AGENDA
BENTON COUNTY PUBLIC UTILITY DISTRICT NO. 1
REGULAR COMMISSION MEETING

Tuesday, September 24, 2024, 9:00 AM
2721 West 10th Avenue, Kennewick, WA

The meeting is also available via MS Teams
The conference call line (audio only) is:
1-323-553-2644; Conference ID: 730 736 298#

1. **Call to Order**
2. **Pledge of Allegiance**
3. **Agenda Review**

4. **Public Comment**

(Individuals desiring to provide public comment during the meeting on items relating to District business, whether in person or remotely will be recognized by the Commission President and provided an opportunity to speak. Comments are limited to five minutes. Public Comment can also be sent to the Clerk of the Board in advance of the meeting at commission@bentonpud.org. Guidelines for Public Participation can be found on the Benton PUD District website at https://www.bentonpud.org/About/Commission/Meeting-Agendas-Minutes.)

5. **Approval of Consent Agenda**

(All matters listed within the Consent Agenda have been distributed to each member of the Commission for reading and study, are considered routine, and will be enacted by one motion of the Commission with no separate discussion. If separate discussion is desired by any member of the Commission, that item will be removed from the Consent Agenda and placed on the Regular Agenda by request.)

Executive Administration/Finance

a. Minutes of Regular Commission Meeting of September 10, 2024 pg. 2
b. Travel Report dated September 24, 2024 pg. 5
c. Vouchers dated September 24, 2024 pg. 6

6. **Management Report**

7. **Business Agenda**

a. 2025-2029 Five Year Plan of Service – Resolution No. 2682 – Dax Berven pg. 22

8. **Other Business**
9. **Future Planning**
10. **Meeting Reports**
11. **Executive Session**
12. **Adjournment**

(To request an accommodation to attend a commission meeting due to a disability, contact dunlapk@bentonpud.org or call (509) 582-1270, and the District will make every effort to reasonably accommodate identified needs.)

MINUTES

PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY
REGULAR COMMISSION MEETING

Date: September 10, 2024
Time: 9:00 a.m.
Place: 2721 West 10th Avenue, Kennewick, Washington

Present: Commissioner Barry Bush, President
Commissioner Jeff Hall, Vice-President
Senior Director of Finance & Executive Administration Jon Meyer
Assistant General Manager/Sr. Director Engineering & Operations Steve Hunter
Director of Power Management Chris Johnson
Director of IT & Broadband Services Chris Folta
Director of Customer Services/Treasury Operations Keith Mercer
Records Program Administrator II Nykki Drake
Supv. Of Executive Administration/Clerk of the Board Cami McKenzie
General Counsel Allyson Dahlhauser

Absent: Commissioner Lori Sanders (Excused)
General Manager Rick Dunn (Excused)

Benton PUD employees present during all or a portion of the meeting, either in person or virtually:
Supervisor of Distribution Design Michelle Ness; Manager of Procurement Michelle Ochweri; Manager of Customer Service, Jenny Sparks; Manager of Customer Service Annette Cobb; Manager of Communication & Government Relations Jodi Henderson; Manager of Human Resources, Karen Dunlap; Superintendent of Transportation & Distribution Robert Inman; Superintendent of Operations, Duane Szendre; Procurement Specialist I Tyson Brown; Manager of Accounting Kent Zirker; Communications Specialist II Eric Dahl.

Call to Order

The meeting was called to order at 9:00 a.m.

Pledge of Allegiance

The Commission and those present recited the Pledge of Allegiance.

Agenda Review

No changes.

Public Comment

None.

Treasurer's Report

Director of Customer Services/Treasury Operations Keith Mercer reviewed the August 2024 Treasurer's Report with the Commission as finalized on September 4, 2024.

Consent Agenda

MOTION: Commissioner Hall moved to approve the Consent Agenda items "a" through "i". Commissioner Bush seconded and upon vote, the Commission unanimously approved the following:

a. Minutes of Regular Commission Meeting of August 27, 2024
b. Travel Report dated September 10, 2024
c. Vouchers (report dated September 10, 2024) audited and certified by the auditing officer as required by RCW 42.24.080, and those expense reimbursement claims certified as required by RCW 42.24.090, have been recorded on a listing made available to the Commission and approved as follows for payment:
   Accounts Payable: Automated Clearing House (DD) Payments: 104516-104750 in the amount of $1,849,329.43.
   Checks & Customer Refund Payments (CHK): 88400-88527 in the amount of $161,304.78;
   Electronic Fund Transfer (WIRE) Payments: 7046-7060 in the amount of $2,989,875.99;
   Residential Conservation Rebates: Credits on Customer Accounts in the amount $530.00;
   Payroll: Direct Deposit – 8/29/2024: 104565-104722 in the amount of $480,165.32;
   Voided checks (August 2024) in the amount of $76.31;
   Grand total - $5,481,205.52
d. Work Order 633531 – Prosser Bay #2 Regulator Replacement
e. Interlocal Agreement – City of Kennewick -Contract #24-21-18 - Deschutes & Columbia Center Blvd. Project P2010
f. Identity Theft Protection and Prevention Program-FACTA Annual Update

Management Report

Customer Service/Treasury:
Director Keith Mercer reported on the following:

1. $200 Bill credit update – As of this morning 10,532 bill credits have been issued and the funds have been depleted from Commerce. We had over 12,000 applications for the bill credit. Two articles related to the $200 bill credits were shared with the Commission.

Finance/Executive Administration:
Senior Director Jon Meyer reported on the following:

1. Community Forums – The District is planning to hold Community Forums in October. Tentative dates were discussed, and staff will bring back firm dates at a future Commission meeting.

Business Agenda

None.

Adjournment

Hearing no objection, President Bush adjourned the meeting at 9:09 a.m.

_____
Barry Bush, President

ATTEST:

_____
Lori Kays-Sanders, Secretary

Periodic Travel Report - September 24, 2024

Date Start	*Business Days*	*Name*	*City*	*Purpose*
9/30/2024	5	Amber Melling	Las Vegas, NV	NEOGOV CONFERENCE 2024
9/30/2024	5	Karen Dunlap	Las Vegas, NV	NEOGOV CONFERENCE 2024
10/1/2024	4	Rick Dunn	Vancouver, WA; Great Falls, MT	PNWA ANNUAL CONVENTION/MONTANA ELECTRIC COOPERATIVES - SPEAKING ENGAGEMENTS
10/12/2024	6	Christopher Kuperstein	Atlanta, GA	XYLEM REACH 2024
10/13/2024	5	Eric Dahl	Miami Beach, FL	ADOBE MAX 2024 CONFERENCE
10/14/2024	4	Scott Caldwell	Chicago, IL	UTILITY ANALYTICS INSTITUTE UAI CONFERENCE 2024
10/14/2024	4	Brandy Sawyer	Chicago, IL	UTILITY ANALYTICS INSTITUTE UAI CONFERENCE 2024
11/4/2024	4	Karen Dunlap	Orlando, FL	RP3 REVIEW PANEL MEETING

PAYMENT APPROVAL
September 24, 2024

The vouchers presented on this Payment Approval Report for approval by the Board of Commissioners have been audited and certified by the auditing officer as required by RCW 42.24.080, and those expense reimbursement claims by officers and employees have been certified as required by RCW 42.24.090.

