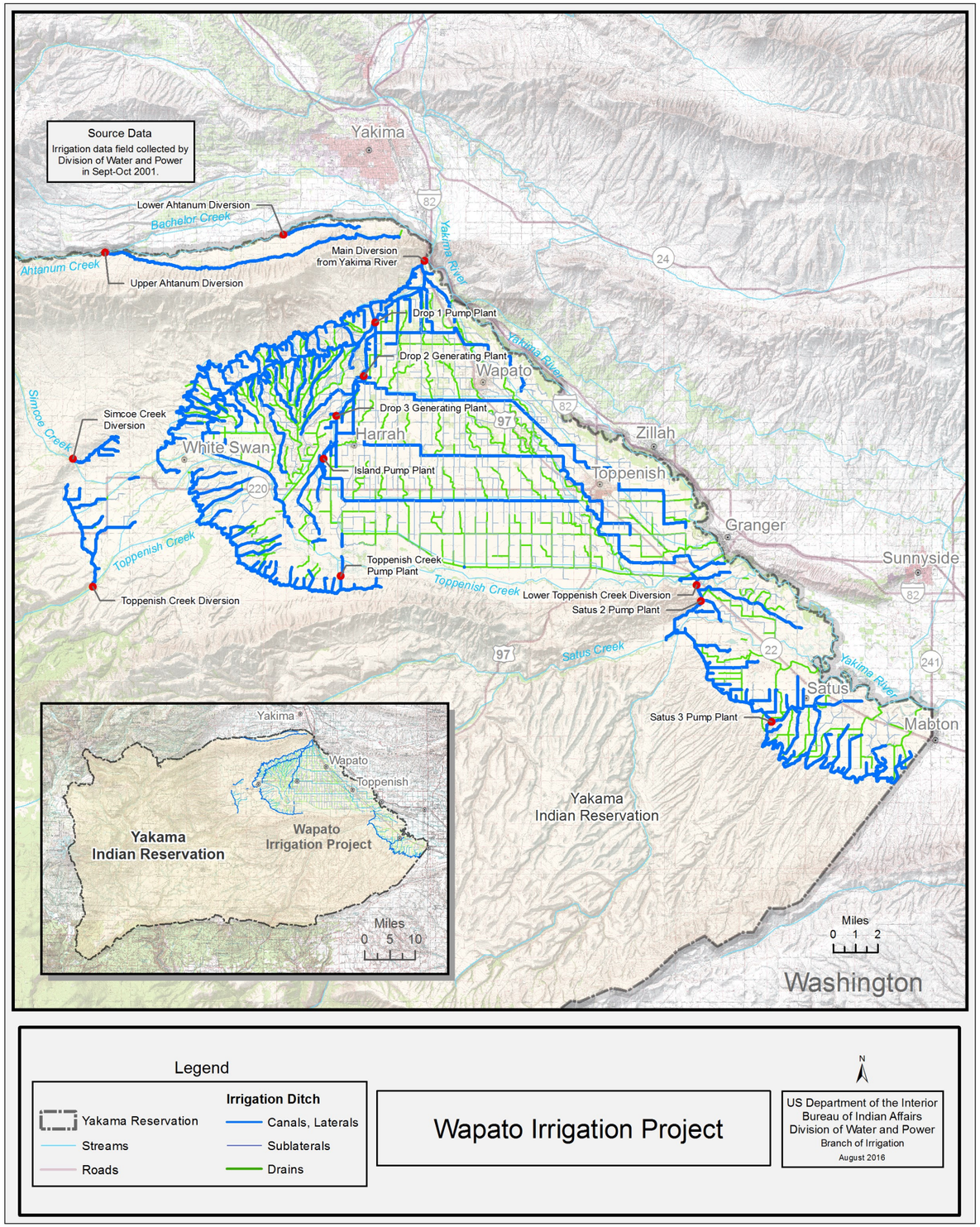


Wapato Irrigation Project

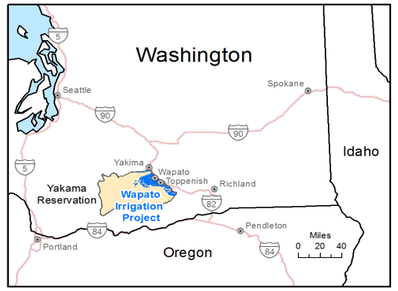
Introduction

The Wapato Irrigation Project (WIP) is the largest irrigation project in the Yakima River Basin. Construction started with the Bureau of Reclamation (BOR) and the Office of Indian Affairs in 1905. In 1913 Indian Affairs in cooperation with the BOR started the Indian Irrigation Project or Wapato Division.

Location

WIP is located in the northeastern portion of the Yakama Indian Reservation, Northwest Region, Washington (Yakima County). The Irrigation Office is located in Wapato, Washington.

