Enterprise Risk Management in a Changing Climate

A UTILITY PREPARES

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Southern Nevada Water Authority
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Learning From Each Other Session,
Water Utility Climate Alliance

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Las Vegas Valley Water District
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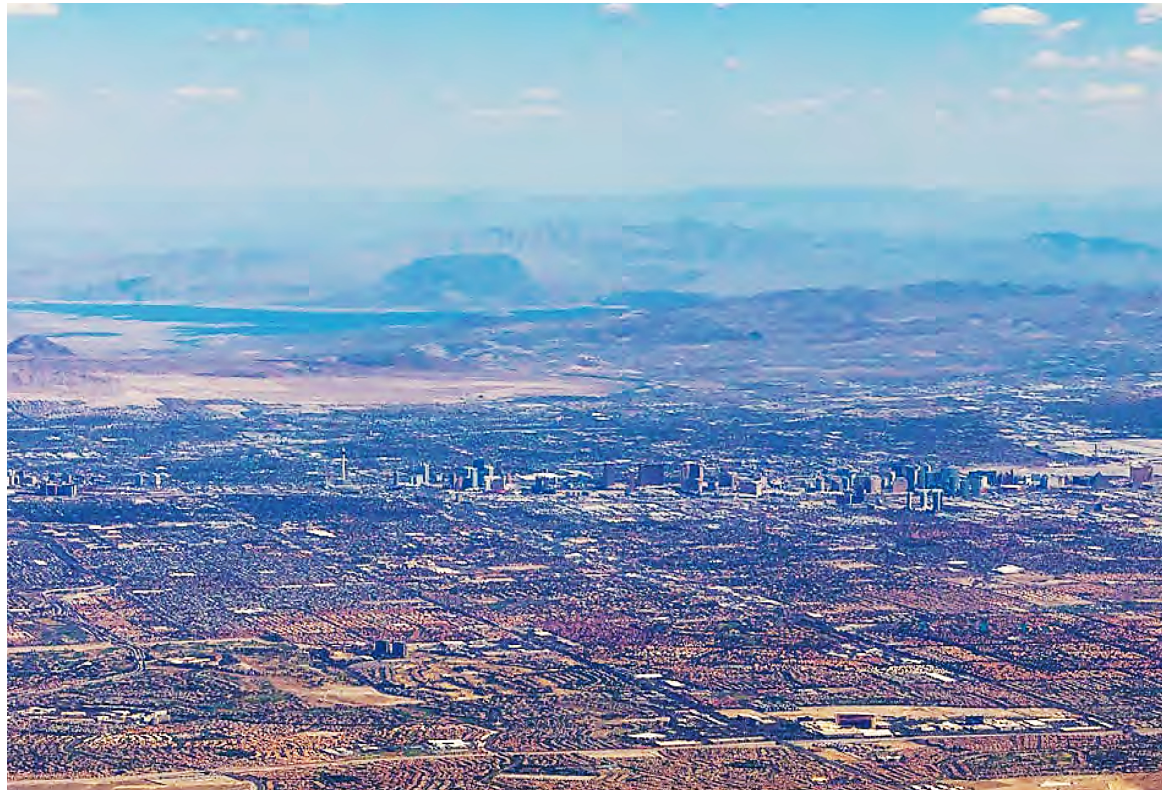
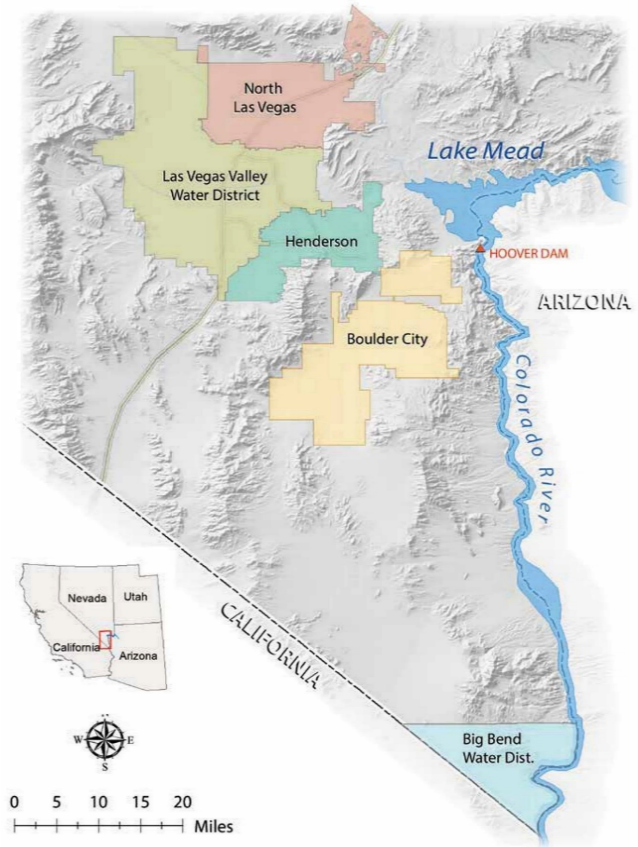
Outline

