PLANNING FOR MULTIPLE FUTURES

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National Adaptation Forum, April 2013

DENVER WATER

WUCA Water Utility Climate Alliance

Four Adaptation Steps

1. **Understand**
   climate science and model projections – capabilities and limitations
2. **Assess**
   water system vulnerabilities to potential change
3. **Plan**
   incorporate assessments into water utility planning
4. **Implement**
   adaptation and mitigation strategies

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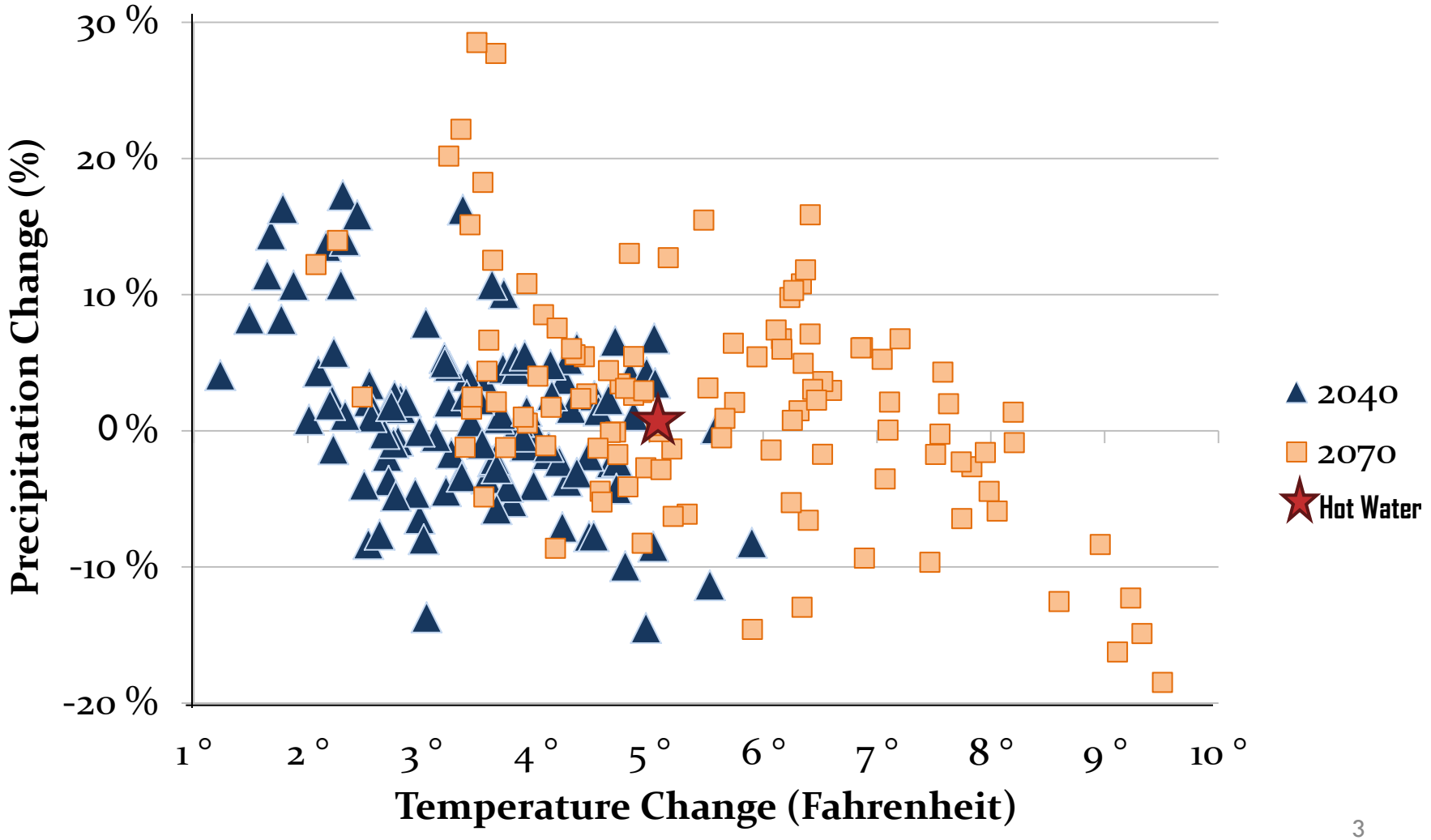
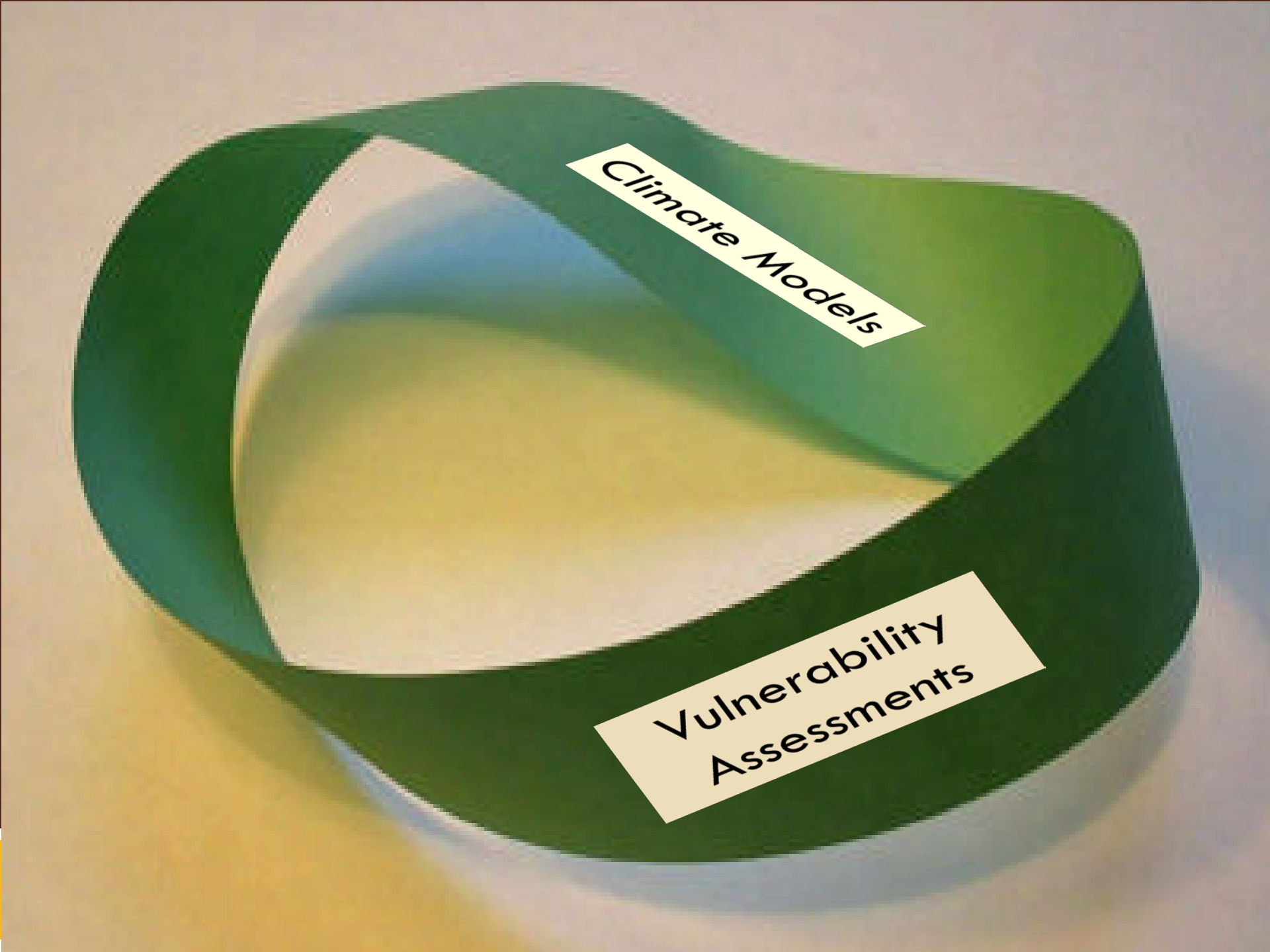
Projected Changes for Denver's Watersheds

