates modified, modification rationale, and by whom,
   d. Purpose or function of the component, and
   e. Input and output parameter definitions.

8. The table of all software components as specified in Standard CIF-6.E will be reviewed.

9. Flood model components and the method of mapping to elements in the computer program will be reviewed.

10. Comments within components will be reviewed for sufficiency, consistency, and explanatory quality.

11. Unique aspects within various platforms with regard to the use of hardware, operating system, and essential software will be reviewed.

12. Network organization implementation will be reviewed.

13. Code and data review plans, testing plans, update plans, and schedules will be reviewed. Justification for the vintage of code and data will be reviewed.

14. Automated procedures used to create forms will be reviewed.

15. The use of static and dynamic program analysis tools will be reviewed.

CIF-7 Flood Model Implementation Verification*

*(*Significant Revision)*

A. General

For each component, procedures shall be maintained for verification, such as code inspections, reviews, calculation crosschecks, and walkthroughs, sufficient to demonstrate code correctness. Verification procedures shall include tests performed by modeling organization personnel other than the original component developers.

B. Component Testing

1. ***Testing software shall be used to assist in documenting and analyzing all components.***
2. ***Unit tests shall be performed and documented for each updated component.***
3. ***Regression tests shall be performed and documented on incremental builds.***
4. ***Integration tests shall be performed and documented to ensure the correctness of all flood model components. Sufficient testing shall be performed to ensure that all components have been executed at least once.***

C. Data Testing

1. ***Testing software shall be used to assist in documenting and analyzing all databases and data files accessed by components.***
2. ***Integrity, consistency, and correctness checks shall be performed and documented on all databases and data files accessed by the components.***

D. Test adequacy information shall be collected and maintained for flood model components and data. The type of adequacy measures used and level of adequacy achieved shall be sufficiently justified.

Purpose: To ensure a correct mapping from executing the implementation (Standard CIF-6) to previously specified requirements (Standard CIF-4) and design (Standard CIF-5). *Verification* requires tests to be run by varying component inputs to ensure correct output.

Relevant Form: GF-8 Computer/Information Flood Standards Expert Certification

Disclosures

1. State whether any two executions of the flood model with no changes in input data, parameters, code, and seeds of random number generators produce the same flood loss costs and flood probable maximum loss levels.

2. Provide an overview of the component testing procedures.

3. Provide a description of verification approaches used for externally acquired data, software, and models.

Audit

1. Procedures for physical unit conversion verification (e.g., knots to mph) will be reviewed.

2. The components will be reviewed for containment of sufficient logical assertions, exception-handling mechanisms, and flag-triggered output statements to test the correct values for key variables that might be subject to modification.

3. The testing software used by the modeling organization will be reviewed.

4. The component (unit, regression, integration) and data test processes and documentation will be reviewed including compliance with independence of the verification procedures.

5. Test adequacy information collected as part of the testing of flood model components and data will be reviewed.

6. Fully time-stamped, documented cross-checking procedures and results for verifying equations, including tester identification, will be reviewed. Examples include mathematical calculations versus source code implementation or the use of multiple implementations using different languages.

7. Flowcharts defining the processes used for manual and automatic verification will be reviewed.

8. Verification approaches used for externally acquired data, software, and models will be reviewed.

9. Verification procedures and output from the flood model changes identified in Standard GF-1 Disclosure 7 will be reviewed.

CIF-8 Human-Computer Interaction*

*(*Significant Revision)*

A. Interfaces shall be implemented as consistent with accepted principles and practices of Human-Computer Interaction (HCI), Interaction Design, and User Experience (UX) engineering.

B. Interface options used in the flood model shall be unique, explicit, and distinctly emphasized.

C. For an insurance company Florida rate filing, interface options shall be limited to those options found acceptable by the Commission.

Purpose: To ensure that HCI, and relevant interfaces, meet the state of the art. HCI, Interaction Design, and UX engineering focus on promoting a high degree of usability with minimal ambiguity for the user. Interface options for a current accepted flood model shall have a single option (e.g., labeled FCHLPM with the current accepted model name and version number).

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosure

1. Identify procedures used to design, implement, and evaluate interface options.

Audit

1. External and internal user interfaces will be reviewed.

2. Documentation related to HCI, Interaction Design, and UX engineering will be reviewed.

3. The decision process specifying the logic of interface option selections, when an acceptable flood model is selected, will be reviewed.

4. Consistency between Standard CIF-8.C and the flood model input form in support of a potential insurance company Florida rate filing (Standard AF-5 Disclosure 4) will be reviewed.

CIF-9 Flood Model Maintenance and Revision*

*(*Significant Revision)*

A. A clearly written policy shall be implemented for review, maintenance, and revision of the flood model and network organization, including verification and validation of revised components, databases, and data files.

B. A revision to any portion of the flood model that results in a change in any Florida personal residential flood loss cost or flood probable maximum loss level shall result in a new flood model version identification.

C. Procedures for fault and change tracking through the use of issue tracking software shall be maintained.

D. A list of all flood model versions since the initial Submission under the 2025 flood standards shall be maintained. Each flood model description shall have a unique version identification and a list of additions, deletions, and changes that define that version.

Purpose: To create a formal procedure for identifying, organizing, and *maintaining flood model versions*. Flood model software, data, and documentation are stored in an online system that tracks all editing changes by author and change date.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosures

1. Identify procedures used to review and maintain code, data, and documentation.

2. Describe the rules underlying the flood model and code revision identification systems.

3. Provide all accepted and functionally equivalent model version number and platform identifications for the current accepted flood model and the previous accepted flood model, if applicable.

Audit

1. All policies and procedures used to review and maintain the code, data, and documentation will be reviewed. For each component in the system decomposition, the installation date under configuration control, the current version identification, and the date of the most recent change(s) will be reviewed.

2. The policy for flood model revision and management will be reviewed.

3. The change tracking software will be reviewed and checked for the ability to track date and time.

4. The use of issue tracking software, for tracking changes and faults, including procedures for bug reporting and reproduction, fault localization, fault repair, and the implementation and testing of program changes will be reviewed.

5. The list of all flood model revisions as specified in Standard CIF-9.D will be reviewed.

6. The model version history over the past five years, leading up to the version submitted, will be reviewed.

CIF-10 Flood Model Security*

*(*Significant Revision)*

Security procedures shall be implemented and fully documented for (1) secure access to individual computers where the software components or data can be created or modified, (2) secure operation of the flood model by clients, if relevant, to ensure that the correct software operation cannot be compromised, (3) anti-virus software installation for all machines where all components and data are being accessed, (4) secure software engineering practices including software vulnerability mitigation procedures, and (5) secure access to documentation, software, and data in the event of a catastrophe.

Purpose: To ensure that the flood model is *secured* against unauthorized access. Security procedures are necessary to maintain an adequate, secure, and correct base for code, data, and documentation of the flood model and platforms. The modeling organization shall have a secure location supporting all code, data, and documentation. Necessary measures include, but are not limited to, (1) virus protection, (2) limited access protocols for software, hardware, and networks, and (3) backup and redundancy procedures.

Relevant Form: GF-8, Computer/Information Flood Standards Expert Certification

Disclosures

1. Describe methods used to ensure the security and integrity of the code, data, and documentation. These methods include the security aspects of each platform and its associated hardware, software, and firmware.

2. Identify certifications, if any, and external standards compliance relevant to cybersecurity.

Audit

1. The written policy for all security procedures and methods used to ensure the security of code, data, and documentation will be reviewed.

2. Documented security procedures for access, client flood model use, anti-virus software installation, and off-site procedures in the event of a catastrophe will be reviewed.

3. Secure software engineering practices, including procedures for mitigating the presence of vulnerabilities in implemented code, will be reviewed.

4. Security aspects of each platform will be reviewed.

5. Network security documentation and network integrity assurance procedures will be reviewed.

DEFINITIONS

Definitions

Definitions are listed to provide the meaning of terms used in the *Hurricane Standards Report of Activities* and the *Flood Standards Report of Activities*. Some definitions provide background information, context, and clarification for certain terms. Definitions are not intended to introduce requirements not stipulated in the standards, disclosures, forms, or audit items.

Actual Cash Value (ACV):

Cost of replacing damaged or destroyed property with comparable new property minus depreciation.

Actuary:

A highly specialized professional with mathematical and statistical sophistication trained in the risk aspects of property insurance, whose functions include the calculations involved in determining proper insurance rates, evaluating reserves, and various aspects of insurance research; a member of the Casualty Actuarial Society or Society of Actuaries with requisite experience and compliance with U.S. Qualification Standards of the American Academy of Actuaries as applicable to property catastrophe modeling.

Additional Living Expense (ALE):

If a home becomes uninhabitable due to a covered loss, ALE coverage pays for the extra costs of housing, dining expenses, etc. up to the limits for ALE in the policy.

Aggregate Data:

Summarized datasets or data summarized by using different variables (e.g., data summarizing the exposure amounts by line of business by ZIP Code is one set of aggregated data).

Annual Aggregate Loss Distribution:

Probability distribution of the sum of all losses that are expected to occur for all modeled hurricane or flood events in each year.

Annual Exceedance Probability:

Probability of an annual loss outcome greater than a specified value. Reciprocal of the return period.

Annual Occurrence Loss Distribution:

Probability distribution of the largest loss that is expected to occur for all modeled hurricane or flood events in each year.

Appurtenant Structures:

Detached buildings and other structures located on the same property as the principal insured building (e.g., detached garage, fences, swimming pools, patios). For standard flood policies, contracts, and endorsements, appurtenant structures include detached garage only, and for other flood policies, contracts, and endorsements, appurtenant structures may include detached garage and may include other detached structures.

Artificial Intelligence (AI):

Machine learning models for processing and generating text, code, data, images, audio, or video.

Artificial Intelligence-Based Software Engineering (AI-SWE):

Use of machine learning methods in artificial intelligence to implement phases of the software engineering process and workflow.

Assertion:

A logical expression specifying a program state that must exist or a set of conditions that program variables must satisfy at a particular point during program execution. Types include input assertion, loop assertion, output assertion. Assertions may be handled specifically by the programming language (i.e., with an “assert” statement) or through a condition (i.e., “if”) statement.

Astronomical Tide:

The periodic variation in sea surface that results from gravitational attraction of the sun and moon without any atmospheric influence.

Atlantic Basin:

The area including the entire North Atlantic Ocean, the Caribbean Sea, and the Gulf of America.

Audit Item:

A requirement that contains information deemed by the modeling organization as trade secret that must be satisfied during the on-site review for verification of a standard by the Professional Team.

Average Annual Loss (AAL):

The expected value of the annual aggregate loss distribution.

Bathymetry:

Spatial variation of ocean depth relative to mean sea level.

Business Process Model and Notation (BPMN):

A graphical representation for specifying business processes in a business process model.

Bypassing Hurricane:

A hurricane which does not make landfall in Florida, but produces minimum damaging windspeeds or greater on land in Florida. A Florida bypassing hurricane may make landfall in an adjacent state.

Bypassing Storm:

A tropical or non-tropical storm that causes damaging windspeeds or flooding in Florida, but does not cross the inland state boundaries or does not make landfall in Florida.

Calibration:

Process of adjusting values of model input parameters in an attempt to fit appropriate target datasets.

Catastrophe:

A natural or man-made event that causes more than $25 million in insured property losses and affects a significant number of policyholders and insurers as defined by Property Claims Services.

Characteristic, Flood:

An output of the flood model (e.g., modeled inundation or storm tide at a particular location).

Characteristic, Hurricane:

An output of the hurricane model (e.g., modeled windspeed at a particular location, track, intensity variation).

Characteristics (Output):

Resulting values or datasets which are generated by the model through a process of analyzing, evaluating, interpreting, or performing calculations on parameters (input).

Climate Adjustment:

Any modification to a dataset, parameter, or other model component to account for non-stationarity in the background climate. Such modifications may reflect internal climate variability or external forcings of the climate system.

Climate-Adjusted Model:

A model that incorporates climate adjustments.

Code:

In software engineering, computer instructions and data definitions expressed in a programming language or in a form input to an assembler, compiler, or other translator. *See also*: **Program**.

Code Dive:

An end-to-end walkthrough of a given feature implemented in the hurricane or flood model starting with the requirements that define the feature, then moving to where the feature is situated within the software architecture of the model, the implementation of the feature in the code (including relevant documentation), the testing of the feature, and any recent maintenance or revisions of the feature. The main purpose of a Code Dive is to provide the Professional Team with a means of observing the full system traceability of a feature through its inception in requirements to its testing and revision history.

Coding Guidelines:

Organization, format, and style directives in the development of programs and the associated documentation.

Coinsurance:

A specific provision used in a property insurance policy in which an insurer assumes liability only for a proportion of a loss.

Commercial Residential Property Insurance:

The type of coverage provided by condominium association, cooperative association, apartment building, and similar policies, including covering the common elements of a homeowners' association; see s. 627.4025, F.S.

Component:

One of the parts that make up a system. A component may be subdivided into other components. The terms "module," "component," and "unit" are often used interchangeably or defined to be sub-elements of one another in different ways depending on the context. For non-object-oriented software, a component is defined as the main program, a subprogram, or a subroutine. For object-oriented software, a component is defined as a class characterized by its attributes and component methods.

Component Tree:

An acyclic graph depicting the hierarchical decomposition of a software system or model. *See also*: **System Decomposition**.

Components and Cladding:

Elements of the building envelope that do not qualify as part of the main wind-force resisting system.

Concept Map:

A diagram that contains concept nodes and relations using curves or arrows, with both nodes and relations being labeled.

Conditional Tail Expectation:

Expected value of the loss above a given loss level.

Condominium Owners Policy:

The coverage provided to the condominium unit owner in a building against damage to the interior of the unit.

Control Flow:

The sequence in which operations are performed during the execution of a computer program. *Contrast with*: **Data Flow**.

Conversion Factor:

(1) The ratio of the one-minute 10-meter winds to a reference wind (e.g., another level, gradient wind, or boundary layer depth-average). (2) A constant used to convert one unit of measure to another (as in 1 knot = 1.15 mph).

Correctness:

(1) The degree to which a system or component is free from faults in its specification, design, and implementation. (2) The degree to which software, documentation, or other items comply with specified requirements.

Current Scientific Literature:

A refereed or peer-reviewed publication specific to the academic discipline involved and recognized by the academic community as an advancement or significant contribution to the literature that has not been superseded or replaced by more recent literature.

Current Technical Literature:

A publication specific to the discipline involved and recognized by the relevant community as an advancement or significant contribution that has not been superseded.

Current State of the Science:

A technique, methodology, process, or data that clearly advances or improves the science and may or may not be of a proprietary nature. Includes current scientific literature and current technical literature.

Current Accepted Model:

(1) A flood model determined acceptable under the 2021 flood standards.
(2) A hurricane model determined acceptable under the 2023 hurricane standards.

Damage:

(1) Physical harm caused to property in such a way as to impair its value, usefulness, or normal function. (2) The Commission recognizes that the question, "What is the damage to the house?" may be answered in a number of ways. In constructing their models, the modeling organizations assess losses in more than one way, depending on the use to which the information is to be incorporated in the model. A structural engineer might determine that a house is 55% damaged and consider it still structurally sound. A claims adjuster might look at the same house and determine that 55% damage translates into a total loss because the house will be uninhabitable for some time, and further, because of a local ordinance relating to damage exceeding 50%, will have to be rebuilt according to building code requirements. Since the Commission is reviewing hurricane models for purposes of residential rate filings in Florida and flood models for purposes of personal residential rate filings in Florida, loss costs must be a function of insurance damage rather than engineering damage.

Damage Ratio:

Percentage of a property damaged by an event (flood or hurricane) relative to the total cost to rebuild or replace the property of like kind and quality.

Damaging Wave Action:

Waves with sufficient energy to cause structural damage to a personal residential structure.

Data Flow:

The sequence in which data transfer, use, and transformation are performed during the execution of a computer program. *Contrast with*: **Control Flow**.

Data Validation:

Techniques to assure the needed accuracy, required consistency, and sufficient completeness of data values used in model development and revision.

Datum, Horizontal & Vertical:

The reference specifications of a measurement system, usually a system of coordinate positions on a surface (horizontal datum) or heights above or below a surface (vertical datum). A datum provides a baseline reference for numerical values associated with location or height. Common datums used in the U.S. include North American Datum, NAD27 and NAD83 (horizontal) and National Geodetic Vertical Datum, NGVD29 and National American Vertical Datum, NAVD88 (vertical).

