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Walla Walla Basin Watershed Council
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June 30, 2015

Memorandum

To: John Unger, Oregon Water Development Program Coordinator, Oregon Water Resources Department

From: Brian Wolcott, Executive Director, Walla Walla Basin Watershed Council

Subject: Final Report, Walla Walla River Columbia River Exchange for Fish and Farms Feasibility Study

The Walla Walla Basin Watershed Council contracted with IRZ Consulting to evaluate a Columbia River Walla Walla River pump exchange pipeline route from Gardena Hill near Touchet, Washington to Milton-Freewater, Oregon. The evaluation worked with the irrigation district involved, Hudson Bay District Improvement Company (HBDIC), to develop an optimal routing of the pipeline, assessed pipe sizing and pumping needs based on elevations and water user demand, and completed an initial concept for a 6000 acre foot re-regulation reservoir.

The overall project concept involves the three largest irrigation districts in the Walla Walla Valley leaving a portion of their Walla Walla River water rights in-stream to improve ecological conditions for resident and reintroduced fish species, then having that same amount of water delivered to their water distribution system from the Columbia River. This would be a bucket for bucket exchange, following the same concept explored by the US Army Corps of Engineers in a previous study sponsored by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). This current feasibility study incorporated more suggestions and input from local irrigators regarding cost efficiencies, and has also taken into account additional water delivery efficiencies that have been implemented, or are in development, to reduce water demand from the river.

This OWRD-funded portion of the Study covered Phase 2 of this overall Feasibility Study. Phase 1 was funded by members of the Gardena Farms Irrigation District #13 (GFID), looking at bringing water from the Columbia River to the Western half of their service area in Washington. Phase 2 evaluated tying into that system and delivering water to HBDIC. Phase 3 of the study, currently funded by the Washington Department of Ecology's Office of Columbia River, is assessing delivering water to Walla Walla River Irrigation District, HBDIC, GFID lower water users and upper canal water users, and also senior water right holders on the consolidated four ditches in the Lowden, Washington area. Following completion of Phase 2, further refinement of the delivery system is being analyzed, including modeling of the system, based on water demands and timing of the various water users. The Scope of Work for Phase 2 and

Phase 3 and progress updates have been provided to our Bi-State Walla Walla Basin-Wide Instream Flow Enhancement Feasibility Study Steering Committee, consisting of the three largest Irrigation Districts in the valley, WDOE, OWRD, ODFW, WDFW, CTUIR, WWBWC, Walla Walla County Conservation District, and the Walla Walla Water Management Partnership.

The OWRD funded study, Phase 2, is described in the attached Walla Walla River Watershed Council Walla Walla River Exchange Phase II Report – February, 2015 (Gardena-Frog), completed by IRZ Consulting.

Phase 1 is also attached, along with the Scope of Work for Phase 3.

The Draft Progress report for the Walla Walla Instream Flow Enhancement Study is attached. This larger Basin Wide Study, utilizing $260,000 of WDOE funds, and also the private funds from the GFID water users, comprise the cost share for this OWRD funded Phase 2 Exchange Feasibility Study. The WDOE funded study is exploring reservoir sites in both states, irrigation delivery efficiency design in both states, analyzing instream flow protection options, investigating aquifer storage and recovery sites and shallow aquifer recharge to allow irrigators to leave a portion of their water rights instream, flow telemetry improvement upgrades for tracking instream flows and water diversions, and on-farm efficiencies in addition to the current phase of the Columbia River Exchange analysis and design. Our bi-state study oversight committee has agreed that the goals we have set to increase instream flows while satisfying water demands for agriculture will require multiple approaches. The $15,000 in OWRD funds for the Phase 2 Exchange Study have assisted in overall feasibility study. As we further analyze and prioritize water management and water development options we will keep the OWRD Water Development Program staff informed and hope they will continue to be a valuable partner.

Please contact me by email or phone if you have any questions or comments.

