

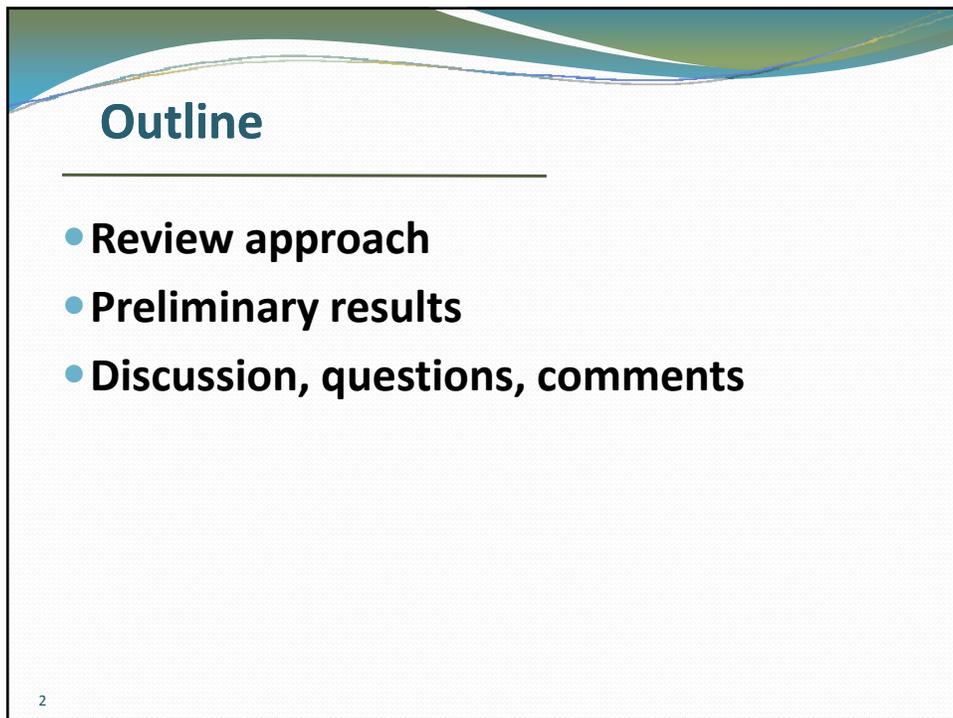
**Rathdrum Prairie
Future Water Demand
Projections**

CAMP Advisory Committee Meeting
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SPF Water Engineering, LLC

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1



Outline

- **Review approach**
- **Preliminary results**
- **Discussion, questions, comments**

