




**CASCADE**  
WATER ALLIANCE

# Cascade Water Alliance

**Connections Working Group  
Meeting #4**

December 11, 2009



## Clean, Safe, Reliable Water

For people, for fish  
and for fun

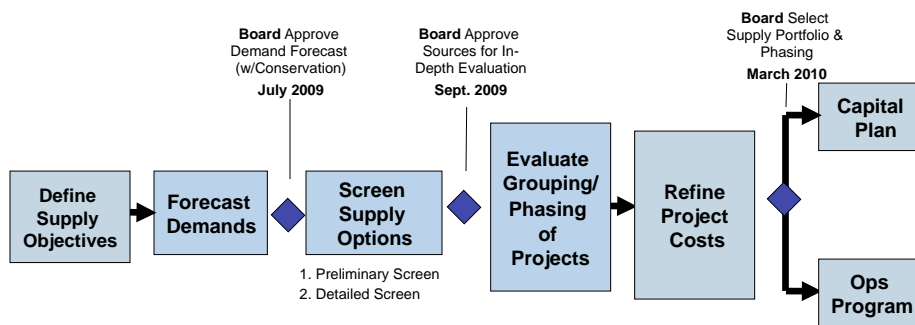
Ensuring sufficient water for  
decades to come requires  
regional planning and  
cooperation today.



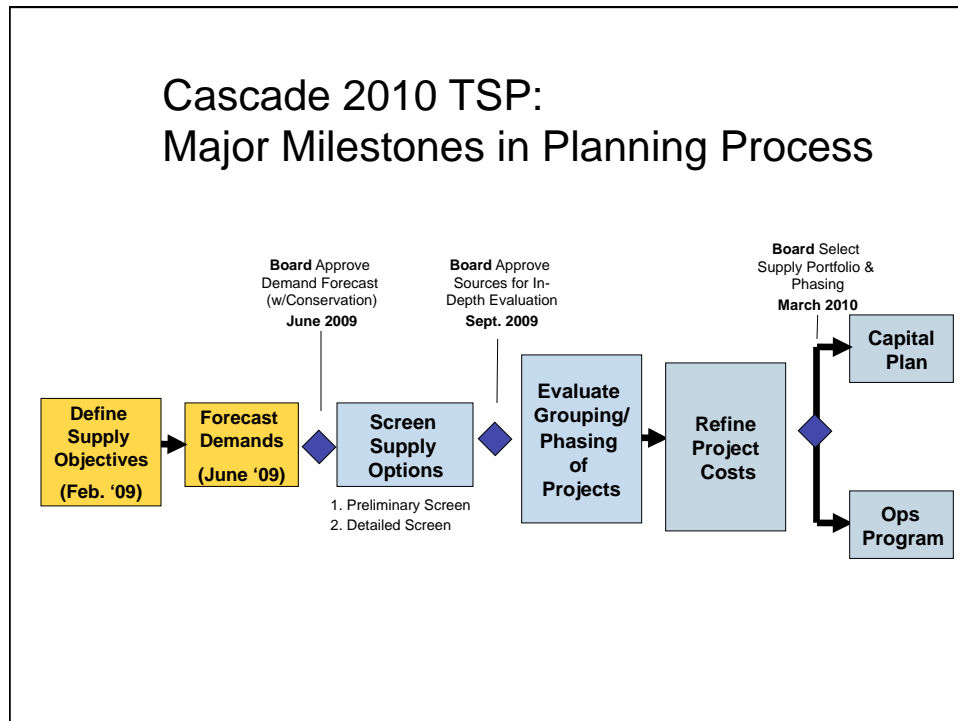
- City of Bellevue
- Covington Water District
- City of Issaquah
- City of Kirkland
- City of Redmond
- Sammamish Plateau Water & Sewer District
- Skyway Water & Sewer District
- City of Tukwila

Cascade is a non-profit corporation providing water to almost 400,000 residents and more than 22,000 businesses. Membership is open to any public water utility in the Puget Sound region.