Brian Wolcott

Executive Director

Walla Walla Basin Watershed Council

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WALLA WALLA RIVER WATERSHED COUNCIL
WALLA WALLA RIVER EXCHANGE
PHASE II REPORT – FEBRUARY, 2015
(Gardena - Frog)

Background

The purpose of the Walla Walla River Water Exchange is to reduce irrigation surface water withdrawals from the Walla Walla River. This would be accomplished by supplying an alternate source of water directly to irrigation distribution systems located in the upper Walla Walla River Basin, thus leaving more of the natural flows in the river. The alternate source of water under this proposal would be the Columbia River.

Two studies have been completed by CH_2M Hill, looking at the alternative conveyance systems that could potentially perform this task. They performed this work under the auspices of the United States Army Corps of Engineers (Corps). The second study provided a revision of the first study looking at the potential for cost reductions. The costs reported in that second study were still very high. Subsequent to that study's release the Corps increased those estimates even more.

Previously a Walla Walla River Stakeholder group met with IRZ Consulting to discuss the possibility of IRZ reviewing that second study, and providing a non-federal look at the project. The discussions made it clear that the Corps' proposal was cost prohibitive, and that the Stakeholders felt that the costs could be reduced significantly if a non-federal / private approach was investigated. That group requested that IRZ look at various alternatives, with associated estimated costs for a non-federally funded project.

Under that initial study IRZ presented its feasibility level findings on providing either 100 cfs or 200 cfs of exchange water to Gardena at Hill Top (Gardena) utilizing various sizes of pipes. A copy of the Phase I Report is attached. The estimated costs determined, ranged from a low of approximately $58 million for a small pipeline providing 100 cfs to Gardena, to a high of slightly more than $99 million for a large pipeline providing 200 cfs to Gardena.

Subsequently after the initial report was completed the Walla Walla Basin Watershed Council retained IRZ Consulting to conduct a Phase II study that would extend the exchange system from Gardena to the location on the main Hudson Bay canal known as The Frog near Milton Freewater, Oregon, and to do an initial review of a storage dam located in the Pine Creek Drainage.

This Phase II Report provides a feasibility study overview for providing exchange water from Gardena to The Frog, including providing water at various delivery points serving Hudson Bay Irrigation District irrigators. This Phase II Report will also include a high level feasibility review for placing a storage dam in the Pine Creek Drainage, and how that would interact with the existing system. A planned Phase III review will take a more detailed look at the overall exchange program, including the delivery of exchange water to the Louden water users.

Design Criteria

In order to design and model the proposed system from Gardena to the various Hudson Bay Irrigation District designated delivery points, The Frog, and to the Pine Creek Reservoir, design criteria were established. The criteria were based upon meetings and discussions with representatives of the Walla Walla Basin Watershed Council, Hudson Bay Irrigation District, Gardena Irrigation District and the managers of those districts. The criteria are as follows:

1. State and Federal funding will be utilized, and the design and cost estimates need to reflect this.

2. For the purpose of this study the system will be designed for a total capacity of 200 cfs from the Columbia River.

3. Design delivery rates to specified diversion points (see attached map) are as follows:

    a. 100 cfs to Gardena
    b. 48.8 cfs to Pine Creek
    c. 27.1 cfs to Richartz/Huffman
    d. 35.0 cfs to Highline
    e. 65.0 cfs to The Frog

    The total of these deliveries exceed the 200 cfs total. Each section of the proposed pipelines will be designed to carry the full designed delivery rates for the diversion points they serve. However, all diversion points will not receive their full allocations simultaneously.

4. From Gardena the pipeline will be routed along existing canal and road right-of-ways as much as possible as shown on the attached map in order minimize right of way acquisition.

5. From the Highline diversion point to The Frog the pipeline system will be designed for a capacity of 65 cfs to serve the Walla Walla River Irrigation District.

6. As part of the design of the pipeline system the ability for water to flow bi-directionally from The Frog to Gardena in the proposed pipeline shall be reviewed. When live flow Walla Walla River water is available significant amounts of water could potentially flow in the pipeline.

7. A dam and reservoir will be considered in the Pine Creek Drainage to provide storage and regulation of the system. A pipeline extending from the Pine Creek diversion point to the reservoir will be designed for a capacity of 48.8 cfs.

8. Given the topography, a reservoir located in the Pine Creek Drainage will provide storage and regulation for only that part of the Hudson Bay Irrigation District served by the Pine Creek diversion point.