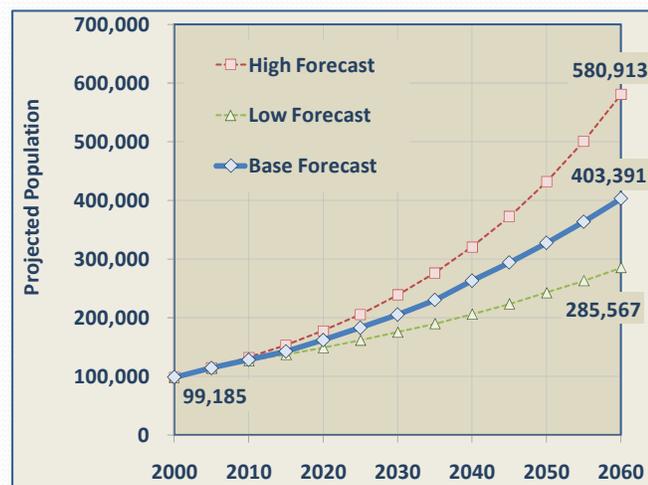
2

Approach to Projecting Water Demand

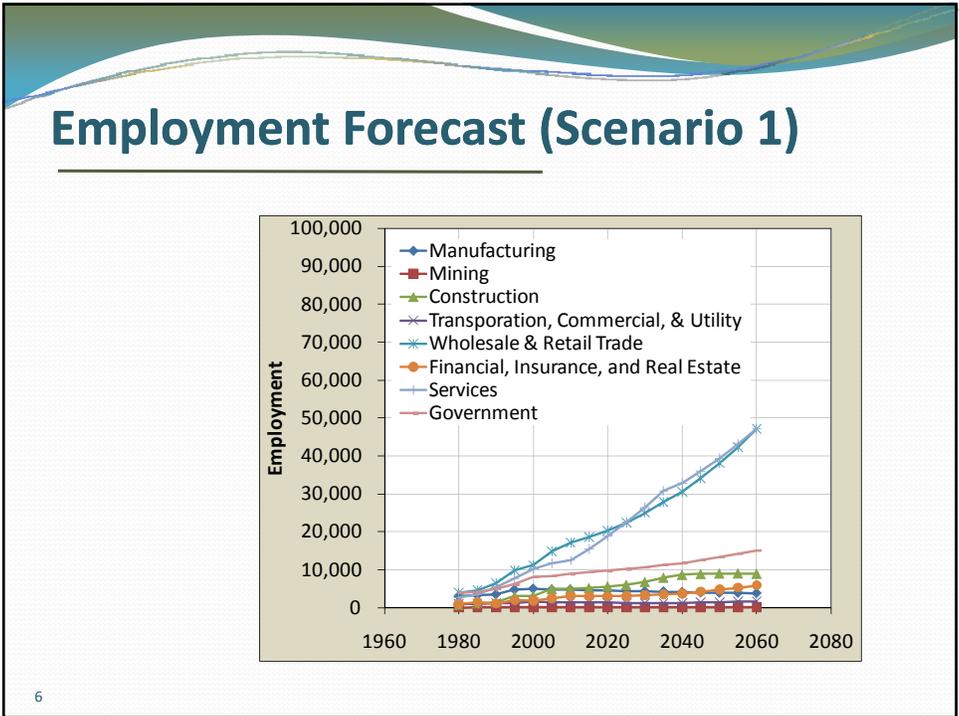
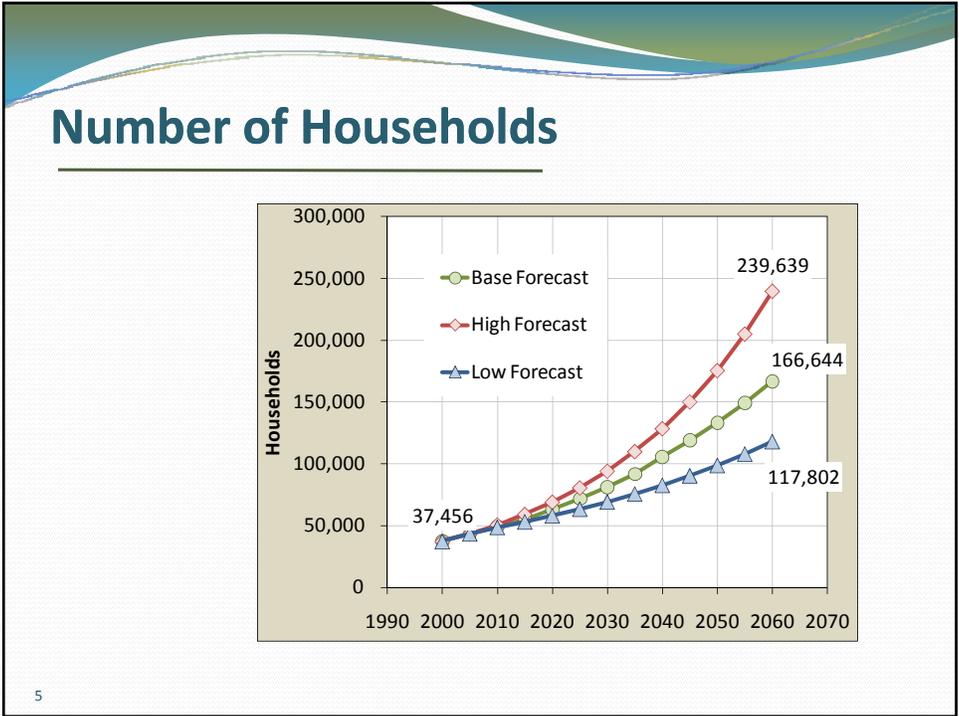
- Compile historic population data
- Project future population and employment growth
- Estimate current water demand (by sector)
- Project future water demand for domestic, commercial/industrial, irrigation uses
 - Use “scenarios” to describe possible future water-demand outcomes
 - Population and employment growth
 - Conservation potential
 - Climate variability

