# Florida Public Flood Loss Model

## V1.0

## ACTUARIAL STANDARDS

# Florida Public Flood Loss Model




# Standard AF- 1

## Flood Model Input Data and Output Reports

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

# Standard AF- 2

## Flood Events Resulting in Modeled Flood Losses

A. Modeled flood loss costs and flood probable maximum loss levels shall reflect insu 0 Td [(M)-3l-2 ( p)0 (r)h(ood)- (bP/4 -

# Standard AF- 2

## Flood Events Resulting in Modeled Flood Losses

B. The modeling organization shall have a documented procedure for distinguishing flood -related flood losses from other peril losses.

A document titled “Florida Public Flood Loss Model (FPFLM) Procedure to distinguish flood losses from other peril losses”details the procedure employed to meet this requirement.

The model satisfies Standard AF-2.

# Standard AF- 3

## Flood Coverages

A. The methods used in the calculation of personal residential structure flood loss costs, including the effect of law and ordinance coverage, shall be actuarially sound.

The model estimates personal residential structure damages for tropical events using a set of matrices that vary by

# Standard AF- 3

## Flood Coverages

B. The methods used in the calculation of personal residential appurtenant structure flood loss costs shall be actuarially sound.

Appurtenance structures are modeled as separate structures as described on the previous slide.

# Standard AF- 3

## Flood Coverages

C. The methods used in the calculation of personal residential contents flood loss costs shall be actuarially sound.

There are separate damage matrices for contents, but otherwise the loss costs are modeled using the same approach described for structures.

# Standard AF- 3

## Flood Coverages

D. The methods used in the calculation of personal residential time element flood loss costs shall be actuarially sound.

There are separate damage matrices for time element, but otherwise the loss costs are modeled using the same approach described for structures.

The model satisfies Standard AF-3.

# Standard AF- 4

## Modeled Flood Loss Cost and Flood Probable Maximum Loss Level Considerations

A. 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.

The items listed (i.e., expenses, risk load, profit margin, etc.) are not included in loss costs or PMLs.

B. Flood loss cost projections and flood probable maximum loss levels shall not make a prospective provision for economic inflation.

There is no prospective provision for economic inflation in loss costs or PMLs.

# Standard AF- 4

## Modeled Flood Loss Cost and Flood Probable Maximum Loss Level Considerations

F. Demand surge shall be included in the flood model's calculation of flood loss costs and flood probable maximum loss levels using relevant data and actuarially sound methods and assumptions.

Demand surge factors are applied to the losses from each event in the stochastic set before calculating loss costs and PML levels.

Model assumes demand surge is a function of:

- Coverage
- Region
- An event's statewide damages (before DS)

(continued on next slide)

# Standard AF- 5

## Flood Policy Conditions

A. The methods used in the development of mathematical distributions to reflect the effects of deductibles and policy limits shall be actuarially sound.

The modeled loss for an exposure is calculated net of deductible and policy limits for each tropical event in the stochastic set. The AAL for historical net tropical events is stated net of deductible and policy limits for each exposure.

# Florida Public Flood Loss Model




# Standard AF- 6

## Flood Loss Outputs and Logical Relationships to Risk

A. The methods, data, and assumptions used in the estimation of flood loss costs and flood probable maximum loss levels shall be actuarially sound.

# Standard AF- 6

## Flood Loss Outputs and Logical Relationships to Risk

C. Flood loss costs cannot increase as the structure flood damage resistance increases, all other factors held constant.

# Standard AF- 6

## Flood Loss Outputs and Logical Relationships to Risk

F. Flood loss costs cannot increase as the flood resistant design provisions increase, all other factors held constant.

The model's loss costs do not increase in the presence of flood resistant design provisions, all other factors held Food l to 2 (l2j

# Standard AF- 6

## Flood Loss Outputs and Logical Relationships to Risk

I. The relationship of flood loss costs for individual coverages (e.g., personal residential structure, appurtenant structure, contents, and time element) shall be consistent with the coverages provided.

The Coverage Test in Form AF-6 demonstrates the appropriate loss cost relationships among coverages.

J. Flood output ranges shall be logical for the type of risk being modeled and apparent deviations shall be justified.

The output ranges are not a reasonable test of the logical relationship to risk. Variations in ground elevation

# Standard AF- 6

## Flood Loss Outputs and Logical Relationships to Risk

L. For flood loss cost 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.

The loss costs and PML estimates derived by the model reflect the characteristics of the exposure being modeled primarily through the vulnerability component. The insured loss is determined by adjusting the damage estimates to allow for the specific provisions of the policy.

The model satisfies Standard AF-6.