



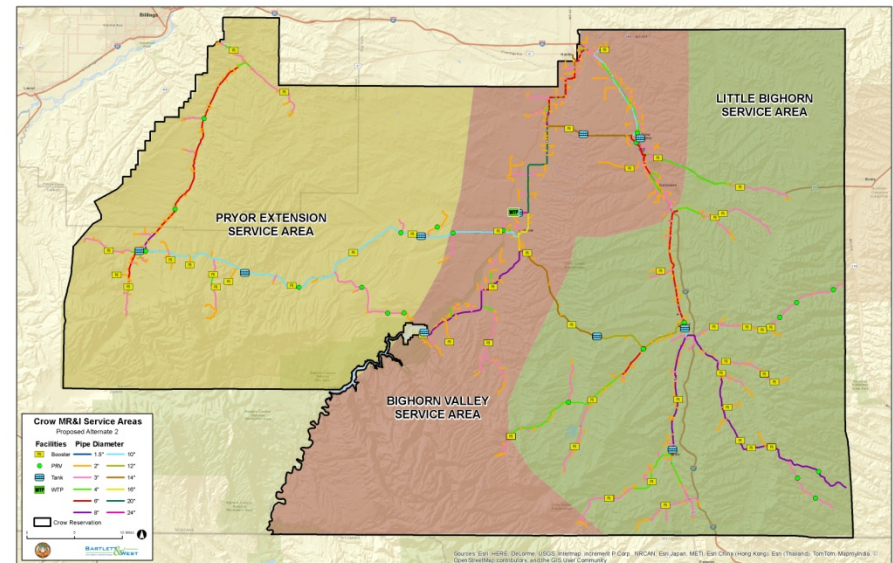
Crow MR&I Project Crow Irrigation Project

Presented by: Titus Takes Gun
November 12, 2014

MR&I SYSTEM

Overview

- Municipal, Rural, and Industrial System
- Provide water to majority of Reservation
- Pipeline Network
- Economies of Scale of a large system



Funding



\$246.4 million – Construction

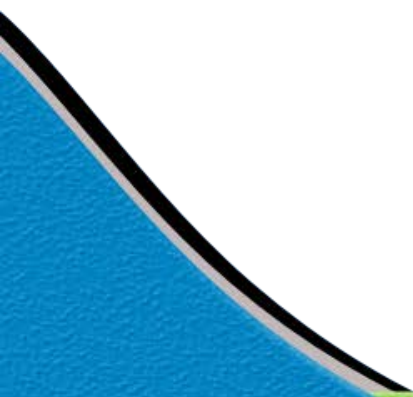
\$47 million – OM&R



Population & Water Needs



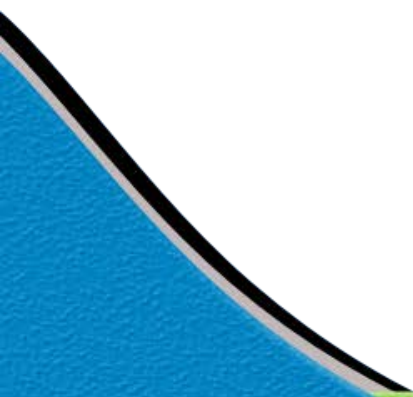
- 2010 Population -6863
- 2060 Population -9050