- Background
- Enterprise Risk Management
- Climate risks
- Goals and objectives
- Approach
- Business function areas
- Results



Background



SOUTHERN NEVADA WATER AUTHORITY

WUCA
Water Utility Climate Alliance

- Formed in 1991
- Seven member agencies serve 2.2 million people
- Colorado River 90% of supply

LAS VEGAS VALLEY WATER DISTRICT™

- Serves 1.4 million people
- 6,500 miles of pipe, 102 wells, 54 pump stations, 79 distribution storage reservoirs

Operationalizing Climate Information

Enterprise - Wide Risk Assessment
- Survey staff
- Compile results

Develop Climate Projections for Future Climate

Narrow Scope
- Review climate projections
- Identify and prioritize climate sensitive risks
- Identify business functions responsible for mitigating climate sensitive risks

Review Existing Practices
- Document existing actions with business function groups
- Review existing procedures

Feedback

Analyze Gaps
- What data is needed?
- Are there processes in place that can be modified?

Develop recommendations
- Translate needs into recommendations

Develop implementation plan
- Assign business function area points of contact
- Prioritize recommendations

Feedback

Monitor and Evaluate
- Set regular progress report
- Update actions to mitigate risks

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Evolution of Enterprise Risk Management

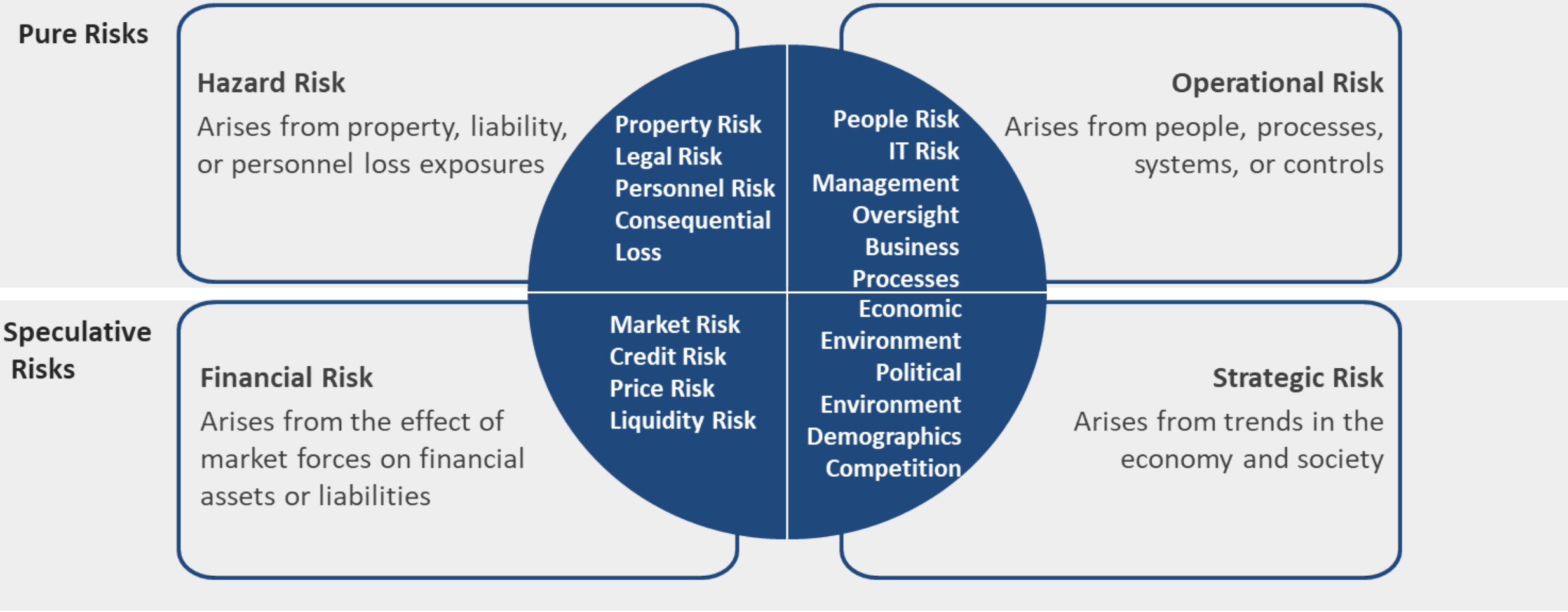
Traditional Risk Management

- Historically focused
- Ad hoc activity
- Accounting, treasury, and internal audit
- Fragmentation (Silo Approach)
- Financial Risk
- Inspect, detect, react
- Focus on people

