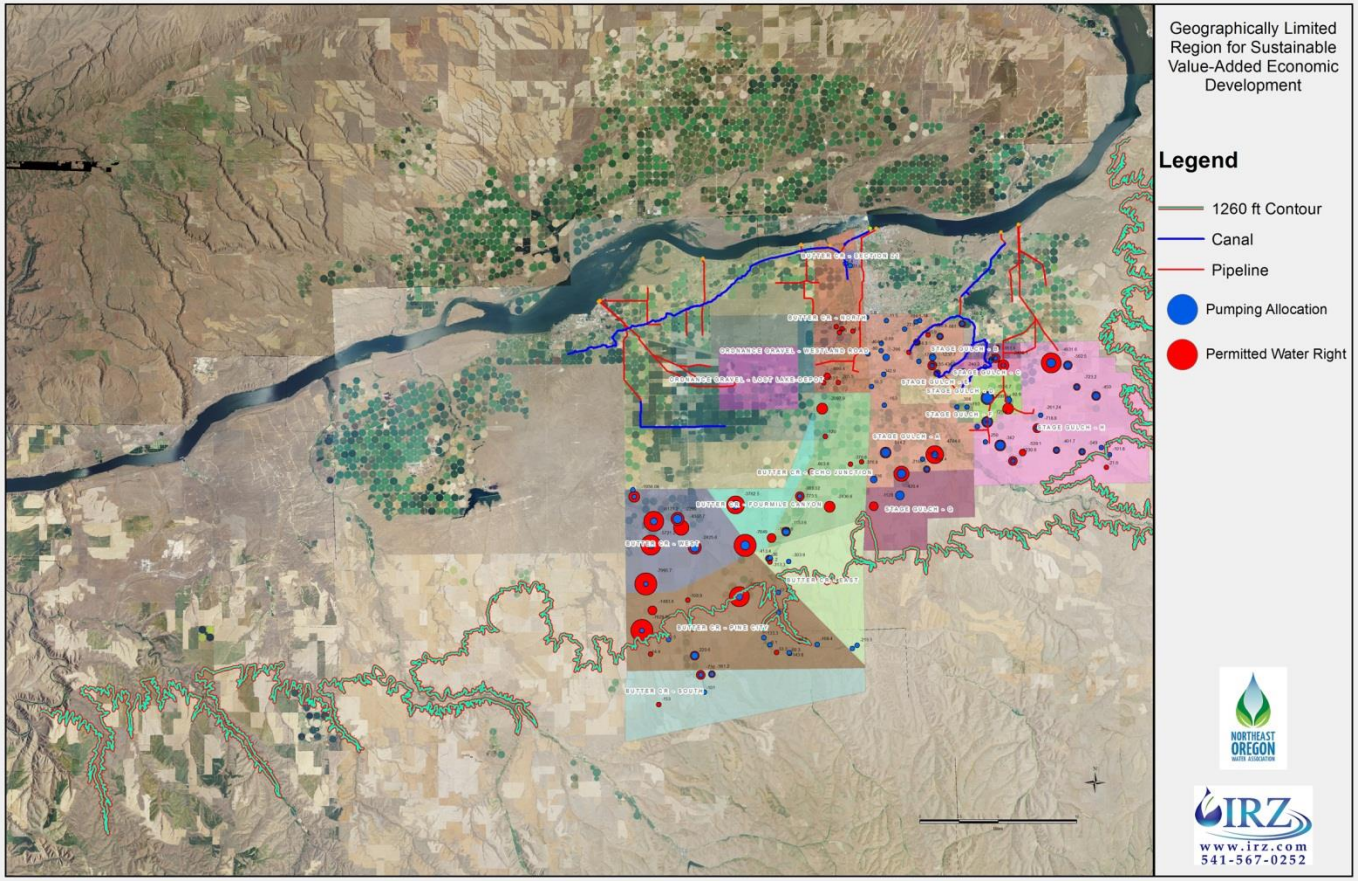
NORTHEAST OREGON WATER ASSOCIATION

LIFE DEPENDS ON WATER, WE DEPEND ON YOU.

