BACKGROUND

Hydro Irrigation District No. 9 (District No. 9), Blalock Orchards District No. 12 (District No. 12), and Consolidated Irrigation District No. 14 (District No. 14)[1] provide potable water service on the north side of the City of College Place (City) water system. Regular supply interties exist and are normally utilized between the City and District No. 14 systems, and the District No. 9 and District No. 12 systems. RH2 Engineering, Inc., (RH2) has been retained by the City to study the opportunities to consolidate all three of these Districts into the City's system to improve the level of service within the Districts' water systems.

The Villages of Garrison Creek (Villages) is a private, planned community located in the eastern portion of the City's corporate boundaries. Potable water is supplied to the Villages by the City's water system, and the majority of the homes in the Villages are served by a single master meter with the City. The Villages owns and operates a distribution system downstream of this master meter that serves 151 homes that are not individually metered. The Villages has requested the City consider taking over its distribution system. RH2 has been retained by the City to study the opportunity to consolidate the Villages system into the City's system to improve the level of service within the Villages.

If the consolidation of the Districts and/or Villages systems into the City system is viable, the City would assume jurisdiction of these system's responsibilities, facilities, and equipment within their current service areas. Consolidation of water systems is encouraged by the Growth Management Act. Although the Districts are separately owned and managed, this feasibility study assumes that consolidation would include all three Districts. Evaluating consolidation combinations wherein one or two districts opt to consolidate with the City but not all three districts was outside the scope of this evaluation. Potential consolidation of the Villages system is independent of any decisions related to the Districts.

This report contains the following sections:

Section 1: Existing Systems and Infrastructure

Section 2: Historical Supply and Demand

Section 3: Existing Level of Service

Section 4: Water System Consolidation Phases

Section 5: Water Rights

Section 6: Water System Assets Consolidated

Section 7: Water System Cost Components

[1] District Nos. 9, 12, and 14 are collectively referred to as "the Districts" in this document.

SECTION 1: EXISTING SYSTEM AND INFRASTRUCTURE

Water System Ownership And Management

The Districts are each Group A water systems that are publicly owned and managed. The Villages of Garrison Creek (Villages) is a privately owned system with 151 homes served by a single master meter with the City of College Place (City). Water system data for these systems is shown in **Table 1**.

Table 1
Water System Ownership Information

Information Type	Description			
System Name	Hydro Irrigation District No 9	Blalock Orchards Dist 12	Consolidated Irrigation District No. 14	Villages of Garrison Creek
System Type	Group A, Community	Group A, Community	Group A, Community	---
DOH System ID Number	35275 2	07400 Y	14650 B	---
County	Walla Walla	Walla Walla	Walla Walla	Walla Walla
Owner Name and Address	Hydro Irrigation Dist No 9 Patricia Berger, Secretary 15 N Gose Street Walla Walla, WA 99362	Blalock Orchards Dist. 12 Kevin E. Wolpert, Manager 1076 Newtown Road Walla Walla, WA 99632	Consolidated Irrigation Dist #14 Tom Vickroy, Manager 1230 Wallula Avenue Walla Walla, WA 99362	Villages of Garrison Creek P.O. Box 694 College Place, WA 99324
Primary Contact	(509) 522-2676	(509) 301-1580	(509) 520-1830	(410) 562-0177

Overview of Existing Systems

Districts

The Districts are located in Walla Walla County, located adjacent to the City's Zone 1 distribution system. The combined service area of the Districts comprises approximately 1.24 square miles, and is approximately bound by McKinney Road to the west, Highway 12 to the north, Gose Street to the east, and Whitman Drive to the south. The Districts' systems are predominantly residential and supplied by three normally used groundwater wells.

In 2024, the Districts provided water service to an average of approximately 813 customer connections, or 840 equivalent residential units (ERUs). The Districts served a total population of approximately 1,953 people in 2024. A summary of the Districts' current water system data is shown in **Table 2**.

Table 2
2024 Water System Data

Information Type	District 9	District 12	District 14	Districts Total	Villages
Water Service Area Population	248	150	1,555	**1,953**	354
Retail Water Service Area (sq. mi)	0.39	0.30	0.55	**1.24**	0.05
Total Connections	109	68	636	**813**	151
Total ERUs	109	68	639	**817**	151
Demand per ERU (gpd)	543.88	580.61	515.19	**524.47**	364.36
Demand per Capita (gpd)	239.64	263.21	211.85	**219.33**	155.42
Average Annual Supply (MG)	21.69	14.41	120.24	**156.35**	20.08
MDD/ADD Factor	4.18	4.18	3.87	**3.57**	3.78
PHD/MDD Factor	2.49	2.49	1.88	**1.67**	2.61
Supply Capacity (gpm)	500	0	1,550	**2,050**	0
Storage Capacity (MG)	0.12	0.00	0.00	**0.12**	0.00
Length of Water Piping (ft)	16,596	11,579	44,167	**72,342**	6,904

NOTE: District 9 supply volume assumed to be reduced by the entirety of the District 12 metered supply volume.

ADD = Average Day Demand

MDD = Maximum Day Demand

MG = Million Gallons

PHD = Peak Hourly Demand

Villages

The Villages is located in the eastern portion of the City limits and served by the City's Zone 1 distribution system. The combined service area of the properties in the Villages served by the City's master meter is approximately 0.05 square miles and is approximately bound by Larch Avenue to the west, Garrison Village Way to the north, Pheasant Run to the east, and Creekside Drive to the south. The Villages system is residential and supplied by a single master meter with the City.

In 2024, the Villages master meter provided water service to 151 customer connections, or 151 ERUs. The Villages served a population of approximately 354 people in 2024. A summary of the Villages current water system data is shown in **Table 2**.

Inventory of Existing Facilities

Pressure Zones

Each of the Districts' water systems consist of a single pressure zone. Consolidated Irrigation District No. 14 (District No. 14) normally exchanges water with the City and has a nominal hydraulic grade of 935 feet, which matches the City's Zone 1 hydraulic grade. Hydro Irrigation District No. 9 (District No. 9) provides service to its customers and Blalock Orchards District No. 12 (District No. 12), with a nominal hydraulic grade of approximately 932 feet. The Villages master meter is served by the City's Zone 1. The Districts and Villages existing system facilities are shown in plan view in **Figure 1**.

HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAIN AVE
WALLULA AVE
RHEA LN
BLALOCK DR
RUSSET RD
MCKINNEY RD
W WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SE 8TH ST
SE 12TH ST
E WHITMAN DR
NE ROSE ST
N GOSE ST
S GOSE ST
S HUSSEY ST
NW EVANS AVE
S CAMPBELL RD
N COLLEGE AVE
SW DAVIS AVE
S COLLEGE AVE
SE DATE AVE
NE WRARD
Zone 3
Zone 1
Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Two-way Intertie (Normally Flowing from Hydro 9 to District 12)
District 12 Well No. 1
District No. 14 Well 7 (800 gpm)
District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint)
District No. 14 Well 5 (700 gpm)
District No. 14 Well No. 2
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
Walla Walla University Intertie (Emergency)
Well No. 2 (1,500 gpm)
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 1
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)

Legend

- City Limits
- City UGA Boundary
- City Retail Water Service Area

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main

- 935 Zone (City Zone 1)
- 1,002 Zone (City Zone 2)
- 973 Zone (City Zone 3)
- District 9
- District 12
- District 14
- The Villages

NORTH
1 Inch : 200 Feet

The Villages

SE CARRISON VILLAGE WAY
SE QUAIL RUN
SE PHEASANT RUN
SE GOLDENEYE DR
SE CREEKSIDE DR
SE LARCH AVE
SE 6TH ST
SE 7TH ST

PRELIMINARY

Vicinity Map

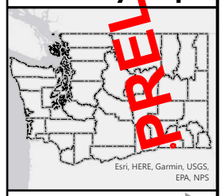


Figure 1
Existing System

City of College Place
Water System Consolidation Feasibility Study

CP COLLEGE PLACE WALLA WALLA VALLEY

1 inch : 600 Feet

0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

J:\DATA\CPL\25-0083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

Supply Facilities

The Districts' water systems are supplied by three normally used groundwater wells. The Villages do not have a supply facility besides the master meter served by the City. A summary of the supply sources and their capacities is shown in **Table 3**.

Table 3
Supply Facilities Summary

Name	Status	Total Pumping Capacity (gpm)
District No. 9 - Well No. 2	Active	500
District No. 9 - Well No. 3	Inactive	--
District No. 12 - Well No. 1	Inactive	--
District No. 14 - Well No. 2	Inactive	--
District No. 14 - Well No. 5	Active	750
District No. 14 - Well No. 7	Active	800
System Total		**2,050**

Hydro Irrigation District No. 9 – Well No. 2

Well No. 2 is located at the intersection of Heritage Road and N Gose Street. The well is drilled to a depth of 540 feet to the first open interval.

Hydro Irrigation District No. 9 – Well No. 3

Well No. 3 is inactive, non-operational, and designated as an emergency source. The well is drilled to a depth of 496 feet to the first open interval.

Blalock Orchards District No. 12 – Well No. 1

Well No. 1 is inactive and non-operational. The well is drilled to a depth of 525 feet to the first open interval.

Consolidated Irrigation District No. 14 – Well No. 2

Well No. 2 is inactive and non-operational. The well is drilled to a depth of 535 feet to the first open interval.

Consolidated Irrigation District No. 14 – Well No. 5

Well No. 5 is located along NW Evans Road between Blalock Drive and W Whitman Drive. The well is drilled to a depth of 553 feet to the first open interval.

Consolidated Irrigation District No. 14 – Well No. 7

Well No. 7 is located at the intersection of Wallula Avenue and S Campbell Road. The well is drilled to a depth of 496 feet to the first open interval.

Interties

There are a total of four regularly used interties that connect the Districts to one another and to the City. The purpose of these interties varies from district to district, with some serving as normal supply, and others serving as an emergency water supply.

District No. 9 to District No. 12 Intertie

This intertie is located on Pearmain Avenue just east of the intersection with S Campbell Road. It is a two-way intertie that is regularly used and normally flowing from District No. 9 to District No. 12.

District No. 14 to District No. 12 Intertie

This intertie is located on S Campbell Road near the intersection with Wallula Avenue. This is a one-way intertie that is normally closed, and automatically opens if the pressure on the District No. 12 side of the intertie reaches 50 psi or lower.

City to District No. 14 Intertie No. 1

This intertie is located on NW Evans Road, north of the intersection with W Whitman Drive. It is a normally open and regularly used intertie between the City and District No. 14.

City to District No. 14 Intertie No. 2

This intertie is located at the intersection between SW Davis Avenue and SW 1st Street. It is a normally open and regularly used intertie between the City and District No. 14.

City to District No. 14 Intertie No. 3 (Emergency)

This intertie is located on W Whitman Drive at the intersection with S Hussey Street. It is a closed intertie between the City and District No. 14 that is only used during emergency supply situations.

District No. 12 to District No. 9 Intertie (Emergency)

This intertie is located on S Campbell Road just south of the intersection with Heritage Road. This is an emergency intertie that has been physically disconnected due to a valve failure and is not currently in service.

Pump Station Facilities

The only booster pump station (BPS) is a four pump facility in District No. 9, which pumps water from District No. 9's Well No. 3 and the adjacent reservoir into the distribution system. The BPS is equipped with two 600 gallons per minute (gpm) pumps (25 horsepower [hp] motors) and two 800 gpm pumps (50 hp motors).

Storage Facilities

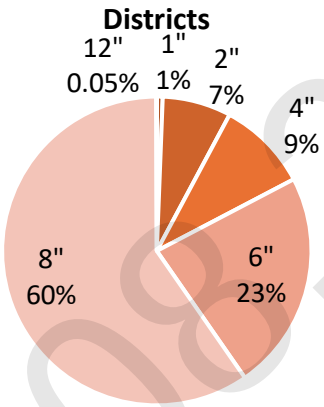
The only storage facility is an at-grade concrete reservoir in District No. 9 with a 120,000-gallon capacity. The District No. 9 Well No. 3 pumps directly into this reservoir, and the District No. 9 BPS pumps from this reservoir into the District No. 9 system.