## Cascade 2010 TSP: Major Milestones in Planning Process

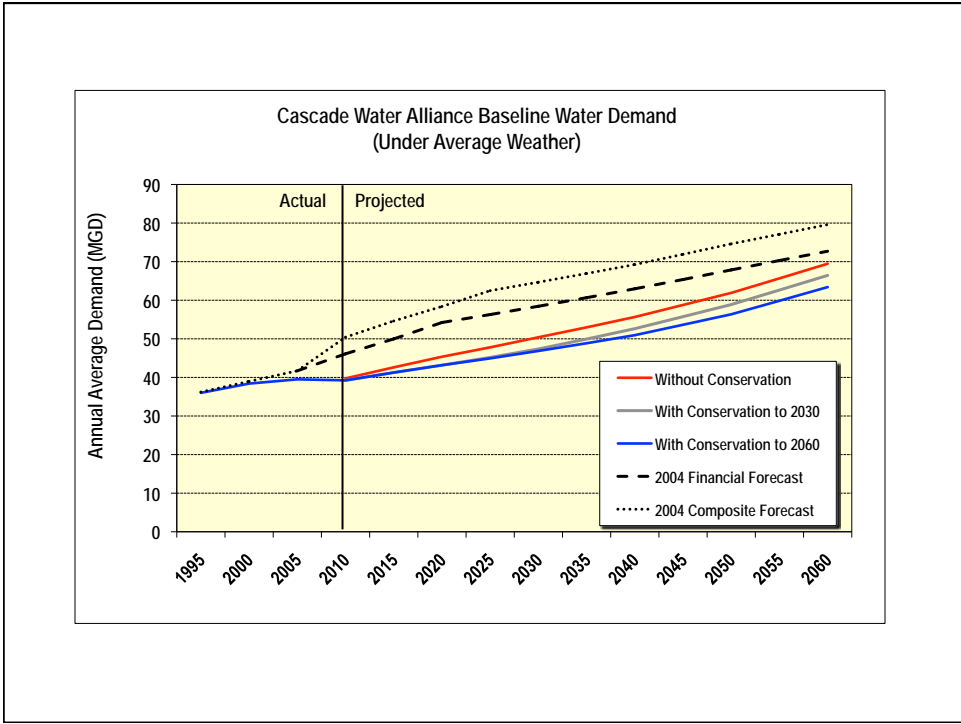


## Cascade 2010 TSP: Major Milestones in Planning Process



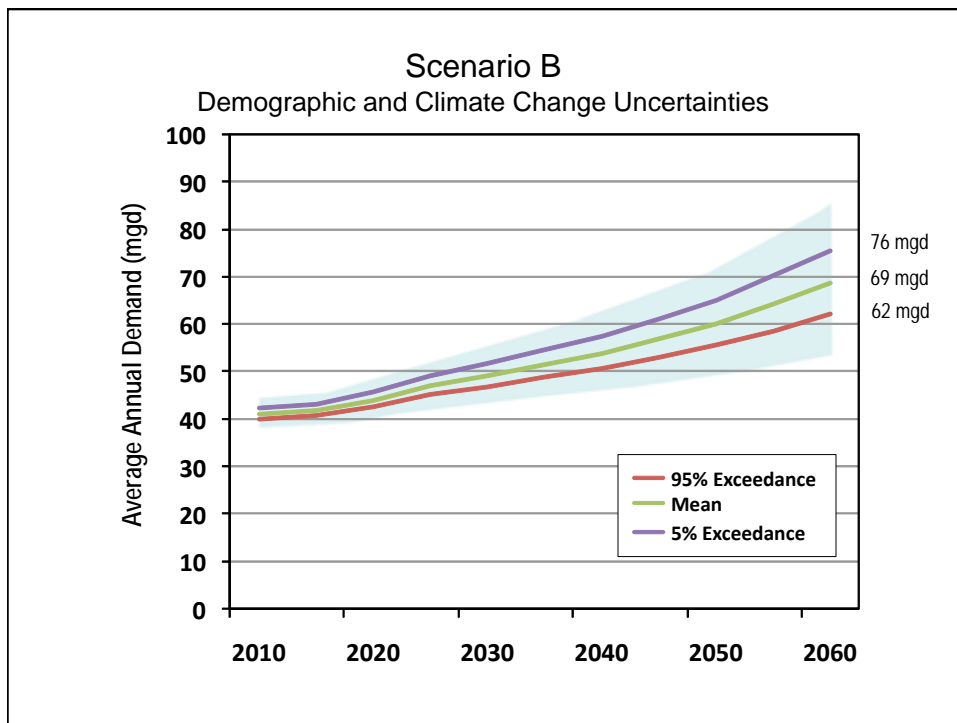
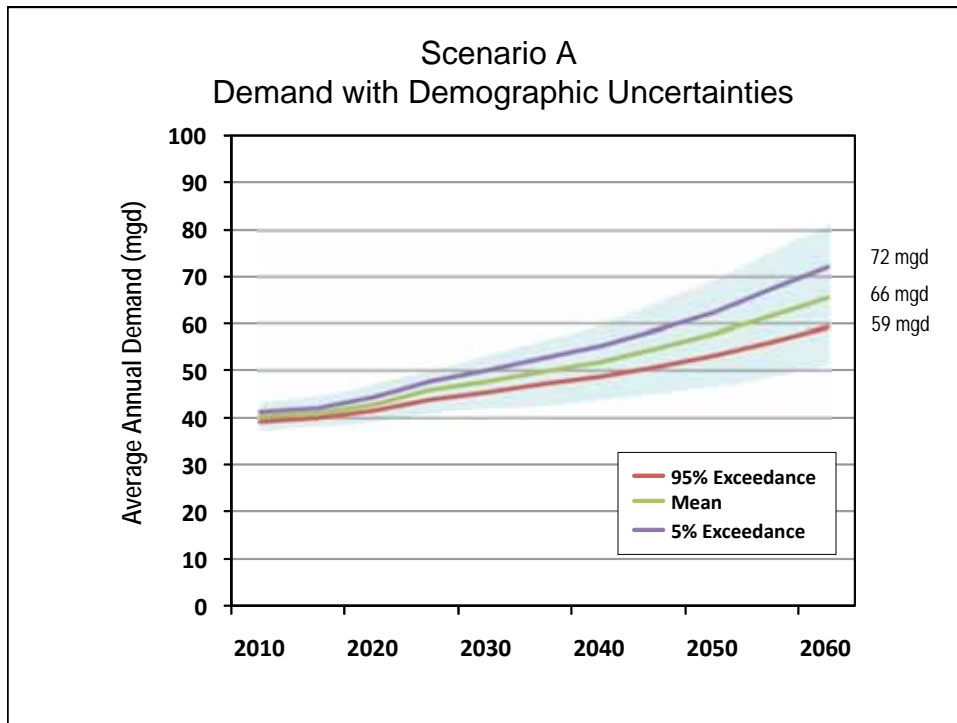
## Overview of Demand Forecast

