Elements of the Integrated Assessment (IA)

1) Hazard

- Hydrostatic & hydrodynamic loads
- Wave loads
- Debris impact loads
- Erosion and local scour
- Duration of the flood event
- Other factors

2.a) Flood protection: types (see NEI 12-07)

- Incorporated features
- Exterior features
- Temporary features

…the above may have:

- Passive and active functions
- Associated OMAs

see Appendix A & Appendix C

2.b) Flood protection: performance factors & criteria

- Availability of protection
- Reliability of action/protection
- Feasibility of action
- Criteria for assessing performance

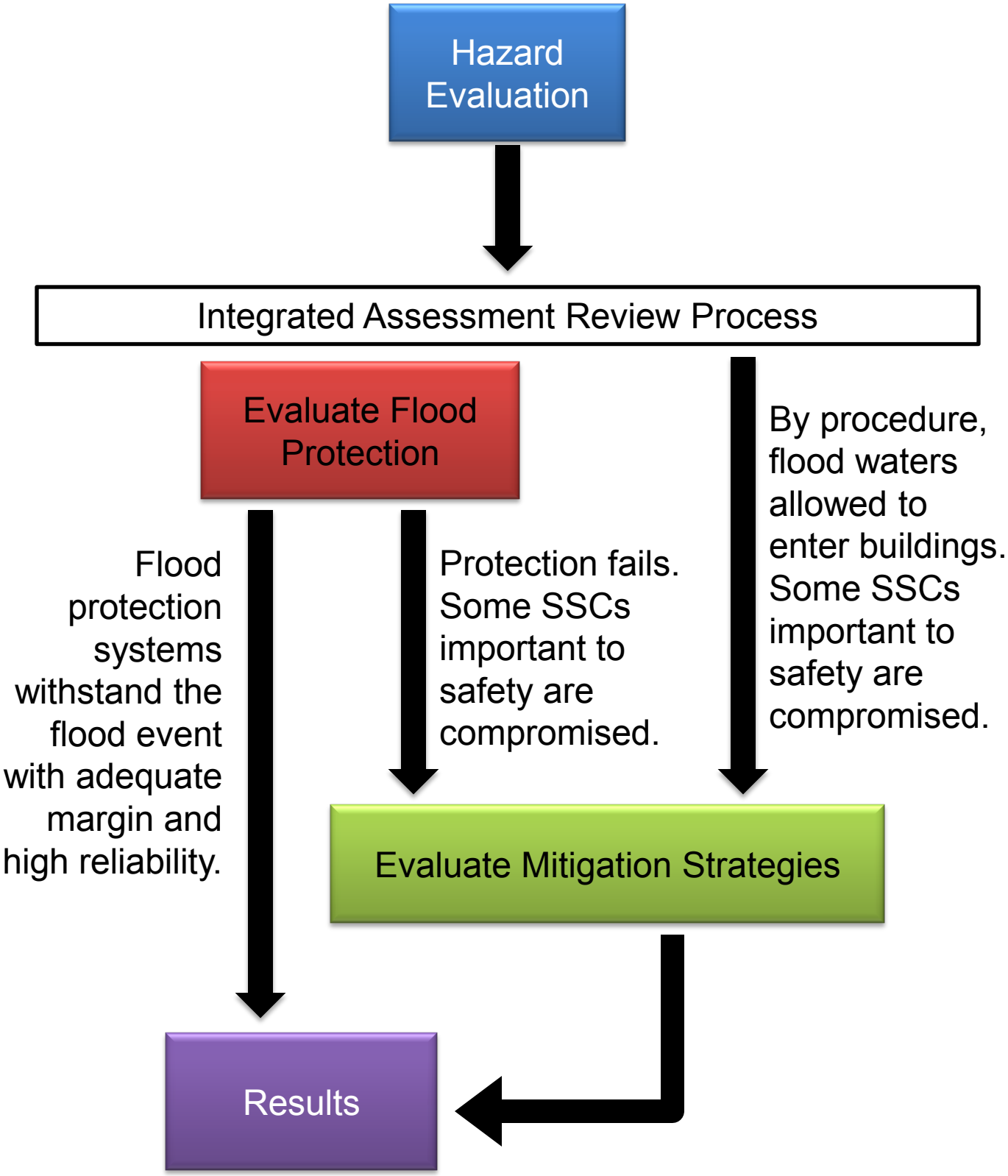