Basin:
Yakima River.
Project Elevations:
~650–2684 feet above sea level.*



Climate (Wapato, WA)

- Average annual temperature is ~52° F.
- Precipitation is ~8 inches/year.
- Growing season is ~193 days.

WIP Funding

Operation and maintenance (O&M) of the irrigation facilities is carried out by the WIP under Federal guidelines codified in Title 25 CFR, Part 171.

- **WIP annual O&M federal budget :** $11,133,282 (2018).
- **Deferred Maintenance Costs:** $147.5 million (FY2019).
- **Infrastructure Replacement Costs:** $292 million (FY2019).
- **O&M rates per acre**: $25.00–$86.00 (2019); $25.00–$86.00 (2020 proposed).
- **Estimated annual revenue processed through NIIMS****: $10,482,700 (FY2019).
- S. 1694 Yakima River Basin Water Enhancement Project Phase III Act of 2015, Congressional Budget Office Cost Estimate (February 2016) would add $77 million to the cost estimate to total $100 million for improvements on the WIP.
- **Modernization Cost Estimate:** $100 million

Irrigation and Crop Information

- **Assessed acres:** 135,538 (FY2019).
- **Primary crops:** Hops, corn, alfalfa, asparagus, mint, wheat, herbs, grapes, pears, onions, cherries, squash, peppers, potatoes, dry beans, grassland/pasture, and more.
- **Estimated crop value**: $458–$559.8 million (2013).

Wapato Irrigation Project Authorization and Water Rights

Act of December 21, 1904 (33 Stat. 595)

- Authorized the sale of surplus or unallotted lands of the Yakama Reservation.
- Recognized the claim of the Tribes to 293,837 acres of land that was previously excluded by an erroneous boundary survey.

Act of May 6, 1906 (34 Stat.53)

- Under this act, Indian allottees of the Yakama Reservation are authorized to dispose of all land in excess of 20 acres and use the proceeds to pay for the irrigation of the area retained.

Act of August 1, 1914 (38 Stat.582, 604)

- Stated the Indians have been deprived of their portion of the natural flow of the Yakima River for the purpose of irrigation.
- Directed to furnish enough water to the Yakama Reservation to maintain irrigation during the low-water irrigation season.
- Authorized an amount to be appropriated annually in installments to pay for the water by the Government.

Title XII of the October 31, 1994, Public Law 103-434, Section 1210 (Title XII)

- Designated the lands that are capable of being served by the Wapato-Satus Unit irrigation.
- Determined the final construction costs of the irrigation works.
- Allocated the costs on a per acre basis to the land capable of being served.

Ecology vs Acquavella, et al. December 4, 2006

- The rights to waters on the Yakima River to be beneficially used.
- The adjudication addressed the quantity of water allocated to the Yakama Nation.
- A tribe's water rights reserved for irrigation are determined by the "practicably irrigable acreage standard."

Image: Main Diversion Gate House

Image: Drop 3 Power House

*The tilde (~) is shorthand for approximately.
** NIIMS is the National Irrigation Information Management System.

Irrigation Project Facilities Summary

The Wapato Irrigation Project is the largest of all Bureau of Indian Affairs (BIA) revenue generating irrigation projects. Construction started in 1905 and continued until 1948. WIP contains about 222,930 acres or about 348 square miles.

- 137 miles of canals and 626 miles of laterals and sublaterals. In addition, there are 355 miles of drains,
- 4 miles of concrete lined and 131 miles of earthen canals,
- 72.8 miles of concrete lined and 157 miles earthen laterals,
- 90 miles of concrete lined and 278 miles of earthen sublaterals,
- Drains are all open earthen,
- 5 pumping plants and 22 smaller pump facilities, and
- 8 diversion dams.
- Delivery system composed of 3 "Units": Ahtanum, Toppenish-Simcoe, and the largest Wapato-Satus Unit.
- Ahtanum irrigates approximately 5,000 acres, Toppenish-Simcoe irrigates approximately 3,000 acres and Wapato-Satus irrigates approximately 136,000 acres.

WIP Facilities Descriptions

Diversion Dams

Wapato Diversion Dam

- Located on the Yakima River, 1 mile south of Union Gap, Washington at River Mile (RM) 106.7.
- Wapato Dam supplies water to the majority of the irrigated acreage in WIP.
- Consists of two structures, referred to as the east (crest length = 420 feet) and west (crest length = 200 feet) both with a hydraulic height of 9 feet.
- Constructed in the early part of the 20th Century, diverts a maximum of 2,200 cfs into the Main Canal.

Olney Diversion Dam

- On Toppenish Creek. Approximately 7 feet high, with an overflow weir 50 feet long; constructed in the 1920s and modified in 2000. Seasonal fluctuations of the creek provide inconsistent service.