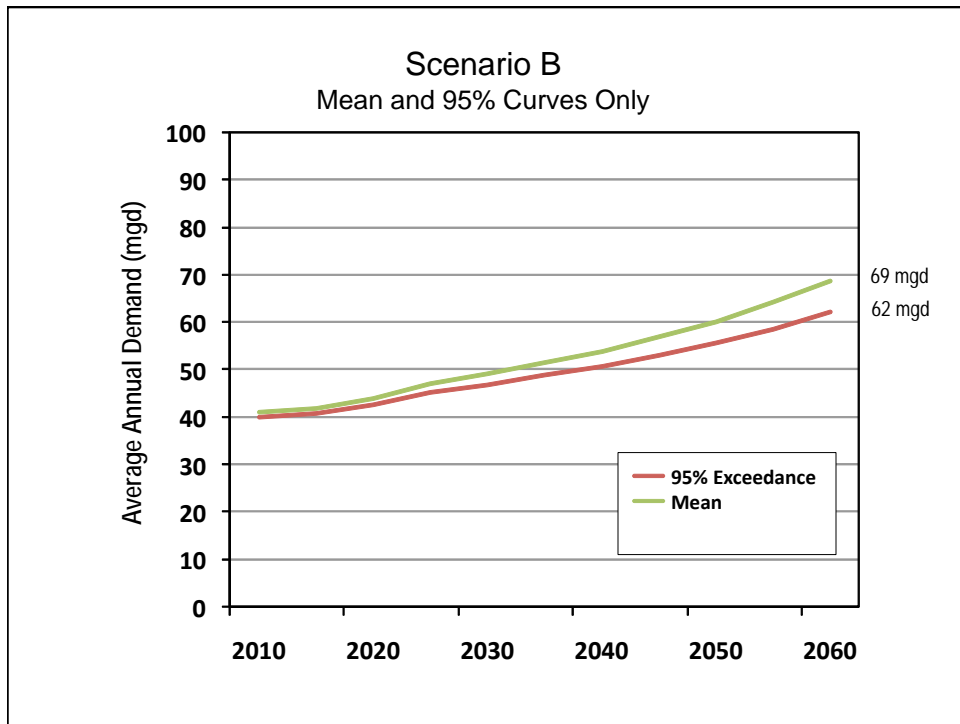
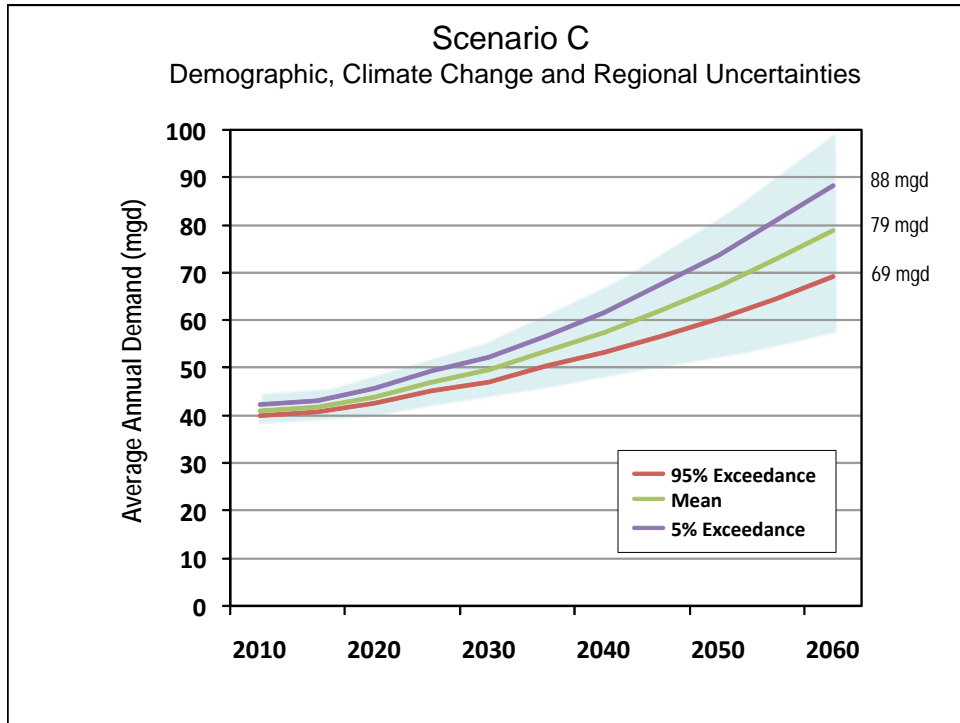
1. **Baseline forecast**
  - PSRC demographic projections
  - Residential & non-residential water needs
  - Cascade water conservation program - extended
2. **Uncertainties**
  - Population growth rates may vary
  - Income levels are difficult to predict
  - Climate Change considerations
3. **Regional needs outside Cascade**



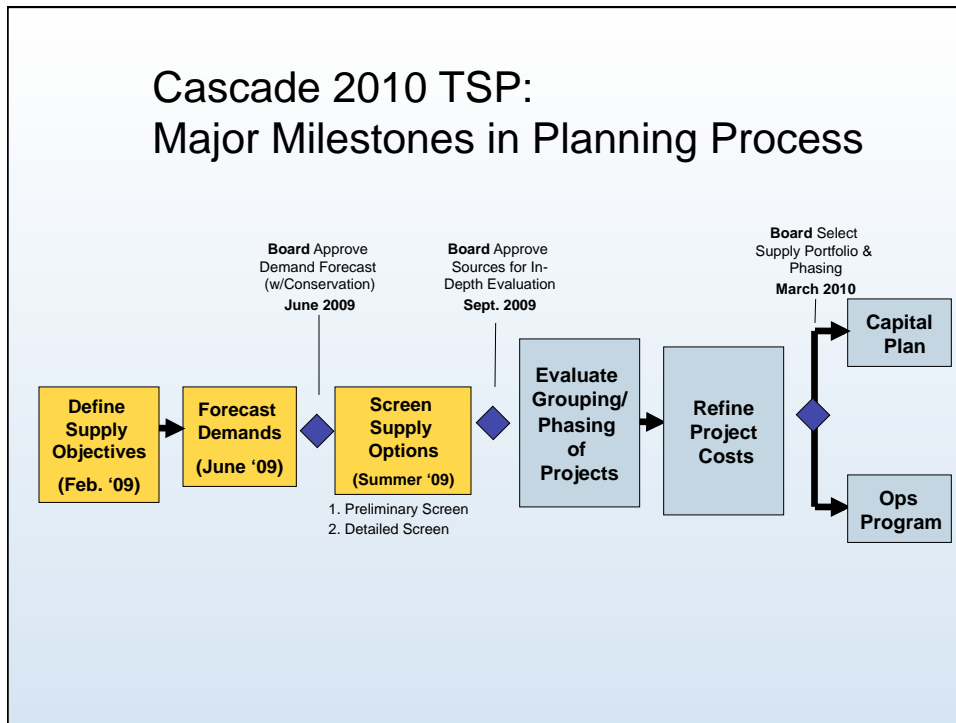
## Demand Uncertainty Analysis

	Demographic Uncertainties	Climate Uncertainties	Regional Uncertainties
Scenario A	✓		
Scenario B	✓	✓	
Scenario C	✓	✓	✓