Protecting and Enhancing an Economic Hub



Compressed Basin Timeline

- 1855 Treaty with the Walla Walla, Cayuse and Umatilla Tribes
- 1916 Adjudicated decree of water rights to use waters of Umatilla River and its tributaries
- 1954 Pendleton Project Investigation by BOR. Concluded that potential irrigable land far exceeded available water supply
- 1958 First reports of water table decline in Butter Creek area
- 1966 Bureau of Reclamation reports that any significant increase in pumping from basalt aquifers would likely result in accelerated decline of water tables
- 1976 OWRD designates Butter Creek a Critical Groundwater Area (remanded until 1986)
- 1976 Critical Groundwater Area designated by OWRD for Ordnance Basalt and Gravel
- 1977 Lost Lake/Depot well owners initiated project to artificially recharge shallow gravel aquifer using existing canal system
- 1986 Critical Groundwater Area designated by OWRD for Buttercreek Basalt
- 1988 Umatilla Basin Project authorized and funded by Congress -- allows irrigators to exchange Umatilla River water for Columbia River water
- 1990 ODEQ declares 352,000 acres in Umatilla and Morrow counties as a groundwater management area (GWMA) due to nitrate contamination
- 1991 Critical Groundwater Area designated by OWRD for Stage Gulch Basalt
- 2004-2008 Development of the Umatilla Sub-Basin 2050 Water Management Plan
- 2008 Oregon Legislature passes SB 1069 authorizing $750 K to complete a feasibility study of the Umatilla Basin Aquifer Restoration Project (A milestone in state water planning efforts – OR and AK w/o plan)
- 2009 Oregon legislature passes HB 3369 authorizing $2.5 million in grants and loan funding (a milestone in state water development efforts)
- 2010 - Umatilla Basin Water Commission forms to coordinate the implementation of the Umatilla Basin Aquifer Restoration Project and address basin wide needs
- March 2011 – Stage I of Umatilla Basin Aquifer Restoration Project Completed
- August 2013 – Umatilla Basin Water Commission completes work authorized by IGA
- August 2013 - Northeast Oregon Water Association forms to continue water development projects under a coordinated, comprehensive effort
- January 2014 – Northeast Oregon Water Association unveils plan for short and long-term water supply certainty in the Umatilla Basin that takes pressures off of fish rearing tributaries of the Columbia River, improves aquifer conditions and builds the local economy

Adding Drought to Local PDMP

http://www.co.umatilla.or.us/planning/pdf/NHMP/2012-2013_NHMP_Update_FINAL%20FEMA%20ADOPTED_4-17-14.pdf

- Weather emergencies including drought are highest hazard analysis score in Umatilla County (240 points)
- What did we do
  - Adopted into the PDMP into the 2050 Plan
    - 2050 Plan adds 2 other plans that all say the same thing into the chain of plans (1986 Task Force Report, 1988 Basin Plan)
    - Next update will include the 2012 CRUST Declaration of Cooperation

Note: Five place-based type plans that all say the same thing in the Umatilla Basin