Type of Payment	Starting #		Ending #	Page #	Amount
Accounts Payable:					
Automated Clearing House (DD) Payments	104751 104939	- -	104778 104971	1 - 4 4 - 7	$ 1,236,038.99
Checks & Customer Refund Payments (CHK)	88528	- -	88599	8 - 12	$ 726,103.76
Electronic Fund Transfer (WIRE) Payments	7062	-	7074	13 - 14	$ 11,173,061.03
Residential Conservation Rebates:					
Credits on Customer Accounts				15	$ 160.00
Purchase Card Detail:					
Payroll:					
Direct Deposit - 9/12/2024	104779	- -	104938		$ 441,789.29
TOTAL					**$ 13,577,153.07**
Void DD					$ -
Void Checks	August 2024			1	$ 45,353.90
Void Wires					$ -

I, the undersigned Auditor of Public Utility District No. 1 of Benton County, do hereby certify under penalty of perjury that the materials have been furnished, the services rendered, or the labor performed as described, or that any advance payment is due and payable pursuant to a contract or is available as an option for full or partial fulfillment of a contractual obligation, and that the claims identified in this report are just, due and unpaid obligations against the District and that I am authorized to authenticate and certify to said claims.

Jon Meyer 9/12/2024

Jon L. Meyer, Auditor *Date*

Reviewed by:

Rick Dunn, General Manager

Approved by:

Barry A. Bush, President

Jeffrey D. Hall, Vice-President

Lori Kays-Sanders, Secretary

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount	
104747	8/28/24	DD	10915	SEECO	115KV Load Break, VBSA, unitized switch		45,353.90	VOID
104751	9/4/24	DD	10864	ALAMON, INC.	Pole Inspection		1,194.49	
					Pole Inspection		2,954.42	
					Pole Inspection		1,654.18	
					Pole Inspection		915.50	
					Pole Inspection		1,883.40	
						Total for Check/Tran - 104751:	8,601.99	
104752	9/4/24	DD	963	ANIXTER INC.	SmartRack Slim Wall-Mount Rack Enclosure		734.81	
					Muletape		1,501.04	
					Conn elbow,1/0 LB,175mil,15 KV		628.72	
					SMU 20 fuse unit AMP 1		2,612.06	
					SMU 20 fuse unit AMP 125E		5,224.12	
					SMU 20 fuse unit AMP 20E		1,959.05	
					INSUL FG STRAIN 8 FT		7,374.21	
						Total for Check/Tran - 104752:	20,034.01	
104753	9/4/24	DD	10837	CAMPBELL & COMPANY SERVICE COR	REEP		1,200.00	
					REEP		200.00	
					REEP		200.00	
					REEP		200.00	
						Total for Check/Tran - 104753:	1,800.00	
104754	9/4/24	DD	460	CDW GOVERNMENT,LLC	9PXMFAK		478.28	
					9PXM12S16K		52,176.00	
					9PXM12S8K		10,870.00	
						Total for Check/Tran - 104754:	63,524.28	
104755	9/4/24	DD	10857	D&R INSULATION, LLC	REEP		3,240.00	
					REEP		6,368.00	
						Total for Check/Tran - 104755:	9,608.00	
104756	9/4/24	DD	375	DAYCO HEATING & AIR	REEP		1,200.00	

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
104757	9/4/24	DD	11028	DELINEA INC.	Software Support/Maintenance		2,610.68
104758	9/4/24	DD	10961	ENERGY PRO INSULATION, INC.	REEP		3,008.00
104759	9/4/24	DD	11000	FORTRA, LLC	Security Awareness Library -Subscription		1,797.63
104760	9/4/24	DD	10056	HUMINSKYS HEATING & COOLING, LL	REEP		9,000.00
104761	9/4/24	DD	10660	IRBY ELECTRICAL UTILITIES	Thermal Camera FLIR TG165-X		456.54
104762	9/4/24	DD	214	JACOBS & RHODES	REEP		1,000.00
104763	9/4/24	DD	10175	K&L GATES, LLP	Professional Svc		351.16
104764	9/4/24	DD	10565	NEOGOV	Software Subscription		-16.95
					Software Subscription		9,215.60
					Software Subscription		-4.16
					Software Subscription		2,262.96
						Total for Check/Tran - 104764:	11,457.45
104765	9/4/24	DD	3539	NEWGEN STRATEGIES AND SOLUTION	EIL Rate Development		2,020.00
104766	9/4/24	DD	919	NOANET	H2F2 Build		750.00
					Prior Build		250.00
					TGB Sensus Whitcomb		250.00
						Total for Check/Tran - 104766:	1,250.00
104767	9/4/24	DD	11091	OUTPOST24, INC	Specops Password Protection Subscription		2,853.51
104768	9/4/24	DD	2176	PACIFIC OFFICE AUTOMATION, INC.	Monthly Billing		472.67
					Monthly Billing		36.98
						Total for Check/Tran - 104768:	509.65
104769	9/4/24	DD	10095	PASCO TIRE FACTORY, INC.	Tires		719.47
					Tire Disposal		113.80
						Total for Check/Tran - 104769:	833.27
104770	9/4/24	DD	10936	MICHAEL J PRAEST	Spaw/Phillips Lay Down Yard Lease		500.00

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
104771	9/4/24	DD	10915	SEECO	115KV Load Break, VBSA, unitized switch		45,353.90
104772	9/4/24	DD	11022	SOLUFIX HEATING & COOLING, LLC	REEP		9,000.00
					REEP		9,000.00
					REEP		9,000.00
						Total for Check/Tran - 104772:	27,000.00
104773	9/4/24	DD	2057	THE PRINT GUYS LLC	Newsletter/Postage		1,760.69
104774	9/4/24	DD	3589	TOTAL QUALITY AIR, LLC	REEP		9,000.00
104775	9/4/24	DD	1163	TYNDALE ENTERPRISES, INC.	Clothing-Rabben		264.51
					Clothing- Rabben		163.75
						Total for Check/Tran - 104775:	428.26
104776	9/4/24	DD	3098	US BANK CORPORATE PAYMENT SYST	Executive		11,480.41
					Finance & Business Services		1,530.81
					Customer Service		521.07
					Contracts & Purchasing		4,273.86
					Engineering		3,520.10
					IT Infrastructure		3,956.67
					Operations - Line Department		244.35
					Operations		4,085.22
					Operations - Meter Shop		3,457.53
					Operations - Transformer Shop		3,048.58
					Operations - Support Svcs		1,427.25
					Operations - Maintenance		10,508.01
					Operations - (Support Svcs. Fleet)		22,695.42
					Operations - Warehouse		18,924.25
					Power Management		1,956.46
					Travel Card		1,691.11
						Total for Check/Tran - 104776:	93,321.10
104777	9/4/24	DD	11062	VESTIS SERVICES, LLC	Weekly Svc		35.76