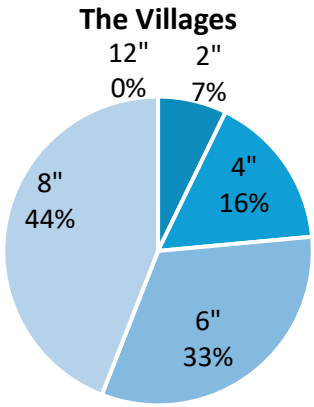
Distribution and Transmission System

The Districts' water systems contain more than 13.95 miles of 1-, 2-, 4-, 6-, 8-, and 12-inch-diameter water main. As shown in **Table 4**, the majority of the water main (approximately 60 percent) within the combined District systems is 8-inch diameter. The Villages system contains approximately 1.37 miles of 2-, 4-, 6-, and 8-inch-diameter water main, as shown in **Table 4** and **Figure 2**.

Table 4
Water Main Diameter Inventory

	District 9		District 12		District 14		District Totals		The Villages	
Diameter	Length (feet)	% of Total	Length (feet)	% of Total	Length (feet)	% of Total	Length (feet)	% of Total	Length (feet)	% of Total
1"	0	0%	445	4%	0	0%	**445**	**1%**	0	0%
2"	472	3%	4,132	36%	594	1%	**5,198**	**7%**	521	7%
4"	1,695	10%	0	0%	5,185	12%	**6,880**	**10%**	1,183	16%
6"	5,850	35%	6,835	59%	3,981	9%	**16,666**	**23%**	2,346	32%
8"	8,543	51%	167	1%	34,407	78%	**43,117**	**60%**	3,192	44%
12"	36	0.2%	0	0%	0	0%	**36**	**0.05%**	0	0%
Total	**16,596**	**100%**	**11,579**	**100%**	**44,167**	**100%**	**72,342**	**100%**	**7,242**	**100%**





The water main in the combined District's systems is constructed of polyvinyl chloride (PVC), ductile iron (DI), steel (STL), or asbestos cement (AC), with most of the piping (approximately 45 percent) constructed of PVC. The entire network for the Villages consists of PVC pipe. **Table 5** and **Figure 3** show the Districts' existing water main inventory by material.

Figure 2
Existing System Inventory by Material
City of College Place
Water System Consolidation Feasibility Study

PRELIMINARY

Legend

- City Limits
- City UGA Boundary
- City Retail Water Service Area

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main Material

- Asbestos Cement
- Cast Iron
- Ductile Iron
- PVC
- Steel

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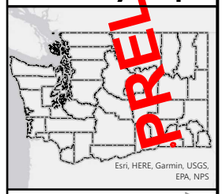
Vicinity Map



HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAN AVE
WALLULA AVE
RHEA LN
BLALOCK DR
RUSSET RD
MCKINNEY RD
W WHITMAN DR
E WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SE 8TH ST
SE 12TH ST
N COLLEGE AVE
S COLLEGE AVE
SW DAVIS AVE
SE DATE AVE
S CAMPBELL RD
S HUSSEY ST
NW EVANS AVE
N GOSE ST
S GOSE ST
NE ROSE ST
NE MYRA RD

Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Two-way Intertie (Normally Flowing from Hydro 9 to District 12)
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District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint)
District No. 14 Well No. 2
District No. 14 Well 5 (700 gpm)
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
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Well No. 2 (1,500 gpm)
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 1
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)
Zone 3
Zone 1

NORTH
1 Inch : 200 Feet

The Villages

SE LARCH AVE
SE GARRISON VILLAGE WAY
SE PHEASANT RUN
SE GREENSIDE DR
SE GOLDENEYE DR
SE QUAIL RUN
SE 5TH ST
SE 7TH ST

1 inch : 600 Feet
0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

NORTH

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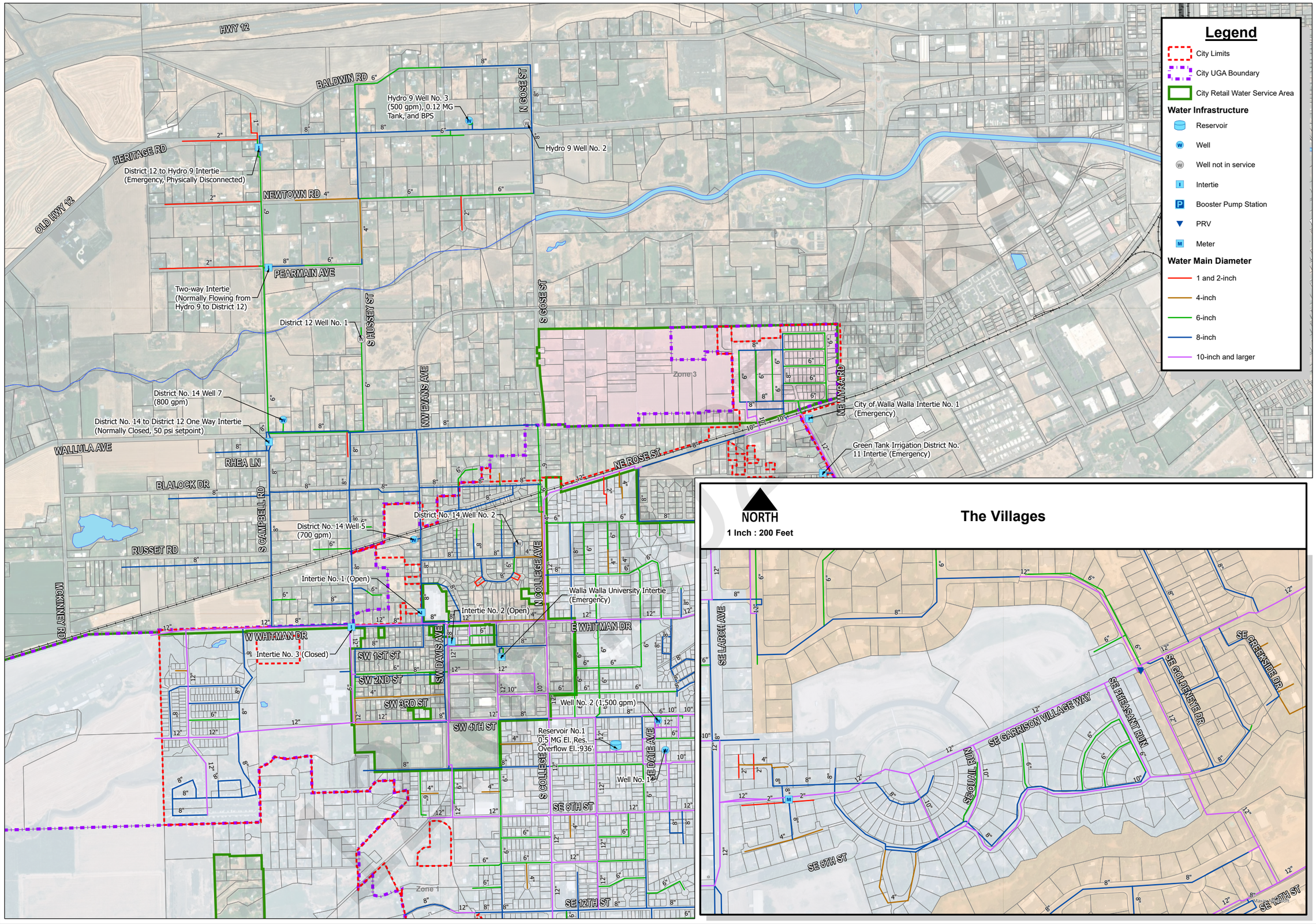

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PRELIMINARY

Vicinity Map

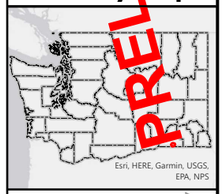


Figure 3
Existing System Inventory by Diameter
City of College Place
Water System Consolidation Feasibility Study

COLLEGE PLACE
WALLA WALLA VALLEY

1 inch : 600 Feet

0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

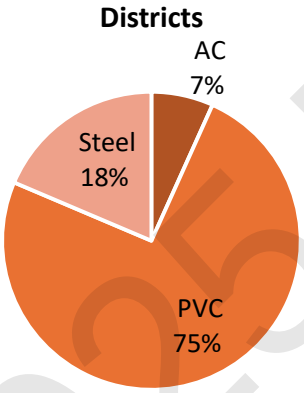
RH2

NORTH

J:\DATA\CPL\25-0083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

Table 5
Water Main Material Inventory

	District 9		District 12		District 14		District Totals		The Villages	
Water Main Material	Length (feet)	% of Total	Length (feet)	% of Total	Length (feet)	% of Total	Length (feet)	% of Total	Length (feet)	% of Total
AC	0	0%	1,303	11%	1,654	4%	**2,957**	**4%**	0	0%
Ductile Iron	737	4%	451	4%	27,148	61%	**28,336**	**39%**	0	0%
PVC	14,164	85%	3,335	29%	15,365	35%	**32,864**	**45%**	7,242	100%
Steel	1,695	10%	6,490	56%	0	0%	**8,185**	**11%**	0	0%
Total	**16,596**	**100%**	**11,579**	**100%**	**44,167**	**100%**	**72,342**	**100%**	**7,242**	**100%**



Water Service Areas

The Districts' existing service areas, retail water service areas, and future water service areas are the same, and are shown in **Figure 4** along with other adjacent water systems for reference. The properties served by the Villages downstream of the master meter with the City are immediately adjacent to the Villages piping shown in **Figure 4**.

Figure 4
District Boundaries

City of College Place
Water System Consolidation Feasibility Study

PRELIMINARY

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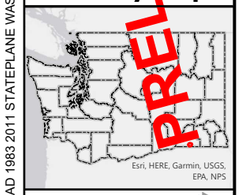
Vicinity Map



Legend

- City Limits
- City UGA Boundary
- City Retail Water Service Area

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main

- 935 Zone (City Zone 1)
- 1,002 Zone (City Zone 2)
- 973 Zone (City Zone 3)
- District 9
- District 12
- District 14
- The Villages

District Boundaries

- District 9
- District 12
- District 14
- The Villages

HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAIN AVE
WALLULA AVE
RHEA LN
BLALOCK DR
RUSSET RD
MCKINNEY RD
W WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SE 8TH ST
SE 12TH ST
E WHITMAN DR
NE ROSE ST
N GOSE ST
S GOSE ST
S HUSSEY ST
S GAMBELL RD
NW EVANS AVE
N COLLEGE AVE
SW DAVIS AVE
S COLLEGE AVE
NE DATE AVE
NE MYRARD

Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Two-way Intertie (Normally Flowing from Hydro 9 to District 12)
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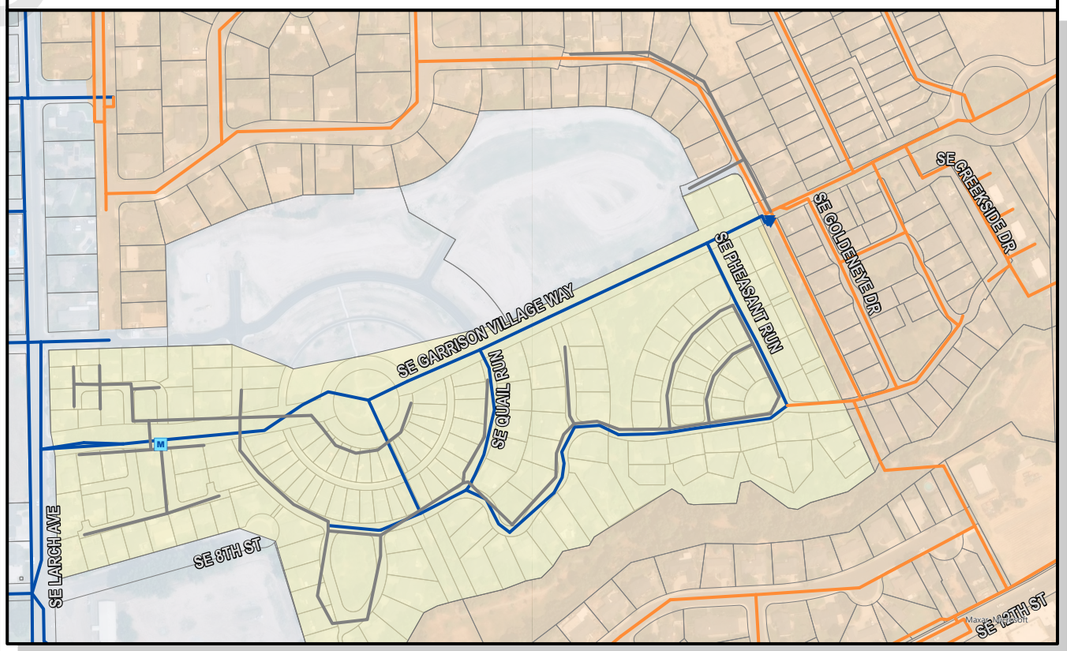
District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint)
District No. 14 Well No. 2
District No. 14 Well 5 (700 gpm)
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
Walla Walla University Intertie (Emergency)
Well No. 2 (1,500 gpm)
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 1
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)
Zone 3
Zone 1

NORTH
1 Inch : 200 Feet

The Villages



1 inch : 600 Feet
0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

J:\DATA\CPL\25-0083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

SECTION 2: HISTORICAL SUPPLY AND DEMAND

Water Use Classifications

The Districts primarily serve residential properties, with a small number of non-residential services located in District Nos. 9 and 14. All customers of District No. 12 and the Villages are residential.

