

A Strategy for 21st Century Risk Management in a Changing Climate

Alison Adams Ph.D, PE, Project Engineer, Intera Incorporated

Presented on behalf of Southern Nevada Water Authority

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Antioch University Weathering Change Webinar



Las Vegas Valley Water District
Southern Nevada Water Authority
Springs Preserve™

Outline

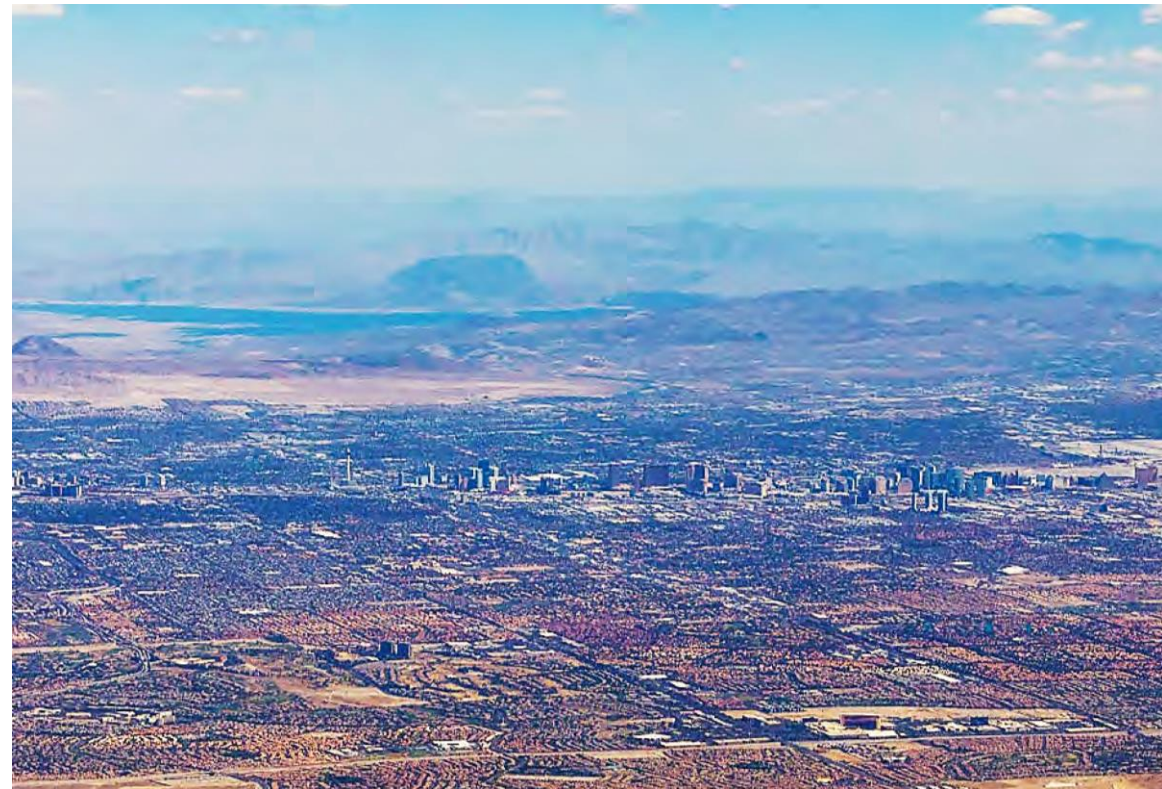


SOUTHERN NEVADA
WATER AUTHORITY



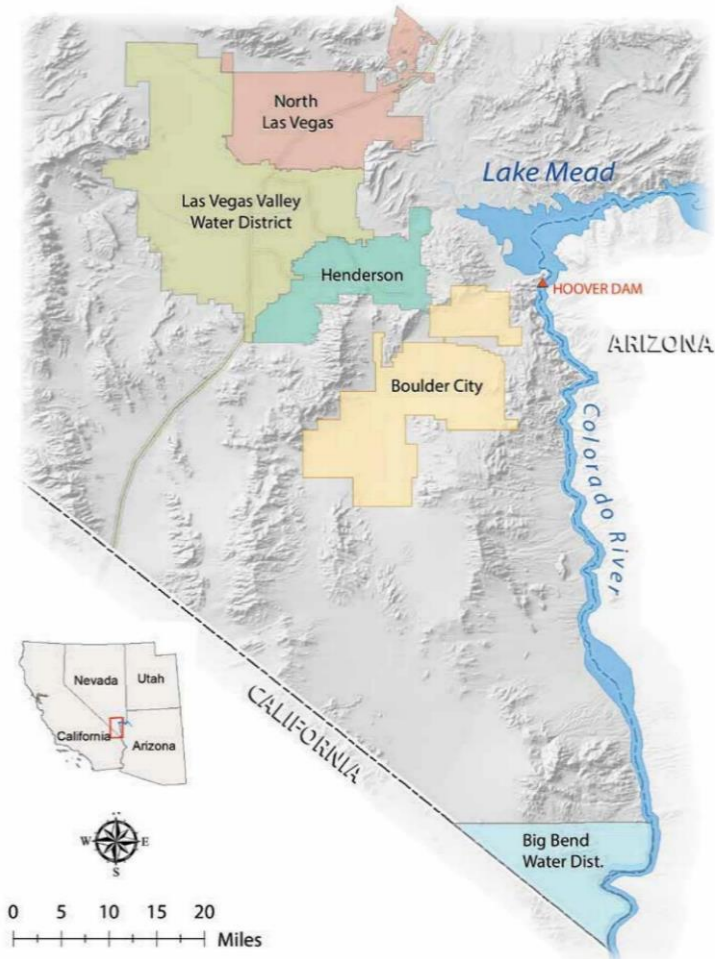
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- ▶ **Background**
- ▶ **Approach**
 - ▶ **Climate Changes**
 - ▶ **Enterprise Risk Management**
- ▶ **Project Goals & Objectives**
- ▶ **Process**
- ▶ **Results**
- ▶ **Key Take Aways /Lessons Learned**