Toppenish Creek Unit 2 Pump

- A steel frame drop with three bays diverts water into the Unit 2 Pump Canal. A second structure diverts water north to North Fork and Marion Drain.

Marion Drain Diversion Dam

- Diverts water south into the Satus Main Feeder Canal; constructed in the mid-1920s and was designed to provide water to approximately 5,000 acres.

Upper Ahtanum Diversion

- Diverts up to 60 cfs and provides water for approximately 4,600 acres.
- Constructed in 1918.

Lower Ahtanum Diversion

- Diverts up to 7 cfs and provides water for approximately 500 acres.
- Constructed in 1920.

Old Reservation Diversion

- Constructed in 1896 and closed since 2001; could divert a maximum of 350 cfs.
- Provided water for Old Reservation Canal, also known as Wanity Slough.

Satus Creek Diversion

- Constructed before 1920 and closed since 1981.

Canal System

Main Canal

- Conveys water from the Wapato Diversion Dam and is the primary source of water for Project lands.
- Has a maximum capacity of 2,200 cfs.
- Delivers water through laterals 1, 2, 3, and 4.
- Flows south ~13 miles through the central-west part of the Wapato-Satus Unit.

Ahtanum Upper and Lower Canals

- Provide water to Project lands lying in a strip south of Ahtanum Creek at the base of Ahtanum Ridge.
- Flows east ~15.5 miles combined.

Toppenish and Simcoe Canals

- Provides water to Toppenish-Simcoe Unit west of White Swan, WA.
- Toppenish Canal flows north-northwest ~5.6 miles.
- Simcoe Canal flows northeast ~3 miles.

Unit 2 Pump Canal

- Provides water to Project lands south of Toppenish Creek at the base of Toppenish Ridge.
- The west branch flows west ~14.5 miles.
- The east branch flows east ~2 miles.

Satus Feeder Canal

- Inactive since 1981 because the diversion is not equipped with a fish screen.

Old Reservation Canal

- Inactive since 2001 because it is not equipped with a fish screen at the diversion.

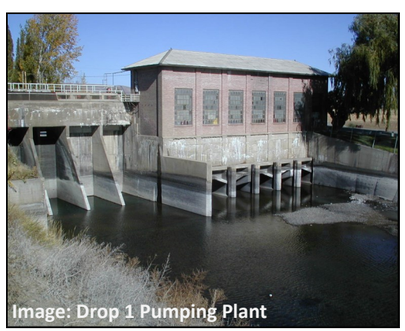


Image: Drop 1 Pumping Plant

Marion Drain - Satus Main Feeder Canal

- Provides water south to the Satus Main Feeder Canal with the supply composed mostly of return flows from the Wapato-Satus Unit.

Pumping Plants

Drop 1 Pumping Plant

- Located at Canal Mile (CM) 4.4 on the Main Canal.
- Lifts water from the Main Canal 90 feet into the East and West Highline Canals.
- Has three 200 horsepower (hp), 480 operating voltage (ov) pumps outside the building with 52 cfs combined capacity and three hydro turbine 725 hp pumps inside the building with 165 cfs combined capacity.

Island Pumping Plant

- Located at CM 12.1 on the Main Canal.
- Lifts water 30 feet and was placed in operation in 1952 to provide water to ~3,000 acres.
- Has one 250 hp pump and one 125 hp each has 2300 ov with 75 cfs combined capacity. Only one pump runs at a time.

Toppenish Creek Unit 2 Pumping Plant

- Located at RM 26.5 on Toppenish Creek.
- Lifts water 180 feet into the east and west Unit 2 Canals and provides water for several thousand acres.
- Has one 1500 hp, 2400 ov pump with 60 cfs capacity and two 800 hp, 2400 ov pumps with 60 cfs combined capacity.

Satus 2 Pumping Plant

- Located at CM 1.4 on the Satus Main Feeder Canal.
- Lifts water 32 feet into the Satus 2 Pump Canal.
- Has three 500 hp, 2400 ov pumps with 375 cfs combined capacity and one 200 hp, 480 ov pump with 53 cfs capacity.

Satus 3 Pumping Plant

- Located at CM 9.2 on the Satus Main Feeder Canal.
- Lifts water 94 feet into the Satus 3 Pump Canal.
- Has three 1000 hp, 2400 ov pumps with 75 cfs capacity each.

Smaller Pumps

In addition to the Pumping Plants, WIP owns and operates a number of smaller pumping facilities including:

- Schuster Pump, located at Slough Mile 17.8 on Wanity Slough.
- Toppenish Drain Pumps, located on East Toppenish Drain 1 mile west of Blue Heron Road.
- Wagon Wheel Pump, located on Marion Drain 0.5 miles west of Indian Church Road.
- Alfalfa Pump, located on Satus Feeder Canal 0.5 miles downstream of Marion Drain.
- Wilson Pumps, located on East Toppenish Drain at the intersection of Annahat and Blue Heron Roads.