Executive Summary

Based upon the above criteria and modeling the following are the basic findings:

A. The Phase I Report indicated that 200 cfs could be supplied from the Columbia River utilizing a main pump station at the Columbia River, a single booster station, and an 86" steel pipeline to Gardena. The estimated costs associated with this system would be approximately $99 million.

B. The Phase II report indicated that water could be further delivered from Gardena to various locations in the Hudson Bay Irrigation District, to The Frog and to a proposed reservoir located in the Pine Creek Drainage. The estimated costs associated with this portion of the system would be approximately $151 million. A summary of specific findings follows:

    1. To provide 100 cfs from Gardena to the Hudson Bay Irrigation District's, Highline delivery point, 55,440' of 62" steel pipeline of varying thickness will be required for this portion of the system.

    2. To provide water to The Frog a 4,000 HP booster station will need to be installed after the Hudson Bay Irrigation District's, Richartz/Huffman diversion point.

    3. To provide 65 cfs from the Hudson Bay Irrigation District's, Highline diversion point to The Frog, 14,360' of 51" steel pipeline will be required for this portion of the system.

    4. Given the elevation change from The Frog to the various locations along the pipeline route back to Gardena, significant Walla Walla River water can be run backwards in the system to Gardena reducing significant canal losses, when live flow from the Walla Walla River is available.

5. To provide 48.8 cfs from the main 62" steel pipeline, running from a point approximately 5,500' Northwest of the Hudson Bay Irrigation District's, Richartz/Huffman diversion point, shown on the attached map, down to the Hudson Bay Irrigation District's, Pine Creek diversion point, 8,000' of 42" PVC pipeline will be required for this portion of the system.

6. In reviewing a reservoir located in the Pine Creek Drainage, it appears that it will be best suited as a small storage / re-regulating reservoir having a storage capacity of slightly under 6,000 acre-feet with a dam height of 130 feet. This will allow surplus runoff water from Pine Creek, and off peak water from the new system either from the Columbia or Walla Walla River to be stored behind a significantly smaller dam than that proposed by the Corps of Engineers. That water could then be delivered to the Hudson Bay Irrigation District's, Pine Creek diversion point without any additional booster pumps required in either direction. This would provide flexibility in providing water for the Hudson Bay Irrigation District downstream of the Pine Creek diversion point, and subsequently for the entire new proposed system. In order to finalize the design of the dam and various components significant time and study will be required.

7. To provide 48.8 cfs to and from the proposed Pine Creek Reservoir from the Hudson Bay Irrigation District's Pine Creek diversion point, 10,250' of 42" PVC pipeline will be required for this portion of the system.

8. The routing of the pipelines will be critical to the operation of the system, and to minimize the acquisition of right-of-ways. It is the intent to utilize canal company and county and city road right-of-ways routes shown on the attached map as much as possible.

   Those routes are based upon discussions with irrigation district representatives and the best judgment of the system designer. These locations will need to be confirmed and surveyed prior to final design. The routing of the 51" steel pipeline from the Hudson Bay Irrigation District's, Highline diversion point to The Frog appears to be quite problematic owing to the nature of permanent crops and residential areas that will need to be crossed.

9. Utilizing a private sector system design will significantly reduce costs and provide for greater operational flexibility.

Costs

The following costs were estimated based upon historical information taken from previously constructed projects and contacting pump and pipe suppliers. The estimated dam costs were based upon the incremental costs generated in the Corps reports. The costs that have been generated are at a feasibility estimate level.

Walla Walla River Exchange

Cost Estimates - Phase II - 100 cfs from Gardena to The Frog Diversion
With Pine Creek Reservoir

Description	Capital Cost
Pipeline	$35,900,000
Road Crossings	$900,000
Canal Discharges & Interties	$600,000
Booster 2 Pump Station	$2,500,000
Electrical Utility Upgrades	$1,000,000
Pine Creek Dam	$75,000,000
Total Construction Cost	**$115,900,000**
Legal & Permitting (5%)	$5,800,000
Contingency (20%)	$23,200,000
Engineering (5%)	$5,800,000
Grand Total Phase II	**$150,700,000**
Phase I Total	**$99,000,000**
Phase I & II Total	**$249,700,000**

Estimated Energy Costs	
Estimated Energy Use Booster 2 (kWh/acre-ft)	382
Flow Capacity @ 290 ft of Head (cfs)	100
Estimated Total Flow in 90 days (ac-ft)	17,900
Estimated power cost for 90 days	**$342,000**

The estimated costs generated as part of this study are significantly less than those reported in the two previous Corps reports. These cost estimates are based upon a design that more closely reflects how a project of this type would be constructed in the private sector utilizing Government funding. These costs could be further reduced if private funding is utilized.