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Background



SOUTHERN NEVADA WATER AUTHORITY



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

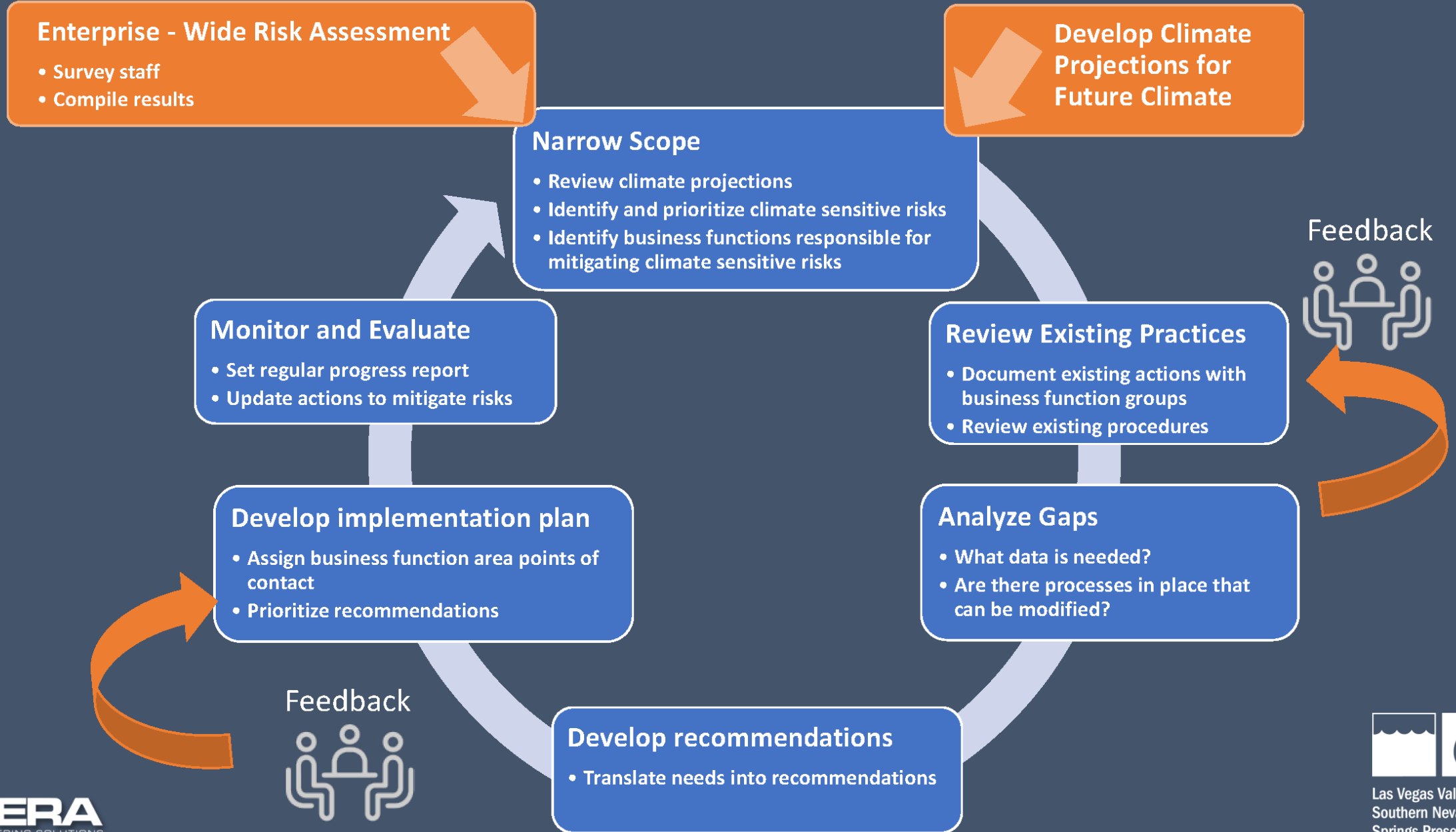


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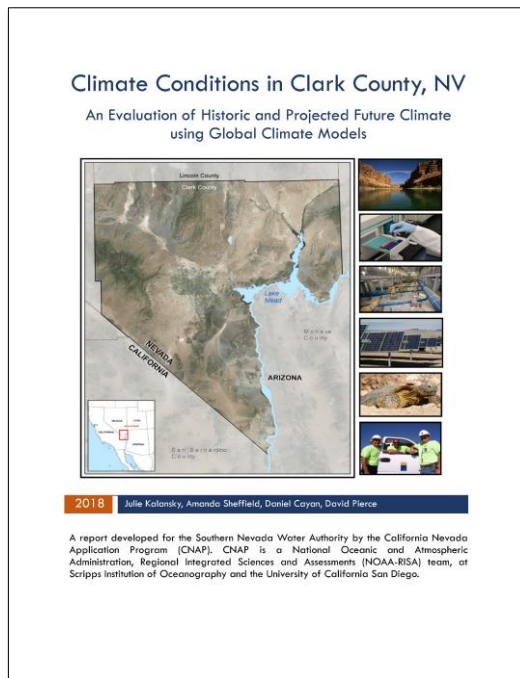
- Serves 1.4 million people
- 6,500 miles of pipe, 102 wells, 54 pump stations, 79 distribution storage reservoirs