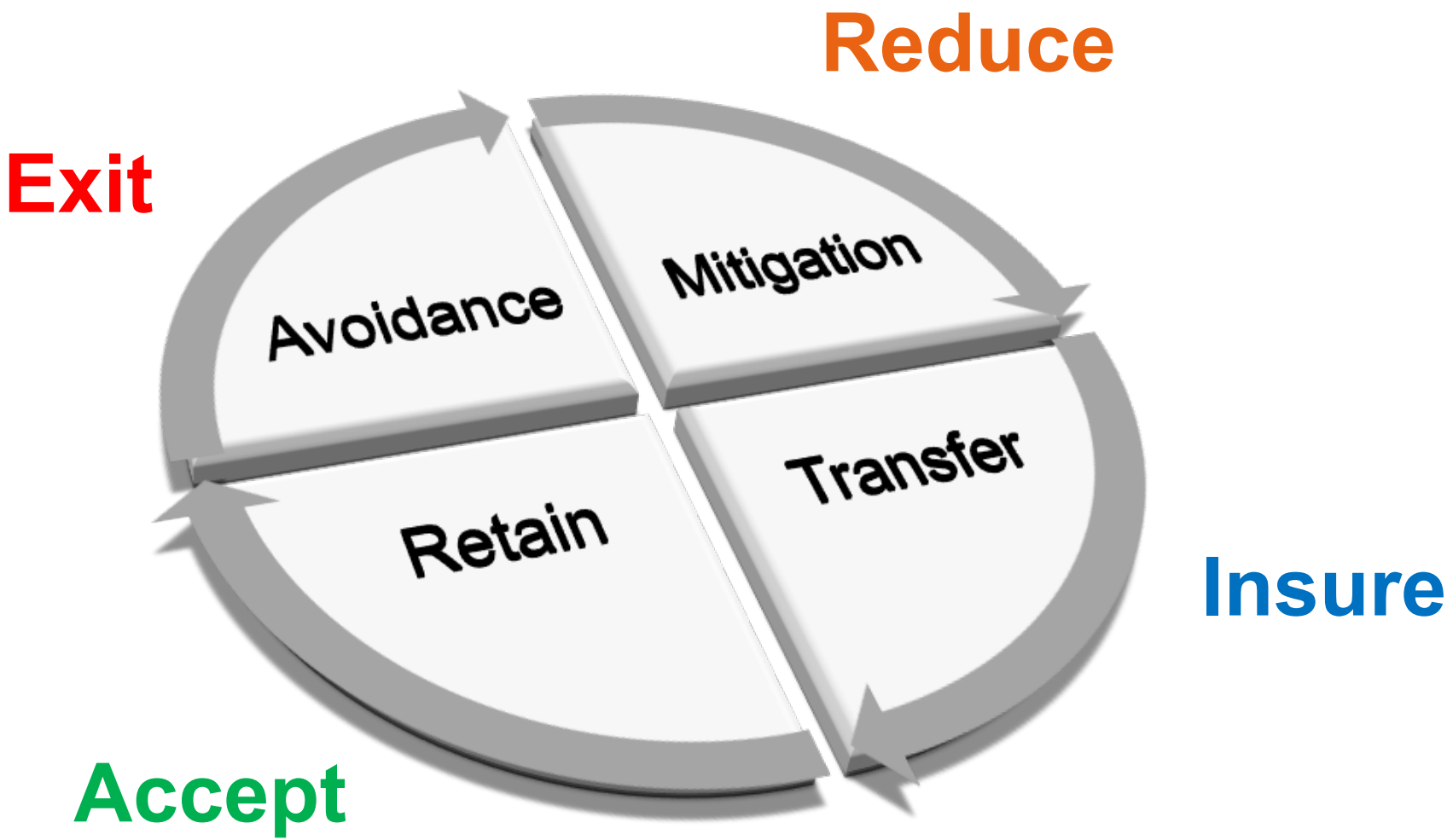
Enterprise Risk Management

- Strategic
- Continuous activity
- All of management
- Focused and coordinated (Holistic)
- Business Risk
- Anticipate, detect, monitor
- Focus on processes and people

Enterprise Risk Management – Risk Types



Enterprise Risk Management – Managing Risk



ERM Progress To Date

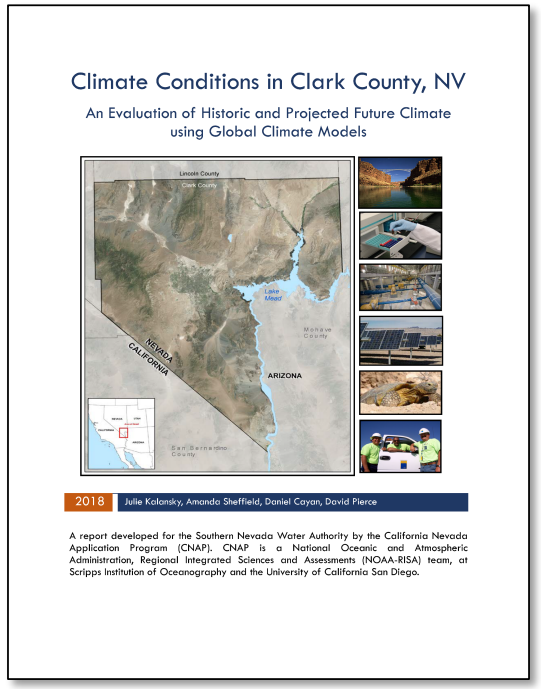