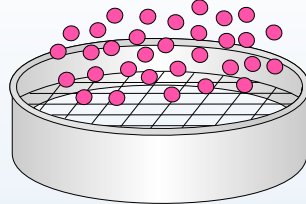




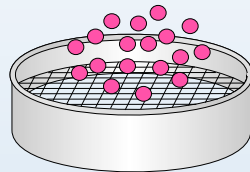
## Cascade 2010 TSP: Major Milestones in Planning Process



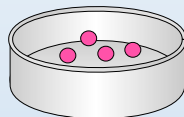
## Three Stages of Supply Evaluation



**Screening**  
(Spring 2009)  
Eliminated projects that are not feasible and do not warrant further investigation



**Multi-Criteria Analysis**  
(Summer 2009)  
More refined analysis that evaluated projects using multiple ranking criteria



**Detailed Evaluation**  
(Fall 2009/Winter 2010)  
Detailed infrastructure and financial evaluation of the highest ranked projects

## Criteria Used in Source Evaluation

- Environmental considerations
- Financial considerations
- Implementation considerations
- Operational considerations
- Regional/Intergovernmental considerations
- Supply reliability

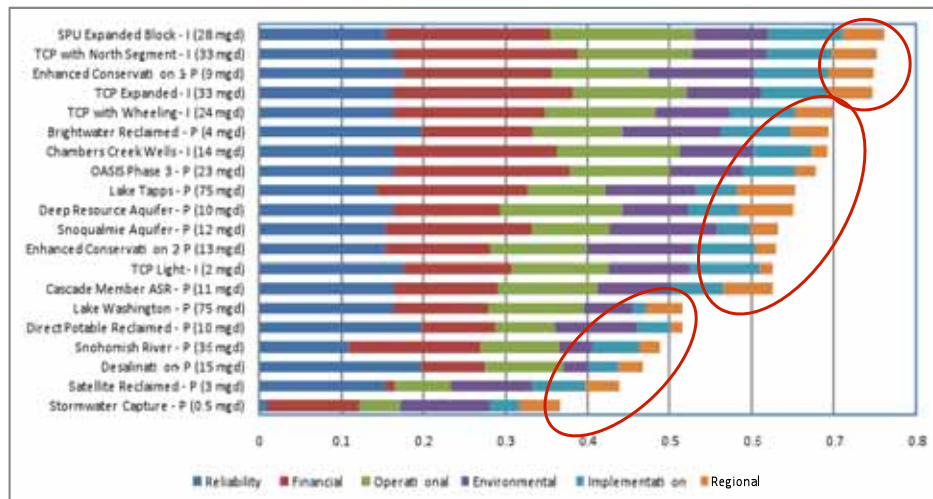
## Criteria Weights from “Dot Exercise”

Criteria	RMC (April '09)	Connections Group (August '09)
Environmental	16%	18%
Financial	26%	20%
Implementation	10%	16%
Operational	18%	15%
Regional/Intergovernmental	8%	10%
Reliability	22%	21%

## Potential Sources That Were Evaluated

Existing Source Management	New Surface Water Options	New Ground Water Options	Conservation and Reclaimed Water
SPU Expanded Block Tacoma "Light" TCP* w/Wheeling TCP* w/North Segment TCP* Expanded  *TCP: Tacoma-Cascade Pipeline	Lake Tapps Snohomish R. Lake Washington Desalination	Chambers Creek Wells Snoqualmie Aquifer Deep Resource Aquifer OASIS Phase 3 Cascade Member ASR	Brightwater Reclaimed Satellite Reclaimed Direct Potable Reclaimed Enhanced Conservation 1 Enhanced Conservation 2 Stormwater Capture

## Overall Ranking of All Projects



## Results of Different Methods Were Consistent

- Rankings were similar using Cascade's criteria weights and Connections' criteria weights
- Adjustment to financial score made little difference
- Results from quadrant analysis similar to initial rankings

## Resource Management Committee (RMC) Reviewed Results

- Reviewed original Cascade rankings
- Reviewed Connections group input
- Reviewed rankings with financial considerations modified
- **Selected water sources to advance**

## RMC Decisions (Sept. 2009)

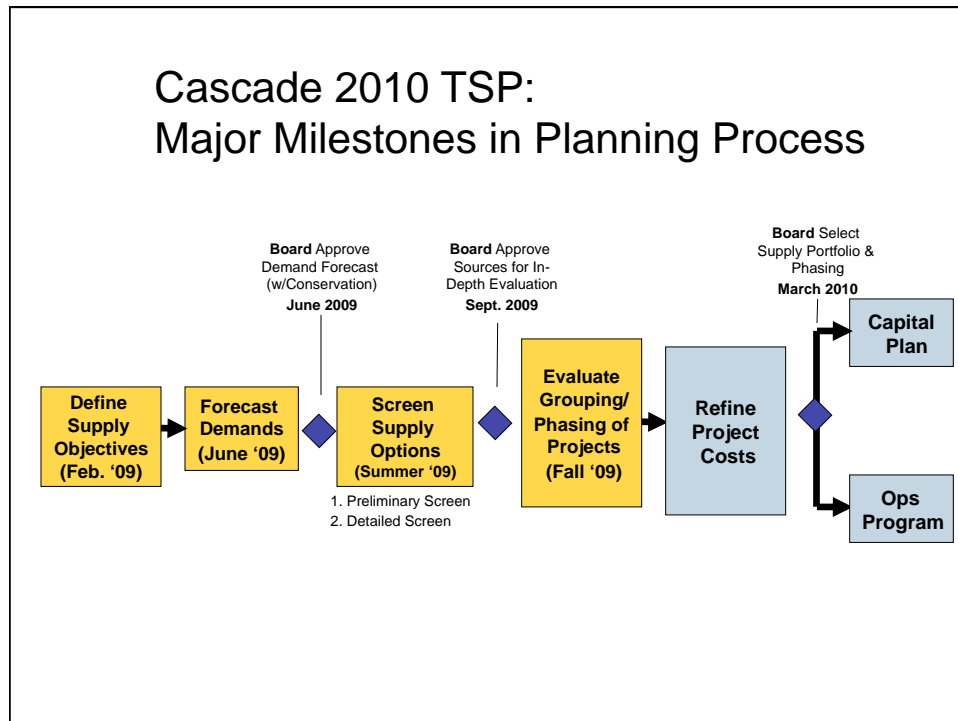
- **Eliminate Low Ranking Projects**
  - Lake Washington
  - Direct potable reclaimed water
  - Snohomish River
  - Desalination
  - Satellite reclaimed water
  - Stormwater capture
- **Eliminate Three Additional Projects**
  - Snoqualmie Aquifer (high uncertainties)
  - Tacoma “Light” (low rank and small yield)
  - Chambers Creek (view as subset of expanded Tacoma supply)