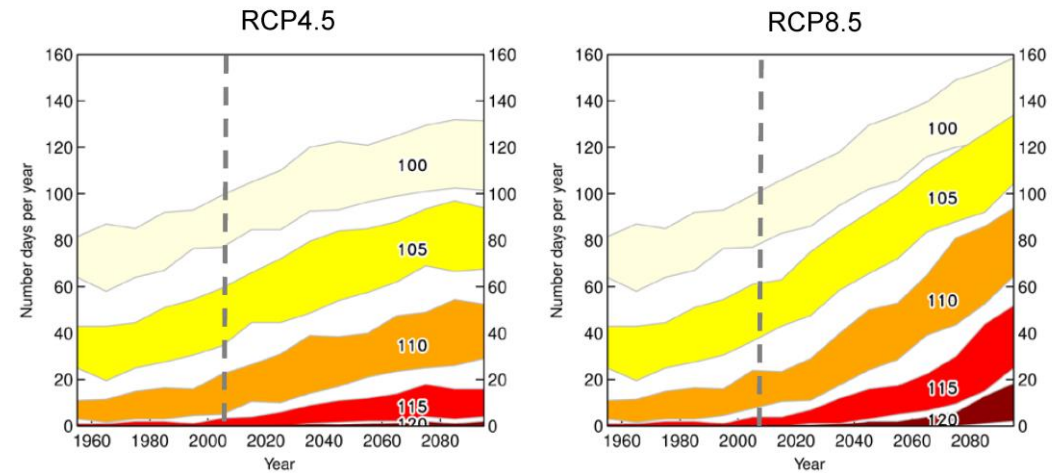
Operationalizing Climate Information



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



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 – Types of Risk

Hazard

- Property Damage
- Natural Catastrophe

Financial

- Asset Value
- Liquidity
- Credit

• Operational

- Service Failure
- Human Resources

Strategic

- Reputation
- Competition
- Regulatory



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 59 risks were identified



Marsh Analytics study completed

SNWA Mainstreaming Project

▶ GOALS:

- ▶ Operationalize climate change information
- ▶ Reduce potential risks through a streamlined approach

▶ 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



**A STRATEGY FOR 21ST
CENTURY RISK MANAGEMENT**
Integrating Climate Change into the Risk Paradigm at
SNWA and LVVWD

ABSTRACT

This report summarizes opportunities for Southern Nevada Water Authority and the Las Vegas Valley Water District to incorporate climate change projection information into existing programs and processes to reduce enterprise wide risks.

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Engagement Process

- ▶ Identify climate sensitive risk from the Enterprise Risk Management List
- ▶ Identify business function groups and staff for engagement



Business Function Areas

- ▶ **59** 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

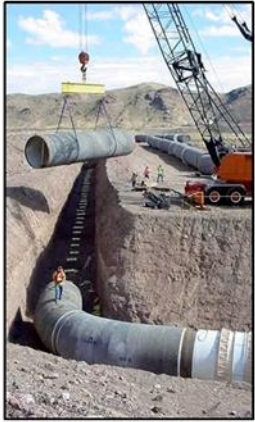


Engagement Process (con't)

- ▶ Held 17 small group meetings to identify data and baseline information needs for monitoring and evaluating future impacts
- ▶ Iterative process to develop an implementation plan



Results



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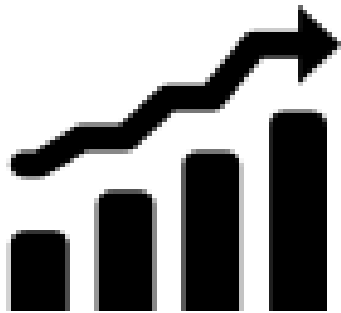
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- ▶ **37** recommendations to help manage increased risk
 - ▶ **Collect and monitor data**
 - ▶ **Educate and Train**
 - ▶ **Adapt procedures**
 - ▶ **Research and modeling**
 - ▶ **Strategic**