ERM Committee held 115 meetings and interviewed 181 supervisors, managers, directors and DGMs between February and June 2018

Compiled 928 comments

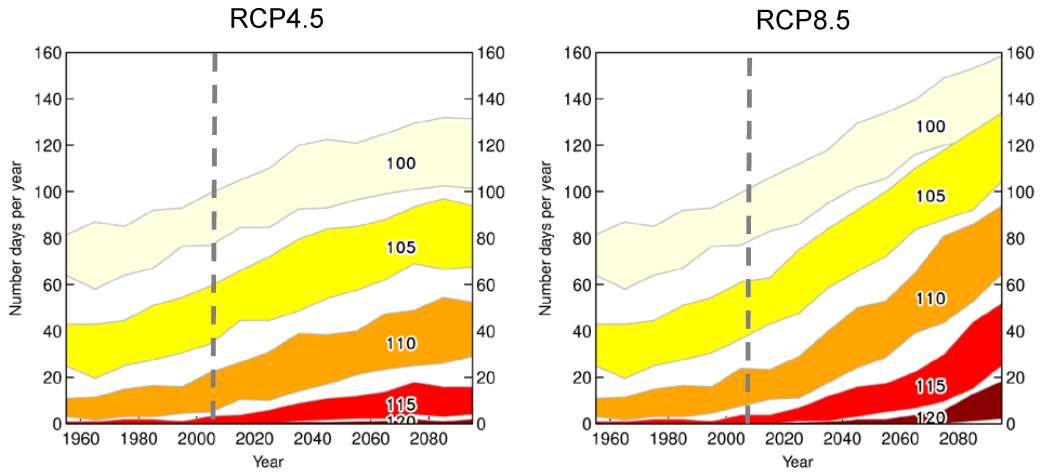
Based on comments 62 risks were identified

Marsh Analytics study completed

Projected Change in Climate – Clark County



- **Mean annual temperature projected to increase 3.8 to 6.5 °F by the 2050s**
- **Night time lows increase more rapidly than day time highs**
- **High heat days increase significantly**