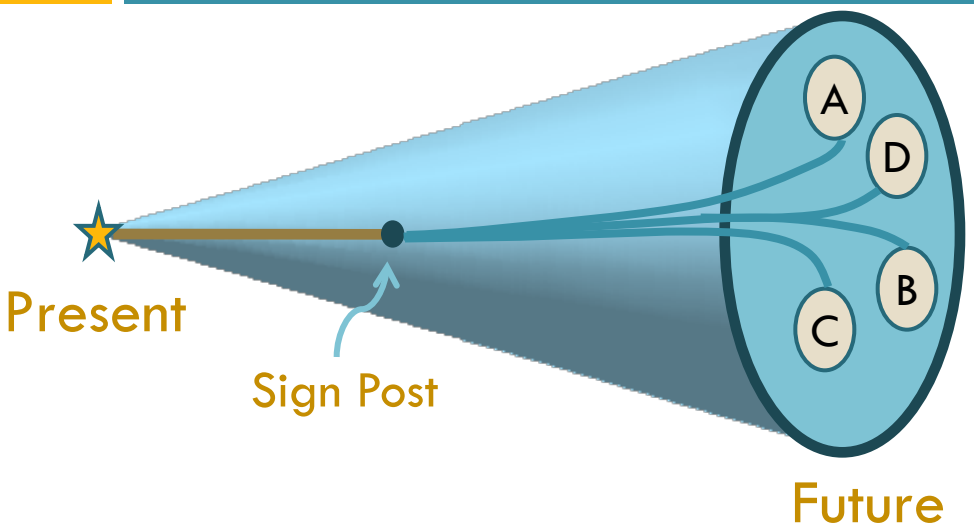



Climate Models
Vulnerability Assessments

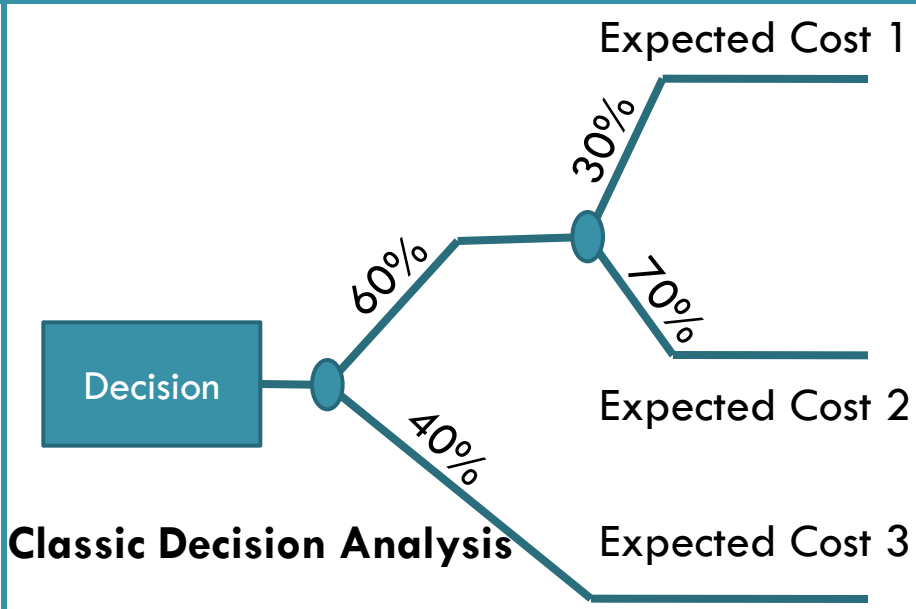
Water Utility Climate Alliance

<u>Mission</u>: The Water Utility Climate Alliances provides leadership in assessing and adapting to the potential effects of climate change through collaborative action. We seek to enhance the ***usefulness of climate science*** *for the adaptation community and improve water management* ***decision-making in the face of climate uncertainty.***