Accounts Payable Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
					Weekly Svc		38.10
					Weekly Svc		26.39
					Weekly Svc		23.42
					Weekly Svc		18.39
						Total for Check/Tran - 104777:	142.06
104778	9/4/24	DD	205	WASHINGTON STATE AUDITOR'S OFFI	Energy Compliance Attestation		148.59
					Energy Compliance Attestation		445.77
						Total for Check/Tran - 104778:	594.36
104939	9/11/24	DD	963	ANIXTER INC.	Fuse T-Type, Kearney #51008		318.49
					FIBER, DIELECTRIC SUPPORT, 0.5		1,576.58
						Total for Check/Tran - 104939:	1,895.07
104940	9/11/24	DD	34	BENTON PUD-ADVANCE TRAVEL	Western Energy Institute/NW Meter School		245.89
					Witness Testing		126.85
						Total for Check/Tran - 104940:	372.74
104941	9/11/24	DD	246	BONNEVILLE POWER ADMIN	Purchased Power		205.98
104942	9/11/24	DD	2680	CO-ENERGY	Fuel Svc		2,112.08
104943	9/11/24	DD	3820	COLEMAN OIL COMPANY, LLC	Fuel Svc		21,849.22
104944	9/11/24	DD	2972	COMPUNET, INC.	Cisco IR1101 Routers		15,225.76
104945	9/11/24	DD	3439	DJ'S ELECTRICAL, INC.	Spaw/Phillips Transmission		108,938.03
					Spaw/Phillips Transmission		50,584.86
						Total for Check/Tran - 104945:	159,522.89
104946	9/11/24	DD	11063	FULCRUM ELECTRIC, LLC	Diesel Generator/Materials/Install		22,827.00
104947	9/11/24	DD	79	GENERAL PACIFIC, INC.	Guy Markers, with V Clamp		1,682.68
104948	9/11/24	DD	11048	GLOBAL SAFETY NETWORK	Background Screening Svc		758.20
104949	9/11/24	DD	3171	JODI A HENDERSON	United Way Campaign		12.35

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
104950	9/11/24	DD	724	HERITAGE PROFESSIONAL LANDSCAP	Landscaping Svc		1,771.11
					Landscaping Svc		274.54
					Landscaping Svc		305.92
					Landscaping Svc		373.06
					Landscaping Svc		1,130.33
					Landscaping Svc		331.40
					Landscaping Svc		973.22
					Landscaping Svc		411.50
						Total for Check/Tran - 104950:	5,571.08
104951	9/11/24	DD	3018	HRA VEBA TRUST	ER VEBA CDHP		1,416.70
					ER VEBA		11,250.00
					ER VEBA Wellness		24,000.00
						Total for Check/Tran - 104951:	36,666.70
104952	9/11/24	DD	1818	IBEW LOCAL 77	IBEW A Dues Assessment		5,197.19
					IBEW BA Dues Assessment		5,435.65
						Total for Check/Tran - 104952:	10,632.84
104953	9/11/24	DD	214	JACOBS & RHODES	REEP		200.00
104954	9/11/24	DD	103	KENNEWICK, CITY OF	Monthly Billing		648.20
					Occupation Tax		525,340.07
						Total for Check/Tran - 104954:	525,988.27
104955	9/11/24	DD	11069	LINGUALINX, INC.	Translation Svc		81.90
104956	9/11/24	DD	10162	LINGUISTICA INTERNATIONAL, INC.	Interpreting Svc		106.09
104957	9/11/24	DD	10897	ROSA D MITCHELL	Witness Testing		34.57
104958	9/11/24	DD	950	MSA VEBA TRUST	VEBA PL Cash Out		52,747.28
104959	9/11/24	DD	11074	NOBLE HVAC SERVICES, LLC	REEP		9,000.00
104960	9/11/24	DD	10207	ONE DIVERSIFIED, LLC	Software Renewal		3,284.86

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
104961	9/11/24	DD	10769	ONEBRIDGE BENEFITS INC.	Flex Spending Dependent Care		192.31
					Flex Spending Health Care		2,675.55
						Total for Check/Tran - 104961:	2,867.86
104962	9/11/24	DD	2176	PACIFIC OFFICE AUTOMATION, INC.	Monthly Billing		7.69
104963	9/11/24	DD	1241	PARAMOUNT COMMUNICATIONS, INC.	Paterson to Carma		709.50
					Paterson to Carma		5,113.95
					Paterson to Carma		638.40
					Paterson to Carma		3,297.22
					360 Automotive		282.62
					20 - Off-the-Dock Labor		5,494.34
						Total for Check/Tran - 104963:	15,536.03
104964	9/11/24	DD	10718	PUBLIC UTILITY DIST PEND ORIELLE	CWPU UIP Expense		1,456.89
104965	9/11/24	DD	11033	RINGCENTRAL, INC.	Software Support/maintenance		3,784.65
					Subscriptions		4,844.69
						Total for Check/Tran - 104965:	8,629.34
104966	9/11/24	DD	10943	SEALX, LLC	Janitorial Svc		4,511.31
					Janitorial Svc		2,728.85
					Janitorial Svc		1,722.86
						Total for Check/Tran - 104966:	8,963.02
104967	9/11/24	DD	1163	TYNDALE ENTERPRISES, INC.	Clothing-Faircloth		433.72
104968	9/11/24	DD	1048	UNITED WAY OF BENTON & FRANKLI	EE United Way Contribution		354.73
104969	9/11/24	DD	11062	VESTIS SERVICES, LLC	Weekly Svc		35.76
					Weekly Svc		38.10
					Weekly Svc		26.39
					Weekly Svc		23.42
					Weekly Svc		18.39
						Total for Check/Tran - 104969:	142.06

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
104970	9/11/24	DD	10887	VITAL RECORDS HOLDINGS, LLC	Stoarge Fee		115.85
					Storage Fee		115.85
					Storage Fee		121.85
						Total for Check/Tran - 104970:	353.55
104971	9/11/24	DD	4235	WATER STREET PUBLIC AFFAIRS, LLC	Lobbying Svc		6,500.00

Total Payments for Bank Account - 1 :	(61)	1,236,038.99
Total Voids for Bank Account - 1 :	(1)	45,353.90
Total for Bank Account - 1 :	(62)	1,281,392.89

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 2 - BPUD Accounts Payable Warrants

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
88528	9/4/24	CHK	11092	AFCOMM LLC	Commercial Energy Efficiency Prg		2,160.00
88529	9/4/24	CHK	2425	AT&T MOBILITY, LLC	Monthly Billing		5.44
88530	9/4/24	CHK	259	BENTON FRANKLIN COMMUNITY ACT	Helping Hands		2,655.22
					REEP		7,500.00
					REEP		7,500.00
					REEP		7,500.00
					REEP		7,500.00
					REEP		9,000.00
						Total for Check/Tran - 88530:	41,655.22
88531	9/4/24	CHK	54	BNSF RAILWAY COMPANY	Permit		100.00
					Permit		700.00
						Total for Check/Tran - 88531:	800.00
88532	9/4/24	CHK	3344	BOYD'S TREE SERVICE, LLC	Tree Trimming Svc		6,673.84
88533	9/4/24	CHK	10988	HAMPTON INN KENNEWICK AT SOUT	Commercial Eneergy Efficiency Prg		1,200.00
88534	9/4/24	CHK	962	PACIFIC POWER	Monthly Billing		655.66
88535	9/4/24	CHK	128	PERFECTION GLASS, INC.	REEP		198.00
					REEP		342.00
					REEP		996.00
					REEP		108.00
					REEP		372.00
					REEP		84.00
						Total for Check/Tran - 88535:	2,100.00
88536	9/4/24	CHK	10671	PRINCIPAL BANK	Investment Safekeeping Svc		1,000.00
88537	9/4/24	CHK	4244	RENEWAL BY ANDERSEN OF WASHIN	REEP		720.00
88538	9/4/24	CHK	2997	ROBERTS CONSTRUCTION	REEP		7,650.00
88539	9/4/24	CHK	10989	SURESTAY KENNEWICK TRI CITIES CT	Commercial Energy Efficiency Prg		1,800.00