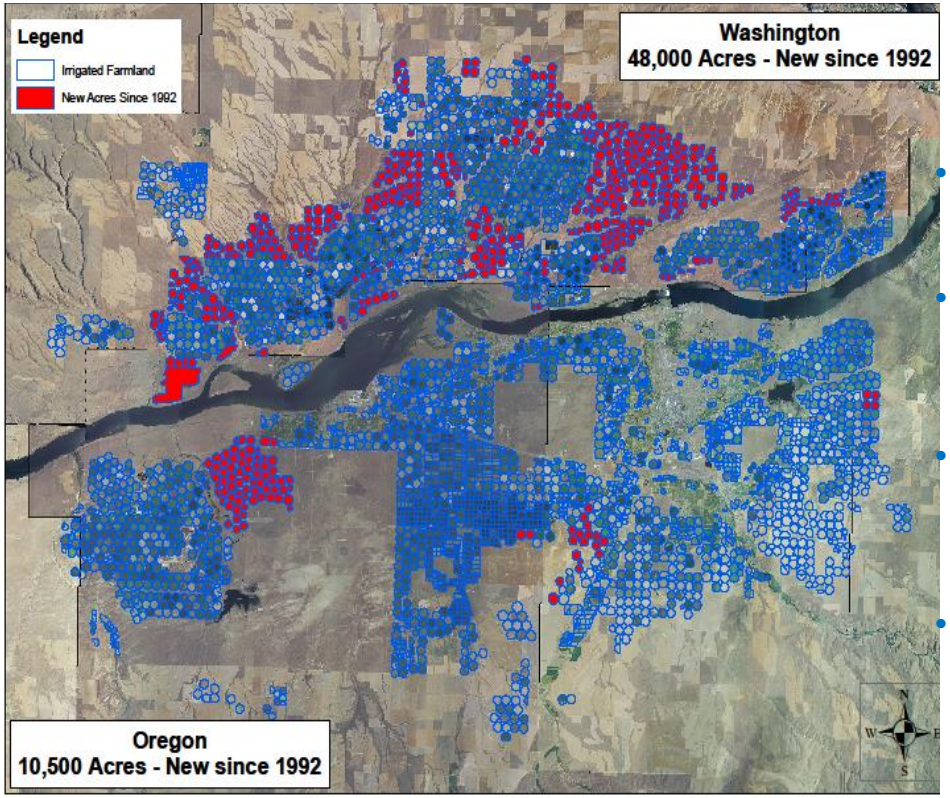
Plan Recommendations

- Utilize “available” available Columbia River supplies for two purposes
  - Re-hydrate reachable lands with cut-off groundwater rights
  - Replace pumping of basalt aquifers during times of water availability (gradual recovery of basalt aquifers
- Finalize CTUIR water rights settlement process
- Better understand basalt groundwater system and connectivity

What we mean by Geographically Limited and Irreplaceable

LITERALLY: THE BEST HIGH-VALUE AG IN THE WORLD

- WATER LIFT
- WEATHER
- EXISTING SYSTEMS
- TERRAIN
- PROCESSING
- ALTERNATIVE FUEL NEEDS

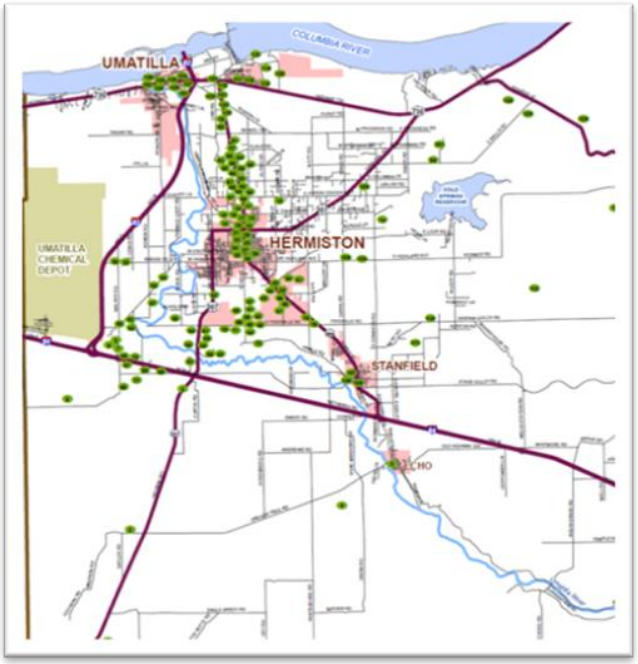


VALUE OF WATER
"From Dry to Fry"

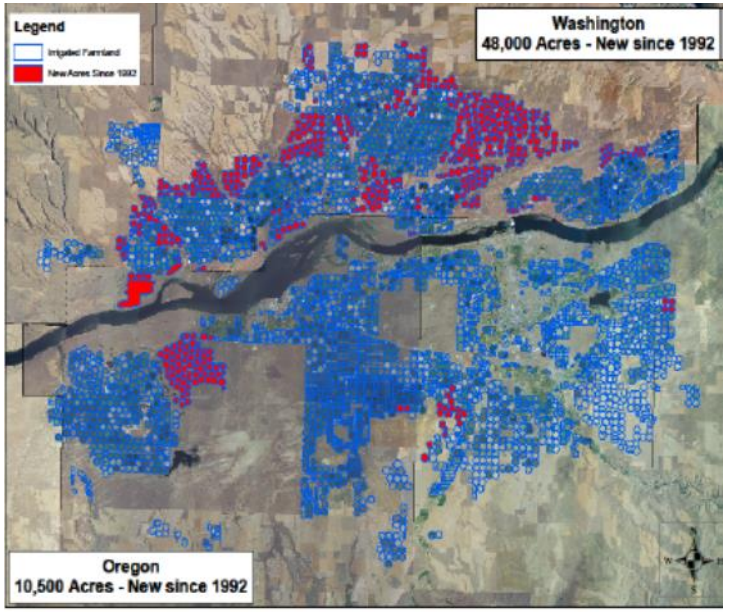
- **Dryland wheat - $100**
  - 40 bushel fallow wheat
- **1st Acre Foot - $500**
  - 100 bushel irrigated wheat
- **2nd Acre Foot - $1,500**
  - Hay, Some vegetables, grass seeds, etc.
- **3rd Acre Foot - $5,000+**
  - High value root crops
  - Full Rotation