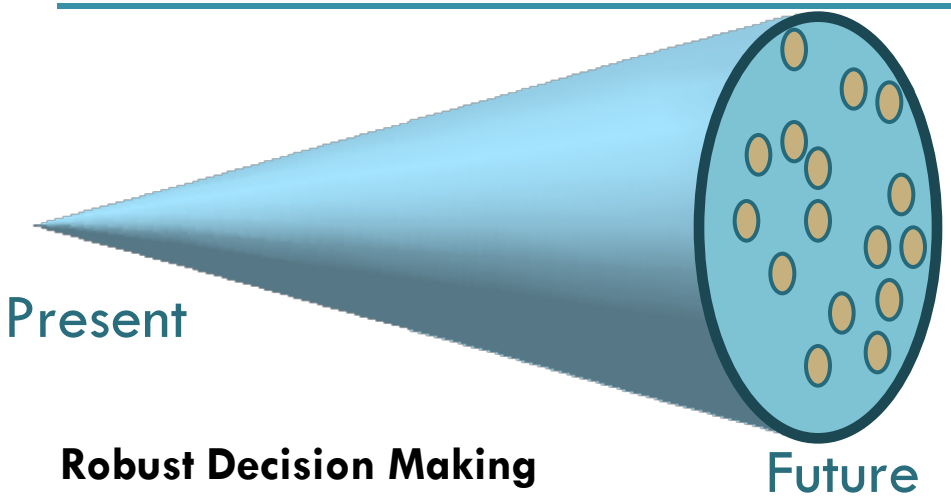
Four Promising Planning Methods



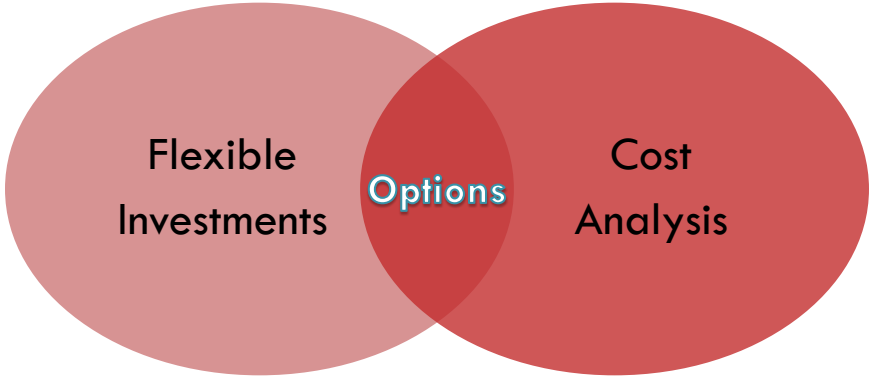
Traditional Scenario Planning



Classic Decision Analysis



Robust Decision Making



Real Options

Case Study White Paper

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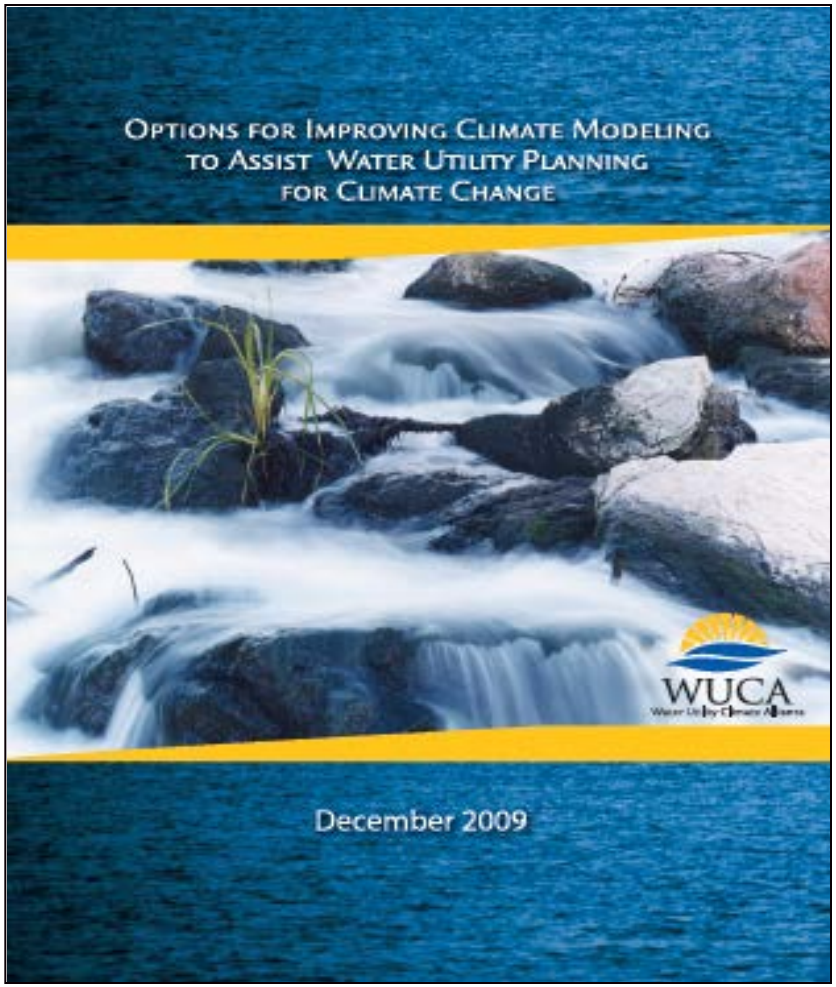
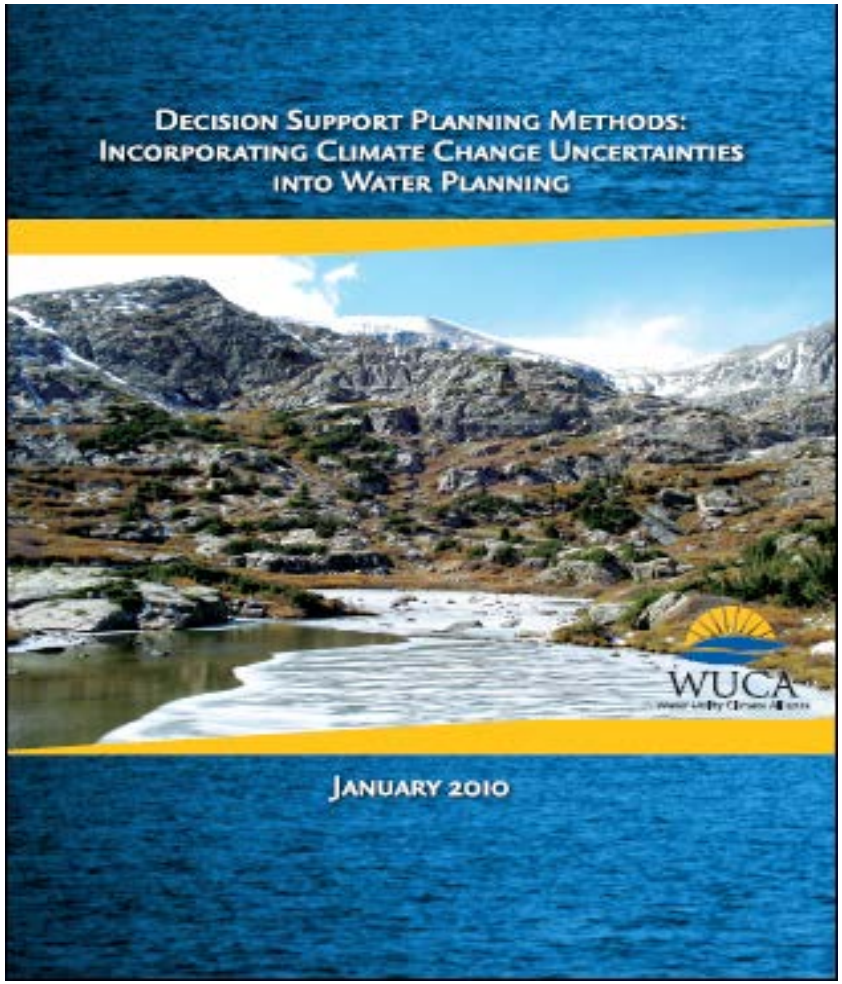
- What prompted the need to change your planning method?
- What approach was chosen and why?
- What barriers were encountered during the planning process and implementation stages?
- What level of support did you need and how much engagement was there from boards or city councils?
- Have you implemented any adaptation strategies or made decisions based on climate change information upon completion of the most recent planning iteration?
- How has this changed the way you view long-term planning?
- Did you discover any surprise findings or new ways of thinking about your system?
- Have you been able to change your organizations thinking from static to dynamic in terms of decisions made outside of the planning group or department?