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 2 - BPUD Accounts Payable Warrants

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
88540	9/4/24	CHK	1207	SWS EQUIPMENT	Truck		573,100.06
88541	9/4/24	CHK	992	VERIZON NORTHWEST	Monthly Billing		198.18
					Monthly Billing		226.95
					Monthly Billing		356.93
					Monthly Billing		360.09
					Monthly Billing		116.94
					Monthly Billing		319.38
					Monthly Billing		233.36
						Total for Check/Tran - 88541:	1,811.83
88542	9/4/24	CHK	172	WASH STATE DEPT TRANSPORTATION	Prior Fiber		3,431.49
					Spaw Phillips		46.23
						Total for Check/Tran - 88542:	3,477.72
88543	9/4/24	CHK	99999	OLIVER BROWN	Credit Balance Refund		10.52
88544	9/4/24	CHK	99999	LONI COMBS	Credit Balance Refund		91.53
88545	9/4/24	CHK	99999	MARTIN DEGANTE	Credit Balance Refund		61.02
88546	9/4/24	CHK	99999	WILLY FLORES	Credit Balance Refund		238.14
88547	9/4/24	CHK	99999	ISABEL GILBERT	Credit Balance Refund		270.05
88548	9/4/24	CHK	99999	MICHELLE GONZALEZ HERNANDE	Credit Balance Refund		221.38
88549	9/4/24	CHK	99999	FRANCISCO GUTIERREZ	Credit Balance Refund		18.38
88550	9/4/24	CHK	99999	CARLA HERNANDEZ	Credit Balance Refund		48.99
88551	9/4/24	CHK	99999	JASON V LARSON	Credit Balance Refund		14.00
88552	9/4/24	CHK	99999	MARIA MENDOZA VALDOVINOS	Credit Balance Refund		173.70
88553	9/4/24	CHK	99999	MCINTOSH HEALTH SOLUTIONS LLC	Credit Balance Refund		90.26
88554	9/4/24	CHK	99999	LISIS MIRANDA	Credit Balance Refund		380.48

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 2 - BPUD Accounts Payable Warrants

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
88555	9/4/24	CHK	99999	EMMANUEL MOJICA	Credit Balance Refund	178.75
88556	9/4/24	CHK	99999	DAVID NAJERA	Credit Balance Refund	262.80
88557	9/4/24	CHK	99999	RON NEWHOUSE	Credit Balance Refund	122.82
88558	9/4/24	CHK	99999	CARINA OFRANCIA	Credit Balance Refund	461.03
88559	9/4/24	CHK	99999	ANDRES R RODRIGUEZ	Credit Balance Refund	10.21
88560	9/4/24	CHK	99999	RODNEY ROSEBORO	Credit Balance Refund	587.85
88561	9/4/24	CHK	99999	JOSE SILVA	Credit Balance Refund	120.70
88562	9/4/24	CHK	99999	MADISON TUCK	Credit Balance Refund	88.37
88563	9/4/24	CHK	99999	ELVIRA VALENCIA	Credit Balance Refund	269.24
88564	9/4/24	CHK	99999	DAVID D YOUNG	Credit Balance Refund	129.00
88565	9/4/24	CHK	99999	MATTHEW A ZUIDEMA	Credit Balance Refund	150.86
88566	9/11/24	CHK	32	CITY OF BENTON CITY	Occupation Tax	12,192.16
88567	9/11/24	CHK	2831	CORRECTIONAL INDUSTRIES	Office Furniture	482.63
88568	9/11/24	CHK	243	FEDERAL EXPRESS CORP	Mailing Svc	419.47
88569	9/11/24	CHK	1970	FITCH, RATINGS, INC.	Annual Surveillance Fee	7,500.00
88570	9/11/24	CHK	3478	FP MAILING SOLUTIONS	Postage Meter Deposit - 9	1,000.00
88571	9/11/24	CHK	135	PROSSER, CITY OF	Monthly Billing	1.34
					Monthly Billing	12.50
					Monthly Billing	1,644.03
					Monthly Billing	1,091.13
					Occupation Tax	41,683.87
					Total for Check/Tran - 88571:	44,432.87

Accounts Payable Check Register

08/30/2024 To 09/12/2024

Bank Account: 2 - BPUD Accounts Payable Warrants

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
88572	9/11/24	CHK	141	RICHLAND, CITY OF	Occupation Tax		232.90
88573	9/11/24	CHK	3961	SIERRA ELECTRIC, INC.	Meter Repair/Replace		441.60
					Meter Repair/Replace		204.76
					Meter repair/replace		243.69
					Meter Repair/Replace		361.09
					Meter Repair Replace		243.69
					Meter Repair/Replace		204.76
						Total for Check/Tran - 88573:	1,699.59
88574	9/11/24	CHK	193	UNITED PARCEL SERVICE OF AMERIC	Mailing Svc		35.53
88575	9/11/24	CHK	992	VERIZON NORTHWEST	Monthly Billing		2,903.70
88576	9/11/24	CHK	99999	GREGORY A ASHBY	Credit Balance Refund		1,300.00
88577	9/11/24	CHK	99999	ASPHALT ASSAULT SKATEBOARD SH	Credit Balance Refund		134.50
88578	9/11/24	CHK	99999	JENNIFER L AYALA	Credit Balance Refund		600.00
88579	9/11/24	CHK	99999	JOAN R BAILEY	Credit Balance Refund		500.00
88580	9/11/24	CHK	99999	VICKI BRADY	Credit Balance Refund		60.91
88581	9/11/24	CHK	99999	MONTESSA CALIFANO	Credit Balance Refund		153.11
88582	9/11/24	CHK	99999	JONAH DAITE	Credit Balance Refund		706.95
88583	9/11/24	CHK	99999	ANNE R DENO	Credit Balance Refund		150.00
88584	9/11/24	CHK	99999	REBECCA EVENSEN	Credit Balance Refund		48.74
88585	9/11/24	CHK	99999	GUILLERMO FRAGA	Credit Balance Refund		200.00
88586	9/11/24	CHK	99999	THEODORE J FREEMIRE	Credit Balance Refund		100.00
88587	9/11/24	CHK	99999	RENEE I FULFER	Credit Balance Refund		200.00
88588	9/11/24	CHK	99999	IRENE GONZALES	Credit Balance Refund		125.00

