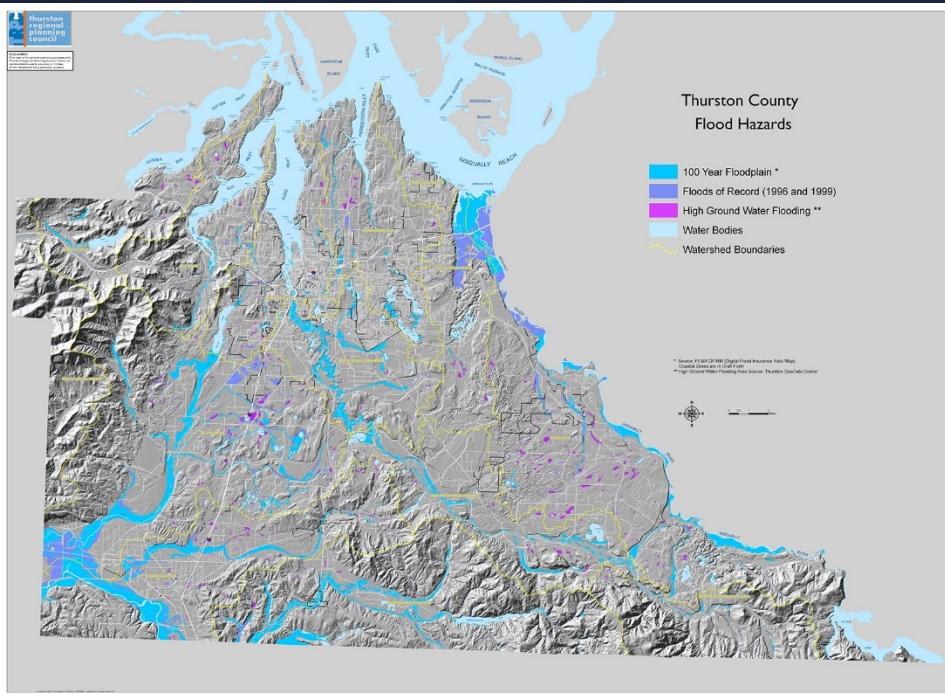


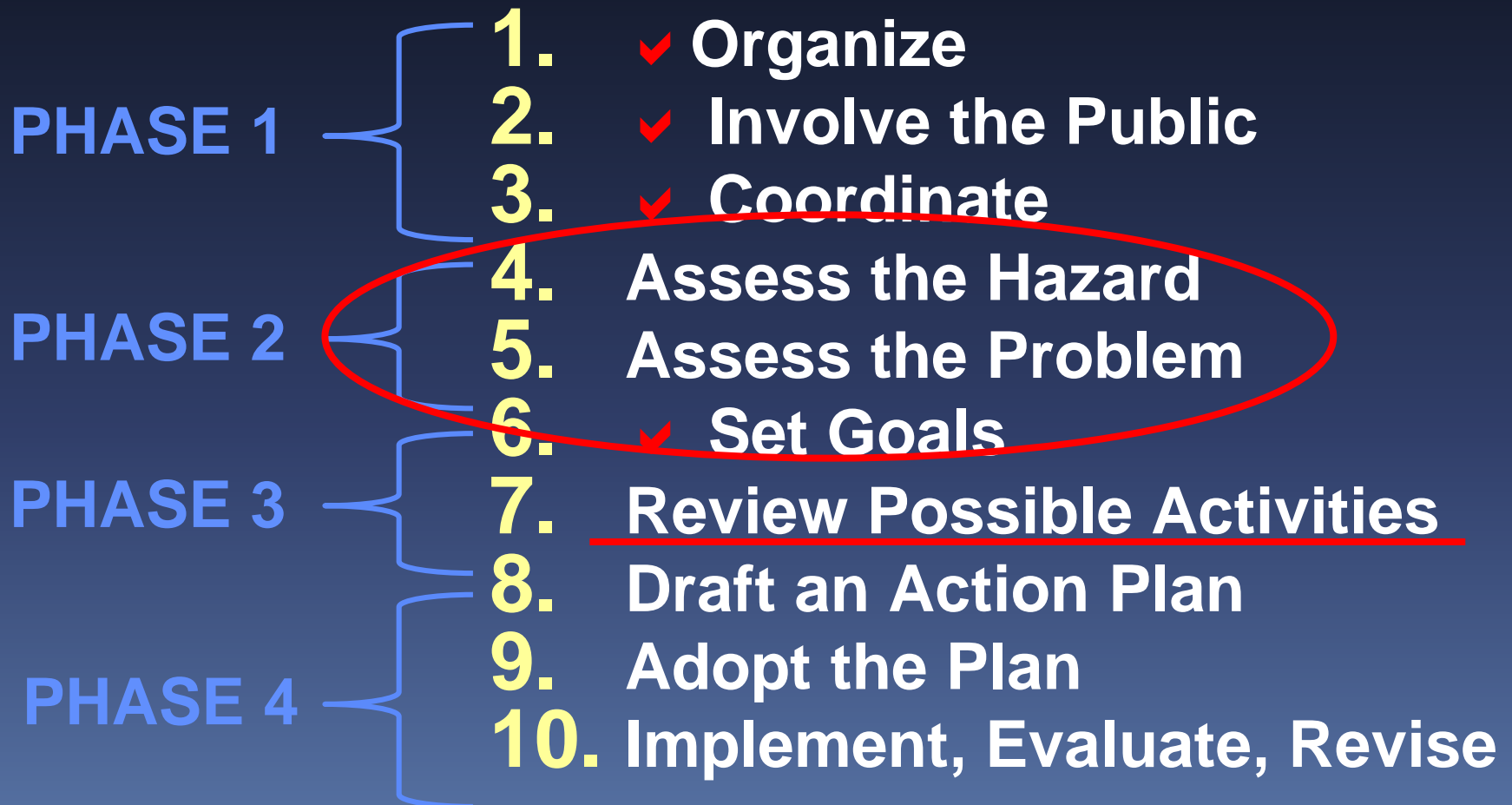


Flood hazard, vulnerability, and risk



Thurston County Flood Hazard Committee Meeting #4

10-Step CRS Flood Planning Process



Focus Areas

- Incorporate new data
- Evaluate losses and risk
- Update mitigation strategy
- Engage community
- Meet CRS requirements

The risk assessment is the factual basis for the county's mitigation strategy

1. What data or information, that is readily available, should be included to inform our understanding of flood hazards and problems?
2. What essential data is missing that should somehow be collected for future planning efforts (a future work program/task)?