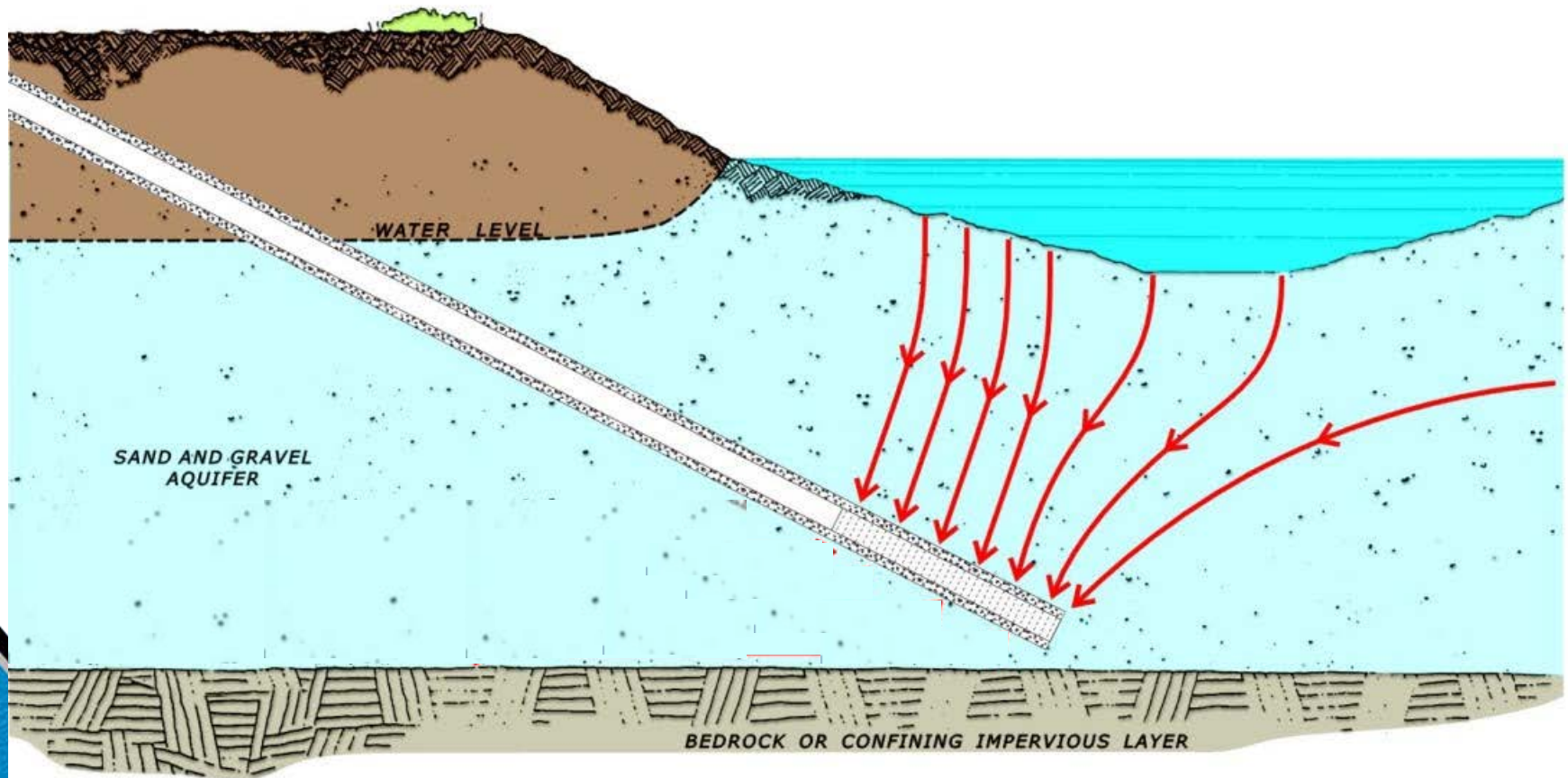
Intake



- Bighorn River near St. Xavier
 - 7-10 cfs of Water
 - 2,500 cfs – Optimum River Flow