Decay Rate:

The rate at which surface windspeeds decrease and central pressure increases in a tropical cyclone. Tropical cyclones weaken or decay as central pressure rises. Once tropical cyclones move over land, their rate of decay is affected not only because of the removal of their warm water energy source, but also because of surface roughness. The surface roughness contribution to filling is expected to vary spatially. *See also*: **Weakening**.

Deficiency:

A lack of required documentation. Some common deficiencies include failure to respond to all portions of a standard, disclosure, or form; failure to update text to the current *Hurricane Standards Report of Activities* language or the current *Flood Standard Report of Activities* language; omission of supporting scientific references; errors and contradictory material in the Submission; insufficient detail for review of methodology; and failure to follow the Acceptability Process requirements.

Demand Surge:

A sudden and generally temporary increase in material and labor costs which occurs following a catastrophic event.

Depreciation:

The decrease in the value of property over time.

Development of Vulnerability Functions:

The derivation, calibration, and validation of hurricane or flood vulnerability functions.

Discharge:

The volume of water moving through a specifically defined location or two-dimensional area over a quantity of time, usually quantified in cubic feet per second (cf/s).

Disclosure:

Information (including forms) required from the modeling organization related to a particular standard, which is not deemed as trade secret information by the modeling organization and shall be included in the Submission document.

Dry Floodproofing:

Measures that result in a building being watertight, with walls and exterior surfaces substantially impermeable to the passage of floodwater, and with structural components having the capacity to resist flood loads.

Economic Inflation:

The trended long-term increase in the costs of insurance coverages brought about by the increase in costs for the materials and services.

Elevation:

Vertical distance above or below a specific vertical datum.

Erosion (Flood Induced):

The wearing away, collapse, undermining, or subsidence of land during a flood.

Event, Flood:

A peril that results in coastal, inland, or compound flooding in Florida.

Event, Hurricane:

Hurricane that makes landfall in Florida or bypasses Florida causing damaging winds in Florida.

Exception:

A state or condition that either prevents the continuation of program execution or initiates, on its detection, a pre-defined response through the provision of exception-handling capabilities.

Exposure:

The unit of measure of the amount of risk assumed. Rates and loss costs are expressed as dollars per exposure. Sometimes the number of houses is used in homeowner's insurance as a loose equivalent.

Far-Field Pressure:

The background environmental surface pressure of a tropical cyclone far from the tropical cyclone's center. The difference between the far-field and minimum central pressure is related to the tropical cyclone maximum wind.

Filling Rate:

See: **Decay Rate**.

Finding:

An official conclusion or determination by the Commission after conducting an investigation, inquiry, or research into a specific matter.

Flag-Triggered Output Statements:

Statements that cause intermediate results (output) to be produced based on a Boolean-valued flag. This is a common technique for program testing.

Flood:

A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties, at least one of which is the policyholder's property, from:

1. Overflow of inland or tidal waters,
2. Unusual and rapid accumulation or runoff of surface waters from any source,
3. Mudflow, or
4. Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.

See s. 627.715(1)(a)5.(b), F.S.

Flood Barrier:

A structural component attached to or constructed around a building or building opening, preceding a flood event, to prevent flood waters from entering a building or area by creating a watertight barrier. Flood barriers can include permanent but movable components, such as watertight doors and seals, or temporary (removable) components, such as floodwall panels.

Flood-borne Debris:

Objects carried or moved by floodwaters into a personal residential structure and capable of causing damage to that structure.

Flood, Coastal:

Flood resulting from astronomical tides and storm surge.

Flood Conditions:

Physical characteristics associated with flooding such as extent and elevation or depth, flow velocity, waves, duration, erosion, salinity, contamination, debris.

Flood, Compound:

Coastal and inland flooding occurring coincidentally, such that the flood level at an affected location may exceed that from coastal flooding alone or inland flooding alone.

Flood Depth (Hazard):

Flood elevation minus ground elevation.

Flood Depth (Vulnerability):

Flood elevation minus lowest floor elevation. For coastal floods, flood depth is measured: (1) from the wave crest elevation or from the water surface including wave runup, or (2) from the stillwater elevation, provided however, that wave conditions are incorporated into vulnerability functions.

Flood Duration:

The length of time in which an area or building is inundated by floodwaters.

Flood Elevation:

Elevation of the water surface relative to a vertical datum. For coastal floods, the flood elevation includes wave setup (wave radiation stress) and is taken at the wave crest elevation or the water surface including wave runup, unless wave conditions are incorporated into vulnerability functions.

Flood Extent:

The horizontal limits of a given flood event, occurring where the ground elevation equals the flood elevation.

Flood Frequency:

The probability, in percentage, that a flood of a specific level will occur or be exceeded in any given year. A flood with a 1% flood frequency (i.e., 0.01 annual probability) is a flood that has a 0.01 probability of being equaled or exceeded in any year.

Flood, Inland:

Flood not of coastal origin. Inland floods typically are due to precipitation, runoff, ponding, and include riverine floods, lacustrine floods, and surface water flooding.

Flood Inundation:

The rising of a body or source of water and its overflowing onto normally dry land.

Flood, Lacustrine:

A type of inland flooding usually associated with a generally non-moving water source (e.g., lake, pond) caused by water levels rising and inundating adjacent areas with standing water.

Flood Life Cycle:

The full progression of flooding conditions, beginning with the initial flood inundation, continuing through the rise, peak, and fall of floodwaters, and ending when floodwaters have receded below the threshold set in the definition of flood.

Flood Mitigation Measure:

Any measure which reduces flood damage to a building by (1) preventing flood waters from inundating the building (e.g., elevating a building above the estimated flood elevation), or (2) decreasing the damage which flood inundation would cause to a building (e.g., elevating electrical and other flood-susceptible components of the building above the flood elevation and retrofitting the portions of the building which would be inundated with flood-resistant materials).

Flood, Riverine:

A type of inland flooding usually associated with a watercourse (e.g., river, stream) which results in water overflowing the banks of the watercourse and inundating adjacent areas with moving water. The velocity of the floodwater can be a major factor in the resulting damage and injuries associated with the flood.

Flood, Surface Water:

Flooding caused by the accumulation of above-ground water which is not associated with a specific watercourse or water body, including flooding of urban areas (e.g., streets).

Floodplain:

Any land area susceptible to being inundated by floodwaters from any source.

Floodwater:

The water that inundates an area during a flood, usually containing debris and possible contaminants.

Flow Velocity:

The velocity of water as it moves within a channel or over land, usually quantified in feet per second (ft/s).

Flowchart:

A diagram that visually depicts information moving through a system identified by iconic representations of components. Components are interconnected by pathways frequently represented by arrows. Examples of flowcharts are flow of data and control, and flow of information in a system comprised of people and machines.

Footprint, Flood:

The horizontal extent inundated by flood.

Footprint, Hurricane:

A plan view map of the highest wind velocities over the storm episode.

Frequency Distribution:

Division of a sample of observations into a number of classes together with the number of observations in each class.

Function:

(1) In programming languages, a subprogram, usually with formal parameters, that produces a data value that it returns to the place of the invocation. A function may also produce other changes through the use of parameters. (2) A specific purpose of an entity or its characteristic action.

Functionality:

The degree to which the intended function of an entity is realized. *See also*: **Function**.

Fundamental Engineering Principles:

The basic engineering tools, physical laws, rules, or assumptions from which other engineering tools can be derived.

Geocoding:

Assignment of a location to geographic coordinates.

Geographic Grid:

An array of cells used to define geographic space. Each cell stores a numeric value that represents a geographic attribute (e.g., elevation) for that unit of space. Data from the grid cells can be compiled into a set of contours or used to create a three-dimensional surface. When the grid is drawn as a map, cells are often assigned colors according to their numeric value. Each grid cell is referenced by its x, y coordinate location.

Geographic Information System (GIS):

An integrated collection of computer software and data used to review and manage information about geographic places, analyze spatial relationships, and model spatial processes. A GIS provides a framework for gathering and organizing spatial data and related information so that it can be displayed and analyzed.

Geographic Location Data:

Information related to the geocoding process within the model software.

Ground Up Loss:

Loss to a structure or location prior to the application of a deductible, policy limit, coinsurance penalty, depreciation, exclusion, or other policy provision.

Guaranteed Replacement Cost:

A policy provision in which the insurer agrees to pay losses on a replacement cost basis even if in excess of the policy limit.

Gust Factor:

The ratio between the peak wind gust of a specific duration to the corresponding mean windspeed for a period of time.

Homeowner Insurance Policy (HO):

A package policy for the homeowner that typically combines protection on the structure and contents, additional living expense protection, and personal liability insurance. Typically, homeowner's policies do not cover flood.

HUC-8, Florida Modified:

A modified version of the USGS HUC-8 subbasin boundaries from the Watershed Boundary Dataset (WBD) used for reporting modeled results. Subbasins have been trimmed at the Florida state line and predominately trimmed at the coastal shoreline. Resulting smaller subbasins at the northern Florida state line have been merged into downstream subbasins (Lower Conecuh and Escambia; Pea and Lower Choctawhatchee; Lower Chattahoochee and Lower Flint and Apalachicola; and Alapaha and Upper Suwannee), while some larger subbasins have been subdivided (Lower St. Johns, Daytona-St. Augustine, Upper St. Johns, Crystal-Pithlachascotee, Kissimmee, Peace, Florida Southeast Coast, and Florida Bay-Florida Keys). The Florida Modified HUC-8 boundaries are provided in shapefile format in the file "*FLmodHUC8_boundaries.zip.*"

HUC-8, HUC-10, HUC-12:

Modeling organization developed or refined hydrologic units (HUs) identified by the corresponding USGS HUC designation. Modeling organizations may refine these HUs or define their own.

Human-Computer Interaction (HCI):

A multidisciplinary field focusing on the interactions between humans (i.e., users) and computer technology. The principles of HCI focus on the design of user interfaces and common design guidelines for improving the usability of user interfaces.

Human Factors:

Study of the interrelationships between humans, the tools they use, and the environment in which they live and work. *See also*: **User Interface**.

Hurricane:

A tropical cyclone in which the maximum one-minute average windspeed at 10-meters height is 74 miles per hour or greater.

Hurricane Mitigation Measure:

A factor or function that improves a structure's resistance to wind, water infiltration, or missile impact.

Hydraulic Structure:

A submerged or partially submerged structure that conveys, controls, or modifies the natural flow of water (e.g., bridges, culverts, canals).

Hydrologic Unit Code (HUC):

The designation assigned to a hydrologic unit in the watershed boundary dataset by the USGS which describes where the unit is located geographically and the level of subdivision of the unit. HUCs are designated by hierarchical numbers, with smaller subdivisions consisting of 2 additional digits: 8 digits for subbasins (HUC-8), 10 digits for watersheds (HUC-10), and 12 digits for subwatersheds (HUC-12).

Implementation:

The process of transforming a design specification into a system realization with components in hardware, software, and humanware. *See also*: **Code**.

Increased Cost of Compliance (ICC):

Coverage offered by the National Flood Insurance Program (up to $30,000) to help cover the costs of bringing a home or business into compliance with local community floodplain management ordinance or regulations during repairs or reconstruction.

Incremental Build:

A system development strategy that begins with a subset of required capabilities and progressively adds functionality through a cyclical build and test approach.

Independent:

Characteristic or event which is unaffected by the existence of another characteristic or another event.

Inflow Angle:

The angle that near-surface tropical cyclone wind vectors make with respect to the azimuthal direction about the storm center. The angle is measured inward toward the storm center. It is a parameter used to transform assumed circular tropical cyclone winds to inward directed winds appropriate for the near surface.

Initial Soil Conditions:

Conditions (generally related to moisture content) of a soil preceding a precipitation or flood event, which affect the soil infiltration rate and maximum infiltration volume. The initial conditions of soil can have a large impact on precipitation runoff, due to the ability (or inability) of the soil to absorb water. Initial moisture conditions of a soil can be affected by groundwater levels or recent precipitation events.

Inquiry:

Fact-finding process used by the Commission to gather information to understand a specific issue and develop informed recommendations for standards, disclosures, audit items, and forms.

Insurance Policy:

A contractual document which defines the amount and scope of insurance provided by the insurer resulting in a transfer of risk.

Insurance to Value:

The relationship between the amount of insurance to replacement cost. 100% insurance to value means that the amount of insurance equals the replacement cost.

Insured Loss:

The cost to repair/restore property after an insured event, including ALE, payable by the insurance company after the application of policy terms and limits.

Insured Primary Damage:

Damage that is not excess of or secondary to another policy, contract, or endorsement.

Integration Test:

A test to ensure the correctness of all components when operating as a whole.

Intensity:

The highest maximum sustained surface windspeed in a tropical cyclone, measured or estimated from measurements near the storm center, at a point in time. This quantity is denoted by Vmax (maximum velocity) in the Reference Hurricane Set and in the HURDAT2 database. Intensity thresholds in the Saffir-Simpson Hurricane Wind Scale are based on maximum sustained windspeed. The Reference Hurricane Set maximum sustained windspeed is typically assumed to be representative of an upstream marine roughness wind exposure for a landfalling storm, or for an upstream open terrain wind exposure for a storm already inland. *See also*: **Maximum Sustained Windspeed**.

Interactive Traceability:

In the context of computer software auditing and review, the dynamic ability to trace and verify the relationships between software artifacts (such as requirements, design elements, code, and test cases) in real-time or through user-driven interactions during an audit or review process.

Interface Specification:

An unambiguous and complete description of the meaning, type, and format of data exchanges among system components (software, hardware, and humanware). *See also*: **User Interface**.

Invariant:

A logical expression that remains true within the context of a code segment.

Inverse Barometer Effect:

A response in sea level to a change in atmospheric pressure.

Isotach:

A line of constant windspeed.

Issue:

Concerns or problems related to the operation and theoretical soundness of the hurricane or flood model, use of reasonable assumptions, and other related aspects dealing with accuracy or reliability.

Landfall:

The point at which the center of tropical cyclone circulation crosses the coastline from water to land.

Landfall Frequency Distribution:

Frequency distribution of tropical cyclones whose centers have crossed the coastline from water (Atlantic Ocean or Gulf of America) to land. For tropical cyclone paths that roughly parallel the coastline with multiple crossings, a single count of the initial crossing shall be used in the frequency distribution.

Law and Ordinance Coverage:

Coverage for loss to the undamaged portion of the building if municipal ordinance or code may require that a partially damaged building be demolished; the cost of demolition of the undamaged portions of the building, if it is mandated by the building, zoning, or land use ordinance or law; any increased expenses incurred to upgrade, repair, or replace the building with one conforming to the current building laws or ordinances.

Licensed Professional Engineer:

Professional engineer who has met specific qualification standards in education, work experience, and examinations and has been licensed by a state licensure board.

Loss Adjustment Expenses (LAE):

The expenses incurred by an insurer to adjust a claim by a policyholder. These expenses are divided into allocated loss adjustment expenses (ALAE) and unallocated loss adjustment expenses (ULAE). Allocated loss adjustment expenses are specific amounts attributable to individual claims such as attorney’s fees and court costs. Unallocated loss adjustment expenses are all other types of LAE.

Loss Costs:

The portion of the insurance premium applicable to the payment of insured losses only, exclusive of insurance company expenses and profits, per unit of insured exposure. Loss costs are generally stated per thousand dollars of exposure.

Loss Exceedance Estimate:

The loss amount which would be exceeded at a given level of probability based on a specific exposure dataset.

Lowest Floor:

The lowest floor of the lowest enclosed area, including basement, but excluding any unfinished or flood-resistant enclosure, usable solely for vehicle parking, building access, or limited storage, provided that such enclosure is not built so as to render the structure in violation of building code and floodplain management requirements.

Major Flood Control Measure:

Measure undertaken on a large scale, to reduce the presence, depth, or energy of flow or waves in areas that receive flood protection from the measure. Major flood control measures include dams, levees, and floodwalls whose failure could affect hundreds of personal residential properties or more.

Manning's *n*:

An empirically determined coefficient, also known as the Manning's Roughness Coefficient, describing the roughness of a ground and ground-cover combination.

Manufactured Home:

Type of **Mobile Home**, fabricated in a plant on or after June 15, 1976, in compliance with the federal Manufactured Home Construction and Safety Standard Act, and according to standards promulgated by the U.S. Department of Housing and Urban Development (HUD). Manufactured homes are transportable in one or more sections, eight feet or more in width and built on an integral chassis. They are designed to be used as a dwelling when set in place and connected to the required utilities and includes the plumbing, heating, air-conditioning, and electrical systems contained therein. Persons licensed by the Florida Department of Highway Safety and Motor Vehicles must perform installation. The structures are typically covered by mobile/manufactured home insurance policies (MH).