Water Consumption

Water consumption is the amount of water used by all customers of the system as measured by the customers' meters. The majority (98 percent) of the Districts' consumption occurs from residential customers, with non-residential comprising the rest of the Districts' historical consumption. **Table 6** shows the historical average number of connections and average annual consumption within the District from 2022 through 2024.

Table 6
Average Annual Metered Consumption and Service Connections

Year	District 9			District 12			District 14			Districts Total			Villages		
	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total
Average Number of Connections															
2022	107	3	110	68	-	68	633	3	636	**808**	**6**	**814**	151	---	151
2023	107	3	110	68	-	68	633	3	636	**808**	**6**	**814**	151	---	151
2024	107	3	110	68	-	68	633	3	636	**808**	**6**	**814**	151	---	151
Annual Consumption (MG)															
2022	20.4	0.3	20.7	12.9	-	12.9	101.5	1.0	102.5	**134.8**	**1.3**	**136.1**	20.8	---	20.8
2023	23.6	0.8	24.4	14.5	-	14.5	111.0	1.1	112.1	**149.1**	**1.9**	**151.0**	21.2	---	21.2
2024	26.2	0.4	26.6	13.8	-	13.8	129.3	1.3	130.6	**169.3**	**1.7**	**171.0**	18.2	---	18.2
Average Daily Consumption per Connection (gallons/day/connection)															
2022	522	285	516	520	---	520	439	942	441	**457**	**614**	**458**	378	---	378
2023	603	726	607	585	---	585	480	1,031	483	**505**	**879**	**508**	385	---	385
2024	670	350	661	554	---	554	558	1,198	561	**573**	**774**	**574**	329	---	329
2022 to 2024 Average	**598**	**454**	**595**	**553**	---	**553**	**492**	**1,057**	**495**	**512**	**755**	**513**	**364**	**---**	**364**

As shown in **Table 6**, based on the average consumption between 2022 and 2024, the District connections averaged 513 gallons per day (gpd) per connection and the Villages connections averaged 364 gpd per connection.

Water Supply

Water supply is the total amount of water supplied to the system, as measured by the meters at each supply source. Water supply differs from water consumption in that water supply is the recorded amount of water put into the system, and water consumption is the recorded amount of water taken out of the system. The measured amount of water supply in any system is typically more than the measured amount of water consumption, due to water system leaks and non-metered water uses, which will be described more in the **Distribution System Leakage**

section. **Table 7** summarizes the total amount of water supplied by the sources in 2022 through 2024 and the calculated average day demand (ADD) for each year. The annual supply volume shown for each district does not include a reduction for water transferred out of the district via interties. For example, the volume supplied to District No. 12 from District No. 9 or 14 is double counted in **Table 7**, as this volume is supplied by wells in either District Nos. 9 and 14, and then is counted as supply to District No. 12 via the intertie meters.

Table 7
Historical Water System Demand

	District 9		District 12		District 14		Totals		Villages	
Year	Supply Volume (gallons)	ADD (gpm)	Supply Volume (gallons)	ADD (gpm)	Supply Volume (gallons)	ADD (gpm)	Supply Volume (gallons)	ADD (gpm)	Supply Volume (gallons)	ADD (gpm)
2022	26,230,790	49.91	13,625,000	25.92	106,426,000	202.48	**132,656,790**	**252.39**	20,847,000	39.66
2023	40,431,895	76.93	15,196,260	28.91	123,710,000	235.37	**164,141,895**	**312.29**	21,235,000	40.40
2024	41,646,390	79.02	13,796,000	26.18	130,590,000	247.78	**172,236,390**	**327.69**	18,162,333	34.56
Average 2022 to 2024								**297.46**		**38.21**

NOTE: District 9 supply volume shown in it's entirety, without any transfer to District 12 included in this table. District totals reduced by the District 12 volume so as to not double-count the total volume supplied to the Districts.

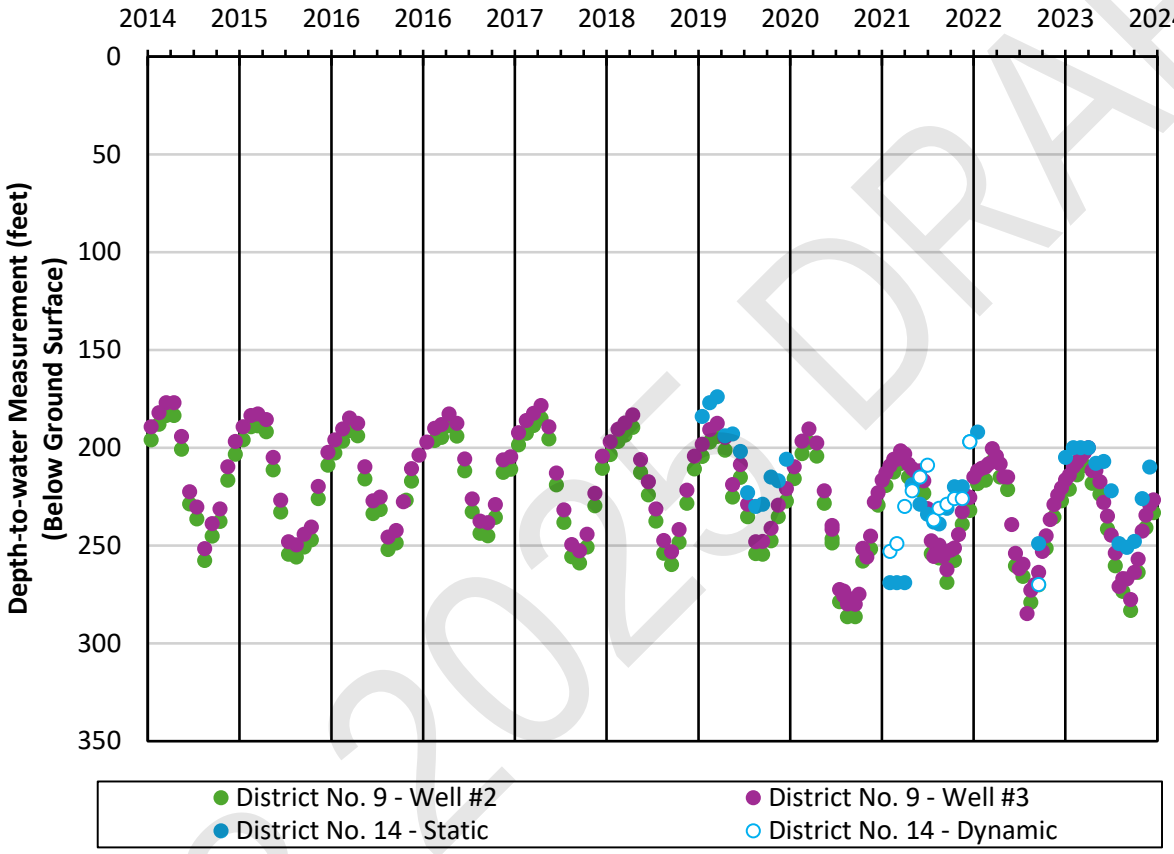
Table 8 shows the historical monthly water supplied by District Nos. 9 and 14, and the Villages from 2022 to 2024. The peak supply months generally occur in July and August when temperatures are the warmest and irrigation demands are the highest. Monthly supply volumes for District No. 12 are not available; however, because District No. 12 receives all water from District Nos. 9 and 14 via intertie, the supply volumes for all three districts are represented in **Table 8**.

Table 8
Historical Monthly Water Supply

		Volume (gallons)			
Year	Month	District 9	District 12	District 14	Villages
2022	1	683,011	--	3,072,000	578,000
2022	2	612,821	--	2,981,000	630,000
2022	3	304,256	--	3,100,000	491,000
2022	4	1,714,558	--	9,533,000	1,106,000
2022	5	3,941,916	--	24,304,000	1,419,000
2022	6	6,607,568	--	28,903,000	2,160,000
2022	7	2,173,551	--	28,578,000	3,012,000
2022	8	6,441,333	--	22,651,000	3,714,000
2022	9	4,669,756	--	14,747,000	3,517,000
2022	10	3,080,230	--	6,833,000	2,443,000
2022	11	1,065,435	--	2,932,000	989,000
2022	12	1,156,059	--	2,821,000	788,000
2023	1	1,161,094	--	3,496,000	1,298,000
2023	2	1,031,531	--	3,066,000	1,084,000
2023	3	1,127,436	--	2,930,000	714,000
2023	4	1,324,441	--	7,082,000	806,000
2023	5	4,514,904	--	13,949,000	1,518,000
2023	6	7,404,519	--	21,393,000	2,584,000
2023	7	8,843,060	--	26,502,000	3,325,000
2023	8	6,822,739	--	20,514,000	4,124,000
2023	9	4,340,530	--	13,961,000	2,872,000
2023	10	1,546,233	--	5,199,000	1,666,000
2023	11	515,009	--	2,946,000	865,000
2023	12	1,064,943	--	2,699,000	379,000
2024	1	1,410,592	--	3,246,000	1,470,000
2024	2	1,548,484	--	2,643,000	782,000
2024	3	1,625,541	--	2,859,000	844,000
2024	4	2,104,675	--	7,448,000	1,085,000
2024	5	3,368,928	--	11,595,000	1,337,000
2024	6	5,810,617	--	18,304,000	2,078,000
2024	7	9,018,510	--	26,026,000	3,256,000
2024	8	7,602,441	--	24,421,000	2,804,000
2024	9	5,047,279	--	16,504,000	2,129,667
2024	10	2,625,492	--	8,829,000	1,369,667
2024	11	978,266	--	4,346,000	618,000
2024	12	1,018,469	--	4,369,000	389,000

District Nos. 9 and 14 currently record depth-to-water measurements for each well on a monthly basis. **Chart 1** presents the depth-to-water measurements of each well from 2014 to 2024 based on data available from each system's annual water use efficiency report.

Chart 1
Well Depth-to-Water Measurements



Distribution System Leakage

The difference between the amount of water supply and authorized water consumption is the amount of distribution system leakage (DSL). There are many sources of DSL in a typical water system, including water system leaks, inaccurate supply metering, inaccurate customer metering, well backwash, illegal water system connections or water use, unauthorized fire hydrant usage, unmetered water main flushing, and malfunctioning telemetry and control equipment resulting in reservoir overflows. The amount of DSL in the District's systems has historically been under 10 percent on an annual basis, as shown in **Table 9**.