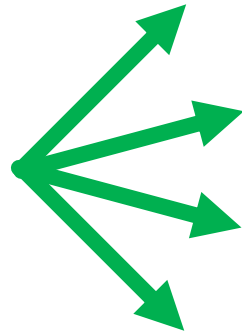


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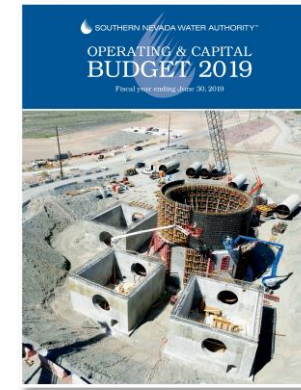
Establish a Common “Reference Climate Future”



**Reference
Climate Future**



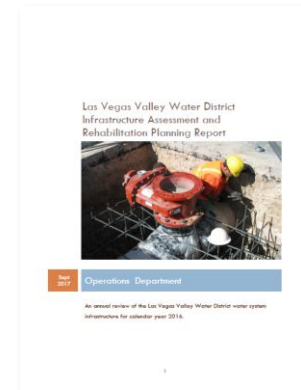
**Water
Resource
Plan**



Budgets



**Capital
Investment
Plan**



**Asset
Management
Plan**



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Establish a Common “Reference Climate Future”



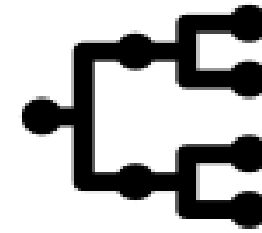
Reference Climate Future

| | 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 precipitation³ | 4.21 | NA | NA | -1.36 to +2.92 in |

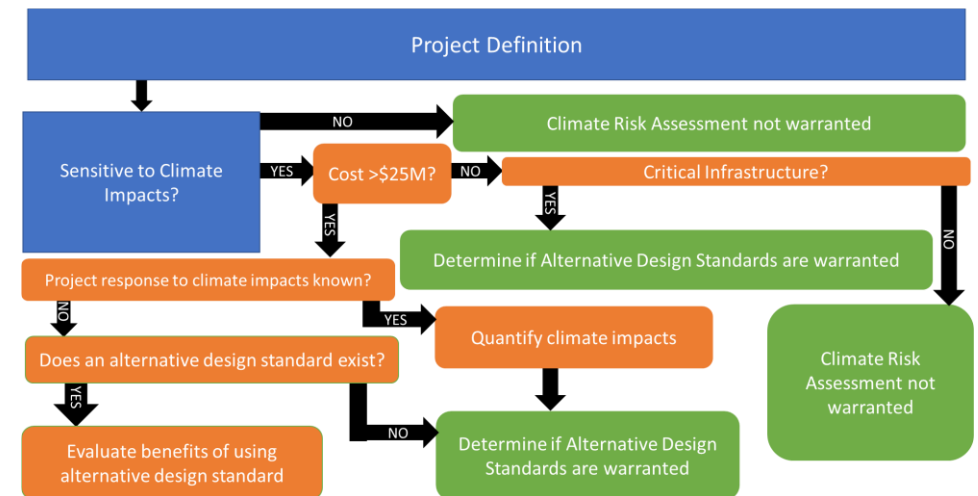


Early Wins

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



Decision Tree



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 internal experts - let the Business Function Areas offer up solutions**
- ▶ **Opportunities exist to supplement organizational “controls” to address new and increasing risks**

