Madison International Realty – Florida

Case Study ESG

Physical risk assessment for a mixed-use asset in Florida

PROJECT:
Physical climate risk assessment

COMPANY:
Madison International Realty

LOCATION
Southwest Florida, United States

Challenge

Assess the materiality of flood, hurricane wind, and heat risks for a six-storey mixed-use asset in Southwest Florida over a five- to ten-year hold period.

The objective was to quantify potential impacts on cash flow and value, inform insurance discussions, and identify practical resilience options without over-scoping capital expenditures.

Solution / Approach

Madison used a Climate Risk Data Provider's property-level analytics to quantify flood, wind and heat exposures and translate hazard metrics into financial terms. The team harmonised depth-exceedance (0.5% and 0.2% annual exceedance probability), wind event probabilities (Category-1-and-above and Category-5 across 5/10/30 years), and heat-day trends with indicative single-event loss estimates.

These outputs were benchmarked against rounded asset metrics (approximately $240 million value; approximately $16 million NOI; $100,000 deductible) to assess impacts as a percentage of NOI and value.

A concise table and a wind-probability chart by hold period were produced, and potential adaptation measures – equipment elevation/protection, deployable barriers and sealed penetrations, roof/façade/glazing hardening, and operations/cooling-efficiency improvements – were framed as decision options rather than commitments.

The analysis supports underwriting sensitivities, insurance structuring (limits, sub-limits, deductibles), and prioritisation of measures that reduce frequent, shallow-flood losses.

Results

- Flood and wind risks are financially material.
- A ~2.4 ft flood (0.5% AEP) is modelled at approximately $4.4 million in capital expenditures and downtime (about 27% of NOI; about 1.8% of value).
- A representative wind event (~137 mph) is modelled at approximately $20 million (about 125% of NOI; about 8% of value).
- A modelled 1% scenario indicates approximately $7 million of NOI at risk from flood.

Event probabilities rise over time:

- Category-1-and-above winds are ~79% (5-year), ~94% (10-year), and >99% (30-year); Category-5 is ~2%, ~10%, and ~20%, respectively;
- Heat primarily affects operating expenses. While near-term insurance capacity is manageable, the findings inform discussions on limits, deductibles, and incentives tied to resilience.

Outcome

The analysis provides the investment and ESG teams with decision-ready metrics that link hazards to cash flow, value, and insurance strategy without prescribing specific actions.

Shallow flooding is impactful within five years given a finished-floor elevation of roughly one foot above grade; losses from a 0.5% AEP event (~2.4 ft) would concentrate in ground-floor interiors and mechanical, electrical, and plumbing (MEP) systems.

Wind remains the dominant tail risk, with Category-1-and-above probabilities increasing to ~94% by year ten and Category-5 to ~10%. Single-event loss benchmarks of approximately $4.4 million for flood and $20 million for wind, translate to roughly 27% and 125% of NOI, respectively, and a 1% flood scenario indicates approximately $7 million of NOI at risk due to downtime and remediation.

Heat-day increases, from ~88 today to ~103 (15-year) and ~117 (30-year), are expected to elevate cooling-related operating expenses but are secondary to flood and wind for value preservation. From an insurance perspective, the modelled results support more precise conversations on windstorm sub-limits, deductible structures, and potential credits for features that mitigate frequent, low-depth flood losses.

Indicative pathways (for assessment only) include:

- Elevating or protecting critical equipment above likely flood depths;
- Deploying barriers and sealing penetrations at vulnerable openings;

- Upgrading roof fasteners/membranes and impact-rated glazing/attachments; and
- Operational tuning to moderate cooling-load growth.

While regional demand dynamics may offset some risk-related valuation headwinds, the modelled tail exposures (>1× NOI; >8% of value in representative events) merit explicit consideration in pricing, financing, and exit assumptions.

Madison International Realty

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