Angled Well



Treatment Plant



- 4.5 MGD To 6.7 MGD



Pipelines



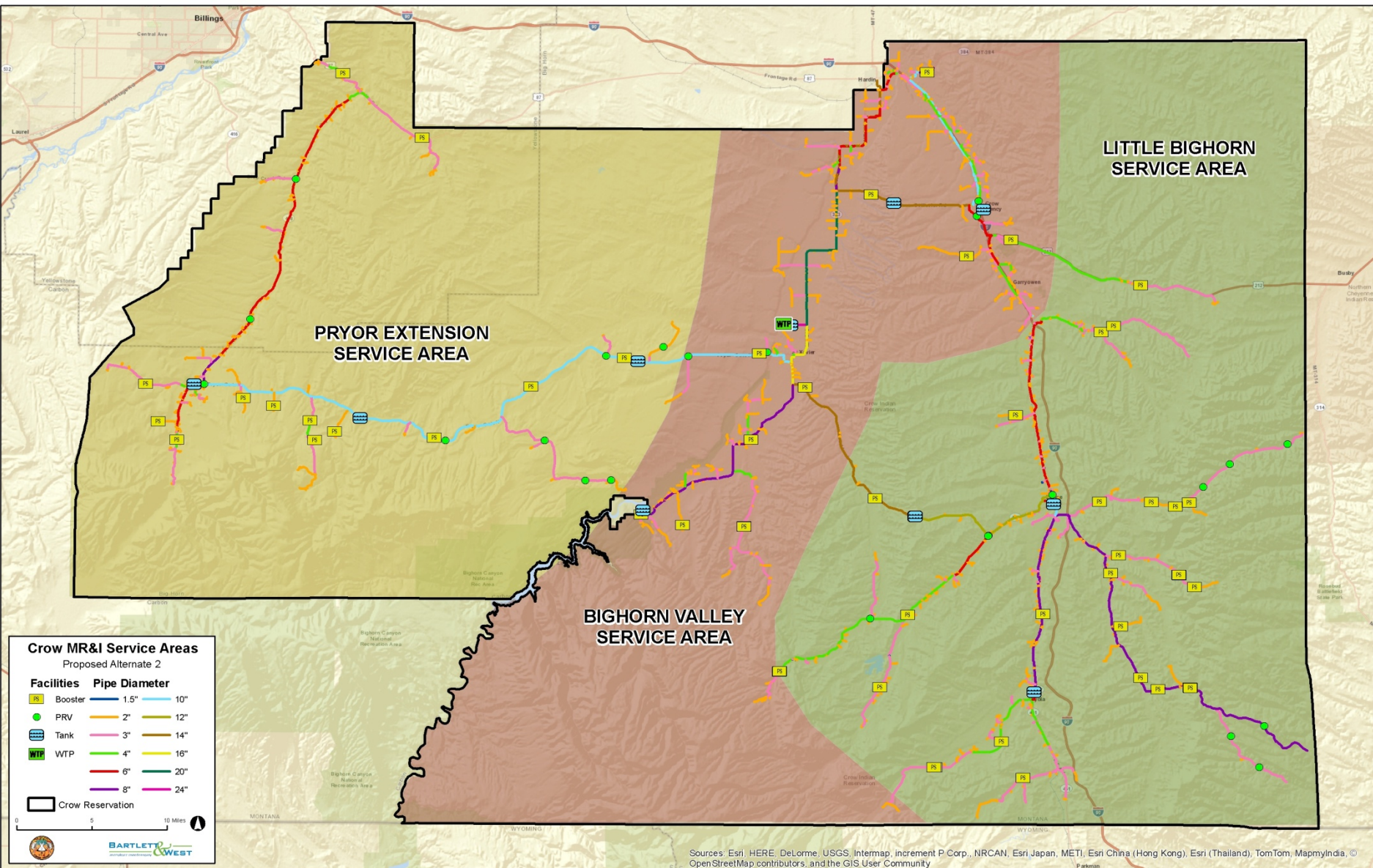
- 750 Miles of Pipe
- PVC and Ductile Iron Pipe
- 1.5" to 24" Diameter
- Route along roads
- Pump Stations