---

3) Mitigation

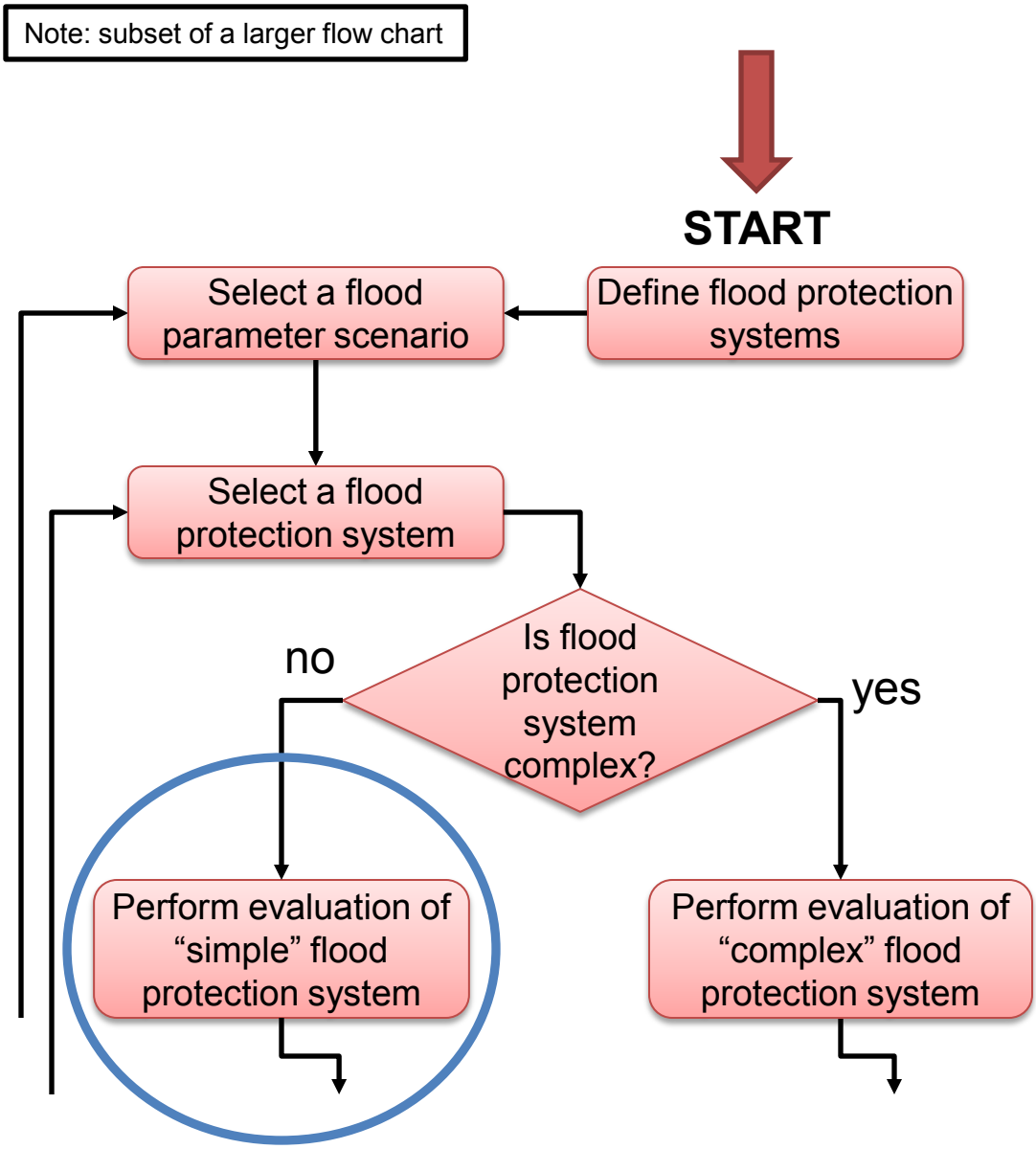
see Appendix B

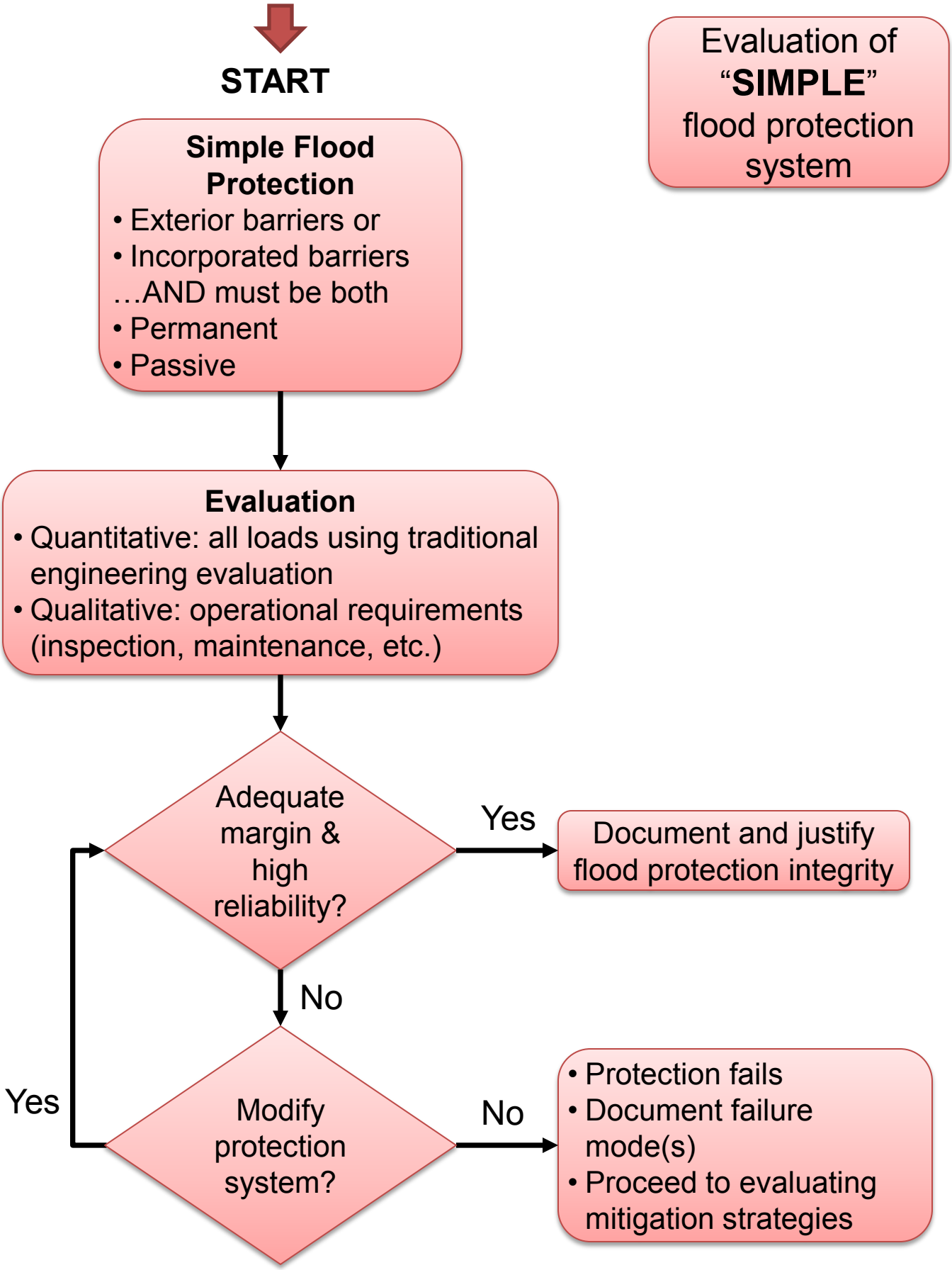
- Examine protection failure modes
- Associated equipment failures
- Various plant equipment available
- Demonstrate with high confidence that key safety functions can be maintained.

