

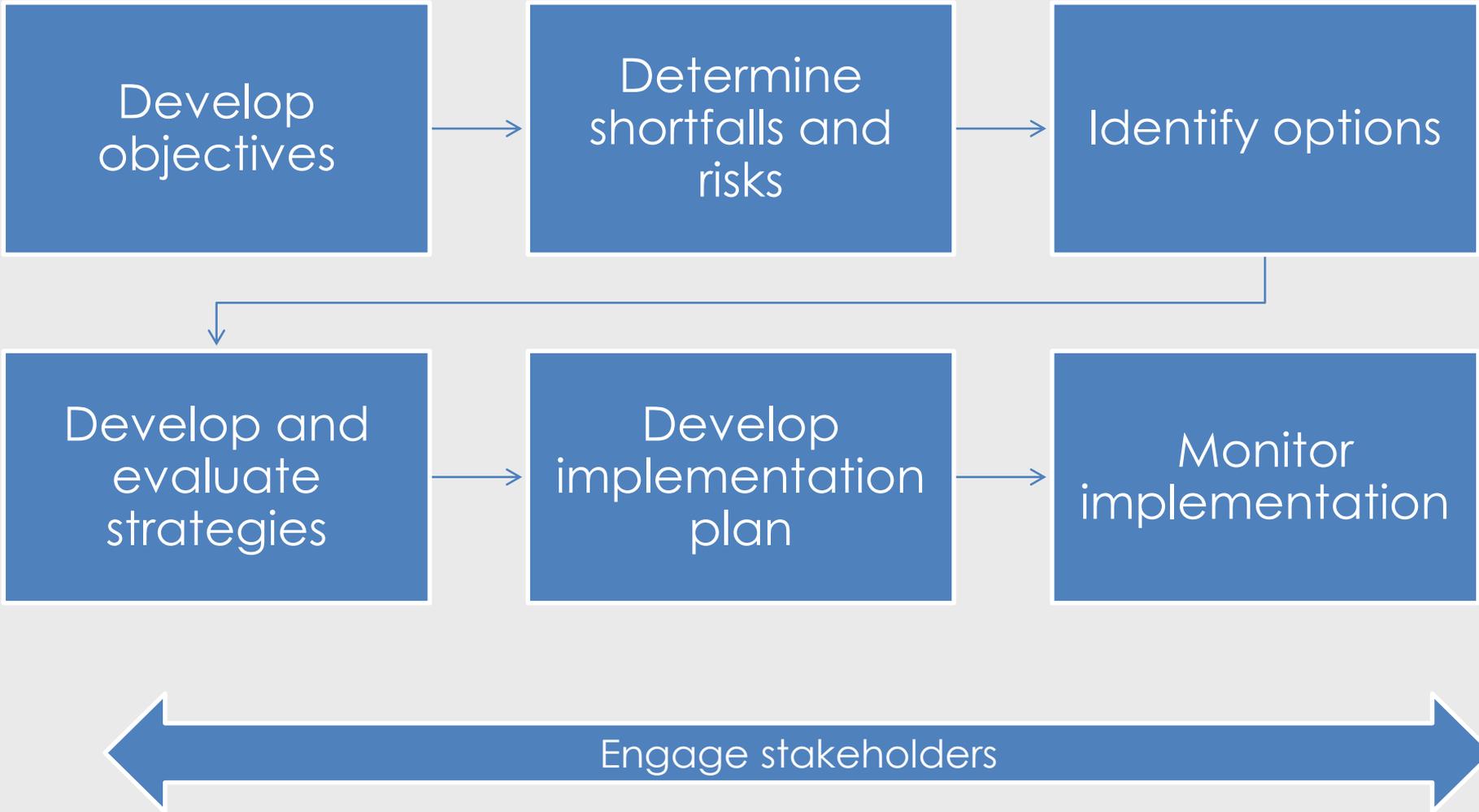
Water Supply Master Plan Update

April 25, 2017

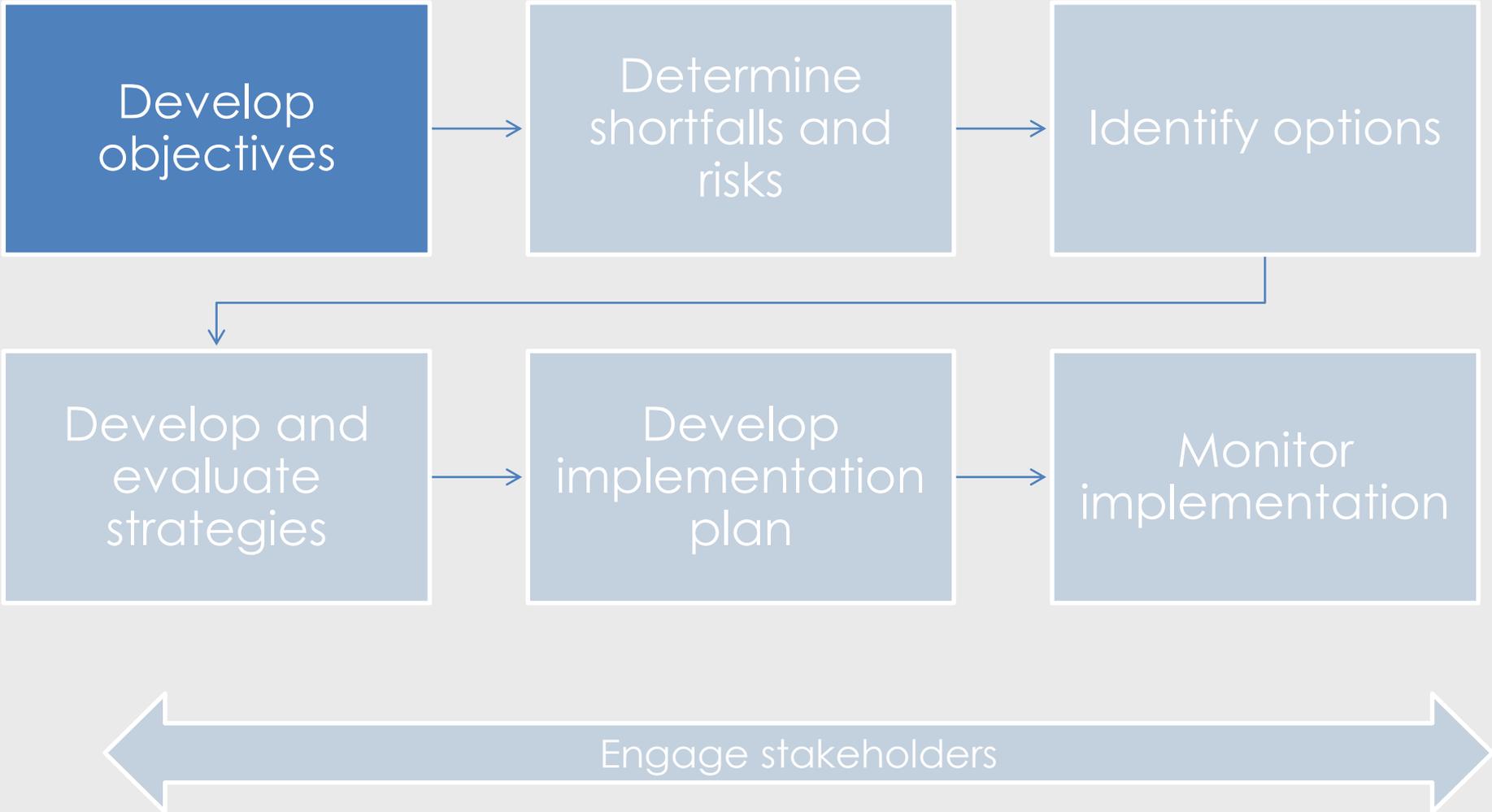
Presentation Outline

- ▶ Review previous work
 - ▶ Planning objectives
 - ▶ Water supply outlook and risks
 - ▶ Projects and programs
- ▶ Discuss initial water supply strategies/portfolios
- ▶ Receive stakeholder input
 - ▶ Phone survey
 - ▶ Expert Panel – Paula J. Landis, Dr. Ed Maurer, David Mitchell

Planning Process Recap



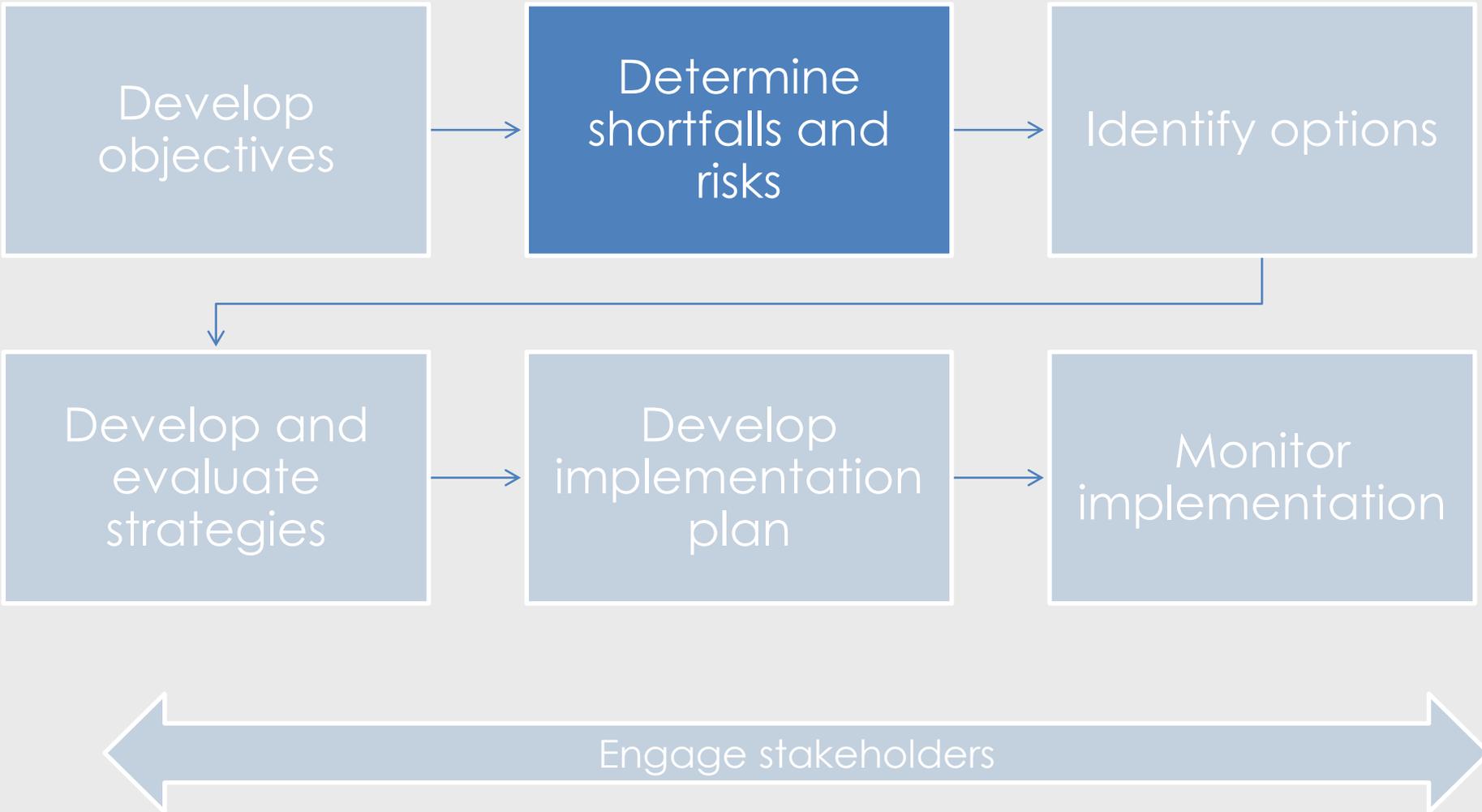
Planning Process Recap



Objectives Used to Assess Different Strategies

Objective	Sub-Objectives
1. Provide a Reliable Supply of Water for Municipalities, Industries, Agriculture, and the Environment	<ul style="list-style-type: none">•Meet demands•Maintain groundwater storage•Secure existing supplies•Reduce reliance on Delta•Maximize water conservation/water use efficiency
2. Ensure Drinking Water Quality	<ul style="list-style-type: none">•Protect groundwater quality•Meet drinking water regulations
3. Minimize Costs	<ul style="list-style-type: none">•Minimize life-cycle costs
4. Maximize Water System Flexibility	<ul style="list-style-type: none">•Maximize District influence•Minimize implementation issues•Allow for phased implementation•Adapt to climate change
5. Protect the Natural Environment	<ul style="list-style-type: none">•Protect and restore aquatic ecosystems•Reduce greenhouse gas emissions
6. Ensure Community Benefits	<ul style="list-style-type: none">•Fulfill customer expectations/avoid property impacts•Provide access for recreation•Provide flood protection