Conclusion

This Phase II feasibility study is a continuation and expansion of the previously completed Phase I study looking at exchanging Walla Walla River water with water pumped from the Columbia River. This study specifically looked at the portion of the proposed project that would deliver water from Gardena to The Frog, with a preliminary review of the potential for placing a reservoir in the Pine Creek Drainage. The study established specific delivery design volumes at various points in the Hudson Bay Irrigation District, with the associated pipeline and booster pump locations and requirements. Additionally, dam and reservoir sizes were determined, along with the associated pipeline required to fill the reservoir, and subsequently to deliver water from the reservoir to the system. The estimated costs associated with this portion of the exchange system were generated.

In reviewing the design, location and associated costs it appears clear that this would not be a simple system to design, with many potential hurdles involved with acquiring right-of-ways to meet the needs of the system. The estimated costs of installing a private sector type delivery system appears to be significantly less than a government type system. Taking the savings into account this would still be a costly system to design, build and operate.

Based upon the findings of the Phase I and Phase II Reports several different approaches and alternatives could be utilized that would generate significant environmental and instream benefits to various degrees. The alternative selected will be based upon many factors including the availability and level of funding.

In the planned Phase III study the entire proposed exchange system and dam could be looked at in more detail with the associated refinement of potential design, location and costs. In addition distributing water to other locations in the Gardena and Louden areas could be incorporated. Upon completion of all phases of the study it can be utilized in determining how best to proceed with the project.

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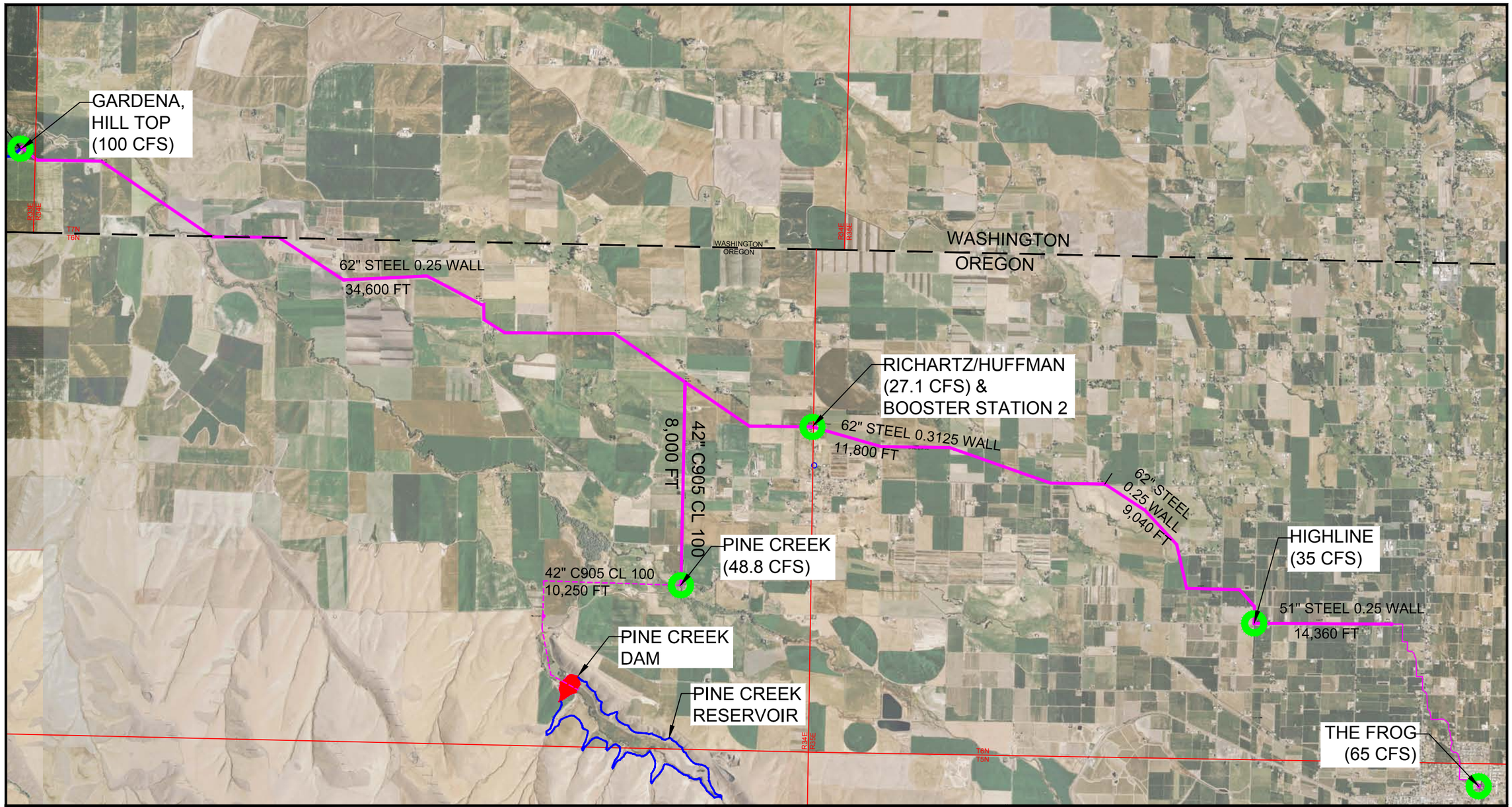

