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

Crow MR&I Service Areas
Proposed Alternate 2

Facilities
- Boilers
- PRV
- " tank
- WTP

Pipe Diameter
- 1.5"
- 2"
- 3"
- 4"
- 6"
- 8"
- 12"
- 14"
- 18"
- 20"
- 24"

Legend:
- Crow Reservation
- Crow MR&I Service Areas

Sources: ESRI, HERE, DeLorme, USGS, Intermap,人间社P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong) Ltd., Esri (Thailand), TomTom, IGN

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

Crow MR&I Priority Map
Proposed Alternative 2

Facilities Priority Phases
Booster P17
PRV P9 P18
Test P10 P19
WTP P11 P21 P13 P22
P16 P23

Crow Reservation

Sources: Esri, DeLorme, HERE, USGS, Intermap, inc.; imagery ©2019 CIRA, Euclides, METI, Exel-Chars (Kang Kongi), Esri (Thailand), TomTom
Schedule

Crow MR&I Construction Timing Schedule

- Pre Construction, Days
- Construction, Days

Priority 1
Priority 2
Priority 3
Priority 4
Priority 5
Priority 6
Priority 7
Priority 8
Priority 9
Priority 10
Priority 11
Priority 12
Priority 13
Priority 14
Priority 15
Priority 16
Priority 17
Priority 18
Priority 19
Priority 20
Priority 21
Priority 22
Priority 23

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

http://ctwrld.com/DidYouKnow.html

http://ctwrld.com/DidYouKnow.html

http://ctwrld.com/DidYouKnow.html

http://ctwrld.com/DidYouKnow.html

http://ctwrld.com/DidYouKnow.html
Irrigation Units
Overview

- ≈ 125 miles main canals
- ≈ 260 miles laterals, sublaterals, drains
- ≈ 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
4. Purchase of Fee Lands

- Tribal Status
- Create land “blocks”
5. Irrigation Development

- Dunmore Bench
- Other CIP Units
Big Horn High Check
Emergency Repair

Before

After

High Check O&M Road
Questions?