## Sources Advanced to Next Stage

Interim Sources	Permanent Sources
SPU Expanded Block	Enhanced Conservation
TCP with North Segment	Brightwater Reclaimed
TCP with Wheeling	OASIS Phase 3
TCP Expanded	Lake Tapps
	Deep Resource Aquifer
	Cascade Member ASR

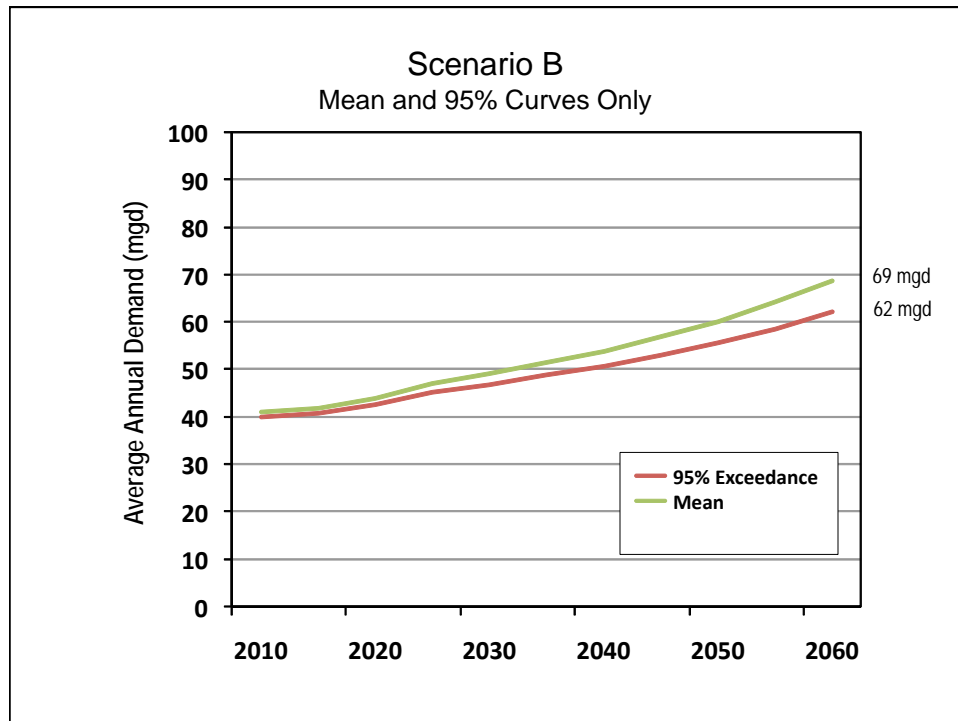
*In the next stage, different combinations of these projects will be assembled in “portfolios” over the 50-year time frame.*