3

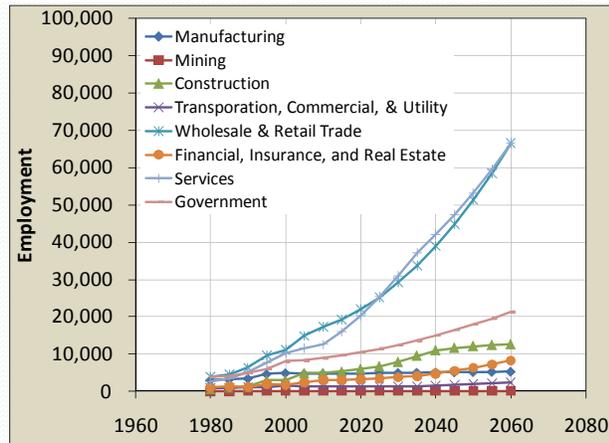
Population Forecast



4

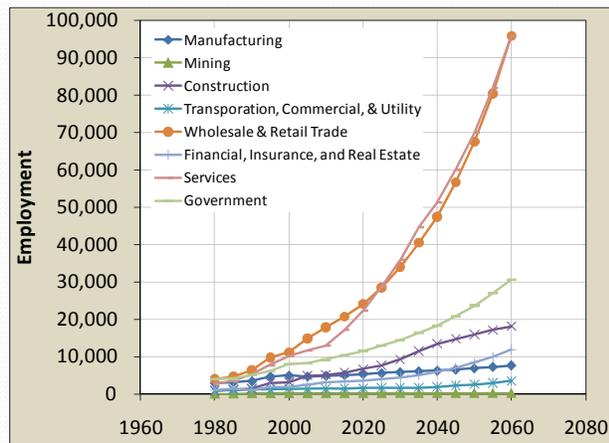


Employment Forecast (Scenario 2)



7

Employment Forecast (Scenario 3)



8

Existing Demand

Water Use	Estimated Annual Volume (MGA)	Water Use (gpd per capita ³)	Water Use (gpd per household ⁴)
Total ¹	11,219	262	--
Unaccounted ¹	1,122	26	
Irrigation ¹	5,493	128	--
Commercial and Industrial ²	1,103	26	--
Domestic	3,501	82	188

¹ Section 4.2. Total water use includes water diverted by community water systems for domestic, commercial, industrial, and irrigation uses, and unaccounted for water (i.e. system losses, fire flow, flushing).

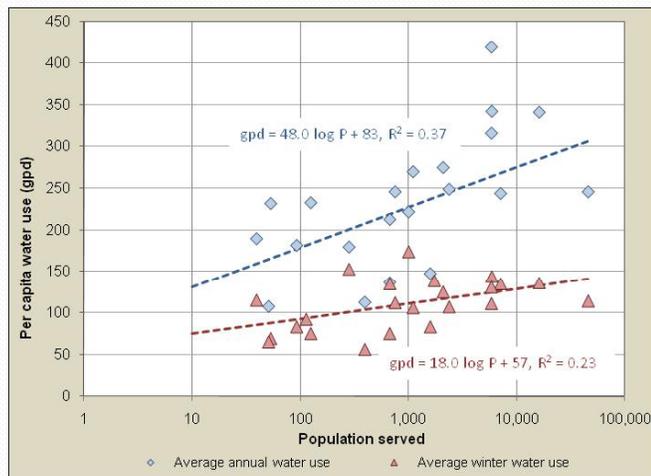
² Section 4.5.1

³ Estimated population served by community water systems in 2009 :117,400 persons (Section 4.2).

⁴ Estimated households served by community water systems was calculated at 2.3 persons per household.