Objectives

- Characterize and prioritize climate –related risks
- Identify opportunities to incorporate climate change information into existing processes, procedures, and programs
- Identify data and baseline information needs for monitoring and evaluating future impacts
- Develop an implementation plan

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Business Function Areas

- **62** enterprise-wide potential risks
- **17** climate sensitive
- Addressed **11** climate-sensitive potential risks
- Managed by **7** Business Function Areas

Water Resources

Environmental Health and Safety

Capital Program Governance

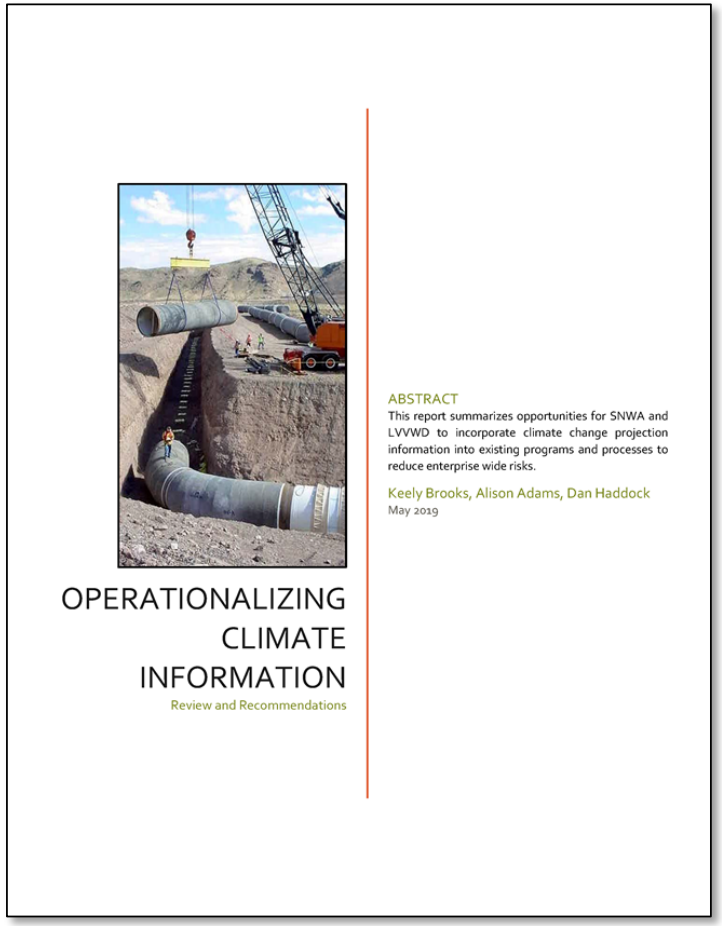
Engineering Design Standards

Infrastructure Management

Distribution System Operations

Water Quality Treatment and Monitoring

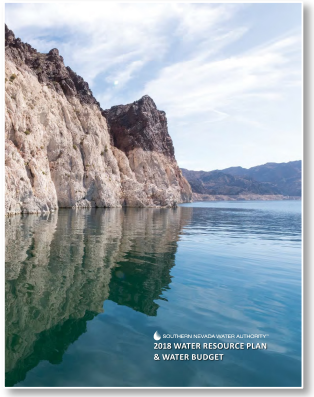
Results



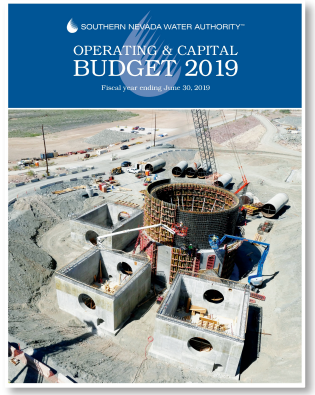
- **35** recommendations to help manage increased risk
  - **Collect and monitor data**
  - **Educate and Train**
  - **Adapt procedures**
  - **Research and modeling**
  - **Strategic**

Establish a Common "Reference Climate Future"

Reference Climate Future

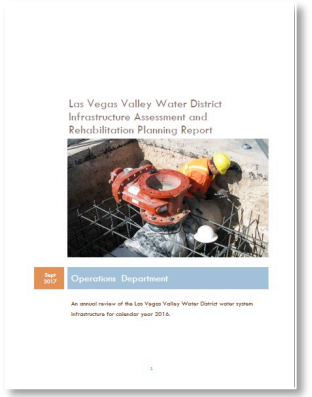


Water Resource Plan



Budgets

Capital Investment Plan



Asset Management Plan

Establish a Common "Reference Climate Future"