Resources (wucaonline.org)





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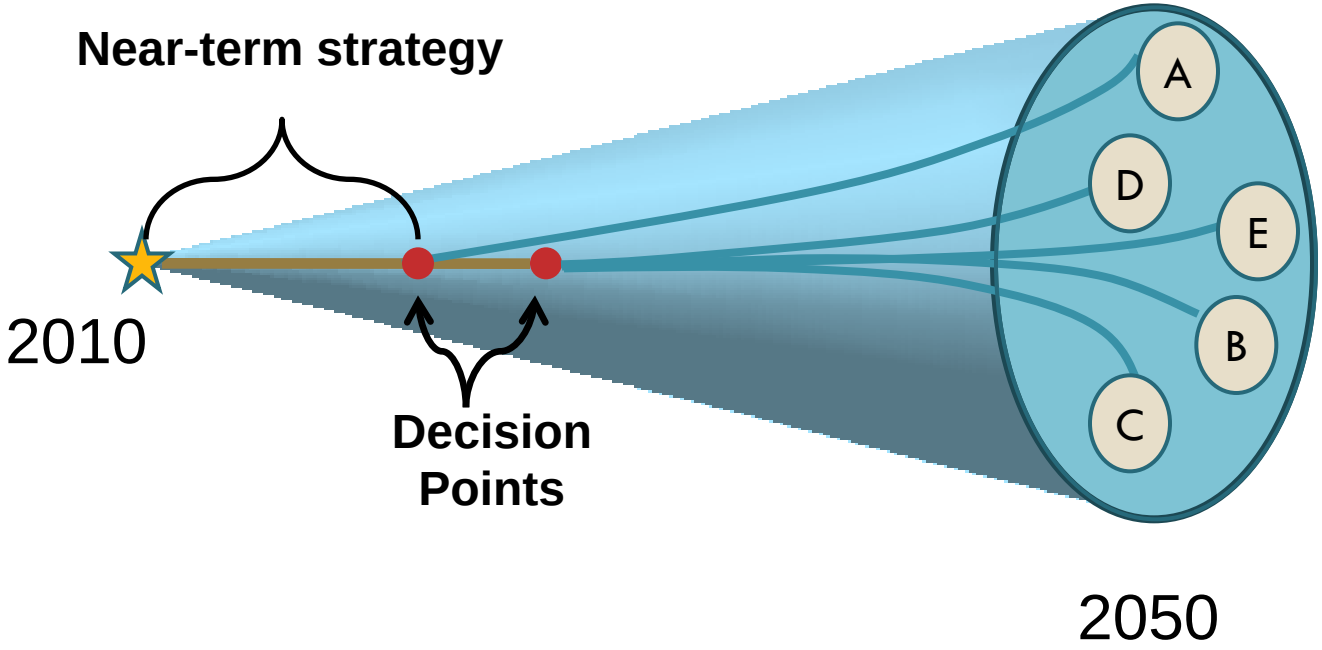
Denver Water - Scenario Planning

- Use Planning Futures to represent plausible range of future conditions
- Seek common near-term strategy
- Identify key options to preserve