9

Reported Use by Water System Size



10

Develop Growth Projection Scenarios

- **External Factors**
 - Population growth
 - Employment growth
 - Climate variability
- **Local Factors**
 - Local water-use policy
 - Water availability
 - Water conservation

11

Scenario Matrix

Scenario Matrix		External Realm (Population growth, economic growth)		
		Low Growth	Baseline Growth	High Growth
Policy Realm (Conservation level and implementation rate)	No Conservation	Scenario 1a	Scenario 2a	Scenario 3a
	Intermediate Conservation	Scenario 1b	Scenario 2b	Scenario 3b
	Aggressive Conservation	Scenario 1c	Scenario 2c	Scenario 3c

12

Water Demand Components

- **Residential domestic use**
 - Average daily volume for indoor use (~190 gpd)
 - Various combinations of conservation levels and implementation rate
- **Residential irrigation**
 - **Density dependent**

Density Category	Density (units/acre)	Existing Stock (%)	New Stock (%)	Irrigated Area (acres/unit)
High	5	70%	85%	0.08
Medium	2	10%	5%	0.20
Low	1	20%	10%	0.30

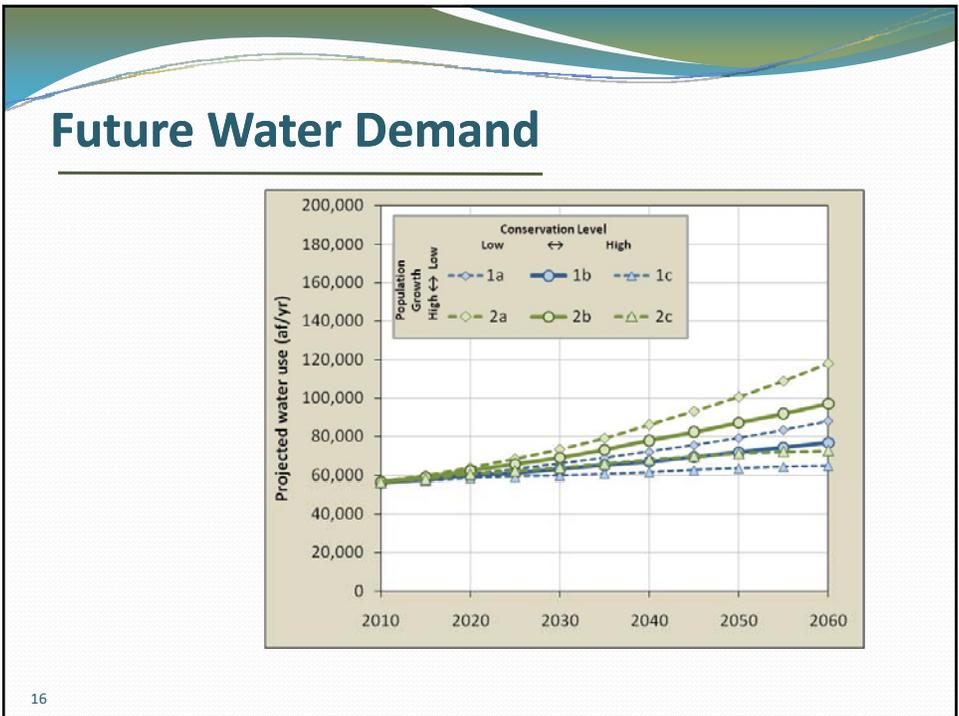
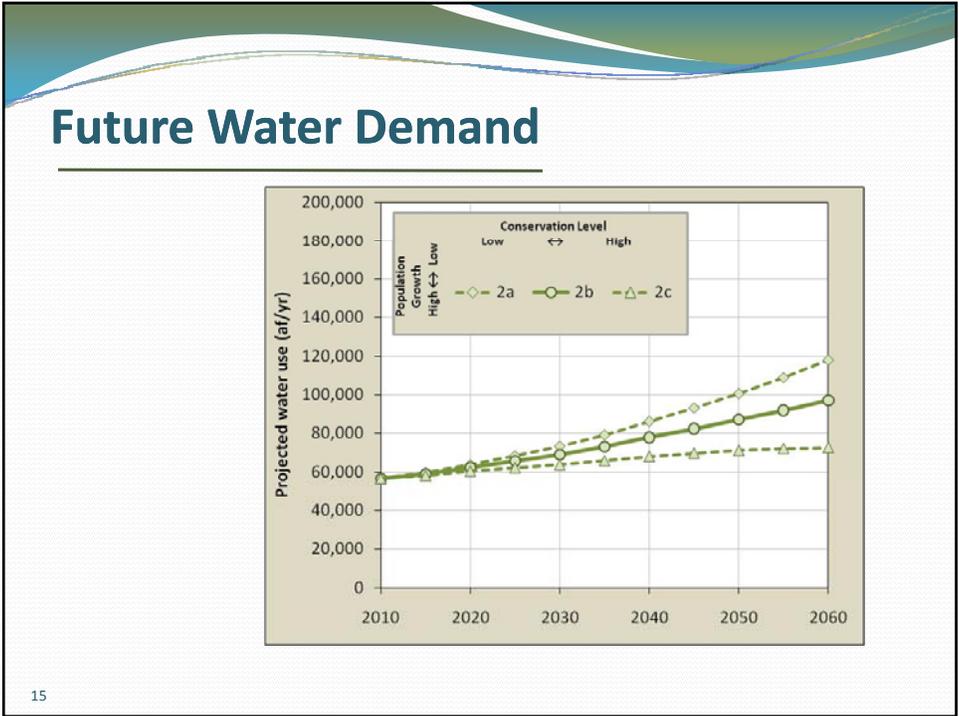
 - Assume turf precipitation deficit
 - Assume 70% irrigated