Table 9
Distribution System Leakage

District 9	Year		
Description	2022	2023	2024
Authorized Consumption			
Metered Customer Use (MG)	25.57	39.19	40.35
Total Supply			
Gross Supply (MG)	26.23	40.43	41.65
Distrubtion System Leakage (DSL): All Authorized Consumption			
Total DSL Volume (MG)	0.66	1.24	1.30
Total DSL Percentage	2.5%	3.1%	3.1%
Rolling 3-Year Average DSL %	3.1%	3.2%	2.9%

District 14	Year		
Description	2022	2023	2024
Authorized Consumption			
Metered Customer Use (MG)	102.48	112.10	119.43
Total Supply			
Gross Supply (MG)	106.43	123.71	130.59
Distrubtion System Leakage (DSL): All Authorized Consumption			
Total DSL Volume (MG)	3.94	11.61	11.16
Total DSL Percentage	3.7%	9.4%	8.5%
Rolling 3-Year Average DSL %	4.9%	7.5%	7.2%

District 12	Year		
Description	2022	2023	2024
Authorized Consumption			
Metered Customer Use (MG)	12.92	14.51	13.80
Total Supply			
Gross Supply (MG)	13.63	15.20	14.35
Distrubtion System Leakage (DSL): All Authorized Consumption			
Total DSL Volume (MG)	0.71	0.68	0.55
Total DSL Percentage	5.2%	4.5%	3.9%
Rolling 3-Year Average DSL %	6.9%	8.0%	4.5%

Districts Total	Year		
Description	2022	2023	2024
Authorized Consumption			
Metered Customer Use (MG)	140.97	165.80	173.58
Total Supply			
Gross Supply (MG)	146.28	179.34	186.59
Distrubtion System Leakage (DSL): All Authorized Consumption			
Total DSL Volume (MG)	5.31	13.54	13.01
Total DSL Percentage	3.6%	7.5%	7.0%
Rolling 3-Year Average DSL %	---	---	6.0%

Average Day Demand

ADD is the total amount of water delivered to the system in a year divided by the number of days in the year. ADD is determined from the system's historical water use patterns and can be used to project future demand within the system. Water supply records from the Districts' supply facilities were reviewed to determine the combined ADD as approximately 297 gpm based on 2024 data.

Maximum Day Demand

Maximum day demand (MDD) is the maximum amount of water used throughout the system during a 24-hour time period of a given year. MDD typically occurs on a hot summer day when lawn watering is occurring throughout much of the system. In accordance with Washington Administrative Code (WAC) 246-290-230 – Distribution Systems – the distribution system shall provide fire flow at a minimum pressure of 20 pounds per square inch (psi) during MDD conditions. Supply facilities (e.g., wells, treatment plants, pump stations, interties) typically are designed to supply water at a rate that is equal to or greater than the system's MDD.

Monthly water supply records for 2022 to 2024 were used to determine the Districts' MDD. The maximum historical supply month for the combined District Nos. 9 and 12 is July 2024, when

7,602,441 gallons were supplied to the Districts' systems, June 2022 for District No. 14, with 28,903,000 gallons being supplied, and August 2023 for the Villages, with 4,124,000 gallons being supplied. Section 3.4.1 of the Washington State Department of Health (DOH) *Water System Design Manual* recommends applying a 1.65 peaking factor to the maximum month's average day demand to estimate the actual MDD of the month. Based on this peaking factor, the estimated historical MDD of the combined District Nos. 9 and 12, District No. 14, and the Villages is 333 gpm, 1,104 gpm, and 153 gpm, respectively, as shown in **Table 10**.

Table 10
Historical Peak Demands and Peaking Factors

District 9 and District 12 Description	Date	Demand (gpm)
Average Day Demand (ADD)[1]	2024	80
Maximum Day Demand (MDD)[2]	July 2024	333
Peak Hour Demand (PHD)	Approximated[3]	828
Peaking Factors		
MDD/ADD		4.18
PHD/MDD		2.49
PHD/ADD		10.42

District 14 Description	Date	Demand (gpm)
Average Day Demand (ADD)[1]	2022	285
Maximum Day Demand (MDD)[2]	June 2022	1,104
Peak Hour Demand (PHD)	Approximated[3]	2,158
Peaking Factors		
MDD/ADD		3.87
PHD/MDD		1.88
PHD/ADD		7.30

Villages Description	Date	Demand (gpm)
Average Day Demand (ADD)[1]	2023	40
Maximum Day Demand (MDD)[2]	August 2023	152
Peak Hour Demand (PHD)	Approximated[3]	399
Peaking Factors		
MDD/ADD		3.78
PHD/MDD		2.61
PHD/ADD		9.89

(1) Based on same year as MDD.
(2) MDD based on average supply rate for the indicated month multiplied by 1.65, per section 3.4.1 of the DOH *Water System Design Manual.*
(3) Calculated using DOH *Water System Design Manual* Equation 3-1.

Peak Hourly Demand

Peak hour demand (PHD) is the maximum amount of water used throughout the system, excluding fire flow, during a 1-hour time period of a given year. In accordance with WAC 246-290-230 – Distribution Systems – new public water systems or additions to existing systems shall be designed to provide domestic water at a minimum pressure of 30 psi during PHD conditions. Equalizing storage requirements typically are based on PHD data.

Historical hourly water supply records for the Districts' facilities are not available. Therefore, the system's PHD could not be computed based on actual system data. Instead, it was estimated as outlined in Equation 3-1 of the DOH *Water System Design Manual* for systems with predominantly residential demands. The resulting PHD for the combined District's water system was 2,985 gpm, as shown in **Table 10**.

Equivalent Residential Units

The demand of each customer class can be expressed in terms of ERUs for demand forecasting and planning purposes. One ERU is equivalent to the amount of water used by one single-family residence. The number of ERUs represented by the demand of the other customer classes is determined from the total demand of the customer class and the unit demand per ERU from the single-family residential demand data.

Table 11 presents the computed number of ERUs for each customer class from 2022 to 2024. The demands shown are based on the consumption of each customer class (**Table 6**). Based on the systems' ADDs, the average demand per ERU from 2022 to 2024 was 512 gpd.

Table 11
Equivalent Residential Units

District 9				
Year	Average Number of Connections	Average Annual Demand (gallons)	Demand per ERU (gpd/ERU)	Total ERUs
Metered Residential Customer Connections (ERU Basis)				
2022	107	20,389,223	522	107.0
2023	107	23,566,189	603	107.0
2024	107	26,235,561	672	107.0
Non-Residential				
2022	3	312,432	522	1.6
2023	3	795,154	603	3.6
2024	3	384,524	672	1.6
System-Wide Totals				
2022	110	20,701,655	522	108.6
2023	110	24,361,343	603	110.6
2024	110	26,620,086	672	108.6
Average 2022 to 2024			**599**	**109.3**

District 12				
Year	Average Number of Connections	Average Annual Demand (gallons)	Demand per ERU (gpd/ERU)	Total ERUs
Metered Residential Customer Connections (ERU Basis)				
2022	68	12,917,000	520	68.0
2023	68	14,514,000	585	68.0
2024	68	13,796,000	556	68.0
Non-Residential				
2022	---	---	---	---
2023	---	---	---	---
2024	---	---	---	---
System-Wide Totals				
2022	68	12,917,000	520	68.0
2023	68	14,514,000	585	68.0
2024	68	13,796,000	556	68.0
Average 2022 to 2024			**554**	**68.0**

District 14				
Year	Average Number of Connections	Average Annual Demand (gallons)	Demand per ERU (gpd/ERU)	Total ERUs
Metered Residential Customer Connections (ERU Basis)				
2022	633	101,451,000	439	633.0
2023	633	110,970,167	480	633.0
2024	633	129,274,964	560	633.0
Non-Residential				
2022	3	1,032,000	439	6.4
2023	3	1,128,833	480	6.4
2024	3	1,315,036	560	6.4
System-Wide Totals				
2022	636	102,483,000	439	639.4
2023	636	112,099,000	480	639.4
2024	636	130,590,000	560	639.4
Average 2022 to 2024			**493**	**639.4**

Districts Total				
Year	Average Number of Connections	Average Annual Demand (gallons)	Demand per ERU (gpd/ERU)	Total ERUs
Metered Residential Customer Connections (ERU Basis)				
2022	808	134,757,223	457	808.0
2023	808	149,050,356	505	808.0
2024	808	169,306,525	574	808.0
Non-Residential				
2022	6	1,344,432	457	8.1
2023	6	1,923,987	505	10.4
2024	6	1,699,561	574	8.1
System-Wide Totals				
2022	814	136,101,655	457	816.1
2023	814	150,974,343	505	818.4
2024	814	171,006,086	574	816.1
Average 2022 to 2024			**512**	**816.9**

Demand Projections

Growth within the Districts' and Villages systems has been negligible for years, with the annual supply in the systems generally fluctuating based on weather conditions, with specific influence from temperatures and precipitation. Future demands within the Districts' and Villages systems are anticipated to remain within 10 percent of recent system demands as a result of minimal opportunities for growth within the service areas. As such, an extensive future planning horizon was not included in this analysis.

Combined City and District Demand Projections

Table **12** presents the projected water demand for the combined City and District water systems, should the District system be consolidated by the City. These projections are based on

the historical District demands shown in **Table 10**, and demand projections for the City's system presented in the City's *Water System Plan*.

Table 13 presents the projected ERUs for the combined City and District water systems, and are based on the ERUs of the Districts' system shown in **Table 11**, and the ERU projections for the City's system presented in the City's *Water System Plan*.

Table 12
Future City and District Water Demand Projections

Description	Planning Horizon[1] 2025 (+5 yrs)	2026 (+6 yrs)	2027 (+7 yrs)	2028 (+8 yrs)	2029 (+9 yrs)	2030 (+10 yrs)	2031 (+11 yrs)	2040 (+20 yrs)
Connection Data								
City WSA Connections	3,935	3,958	3,982	4,006	4,030	4,054	4,078	4,303
District Connections	---	814	814	814	814	814	814	814
Total Connections	**3,935**	**4,772**	**4,796**	**4,820**	**4,844**	**4,868**	**4,892**	**5,117**
Demand Basis Data (gpd/capita)								
ADD without WUE	147	147	147	147	147	147	147	147
Average Day Demand (gpm)								
City Demand	850	855	861	866	871	876	881	930
District Demand	---	365	365	365	365	365	365	365
Total Demand	**850**	**1,220**	**1,225**	**1,230**	**1,236**	**1,241**	**1,246**	**1,295**
Maximum Day Demand (gpm)								
City Demand	3,034	3,052	3,070	3,088	3,107	3,125	3,144	3,318
District Demand	---	1,437	1,437	1,437	1,437	1,437	1,437	1,437
Total Demand	**3,034**	**4,489**	**4,507**	**4,526**	**4,544**	**4,563**	**4,581**	**4,755**
Peak Hour Demand (gpm)								
City Demand	5,064	5,095	5,125	5,156	5,187	5,218	5,249	5,538
District Demand	---	2,998	2,998	2,998	2,998	2,998	2,998	2,998
Total Demand	**5,064**	**8,093**	**8,123**	**8,154**	**8,185**	**8,216**	**8,247**	**8,537**

(1) Planning horizons consistent with the City's WSP.

Table 13
Future City and District ERU Projections

Description	Planning Horizon[1] 2025 (+5 yrs)	2026 (+6 yrs)	2027 (+7 yrs)	2028 (+8 yrs)	2029 (+9 yrs)	2030 (+10 yrs)	2031 (+11 yrs)	2040 (+20 yrs)
Average Day Demand Basis								
ADD (City and Districts) (gpm)	850	1,220	1,225	1,230	1,236	1,241	1,246	1,295
Demand per ERU (gpd/ERU)[2]	325	325	325	325	325	325	325	325
Total ERUs	**3,765**	**5,402**	**5,425**	**5,448**	**5,471**	**5,494**	**5,517**	**5,732**
Maximum Day Demand Basis								
MDD (City and Districts) (gpm)	3,034	4,489	4,507	4,526	4,544	4,563	4,581	4,755
Demand per ERU (gpd/ERU)[2]	1,160	1,160	1,160	1,160	1,160	1,160	1,160	1,160
Total ERUs	**3,765**	**5,572**	**5,594**	**5,617**	**5,640**	**5,663**	**5,686**	**5,901**
Peak Hour Demand Basis								
PHD (City and Districts) (gpm)	5,064	8,093	8,123	8,154	8,185	8,216	8,247	8,537
Demand per ERU (gpd/ERU)[2]	1,937	1,937	1,937	1,937	1,937	1,937	1,937	1,937
Total ERUs	**3,765**	**6,017**	**6,040**	**6,062**	**6,085**	**6,108**	**6,132**	**6,347**

(1) Planning horizons consistent with the City's WSP.