Mapping of ZIP Codes:

Representation of geographic area covered by a postal code or the centroid of the area.

Maximum Sustained Windspeed:

The highest one-minute average wind measured or estimated during some longer period of time (e.g., ten minutes or one hour) at a height of 10 meters. *See also:* **Intensity**.

Miles Per Hour (mph):

Standard unit of windspeed measurement.

Millibar (mb):

Unit of air pressure. *See also*: **Minimum Central Pressure**.

Minimum Central Pressure:

The minimum surface pressure at the center of a tropical cyclone. The atmosphere exerts a pressure force measured in millibars. Average sea level pressure is 1013.25 millibars. Tropical cyclones have low pressure at the center of the cyclone. For a tropical cyclone of a given radius, lower central pressure corresponds to stronger surface windspeeds and storm surge height. The lowest pressure ever measured in a hurricane in the Atlantic basin is 882 mb in Hurricane Wilma (2005).

Mobile Home:

Common term used to describe **Manufactured Home** (see above). Technically, mobile homes were fabricated prior to June 15, 1976. These structures are covered by mobile/ manufactured home insurance policies (MH).

Model:

A comprehensive set of formal structures, data, and components used to capture processes associated with the effects of hurricanes or floods and their impacts on personal and commercial residential properties leading to insured losses. These processes include the following:

1. Scientific and engineering representations such as equations, pseudo-codes, flowcharts, and source code,
2. All data necessary for producing such losses, and
3. System representations, involving human collaboration and communication, relating to 1. and 2.

Model Adjusted Hurricane Set:

The **Reference Hurricane Set** adjusted by a modeling organization with additional data, datasets, and modifications, excluding climate adjustments, and used to calibrate and validate modeled hurricanes impacting Florida and adjacent states.

Model Base Hurricane Set:

The hurricane set created by a modeling organization: (1) **Reference Hurricane Set**, (2) **Model Adjusted Hurricane Set**, or (3) **Model Climate-Adjusted Hurricane Set**.

Model Climate-Adjusted Hurricane Set:

The **Reference Hurricane Set** or the **Model Adjusted Hurricane Set** modified by a modeling organization to incorporate climate adjustments, which may be used to calibrate the modeled hurricanes impacting Florida and adjacent states.

Model Management:

The processes associated with the model lifecycle, including design, creation, implementation, verification, validation, maintenance, and documentation of the model.

Model Organization:

The structure of components in a program/system, their interrelationships, and the principles and guidelines governing their design and evolution over time.

Model Revision:

The process of changing a model to correct discovered faults, add functional capability, respond to technology advances, or prevent invalid results or unwarranted uses. *See also:* **Regression Test**.

Model Validation:

A comparison between model behavior and empirical (i.e., physical) behavior.

Model Verification:

Assuring that the series of transformations, initiating with requirements and concluding with an implementation, follow the prescribed software development process.

Modeling Organization:

An entity encompassing the requisite qualifications and experience (as found in Hurricane Standard G-2 and Flood Standard GF-2) that organize resources to develop and maintain any models that have the potential for improving the accuracy or reliability of the hurricane loss projections used in residential insurance rate filings or flood loss projections used in personal residential insurance rate filings.

Modular Home:

Dwelling manufactured off-site and erected/assembled on-site in accordance with Florida Building Code requirements. All site related work (erection, assembly, and other construction at the site, including all foundation work, utility connection, etc.) is subject to local permitting and inspections. Modular homes are typically covered by homeowner insurance policies (i.e., HO-3).

National Flood Insurance Program (NFIP):

The program of flood insurance coverage and floodplain management administered under the National Flood Insurance Act of 1968 (and any amendments to it), and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B.

NFIP Flood Model:

A collection of hydrologic and hydraulic analyses adopted by a community as part of an NFIP Flood Insurance Study (FIS).

National Geodetic Vertical Datum of 1929 (NGVD29):

A vertical datum, established in 1929 and renamed in 1973, derived from observed mean sea level at 26 tide gauges in the United States and Canada, and a series of benchmarks established across the United States from those tide gauges.

National Weather Service (NWS):

A division of the National Oceanic and Atmospheric Administration (NOAA).

Network Organization:

A configuration of computer-based nodes and communication links which connect nodes.

Non-Tropical Storm:

A storm that does not exhibit the full meteorological characteristics of a tropical cyclone. Such storms include, but are not limited to, sub-tropical cyclones, post-tropical cyclones, and remnant lows with partial tropical origins; mid-latitude cyclones and frontal systems of non-tropical origin; and isolated precipitation phenomena such as mesoscale convective systems, deep convection, or land-sea breeze circulations.

North American Vertical Datum of 1988 (NAVD88):

A vertical datum, established in 1991, derived from measurements taken in the United States, Canada, and Mexico to address changes in land surface and the resulting elevation distortions due to the motion of the earth’s crust, postglacial rebound, and ground subsidence.

Notional:

Theoretical or hypothetical information provided for completion of select Submission forms (e.g., Forms A-6 and AF-6).

Order of Operations:

Sequence that determines the order in which mathematical operations are performed in calculations involving more than one operation.

Parameter, Flood

An input to the flood model (e.g., radius of maximum wind, LULC, precipitation rate).

Parameter, Hurricane:

An input (generally stochastic) to the hurricane model (e.g., radius of maximum wind, maximum sustained windspeed, profile factor, instantaneous speed, direction of motion).

Parameters (Input):

Values entered into the model which are used, singularly or in combination, to calculate a characteristic (output).

Parcel:

Official land boundary defining the legal extent of a property.

Peak Gust:

Highest 10-meter winds recorded, generally in a 2- to 3-second interval.

Peak Hurricane Intensity:

Maximum one-minute sustained, 10-meter winds near the center of the hurricane over the lifetime of a hurricane. *See also*: **Intensity**.

Percolation:

The slow movement of water through the pores in soil or permeable rock, usually occurring under mostly saturated conditions.

Personal Property Insurance:

Coverage provided by homeowners or renters insurance policies that covers the cost of repairing or replacing contents (e.g., furniture, clothing, electronics, other personal possessions both inside and outside a home) if damaged, stolen, or destroyed due to a covered event.

Personal Residential Property Insurance:

The type of coverage provided by homeowner's, manufactured homeowner's, dwelling, tenant's, condominium unit owner's, cooperative unit owner's, and similar policies; see s. 627.4025, F.S.

Planetary Boundary Layer (PBL) Models:

Mathematical and statistical representations of the planetary boundary layer (PBL). The PBL is the bottom layer of the atmosphere that is in contact with the surface of the earth. Its properties are highly influenced by frictional contact with the surface. The PBL is often turbulent and ranges in depth from tens of meters to several kilometers depending on time of day and surface geography.

Platform:

The unique combination of hardware, operating system, and essential software required as a base for the model implementation.

Position:

Latitude and longitude of a tropical cyclone's center.

Premium:

The consideration paid or to be paid to an insurer for the issuance and delivery of any binder or policy of insurance; see s. 627.041(2), F.S. Premium is the amount charged to the policyholder and includes all taxes and commissions.

Pressure Field:

The spatial distribution of sea level pressure associated with a storm. Typically, the sea level pressure increases radially from a minimum at the storm center until it is indistinguishable from the environmental background pressure.

Probable Maximum Loss (PML):

Given an annual probability, the loss that is likely to be exceeded on a particular portfolio of residential exposures in Florida. Modeling organizations can determine the PML on various bases depending on the needs of the user.

Professional Engineer:

A person engaged in the professional practice of rendering service or creative work requiring education, training, and experience in engineering sciences and the application of special knowledge of the mathematical, physical, and engineering sciences in such professional or creative work as consultation, investigation, evaluation, planning or design of public or private utilities, structures, machines, processes, circuits, buildings, equipment or projects, and supervision of construction for the purpose of securing compliance with specifications and design for any such work (National Society of Professional Engineers).

Profile Factor:

A storm parameter input to the model that controls the radial structure of the tropical cyclone winds independently of radius of maximum wind (Rmax) and maximum sustained windspeed.

Program:

See: **Code**.

Projection, Horizontal & Vertical:

A method by which the curved surface of the earth is portrayed on a flat surface. This generally requires a mathematical transformation of the earth's latitude and longitude, and projections vary by the portion of the earth being depicted. All projections distort distance, area, shape, direction, or some combination thereof. A common horizontal projection system used in Florida is State Plane Coordinates, divided into three zones: north, east, and west. Vertical components are added to a horizontal projection (x, y coordinates) to create a projected coordinate system (x, y, z coordinates).

Property Insurance:

Insurance on real or personal property of every kind, whether the property is located on land, on water, or in the air, against loss or damage from any and all perils (hazards or causes); see s. 624.604, F.S.

Proprietary:

See: **Trade Secret**.

Quality Assurance:

The responsibility and consequent procedures for achieving the targeted levels of quality in the model and the continual improvement of the model development process.

Radius of Maximum Wind (Rmax):

Radial distance from the storm center to the location of the highest maximum sustained surface windspeed anywhere in the storm at a point in time.

Rate:

The amount by which the exposure is multiplied to determine the premium; see s. 627.041(1), F.S. Rate times exposure equals premium.

Recurvature:

A change in the track of a storm that causes the storm to move continuously from west to east (rather than from east to west as in the tropics), usually also increasing in translation speed. Recurvature happens when the storm moves into the subtropical westerlies.

Refactoring:

Reviewing computer source code to improve nonfunctional attributes of the software through a continuous and sustained code improvement effort. Refactoring involves methods to reduce code complexity, improve readability and extensibility, including unit testing.

Reference Hurricane Set:

HURDAT2 date, time, position, and intensity data for the period 1900-2024.

Regression Test:

A procedure that attempts to identify new faults that might be introduced in the changes to remove existing deficiencies (correct faults, add functionality, or prevent user errors). A regression test is a test applied to a new version or release to verify that it performs the intended functions without introducing new faults or deficiencies. This procedure is not to be confused with ordinary least squares as used in statistics. *See also*: **Model Revision**.

Reinsurance:

An arrangement by which one insurer (the ceding insurer) transfers all or a portion of its risk under a policy or group of policies to another insurer (the reinsurer). Thus reinsurance is insurance purchased by an insurance company from another insurer, to reduce risk for the ceding insurer.

Replacement Cost:

The cost to replace damaged property with a new item of like kind and quality.

Requirements Specification:

A document that specifies the requirements for a system or component. Typically included are functional requirements, performance requirements, interface requirements, design requirements, quality requirements, and development standards.

Residential Property Insurance:

See s. 627.4025, F.S. *See also*: **Commercial Residential Property Insurance** and **Personal Residential Property Insurance**.

Return Period:

The reciprocal of an annual exceedance probability of a given loss or event.

Saffir-Simpson Hurricane Wind Scale:

A scale ranging from one-to-five based on a hurricane's maximum one-minute, 10-meter sustained windspeed. This scale estimates potential property damage from hurricane winds.

Saffir-Simpson Hurricane Wind Scale

Category	Sustained Winds (mph)	Damage
1	74 – 95	Minimal
2	96 – 110	Moderate
3	111 – 129	Extensive
4	130 – 156	Extreme
5	157 or higher	Catastrophic

Salinity:

The dissolved salt content of water, often expressed as a mass fraction. Typical salinity of seawater is 35 parts per thousand, but values vary due to river input, precipitation, evaporation, and other factors.

Schema:

(1) A complete description of the structure of a database pertaining to a specific level of consideration. (2) The set of statements, expressed in a data definition language, that completely describes the structure of a database.

Sea-Surface Drag Coefficient:

The ratio of the wind stress on the sea surface to the 10-meter wind kinetic energy. It is used to relate the near surface windspeed to the sea surface wind stress required for storm surge modeling. The coefficient is estimated semi-empirically and is observed to be a function of windspeed.

Semantic Network:

A graph-based knowledge representation containing nodes and relations, with both nodes and relations being labeled.

Sensitivity:

The effect that a change in the value of an input variable will have on the output of the model.

Sensitivity Analysis:

Determination of the magnitude of the change in response of a model to changes in model inputs and specifications.

Significant Model Revision:

Any revision to the model that results in changes to loss costs or probable maximum loss levels.

Significant Standard Revision:

Any non-editorial revision to a standard, disclosure, form, or audit item.

Site-Built Home:

Dwelling that is constructed on the building site in accordance with the Florida Building Code. All site related work (foundation, building, and other construction at the site, utility connection, etc.) is subject to local permitting and inspections. Site-built homes are typically covered by homeowner insurance policies (i.e., HO-3).

SLOSH:

Acronym for Sea, Lake, and Overland Surges from Hurricanes; an NWS computer model developed to estimate storm surge heights resulting from historical, hypothetical, or predicted hurricanes by taking into account the atmospheric pressure (difference between central pressure and ambient pressure far from the storm), radius of maximum wind, and track data (translation speed and direction).

Software Engineering:

The application of a systematic, disciplined, and quantifiable approach to the design, development, operation, and maintenance of software; that is, the application of engineering to software.

Soil Infiltration:

The downward entry of water into the soil or rock surface.

Soil Infiltration Rate:

The rate at which a soil under specified conditions absorbs precipitation, melting snow, or surface water, expressed in depth of water per unit of time (e.g., inches/hour). Infiltration rate usually has a rapid decline with time from the beginning of infiltration and reaches a steady state as the soil eventually becomes saturated. At this stage, the infiltration rate would be approximately equal to the percolation rate.

Special Loss Settlement:

Loss provision used by the NFIP for manufactured homes equal to the minimum of the following three quantities: replacement cost, 1.5 times actual cash value, and policy limit.

Standard Flood Insurance:

Insurance that must cover only losses from the peril of flood equivalent to that provided under a standard flood insurance policy under the NFIP. Standard flood insurance issued in Florida must provide the same coverage, including deductible and adjustment of losses, as that provided under a standard flood insurance policy under the NFIP; see s. 627.715, F.S.

Statistical Terms:

Definitions of statistical terms are available in: A Dictionary of Statistical Terms, Fifth Edition, F.H.C. Marriott, John Wiley & Sons, 1990.

Stillwater Elevation:

The elevation of the water surface (relative to a vertical datum) resulting from freshwater inputs, and where present, astronomical tides and storm surge. For coastal floods, the stillwater elevation may include wave setup (wave radiation stress) but excludes coastal wave forms (wave height, wave runup) that fluctuate above and below the stillwater elevation.

Stillwater Flood Depth:

Stillwater elevation minus ground elevation.

Storm Center:

The point within a tropical cyclone around which the winds rotate.

Storm Heading:

The direction towards which a storm is moving. Angle is measured clockwise from north (0°) so that east is 90°, etc.

Storm Surge:

An abnormal rise in sea level accompanying a storm, and whose height is the difference between the observed level of the sea surface and the level that would have occurred in the absence of the storm. Storm surge is usually estimated by subtracting the normal or astronomical tide from the observed storm tide.

Storm Tide:

The level of the sea surface including the effects of both the storm surge and the astronomical tide.

Storm Track:

The trajectory of a tropical cyclone center.

Stormwater:

Water from precipitation events which typically runs off impervious (e.g., paved) areas and is then conveyed via roadways and other impervious areas into systems of swales, ditches, pipes, channels, and ponds. Stormwater usually contains contaminants from impervious areas (e.g., oil, chemicals) and can accumulate to cause flooding during larger precipitation events.

Sub-Component:

A component that is encapsulated within another component. *See also*: **Component Tree**.

Surface Roughness, Flood:

Irregularity of a physical surface that causes resistance to the flow of water over that surface. For water flowing over land, surface roughness relates to soil type, surface texture, land cover, and vegetation. For flood, surface roughness can be represented by the Manning's coefficient.

Surface Roughness, Hurricane:

Irregularity of a physical surface that causes resistance to the flow of wind over that surface. For wind flowing over land, surface roughness relates to the land use and land cover (e.g., grassland, trees, buildings). For wind flowing over marine or large inland waters, surface roughness depends on windspeed and the irregularity of the sea surface. Surface irregularity is commonly represented by a roughness length, which is the theoretical height (m) above the surface at which the wind velocity is zero. *See also:* **Surface Roughness, Marine.**

Surface Roughness, Marine:

Irregularity of the water surface due to the interaction of wind, waves, swell, and current. *See also:* **Surface Roughness, Hurricane.**

Surface Windspeed:

Windspeed observed or calculated at a reference height of 10 meters.

System Decomposition:

The hierarchical division of a system into components. *See also*: **Component Tree**.

Systems Modeling Language (SysML):

A general-purpose modeling language for systems engineering applications that supports the specification, analysis, design, verification, and validation of a broad range of systems and systems-of-systems.