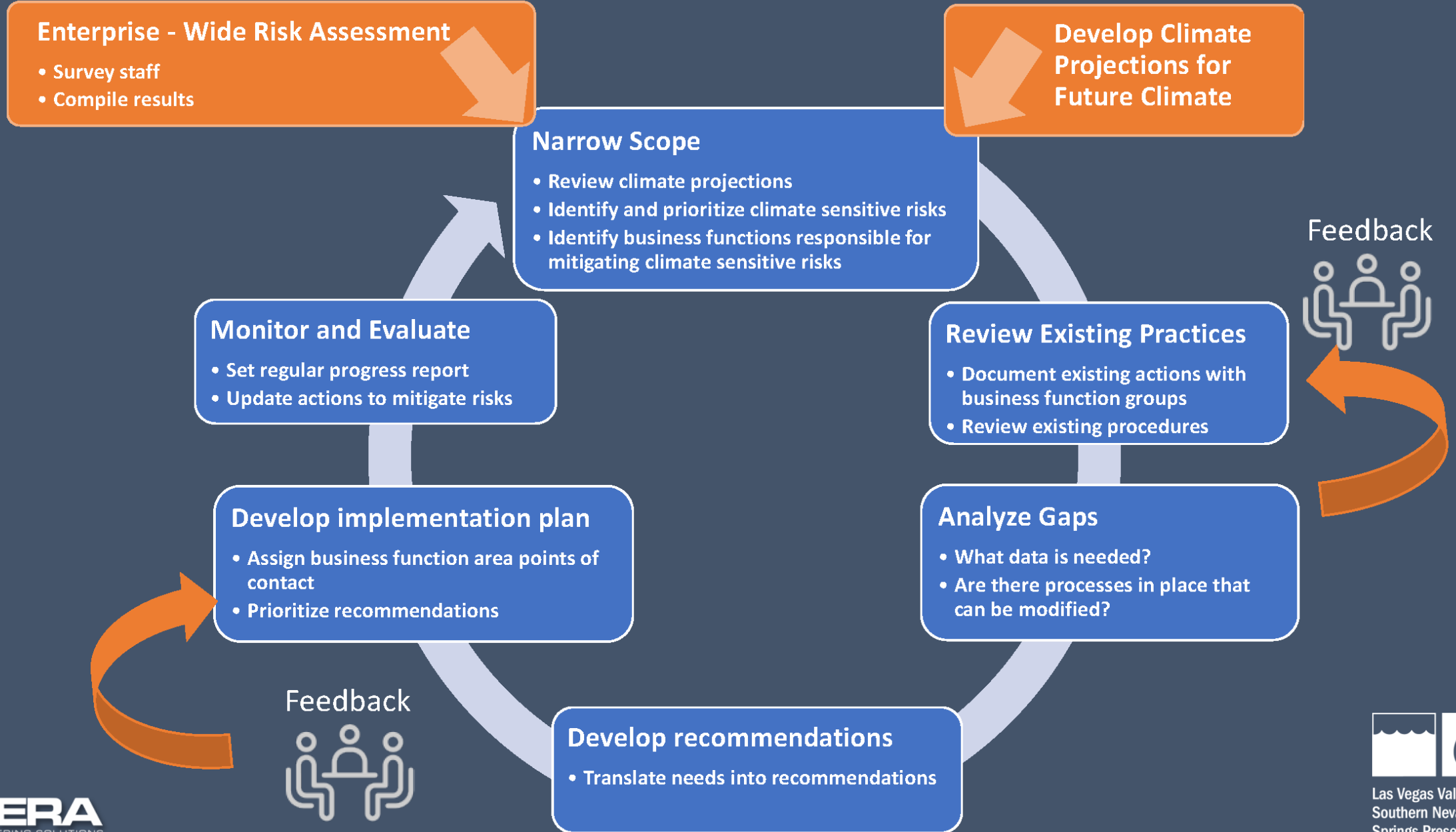


Lessons Learned

- ▶ Know your utilities risk profile (conduct an enterprise risk assessment)
- ▶ Create a reference climate future for consistent planning (future climate projections)
- ▶ Start with existing mitigation strategies
- ▶ Iterative process using small group meetings
- ▶ Feedback is important
- ▶ Accountability



Operationalizing Climate Information



Acknowledgements & Questions



Keely Brooks, Climate Change Policy Analyst

keely.brooks@snwa.com

James Curbeam, Risk Manager

james.curbeam@lvvwd.com



Alison Adams, PhD, PE, Principal Engineer

aadams@intera.com

Dan Haddock, PE, ENV SP, Principal Engineer

dhaddock@intera.com



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