Planning Process Recap

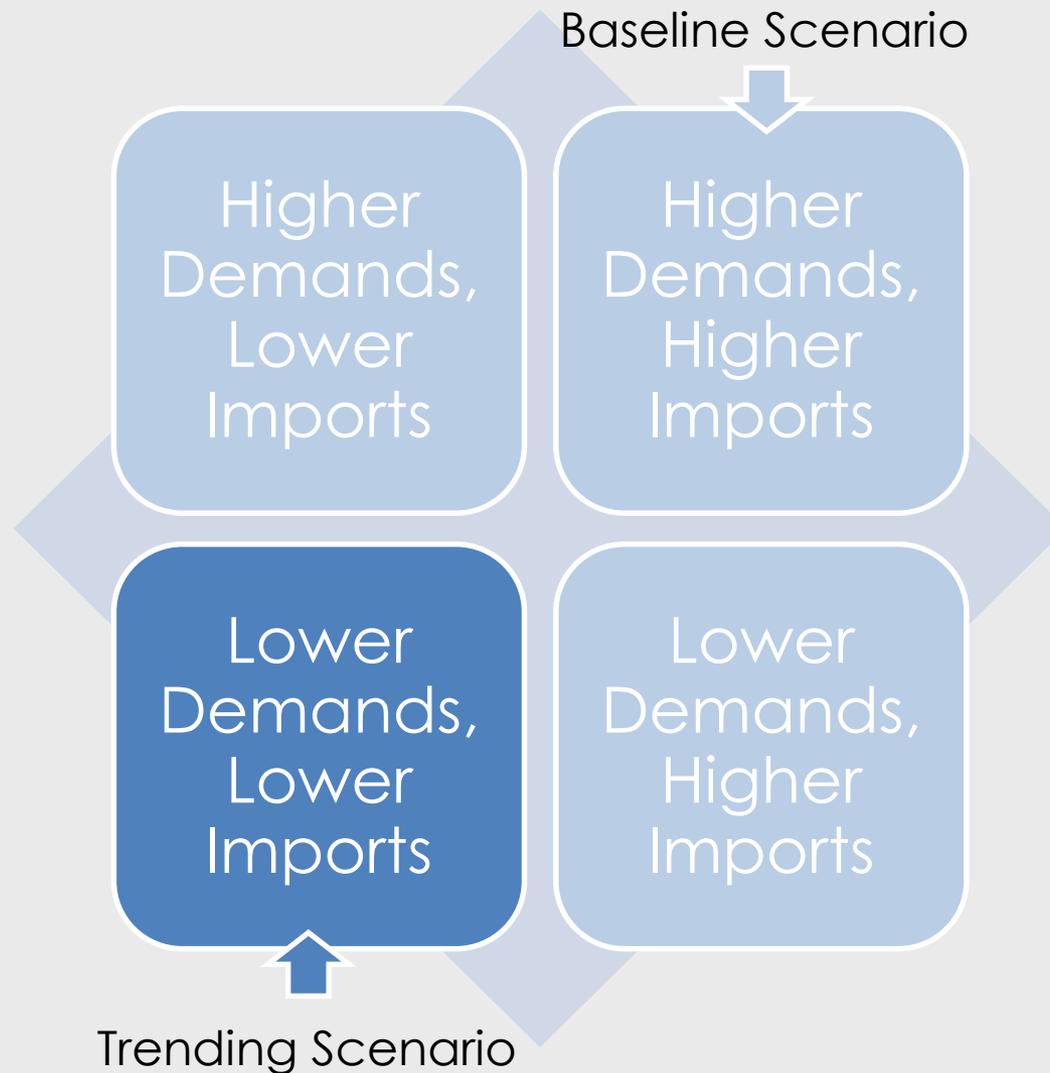


Need to consider risks

- ▶ Climate change
- ▶ Regulations
- ▶ Aging Infrastructure
- ▶ Funding
- ▶ Development and land use