(2) Demand per ERU values consistent with the City's WSP

SECTION 3: EXISTING LEVEL OF SERVICE

Water System Analysis

Source Analysis

This section evaluates the Districts' sources to determine if they have sufficient capacity to provide water supply to the systems at a rate that meets the demands of the systems.

Source facilities must provide a sufficient quantity of water at pressures that meet the requirements of WAC 246-290-230. The evaluation of the combined capacity of the sources in this section is based on the criteria that they provide supply to the systems at a rate that is equal to or greater than the MDD plus fire flow requirements of the systems, while pumping 24 hours per day.

The Districts' existing active sources include three wells shown in **Table 3**. The combined capability of these sources to meet both existing demand and fire flow requirements is presented in **Table 14**. With these sources available to the systems, 2,050 gpm is available to supply the system during MDD and PHD conditions, which is sufficient to meet the MDD of the systems but not the PHD. Additional flow from the District No. 9 BPS and via interties between the City and District No. 14 are relied upon to supplement the Districts' sources and meet PHD conditions.

Table 14
Water Source Capacity Evaluation

Description	MDD	PHD
Required Source Capacity (gpm)		
Demand	1,437	2,998
Available Source Capacity (gpm)		
District No. 9 - Well No. 2	500	500
District No. 14 - Well No. 5	750	750
District No. 14 - Well No. 7	800	800
Total Source Capacity (24-hour Pumping)	**2,050**	**2,050**
Surplus (or Deficient) Supply Capacity	**613**	**(948)**

Distribution and Transmission System Analysis

Hydraulic Model Description

A computer-based hydraulic model of the existing water systems was created using version 24 of the WaterCAD program, developed by Bentley Systems. All water mains and facilities in the Districts' water systems were modeled.

Demand data shown in **Table 10** was added to the hydraulic model and allocated based on the addresses of the metered billing records of District customers.

Hydraulic Analyses Results

Hydraulic analyses were performed to determine the existing pressures and fire flows available to the Districts' customers with Well Nos. 2, 5, and 7 active.

The first set of analyses was performed to determine the pressures throughout the systems under existing PHD conditions. The resulting pressures are shown in **Figure 5** and indicate all District customers receive adequate service pressures, with most pressures between 44 and 79 psi. For comparison, City Zone 1 customers receive pressures between 38 and 84 psi.

The second set of analyses was performed to determine the capability of the existing water systems to provide fire flow during MDD conditions. A separate fire flow analysis was performed for each node in the model to determine the available fire flow at a minimum residual pressure of 20 psi. **Figure 6** shows the existing fire flow availability at all existing hydrants in the Districts' water systems while maintaining 20 psi at all service connections and hydrants, without consideration for velocity limitations in the Districts' water mains.

The results of the fire flow availability analyses are as follows.

- District No. 9: Between 500 and 1,000 gpm is available at all existing hydrants, except the hydrant served by a 2-inch-diameter main on Newtown Place. The District No. 9 fire flow requirement is 500 gpm per the Walla Walla/College Place Coordinated Water System Plan.
- District No. 12: No hydrants currently exist in this system.
- District No. 14: More than 1,000 gpm is available at all existing hydrants. The District fire flow requirement is 1,000 gpm at all hydrants.

Figure 5
System Pressures
Existing PHD Conditions
City of College Place
Water System Consolidation Feasibility Study

PRELIMINARY

Legend

- City Limits
- City UGA Boundary
- City Retail Water Service Area

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

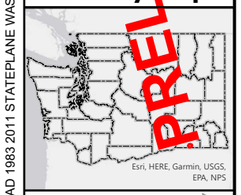
Water Main

- 935 Zone (City Zone 1)
- 1,002 Zone (City Zone 2)
- 973 Zone (City Zone 3)
- District 9
- District 12
- District 14
- The Villages

Service Connection Pressure

- Less than 30 psi
- 30 to 40 psi
- 40 to 60 psi
- 60 to 70 psi
- 70 to 80 psi
- Greater than 80 psi

Vicinity Map

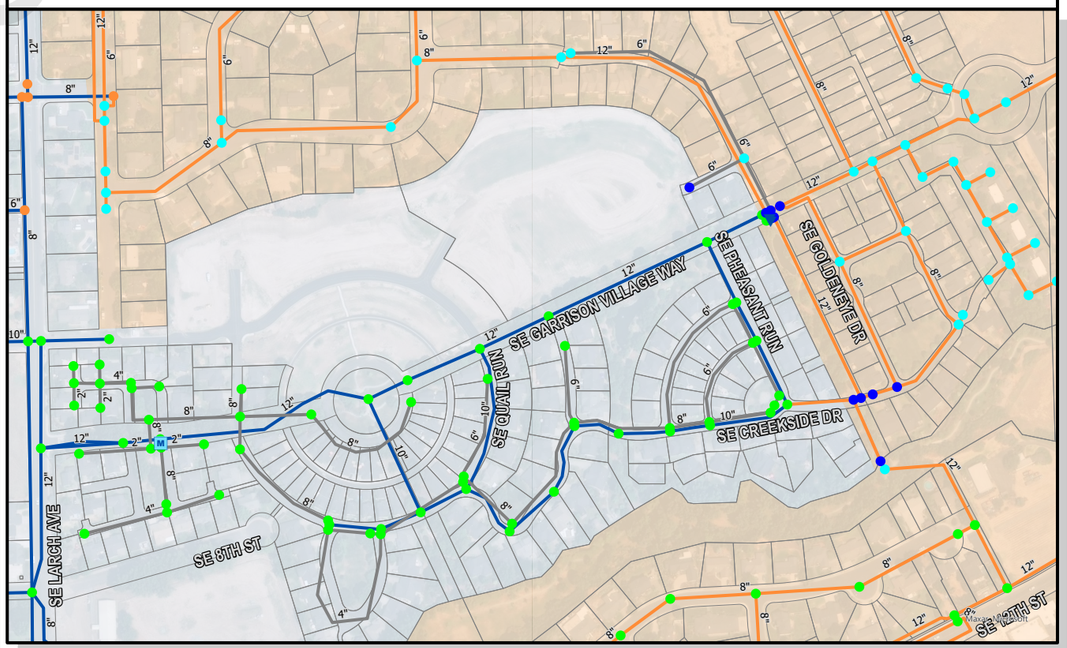


HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAIN AVE
RHEA LN
BLALOCK DR
RUSSET RD
MCKINNEY RD
WALLULA AVE
W WHITMAN DR
E WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SE 8TH ST
SE 12TH ST
NE ROSE ST
S CAMPBELL RD
S HUSSEY ST
NW EVANS AVE
SW DAVIS AVE
S COSE ST
N COSE ST
S COLLEGE AVE
N COLLEGE AVE
SE DATE AVE
NE MYRARD
SE LARCH AVE
SE 6TH ST
SE 10TH ST

Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Two-way Intertie (Normally Flowing from Hydro 9 to District 12)
District 12 Well No. 1
District No. 14 Well 7 (800 gpm)
District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint)
District No. 14 Well No. 2
District No. 14 Well 5 (700 gpm)
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
Walla Walla University Intertie (Emergency)
Well No. 2 (1,500 gpm)
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 1
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)
Zone 3
Zone 1

NORTH
1 Inch : 200 Feet

The Villages



1 inch : 600 Feet
0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

J:\DATA\CPL\25-0083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

Figure 6
Hydrant Fire Flow Availability
Existing MDD + FF Conditions
City of College Place
Water System Consolidation Feasibility Study

PRELIMINARY

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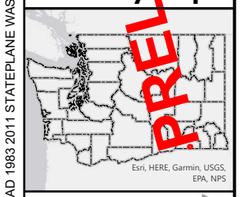
Vicinity Map



Legend

- City Limits
- City Retail Water Service Area
- City UGA Boundary

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main

- 935 Zone (City Zone 1)
- 1,002 Zone (City Zone 2)
- 973 Zone (City Zone 3)
- District 9
- District 12
- District 14
- The Villages

Available Fire Flow

- Less than 500 gpm
- 500 to 1,000 gpm
- 1,000 to 1,500 gpm
- 1,500 to 2,000 gpm
- 2,000 to 3,000 gpm
- 3,000 to 4,000 gpm
- Greater than 4,000 gpm
- Deficient Locations

HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAIN AVE
Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Two-way Intertie (Normally Flowing from Hydro 9 to District 12)
District 12 Well No. 1
S HUSSEY ST
N COSE ST
S COSE ST
NW EVANS AVE
District No. 14 Well 7 (800 gpm)
District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint)
WALLULA AVE
RHEA LN
BLALOCK DR
S CAMPBELL RD
RUSSET RD
MCKINNEY RD
District No. 14 Well 5 (700 gpm)
District No. 14 Well 2
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
Walla Walla University Intertie (Emergency)
W WHITMAN DR
E WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SW DAVIS AVE
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 2 (1,500 gpm)
Well No. 1
S COLLEGE AVE
N COLLEGE AVE
SE 8TH ST
SE 12TH ST
SE DATE AVE
NE ROSE ST
NE MAIN ST
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)
Zone 3
Zone 1

NORTH
1 Inch : 200 Feet

The Villages

SE LARCH AVE
SE GARRISON
SE VILLAGE WAY
SE QUAIL RUN
SE PHEASANT RUN
SE GOLDENEYE DR
SE GREENSIDE DR
SE 8TH ST
SE 12TH ST

1 inch : 600 Feet
0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

J:\DATA\CPL\25-00083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

SECTION 4: WATER SYSTEM CONSOLIDATION PHASES

The future level of service within the Districts' systems was evaluated as two phases: first, consolidating the Districts' systems into the City's system, and second, improving the deficiencies to the consolidated system. These phases are independent of the possible City acquisition of the Villages system. A description of the future system phases and their resulting District and City pressures and flows are as follows.

Districts – Phase 1

The first phase consolidates all three Districts into the City's Zone 1, and includes improvements required to take place prior to the City consolidating the Districts' system.

The Districts' systems connect to the City and each other through three interties that would be permanently open following Phase 1:

- The City and District No. 14 Intertie No. 3 would be open and used to convey water between the City and District No. 14 systems.
- The District No. 12 and District No. 14 intertie (located at S Campbell Road and Wallula Avenue) would be bypassed and normally open to convey water between the District No. 12 and District No. 14 systems.
- The District No. 9 and District No. 12 intertie (located at S Campbell Road and Pearmain Avenue) would be bypassed and normally open to convey water between the District No. 9 and District No. 12 systems.