## Cascade 2010 TSP: Major Milestones in Planning Process



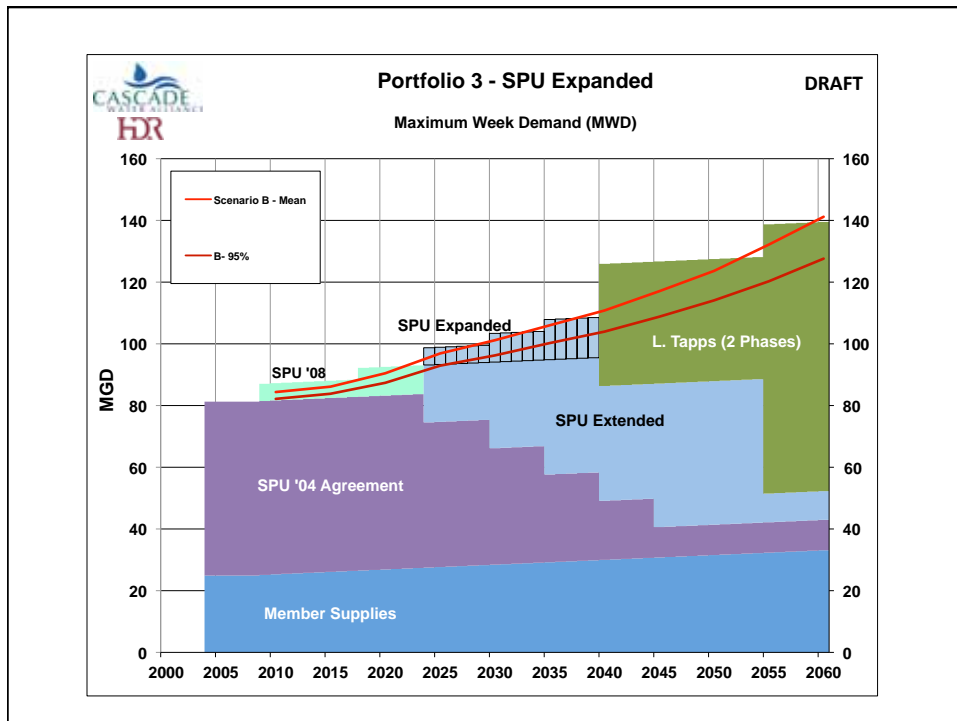
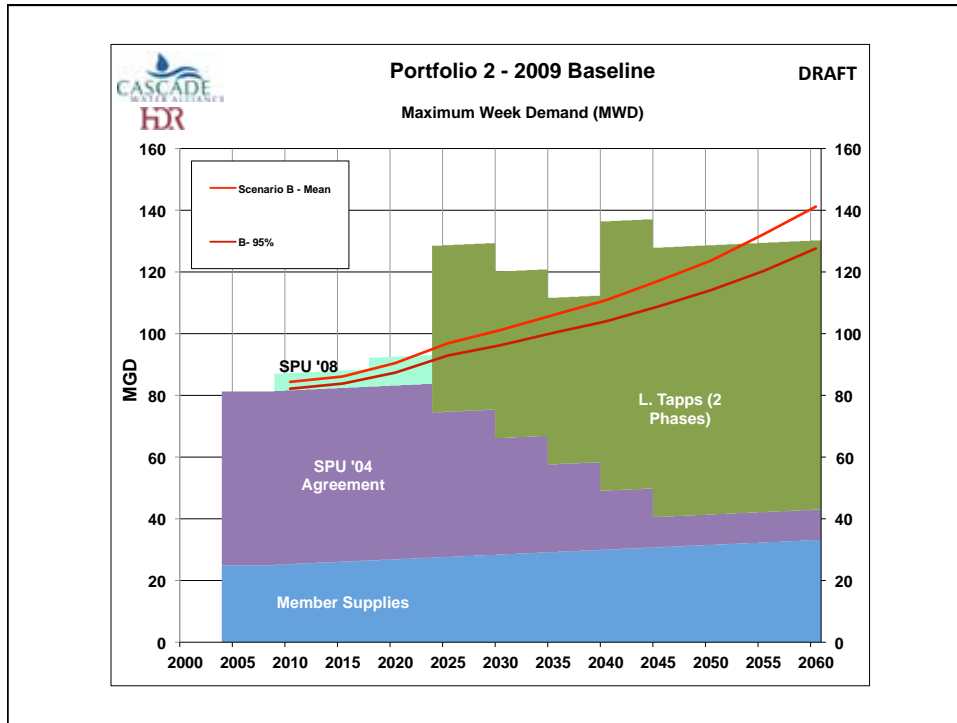
## Evaluate Grouping/Phasing of Projects

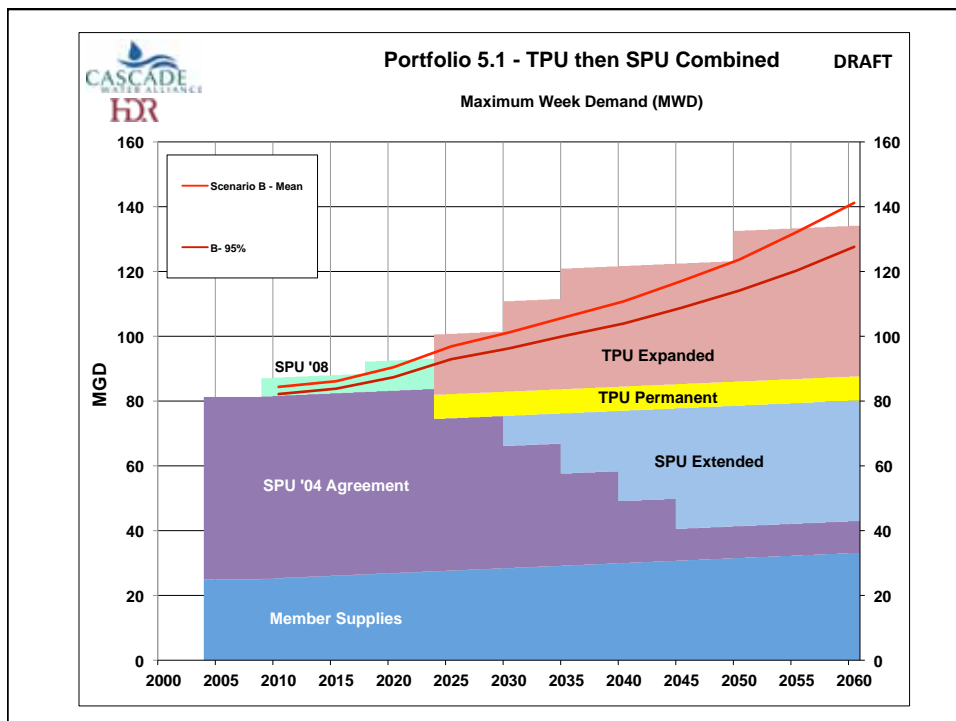
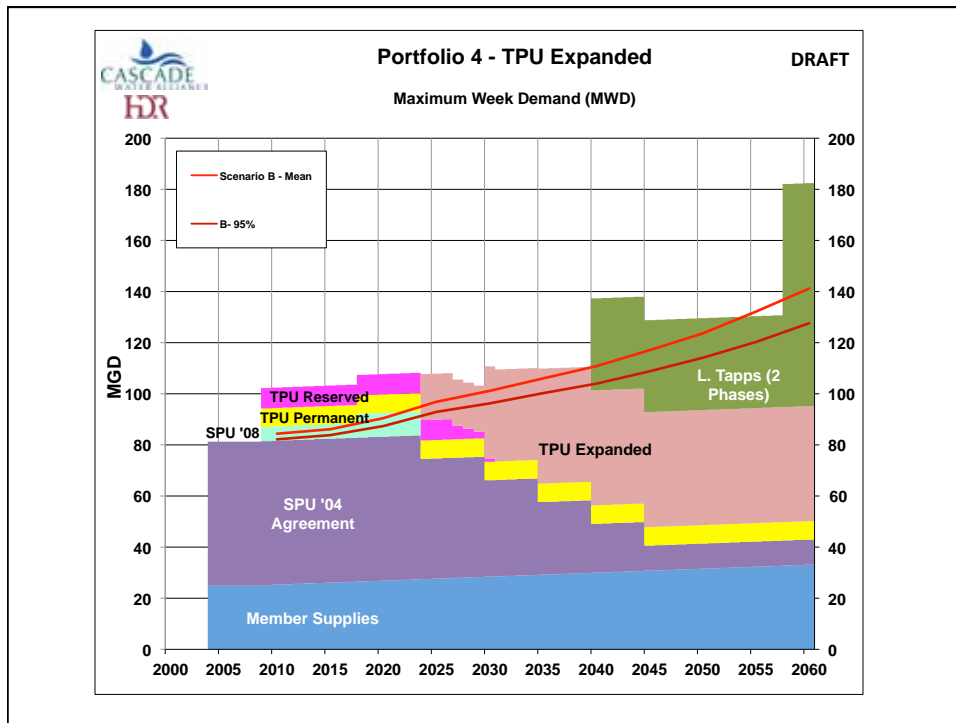
- Group sources into alternative “portfolios” that can meet planning goals
- Evaluate portfolios using similar process as for supply sources (with modified criteria)
- Improve understanding of project features, infrastructure and costs (e.g. BNSF Corridor)
- Select preferred portfolio and develop Cascade’s capital plan