Need to consider alternative scenarios



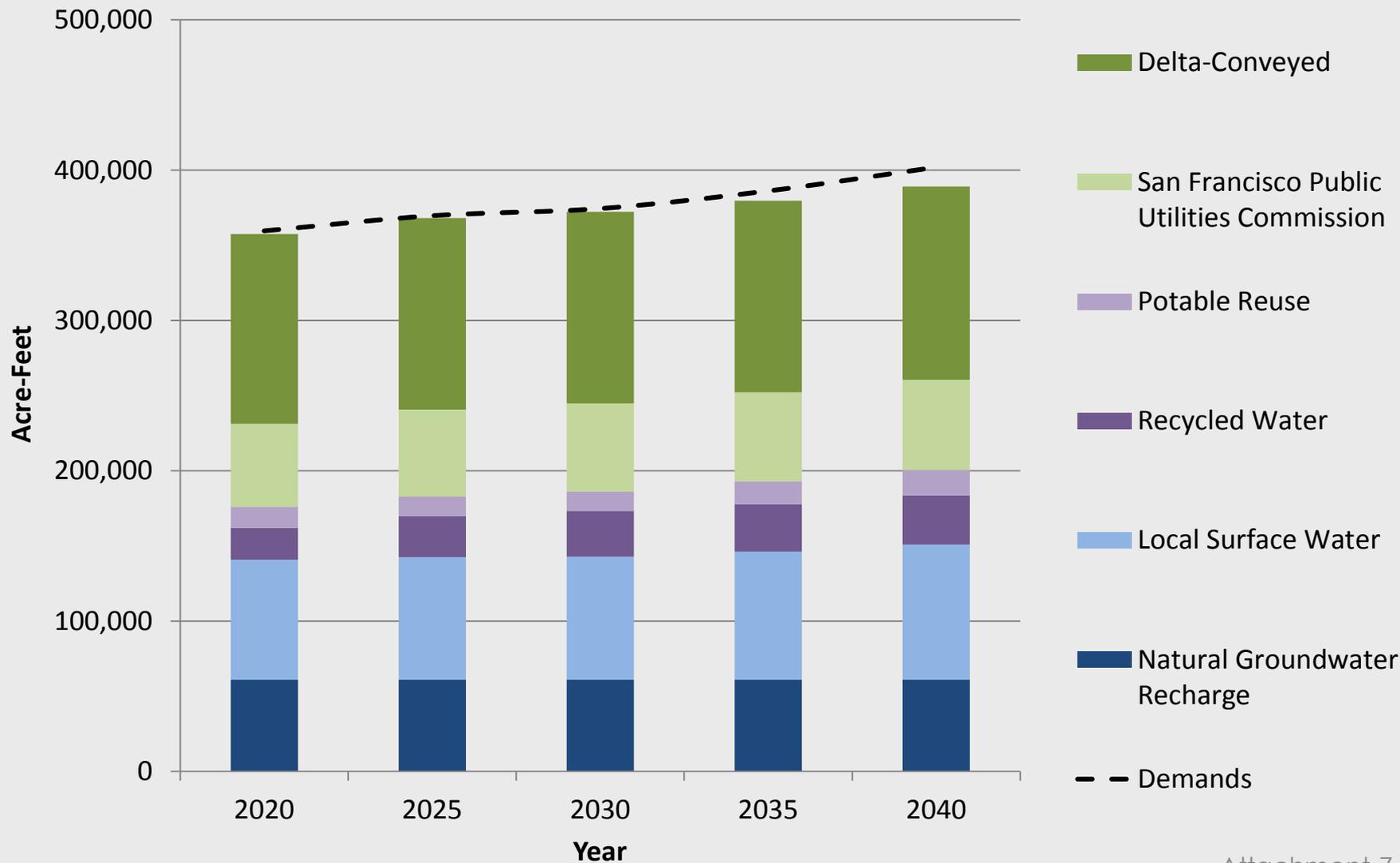
Trending Scenario vs. Baseline Scenario

Assumes 24,000 AFY of potable reuse capacity and other base case investments

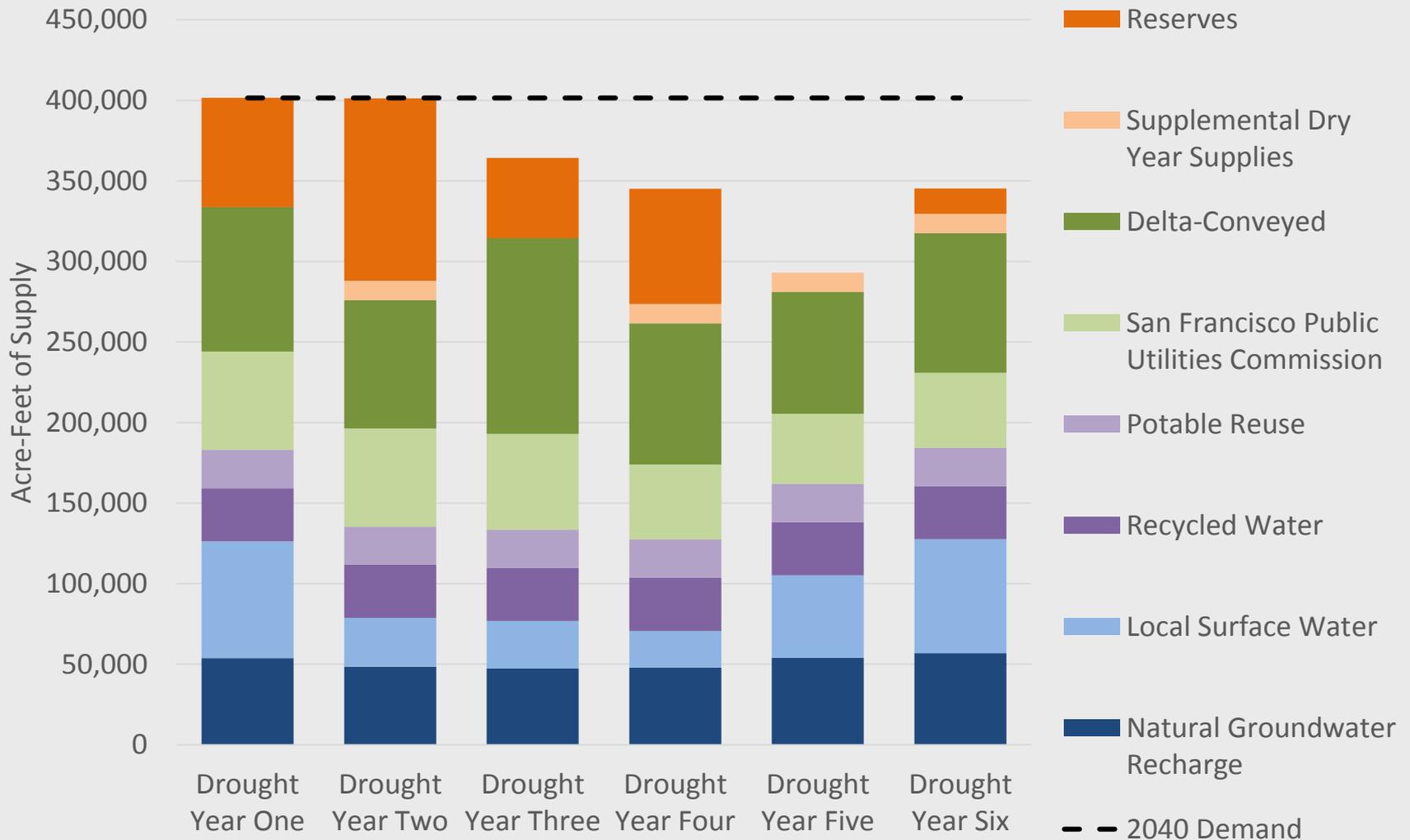
Parameter	2040 Baseline	2040 Trending
Average Annual Supply (Acre-Feet, AF)	440,000	391,000
Normal Year Demand (AF)	435,000	402,000
Maximum Level of Shortage (% of Normal Year Demands)	Stage 3 (15%)	Stage 4 (30%)
Number of Years with Shortage (Over 94 Years)	13	22
Number of Years with Stage 2 (10%) Shortages	7	16
Number of Years with Stage 3 (15%) Shortages	6	4
Number of Years with Stage 4 (30%) Shortages	0	2