Reference Climate Future

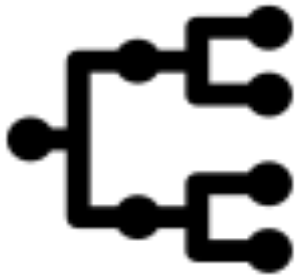
	Today	2020s	2050s	2080s
Mean annual temperature (°F)	62.7	+1.3 to +3.1	+3.8 to +6.5	+7.2 to +9.7
# of days above 100°F	84	+17	+38	+56
# of days above 105°F	44	+18	+44	+67
# of days above 110°F	12	+11	+33	+60
# of days above 115°F	1	+3	+11	+29
# of days above 120°F	0	+0	+0	+7
# of days below 60°F	236	-13	-32	-53
# of days below 50°F	174	-15	-31	-55
# of days below 32°F	42	-15	-25	-33
Change in Cooling Degree Days (CDD)[1,2]	2190	NA	2847 to 3679	NA
Mean annual precipitation[3]	4.21	NA	NA	-1.36 to +2.92 in

Environmental Health & Safety

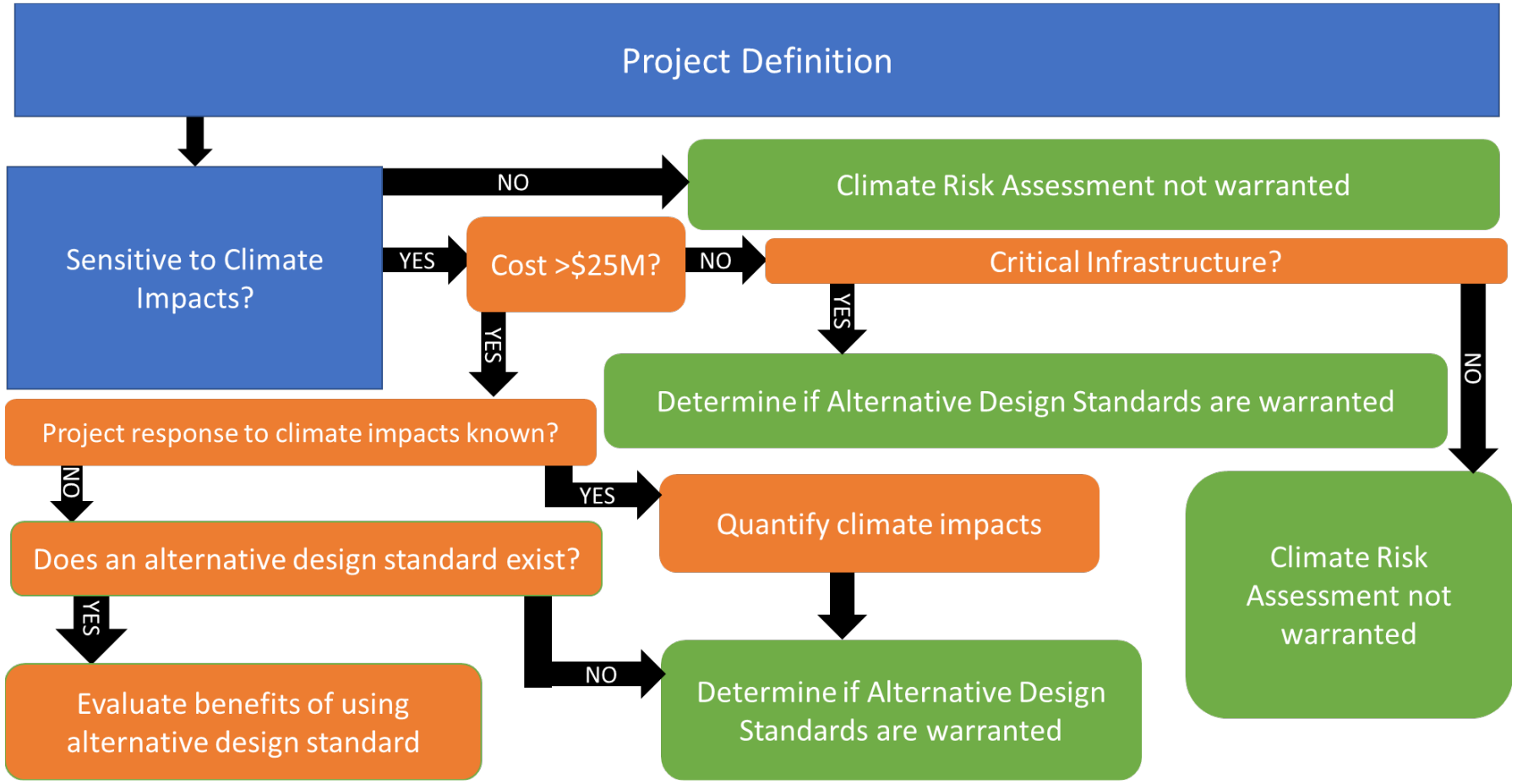
Risk	Actions	Progress
Heat Stress	Training – heat related illness and safety	Complete
	Hydration	Complete
	PPE/Shade	Complete
	Appropriate work/rest cycles	Complete
	Modify work schedules	**Planned**
Disease Vectors	Zika	Complete
	Monitor local and national health bulletins	Complete
	Enrolled in POD with SNHD	Complete
	Insect Repellant	Complete
	Training & Awareness	**Planned**
Air quality	Select more efficient generators & vehicles	Complete