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WALLA WALLA RIVER EXCHANGE

PHASE 2 - GARDENA TO THE FROG

OVERVIEW MAP

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DESIGNED	PAUL W. / TOM B.
DRAWN	SUVA S.
SCALE	NTS
DATE	01-07-2015
DRAWING NO.	629-14-058
SHEET	M1

WALLA WALLA RIVER EXCHANGE
PHASE 1 REPORT

Background

The purpose of the Walla Walla River Water Exchange is to reduce irrigation surface water withdrawals from the Walla Walla River. This would be accomplished by supplying an alternate source of water directly to irrigation distribution systems located in the upper Walla Walla River Basin, thus leaving more of the natural flows in the river. The alternate source of water under this proposal would be the Columbia River.

Two studies have been completed by CH2M Hill, looking at the alternative conveyance systems that could potentially perform this task. They performed this work under the auspices of the United States Corps of Engineers (Corps). The second study provided a revision of the first study looking at the potential for cost reductions. The costs reported in that second study were still very high. Subsequent to that study's release the Corps increased those estimates even more.

A Walla Walla River Stakeholder group met with IRZ Consulting to discuss the possibility of IRZ reviewing that second study, and providing a non-federal look at the project. The discussions made it clear that the Corps' proposal was cost prohibitive, and that the Stakeholders felt that the costs could be reduced significantly if a non-federal / private approach was investigated. That group requested that IRZ look at various alternatives, with associated estimated costs for a non-federally funded project. Subsequently, IRZ was asked to look at breaking the study into two parts. This report is a brief review of the first phase that looks at alternatives to getting exchange water to Gardena. The final report, when completed will present the total picture for the proposed project.

Phase 1 Overview

The purpose of Phase 1 was the following:

1. To review potential locations for the proposed pump station on the Columbia River.

2. To review alternative pipeline routes from the Columbia River to Gardena.

3. To determine alternative pipeline sizes based upon various volumes of water pumped.

4. To determine the estimated costs based upon volumes to be pumped, along with the types of material potentially that could be encountered during boring under both the railroad and highway.