Terrain:

Surface region surrounding a site including topographic features such as ground elevation, vegetation or trees, and bodies of water, and for wind, structures (height and density).

Test:

A phase in the software (model) development process that focuses on the examination and dynamic analysis of execution behavior. Test plans, test specifications, test procedures, and test results are the artifacts typically produced in completing this phase.

Test Adequacy:

Extent to which a set of test cases covers the software's functionality, performance, and other critical aspects, ensuring the software is reliable and performs as expected. It is about defining criteria and using them to determine if enough testing has been completed.

Testing:

Software testing involves executing an implementation of the software with test data and examining the outputs of the software and its operational behavior to check that the software is performing as required. Testing is a dynamic technique of verification and validation because it works with an executable representation of the system. Typical testing approaches include unit, aggregation, regression, and functional testing.

Time Element Coverage:

Insurance for a covered event resulting in loss of use of property for a period of time. The loss is considered to be time lost, not actual property damage (e.g., business interruption, extra expense, rent and rental value, additional living expense, leasehold interest coverage).

Topography:

A detailed graphic description or representation of the natural and artificial surface features of an area of land, in a way to show relative positions and elevations, and usually not including portions of land which are always or normally submerged. *See also*: **Bathymetry**.

Traceability:

Degree to which a relationship can be established between two or more products of the development process, especially products having a predecessor-successor or primary-subordinate relationship to one another.

Trade Secret:

Information, including a formula, pattern, compilation, program, device, method, technique, or process that (1) derives independent economic value from not being generally known to and not readily ascertainable by others who can obtain economic value from its disclosure or use, and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy; see s. 688.002(4), F.S.

Translation Speed:

Speed at which a tropical cyclone's center is moving along the earth's surface.

Tropical Cyclone:

Non-frontal synoptic-scale cyclone originating over tropical or subtropical waters with organized convection and definite cyclonic surface wind circulation.

Tropical Storm:

Tropical cyclone in which the maximum one-minute average windspeed at 10-meters height ranges from 39 to 73 miles per hour inclusive.

Uncertainty Analysis:

Determination of the variation or imprecision in model output resulting from the collective variation in the model inputs.

Underwriting:

The process of identifying and classifying the potential degree of risk represented by a proposed exposure unit. Potential insureds that satisfy an insurer's underwriting standards are offered insurance or are offered a renewal while others are declined or non-renewed.

Unified Modeling Language (UML):

A standardized modeling language in software engineering using graphic notation to create visual models of software systems. This language is designed to enable software developers to specify, visualize, construct, and document artifacts in object-oriented software development.

Unit:

See: **Component**.

Unit Conversion:

Physical-based transformation (e.g., knots to mph).

Unit Test:

Each component is tested on its own, isolated from the other components in the system.

Unobstructed Flow:

For flow over water, winds with an upstream marine wind exposure. For flow over land, winds representative of an upstream open terrain wind exposure.

User:

A person who uses a computer to execute code, to provide the code with input through a user interface, or to obtain textual or visual output.

User Documentation:

Documentation describing a way in which a system or component is to be used to obtain desired results. *See also*: **User Manual**.

User Experience (UX) Engineering:

The systematic and iterative process of designing, implementing, and evaluating the interactions between humans (i.e., users) and computer technology, particularly user interfaces. UX engineering is closely related to Human-Computer Interaction, but focuses on the process that user interfaces are iteratively created, rather than the design principles that guide their initial creation.

User Interface:

An interface that enables information to be passed between a human user and hardware or software components of a computer system. *See also*: **Interface Specification**.

User Manual:

A document that presents the information necessary to employ a system or component to obtain desired results. Typically described are system or component capabilities, limitations, options, permitted inputs, expected outputs, possible error messages, and special instructions.

Validation:

The process of determining the degree to which a model or simulation is an accurate representation of the real-world from the perspective of the intended uses of the model or simulation.

Verification:

The process of determining that a model representation accurately represents the developer's conceptual description, specification, and requirements. Verification also evaluates the extent to which the model development process is based on sound and established software engineering techniques. Testing, inspections, reviews, calculation crosschecks, and walkthroughs, applied to design and code, are examples of verification techniques. *See also*: **Walkthrough**.

Version:

(1) An initial release or re-release of a computer software configuration item, associated with a complete compilation or recompilation of the computer software configuration item. (2) An initial release or complete re-release of a document, as opposed to a revision resulting from issuing change pages to a previous release. (3) An initial release or re-release of a database or file.

Version Control:

A system or process for managing changes to versions of digital artifacts such as software, documents, or data files that allows for the tracking, comparison, and restoration of previous versions, and maintains a record of modifications, contributors, and timestamps.

Vertical Datum:

A base measurement point or set of points to which elevations are referenced.

Vertical Wind Profile:

The continuous variation of tropical cyclone windspeeds with height.

Visualization:

A two- or three-dimensional graphical display, chart, or plot meant to augment or replace a numerical table.

Vmax:

The intensity of a hurricane as included in the Reference Hurricane Set and HURDAT2.

Vulnerability Assessment:

A determination as to how likely a particular insured structure is to be damaged by a hurricane or flood and an estimate of the loss potential.

Vulnerability Function (Flood):

The curve that represents the damage ratios expected at various flood depths.

Vulnerability Function (Wind):

The curve that represents the damage ratios expected at various windspeeds.

Walkthrough:

A static analysis technique in which a designer or programmer leads members of the development team and other interested parties through a segment of the documentation or code, and the participants ask questions and make comments about possible errors, violation of development standards, and other problems.

Water Infiltration (Wind):

Precipitation entering a building during a tropical cyclone, not including water intrusion caused by flood.

Water Intrusion (Flood):

Penetration of water from outside the structure into the structure, by means not included in the definition of flood (e.g., sewer back-up, groundwater). Water intrusion does not include precipitation water infiltration during a tropical cyclone, or during other precipitation events.

Watershed:

A geographic area of land where all precipitation drains to a common outlet or body of water, such as a stream, river, lake, or ocean.

Watershed Boundary Dataset (WBD):

The areal extent of surface water drainage to a point, accounting for all land and surface areas as defined by USGS. Watershed boundaries are determined solely upon science-based hydrologic principles, not favoring any administrative boundaries or special projects, nor a particular program or agency. The intent of defining hydrologic unit for the WBD is to establish a base-line drainage boundary framework, accounting for all land and surface areas.

USGS states that users should be aware that temporal changes may have occurred since the dataset was collected and that some parts of the data may no longer represent actual surface conditions. Users should not use the data for critical applications without full awareness of its limitations. The USGS appreciates acknowledgment for products derived from the data. The WBD for Florida, obtained from *https://usgs.gov/national-hydrography/access-national-hydrography-products*, is the version last modified on January 16, 2024.

Wave Crest Elevation:

Elevation (relative to vertical datum) of the top (crest) of a coastal wave. The wave crest elevation must be above the stillwater elevation.

Wave Height:
The vertical distance between the crest and the preceding trough of a wave.

Wave Proxy:
A characterization that accounts for the presence of waves without modeling waves explicitly.

Wave Runup:
The rush of water up a slope or structure face. Wave runup occurs as waves break and run up above the stillwater elevation.

Wave Runup Elevation:
Elevation (relative to vertical datum) that a wave runs up a slope or structure face. The wave runup elevation must be above the stillwater elevation.

Wave Setup (Wave Radiation Stress):
Super-elevation of the water surface over normal storm surge elevation due to onshore mass transport of water by wave action alone.

Weakening:
A reduction in the maximum one-minute sustained 10-meter winds. *See also*: **Decay Rate**.

Wet Floodproofing:
Measures that allow floodwaters to enter a building while preventing or providing resistance to flood damage to the building and its contents.

Windfield:
Two-dimensional plan view or snapshot map of the wind velocity field associated with a tropical cyclone at a point in time. Visualizations typically include windspeed contours (isotachs) and streamlines representing wind direction.

Wind Exposure:
The frictional regime of the wind at a given location determined by the weighted effect of upstream roughness elements on the flow measured in surface roughness (meters).

ZIP Code Centroid, Geographic:
The geographic center of a ZIP Code.

ZIP Code Centroid, Population-Weighted:
Geographic point that represents the average location of a population within a ZIP Code.

REFERENCES

References

(These references are applicable to the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.)

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INQUIRIES

INQUIRIES

The Commission finds that since its activities are ongoing, it is appropriate to set out a list of matters which the Commission determines are subjects for further inquiry or investigation. These matters may be discussed during any Commission or committee meeting. This list is not intended to be all-inclusive. The Commission anticipates that other matters will be added as they are identified. The Commission also notes that matters as set out below imply no particular order of importance and no particular order regarding timing.

The Professional Team shall provide a report detailing its findings and conclusions regarding the inquiries to the Commission prior to committee meetings.

ACTIVE INQUIRIES

There are no active inquiries at this time.

PREVIOUS INQUIRIES

There have been no previous inquiries.

APPENDICES

Acronyms

(These acronyms are applicable to the *Hurricane Standards Report of Activities* or the *Flood Standards Report of Activities*.)

AAL	Average Annual Loss
ACV	Actual Cash Value
AI	Artificial Intelligence
AIR	AIR Worldwide Corporation (now Verisk)
AI-SWE	Artificial Intelligence-Based Software Engineering
ALAE	Allocated Loss Adjustment Expense
ALE	Additional Living Expense
ARA	Applied Research Associates, Inc.
ASTM	American Society for Testing and Materials
BCEGS	Building Code Effectiveness Grading Schedule
BPMN	Business Process Model and Notation
ByP	Bypassing
CDF	Cumulative Distribution Function
CF	Conversion Factor
cf/s	Cubic Feet per Second
Ch.	Chapter
Citizens	Citizens Property Insurance Corporation
Commission	Florida Commission on Hurricane Loss Projection Methodology
CL	CoreLogic, Inc. (now Cotality, Inc.)
CP	Central Pressure
CS	Committee Substitute
EPR	Expected Percentage Reduction
EQE	EQECAT, Inc. (now Cotality, Inc.)
F.S.	Florida Statutes
FBC	Florida Building Code
FCHLPM	Florida Commission on Hurricane Loss Projection Methodology
FEMA	Federal Emergency Management Agency
FFP	Far-Field Pressure
FHCF	Florida Hurricane Catastrophe Fund
FIPS	Federal Information Processing Standards
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FPM	Florida Public Model
ft/s	Feet per Second
FWMD	Florida Water Management District
GIS	Geographic Information System
HB	House Bill
HCI	Human-Computer Interaction
HEC-RAS	Hydrologic Engineering Center River Analysis System
HO	Homeowners Insurance Policy
HU	Hydrologic Unit

HUC	Hydrologic Unit Code
HUC-8	8-Digit Hydrologic Unit Code
HUC-10	10-Digit Hydrologic Unit Code
HUC-12	12-Digit Hydrologic Unit Code
HUD	U.S. Department of Housing and Urban Development
HURDAT2	Hurricane Data 2nd Generation
ICC	Increased Cost of Compliance
IF	Impact Forecasting
KCC	Karen Clark & Company
LAE	Loss Adjustment Expense
LHS	Latin Hypercube Samples
LULC	Land Use Land Cover
m	Meters
mb	Millibars
MH	Manufactured Home
mi	Miles
mph	Miles per Hour
n	Manning's Roughness Coefficient
N/A	Not Applicable
NAD/NAD83	North American Datum of 1983
NAVD/NAVD88	North American Vertical Datum of 1988
NCDC	National Climatic Data Center
NFIP	National Flood Insurance Program
NGVD/NGVD29	National Geodetic Vertical Datum of 1929
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
OIR	Office of Insurance Regulation
PBL	Planetary Boundary Layer
PML	Probable Maximum Loss
r	Radius
Rmax	Radius of Maximum Wind
RMS	Risk Management Solutions, Inc. (now Moody's)
rms	Root Mean Square
ROA	Report of Activities
s.	Section of Florida Statutes
SA	Sensitivity Analysis
SB	Senate Bill
SBA	State Board of Administration
SLOSH	Sea, Lake, and Overland Surges from Hurricanes
SRC	Standardized Regression Coefficient
SWE	Software Engineering
SysML	Systems Modeling Language
UA	Uncertainty Analysis
ULAE	Unallocated Loss Adjustment Expense
UML	Unified Modeling Language

U.S.	United States
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
UX	User Experience
Vmax	Maximum Velocity
VSK	Verisk
VT	Translational Velocity
WBD	Watershed Boundary Dataset
WGS/WGS84	World Geodetic System of 1984
WSP	Windfield Shape Parameter
ZIP	Zone Improvement Plan

Figures

(These figures are applicable to the *Flood Standards Report of Activities*.)

Figure 1 **State of Florida by Region**

Figure 2 **Florida Modified HUC-8**

FLORIDA MODIFIED HUC-8 CODE	MERGED SUBBASIN NAME	DOMINANT COUNTY
03100204	ALAFIA	HILLSBOROUGH
03120001	APALACHEE BAY-ST. MARKS	LEON
03130014	APALACHICOLA BAY	FRANKLIN
03130011	APALACHICOLA/LOWER FLINT/LOWER CHATTAHOOCHEE	GULF
03110103	AUCILLA	JEFFERSON
03090204	BIG CYPRESS SWAMP	COLLIER
03140104	BLACKWATER	SANTA ROSA
03090205	CALOOSAHATCHEE	LEE
03080202	CAPE CANAVERAL	BREVARD
03100103	CHARLOTTE HARBOR	CHARLOTTE
03130012	CHIPOLA	JACKSON
03140102	CHOCTAWHATCHEE BAY	WALTON
03100207A	CRYSTAL-PITHLACHASCOTEE (NORTH)	CITRUS
03100207B	CRYSTAL-PITHLACHASCOTEE (CENTRAL)	PASCO
03100207C	CRYSTAL-PITHLACHASCOTEE (SOUTH)	PINELLAS
03080201A	DAYTONA-ST. AUGUSTINE (ST. JOHNS)	ST. JOHNS
03080201B	DAYTONA-ST. AUGUSTINE (FLAGLER)	FLAGLER
03080201C	DAYTONA-ST. AUGUSTINE (VOLUSIA)	VOLUSIA
03110102	ECONFINA-STEINHATCHEE	TAYLOR
03140305	ESCAMBIA/LOWER CONECUH	ESCAMBIA
03090202	EVERGLADES	MIAMI-DADE
03090203A	FLORIDA BAY-FLORIDA KEYS (ISLAMORADA)	MONROE
03090203B	FLORIDA BAY-FLORIDA KEYS (MARATHON)	MONROE
03090203C	FLORIDA BAY-FLORIDA KEYS (BIG PINE)	MONROE
03090203D	FLORIDA BAY-FLORIDA KEYS (KEY WEST)	MONROE
03090206A	FLORIDA SOUTHEAST COAST (ST. LUCIE)	ST. LUCIE
03090206B	FLORIDA SOUTHEAST COAST (MARTIN)	MARTIN
03090206C	FLORIDA SOUTHEAST COAST (PALM BEACH)	PALM BEACH

FLORIDA MODIFIED HUC-8 CODE	MERGED SUBBASIN NAME	DOMINANT COUNTY
03090206D	FLORIDA SOUTHEAST COAST (BROWARD)	BROWARD
03090206E	FLORIDA SOUTHEAST COAST (MIAMI-DADE)	MIAMI-DADE
03100205	HILLSBOROUGH	HILLSBOROUGH
03090101A	KISSIMMEE (NORTH)	ORANGE
03090101B	KISSIMMEE (CENTRAL)	OSCEOLA
03090101C	KISSIMMEE (SOUTH)	HIGHLANDS
03090201	LAKE OKEECHOBEE	PALM BEACH
03100203	LITTLE MANATEE	MANATEE
03140203	LOWER CHOCTAWHATCHEE/PEA	WASHINGTON
03120003	LOWER OCHLOCKONEE	GADSDEN
03080103A	LOWER ST. JOHNS (NORTH)	DUVAL
03080103B	LOWER ST. JOHNS (SOUTH)	CLAY
03110205	LOWER SUWANNEE	SUWANNEE
03100202	MANATEE	MANATEE
03100102	MYAKKA	SARASOTA
03070205	NASSAU	NASSAU
03130013	NEW	LIBERTY
03110203	NORTH WITHLACOOCHEE	MADISON
03090102	NORTHERN OKEECHOBEE INFLOW	OKEECHOBEE
03080102	OKLAWAHA	MARION
03100101A	PEACE (NORTH)	POLK
03100101B	PEACE (CENTRAL)	HARDEE
03100101C	PEACE (SOUTH)	DESOTO
03140105	PENSACOLA BAY	SANTA ROSA
03140106	PERDIDO	ESCAMBIA
03140107	PERDIDO BAY	ESCAMBIA
03110206	SANTA FE	UNION
03100201	SARASOTA BAY	SARASOTA
03100208	SOUTH WITHLACOOCHEE	SUMTER
03140101	ST. ANDREW-ST. JOSEPH BAYS	BAY
03070204	ST. MARYS	BAKER