Accounts Payable
Check Register

08/30/2024 To 09/12/2024

Bank Account: 2 - BPUD Accounts Payable Warrants

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference	Amount
88589	9/11/24	CHK	99999	MARTIN L HARADON	Credit Balance Refund	700.00
88590	9/11/24	CHK	99999	KELLEE D HART	Credit Balance Refund	159.86
88591	9/11/24	CHK	99999	JANELL M JOHNSON	Credit Balance Refund	125.00
88592	9/11/24	CHK	99999	MARK LATTIMER	District Claim	519.67
88593	9/11/24	CHK	99999	CHEYENNE MARSHALL	Credit Balance Refund	14.46
88594	9/11/24	CHK	99999	BORIS MATTHEWS	Credit Balance Refund	113.39
88595	9/11/24	CHK	99999	HENRY L MONKE	Credit Balance Refund	13.03
88596	9/11/24	CHK	99999	ALBERTO NAVARRO	Credit Balance Refund	11.03
88597	9/11/24	CHK	99999	OXEPH INVESTMENTS LLC	Credit Balance Refund	67.55
88598	9/11/24	CHK	99999	PATRICK W PUNTNEY	Credit Balance Refund	250.00
88599	9/11/24	CHK	99999	PAUL SMITHBURG	Credit Balance Refund	141.86

Total Payments for Bank Account - 2 :	(72)	726,103.76
Total Voids for Bank Account - 2 :	(0)	0.00
Total for Bank Account - 2 :	(72)	726,103.76
Grand Total for Payments :	(133)	1,962,142.75
Grand Total for Voids :	(1)	45,353.90
Grand Total :	(134)	2,007,496.65

Accounts Payable
Check Register

ALL

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
7062	8/27/24	WIRE	424	WASH STATE DEPT REVENUE-EXCISE	Utility Tax		558,230.20
					Retailing & Wholesaling Tax		1,082.63
					Retail Sales Tax - Kennewick		2,362.43
					Service Tax		5,560.08
						Total for Check/Tran - 7062:	567,235.34
7063	8/29/24	WIRE	2205	UNITED STATES TREASURY	Federal Income Tax		81,397.04
					Medicare - Employee		10,791.83
					Medicare - Employer		10,692.07
					Social Security - Employee		44,445.97
					Social Security - Employer		44,445.97
						Total for Check/Tran - 7063:	191,772.88
7064	8/29/24	WIRE	171	WASH STATE DEPT RETIREMENT SYS	ER PERS		65,599.88
					PERS Plan 2		43,118.12
					PERS Plan 3A 5% All Ages		1,311.07
					PERS Plan 3B 5% Up to Age 35		128.52
					PERS Plan 3B 6% Age 35-45		138.14
					PERS Plan 3E 10% All Ages		1,404.84
					PERS Plan 3F 15% All Ages		504.68
						Total for Check/Tran - 7064:	112,205.25
7065	8/29/24	WIRE	246	BONNEVILLE POWER ADMIN	Purchased Power		10,081,407.00
7066	8/30/24	WIRE	1567	ICMA RETIREMENT CORP	457(b) Leave EE Contribution		1,724.78
					457(b) Roth EE Contribution		14,063.73
					ER Def Comp 401		20,671.31
					ER Def Comp 457		3,016.95
					Plan A 457(b) Employee Contribution		5,334.75
					Plan B 457(b) Employee Contribution		24,156.61
					Plan C 401(a) Option 1 EE Contribution		3,492.99
					Plan C 401(a) Option 2 EE Contribution		1,903.89
					Plan C 401(a) Option 3 EE Contribution		572.39

ALL

Bank Account: 1 - Benton PUD ACH/Wire

Check / Tran	Date	Pmt Type	Vendor	Vendor Name	Reference		Amount
					Plan C 401(a) Option 4, Step 2 EE Contri		1,182.10
					Plan C 401(a) Option 4, Step 3 EE Contri		1,497.85
					Plan C 401(a) Option 4, Step 4 EE Contri		1,673.08
					Plan C 401(a) Option 5, Step 4 EE Contri		1,337.32
					Plan C 457(b) Employee Contribution		6,547.24
					Total for Check/Tran - 7066:		87,174.99
7067	8/30/24	WIRE	2800	LL&P WIND ENERGY, INC.	Purchased Power		51,204.19
7068	8/30/24	WIRE	925	KLICKITAT COUNTY PUD	TX White Creek		4,028.95
7070	9/4/24	WIRE	169	ENERGY NORTHWEST	Purchased Power		43,815.92
					Fiber Lease		443.49
					Total for Check/Tran - 7070:		44,259.41
7074	9/4/24	WIRE	10084	CITI MERCHANT SERVICES	Merchant Fees		33,773.02
					Total for Bank Account - 1 :	(9)	11,173,061.03
					Grand Total :	(9)	11,173,061.03

BENTON PUD - RESIDENTIAL CONSERVATION REBATE DETAIL

Date	Customer	Rebate Amount	Rebate Description
09/03/2024	THERESA WHEATLEY	$ 30.00	Rebate - Clothes Washer
09/11/2024	NINFA A CASTILLO	$ 30.00	Rebate - Clothes Washer
09/11/2024	JANET IP LEE	$ 50.00	Rebate - Clothes Dryer
09/11/2024	NINFA A CASTILLO	$ 50.00	Rebate - Clothes Dryer

$	160.00

COMMISSION AGENDA ACTION FORM

Meeting Date:	September 24th, 2024	
Subject:	2024 Five Year Plan of Service (2025-2029)	
Authored by:	Dax Berven	Staff Preparing Item
Presenter:	Dax Berven	Staff Presenting Item (if applicable or N/A)
Approved by:	Steve Hunter	Dept. Director/Manager
Approved for Commission:	Rick Dunn 	General Manager/Asst GM

Type of Agenda Item:	**Type of Action Needed:** *(Multiple boxes can be checked, if necessary)*	
☐ Consent Agenda	☐ Pass Motion	☐ Decision / Direction
☒ Business Agenda	☒ Pass Resolution	☐ Info Only
☐ Public Hearing	☐ Contract/Change Order	☐ Info Only/Possible Action
☐ Other Business	☐ Sign Letter / Document	☒ Presentation Included

Motion for Commission Consideration:

Motion adopting Resolution No. 2682, approving the 2024 Five Year Plan of Service, 2025-2029.

Background/Summary

In accordance with Administrative Directive No. 24 "District Planning", the 2024 Five Year Plan of Service (Plan) is being presented to Commission for approval. A copy of the proposed plan will be available for review on the District's website.

The Plan supports the District's mission to provide a reliable and efficient electrical system. Completed bi-annually, the primary purpose of the Plan is to identify and prioritize system improvement projects that are required during the upcoming five year period so that the electrical system will continue to provide satisfactory service under projected peak loading during both normal and outage contingency conditions.

The Plan involves analyzing the system performance at peak loading, identifying deficiencies, planning for customer growth, and recommending projects to support the structured development of the electrical system over the next five years. From this analysis, projects are recommended to ensure compliance with system performance criteria, such as service voltage and equipment loading limits. Projects are also recommended based on specific knowledge of future development, system reliability improvements, and outage contingency improvements.

The recommended project list, including cost estimates, is the final output of the Plan and is an important input to the District's capital requirements planning.

Since the last Five Year Plan of Service was completed in 2022, the District has continued to experience significant residential customer growth, primarily in the Badger Canyon, South Thompson Hill, Southridge, and Eastern COK UGA/Finley areas.

Commercial growth has continued as well, especially in the Southridge area, which is anchored by the Trios Hospital and Medical Office Building. Projects have been recommended, especially in the first two years, to improve system performance in response to this growth and to ensure the District's distribution system is resilient and able to respond to outage contingencies. The majority of the project initiatives are focused in the following areas:

1. Upgrading aging substation facilities
2. Replacing high-voltage underground cables
3. Back up service for outage contingencies.