Supplies are sufficient through 2030

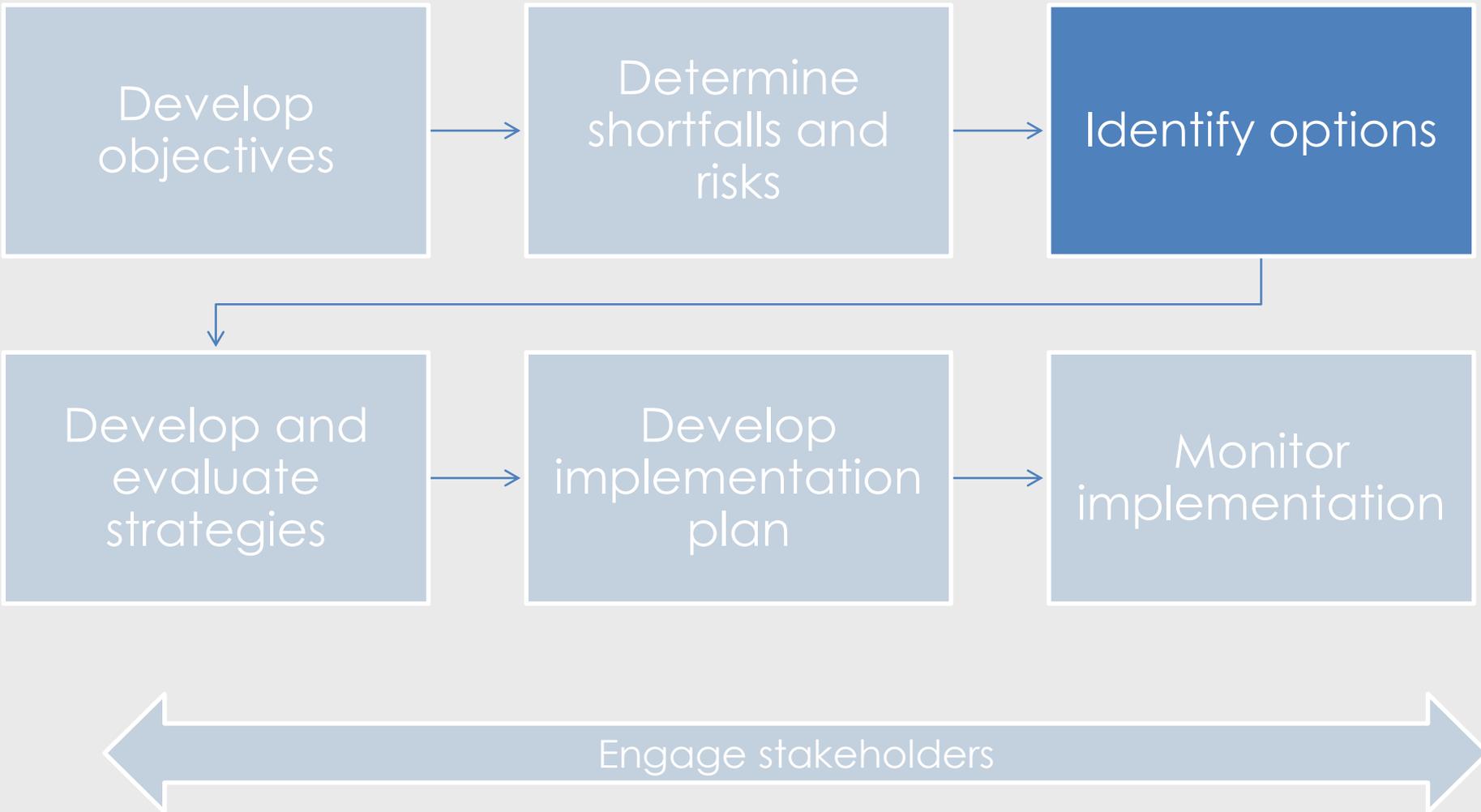
Assumes 24,000 AFY of potable reuse capacity and other base case investments