Other improvements included as part of Phase 1 are as follows:

- All meter and service line replacements necessary to meet City standards.
    - District No. 9 has approximately 55 polybutylene service lines that have become brittle and require replacement.
    - District No. 12 has 68 service lines that require replacement. [**Kevin**, confirm status of service lines. Ryan to update after coordinating with Kevin.]
    - District No. 14 has 636 service lines that require replacement. [**Paul**, confirm status of service lines. Ryan to update after coordinating with Paul.]
    - Status/condition of service meters in each district?
- Removal of the existing above-grade Mill Creek crossing. Abandon existing buried pipe in place and/or install valving to create dead ends on either side of Mill Creek.
- Installation of an 8-inch-diameter water main in Hussey Street, including on the Hussey Street bridge over Mill Creek, to replace conveyance over Mill Creek that is lost with the existing above-grade crossing is removed.
- Condition assessment of the Districts' existing active facility infrastructure to confirm that the existing mechanical and electrical equipment for District No. 9 – Well No. 2,

Figure 7
System Pressures
Phase 1 PHD Conditions
City of College Place
Water System Consolidation Feasibility Study

PRELIMINARY

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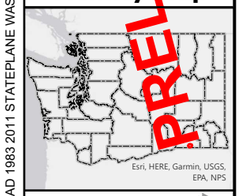


Legend

- City Limits
- City Retail Water Service Area
- City UGA Boundary

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main

- 935 Zone (City Zone 1)
- 1,002 Zone (City Zone 2)
- 973 Zone (City Zone 3)
- District 9
- District 12
- District 14
- The Villages
- Water Main Improvements
- Water Main Abandonments

Service Connection Pressure

- Less than 30 psi
- 30 to 40 psi
- 40 to 60 psi
- 60 to 70 psi
- 70 to 80 psi
- Greater than 80 psi

HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAIN AVE
S HUSSEY ST
NW EVANS AVE
S COSE ST
N COSE ST
NE ROSE ST
NE MYRARD
WALLULA AVE
RHEA LN
BLALOCK DR
RUSSET RD
S CAMPBELL RD
MCKINNEY RD
W WHITMAN DR
E WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SW DAVIS AVE
N COLLEGE AVE
S COLLEGE AVE
SE DATE AVE
SE 8TH ST
SE 12TH ST

Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Former: Two-way Intertie (Normally Flowing from Hydro 9 to District 12) Improvement: 6" connection with no valving
District 12 Well No. 1 (Not in Service)
District No. 14 Well 7 (800 gpm)
Former: District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint) Improvement: 6" connection with no valving
District No. 14 Well No. 2 (Not in Service)
District No. 14 Well 5 (700 gpm)
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
Walla Walla University Intertie (Emergency)
Well No. 2 (1,500 gpm)
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 1
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)
CIP 1-1
CIP 1-2
CIP 1-3
CIP 1-4
Zone 3
Zone 1

NORTH
1 Inch : 200 Feet

The Villages

SE GARRISON VILLAGE WAY
SE QUAIL RUN
SE PHEASANT RUN
SE GOLDENVIEW DR
SE CREEKSIDE DR
SE 6TH ST
SE LARCH AVE
SE 7TH ST

1 inch : 600 Feet

0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

J:\DATA\CPL\125-0083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

Reservoir, and BPS, and District No. 14 – Well Nos. 5 and 7 are in satisfactory condition and not in need of imminent replacement or rehabilitation.

Figure 7 presents the pressures in the combined Districts' and City system during PHD conditions following implementation of the Phase 1 improvements. The resulting pressures in the City and Districts' systems are similar to those in the existing system configuration without water system consolidation.

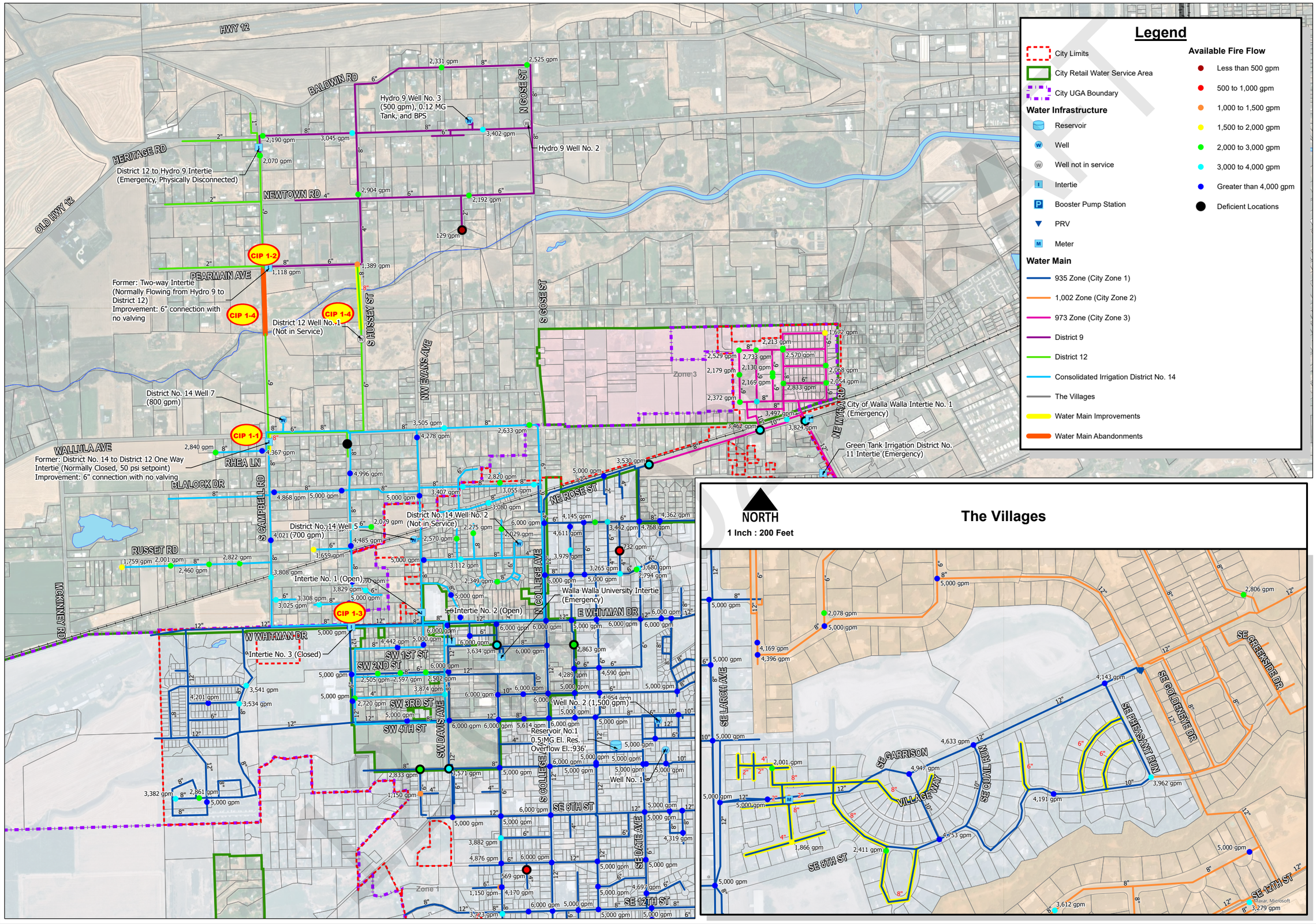
Figure 8 presents the fire flows in the combined Districts and City system with consideration for maintaining 20 psi at all service connections and hydrants and limiting the velocity of water in the City and Districts' water mains to 14 feet per second (fps) following implementation of the Phase 1 improvements. The resulting fire flow availability generally improves throughout the Districts' systems with the Phase 1 improvements. In areas that receive a reduction in fire flow availability, the reduction is minimal and maintains more than the required fire flow rate at all hydrants.

There is no significant reduction in normal service pressure or fire flows for the City or the Districts' customers if the Phase 1 improvements are implemented.

Districts – Phase 2

The second phase upsizes and adds looping to areas that were identified as deficient in the Districts' systems. Phase 2 is recommended to take place over 3 years, and includes the following improvements.

- District No. 14 loop in Russet Road, McKinney Road, and Blalock Drive (as of Q4 2025, this improvement is already planned and under design by District No. 14).
- Connect the existing piping in Heritage Road at the intersection with S Campbell Road.
- Abandon the asbestos cement pipe in Wallula Avenue between approximately S Campbell Road and S Hussey Street. Transfer all services that are currently connected to the asbestos cement pipe to the ductile iron pipe that is installed in parallel.
- Replace the 2-inch-diameter dead-end pipe in Heritage Road, Newtown Road, Pearmain Avenue, and Newtown Place with 6-inch-diameter pipe and install a hydrant at (or near) the end of each water main.
- Install hydrants on S. Campbell Road at the intersection with Pearmain Avenue and Newtown Road.
- Replace the existing 4-inch-diameter piping in S. Hussey Street between Newtown Road and Pearmain Avenue with 8-inch-diameter piping.
- Supervisory control and data acquisition system improvements will be necessary at the Districts' existing facilities to ensure the City has visibility and control of equipment at these facilities remotely. Equipment to be included in this effort includes pumps, motors, chlorination equipment, and intrusion alarms.



Legend

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- City UGA Boundary

Water Infrastructure

- Reservoir
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- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main

- 935 Zone (City Zone 1)
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- 973 Zone (City Zone 3)
- District 9
- District 12
- Consolidated Irrigation District No. 14
- The Villages
- Water Main Improvements
- Water Main Abandonments

Available Fire Flow

- Less than 500 gpm
- 500 to 1,000 gpm
- 1,000 to 1,500 gpm
- 1,500 to 2,000 gpm
- 2,000 to 3,000 gpm
- 3,000 to 4,000 gpm
- Greater than 4,000 gpm
- Deficient Locations

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PRELIMINARY

Vicinity Map

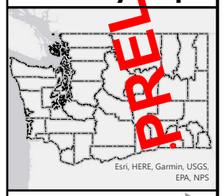

Figure 9
Hydrant Fire Flow Availability
Phase 1 MDD+FF Conditions

City of College Place

Water System Consolidation Feasibility Study

COLLEGE PLACE
WALLA WALLA VALLEY

1 inch : 600 Feet

0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

J:\DATA\CPL\125-0083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX BY: ERENDON PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

- A Water Department Supervisor position and one additional water utility worker or operator are recommended to be added to the City's Public Works Department if the Districts' systems are consolidated. Incorporating the Districts' infrastructure would double the number of active wells within the City's system and expand the service area, number of service connections, and total water main length by approximately 30 percent, resulting in the need for additional staff to oversee and operate and system.

Figure 9 presents the pressures in the combined Districts and City system during PHD conditions following implementation of the Phase 2 improvements. The resulting pressures in the City and Districts' systems are similar to those in the existing system configuration without water system consolidation.

Figure 10 presents the fire flows in the combined Districts and City system with consideration for maintaining 20 psi at all service connections and hydrants and limiting the velocity of water in the City and Districts' water mains to 14 fps following implementation of the Phase 2 improvements. The resulting fire flow availability generally improves throughout the Districts' systems with the Phase 2 improvements. In areas that receive a reduction in fire flow availability, the reduction is minimal and maintains more than the required fire flow rate at all hydrants.

The Villages of Garrison Creek

The system that provides water to the Villages is also being considered for acquisition by the City. Consolidating the Villages into the City's system will require the following improvements prior to consolidation, and are entirely independent of any decisions related to the City consolidating the Districts' systems.

- Install service meters and backflow devices on all 151 services.
- Replace the entirety of the distribution system piping. In locations where the City has existing fire protection main in parallel with the existing Villages piping, replacement piping is not required; instead, connections directly to the City fire protection main are permitted. **Figures 7** and **8** present the proposed water main replacements, and the resulting PHD pressures and fire flow availability throughout the Villages with these improvements.