Recommendation

Approval of the resolution will incorporate the project recommendations for years 2025 through 2029 into the District's financial planning process.

Fiscal Impact

Forecasted Capital Budget ($K)						
Project Type	**2025**	**2026**	**2027**	**2028**	**2029**	**2025-2029 Total**
Five Year Plan Distribution	$2,201	$809	$1,623	$753	$1,312	$6,698
Substations (Equip./Controls)	$4,422	$457	$396	$372	$3,142	$8,789
Substations (SCADA)	$155	$125	$170	$185	$205	$840
Cable Replacement & Voltage Optimization	$1,500	$1,500	$1,500	$1,610	$1,500	$7,610
Five Year Plan Total	$8,278	$2,890	$3,689	$2,919	$6,160	$23,937
					2025-2028 Total	
Other Distribution Capital (Line SCADA, Line Ext., etc.)	$5,967	$4,836	$4,836	$4,836	$20,476	
Forecasted Total Distribution Capital	**$14,246**	**$7,727**	**$8,526**	**$7,756**	$38,253	

Overall system improvements identified by the 2024 Plan capital budget total $23.94 million from 2025 to 2029. This represents 46% of expected distribution capital spending over the next four years. The annual total distribution capital spending projected for 2025 is well above recent spending levels of the District which has been approximately $8.5 million per year. 2026-2029 is more in line with these historic spending levels. Supply chain restraints continue to be a significant concern for projected project material costs. The increase in 2025 is being largely driven by replacement of aging substation equipment. Remaining distribution costs are driven by upgrades to utilize system capacity more efficiently during outages contingencies in response to load growth.

The costs of recommended Plan projects will be reflected in annual Capital Requirements Plans and annual Operating Budgets presented for Commission approval.

RESOLUTION NO. 2682

September 24, 2024

A RESOLUTION OF THE COMMISSION OF
PUBLIC UTILITY DISTRICT NO. 1 OF BENTON COUNTY,
ADOPTION OF THE 2024 FIVE YEAR PLAN OF SERVICE (2025-2029)

WHEREAS, Benton PUD undertakes regular integrated planning processes to develop a capital requirements plan to accomplish the stated mission; AND

WHEREAS, The Five Year Plan of Service study identifies and prioritizes capital projects needed to ensure satisfactory electrical service to Benton PUD customers under forecasted peak electrical load conditions; AND

WHEREAS, The Five Year Plan of Service study is updated bi-annually.

NOW, THEREFORE, BE IT HEREBY RESOLVED by the Commission of Public Utility District No. 1 of Benton County, that the 2024 Five Year Plan of Service is approved.

APPROVED AND ADOPTED By the Commission of Public Utility District No. 1 of Benton County at an open meeting, with notice of such meeting given as required by law, this 24th day of September, 2024.

_____
Barry Bush, President

ATTEST:

_____
Lori Kays-Sanders, Secretary

Public Utility District No. 1 of Benton County

2024 Five Year Plan of Service

2025 through 2029

Prepared by: Evan Edwards, P.E.
Manager of System Engineering

Dax Berven, P.E.
Senior Engineer

EXPIRES 03-20-2025

Approved by:

Steve Hunter, P.E.
Senior Director of Engineering & Operations/Assistant General Manager

Commission Date: September 24, 2024

[This Page Intentionally Left blank}

[For Two Sided Printing]

Table of Contents

Executive Summary

The Five Year Plan of Service (Plan) supports the District's mission to provide a reliable and efficient electrical system. In accordance with Administrative Directive No. 24, the Plan is completed bi-annually. The primary purpose of the Plan is to identify and prioritize system improvement projects that are required during the upcoming five year period so the electrical system will continue to provide satisfactory service under projected peak loading during both normal and outage contingency conditions.

The Plan process involves analyzing the system performance at peak loading, identifying deficiencies, planning for customer growth, and recommending projects to support the structured development of the electrical system over the next five years. From this analysis, projects are recommended to ensure compliance with system performance criteria, such as service voltage and equipment loading limits. Projects are also recommended based on specific knowledge of future development, system reliability improvements and outage contingency improvements. The recommended project list, including cost estimates, is the final output of the Plan and is an important input to the District's capital requirements planning.

The majority of recommendations identified by the 2024 Plan are focused on projects to upgrade existing substation facilities, and to improve the distribution facilities on the edges of the system, in the areas of Red Mountain, Badger Canyon, and East Kennewick. The following table summarizes the annual project costs by project type.

Table 1 – Total Project Cost by Type ($K by Year)

Project Type	2025	2026	2027	2028	2029	2025-2029 Total
New/Upgraded Substations	**-**	**-**	**-**	**-**	**-**	**$2,770**
Edison Street (Kennewick)	-	-	-	-	2770	-
Power Xfmr Replacement	2220	200	-	-	-	**$2,420**
Metalclad Switchgear Rep.	1069	-	-	-	-	**$1,069**
Misc. Substation Upgrades	1288	382	566	557	577	**$3,369**
Distribution Improvements	2201	809	1623	863	1312	**$6,808**
Cable Replacement	1500	1500	1500	1500	1500	**$7,500**
Plan Total	**$8,278**	**$2,890**	**$3,689**	**$2,919**	**$6,160**	**$23,937**

Projects identified in the first two years of the plan (2025-2026) are typically required by existing loading or contingency conditions or imminent customer projects that are well along in development. Projects in the last three years (2027, 2028, and 2029) are either less certain or less critical at this time or are delayed due to logistical factors, such as needing to complete other projects first. Project timing may also be dependent on continued load growth or tentative customer projects as anticipated at this time. Faster than anticipated growth may accelerate plans for projects and slower growth may allow for deferral.

The system performance has been studied and overall system planning has been considered to develop the list of projects. The recommended projects will help ensure reliable and efficient service to our customers. Following Commission approval of the Plan, the project estimates will be incorporated into the District's financial planning process. Further detail of the substation and distribution projects is provided below.

The substation project costs are listed in further detail in Table 2 below.

Table 2 – Substation Project Costs ($K by Year)

Project Type	2025	2026	2027	2028	2029	2025-2029 Total
Power Xfmr Protection	222	-	275	250	250	$997
Metalclad Switchgear Rep.	1069	-	-	-	-	$1,069
River Station Upgrades	75	75	75	75	75	$375
New Substations	-	-	-	-	2770	$2,770
Power Xfmr Replacement	2220	200	-	-	-	$2,420
Regulator Replacement	721	-	-	-	-	$721
Misc. Equip. Upgrades	115	182	47	47	47	$436
Misc. SCADA Upgrades	155	125	170	185	205	$840
Plan Total	**$4,577**	**$582**	**$566**	**$557**	**$3,347**	**$9,629**

The primary focus for substation upgrade projects is to mitigate the risk associated with a major equipment failure. The District should continue to invest in equipment, such as circuit switchers and protective relaying to minimize the risk of power transformer failures. The installation of differential relay protection provides high speed system protection. Traditional high side fusing will open during faults, though not always fast enough to prevent internal equipment damage. The differential protection also ensures that all three phases operate, preventing single phasing of the substation unit. The Plan also provides upgrade recommendations for aging substation controls and SCADA equipment. These upgrades incorporate newer technology that allows for less required maintenance, enhanced SCADA integration, and a reduced risk of failure.