The Value of High-Value Irrigated Agriculture

THE CASE: The" Ag-Base"that Supports Job Creation and Innovation



Geographically limited: Existing acreage and "in-fill" growth



The POTENTIAL: Jobs, Funds, Future (Source: Bruce Sorte, OSU)

Type of Effect	*Employment Full & Part-Time*	*Labor Income ($)*	*Total Value Added ($)*	*Output ($)*
Direct (Manufacturer)	5,989	158,052,082	225,015,545	1,063,288,422
Indirect (Suppliers)	3,054	99,471,765	173,184,004	357,002,946
Induced (Household Spending)	1,209	37,182,718	75,567,449	124,808,178
Total Effect	**10,252**	**294,706,566**	**473,766,999**	**1,545,099,547**

RAW PRODUCT - POTATOES

EXAMPLE 3: PARADISE FOR POTATOES

125 ACRES = $750,000 = $24 MILLION

POTATOES

	#	SUPPLY CHAIN	PRICE UNIT	PRICE UNIT	$/UNIT	%	PER ACRE TONS	PER ACRE POUNDS	PER ACRE OUNCES	PER ACRE $	TOTAL TONS	TOTAL POUNDS	TOTAL OUNCES	TOTAL $
	1	Farm	Harvested Potatoes	Ton	$150.00		40.00	80,000	1,280,000		5,000.00	10,000,000	160,000,000	
	2	Farm	Usable Potatoes	Ton	$176.47	85%	34.00	68,000	1,088,000	$ 6,000	4,250.00	8,500,000	136,000,000	$ 750,000
	3	Processor	Finished Product	Pound	$ 0.35	60%	20.40	40,800	652,800	$ 14,280	2,550.00	5,100,000	81,600,000	$ 1,785,000
	4	Retail	Store Sales	Ounce	$ 0.30	100%	20.40	40,800	652,800	$195,840	2,550.00	5,100,000	81,600,000	$24,480,000