Findings

A. Several locations and alternative methods for obtaining water from the Columbia River were reviewed. After a quick assessment it was determined that any pump station should be located south of the mouth of the Walla Walla River. Locating a pump station near a deep channel to insure operation during minimum pool conditions was considered. This made the location of the new pump station problematic. The Columbia River is fairly shallow at the designated location. The only readily accessible location is located near the Port of Wallula's grain handling facility south of the Walla Walla River. Additionally, this location is one of the few that has a land base lying adjacent to the Columbia River that has an area large enough to construct a pump station. An intake with screen may need to run several hundred feet out into the Columbia River to reach deep water. Alternatively a screened structure located at the bank has been assumed to be feasible. Additional analysis will be required to verify this assumption.

B. A number of routes were considered for the pipeline from the Columbia River to Gardena. One alternative considered was to route the pipeline along the Walla Walla River past Wallula Junction. This would require crossing under both the Union Pacific bridge over that river, along with the Washington State Highway 12 bridge. When Union Pacific was contacted they indicated that they would not likely allow the pipeline to cross under their bridge.

   An alternative route was looked at that required boring under the railroad, a side road and Highway 12. The pipe that will be utilized will be large in diameter and require deep cuts. It is unknown whether dirt or solid rock will be encountered during these borings. Boring through rock is much more expensive.

   The pipeline, approximately 83,000 feet long, would than run on the south side of Highway 12 and the Walla Walla River in an easterly direction as shown on the attached map. This route will require minimal road crossings, and will be a relatively direct route to Gardena. A vast majority of this route lies across one land owner's property, who has indicated that she will cooperate with the project.

   A booster pump station would be required to boost the pressure sufficiently to pump the water over the high point. Once the water reaches the high point no additional pumping is required to get the water to Gardena.

C. Alternative pipeline sizes were looked at based upon whether 100 cfs or 200 cfs would be delivered to Gardena. Additionally, various sizes of steel pipe for each flow were considered. These sizes were based upon various flow velocities that would take place in the pipe under full flow.

D. The following costs were estimated based upon historical information taken from previously constructed projects:

Item	Estimated Capital Costs for 200 cfs and Different Steel Pipe Sizes					
	Boring Through Soil			Boring Through Rock		
	86"	78"	72"	86"	78"	72"
River Pump Station	$6,000,000	$6,000,000	$6,000,000	$6,000,000	$6,000,000	$6,000,000
Railroad Crossing	$350,000	$300,000	$270,000	$1,000,000	$900,000	$820,000
HWY 730 Crossing	$470,000	$410,000	$370,000	$1,330,000	$1,200,000	$1,110,000
Booster Pump Station	$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000
Pipeline	$56,250,000	$48,400,000	$44,150,000	$56,250,000	$48,400,000	$44,150,000
Utilities	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Appurtenances	$5,600,000	$4,800,000	$4,400,000	$5,600,000	$4,800,000	$4,400,000
Legal/Permiting (5%)	$3,740,000	$3,300,000	$3,060,000	$3,810,000	$3,370,000	$3,130,000
Engineering (5%)	$3,740,000	$3,300,000	$3,060,000	$3,810,000	$3,370,000	$3,130,000
Contingency (20%)	$14,940,000	$13,190,000	$12,240,000	$15,240,000	$13,460,000	$12,500,000
Totals	**$97,090,000**	**$85,700,000**	**$79,550,000**	**$99,040,000**	**$87,500,000**	**$81,240,000**

Volume Pumped	Estimated Power Costs for 90 days For Different Steel Pipe Sizes		
(ac-ft)	86"	78"	72"
35,700	**$1,357,000**	**$1,464,000**	**$1,571,000**

Item	Estimated Capital Costs for 100 cfs and Different Steel Pipe Sizes					
	Boring Through Soil			Boring Through Rock		
	60"	55"	51"	60"	55"	51"
River Pump Station	$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000	$4,000,000
Railroad Crossing	$220,000	$200,000	$180,000	$700,000	$640,000	$600,000
HWY 730 Crossing	$300,000	$270,000	$250,000	$930,000	$860,000	$800,000
Booster Pump Station	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000	$2,500,000
Pipeline	$36,300,000	$33,750,000	$32,350,000	$36,300,000	$33,750,000	$32,350,000
Utilities	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000	$2,000,000
Appurtenances	$3,600,000	$3,400,000	$3,200,000	$3,600,000	$3,400,000	$3,200,000
Legal/Permiting (5%)	$2,450,000	$2,310,000	$2,230,000	$2,510,000	$2,360,000	$2,280,000
Engineering (5%)	$2,450,000	$2,310,000	$2,230,000	$2,510,000	$2,360,000	$2,280,000
Contingency (20%)	$9,790,000	$9,230,000	$8,900,000	$10,010,000	$9,430,000	$9,090,000
Totals	**$63,610,000**	**$59,970,000**	**$57,840,000**	**$65,060,000**	**$61,300,000**	**$59,100,000**