**STEP
1**

Describe hazards

**STEP
2**

Identify community assets

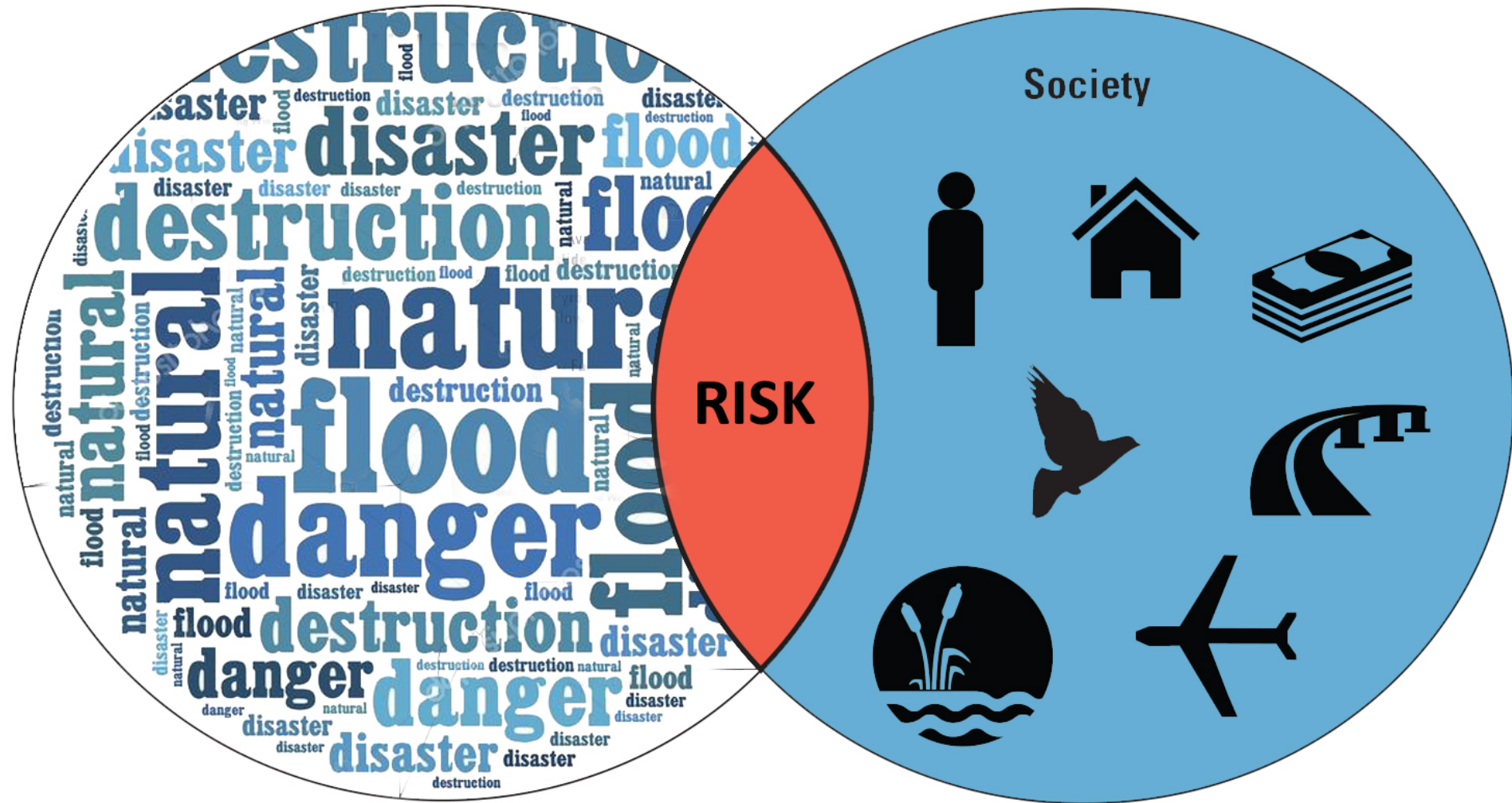
**STEP
3**

Analyze risks

**STEP
4**

Summarize vulnerability

Flood hazard: a natural event that threatens lives, property, and other assets



Characterizing hazard attributes to support risk reduction efforts

- **Source** (riverine, coastal, etc.)
- **Severity** (minor to major)
- **Speed of onset** (slow, fast)
- **Duration** (short, long)
- **Frequency** (rare, frequent)
- **Temporal spacing** (seasonal)
- **Areal extent** (limited, widespread)
- **Location** (road, neighborhood)

Vulnerability/risk of whom and to what?