SECTION 5: WATER RIGHTS

A water right is a legal authorization to use a specified amount of public water for specific beneficial purposes. The water right amount is expressed in terms of instantaneous diversion/withdrawal rate and annual volume. Unless water use started before the applicable water code was enacted (1917 for surface water and 1945 for groundwater) and is documented by a water right claim or adjudicated certificate, Washington State law requires users of public water to receive approval from the Washington State Department of Ecology (Ecology) prior to actual water use. This approval is granted in the form of a water right permit or certificate. However, a State-issued water right is not required for certain uses of groundwater that are exempt from the permitting process, including the use of 5,000 gpd or less for domestic and

Figure 9
System Pressures
Phase 2 PHD Conditions
City of College Place
Water System Consolidation Feasibility Study

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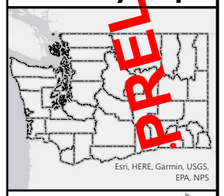

Legend

- City Limits
- City Retail Water Service Area
- City UGA Boundary

Water Infrastructure

- Reservoir
- Well
- Well not in service
- Intertie
- Booster Pump Station
- PRV
- Meter

Water Main

- 935 Zone (City Zone 1)
- 1,002 Zone (City Zone 2)
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- District 14
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- Water Main Improvements
- Water Main Abandonments

Service Connection Pressure

- Less than 30 psi
- 30 to 40 psi
- 40 to 60 psi
- 60 to 70 psi
- 70 to 80 psi
- Greater than 80 psi

HWY 12
BALDWIN RD
HERITAGE RD
OLD HWY 12
NEWTOWN RD
PEARMAIN AVE
WALLULA AVE
RHEA LN
BLALOCK DR
RUSSET RD
MCKINNEY RD
W WHITMAN DR
SW 1ST ST
SW 2ND ST
SW 3RD ST
SW 4TH ST
SW DAVIS AVE
S HUSSEY ST
N HUSSEY AVE
N COLLEGE AVE
S COLLEGE AVE
S CAMPBELL RD
N COSE ST
S COSE ST
NE ROSE ST
NE MYRA RD
E WHITMAN DR
SE 8TH ST
SE 12TH ST
SE DAVIS AVE
SE DALE AVE
Zone 3
Zone 1

CIP 1-1
CIP 1-2
CIP 1-3
CIP 1-4
CIP 2-1
CIP 2-2
CIP 2-3
CIP 2-4
CIP 2-5
CIP 2-6
CIP 2-7
CIP 2-8

Hydro 9 Well No. 3 (500 gpm), 0.12 MG Tank, and BPS
Hydro 9 Well No. 2
District 12 to Hydro 9 Intertie (Emergency, Physically Disconnected)
Former: 4" DI pipe Improvement: 8" PVC
Former: Two-way Intertie (Normally Flowing from Hydro 9 to District 12) Improvement: 6" connection with no valving
Former: 6" Crossing above Mill Creek Improvement: 8" DI crossing along S Hussey ST bridge
District 12 Well No. 1 (Not in Service)
District No. 14 Well 7 (800 gpm)
Improvement: 8" connection between District No. 14 and District No. 12
Former: District No. 14 to District 12 One Way Intertie (Normally Closed, 50 psi setpoint) Improvement: 6" connection with no valving
District No. 14 Well 5 (700 gpm)
District No. 14 Well No. 2 (Not in Service)
Intertie No. 1 (Open)
Intertie No. 2 (Open)
Intertie No. 3 (Closed)
Walla Walla University Intertie (Emergency)
Well No. 2 (1,500 gpm)
Reservoir No.1 0.5 MG El. Res. Overflow El.:936'
Well No. 1
City of Walla Walla Intertie No. 1 (Emergency)
Green Tank Irrigation District No. 11 Intertie (Emergency)

NORTH
1 Inch : 200 Feet

The Villages

SE LARCH AVE
SE GARRISON VILLAGE WAY
SE PHEASANT RUN
SE GOLDENEYE DR
SE QUAIL RUN
SE CREEKSIDE DR
SE 6TH ST
SE 12TH ST

1 inch : 600 Feet
0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US

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Figure 10
Hydrant Fire Flow Availability
Phase 2 MDD+FF Conditions
City of College Place
Water System Consolidation Feasibility Study

PRELIMINARY

Legend

CityLimits
- City Limits
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- Well not in service
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Available Fire Flow
- Less than 500 gpm
- 500 to 1,000 gpm
- 1,000 to 1,500 gpm
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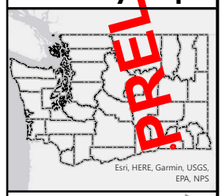
- Greater than 4,000 gpm
- Deficient Locations

Vicinity Map



NORTH

1 Inch : 200 Feet

The Villages

1 inch : 600 Feet

0 300 600 1,200 Feet

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

RH2

NORTH

PLOT DATE: OCT 6, 2025 COORDINATE SYSTEM: NAD 1983 2011 STATEPLANE WASHINGTON SOUTH FIPS 4602 FT US BY: ERENDON J:\DATA\CPL\25-00083\GIS\CPL WATER SYSTEM CONSOLIDATION\CPL WATER SYSTEM CONSOLIDATION.APRX

industrial purposes, unlimited use for stockwatering, and irrigation of ½ acre or less of lawn or non-commercial garden.

The process for obtaining a water right involves submitting a water right application that is reviewed by Ecology. If the request is approved, a water right is issued to allow for water use to commence. A water right permit provides permission to construct the necessary wells or diversions, pumps, and pipes to start using water. The water right permit remains in effect until the permit holder determines that their project is complete, and they have used as much water as they will under the water right. At that time, the permit holder files a proof of appropriation form, which attests to the rate and volume of water used under the water right. A water right certificate is issued by Ecology following a proof of examination and determination that the amount of water put to beneficial use is consistent with the amount and conditions indicated on the water right permit.

A water right permit can be issued by Ecology only if the proposed use meets the following requirements:

- Water will be put to beneficial use.
- There will be no impairment to existing or senior rights.
- Water is physically and legally available for appropriation.
- Issuance of the requested water right will not be detrimental to the public interest.

During preparation of the report of examination, Ecology considers existing basin management plans, stream closures, minimum instream flows, hydraulic continuity (surface water interconnected to groundwater), utilization of existing water sources, water conservation, and availability of alternative water supplies, among other things. The water right decision process is increasingly becoming more complex and time consuming, due to the many competing interests for water, environmental issues, and regulatory requirements.

Existing Water Rights

The Districts currently utilizes municipal groundwater right certificates for their supply. The combined water right total for all three water rights is 2,192 gallons per minute (gpm) and 1,103.40 acre-feet per year (afy). A summary of the Districts' water right information is presented below and in **Table 15**, and the principal water right documents are contained in **Appendix ##**. The Villages do not own any water rights, and are not included in the subsequent tables.

Table 15
Existing Water Rights

Purveyor	Water Right	Source	Instantaneous Rate (gpm) Additive	Non-Additive	Total	Annual Volume (afy) Additive	Non-Additive	Total
Permits/Certificates								
District No. 9	813D	S02, S04	500	0	500	301	0	301
District No. 9	G3-24053C	S02, S04	100	0	100	160	0	160
District No. 9			**600**			**461**		
District No. 12	G3-29617	Well No. 1	275	0	275	41.4	0	41.4
District No. 12			**275**			**41.4**		
District No. 14	662D	S02, S05, S06	425	0	425	62	0	62
District No. 14	663D	S02, S05, S06	425	0	425	62	0	62
District No. 14	5960-A	S02, S05, S06	175	0	175	179	0	179
District No. 14	5961-A	S02, S05, S06	292	0	292	298	0	298
District No. 14			**1,317**			**601**		
Districts Totals			**2,192**			**1,103.40**		
Applications								
District No. 12	G3-30550	Well No. 1	320	0	320	100	0	100
District No. 12	G3-30670	Well No. 1	275	0	275	150	0	150
District No. 12			**595**			**250**		
Districts Totals			**595**			**250**		

Water Right Places of Use

Since these water rights are for municipal water supply purposes, the place of use for the water rights are the service areas of each District.

Pending Water Right Applications

District No. 12 has two pending water right applications, as shown in **Table 15**. Until Ecology has made a determination on these applications, they will be treated separately from permits and certificates that have been issued to the Districts.

Water Supply Evaluation

An evaluation of District's existing water rights was performed to determine the sufficiency of the water rights to meet the existing water demands. **Table 16** compares the combined maximum instantaneous water right of the sources with the peak hour demand of the system, and the combined maximum annual water right volume of the sources with the average day demand of the system. Metering data from 2019 was used in this analysis. Peak hour demand was compared against the instantaneous water right limit since this system does not have any storage. As shown in the table, District has sufficient water rights (both instantaneous and annual amounts) to meet the demands of its existing customers.

Table 16
Existing Water Rights Evaluation

Description	Instantaneous Rights Maximum Day Demand[1] (gpm)	Annual Rights Average Day Demand (acre-feet)	Annual Rights Average Day Demand (gpm)
Total Municipal Water Rights	2,192	1,103.40	684
Water Demand	1,437	588.30	365
Surplus (or Deficient) Rights	**755**	**515.10**	**319**

(1) Maximum day demand utilized for comparison with the instantaneous rights as a result of the reservoir located in the District No. 9 system, and as a result of the District No. 14 system being directly intertied with the City system and the ability to use the City's existing storage.

As can be seen from **Table 16**, Districts are currently utilizing approximately 66 percent of its combined instantaneous water right limit and 53 percent of its combined annual water right limit. District Nos. 9 and 14 have a surplus of instantaneous and annual rights for their systems. District No. 12 has a surplus of instantaneous rights, but an approximate 1 afy deficiency of annual rights.

Minimal additional growth or increase in demand is anticipated in the Districts' service areas.

SECTION 6: WATER SYSTEM ASSETS CONSOLIDATED

Districts

If the Districts' water systems are consolidated into the City's system, the entirety of the area served by the Districts will be served by the City. The facilities to be assumed from the Districts by the City are necessary to permanently serve the City's constituents in the consolidation area.

Wells and Pump Stations

Under the proposed water system consolidation, the Districts' Well Nos. 2, 5, and 7 would be assumed by the City.

Storage Facilities

Under the proposed water system consolidation, the 120,000-gallon reservoir owned by District No. 9 would be assumed by the City.

Pump Stations

Under the proposed water system consolidation, the District No. 9 BPS located adjacent to the 120,000-gallon reservoir would be assumed by the City.

Pressure Reducing Stations

No pressure reducing stations will be assumed.

Interties

Under the proposed water system consolidation, all existing interties would be assumed by the City. The City will retain full control of the existing City and District 14 interties.

Water Main

Under the proposed water system consolidation, all of the Districts' water main infrastructure presented in **Tables 4** and **5** would be assumed by the City.

Hydrants, Valves, Blow-Offs, Meters, and Fittings

Under the proposed water system consolidation, all of the Districts' hydrants, valves, blow-offs, meters, fittings, and other associated water system infrastructure would be assumed by the City.

Treatment Facilities

Under the proposed water system consolidation, all treatment and chlorination equipment located at Well Nos. 2, 5, and 7 would be assumed by the City.

Water Rights

Under the proposed water system consolidation, the entirety of the Districts' water rights portfolio would be assumed by the City.

The Villages

Under the proposed water system consolidation, the entirety of the Villages water system infrastructure is assumed to be unsuitable for continued use, and will either be abandoned in place or removed during installation of replacement infrastructure.

SECTION 7: WATER SYSTEM COST COMPONENTS

This section provides an engineering basis for determining the value of the existing water system facilities and utilities that serve the consolidation area. The costs provided are included to document the existing and replacement valuations of the existing Districts' systems; however, in accordance with Chapter 35.13A Revised Code of Washington (RCW), monetary transfers do not occur for the facilities. The cost components include the following:

- An existing system valuation:
  - Replacement cost using present day costs; and
  - Replacement cost less depreciation (using straight line depreciation through year 2025).
- System connection costs.

The physical facilities and utilities that were analyzed under these cost components include only those that will be acquired as described in **Section 6**. The following summarizes the results of the valuation of the various cost components.

Existing Wells and Well Pumps Valuation

Valuation costs for Districts' Well Nos. 2, 5, and 7 are presented in **Table 17**. The Villages do not have wells or pumps, and therefore are not included in **Table 17**. Well infrastructure for District-owned wells not shown in **Table 17** are considered a liability by the City and is neither planned for replacement nor assigned any current value.

Table 17
Well Valuation

Well	Replacement Cost	Replacement Cost less Depreciation
District No. 9 - Well No. 2	$1,250,000	$0
District No. 14 - Well No. 5	$1,250,000	$700,000
District No. 14 - Well No. 7	$1,250,000	$1,200,000
Total	**$3,750,000**	**$1,900,000**

(1) Based on a service life of 25 years. Assumes that the casing condition is acceptable and replacements would relate to the pump, motor, wellhouse, and site improvements.