Preliminary Routing



10

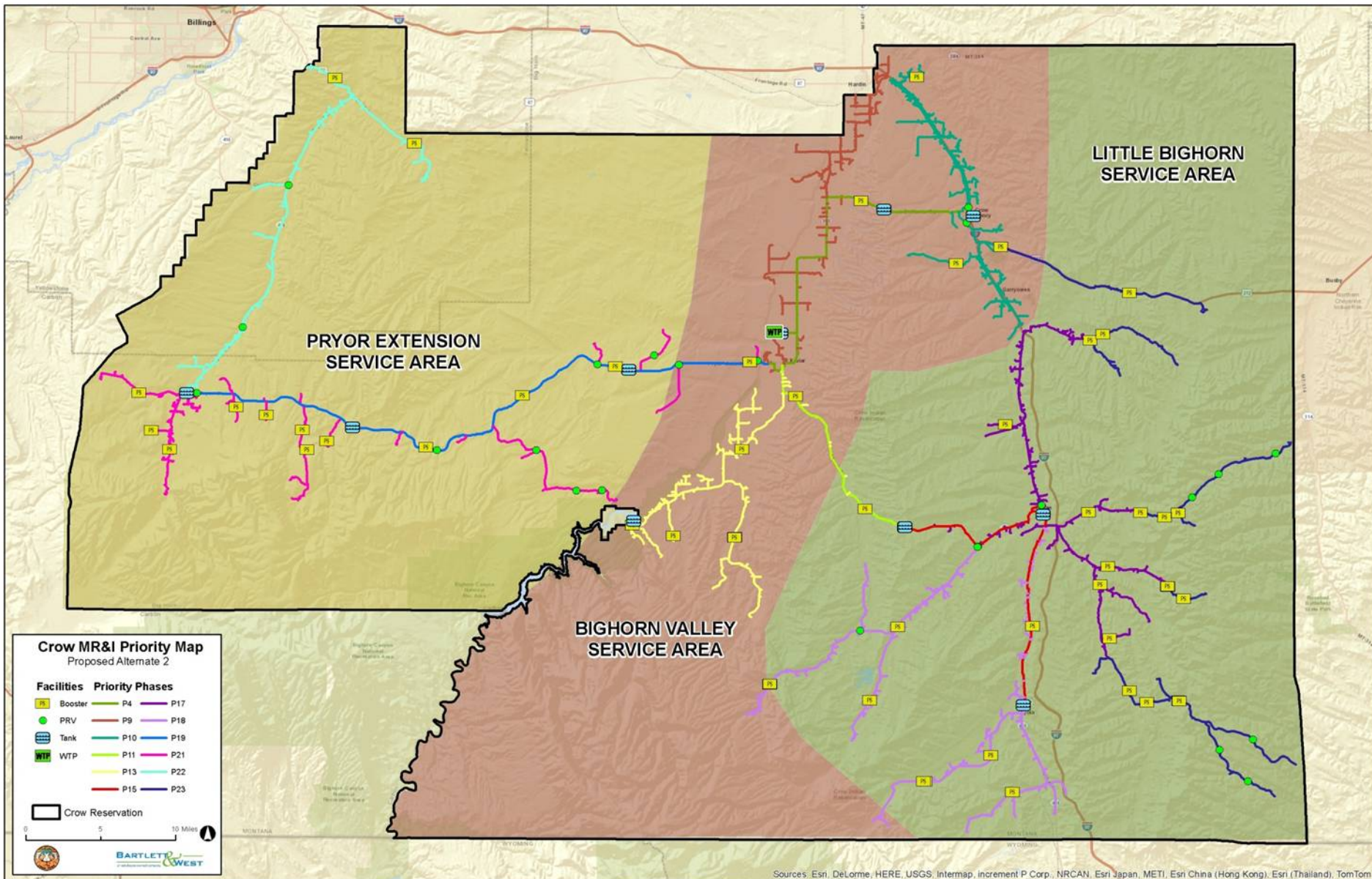


Priority List

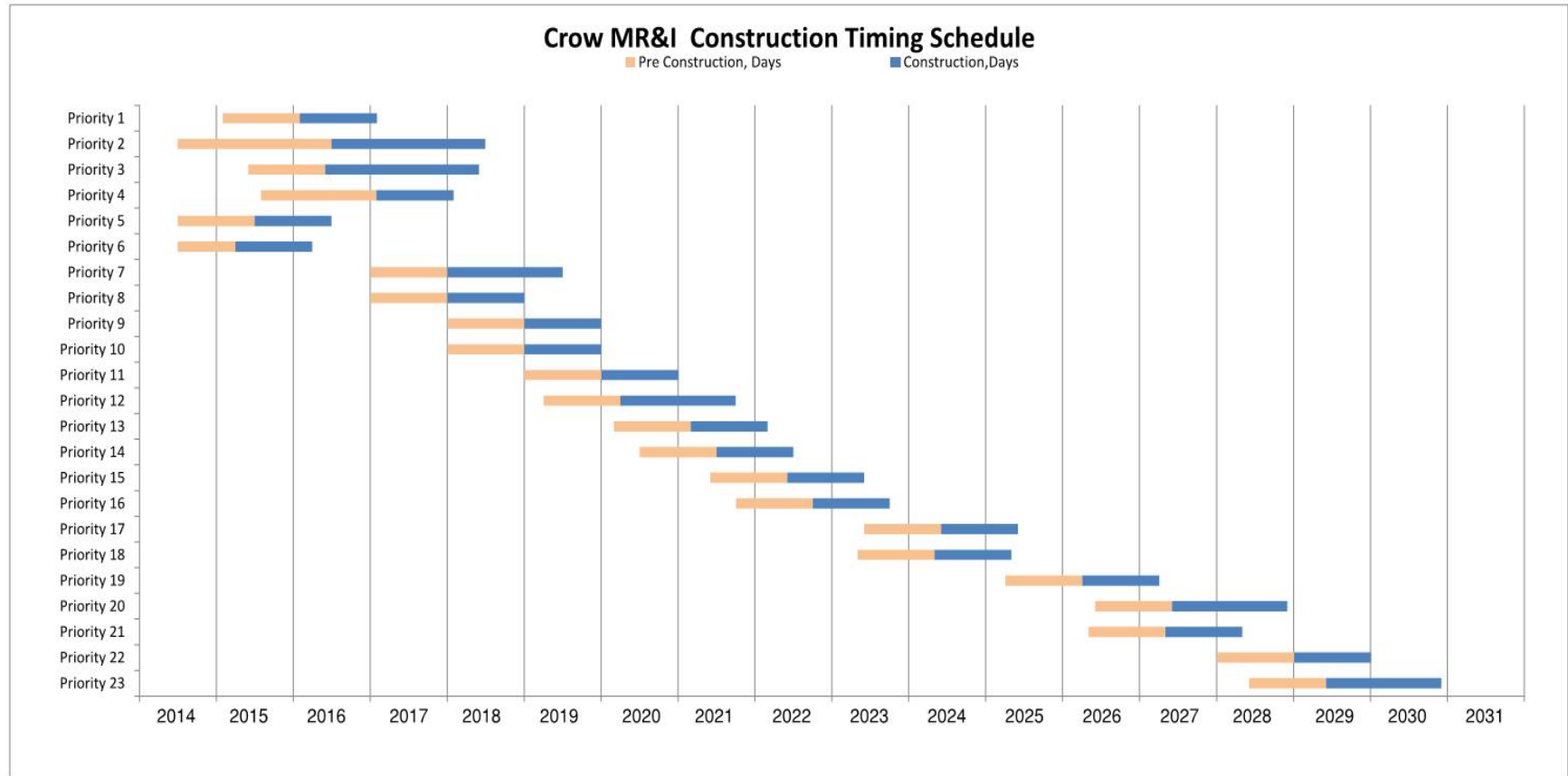


Priority	Project
1	Intake & Discharge Facility & Raw Water Pipeline
2	Water Treatment Plant
3	St. Xavier Regional Tank
4	Transmission Pipeline from WTP to Crow Agency Regional & Community Tank
5	Pryor & Wyola Community Upgrades
6	Pryor & Wyola Community Tanks
7	Crow Agency Regional Tank
8	Crow Agency Community Tank and Upgrades
9	St. Xavier to Hardin Distribution Pipeline
10	Crow Agency Region Distribution Pipeline
11	Transmission Pipeline from WTP to Lodge Grass Regional Tank
12	Lodge Grass Regional Tank
13	South Big Horn Valley Distribution Pipeline
14	Fort Smith/Government Camp Regional Tank
15	Transmission Pipeline through Lodge Grass and Wyola
16	Lodge Grass Community Tank and Upgrades
17	North and East Little Big Horn Valley Distribution Pipeline
18	South and West Little Big Horn Valley Distribution Pipeline
19	Transmission Pipeline from WTP to Pryor
20	Pryor Regional Tank
21	East and South Pryor Distribution Pipeline
22	North Pryor Distribution Pipeline
23	Cloud Peak Extension