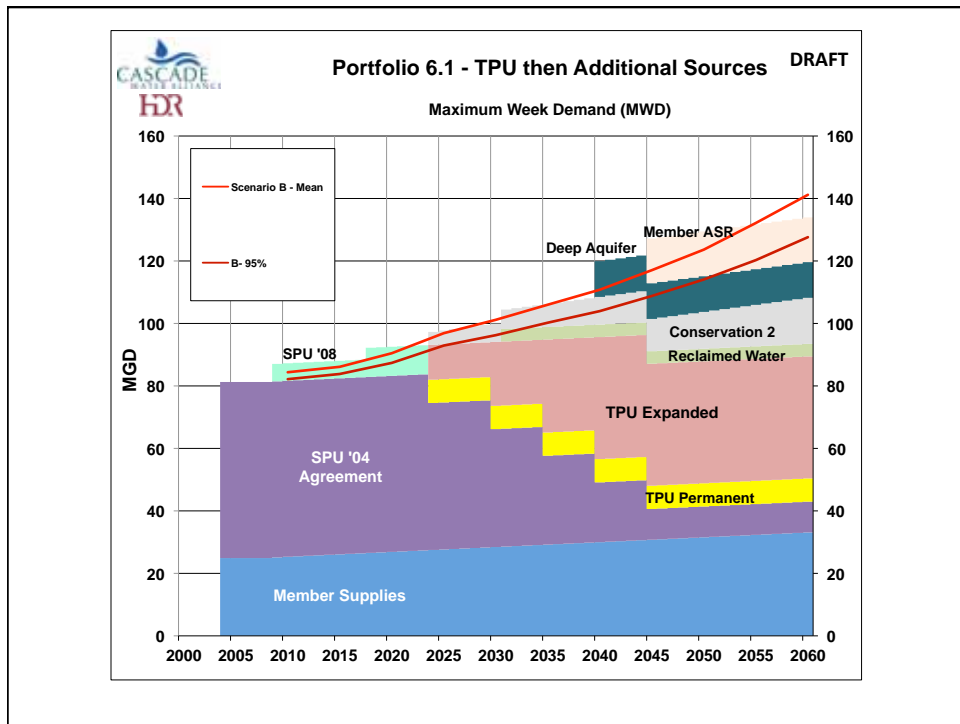
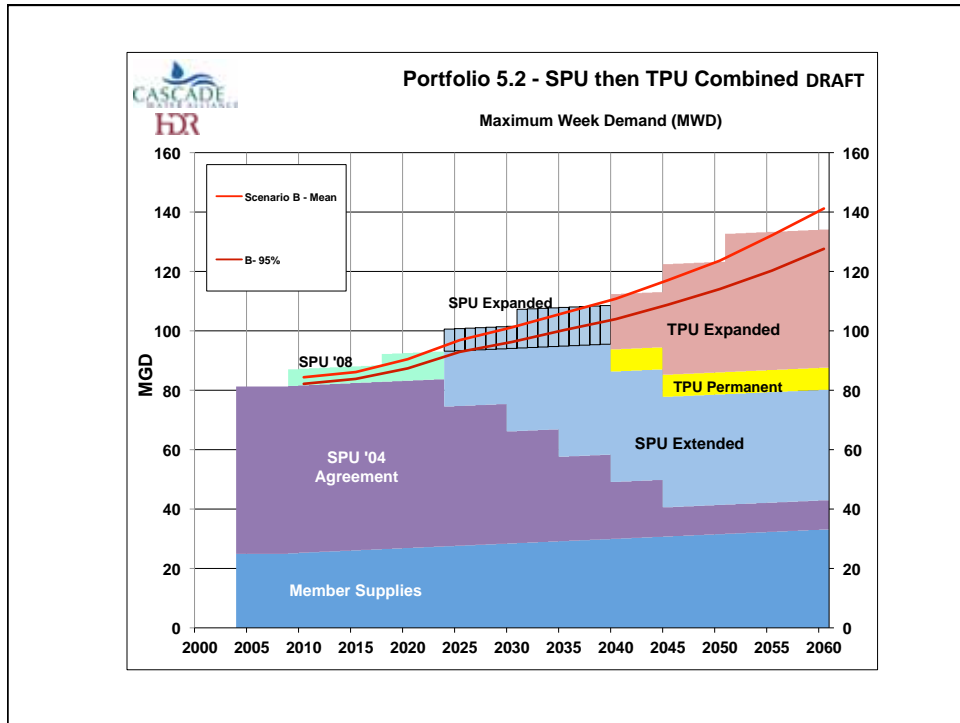