13

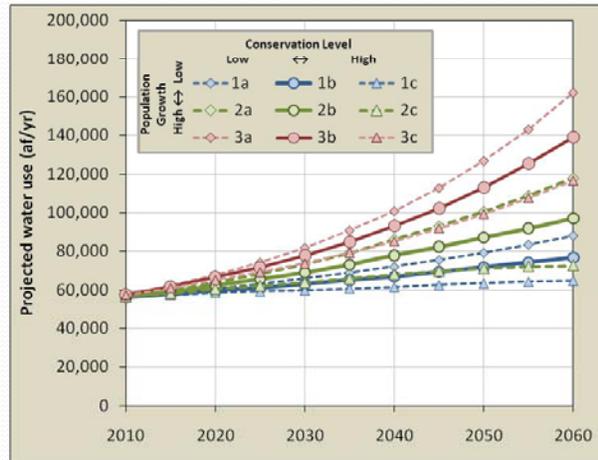
Water Demand Components (cont)

- **Commercial, industrial, institutional**
 - Based on employment category
 - Difficult to separate irrigation
- **Agricultural irrigation**
 - **Acreage**
 - Water rights (approximately 26,000 acres)
 - FSA (approximately 11,400 acres)
 - Some land may be fallow in any given year
 - **Precipitation deficit**
 - Turf, alfalfa