Priority Map



Schedule



Crow Irrigation Project:



Overview

- CIP work commenced 1885
- 11 Irrigation Units
- Water Source
 - Bighorn & Little Bighorn River
 - Sunday Creek
 - Lodge Grass Creek
 - Pryor Creek
 - Lost Creek

Funding



- \$131.8 million - Construction
- \$10 million - O&M



Archive Pictures



THE FEDERAL BUREAU OF INVESTIGATION

<http://ctwrd.com/DidYouKnow.html>



PLUME ON SMALL LATERAL

<http://ctwrd.com/DidYouKnow.html>



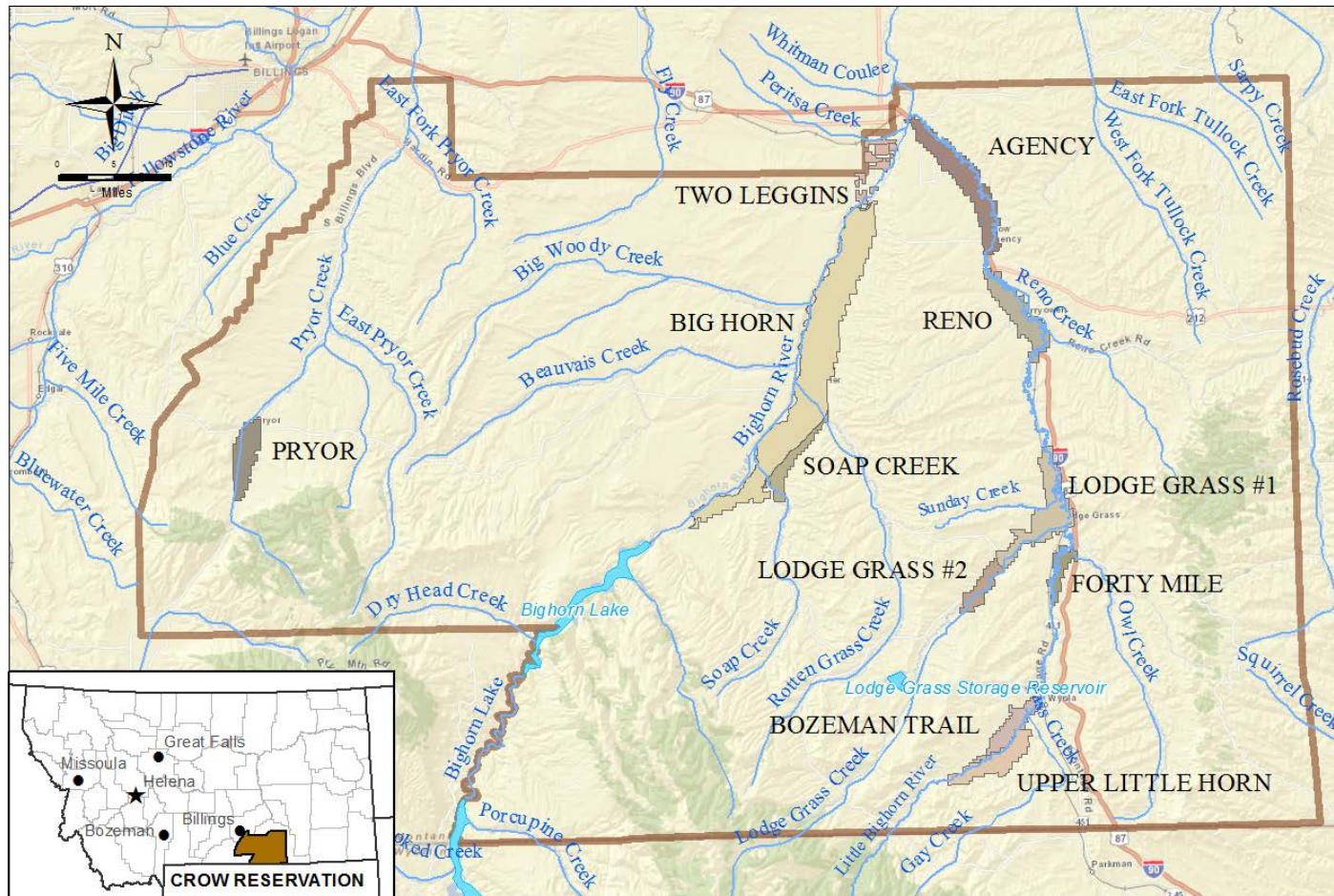
<http://ctwrd.com/DidYouKnow.html>



CHOTE - AGENCY DITCH

Chote - Agency Ditch
Sta. 499 + 5
Photo No. 19

Irrigation Units



Overview



- \approx 125 miles main canals
- \approx 260 miles laterals, sublaterals, drains
- \approx 3,800 structures