(2) $0 Wells estimated to have reached the end of its useful life

Existing Water Main Valuation

Valuation costs for the existing Districts' water main are presented in **Table 18**. Replacement costs were based on an average cost per linear foot of $204, consistent with the planning-level cost per linear foot of 8-inch-diameter water main in the City's 2020 *Water System Plan* and escalated to 2025 dollars based on an estimated inflation rate of 5 percent per year.

Table 18
Districts' Water Main Valuation

Water Main Description	Replacement Cost	Replacement Cost Less Depreciation
6-inch AC	$ 548,000	$ -
8-inch AC	$ 56,000	$ -
2-inch DI	$ 304,000	$ 148,960
4-inch DI	$ 568,000	$ 278,320
6-inch DI	$ 513,000	$ 251,370
8-inch DI	$ 4,663,000	$ 2,284,870
12-inch DI	$ 8,000	$ 3,920
1-inch PVC	$ 91,000	$ 50,960
4-inch PVC	$ 491,000	$ 274,960
6-inch PVC	$ 1,808,000	$ 1,012,480
8-inch PVC	$ 4,325,000	$ 2,422,000
2-inch ST	$ 758,000	$ 75,800
4-inch ST	$ 347,000	$ 34,700
6-inch ST	$ 568,000	$ 56,800
Total	**$ 15,048,000**	**$ 6,895,140**

(1) Based on service life of 50 years for asbestos cement pipe, 75 years for ductile iron and steel pipe, and 100 years for PVC pipe.

(2) Earliest known install date used for every material; 1970 for asbestos cement, 1999 for ductile iron, 1981 for PVC, and 1960 for steel.

Because most of the Villages' water main is undersized and there are no available records documenting its construction or location, the existing water system infrastructure owned by the Villages is considered to have no remaining asset value.

System Consolidation Costs

The subsequent sections identify the projects and costs that are anticipated to be needed to allow the Districts systems to be connected to and served by the City's system in the future. Both implementation phases are presented in **Section 4**.

Districts' Phase 1 Consolidation Costs

The projects shown in **Table 19** are anticipated to be necessary if Phase 1 is implemented. These projects could be paid for using water rates, a bond, Drinking Water State Revolving Fund (DWSRF) loans or grants, local improvement district funding, or any combination thereof.

Table 19
Phase 1 Consolidation Connection Costs

Improvement Number	Improvement	Length/Count (ft)	Water Main Diameter (inches)	Planning-Level Construction Cost Estimate
---	District 9 Service Meters/Lines	55	---	$42,000
---	District 12 Service Meters/Lines	68	---	$51,000
---	District 14 Service Meters/Lines	0	---	$0
1-1	District 14 to District 12 Intertie Bypass	20	8	$20,000
1-2	District 9 to District 12 Intertie Bypass	70	6	$21,000
1-3	City to District 14 Intertie Bypass	60	8	$21,000
1-4	Remove Existing Mill Creek Crossing and Install New Mill Creek Crossing in Hussey Street	900	8	$210,000
Phase 1 Construction Cost Estimate Subtotal				**$365,000**
Contingency (20 percent)				$73,000
Washington State Sales Tax (8.8 percent)				$39,000
Phase 1 Construction Cost Estimate Total				**$477,000**
Indirect Costs (30 percent)				$144,000
Phase 1 Construction Cost Estimate Project Cost Total				**$621,000**

Districts' Phase 2 Consolidation Costs

The projects shown in **Table 20** are anticipated to be necessary if Phase 2 is implemented. These projects could be paid for using water rates, a bond, DWSRF loans or grants, local improvement district funding, or any combination thereof. The Phase 2 improvements are intended to be completed within three years of the consolidation occurring.

Table 20
Phase 2 Consolidation Connection Costs

Improvement Number	Improvement	Length/Count (ft)	Water Main Diameter (inches)	Planning-Level Construction Cost Estimate
2-1	Hussey Street Water Main Replacement Beteween Pearmain Avenue and Newtown Road	830	8	$170,000
2-2	Russet Road, McKinney Road, and Blalock Drive Loop	3,200	8	(District No. 14 Funded)
2-3	Abandon AC in Wallula Avenue and Reconnect Existing Services to DI Between Campbell Road and Hussey Street	---	---	$50,000
2-4	District 9 to District 12 Intertie Connection at Campbell Road and Heritage Road	30	8	$25,000
2-5	Pearmain Avenue Water Main Replacement of 2" with 6"	1,400	6	$286,000
2-6	Newtown Road Water Main Replacement of 2" with 6"	1,400	6	$286,000
2-7	Heritage Road Water Main Replacement of 2" with 6"	1,100	6	$225,000
2-8	Newtown Place Water Main Replacement of 2" with 6"	500	6	$500,000
---	SCADA System Improvements	---	---	$250,000
---	Water Utility FTE (Included for Completeness, No Cost Included)	---	---	---
Phase 2 Construction Cost Estimate Subtotal				**$1,572,000**
Contingency (20 percent)				$315,000
Washington State Sales Tax (8.8 percent)				$167,000
Phase 2 Construction Cost Estimate Total				**$2,054,000**
Indirect Costs (30 percent)				$617,000
Phase 2 Construction Cost Estimate Project Cost Total				**$2,671,000**

The Villages Consolidation Costs

The projects shown in **Table 21** are anticipated to be necessary if the Villages system is to be consolidated. These projects could be paid for using water rates, a bond, DWSRF loans or grants, local improvement district funding, or any combination thereof. The Villages improvements are intended to be completed prior to consolidation occurring.

Table 21
The Villages Consolidation Connection Costs

Improvement Number	Improvement	Length/Count (ft)	Water Main Diameter (inches)	Planning-Level Construction Cost Estimate
---	The Villages Service Meters/Lines	151	---	$120,000
---	Replacement 2-inch Piping	525	2	$74,000
---	Replacement 4-inch Piping	625	4	$110,000
---	Replacement 6-inch Piping	960	6	$187,000
---	Replacement 8-inch Piping	2,290	8	$468,000
The Villages Construction Cost Estimate Subtotal				**$655,000**
Contingency (20 percent)				$131,000
Washington State Sales Tax (8.8 percent)				$70,000
The Villages Construction Cost Estimate Total				**$856,000**
Indirect Costs (30 percent)				$257,000
The Villages Construction Cost Estimate Project Cost Total				**$1,113,000**

SECTION 8: FINANCIAL AND RATE IMPACT

Financial Impact

District Consolidation Connection Costs

The Districts' Phase 1 and Phase 2 consolidation improvements identified in **Tables 19** and **20**, and the Villages improvements identified in **Table 21**, are recommended to be the minimum improvements completed if consolidation takes place. The combined planning-level cost of these improvements, including the construction cost estimates, contingency, Washington state sales tax, and indirect costs, are shown in **Table 22**.

Table 22
Consolidation Connection Project Costs

Description	Planning-Level Cost Estimate
Districts' Phase 1 Improvements	$621,000
Districts' Phase 2 Improvements	$2,671,000
Districts' Project Cost Total	**$3,292,000**
The Villages Project Cost Total	**$1,113,000**

Consolidation Funding

Table 23 presents the Districts and Villages consolidation connection costs with four funding alternatives: a 20-year municipal bond with 4.00 percent interest and 1 percent issuance costs, a 20-year standard loan with 4.50 percent interest and a 1 percent issuance cost, and two DWSRF consolidation loan options with no loan forgiveness and 50 percent loan forgiveness, each with 1 percent issuance costs and 2.25 percent interest. DWSRF loan forgiveness is not guaranteed, and the 50 percent value presented herein represents the maximum percentage that may be available. For this reason, two DWSRF consolidation loan columns are shown in **Table 23**, one with no loan forgiveness and one with 50 percent loan forgiveness. For the Villages consolidation, DWSRF funding may not be available because the Villages system is not a Group A or Group B water system. DWSRF funding information for the Villages is shown in **Table 23** for reference, but may not be viable.

Table 23
Funding Cost Estimates

Description	Municipal Bond	Standard Loan	DWSRF Consolidation Loan: No Forgiveness	DWSRF Consolidation Loan: 50% Forgiveness
Districts				
Project Cost Total	$3,292,000	$3,292,000	$3,292,000	$3,292,000
Project Cost After Forgiveness	$3,292,000	$3,292,000	$3,292,000	$1,646,000
Term (years)	20	20	20	20
Compounding Periods Per Year	2	1	1	1
Issuance Cost Rate	1%	1%	1%	1%
Interest Rate	4.00%	4.50%	2.25%	2.25%
Total Paid	**$4,893,069**	**$5,112,141**	**$4,165,597**	**$2,082,799**
The Villages				
Project Cost Total	$1,113,000	$1,113,000	$1,113,000	$1,113,000
Project Cost After Forgiveness	$1,113,000	$1,113,000	$1,113,000	$556,500
Term (years)	20	20	20	20
Compounding Periods Per Year	2	1	1	1
Issuance Cost Rate	1%	1%	1%	1%
Interest Rate	4.00%	4.50%	2.25%	2.25%
Total Paid	**$1,654,309**	**$1,728,376**	**$1,408,357**	**$704,178**

Rate Impact

Water rates presented in this section are based on 2025 rates for the water systems. The current monthly base charge for residential customers ranges between approximately $47 and $60 for customers in the three Districts, inclusive of an allowance for annual water use that has been presented on a daily average basis in **Table 24**. Based on an average daily demand of 500 gpd per residential customer, which is approximately consistent with the average daily demand of customers in each district, the average monthly water bill based on the City's 2025 rates is approximately $71. This represents a 17 to 48 percent increase to current District residential customers, depending on which district a customer is currently served by.

Table 24
Average 2025 Water Rates

Owner	Monthly Base	Additional Consumption Fee	Monthly Total	Daily Consumption Allowance (gallons per day)	Additional Consumption Rate
Existing Average Rates (District Rates)					
District 9	$47.92	$0.00	**$47.92**	492	$1.15+ per additional 100 CF
District 12	$60.42	$0.00	**$60.42**	507	$4.25 per additional 1,000 gallons per year
District 14	$48.33	$0.00	**$48.33**	548	$1.70 per additional 1,000 gallons per year
Future Average Rates (City Rate)					
City	$44.05	$27.15	**$71.20**	500	$1.81 per 1,000 gallons per month

Based on the Districts' 2025 water rates and recent annual consumption volumes, the combined annual rate revenue received by the Districts' is estimated to be $481,430, as shown in **Table 25**. Based on similar consumption patterns and the City's 2025 water rates, the annual rate revenue is estimated to be $695,481, also shown in **Table 25**. The resulting annual difference between the Districts' 2025 rates and the City's 2025 rates is more than $214,000, as shown in **Table 25**. The City has indicated that a three-year rate transition may be permissible in order for current District customers to gradually transition to the City's rate schedule. If approved by the City, the net revenue received by the City if a three-year rate transition is used is approximately $321,000 less than if the City's 2025 rates were to be used, as shown in **Table 26**.

Table 25
Annual 2025 Water Rate Comparison

Description	Monthly Total per Connection	Annual Total per Connection	Number of Connections	Annual Rate Revenue
Existing Average Rates (District Rates)				
District 9	$47.92	$575.00	110	$63,250.00
District 12	$60.42	$725.00	68	$49,300.00
District 14	$48.33	$580.00	636	$368,880.00
Total	**---**	**---**	**814**	**$481,430.00**
Future Average Rates (City Rate)				
City	**$71.20**	**$854.40**	**814**	**$695,481.60**
Annual Difference				
Difference	**---**	**---**	**---**	**$214,051.60**

Table 26
Three-Year Rate Transition Revenue Comparison

	Three-Year Annual Rate Revenue		City Annual Rate Revenue	
Description	Transition Rate	Cumulative Revenue	2025 Rate	Cumulative Revenue
Year 1	$534,942.90	$534,942.90	$695,481.60	$695,481.60
Year 2	$588,455.80	$1,123,398.70	$695,481.60	$1,390,963.20
Year 3	$641,968.70	$1,765,367.40	$695,481.60	$2,086,444.80
Year 4	$695,481.60	$2,460,849.00	$695,481.60	$2,781,926.40
Difference	**---**	**---**	**---**	**$321,077.40**