FLORIDA MODIFIED HUC-8 CODE	MERGED SUBBASIN NAME	DOMINANT COUNTY
03100206	TAMPA BAY	PINELLAS
03080101A	UPPER ST. JOHNS (NORTH)	SEMINOLE
03080101B	UPPER ST. JOHNS (SOUTH)	OSCEOLA
03110201	UPPER SUWANNEE/ALAPAHA	HAMILTON
03080203	VERO BEACH	INDIAN RIVER
03110101	WACCASASSA	LEVY
03090103	WESTERN OKEECHOBEE INFLOW	GLADES
03140103	YELLOW	OKALOOSA

Figure 3 **Map of Florida Modified HUC-8**

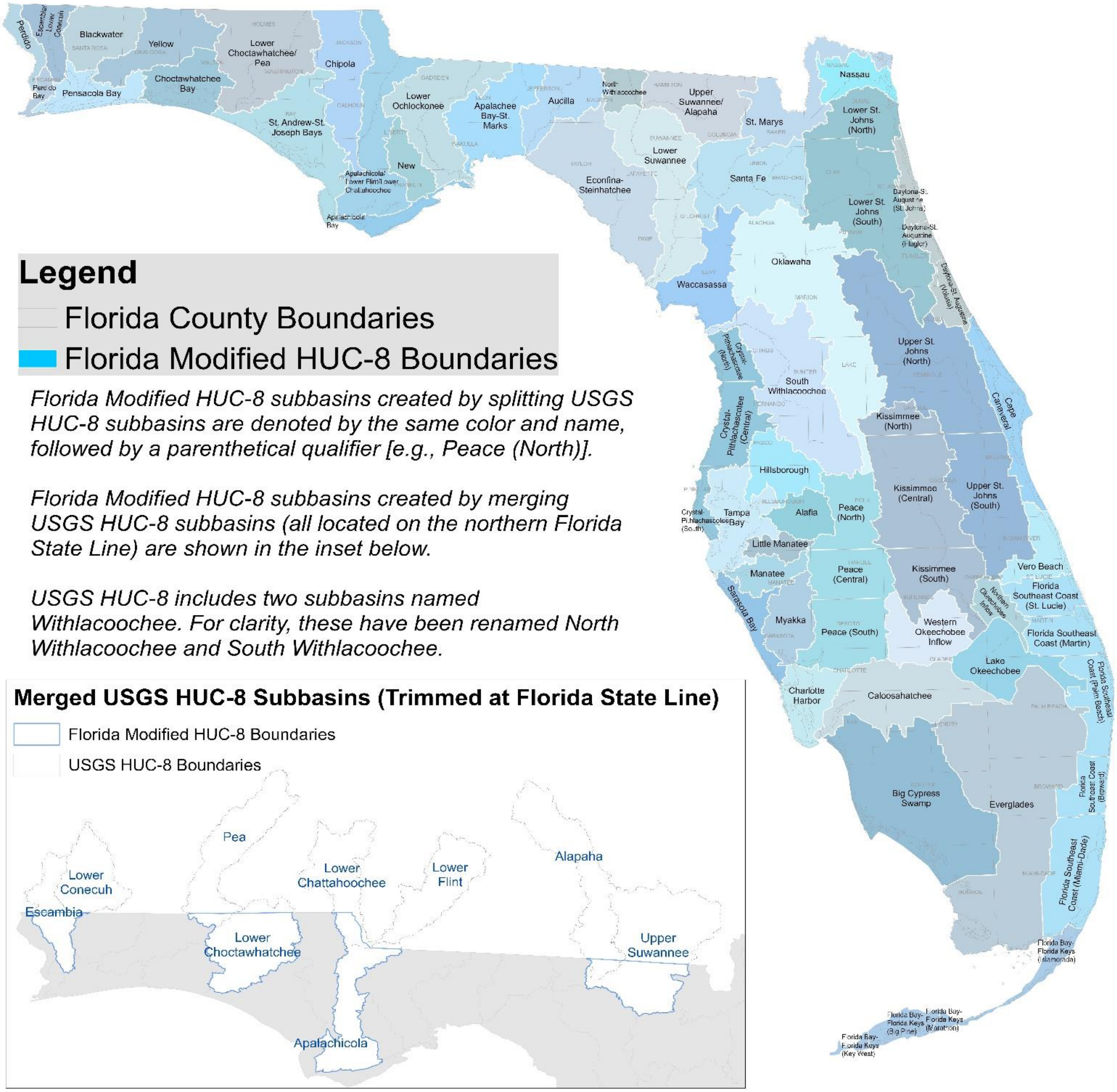


Figure 4 **Map of Florida Counties**

Source: GISGeography.com

Figure 5 **USGS 10-Digit HUC-10 Affecting Florida**

HUC-10 CODE	WATERSHED NAME
0310020403	ALAFIA RIVER
0311020210	ALAPAHOOCHEE RIVER
0314010202	ALAQUA CREEK
0311010304	ALLIGATOR CREEK-AUCILLA RIVER
0310020606	ALLIGATOR CREEK-SALT CREEK FRONTAL
0307020504	AMELIA ISLAND-ATLANTIC OCEAN
0308020107	ANASTASIA ISLAND-ATLANTIC OCEAN
0310020705	ANCLOTE RIVER
0312000112	APALACHEE BAY-GULF OF AMERICA
0313001402	APALACHICOLA BAY
0313001102	APALACHICOLA RIVER-SPRING BRANCH
0309010118	ARBUCKLE CREEK
0312000302	ATTAPULGUS CREEK
0311010305	AUCILLA RIVER – APALACHEE BAY
0308020201	BANANA RIVER-NEWFOUND HARBOR FRONTAL
0311010105	BARNETT CREEK-ROCKY CREEK FRONTAL
0314010203	BASIN BAYOU-PIPPIN LAKE FRONTAL
0314010504	BAYOU TEXAR-BAYOU GARCON FRONTAL
0314010103	BEAR CREEK
0311020304	BEAR CREEK-WITHLACOOCHEE RIVER
0314010112	BELL SHOAL-GULF OF AMERICA
0309010109	BIG BEND SWAMP
0314010404	BIG COLDWATER CREEK
0311020208	BIG CREEK
0314020309	BIG CYPRESS CREEK-CHOCTAWHATCHEE RIVER
0309020410	BIG CYPRESS SWAMP
0314030502	BIG ESCAMBIA CREEK
0314030503	BIG ESCAMBIA CREEK-ESCAMBIA RIVER
0314010403	BIG JUNIPER CREEK
0309010103	BIG SAND LAKE
0308010311	BLACK CREEK-ST. JOHNS RIVER
0308010115	BLACKWATER CREEK

HUC-10 CODE	WATERSHED NAME
0314010402	BLACKWATER RIVER
0314010606	BLACKWATER RIVER
0308010102	BLUE CYPRESS CREEK
0308010103	BLUE CYPRESS LAKE-ST. JOHNS RIVER
0309010113	BLUE JORDAN SWAMP
0311020502	BLUE SPRING-SUWANNEE RIVER
0310010304	BOCA GRANDE CHANNEL-GULF OF AMERICA
0309020613	BOCA RATON INLET-PORT EVERGLADES
0310010103	BOWLEGS CREEK
0309020214	BROAD RIVER-TAYLOR SLOUGH FRONTAL
0314020305	BRUCE CREEK
0307020302	BRUNSWICK RIVER-ATLANTIC OCEAN
0314010603	BRUSHY CREEK
0312000301	BRYANTS MILL CREEK-OCHLOCKONEE RIVER
0314020203	BUCKHORN CREEK
0310020604	BULLFROG CREEK-WOLF BRANCH FRONTAL
0314030403	BURNT CORN CREEK
0314010106	BURNT MILL CREEK FRONTAL
0314010602	BUSHY CREEK-DYAS CREEK
0309010114	BUTTERMILK SLOUGH-KISSIMMEE RIVER
0311010207	CALIFORNIA CREEK
0307020402	CALKINS CREEK-CEDAR CREEK
0309020502	CALOOSAHATCHEE RIVER HEADWATERS
0314030504	CANOE CREEK-ESCAMBIA RIVER
0308020205	CAPE CANAVERAL-ATLANTIC OCEAN
0313001403	CAPE SAINT GEORGE SHOAL-GULF OF AMERICA
0314020306	CARLISLE LAKE-CHOCTAWHATCHEE RIVER
0311020303	CAT CREEK
0311010301	CAT CREEK-AUCILLA RIVER
0314010703	CAUCUS SHOAL-GULF OF AMERICA
0313000401	CEMOCHEHOBEE CREEK-CHATTAHOOCHEE RIVER
0309010120	CHANDLER SLOUGH-KISSIMMEE RIVER
0310010111	CHARLOTTE HARBOR-PEACE RIVER
0313000408	CHATTAHOOCHEE RIVER-LAKE SEMINOLE

HUC-10 CODE	WATERSHED NAME
0313001205	CHIPOLA RIVER-TENMILE CREEK
0314010209	CHOCTAWATCHEE BAY ENTRANCE-GULF OF AMERICA
0314010208	CHOCTAWHATCHEE BAY
0308010308	CLARKS CREEK-ST. JOHNS RIVER
0310020605	COCKROACH BAY-TERRA CEIA BAY FRONTAL
0309020402	COCOHATCHEE RIVER
0310010204	COCOPLUM WATERWAY
0313000405	COHEELEE CREEK-CHATTAHOOCHEE RIVER
0314030405	CONECUH RIVER
0311010302	CONNELL CREEK-AUCILLA RIVER
0309020205	CONSERVATION AREA 1
0309020206	CONSERVATION AREA 2
0309020211	CONSERVATION AREA 3A
0309020212	CONSERVATION AREA 3B
0313000803	COOLEEWAHEE CREEK
0309020616	CORAL GABLES
0309020101	CORBETT WILDLIFE MANAGEMENT AREA
0314020208	CORNER CREEK
0307020407	CORNHOUSE CREEK-SUWANNEE CANAL
0309020601	COW CREEK
0311020607	COW CREEK-SANTE FE RIVER
0313001202	COWARTS CREEK-CHIPOLA RIVER
0308010104	CRAB GRASS CREEK
0308010303	CRESCENT LAKE
0307020305	CROOKED RIVER-ATLANTIC OCEAN
0310020706	CRYSTAL BAY-GULF OF AMERICA
0310020701	CRYSTAL RIVER-HOMOSASSA RIVER FRONTAL
0309020603	CYPRESS CREEK
0311020104	CYPRESS CREEK
0310020504	CYPRESS CREEK-HILLSBOROUGH RIVER
0309010105	DAVENPORT CREEK
0313001206	DEAD LAKES
0311010210	DEADMAN BAY-GULF OF AMERICA
0311020202	DEEP CREEK

HUC-10 CODE	WATERSHED NAME
0308010112	DEEP CREEK SOUTH-ST. JOHNS RIVER
0314010105	DEER POINT LAKE
0310020803	DEVILS CREEK-WITHLACOOCHEE RIVER
0309020207	DEVILS GARDEN SLOUGH
0311020212	DIXON MILL CREEK-ALAPAHA RIVER
0310020802	DOBES HOLE LAKE-WITHLACOOCHEE RIVER
0308010313	DOCTORS LAKE-ST. JOHNS RIVER
0313000802	DRY CREEK-FLINT RIVER
0308010304	DUNN CREEK-ST. JOHNS RIVER
0309020610	EARMAN RIVER-BOYNTON INLET FRONTAL
0314010501	EAST BAY RIVER
0309020202	EAST BOLLES CANAL
0310010301	EAST CHARLOTTE HARBOR FRONTAL
0309010101	EAST LAKE TOHOPEKALIGA
0314020301	EAST PITTMAN CREEK-CHOCTAWHATCHEE RIVER
0313001108	EAST RIVER-APALACHICOLA RIVER FRONTAL
0311010201	ECOFINA RIVER
0308010110	ECONOLOCKHATCHEE RIVER
0309020401	ESTERO BAY FRONTAL
0309020213	EVERGLADES NATIONAL PARK
0309020403	FAKAHATCHEE STRAND
0311010303	FEARNSIDE LAKE
0314010302	FIVE RUNS CREEK
0314020207	FLAT CREEK
0313000808	FLINT RIVER-LAKE SEMINOLE
0309020301	FLORIDA BAY
0308010101	FORT DRUM CREEK
0308020302	FORT PIERCE INLET-INDIAN RIVER
0314010502	FUNDY BAYOU-WILLIAMS CREEK FRONTAL
0314010207	GARNIER BAYOU-CINCO BAYOU FRONTAL
0309020209	GODDENS STRAND SLOUGH
0312000109	GOOSE CREEK-DICKERSON BAY FRONTAL
0311020209	GRAND BAY CREEK
0314010506	GULF ISLANDS NATIONAL SEASHORE-GULF OF AMERICA

HUC-10 CODE	WATERSHED NAME
0312000111	GUM SWAMP-PINHOOK SWAMP FRONTAL
0308010108	HALFWAY LAKE-ST. JOHNS RIVER
0309020305	HARBOR CHANNEL-GULF OF AMERICA
0311020301	HARDY MILL CREEK-WITHLACOOCHEE RIVER
0309010303	HARNEY POND CANAL
0311020203	HAT CREEK-ALAPAHA RIVER
0308010302	HAW CREEK
0309020304	HAWK CHANNEL-ATLANTIC OCEAN
0314020202	HEADWATERS PEA RIVER
0314010301	HEADWATERS YELLOW RIVER
0309020407	HENDERSON CREEK-BARRON RIVER FRONTAL
0309020611	HILLSBOROUGH CANAL
0310020502	HILLSBOROUGH RIVER HEADWATERS
0312000309	HITCHCOCK LAKE-OCHLOCKONEE RIVER
0314010204	HOGTOWN BAYOU-DESTIN HARBOR FRONTAL
0309020204	HOLEY LAND
0310010108	HORSE CREEK-PEACE RIVER
0313000804	HORSESHOE BEND-FLINT RIVER
0313001105	IAMONIA LAKE-APALACHICOLA RIVER
0311020606	ICHETUCKNEE RIVER
0309010304	INDIAN PRAIRIE CANAL
0308020202	INDIAN RIVER LAGOON
0308020304	INDIAN RIVER SHOAL-ATLANTIC OCEAN
0314010110	INTERCOASTAL WATERWAY-HARRISON BAYOU FRONTAL
0309010119	ISTOKPOGA CREEK-KISSIMMEE RIVER
0310020501	ITCHEPACKESASSA CREEK
0308010317	JACKSONVILLE BEACH-ATLANTIC OCEAN
0309010117	JOSEPHINE CREEK
0310010109	JOSHUA CREEK-PEACE RIVER
0308010120	JUMPING GULLY BRANCH-HITCHENS CREEK FRONTAL
0311020309	JUMPING GULLY CREEK-WITHLACOOCHEE RIVER
0308010118	JUNIPER CREEK-LAKE GEORGE
0310020806	JUNIPER CREEK-WITHLACOOCHEE RIVER
0308020203	KID CREEK-INDIAN RIVER FRONTAL

HUC-10 CODE	WATERSHED NAME
0309020210	KISSIMMEE BILLY STRAND
0313000402	KOLOMOKI CREEK-CHATTAHOOCHEE RIVER
0314010201	LA GRANGE BAYOU-BEAR CREEK FRONTAL
0308010203	LAKE APOPKA
0308010117	LAKE DEXTER-ST. JOHNS RIVER
0308010301	LAKE DISTON
0308010121	LAKE GEORGE-ST. JOHNS RIVER
0308010204	LAKE GRIFFIN
0310010101	LAKE HANCOCK
0308010202	LAKE HARRIS
0309010108	LAKE HATCHINEA-KISSIMMEE RIVER
0309010116	LAKE ISTOKPOGA
0312000303	LAKE JACKSON
0308010111	LAKE JESSUP
0308010119	LAKE KERR
0309010111	LAKE KISSIMMEE-KISSIMMEE RIVER
0312000104	LAKE LAFAYETTE
0309010110	LAKE MARIAN
0308010113	LAKE MONROE-ST. JOHNS RIVER
0312000106	LAKE MUNSON
0309020102	LAKE OKEECHOBEE
0309010121	LAKE OKEECHOBEE-KISSIMMEE RIVER
0309020609	LAKE OZBORNE
0310020807	LAKE PANASOFFKEE
0309010107	LAKE PIERCE
0309010112	LAKE ROSALIE
0310020810	LAKE ROUSSEAU-WITHLACOOCHEE RIVER
0308010207	LAKE STAFFORD
0312000308	LAKE TALQUIN
0309010104	LAKE TOHOPEKALIGA
0308010106	LAKE WASHINGTON-ST. JOHNS RIVER
0313001107	LAKE WIMICO
0309010102	LAKE WINDER-ST. JOHNS RIVER
0308010107	LAKE WINDER-ST. JOHNS RIVER