- 11 diversion dams
- 1 storage reservoir



5 Parts of the CIP



1. Rehabilitation & Betterment of Structures
2. Rehabilitation & Betterment of Canals and Laterals
3. Alternative On-Farm Irrigation Systems
4. Purchase of Fee Lands
5. Developing Irrigation on Future Indian Lands

1. Rehabilitation of Structures



2. Rehabilitation of Canals

- Cleaning/Reshaping
- Lining
- Piping



3. Alternative On-Farm Systems

- Lining
- Land Leveling
- Gated Pipe
- Surge Irrigation
- Center Pivots
- Wheel Lines



https://www.fas.org/irp/imint/docs/rst/Sect3/originals/fig3_12.gif



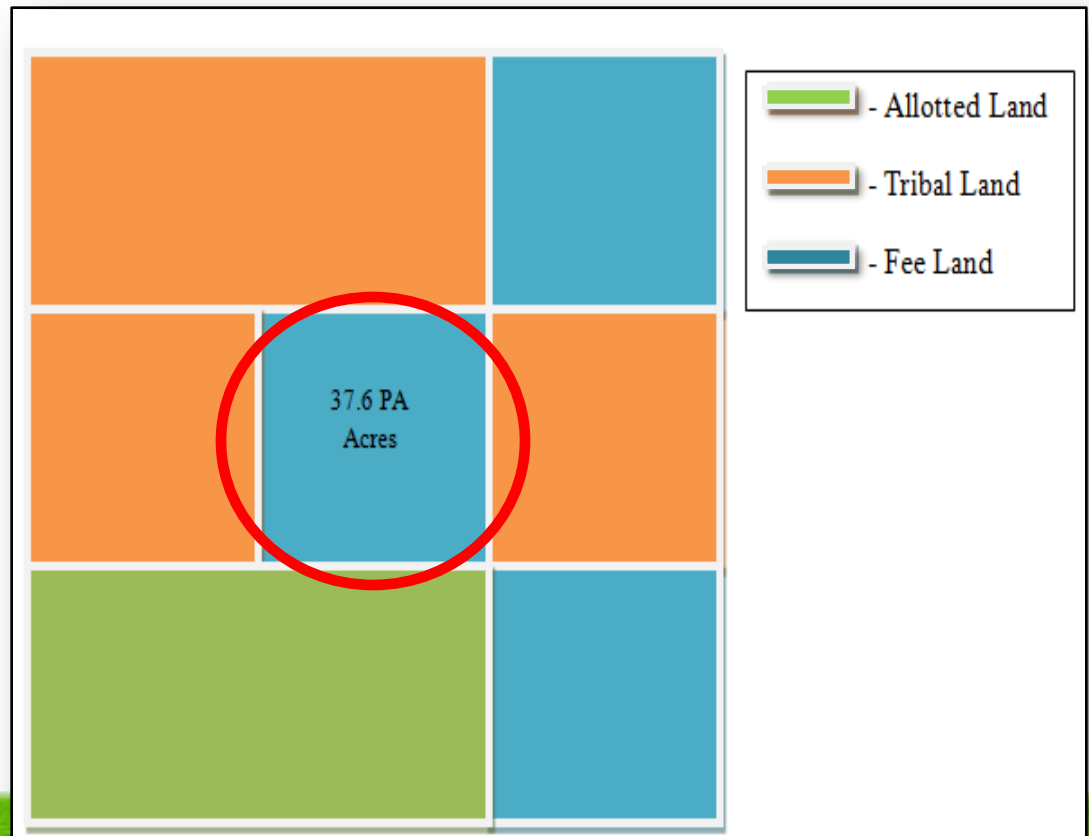
http://www.valmont.com/images/irrigation-products/phoenix2011_valley_aerial_photo_1_web.jpg?sfvrsn=2