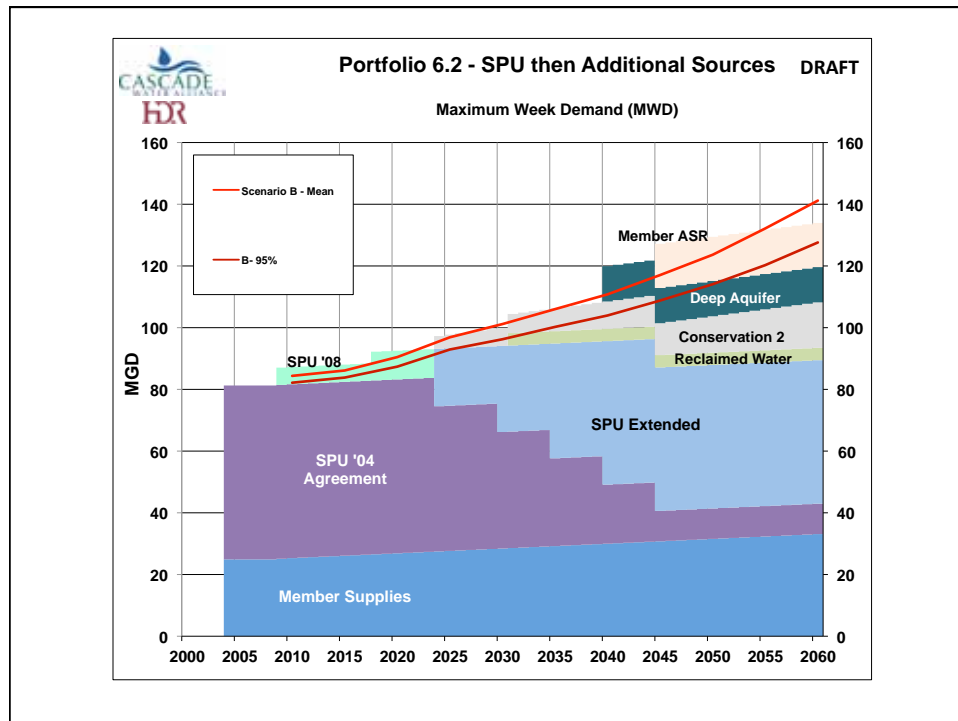
## Initial List of Portfolios

1. Prior 2004 TSP (not considered in detail)
2. 2009 Baseline
3. SPU Expanded
4. TPU Expanded
5. SPU/TPU Combined
6. SPU or TPU with Other Sources









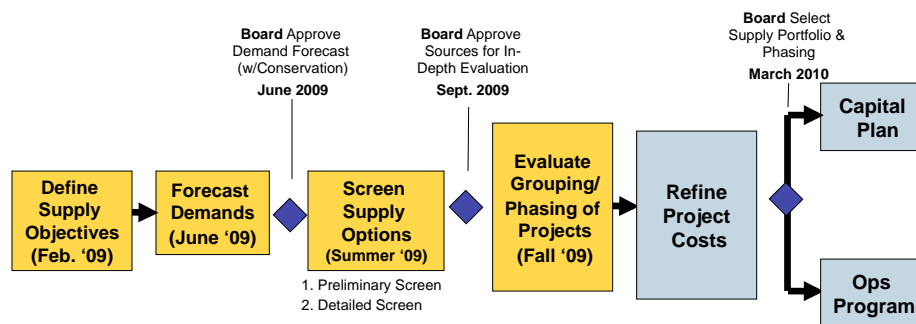
## Current Activity on Portfolios

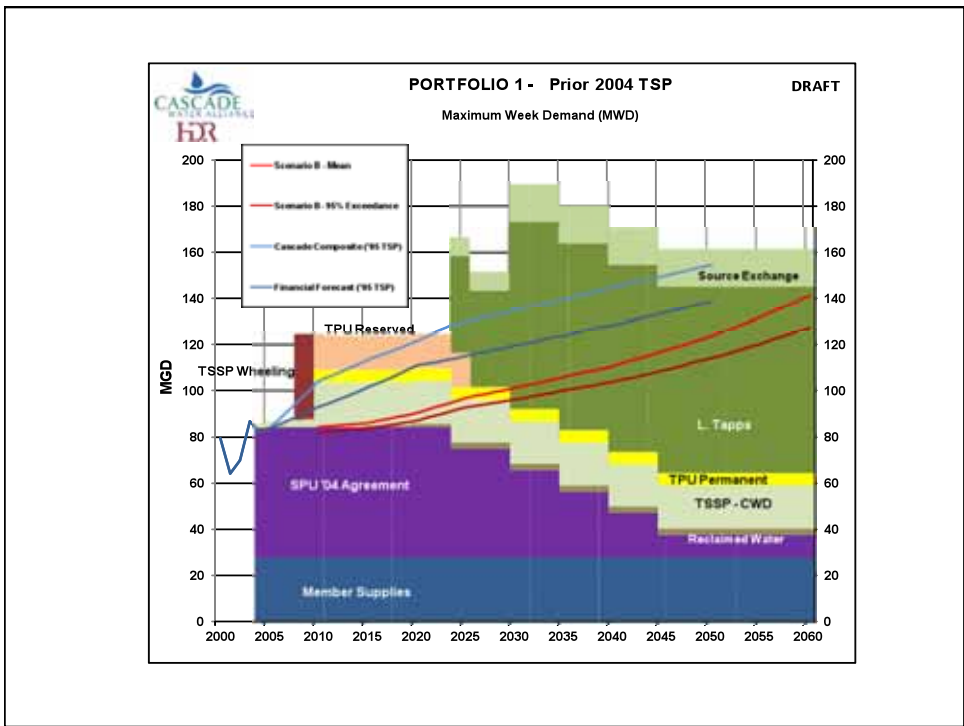
- Estimate 50-year cash-flow of each portfolio
  - (annual cost of capital and operations)
- Compare financial impacts on Cascade Members
- Review results with RMC (Dec./Jan.)
- Select portfolios to evaluate further (Feb.)

## Other Related Activities

- Lake Tapps water right
- Discussions with SPU and TPU regarding long-term contracted supplies
- Assessing opportunities on pipeline corridors (BNSF, etc.)

## Cascade 2010 TSP: Major Milestones in Planning Process





### Quadrant Analysis Results