Elements are Folded into the IA Review Process

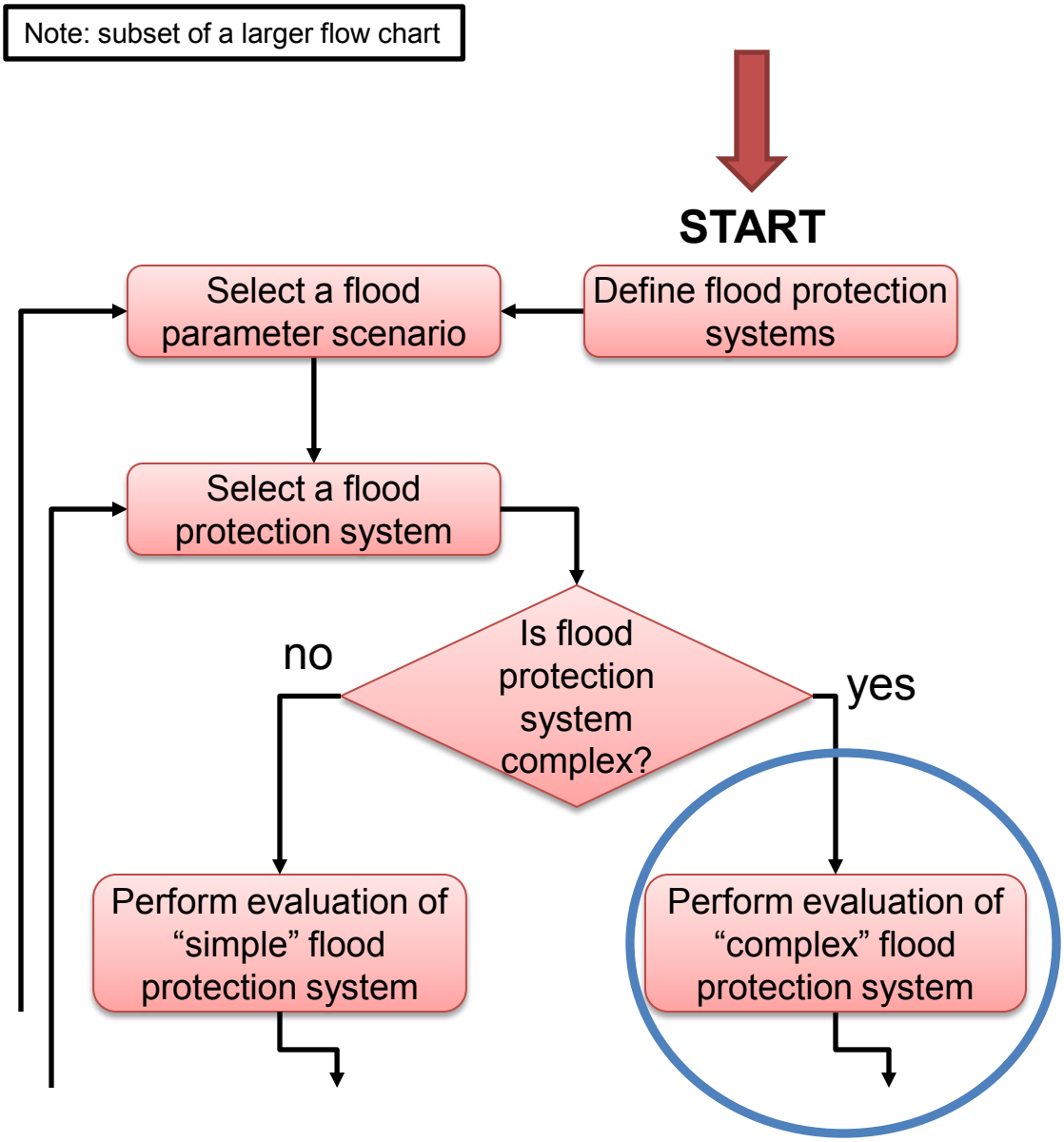


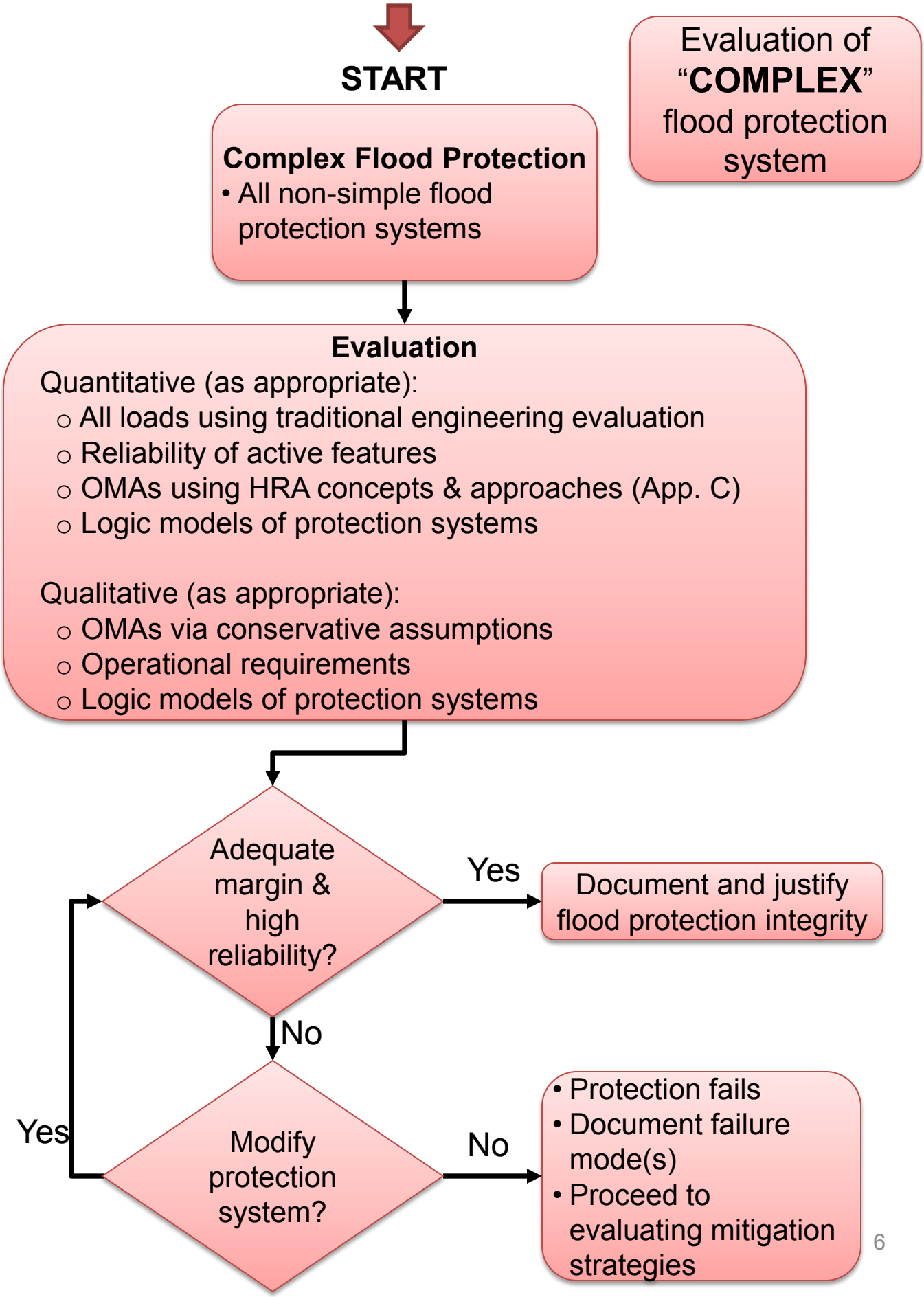
Evaluate Flood Protection



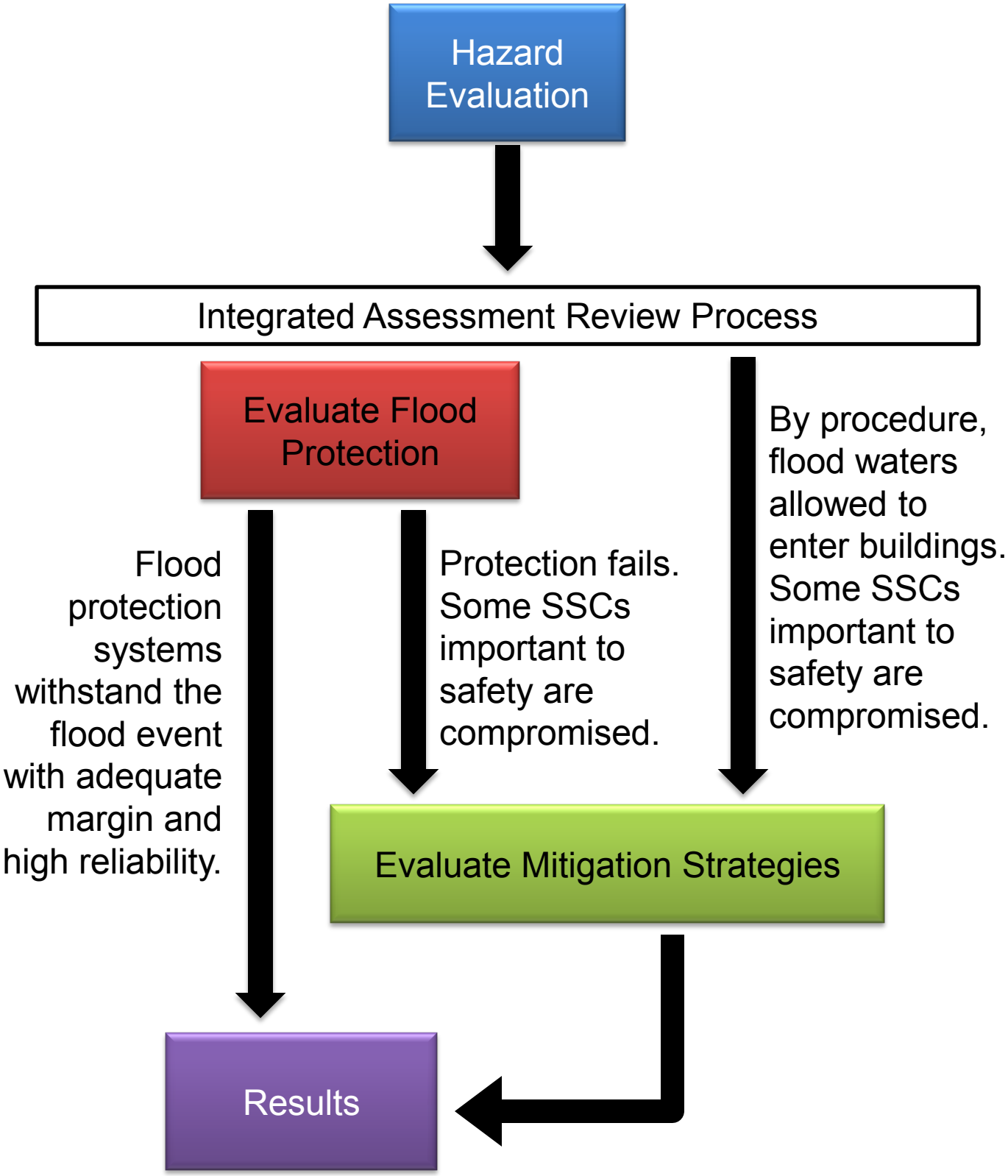

START
Evaluation of "SIMPLE" flood protection system
Simple Flood Protection
• Exterior barriers or
• Incorporated barriers
…AND must be both
• Permanent
• Passive
Evaluation
• Quantitative: all loads using traditional engineering evaluation
• Qualitative: operational requirements (inspection, maintenance, etc.)
Adequate margin & high reliability?
Yes
Document and justify flood protection integrity
No
Modify protection system?
Yes
No
• Protection fails
• Document failure mode(s)
• Proceed to evaluating mitigation strategies

Evaluate Flood Protection




START
Evaluation of "COMPLEX" flood protection system
Complex Flood Protection
• All non-simple flood protection systems
Evaluation
Quantitative (as appropriate):
○ All loads using traditional engineering evaluation
○ Reliability of active features
○ OMAs using HRA concepts & approaches (App. C)
○ Logic models of protection systems
Qualitative (as appropriate):
○ OMAs via conservative assumptions
○ Operational requirements
○ Logic models of protection systems
Adequate margin & high reliability?
Yes
Document and justify flood protection integrity
No
Modify protection system?
Yes
No
• Protection fails
• Document failure mode(s)
• Proceed to evaluating mitigation strategies

Elements are Folded into the IA Review Process



Mitigation evaluation