Volume Pumped	Estimated Power Costs for 90 days For Different Steel Pipe Sizes		
(ac-ft)	60"	55"	51"
17,850	**$732,000**	**$786,000**	**$875,000**

When one looks at the cost of power over a 20 year period it appears that the smaller pipe may be more economical. More detailed study is needed to verify this premise.

The estimated costs generated as part of this study are significantly less than those reported in the two previous studies. They are based upon private sector funding. If government funding is utilized the requirements that go along with it will cause the costs to increase significantly. Additionally, if rock is encountered during boring under the highway or railroad the estimated costs will increase as shown. If rock is encounter along the pipeline this would increase costs. Prior to final construction design and cost estimate, boring and pot holing will be needed to determine the potential location of rock.

Conclusion

Phase 1 of a feasibility study was completed looking at exchanging Walla Walla River water with water pumped from the Columbia River. Alternatives were considered for pump station locations and pipeline routes along with the amount of water that would be exchanged and the associated pipes utilized. Field inspections were made of the prospective route, and determinations made. Estimated costs were determined for the various alternatives.

Through the use of private funding it appears that a significant reduction of costs can be realized when compared to the previous studies that have been completed. Phase 2 of this study must be completed to verify this theory. Upon completion of Phase 2 it is anticipated that a more detailed investigation and associated design would be needed prior to final construction design.

Walla Walla River Water Exchange
Phase I Proposed Pipeline Route

PROPOSED RIVER
PUMPING STATION

Walla Walla River

HWY 12

PROPOSED BOOSTER
PUMPING STATION

T7N
T6N

R31E
R32E

Walla Walla River

Walla Walla River

GARDENA

R32E
R33E

WASHINGTON
OREGON

R33E
R34E

IRZ

Phase 3 Scope of Work

The purpose of Phase 3 is to expand and refine the findings of Phases 1 & 2 through performing the following activities:

1. Meet with the various irrigation districts in the Walla Walla River Watershed to discuss the next steps, and to establish the requirements of the districts in providing specific delivery rates and timing of when water is delivered by the districts.

2. Determine timing of demand, and review the potential impact to the required delivery rates, and associated impacts to pipe and pump sizing.

3. Develop a preliminary layout of the pipeline routes to the identified points of delivery within the Gardena Irrigation District.

4. Develop a preliminary layout of the pipeline routes to the identified points of delivery serving the various Lowden irrigation districts.

5. Review all the potential alternatives for pipe and pump sizing and modeling along with the associated costs.

6. Look at the alternative pipeline materials and the associated costs.

7. Review the estimated power costs of the various alternatives.

7. Field investigation of the preliminary layouts.
    a. Travel as much of the proposed pipeline routes as possible (certain portions may not be accessible due to terrain, lack of roads, and/or landownership.)
    b. Visit potential pumping station locations noting the proximity to power and ease of access.
    c. Identify and locate (GPS) potential obstacles and/or construction issues.
    d. Refine route as required.

8. Prepare final report.
    a. With finalized layouts and costs, prioritize the studied alternatives.
    b. Select the final preferred alternative and establish a final cost estimate for the entire Project including the estimated costs associated with constructing a small reservoir.
    c. Write a brief description of the final design including the design approach, criteria, assumptions, and any issues that may need to be resolved.

9. Meet with Stakeholders.
    a. Present the final report.
    b. Discuss the alternatives and conclusions.

Deliverables

1. Maps showing the Project Vicinity, Proposed Layout, and Basic System Information.
2. Tables that include descriptions, sizes, quantities, and feasibility cost estimates of primary system components. Costs will cover materials, fabrication and installation. Special focus will be made on ways to reduce operating and annual power costs.
3. Copies of the Final Report will be provided in hard copy as well as an electronic version.