Droughts are the greatest challenge



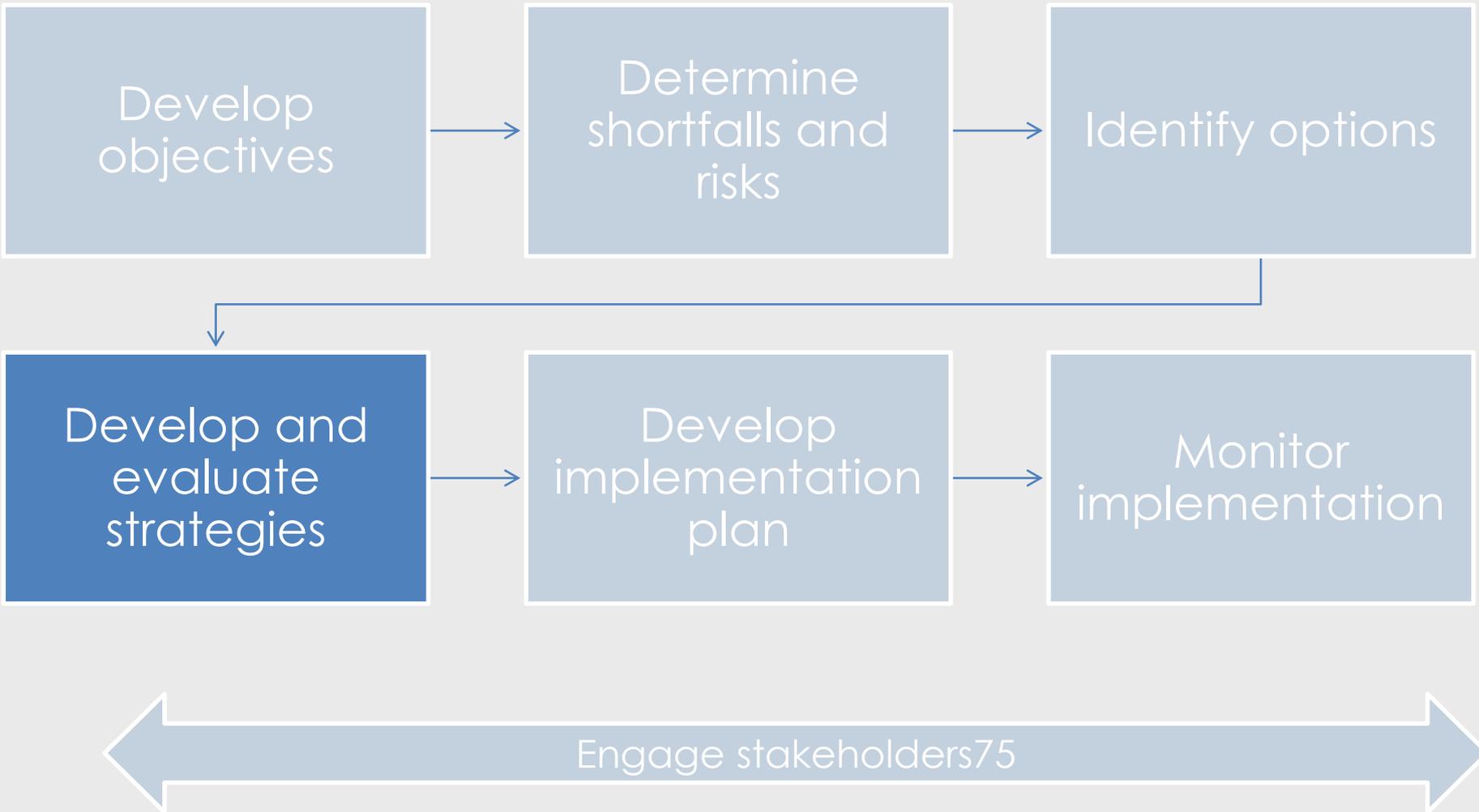
Planning Process Recap



Water Supply Options

- ▶ Storage, inside and outside county
- ▶ Groundwater recharge ponds
- ▶ Additional potable reuse
- ▶ Recycled water
- ▶ Conservation and demand management
- ▶ Onsite Reuse
- ▶ Raw Water Pipelines
- ▶ Ag land fallowing
- ▶ Stormwater reuse
- ▶ Desalination
- ▶ Transfers/dry year options
- ▶ Additional water rights
- ▶ California WaterFix

Planning Process Recap



Water Supply Strategies/Portfolios

See Attachment 3 for details

1. Modular
2. Low Risk
3. Local Control
4. Low Cost
5. Climate Change (Operational Flexibility)
6. Climate Change (Dry Year Supplies)
7. Local Storage
8. Statewide Storage
9. Secure Imported Supplies

“No Regrets” Package Proposed for Each Strategy

- ▶ Model Ordinance
- ▶ Gray Water Expansion
- ▶ Leak Repair Incentive
- ▶ Stormwater
 - ▶ Saratoga 1
 - ▶ San Jose
 - ▶ Rain Garden Rebate
 - ▶ Ag Land Recharge
- ▶ Advanced Metering Infrastructure

Strategies

Key Projects	Strategy 1: Modular	Strategy 2: Low Risk	Strategy 3: Local Control
Groundwater Banking	●	●	
Uvas Pipeline			●
Transfers	●	●	
Los Vaqueros Reservoir		●	
Water Rights Purchase	●	●	
Potable Reuse			●
Pacheco Reservoir			●

District Lifecycle Cost	\$1.3 billion	\$1.6 billion	\$3.1 billion
Meets Level of Service Goal	Yes	Yes	Yes

Strategies Continued

Key Projects	Strategy 4: Low Cost	Strategy 5: Operational Flexibility	Strategy 6: Dry Year Supplies
Regional Desal	●		●
Groundwater Banking	●	●	●
Uvas Pipeline	●	●	
Sites Reservoir	●		
Transfers			●
Los Vaqueros		●	●
Calero		●	
Potable Reuse			●
Pacheco Reservoir		●	
California WaterFix		●	
District Lifecycle Costs	\$800 million***	\$4.6 billion	\$2.1 billion
Meets Level of Service Goal	Yes***	Yes	Yes

*** Additional Sites Reservoir modeling is necessary to confirm yield

Strategies Continued

Key Projects	Strategy 7: Local Storage	Strategy 8: Statewide Storage	Strategy 9: Secure Imported Supplies
Groundwater Banking		●	
Uvas Pipeline	●		
Sites Reservoir		●	
Los Vaqueros Reservoir	●		
Pacheco Reservoir	●		
California Water Fix			●

District Lifecycle Costs	\$2.1 billion	\$400 million***	\$1.9 billion
Meets Level of Service Goal	No	Yes***	Yes

*** Additional Sites Reservoir modeling is necessary to confirm yield

Strategy/Portfolio Analysis Results

See Attachment 5 for details

Strategy/Portfolio	Supply Reliability					Water Quality	
	Meet Demands	Maintain Groundwater Storage	Secure Existing Supplies	Reduce Reliance on Delta	Maximize Water Use Efficiency	Protect Groundwater Quality	Meet Drinking Water Regulations
Strategy 1: Modular	+	++	-	-	+	∅	∅
Strategy 2: Low Risk	+	++	-	-	+	∅	∅
Strategy 3: Local Control	+	+	++	∅	+	++	+
Strategy 4: Low Cost	+	∅	-	-	+	+	∅
Strategy 5: Operational Flexibility	+	++	-	--	∅	∅	+
Strategy 6: Adaptation	+	+	∅	∅	∅	++	∅
Strategy 7: Local Storage	-	-	++	∅	∅	∅	+
Strategy 8: Statewide Storage	+	++	-	-	∅	∅	∅
Strategy 9: Secure Imported Supplies	+	++	-	--	∅	∅	∅

Note: Analysis is in comparison to the base case

Strategy/Portfolio Analysis Results - Continued

Strategy/Portfolio	Costs	Flexibility			
	Minimize Costs	Maximize District Influence	Minimize Implementation Complexity	Allows for Phasing	Adapts to Climate Change
Strategy 1: Modular	+	∅	+	++	+
Strategy 2: Low Risk	+	-	+	++	+
Strategy 3: Local Control	--	++	--	-	++
Strategy 4: Low Cost	++	--	-	-	++
Strategy 5: Operational Flexibility	--	--	--	--	+
Strategy 6: Adaptation	+	-	-	-	++
Strategy 7: Local Storage	∅	++	--	-	+
Strategy 8: Statewide Storage	++	--	-	--	+
Strategy 9: Secure Imported Supplies	+	--	--	--	+