System improvements and contingency support for the Red Mountain and East Kennewick areas are a major focus of the 2024 Plan. Available capacity at Orchard View Bay 2 and Southridge Substation puts the District in good position to meet the near and medium term forecasted load growth in the Vista Field and Southridge areas as well as providing additional outage contingency support. Badger Canyon continues to become more constrained during contingency support as development continues. While the construction of Badger Canyon substation is beyond the timeline of the 2024 Plan this capacity expansion will be required in the medium to long term if growth continues. The District needs to identify and acquire property in the Badger Canyon area and move forward with an interconnection request with BPA.

The District already has property for a future substation that will be constructed to support Vista Field re-development long term. The site referred to as the Edison Street Substation has been included in an already submitted BPA transmission interconnection application. Construction is tentatively planned for 2029 but will depend on actual development of loads in Vista Field.

The District has property for a future substation (Ridgeline) that will be constructed to support the middle to western end of the Southridge/Bob Olson Pkwy. area and the Christenson Rd UGA area. Construction is currently planned beyond the timeline of the 2024 Plan but this may accelerate if a commercial “anchor tenant” begins development.

The Plan also may contain projects targeted for the large agricultural irrigation substations ("River Stations") in the southern portion of the county. These substations and circuits were not specifically studied as part of this Plan, instead they were developed as a result of the 2023 Benton PUD Transmission System Study. The projects are listed in the Plan to provide a complete picture of all substation projects. These upgrades include connecting the river stations to the fiber network.

The Plan recommends the completion of certain distribution system projects which are summarized in Table 3 below.

Table 3 – Distribution Project Costs ($K by Year)

Project Type	2025	2026	2027	2028	2029	2025-2029 Total
Kennewick West	797	809	305	-	161	$2,072
Kennewick East	347	-	515	280	822	$1,963
Benton City & Prosser	1058	-	804	473	329	$2,663
Voltage Optimization	-	-	-	110	-	$110
Cable Replacement	1500	1500	1500	1500	1500	$7,500
Plan Total	**$3,701**	**$2,309**	**$3,123**	**$2,363**	**$2,812**	**$14,308**

Since the last Plan was completed in 2022, the District has continued to see residential growth, primarily in areas such as Badger Canyon, Hansen Park, Southridge, Vista Field, and the eastern COK UGA/Finley area. Commercial growth has continued as well, especially in the Southridge area, which is anchored by Trios Hospital campus. Projects have been recommended, especially in the first two years, to improve system performance in response to this growth and to ensure continued reliability throughout the system. The majority of the distribution projects are related to improving outage contingency support and feeder planning. Projects have been recommended to improve outage support in the Red Mountain, East Kennewick, and West Kennewick areas. The projects are designed to maximize the District’s investments in Benton City, Phillips Substation Bay 4, Sunset Road, and Zephyr Heights Substations by constructing new feeders, reconductoring tie lines, and adding additional line switches.

Voltage optimization (VO) is ongoing for the 2024 Plan. VO is a type of distribution system energy efficiency project that qualifies as a conservation measure under the Washington State Energy Independence Act (Initiative I-937) and is also being promoted by the Bonneville Power Administration. VO projects include upgrades to the District's distribution system in conjunction with optimizing the operating voltage of main feeder circuits depending on the current loading level. By optimizing voltages, the minimum amount of electrical energy is consumed while still meeting industry standards for minimum voltages. Construction for the District's first project was completed in 2024 with re-phasing, service drop cleanup efforts, and the installation of switchable capacitor banks. The capacitor banks are currently in operation and the District is in the measurement and verification phase that is required to qualify as a conservation measure. If the project is deemed successful, it is targeted to review and potentially complete voltage optimization projects every few years, consistent with our conservation planning and completion of the Five Year Plan of Service.

The District's high-voltage underground cable replacement program continues to target segments that have experienced two or more faults and cable meeting certain age and design criteria. In June of 2017, the District decided to eliminate cable rejuvenation as a means of extending underground cable life. Engineering staff analyzed bids received for cable rejuvenation and compared them to costs associated with recent cable replacement projects completed by a District contractor. This analysis indicated that cable replacement using modern boring technology allows difficult to access cables to be replaced economically with new cable in conduit with an expected life of 40 years versus the 25 year warranty offered by the cable rejuvenation contractor. In addition, the District has been experiencing failures of rejuvenated cable well before the 25 year warranty. Cable rejuvenation will only delay ultimate replacement of cables which will likely need to occur within the 40 year life of a new cable. The Plan recommends an annual budget of $1.5 million for materials and contractor labor to complete cable replacement efforts through the next five year period. This level of expenditure is needed in order to stay on track with plans to replace more than 30 circuit miles of cable over the next 10 years.

Purpose

The primary purpose of the Five Year Plan of Service (Plan) is to study the electrical distribution system's ability to provide satisfactory service under projected peak load and outage contingency conditions. The study identifies and prioritizes system improvement projects that are required during the upcoming five year period.

The plan is updated every two years in accordance with Administrative Directive No. 24. The last plan was completed in 2022 and the next plan will be completed in 2026. The plan is reviewed annually to ensure growth is occurring as expected and to ensure planned projects are budgeted and scheduled appropriately.

System Overview

This section is provided first to clarify the terminology used throughout the report and to establish the context of the study. The distribution facilities referred to in the Plan consist of substations and their medium voltage feeders.

District substations have power transformers that convert 115 kV transmission system voltages to 12.47 kV distribution system voltages. The power transformers are typically rated between 20 and 28 MVA. Substations may have one, two, or three power transformers. Associated with each power transformer is a load tap changer or a voltage regulator that provides voltage regulation to the distribution feeders. Substation power transformers and their associated equipment are often referred to as bays or banks (e.g. Bay 1, Bay 2, etc.) and are identified this way in the study. Each power transformer typically serves three or four feeders.

Feeders are individual circuits that originate in the substation and distribute load carrying capacity to the distribution system at 12.47 kV. A feeder begins with a circuit breaker or recloser, located within the substation, downstream of the power transformer and voltage regulator. Feeders are often referred to by alpha numeric names consisting of a three letter abbreviation of the substation's name, a dash "-", and a pre-assigned feeder number (e.g. ANG-1, ANG-2, GUM-4, KEN-9, etc.). The feeders are identified this way in the study.

"Getaway" conductors connect the substation feeder breaker/recloser to the distribution system. Most getaway circuits are underground, but there are some overhead installations on the system. Main underground feeder lines typically consist of 15 kV, XLP or EPR insulated, 750 or 1000 kcmil cable. The standard for new main underground feeder lines is triplex, 15 kV, 175 mil EPR insulated, 1000 kcmil cable. Main overhead feeder lines typically consist of 3/0 AWG ACSR, 4/0 AWG ACSR, 336.4 kcmil AAC/ACSR or 556 kcmil AAC bare overhead conductor. The standard for new main overhead lines is typically 336.4 kcmil AAC or 556 kcmil AAC conductors.

Introduction

This introductory section is intended to provide a brief overview of the Five Year Plan of Service (Plan) process from start to finish. The body of the report includes details of each step of the planning process under the respective heading, starting with a review of the study area and concluding with the project recommendations. For even greater detail, the report often refers to tables, graphs, maps, etc. located in the appendices.