http://www.turfmagazine.com/files/Image/TF/TF1002_107.jpg

4. Purchase of Fee Lands

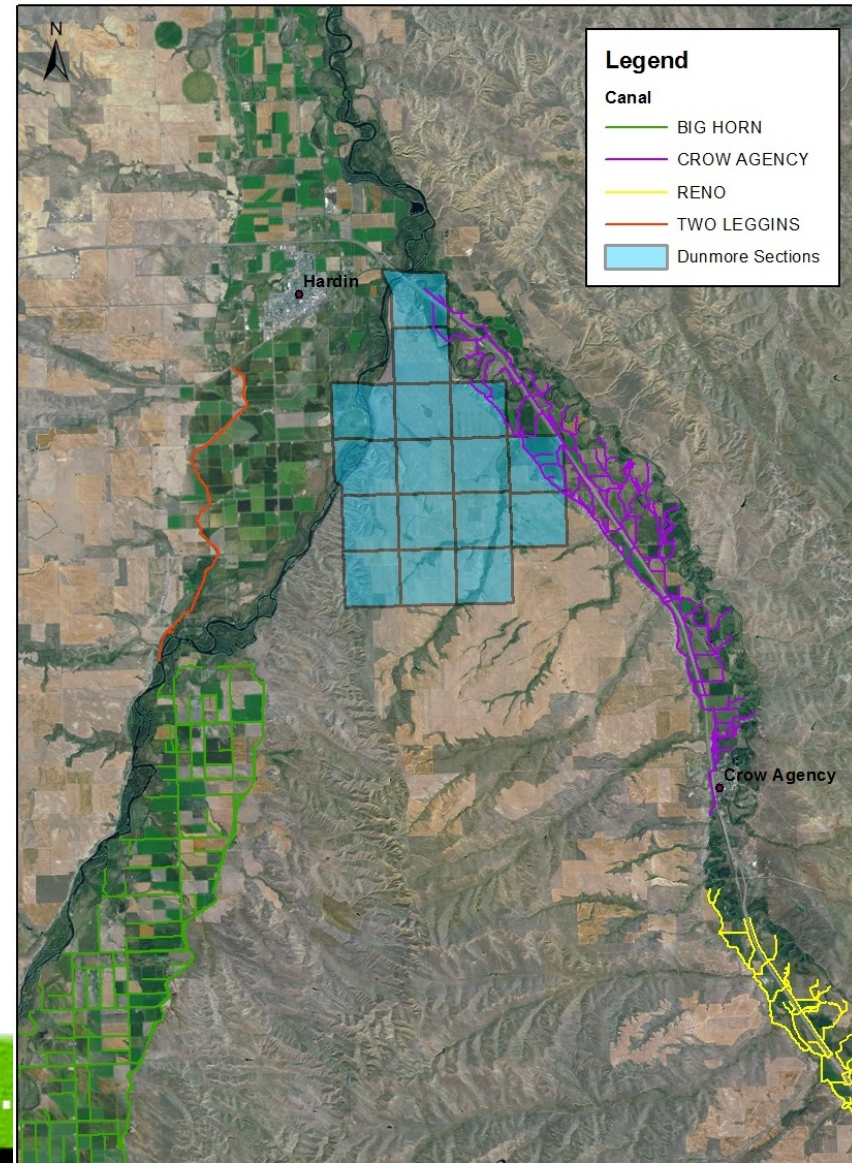
- Tribal Status
- Create land “blocks”



5. Irrigation Development



- Dunmore Bench
- Other CIP Units



Lodge Grass No. 1 Headworks



Before

Lodge Grass No. 2 Headworks



After



Big Horn High Check Emergency Repair



Before



High Check O&M Road



After



SERVICE. THE



Questions?