- **Collect and monitor data- environmental**
- **Collect and monitor data- impact indicators**
- **Develop work/rest cycle guidance from CDC/NIOSH**
- **Calculate cost of heat impacts to organization with and without adaptation**

Capital Program Governance



Decision Tree



Future Design Standards Updates

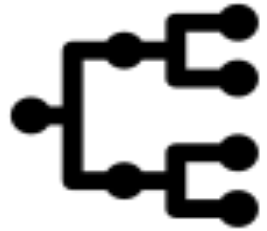
LAS VEGAS VALLEY WATER DISTRICT

SOUTHERN NEVADA WATER AUTHORITY

- Materials, coatings
- Requirements for equipment performance monitoring
- Requirements for water quality monitoring
- Building design
- SCADA and communications equipment
- HVAC
- Requirements for auxiliary power
- Well design

Early Wins

- **Revised Engineering Design Standards**
- **Project initiation decision tree & climate conditions guide**
- **Increased data collection and tracking**
- **Enhanced education and training for extreme heat**



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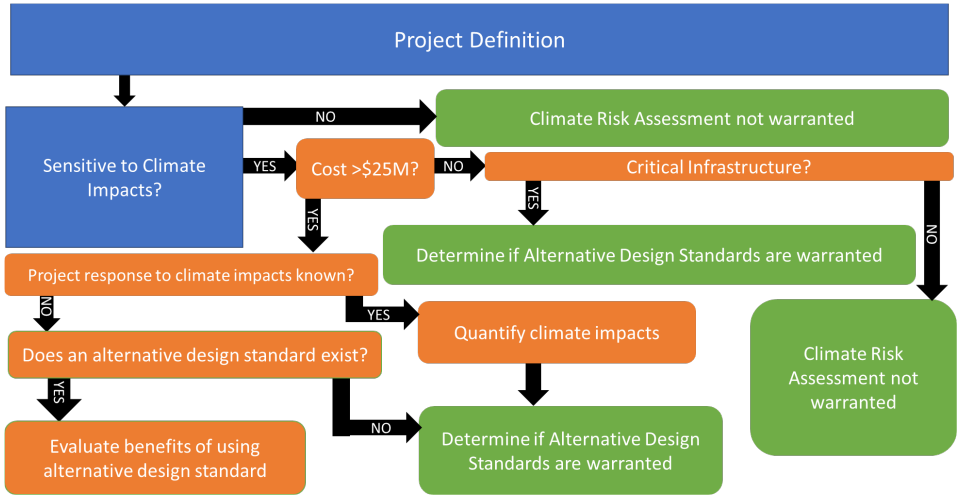

Key take aways

- **Climate change is a threat multiplier**
- **Start with what you are already doing**
- **Risk management is a logical home for climate change planning**
- **Go to the experts - let the Business Function Areas offer up solutions**
- **Opportunities exist to supplement organizational "controls" to address new and increasing risks**

Acknowledgements & Questions

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