14

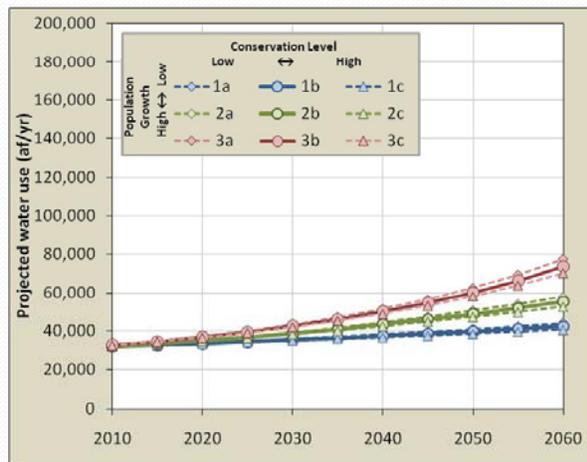


Future Water Demand

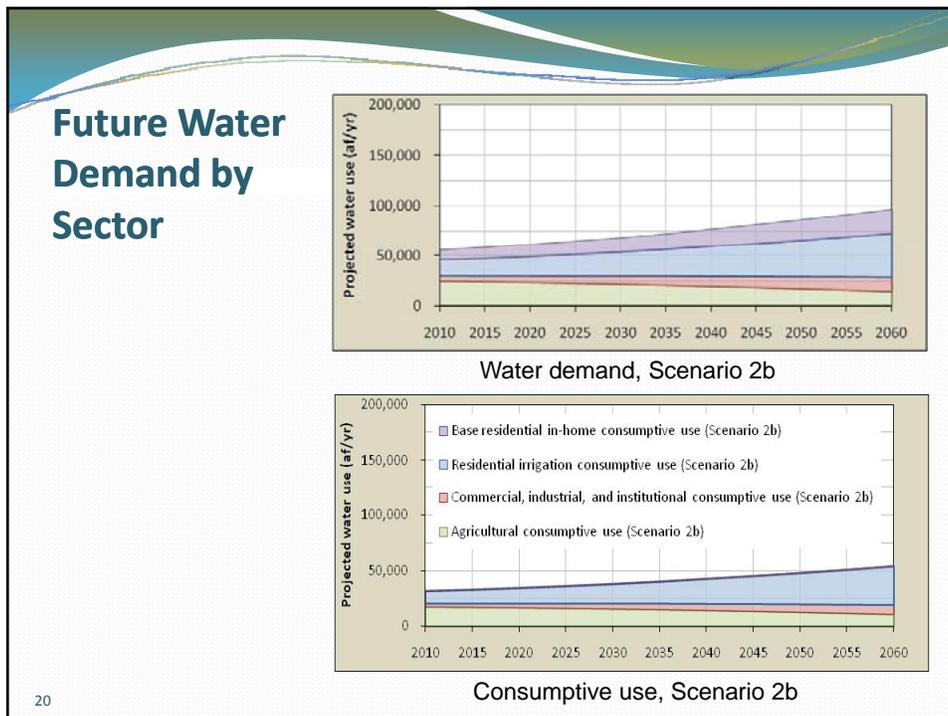
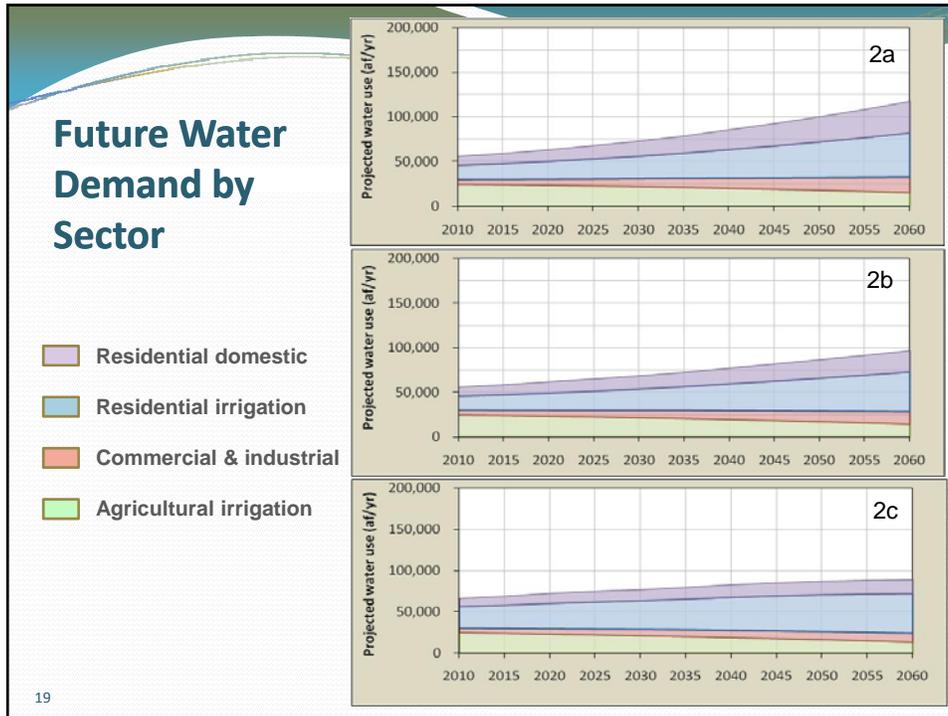


17

Future Consumptive Use



18



Discussion

- **Largest demand and consumptive-use component: irrigation**
 - Portion of existing irrigation area needed for land application of treated wastewater
 - New residential areas in currently non-irrigated areas receive some amount of irrigation
- **Some uncertainty in existing commercial and industrial use**
 - Relatively small portion of current and future use
- **“Most likely”**
 - Population/employment outcome: Scenario 2
 - Water demand: depends on degree of conservation

21

Questions?

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22