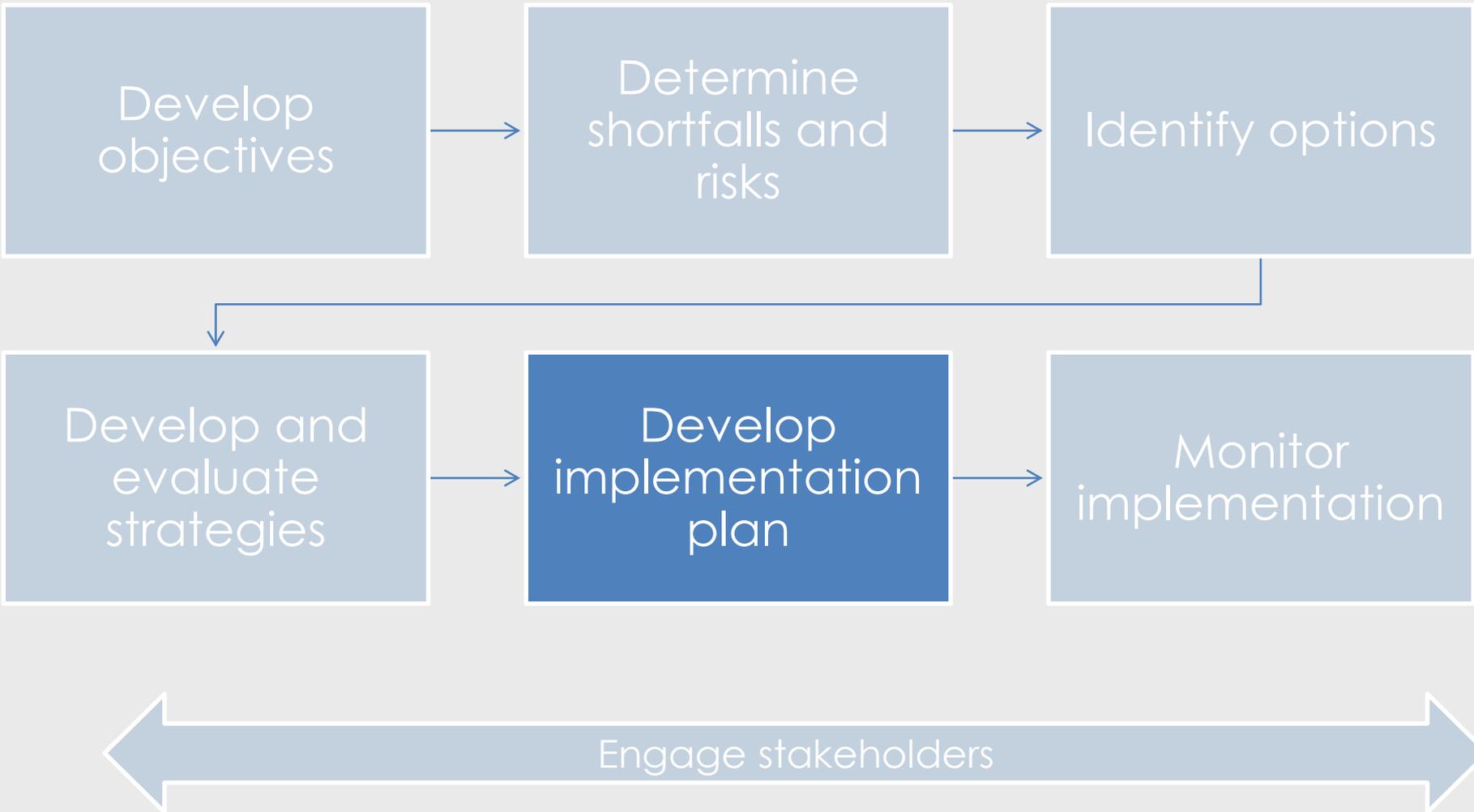
Strategy/Portfolio Analysis Results - Continued

Strategy/Portfolio	Environmental		Community		
	Protect Aquatic Ecosystems	Reduce Greenhouse Gas Emissions	Impacts to Property Owners	Open Space	Flood Protection
Strategy 1: Modular	∅	∅	∅	+	+
Strategy 2: Low Risk	∅	∅	∅	+	+
Strategy 3: Local Control	-	-	∅	+	+
Strategy 4: Low Cost	-	-	∅	+	+
Strategy 5: Operational Flexibility	-	∅	-	++	++
Strategy 6: Adaptation	∅	-	∅	∅	∅
Strategy 7: Local Storage	-	-	-	++	++
Strategy 8: Statewide Storage	-	-	∅	∅	∅
Strategy 9: Secure Imported Supplies	++	∅	∅	∅	∅

All strategies/portfolios can be optimized

- ▶ Strategies 1-Modular and 2-Low Risk perform the best overall
- ▶ Strategy 3-Local Control performs well for water supply reliability but at a cost
- ▶ Strategy 7-Local Storage did not meet level of service goal