THE ROTATION & PROCESSING

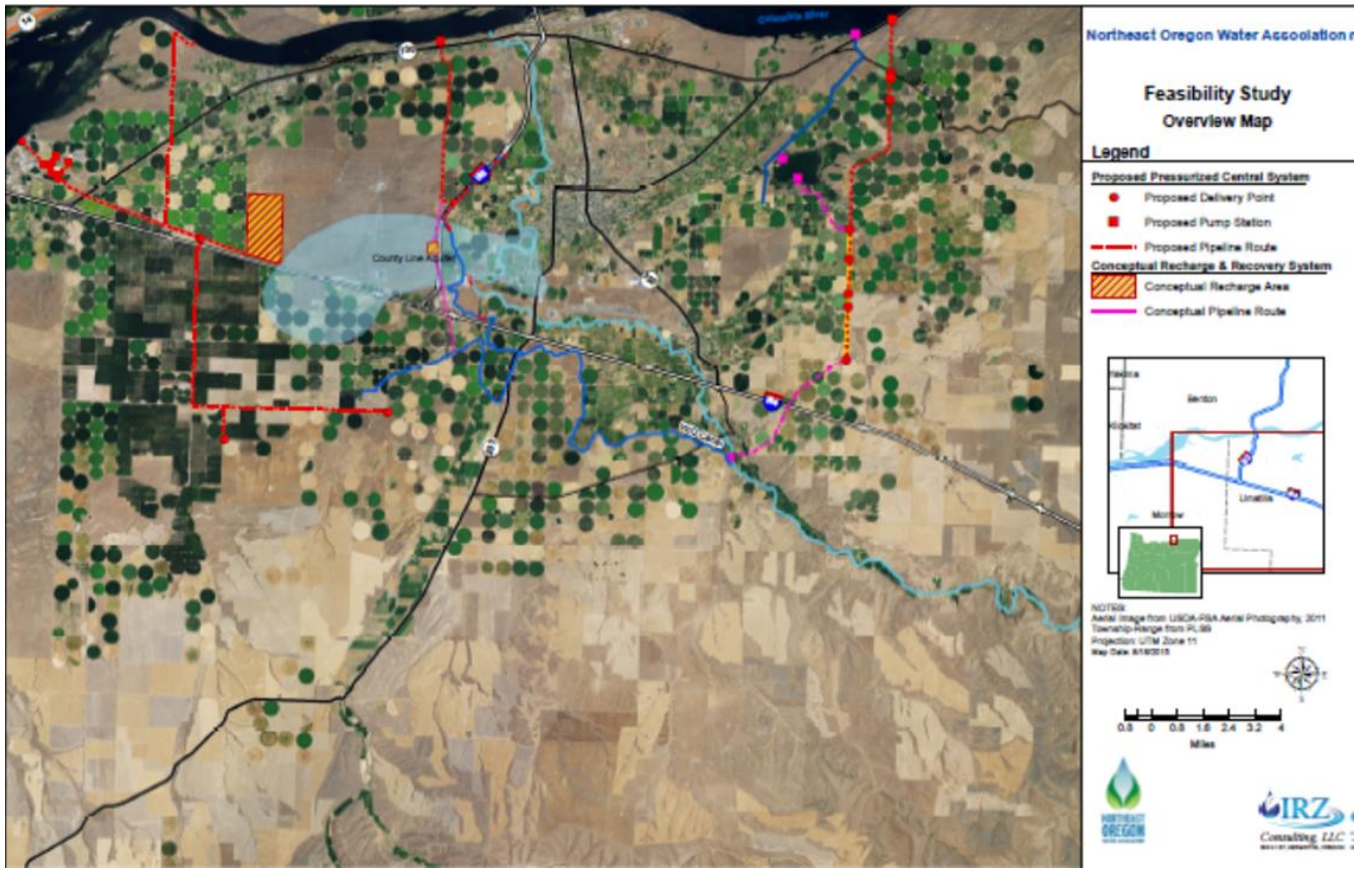
THE ROTATION

1. **Potatoes**
2. **Grass/Wheat/Feed**
3. **Grass/Wheat/Feed**
4. **Onions/Carrots/Other Root Crop**
5. **Double Crop/Other Vegetable**

VALUE ADDED, PROCESSING, INTEGRATION

1.	Potato Plant:	$300 million, 10,000 acres = $30,000/acre
2.	Grass Plant:	$ 25 million, 10,000 acres = $2,500/acre
3.	Dairies & Milk Proc.:	$ 50 million, 10,000 acres = $5,000/acre+
4.	Onion Pack & Proc.:	$ 50 million, 10,000 acres = $5,000/acre
5.	Vegetable Plant:	$100 million, 10,000 acres = $10,000/acre

Infrastructure Investment



The Full Project Return (Using 2006 Figures to be Conservative)

Alternatives	Output (Business Activities) (2006$)		Labor Income* (2006$)		Employment (# of jobs)	
	Direct	Total	Direct	Total	Direct	Total
SSRD 1 – Options 2&3	$80,635,422	$116,265,246	$12,573,426	$24,150,857	330	679
SSRD 1 – Option 1	$144,770,763	$208,720,310	$ 22,656,434	$ 43,452,201	606	1,233
Full Project	$239,020,310	$344,264,806	$37,346,288	$71,600,591	1,040	2,074

* Labor income consists of employee compensation plus proprietor's income.

- At 5% expect a direct income tax stream of no less than $3.5 million annually
- Local property tax on land value increase alone is no less than $1.5 million annually

POTENTIAL POWER SAVINGS ASSOCIATED WITH RAISING PUMPING LEVELS WITH GROUNDWATER RECHARGE

Permitted Acres	Permitted Ac-Ft	Reduced Lift	Pump Efficiency	Motor Efficiency	KWh/Ac-Ft Saved	KWh Saved
63,489	190,466	5	80%	90%	7.10	1,352,705
63,489	190,466	10	80%	90%	14.20	2,705,411
63,489	190,466	15	80%	90%	21.31	4,058,116
63,489	190,466	20	80%	90%	28.41	5,410,822
63,489	190,466	25	80%	90%	35.51	6,763,527
63,489	190,466	30	80%	90%	42.61	8,116,232
63,489	190,466	35	80%	90%	49.71	9,468,938
63,489	190,466	40	80%	90%	56.82	10,821,643
63,489	190,466	45	80%	90%	63.92	12,174,349
63,489	190,466	50	80%	90%	71.02	13,527,054

NORTHEAST OREGON WATER ASSOCIATION

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