HUC-10 CODE	WATERSHED NAME
0308010116	LAKE WOODRUFF
0309020208	LARD CAN SLOUGH
0310020103	LEMON BAY FRONTAL
0308010210	LEVY LAKE
0308010305	LEVYS PRAIRIE
0311020211	LITTLE ALAPHA RIVER
0314030406	LITTLE ESCAMBIA CREEK
0312000304	LITTLE RIVER
0311020504	LITTLE RIVER-SUWANNEE RIVER
0310020102	LITTLE SARASOTA BAY FRONTAL
0307020303	LITTLE SATILLA RIVER
0310020804	LITTLE WITHLACOOCHEE RIVER
0312000103	LLOYD CREEK
0310010110	LONG ISLAND MARSH
0309020411	LOPEZ RIVER-LOSTMANS RIVER FRONTAL
0312000108	LOST CREEK
0313000404	LOWER ABBIE CREEK
0313000806	LOWER BIG SLOUGH
0309020506	LOWER CALOOSAHATCHEE RIVER FRONTAL
0310010106	LOWER CHARLIE CREEK
0313001303	LOWER CROOKED RIVER
0314010102	LOWER ECOFINA CREEK
0311010204	LOWER FENHOLLOWAY RIVER-SMITH MCCULLAH CREEK FRONTAL
0309010302	LOWER FISHEATING CREEK
0313000807	LOWER FLINT RIVER
0309020303	LOWER FLORIDA KEYS
0310020603	LOWER HILLSBOROUGH RIVER-DELANEY CREEK FRONTAL
0314020308	LOWER HOLMES CREEK
0310020302	LOWER LITTLE MANATEE RIVER
0309020606	LOWER LOXAHATCHEE RIVER
0311020506	LOWER MALLORY SWAMP-SUWANNEE RIVER
0310020202	LOWER MANATEE RIVER
0314030404	LOWER MURDER CREEK
0310010205	LOWER MYAKKA RIVER

HUC-10 CODE	WATERSHED NAME
0307020503	LOWER NASSAU RIVER FRONTAL
0313001304	LOWER NEW RIVER
0311020306	LOWER OKAPILCO CREEK
0314020209	LOWER PEA RIVER
0314010607	LOWER PERDIDO RIVER
0307020304	LOWER SATILLA RIVER-ATLANTIC OCEAN
0314010307	LOWER SHOAL RIVER
0312000311	LOWER SOPCHOPPY RIVER
0312000110	LOWER ST. MARKS RIVER
0307020409	LOWER ST. MARYS RIVER
0311010208	LOWER STEINHATCHEE RIVER-PINE LOG CREEK FRONTAL
0309010203	LOWER TAYLOR CREEK-EAGLE BAY FRONTAL
0312000307	LOWER TELOGIA CREEK
0311010104	LOWER WACASASSA RIVER
0312000102	LOWER WARDS CREEK
0309020608	LOWER WEST PALM BEACH CANAL
0314010308	LOWER YELLOW RIVER
0311020507	MANATEE SPRINGS-SUWANNEE RIVER
0313001201	MARSHALL CREEK
0310020702	MASON CREEK-BLIND CREEK FRONTAL
0308010105	MELBOURNE TILLMAN CANAL-ST. JOHNS RIVER
0313001203	MERRITTS MILLPOND-CHIPOLA RIVER
0309020504	MIDDLE CALOOSAHATCHEE RIVER
0310020505	MIDDLE HILLSBOROUGH RIVER
0310010203	MIDDLE MYAKKA RIVER
0313001302	MIDDLE NEW RIVER
0314020206	MIDDLE PEA RIVER
0314010604	MIDDLE PERDIDO RIVER
0307020401	MIDDLE PRONG ST. MARYS RIVER
0307020406	MIDDLE ST. MARYS RIVER
0311010103	MIDDLE WACASASSA RIVER
0314010304	MIDDLE YELLOW RIVER
0314010109	MILL BAYOU-LAIRDS BAYOU FRONTAL
0311020201	MILL CREEK-ALAPAHA RIVER

HUC-10 CODE	WATERSHED NAME
0313001204	MILL CREEK-CHIPOLA RIVER
0311020501	MILL CREEK-SUWANNEE RIVER
0314020311	MITCHELL RIVER-CHOCTAWHATCHEE RIVER FRONTAL
0310020601	MOCCASIN CREEK-DOUBLE BRANCH FRONTAL
0313001101	MOSQUITO CREEK
0308020204	MOSQUITO LAGOON
0311020207	MUD CREEK-ALAPAHA RIVER
0311010205	MULLET CREEK-DALLUS CREEK FRONTAL
0310010201	MYAKKA RIVER HEADWATERS
0309020405	NAPLES FRONTAL
0311020302	NEW RIVER
0311020602	NEW RIVER
0309020612	NEW RIVER CANAL
0311010101	NEWBERRY DRAIN
0310020808	NICHOLS POND
0309020501	NINEMILE CANAL
0309020614	NORTH BISCAYNE BAY
0308010307	NORTH DEEP CREEK-ST. JOHNS RIVER
0308010310	NORTH FORK OF BLACK CREEK
0309020602	NORTH FORK OF THE ST. LUCIE RIVER
0310020401	NORTH PRONG OF THE ALAFIA RIVER
0307020403	NORTH PRONG ST. MARYS RIVER
0309010202	NUBBIN SLOUGH
0313001103	OCHEESEE CREEK-APALACHICOLA RIVER
0312000312	OCHLOCKONEE BAY-APALACHEE BAY
0308010214	OCKLAWAHA LAKE
0309020409	OKALOACOOCHEE SLOUGH
0311020101	OKEEFENOKEE SWAMP
0308010205	OKLAWAHA CANAL
0311020604	OLUSTEE CREEK-SUWANNEE RIVER
0313000406	OMUSEE CREEK
0308010213	ORANGE CREEK
0308010212	ORANGE LAKE
0308010314	ORTEGA RIVER-ST. JOHNS RIVER

HUC-10 CODE	WATERSHED NAME
0308010201	PALATLAKAHA RIVER
0310020101	PALMA SOLA BAY-ROBERTS BAY FRONTAL
0308010312	PALMO COVE-ST. JOHNS RIVER
0309020412	PAVILION KEY-GULF OF AMERICA
0310010104	PAYNE CREEK-PEACE RIVER
0308010211	PAYNES PRAIRIE
0314020201	PEA CREEK
0310010102	PEACE CREEK DRAINAGE CANAL
0311020503	PEACOCK SLOUGH-SUWANNEE RIVER
0314010503	PELICAN BAYOU-MULATTO BAYOU FRONTAL
0308020103	PELLICER CREEK
0308020104	PELLICER CREEK-TOMOKA RIVER FRONTAL
0314010505	PENSACOLA BAY
0314010701	PERDIDO BAY
0308010206	PETER GIBSON POND
0309020618	PIERCE SHOAL-ATLANTIC OCEAN
0314030505	PINE BARREN CREEK-ESCAMBIA RIVER
0310010303	PINE ISLAND
0309010115	PINE ISLAND SLOUGH-KISSIMMEE RIVER
0314020310	PINE LOG CREEK
0311020307	PISCOLA CREEK
0310020704	PITHLACHASCOTEE RIVER
0309020215	PONCE DE LEON BAY-GULF OF AMERICA
0314010405	POND CREEK-BLACKWATER RIVER
0314010306	POND CREEK-SHOAL RIVER
0308010209	PRIEST PRAIRIE
0308010109	PUZZLE LAKE-ST. JOHNS RIVER
0313000801	RACOON CREEK
0311020308	REDLAND CREEK-WITHLACOOCHEE RIVER
0311020205	REEDY CREEK
0309010106	REEDY CREEK SWAMP
0308010306	RICE CREEK-ST. JOHNS RIVER
0311020605	RIVER RISE-SANTE FE RIVER
0313001106	RIVER STYX

HUC-10 CODE	WATERSHED NAME
0311020107	ROBINSON CREEK-SUWANNEE RIVER
0309020406	ROCK CREEK-NAPLES BAY
0312000305	ROCKY COMFORT CREEK
0311010209	ROCKY CREEK-BUMBLEBEE CREEK FRONTAL
0314010205	ROCKY CREEK-CHOCTAWHATCHEE BAY
0311020603	ROCKY CREEK-SANTE FE RIVER
0311020106	ROCKY CREEK-SUWANNEE RIVER
0310020602	ROCKY CREEK-SWEETWATER CREEK FRONTAL
0309020408	ROOKER BAY
0308020101	ROSE BAY-SPRUCE CREEK FRONTAL
0311020204	ROUGH CREEK-ALAPAHA RIVER
0314020304	SANDY CREEK
0314010108	SANDY CREEK-EAST BAY
0311020601	SANTE FE RIVER HEADWATERS
0313000407	SAWHATCHEE CREEK-CHATTAHOOCHEE RIVER
0314030402	SHIPPS CREEK-CEDAR CREEK
0310020805	SILVER LAKE-WITHLACOOCHEE RIVER
0314030501	SIZEMORE CREEK
0309020617	SOUTH BISCAYNE BAY
0310010302	SOUTH CHARLOTTE HARBOR
0308010309	SOUTH FORK OF BLACK CREEK
0309020605	SOUTH FORK OF THE ST. LUCIE RIVER-INDIAN RIVER
0307020404	SOUTH PRONG OF ST. MARYS RIVER
0310020402	SOUTH PRONG OF THE ALAFIA RIVER
0310020809	SOUTH TSALA APOPKA LAKE-WITHLACOOCHEE RIVER
0310020608	SOUTHWEST CHANNEL-GULF OF AMERICA
0307020408	SPANISH CREEK-ST. MARYS RIVER
0311010203	SPRING CREEK
0314010111	ST. ANDREWS BAY
0313001401	ST. GEORGE SOUND
0308010316	ST. JOHNS RIVER-ATLANTIC OCEAN
0309020604	ST. LUCIE CANAL
0308020303	ST. SEBASTIAN RIVER-VERO BEACH MAIN CANAL FRONTAL
0313001104	STAFFORD CREEK-APALACHICOLA RIVER

HUC-10 CODE	WATERSHED NAME
0308010208	STROUDS CREEK-OKLAWAHA RIVER
0314010605	STYX RIVER
0311020109	SUGAR CREEK-SUWANNEE RIVER
0311020508	SUWANNEE RIVER-GULF OF AMERICA
0311020103	SUWANNOOCHEE CREEK
0311020108	SWIFT CREEK-SUWANNEE RIVER
0309020615	TAMIAMI CANAL
0310020607	TAMPA BAY
0313001305	TATES HELL SWAMP-CASH CREEK FRONTAL
0311020102	TATUM CREEK
0309020505	TELEGRAPH SWAMP
0307020502	THOMAS CREEK
0308020105	TOLOMATO RIVER
0308020106	TOLOMATO RIVER-MOSES CREEK FRONTAL
0308020102	TOMOKA RIVER
0311020105	TOMS CREEK-SUWANNEE RIVER
0310010107	TROUBLESOME CREEK-PEACE RIVER
0308010315	TROUT CREEK-ST. JOHNS RIVER
0310020811	TSALA APOPKA LAKE-WITHLACOOCHEE RIVER
0314010206	TURKEY CREEK-CHOCTAWHATCHEE BAY
0313001306	TURKEY POINT-GULF OF AMERICA
0311010106	TURTLE CREEK-VASSEY CREEK FRONTAL
0307020301	TURTLE RIVER
0309020404	UNION CANAL
0313000403	UPPER ABBIE CREEK
0313000805	UPPER BIG SLOUGH
0314010401	UPPER BLACKWATER RIVER
0309020503	UPPER CALOOSAHATCHEE RIVER
0310010105	UPPER CHARLIE CREEK
0314010101	UPPER ECOFINA CREEK
0311010202	UPPER FENHOLLOWAY RIVER
0309010301	UPPER FISHEATING CREEK
0309020302	UPPER FLORIDA KEYS
0310020503	UPPER HILLSBOROUGH RIVER

HUC-10 CODE	WATERSHED NAME
0314020307	UPPER HOLMES CREEK
0310020301	UPPER LITTLE MANATEE RIVER
0309020607	UPPER LOXAHATCHEE SLOUGH
0311020505	UPPER MALLORY SWAMP-SUWANNEE RIVER
0310020201	UPPER MANATEE RIVER
0314030401	UPPER MURDER CREEK
0310010202	UPPER MYAKKA RIVER
0307020501	UPPER NASSAU RIVER
0313001301	UPPER NEW RIVER
0311020305	UPPER OKAPILCO CREEK
0314020205	UPPER PEA RIVER
0314010601	UPPER PERDIDO RIVER
0314010305	UPPER SHOAL RIVER
0312000310	UPPER SOPCHOPPY RIVER
0312000105	UPPER ST. MARKS RIVER
0307020405	UPPER ST. MARYS RIVER
0311010206	UPPER STEINHATCHEE RIVER
0309010201	UPPER TAYLOR CREEK
0312000306	UPPER TELOGIA CREEK
0311010102	UPPER WACASASSA RIVER
0312000101	UPPER WARDS CREEK
0309020201	UPPER WEST PALM BEACH CANAL
0314010303	UPPER YELLOW RIVER
0310020104	VENICE INLET-GULF OF AMERICA
0311010107	WACCASASSA BAY-GULF OF AMERICA
0312000107	WAKULLA SPRINGS
0310020703	WEEKI WACHI RIVER-DOUBLE HAMMOCK CREEK FRONTAL
0308010114	WEKIVA RIVER
0308020301	WEST BELCHER CANAL
0309020203	WEST BOLLES CANAL
0314020303	WEST PITTMAN CREEK-CHOCTAWHATCHEE RIVER
0314010107	WETAPPO CREEK-INTERCOASTAL WATERWAY FRONTAL
0314010104	WHITE OAK CREEK
0314030506	WHITE RIVER-ESCAMBIA RIVER

HUC-10 CODE	WATERSHED NAME
0314020204	WHITEWATER CREEK
0311020206	WILLACOOCHEE RIVER
0310020801	WITHLACOOCHEE SWAMP
0314010702	WOLF BAY FRONTAL
0314020302	WRIGHTS CREEK
0309020306	YACHT CHANNEL-GULF OF AMERICA