Electrical Facilities

- The Yakama Nation received a transfer of electrical equipment from the BIA in June 2010, including transformers, generators, and control systems from Drop 2 & 3, and the 34.5kV transmission line. The buildings at both drop sites are leased from the BIA.
- WIP is currently not generating hydro-electrical power, however Yakama Power has generated power on a sporadic basis.

Drain System

Drains 1, 2, 3, 4

- ~30 combined miles long.
- Collect return flows from lands between Lateral 1 and Lateral 3, discharge into Wanity Slough and Lateral 4 Extension.

East Toppenish Drain

- ~3 miles long and collects return flows from lands south of the Track Lateral and east of Wanity Slough.

Marion Drain

- ~20 miles long.
- Collects return flows from lands south of Lateral 4 and the Island area and receives input from Harrah Drain.
- Maximum flow is ~500 cfs. Several privately-owned pumps, located along Marion Drain, supply project water with the tacit approval of WIP.

Harrah Drain

- ~5.7 miles long and collects return flows from the Island area.
- Maximum flow is approximately 120 cfs.

Olney Flat Drain

- ~4.8 miles long and collects water from portions of the Bench Unit supplied by the Main Canal extension.

Mud Lake Drain

- ~4.7 miles long and collects water from the eastern portion of the Bench Unit. The estimated capacity is approximately 75 cfs.

Wanity Slough

- ~19.25 miles long and collects water from the eastern portion of the Wapato-Satus Unit.
- The estimated capacity is ~140 cfs.

Additional Information

High Value Crops and Modern Payment Methods

- Apples grown within the WIP boundary accounted for over $220 million in crop value for 2013. Yakima Fresh, a recognized brand of apples, are grown in orchards served by the WIP.
- Hops grown in the Yakima Valley are world-renowned and accounted for almost $119 million in crop value for 2013. During the harvest season, buyers representing beer brands such as Heineken and Budweiser purchase a stake in the next year's crop.
- Using a classic methodology from the BOR, the average crop value was estimated to be $3,721 per acre in 2013. Moreover, the estimated total economic output to the local economy from all crops grown in the WIP ranges between $787 million and $962 million.
- Use of Pay.gov to pay O&M has steadily increased since it was initiated in 2013.
- As of June 1st, 2016, 22.67% of payments to O&M were made using Pay.gov. Pay.gov applies no fee to water users or the Project and of the total payments, 40% are made with a mobile device.

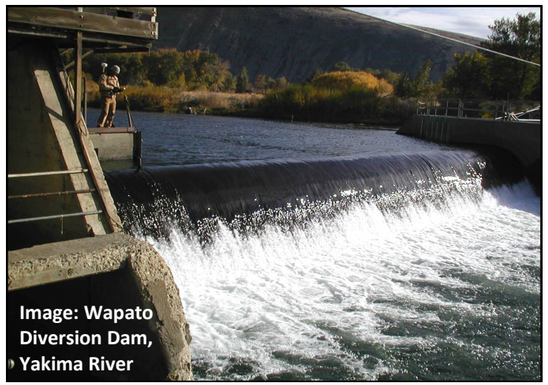


Image: Wapato Diversion Dam, Yakima River

Yakama Reservation Background

The Yakama Indian Reservation is located in south-central Washington, primarily in Yakima County. The Reservation was established by the Treaty at Camp Stevens, in the Walla-Walla Valley on June 9, 1855, ratified March 8, 1859 (12 Stat. 951). Fourteen confederated bands of Indians ceded 11.5 million acres to the United States. The remaining area was 1,131,591 acres. The treaty of January 13, 1885, granted a 250-foot right-of-way for the Northern Pacific Railroad. Under the treaty of January 8, 1894, the tribes relinquished title to the township of land near Wenatchee, set apart for fishing under Article 10 of the Treaty of 1885, in consideration of twenty thousand dollars and the allotment of lands to the Wenatshapen Tribe near where they resided. The name of the reservation was changed from Yakima to Yakama in 1994. The Yakima River basin drains about 6,155 square miles, or 4 million acres. The basin covers approximately 1.4 million acres of the reservation. The basin has been inhabited by the Yakama people since time immemorial. They lived on fish, game, and native plants. The first non-Indian settlement of the basin began in about 1847.

- Elevations for the reservation range from 8,184 feet in the Cascades to 300 feet at the mouth of the Yakima River.
- Area is 2,150 square miles or 1,375,706 acres.
- Population from the 2010 Census counted 7,239 American Indians and Alaska Natives with a total population of 31,272.