Planning Process Recap

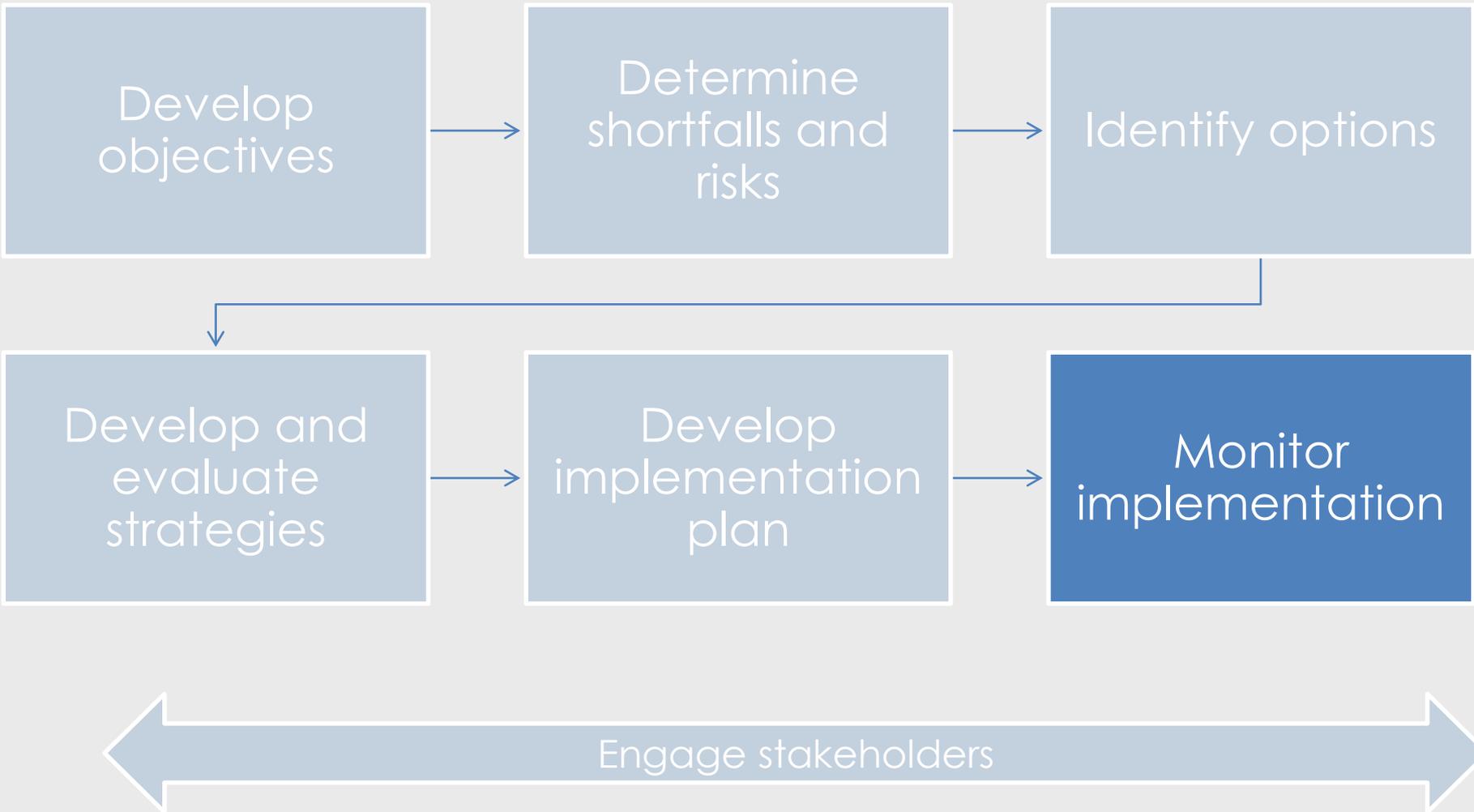


Implementation plan in Fall 2017

- ▶ Schedule
- ▶ Costs
- ▶ Financing
- ▶ Monitoring approach
- ▶ Triggers and responses to manage uncertainty



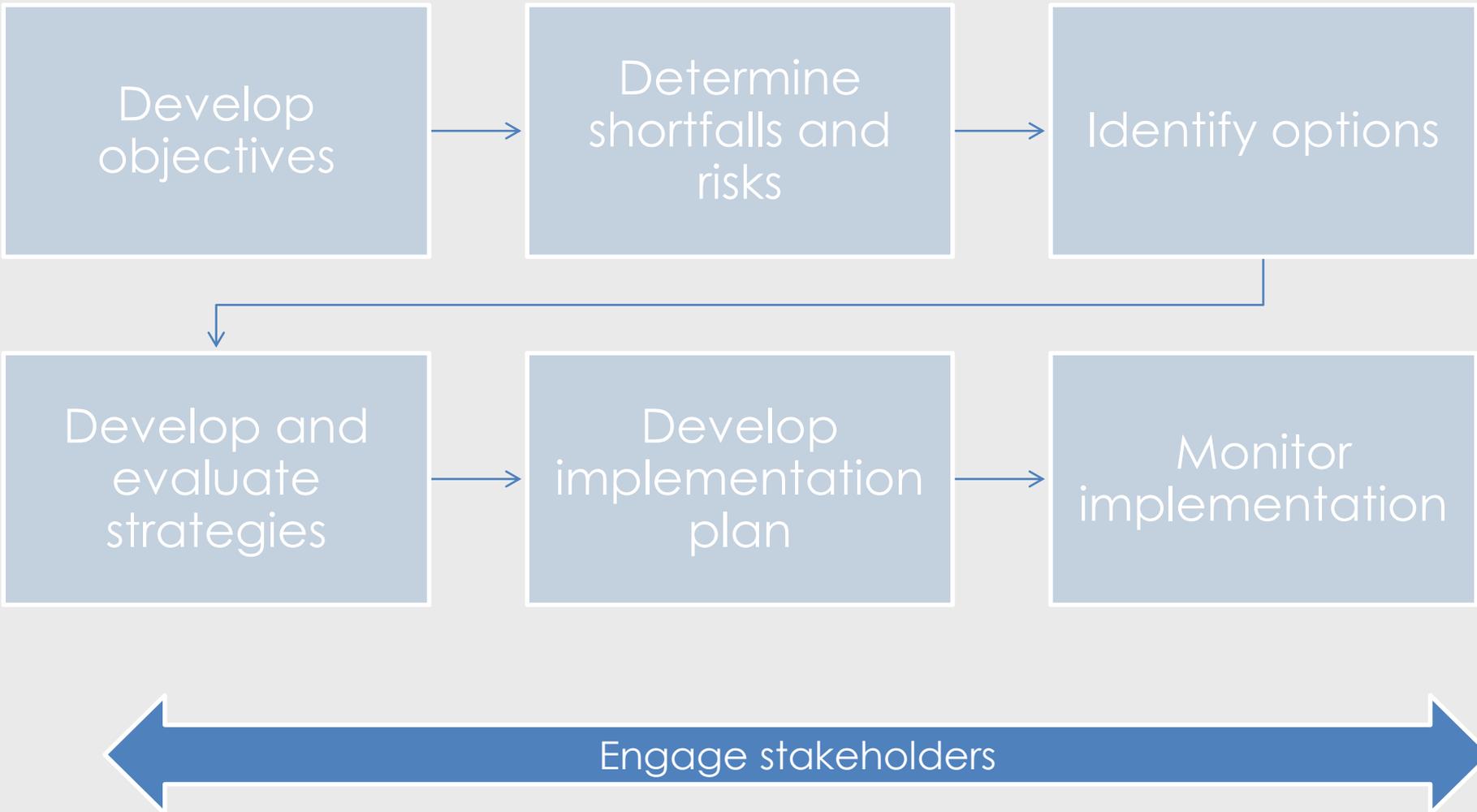
Planning Process Recap



Monitoring will be ongoing



Planning Process Recap



Stakeholder Input – Phone Survey

- ▶ Voters see need to invest in supply reliability
- ▶ Majority are open to small rate increase (\$5 - \$10 per month) for supply reliability, but not a larger increase (\$20 - \$30 per month)
- ▶ Like non-potable recycled water use, stormwater capture, and updating aging infrastructure

Stakeholder Input – Level of Service Goal

- ▶ Retailers seem willing to make investments in supply reliability if there is a high degree of certainty in results
- ▶ “Making Conservation a Way of California Life” policy implementation may affect the ability to achieve high levels of emergency reductions in the future

Expert Panel Input

- ▶ Met four times
- ▶ Reviewed staff work on cost and yield calculations, risk assessment, project identification, and strategy development and assessment
- ▶ Comments helpful, especially those related to evaluating and presenting risk and uncertainty

Next steps

Develop
recommended
strategies/portfolios
(July 2017)

Prepare 2017 Water
Supply Master Plan
(December 2017)

Develop
implementation
plan
(September 2017)