Figure 6 **Map of USGS HUC-8 and HUC-10 Affecting Florida**

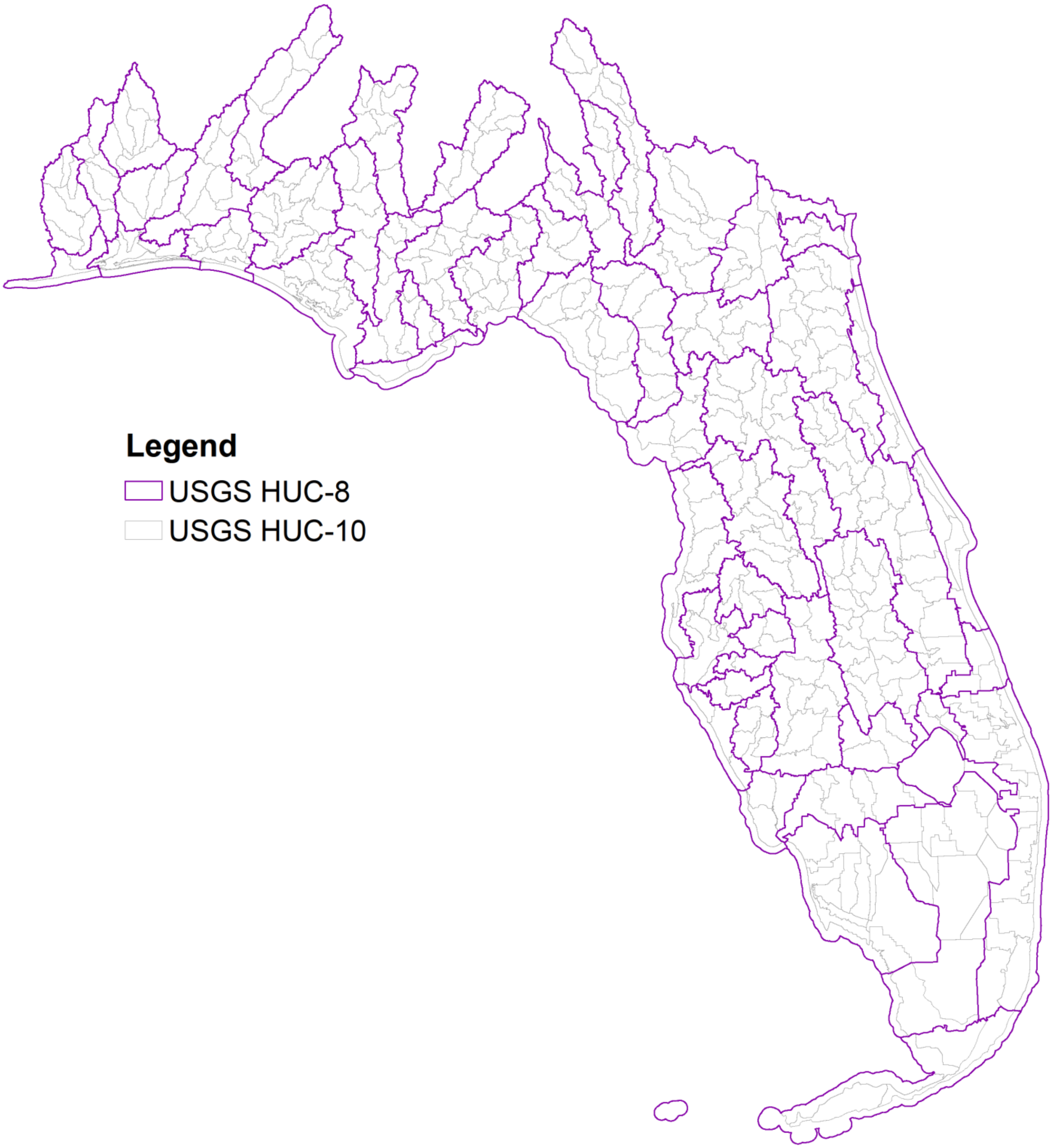


Figure 7 **State of Florida and Neighboring States by Region**

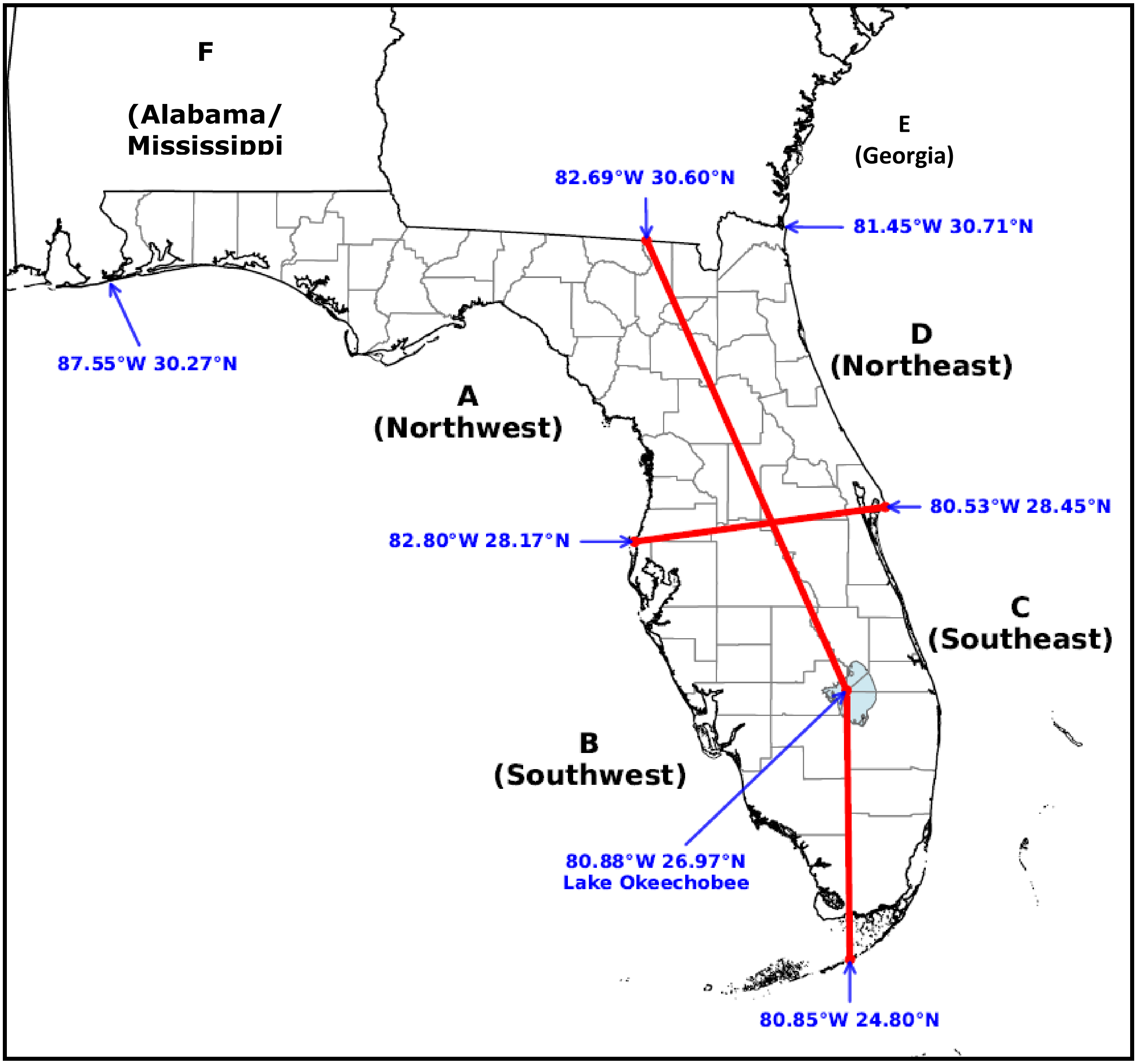


Figure 8 **Notional Set 1 – Deductible Sensitivities, Frame Owners (*x*-axis ordered by 0% deductible decreasing values)**

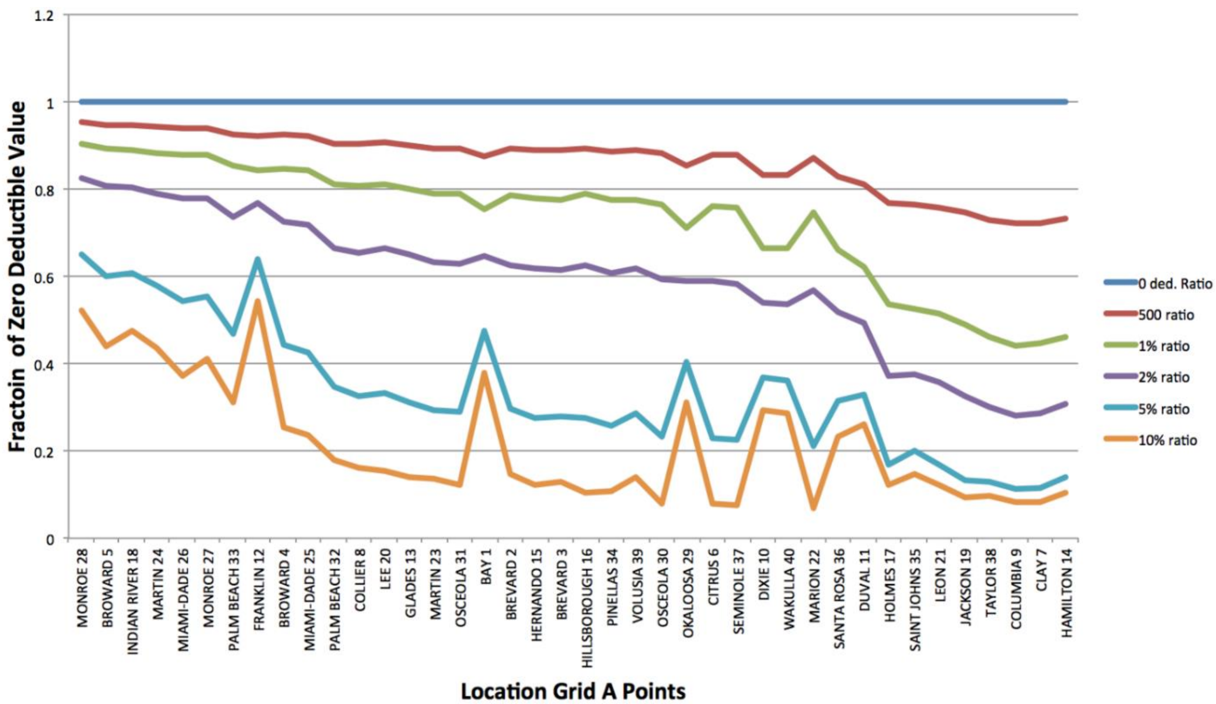
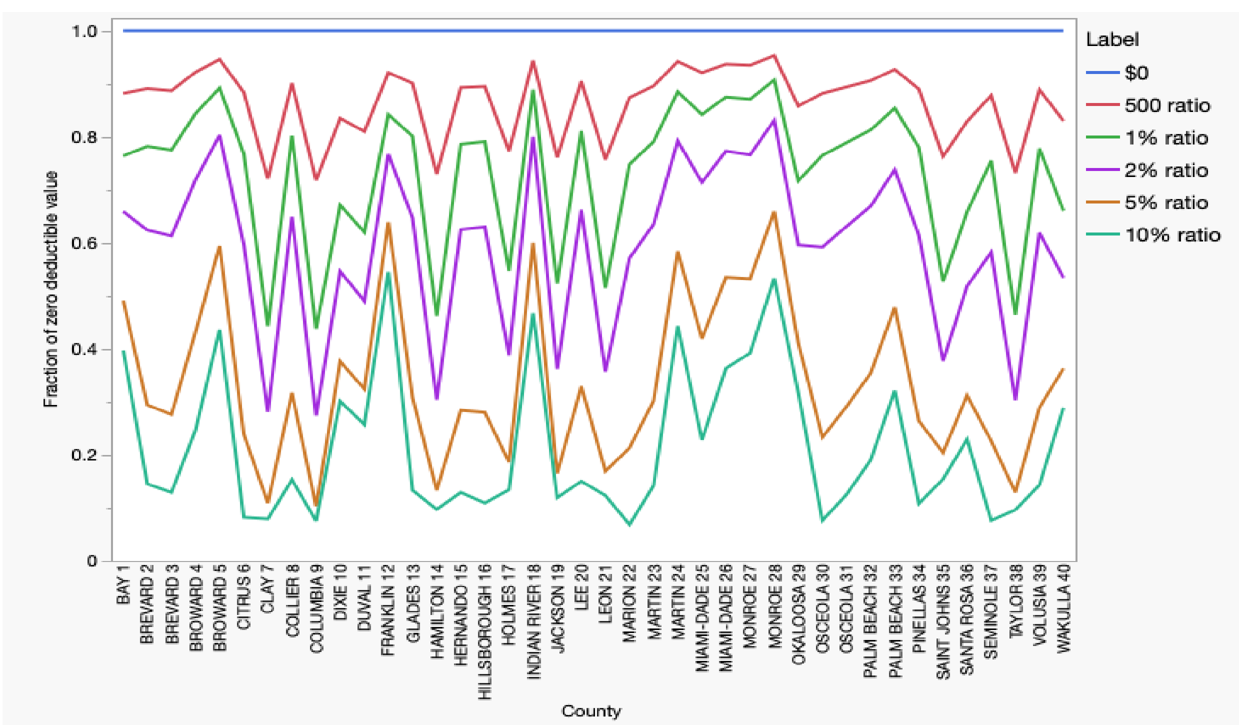


Figure 9 **Notional Set 1 – Deductible Sensitivities, Frame Owners (*x*-axis ordered alphabetically)**



627.0628 Florida Commission on Hurricane Loss Projection Methodology; public records exemption; public meetings exemption.–

(1) LEGISLATIVE FINDINGS AND INTENT.–

(a) Reliable projections of hurricane losses are necessary in order to assure that rates for residential property insurance meet the statutory requirement that rates be neither excessive nor inadequate. The ability to accurately project hurricane losses has been enhanced greatly in recent years through the use of computer modeling. It is the public policy of this state to encourage the use of the most sophisticated actuarial methods to assure that consumers are charged lawful rates for residential property insurance coverage.

(b) The Legislature recognizes the need for expert evaluation of computer models and other recently developed or improved actuarial methodologies for projecting hurricane losses, in order to resolve conflicts among actuarial professionals, and in order to provide both immediate and continuing improvement in the sophistication of actuarial methods used to set rates charged to consumers.

(c) It is the intent of the Legislature to create the Florida Commission on Hurricane Loss Projection Methodology as a panel of experts to provide the most actuarially sophisticated guidelines and standards for projection of hurricane losses possible, given the current state of actuarial science. It is the further intent of the Legislature that such standards and guidelines must be used by the State Board of Administration in developing reimbursement premium rates for the Florida Hurricane Catastrophe Fund, and, subject to paragraph (3)(d), must be used by insurers in rate filings under s. 627.062 unless the way in which such standards and guidelines were applied by the insurer was erroneous, as shown by a preponderance of the evidence.

(d) It is the intent of the Legislature that such standards and guidelines be employed as soon as possible, and that they be subject to continuing review thereafter.

(e) The Legislature finds that the authority to take final agency action with respect to insurance ratemaking is vested in the Office of Insurance Regulation and the Financial Services Commission, and that the processes, standards, and guidelines of the Florida Commission on Hurricane Loss Projection Methodology do not constitute final agency action or statements of general applicability that implement, interpret, or prescribe law or policy; accordingly, chapter 120 does not apply to the processes, standards, and guidelines of the Florida Commission on Hurricane Loss Projection Methodology.

(2) COMMISSION CREATED.–

(a) There is created the Florida Commission on Hurricane Loss Projection Methodology, which is assigned to the State Board of Administration. For the purposes of this section, the term “commission” means the Florida Commission on Hurricane Loss Projection Methodology. The commission shall be administratively housed within the State Board of Administration, but it shall independently exercise the powers and duties specified in this section.

(b) The commission shall consist of the following 12 members:

1. The insurance consumer advocate.

2. The senior employee of the State Board of Administration responsible for operations of the Florida Hurricane Catastrophe Fund.

3. The Executive Director of the Citizens Property Insurance Corporation or the executive director’s designee. The executive director’s designee must be a full-time employee of the corporation and have actuarial science experience.

4. The Director of the Division of Emergency Management or the director’s designee. The director’s designee must be a full-time employee of the division.

5. The actuary member of the Florida Hurricane Catastrophe Fund Advisory Council.

6. An employee of the office who is an actuary responsible for property insurance rate filings and who is appointed by the director of the office.

7. Five members appointed by the Chief Financial Officer, as follows:

   a. An actuary who is employed full time by a property and casualty insurer that was responsible for at least 1 percent of the aggregate statewide direct written premium for homeowner insurance in the calendar year preceding the member’s appointment to the commission.

   b. An expert in insurance finance who is a full-time member of the faculty of the State University System and who has a background in actuarial science.

   c. An expert in statistics who is a full-time member of the faculty of the State University System and who has a background in insurance.

   d. An expert in computer system design who is a full-time member of the faculty of the State University System.

e. An expert in meteorology who is a full-time member of the faculty of the State University System and who specializes in hurricanes.

8. A licensed professional structural engineer who is a full-time faculty member in the State University System and who has expertise in wind mitigation techniques. This appointment shall be made by the Governor.

(c) Members designated under subparagraphs (b)1.-5. shall serve on the commission as long as they maintain the respective offices designated in subparagraphs (b)1.-5. The member appointed by the director of the office under subparagraph (b)6. shall serve on the commission until the end of the term of office of the director who appointed him or her, unless removed earlier by the director for cause. Members appointed by the Chief Financial Officer under subparagraph (b)7. shall serve on the commission until the end of the term of office of the Chief Financial Officer who appointed them, unless earlier removed by the Chief Financial Officer for cause. Vacancies on the commission shall be filled in the same manner as the original appointment.

(d) The State Board of Administration shall annually appoint one of the members of the commission to serve as chair.

(e) Members of the commission shall serve without compensation, but shall be reimbursed for per diem and travel expenses pursuant to s. 112.061.

(f) The State Board of Administration shall, as a cost of administration of the Florida Hurricane Catastrophe Fund, provide for travel, expenses, and staff support for the commission.