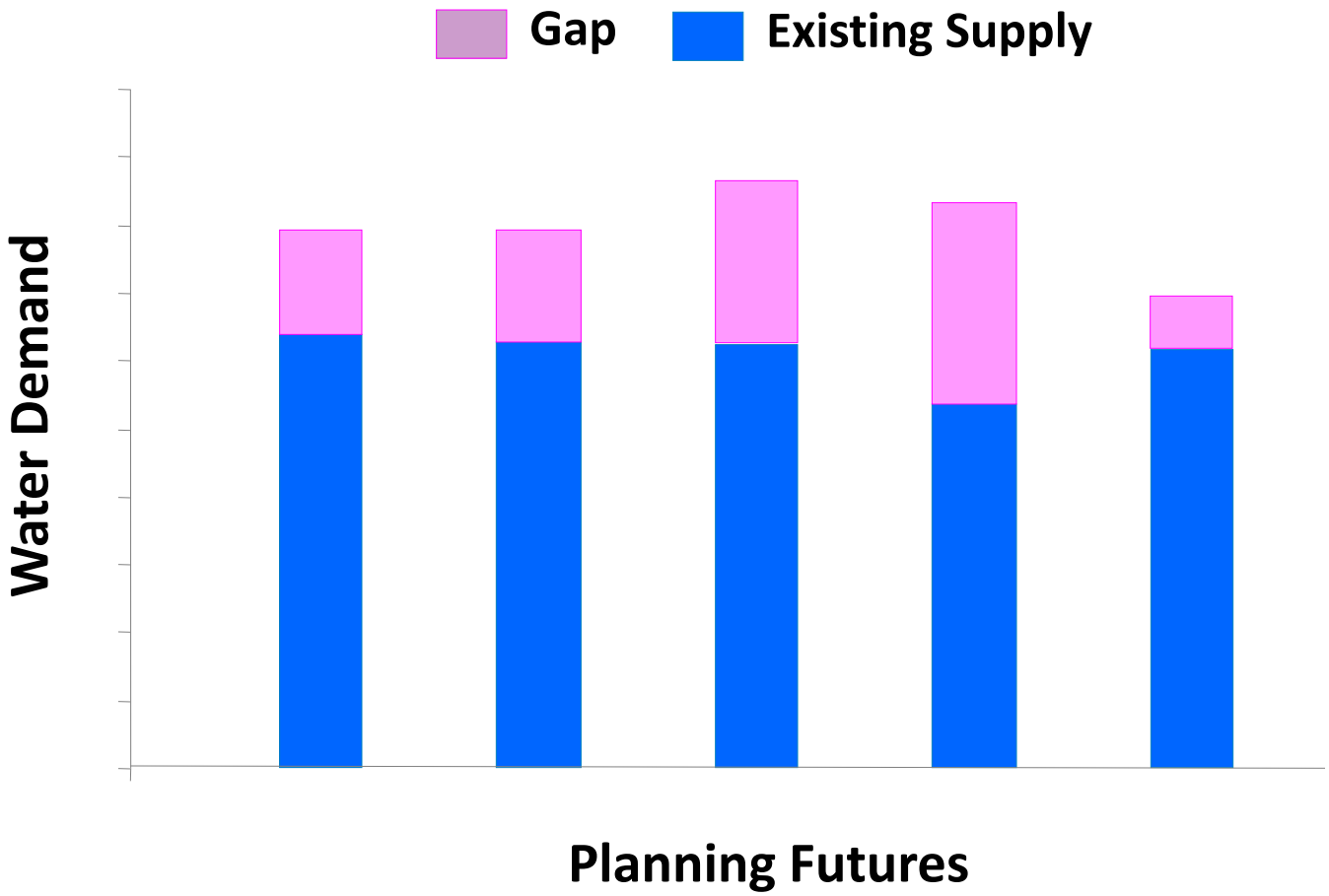


IRP2010 integrated resource plan DENVER WATER

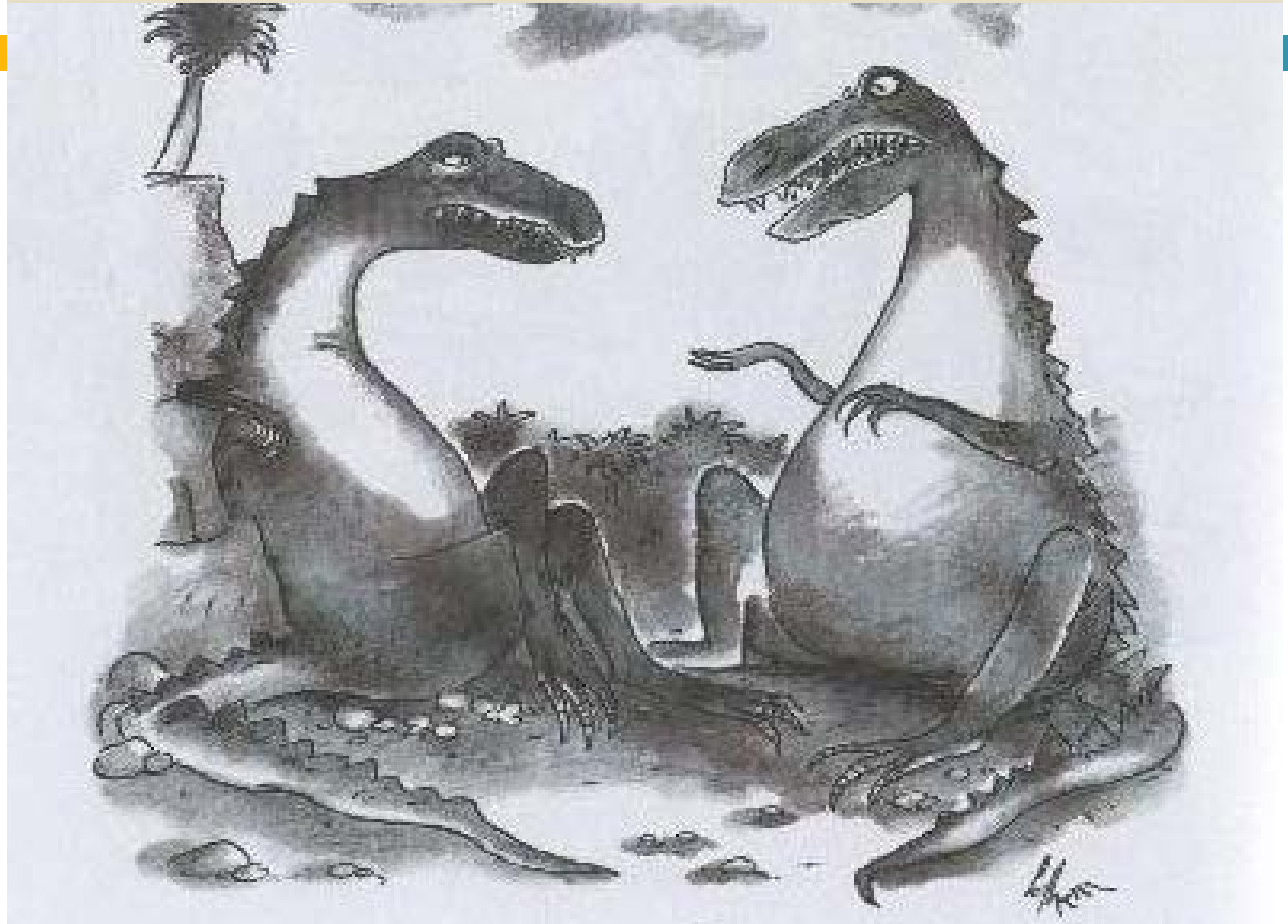
Population Density

2000 Census	People per Sq. Mile
New York	26,000
	25,000
	24,000
	23,000
	22,000
	21,000
	20,000
	19,000
	18,000
	17,000
San Francisco	16,000
	15,000
	14,000
	13,000
Chicago	12,000
	11,000
	10,000
Providence	9,000
	8,000
DW 2050 Grn. Rev.	7,000
DW 2050 Trad.	6,000
St. Louis	5,000
	4,000
DW 2000	3,000
	2,000
Kansas City	1,000

Supply Gap in 2050



"All I'm saying is *now* is the time to develop the plan we need to deflect an asteroid."



Thank you

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USE EVEN LESS.℠

DENVER WATER

It's a drought.