- Vulnerability/risk are context specific
- We measure the vulnerability/risk:
 - of a particular system or group
 - to a specific hazard or outcome
 - at a specific scale
- **Examples:**
 - Nisqually Riverbank erosion threatens home
 - Floodwaters close Johnson Creek Road
 - Floodwaters destroy crops and kill livestock in Chehalis River Basin

Populations

Economy

**Ecosystems
Goods and
Services**

**Land Use &
Development**

**Critical Facilities
& Infrastructure**

CRS Step 4: Assess the hazard – 35 points

- **Assessment of the flood hazard**
 - **Map of known flood hazards**
 - **Description of known flood hazards**
 - **A discussion of past floods**
- **Assessment of Less frequent floods**
- **Assessment of Areas likely to flood**
- **Description of other natural hazards (optional)**

CRS Step 5: Assess the problem – 52 points

- **Summary of each hazard identified in hazard assessment and their community impact**
- **Description of the impact of the hazards on:**
 - **Life, safety, health, procedures for warning and evacuation**
 - **Public health including health hazard to floodwaters/mold**
 - **Critical facilities and infrastructure**
 - **The community's economy and tax base**
 - **Number and type of affected buildings**

CRS Step 5 (cont.): Assess the problem – 52 points

- **Review of all damaged building/flood insurance claims**
- **Areas that provide natural floodplain functions**
- **Development/Redevelopment/Population Trends**
- **Impact of future flooding conditions (on floodplain development and demographics, development in watershed, and climate change or sea level rise)**

Hazards/problems identified at Meeting #1

- Stormwater/Urban flooding
- High groundwater flooding
- Cost of maintenance of transportation facilities
- I-5 is a barrier to flood waters, causes inundation in the lower valley during extreme flood events
- Groundwater flooding associated with unofficial drainage management practices
- Lake and river flooding
- Tacoma Power's Alder Lake Reservoir management practices and the potential for adverse impacts on downstream properties
- The potential for floodwaters to discharge into industrial areas and become contaminated

Hazards/Problems identified at Meeting #1 (cont.)

- The impacts of nuisance flooding on transportation and impacts to fire and EMS LOS
- Effects of climate change on frequency and severity of riverine and groundwater flooding
- Low probability/high consequence events likely missing from historic records.
- The 100-year flood events insufficient for designing future capacity of stormwater systems.

1. What data or information, that is readily available, should be included to inform our understanding of flood hazards and problems?
2. What essential data is missing that should somehow be collected for future planning efforts (a future work program/task)?

Develop Mitigation Strategy

To determine if an activity is appropriate:

- Is the county capable of funding and implementing it?
- If activity is being implemented, is the county achieving expectations and, if not, should it be modified?
- Each existing activity must be discussed along with status of its implementation.

Review preventive activities in existing plans, regulations, and building codes

Must Review:

- Comprehensive Plan
- Building code
- Zoning ordinances
- Floodplain management regulations
- Subdivision ordinances
- Stormwater management regulations

The Review should evaluate:

- How these tools can reduce future flood losses
- The current standards in the communities plans and regulations, and
- Whether such plans require revisions

Additional Plan Review Requirements

- Are the county's floodplain management regulatory standards sufficient for current and future conditions as covered in the risk assessment?
- Property protection activities such as acquisition, retrofitting, and flood insurance
- Protection of natural and beneficial functions of the floodplain such as wetlands protection
- Emergency services such as warnings and sandbagging
- Structural projects such as levees, reservoirs, and channel mods.
- Public information activities such as outreach projects and environmental protection programs

Current Flood Plan

32 Total county flood initiatives

21 Prevention

~~4~~ **1** Property Protection

~~8~~ **6** Public Education and Awareness

~~9~~ **5** Natural Resource Protection

~~13~~ **7** Emergency Services

~~7~~ **2** Structural Projects

All Hazards Plan

19 Thurston County flood initiatives

14 relate to flood plan initiatives

2 Thurston County multi-hazard initiatives relate to flood plan

5 Countywide initiatives relates to flood plan

(1 flood and 4 multi-hazard)

Mitigation Development and Review Process

County staff will review mitigation strategy (~2 meetings):

- Report implementation status on existing initiatives
- Review and revise actions and add new initiatives, if necessary
- Relate the initiatives to the goals and objectives
- Prioritize initiatives

July 19 Flood Planning Committee reviews draft strategy:

- Review
- Advise for revisions and new actions
- Advise priority of actions

August 23 final draft strategy review