(g) There shall be no liability on the part of, and no cause of action of any nature shall arise against, any member of the commission, any member of the State Board of Administration, or any employee of the State Board of Administration for any action taken in the performance of their duties under this section. In addition, the commission may, in writing, waive any potential cause of action for negligence of a consultant, contractor, or contract employee engaged to assist the commission.

(3) ADOPTION AND EFFECT OF STANDARDS AND GUIDELINES.–

(a) The commission shall consider any actuarial methods, principles, standards, models, or output ranges that have the potential for improving the accuracy of or reliability of the hurricane loss projections used in residential property insurance rate filings and flood loss projections used in rate filings for personal lines residential flood insurance coverage. The commission shall, from time to time, adopt findings as to the accuracy or reliability of particular methods, principles, standards, models, or output ranges.

(b) The commission shall consider any actuarial methods, principles, standards, or models that have the potential for improving the accuracy of or reliability of projecting probable maximum loss levels. The commission shall adopt findings as to the accuracy or reliability of particular methods, principles, standards, or models related to probable maximum loss calculations.

(c) In establishing reimbursement premiums for the Florida Hurricane Catastrophe Fund, the State Board of Administration must, to the extent feasible, employ actuarial methods, principles, standards, models, or output ranges found by the commission to be accurate or reliable.

(d) With respect to a rate filing under s. 627.062, an insurer shall employ and may not modify or adjust actuarial methods, principles, standards, models, or output ranges found by the commission to be accurate or reliable in determining hurricane loss factors and probable maximum loss levels for use in a rate filing under s. 627.062. An insurer may employ a model in a rate filing until 120 days after the expiration of the commission's acceptance of that model and may not modify or adjust models found by the commission to be accurate or reliable in determining probable maximum loss levels. This paragraph does not prohibit an insurer from using a straight average of model results or output ranges for the purposes of a rate filing for personal lines residential flood insurance coverage under s. 627.062.

(e) The commission shall adopt actuarial methods, principles, standards, models, or output ranges for personal lines residential flood loss no later than July 1, 2017.

(f) The commission shall revise previously adopted actuarial methods, principles, standards, models, or output ranges every odd-numbered year for hurricane loss projections. The commission shall revise previously adopted actuarial methods, principles, standards, models, or output ranges no less than every 4 years for flood loss projections.

(g) 1. A trade secret, as defined in s. 688.002, which is used in designing and constructing a hurricane or flood loss model and which is provided pursuant to this section, by a private company, to the commission, office, or consumer advocate appointed pursuant to s. 627.0613 is confidential and exempt from s. 119.07(1) and s. 24(a), Art. 1 of the State Constitution.

2. a. That portion of a meeting of the commission or of a rate proceeding on an insurer's rate filing at which a trade secret made confidential and exempt by this paragraph is discussed is exempt from s. 286.011 and s. 24(b), Art. 1 of the State Constitution. The closed meeting must be recorded, and no portion of the closed meeting may be off the record.

b. The recording of a closed portion of a meeting is exempt from s. 119.07(1) and s. 24(a), Art. 1 of the State Constitution.

History.--s. 6, ch. 95-276; s. 6, ch. 96-194; s. 3, ch. 97-55; s. 4, ch. 2000-333; s. 1066, ch. 2003-261; s. 79, ch. 2004-390; s. 4, ch. 2005-111; s. 3, ch. 2005-264; s. 12, ch. 2006-12; s. 145, ch. 2008-4; s. 11, ch. 2008-66; s. 83, ch. 2009-21; s. 10, ch. 2009-70; s. 16, ch. 2009-87; s. 1, ch. 2010-89; s. 431, ch. 2011-142; s. 76, ch. 2012-5; s. 5, ch.2013-60; s. 2, ch. 2014-80; s.1, ch. 2014-98; s. 2, ch. 2015-135; s. 1, ch. 2017-142; s. 1 ch. 2019-35; s. 4, ch. 2023-217.

627.715 Flood insurance. –

An authorized insurer may issue an insurance policy, contract, or endorsement providing personal lines residential coverage for the peril of flood or excess coverage for the peril of flood on any structure or the contents of personal property contained therein, subject to this section. This section does not apply to commercial lines residential or commercial lines nonresidential coverage for the peril of flood. An insurer may issue flood insurance policies, contracts, endorsements, or excess coverage on a standard, preferred, customized, flexible, or supplemental basis.

(1) (a) Except for excess flood insurance policies, policies issued under this section include:

1. Standard flood insurance, which must cover only losses from the peril of flood, as defined in paragraph (b), equivalent to that provided under a standard flood insurance policy under the National Flood Insurance Program. Standard flood insurance issued under this section must provide the same coverage, including deductibles and adjustment of losses, as that provided under a standard flood insurance policy under the National Flood Insurance Program.

2. Preferred flood insurance, which must include the same coverage as standard flood insurance but:

    a. Include, within the definition of “flood,” losses from water intrusion originating from outside the structure that are not otherwise covered under the definition of “flood” provided in paragraph (b).

    b. Include coverage for additional living expenses.

    c. Require that any loss under personal property or contents coverage that is repaired or replaced be adjusted only on the basis of replacement costs up to the policy limits.

3. Customized flood insurance, which must include coverage that is broader than the coverage provided under standard flood insurance.

4. Flexible flood insurance, which must cover losses from the peril of flood, as defined in paragraph (b), and may also include coverage for losses from water intrusion originating from outside the structure which is not otherwise covered by the definition of flood. Flexible flood insurance must include one or more of the following provisions:

    a. An agreement between the insurer and the insured that the flood coverage is in a specified amount, such as coverage that is limited to the total amount of each outstanding mortgage applicable to the covered property.

b. A requirement for a deductible in an amount authorized under s. 627.701, including a deductible in an amount authorized for hurricanes.

c. A requirement that flood loss to a dwelling be adjusted in accordance with s. 627.7011(3) or adjusted only on the basis of the actual cash value of the property.

d. A restriction limiting flood coverage to the principal building defined in the policy.

e. A provision including or excluding coverage for additional living expenses.

f. A provision excluding coverage for personal property or contents as to the peril of flood.

5. Supplemental flood insurance, which may provide coverage designed to supplement a flood policy obtained from the National Flood Insurance Program or from an insurer issuing standard or preferred flood insurance pursuant to this section. Supplemental flood insurance may provide, but need not be limited to, coverage for jewelry, art, deductibles, and additional living expenses.

(b) "Flood" means a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties, at least one of which is the policyholder's property, from:

1. Overflow of inland or tidal waters;

2. Unusual and rapid accumulation or runoff of surface waters from any source;

3. Mudflow; or

4. Collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined in this paragraph.

(2) Flood coverage deductibles and policy limits pursuant to this section must be prominently noted on the policy declarations page or face page.

(3) (a) An insurer may establish and use flood coverage rates in accordance with the rate standards provided in s. 627.062.

(b) For flood coverage rates filed with the office before October 1, 2025, the insurer may also establish and use such rates in accordance with the rates, rating schedules, or rating manuals filed by the insurer with the office which allow the insurer a reasonable rate of return on flood coverage written in this state. Flood coverage rates established pursuant to this paragraph are not subject to s. 627.062(2)(a) and (f). An insurer shall notify the office of any change to such rates within 30 days after the effective date of the change. The notice must include the name of the insurer and the average statewide percentage change in rates. Actuarial data with regard to such rates for flood coverage must be maintained by the insurer for 2 years after the effective date of such rate change and is subject to examination by the office. The office may require the insurer to incur the costs associated with an examination. Upon examination, the office, in accordance with generally accepted and reasonable actuarial techniques, shall consider the rate factors in s. 627.062(2)(b), (c), and (d), and the standards in s. 627.062(2)(e), to determine if the rate is excessive, inadequate, or unfairly discriminatory. If the office determines that a rate is excessive or unfairly discriminatory, the office shall require the insurer to provide appropriate credit to affected insureds or an appropriate refund to affected insureds who no longer receive coverage from the insurer.

(4) An agent may export a contract or endorsement providing flood coverage to an eligible surplus lines insurer without making a diligent effort to seek such coverage from three or more authorized insurers under s. 626.916(1)(a).

(5) In addition to any other applicable requirements, an insurer providing flood coverage that is not excess coverage in this state must:

(a) Notify the office at least 30 days before writing flood insurance in this state; and

(b) File a plan of operation and financial projections or revisions to such plan, as applicable, with the office.

(6) Citizens Property Insurance Corporation may not provide insurance for the peril of flood.

(7) The Florida Hurricane Catastrophe Fund may not provide reimbursement for losses proximately caused by the peril of flood, including losses that occur during a covered event as defined in s. 215.555(2)(b).

(8) An agent must provide a written notice to be signed by the applicant before the agent places flood insurance coverage with an admitted or surplus lines insurer for a property receiving flood insurance under the National Flood Insurance Program. The notice must notify the applicant that, if the applicant discontinues coverage under the National Flood Insurance Program which is provided at a subsidized rate, the full risk rate for flood insurance may apply to the property if the applicant later seeks to reinstate coverage under the program.

(9) With respect to the regulation of flood coverage written in this state by authorized insurers, this section supersedes any other provision in the Florida Insurance Code in the event of a conflict.

(10) If federal law or rule requires a certification by a state insurance regulatory official as a condition of qualifying for private flood insurance or disaster assistance, the Commissioner of Insurance Regulation may provide the certification, and such certification is not subject to review under chapter 120.

(11)(a) An authorized insurer offering flood insurance may request the office to certify that a policy, contract, or endorsement provides coverage for the peril of flood which equals or exceeds the flood coverage offered by the National Flood Insurance Program. To be eligible for certification, such policy, contract, or endorsement must contain a provision stating that it meets the private flood insurance requirements specified in 42 U.S.C. s. 4012a(b) and may not contain any provision that is not in compliance with 42 U.S.C. s. 4012a(b).

(b) The authorized insurer or its agent may reference or include a certification under paragraph (a) in advertising or communications with an agent, a lending institution, an insured, or a potential insured only for a policy, contract, or endorsement that is certified under this subsection. The authorized insurer may include a statement that notifies an insured of the certification on the declarations page or other policy documentation related to flood coverage certified under this subsection.

(c) An insurer or agent who knowingly misrepresents that a flood policy, contract, or endorsement is certified under this subsection commits an unfair or deceptive act under s. 626.9541.

History.– ss. 3, 4, ch. 2014-80; s. 3, ch. 2015-69; s. 2, ch. 2017-142; s. 11, ch. 2020-3; s. 22, ch. 2021-113.

Meeting Schedule and Topics of Discussion

2014

September 30	Acceptability Process Committee Meeting to discuss the process and timeline for developing flood standards
October 30	Flood Standards Development Committee Meeting
November 14	Flood Standards Development Committee Meeting
December 16	Flood Standards Development Committee Meeting

2015

January 29	Flood Standards Development Committee Meeting
February 19	Flood Standards Development Committee Meeting
March 31	Flood Standards Development Committee Meeting
April 22	Flood Standards Development Committee Meeting
June 4	Flood Standards Development Committee Meeting
June 30	Flood Standards Development Committee Meeting
July 1	Flood Standards Development Committee Meeting
August 11	Flood Standards Development Committee Meeting
September 24	Flood Standards Development Committee Meeting
October 8	Flood Standards Development Committee Meeting
November 17	Commission Meeting to Consider Publication of Discussion Flood Standards

2017

May 22 & 23	Flood Standards Committee Meetings
June 15 & 16	Adoption of 2017 Flood Standards, Principles, and Acceptability Process
September 27 & 28	Flood Standards Committee Meetings
October 25	Adoption of Revised 2017 Flood Standards and *Flood Standards Report of Activities*

2019

October 29	Adoption of an Amendment to the 2017 Flood Standards Model Review Schedule in the *Flood Standards Report of Activities as of November 1, 2017*; Adoption of 2019 Hurricane Standards and *Hurricane Standards Report of Activities*

2020

April 28	Discussion of Flood Model Submissions and Determination of On-Site Reviews
December 10	Karen Clark & Company (KCC) Flood Model Determined Acceptable under the 2017 Flood Standards; Adoption of Remote Review Procedures amending the 2017 *Flood Standards report of Activities* and the 2019 *Hurricane Standards Report of Activities*

2021

September 29 & 30	Flood Standards Committee Meetings
October 26 & 27	Adoption of 2021 Flood Standards, 2021 Hurricane Standards, *Flood Standards Report of Activities*, and *Hurricane Standards Report of Activities*

2022

September 15 & 16	Workshop to Discuss the Current State of the Science in the Field of Climatology and the Annual Catastrophe Stress Testing Performed by the Florida Office of Insurance Regulation

2023

October 25 & 26	Adoption of 2023 Hurricane Standards and *Hurricane Standards Report of Activities*; Adoption of an Amendment to the 2021 Flood Standards Model Review Schedule in the *Flood Standards Report of Activities as of November 1, 2021*

2024

April 4	Discussion of Flood Model Submissions and Determination of On-Site Reviews
November 7	KCC Flood Model Determined Acceptable under the 2021 Flood Standards
November 8	Florida Public Model (FPM) and Impact Forecasting (IF) Flood Models Determined Acceptable under the 2021 Flood Standards

2025

September 16-18	Hurricane and Flood Standards Committee Meetings
October 28	Adoption of 2025 Flood Standards, 2025 Hurricane Standards, *Flood Standards Report of Activities*, and *Hurricane Standards Report of Activities*

Transcript Information

All public meetings of the Florida Commission on Hurricane Loss Projection Methodology are transcribed by a court reporter. If you would like to purchase copies of any transcript, contact the court reporter for the date of the meeting.

September 30, 2014	Tracy Brown, Accurate Stenotype Reporters, Inc., 850-878-2221
October 30, 2014	Mary Kay Kline, Accurate Stenotype Reporters, Inc., 850-878-2221
November 14, 2014	Lori Dezell, Accurate Stenotype Reporters, Inc., 850-878-2221
December 16, 2014	Lori Dezell, Accurate Stenotype Reporters, Inc., 850-878-2221
January 29, 2015	Lori Dezell, Accurate Stenotype Reporters, Inc., 850-878-2221
February 19, 2015	Lori Dezell, Accurate Stenotype Reporters, Inc., 850-878-2221
March 31, 2015	Tracy Brown, Accurate Stenotype Reporters, Inc., 850-878-2221
April 22, 2015	Tracy Brown, Accurate Stenotype Reporters, Inc., 850-878-2221
June 4, 2015	Lori Dezell, Accurate Stenotype Reporters, Inc., 850-878-2221
June 30, 2015	Tracy Brown, Accurate Stenotype Reporters, Inc., 850-878-2221
July 1, 2015	Lori Dezell, Accurate Stenotype Reporters, Inc., 850-878-2221
August 11, 2015	Lori Dezell, 850-251-1482
September 24, 2015	Lori Dezell, 850-251-1482
October 8, 2015	Lori Dezell, 850-251-1482
November 17, 2015	Carolyn Rankine, Premier Reporting, 850-894-0828
May 22 & 23, 2017	Lori Dezell, 850-251-1482
June 15 & 16, 2017	Lori Dezell, 850-251-1482
September 27 & 28, 2017	Lori Dezell, 850-251-1482
October 25, 2017	Lori Dezell, 850-251-1482
October 29, 2019	Lori Dezell, 850-251-1482
April 28, 2020	Lori Dezell, 850-251-1482
December 10, 2020	Lori Dezell, 850-251-1482
September 29 & 30, 2021	Lori Dezell, 850-251-1482
October 26 & 27, 2021	Lori Dezell, 850-251-1482
September 15 & 16, 2022	Lori Dezell, 850-251-1482
October 25 & 26, 2023	Lori Dezell, 850-251-1482

April 4, 2024	Lori Dezell, 850-251-1482
November 7 & 8, 2024	Lori Dezell, 850-251-1482
September 16 - 18, 2025	Lori Dezell, 850-251-1482
October 28, 2025	Lori Dezell, 850-251-1482

Commission Documentation

The State Board of Administration, in its responsibility as administrator for the Commission, maintains documentation for all meetings of the Commission. This information may be obtained by writing to:

Donna Sirmons
Florida Commission on Hurricane Loss Projection Methodology
c/o State Board of Administration
P. O. Box 13300
Tallahassee, Florida 32317-3300

or by e-mailing donna.sirmons@sbafla.com.

There is a $0.15 charge per page per s. 119.07(4)(a), F.S.

A hard copy of this publication is available for a charge of $25.22.

Documentation is also available on the Commission website at *https://fchlpm.sbafla.com*/.