The substations and medium voltage distribution systems that serve the Kennewick, Prosser, and Benton City urban areas within the County are the primary focus. The study does not address the Horse Heaven Hills system, dedicated industrial customers, or small isolated areas within the District where electrical loads are added infrequently.

The Plan process begins with the collection of historical peak loading data for each substation bay and feeder. The feeder peak loads are then adjusted to the planning temperature. The temperature adjusted feeder peaks represent the base year loads to which five years of forecasted load growth is added.

The load growth forecast begins with a review of the most recent Retail Energy Load Forecast and a forecast of the total system peak. The total system growth is then allocated to feeders in the study area. The allocation process involves identifying potential customer growth, such as residential developments and commercial projects, and assigning the future load growth to individual feeders on the distribution system.

After the annual feeder growth has been determined, the feeder peaks are forecasted for the next five years. A manual review is completed to identify feeders that may exceed planning ratings. In addition, the total bay loading is reviewed to ensure that the total of the feeder peak loads does not exceed the bay ratings. Following the manual review, the feeder peaks are input into the District's load flow analysis software and the performance of each feeder is checked against District criteria.

System improvement projects are recommended to correct the problems found by the manual review of the peak load data and the load flow analysis criteria violations. Projects may also be recommended based on specific knowledge of future development, system reliability improvements or outage contingency improvements. The recommended project list, including cost estimates, is the final output of the Plan and is an important input to the District's capital requirements planning.

Study Area

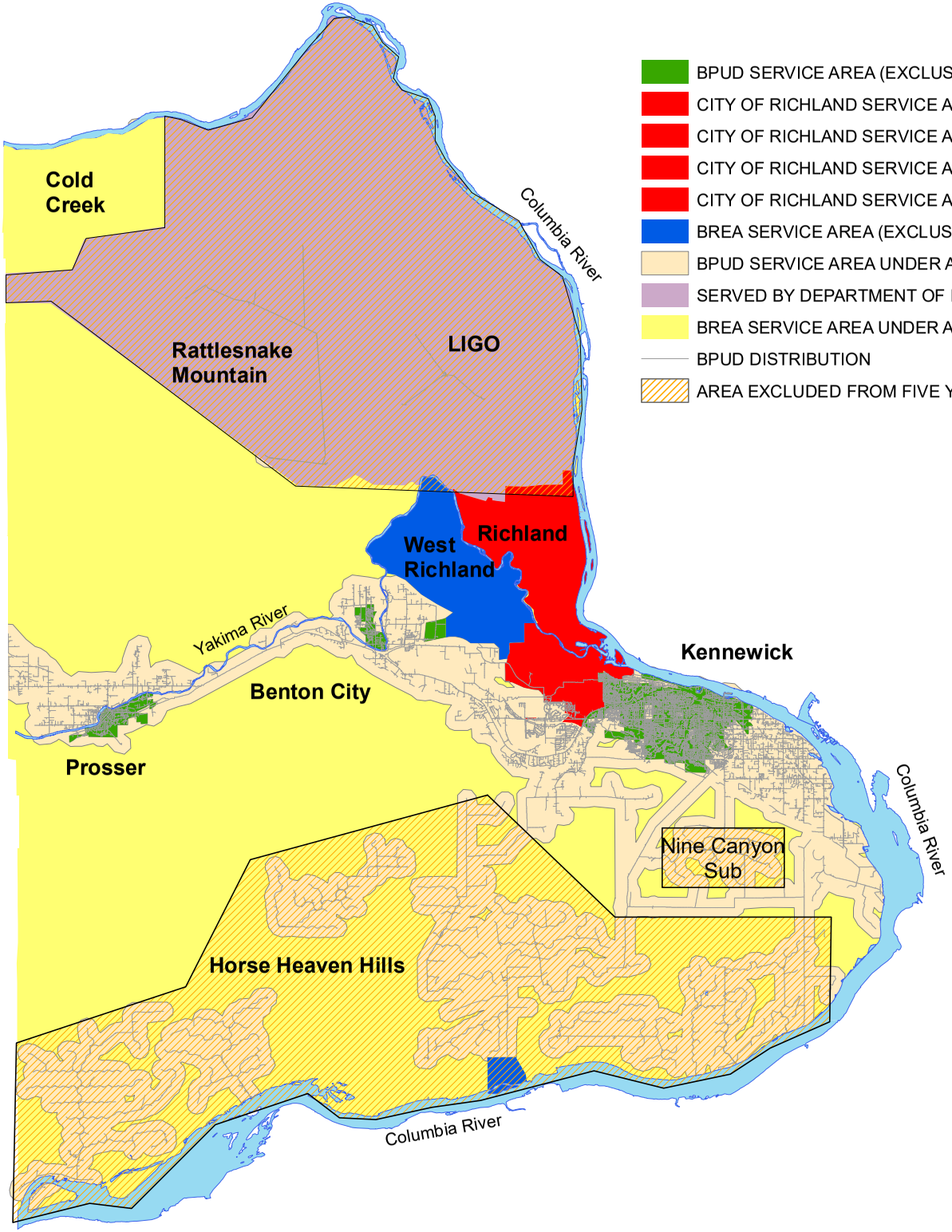
The study area includes the substations and distribution systems in Kennewick, Benton City, and Prosser. The following District substations are associated with each study area:

Study Area	*Substation Names*
• Kennewick West	Angus, Highlands, Leslie Road, Orchard View, Reata, Southridge, Vista
• Kennewick East	Ely, Gum Street, Hedges, Kennewick, Phillips Bay 4, Zephyr Heights
• Benton City	Benton City, Sunset Road
• Prosser	Prosser, Riverfront
• Cold Creek Area	Cold Creek

The Plan study area does not include all of the District's electrical system or all of the District's service territory. Load growth or reductions in certain areas is sporadic and is not included with our general system growth. These areas are studied separately, on a case by case basis or as changes in load occur. The areas not included in the Plan analysis are:

- 115 kV River/Irrigation Transmission System – Refer to ECI study:
  - July 2023 study, "Benton PUD Transmission System Study"
- River/Irrigation distribution system
  - The River system is studied in the Large Irrigator Plan of Service. This study is performed annually to identify system deficiencies on the River system and to work with the Large Irrigators for load growth planning.
- Agrium (Chevron and Phillips Bay 1, 2, & 3 Substations)
- LIGO and Rattlesnake Mountain service areas (DOE)

Refer to the Study Area map on the following page for an overview of the study area and the excluded areas.



SHT. 1 of 1

2024 Five Year Plan
Study Area

36

SCALE	N.T.S.
DATE	6/18/2024
DRAWN BY	nielsenj
MAP NO.	
DRAWING NAME	STUDY AREA

BENTON P.U.D.

Historical Peaks

The peak data collected for this study period includes winter 2021/2022, winter 2022/2023 and the summers of 2022 & 2023. Except where otherwise identified, the historical peaks are non-coincidental peaks, meaning that each bay or feeder may have peaked at a different time or even a different day from the system peak and from other bay or feeder peaks.

Winter and summer peak loads are reviewed in the study. Typically winter loading is the limiting condition for most of our urban distribution system due to the large amount of residential electric appliances and space heating. A few generally commercial areas have summer loading that provides the most severe loading condition. Of the District's 90 feeders, only 15 were identified as summer peaking. This is in line with the District's historical average of summer peaking feeders due.

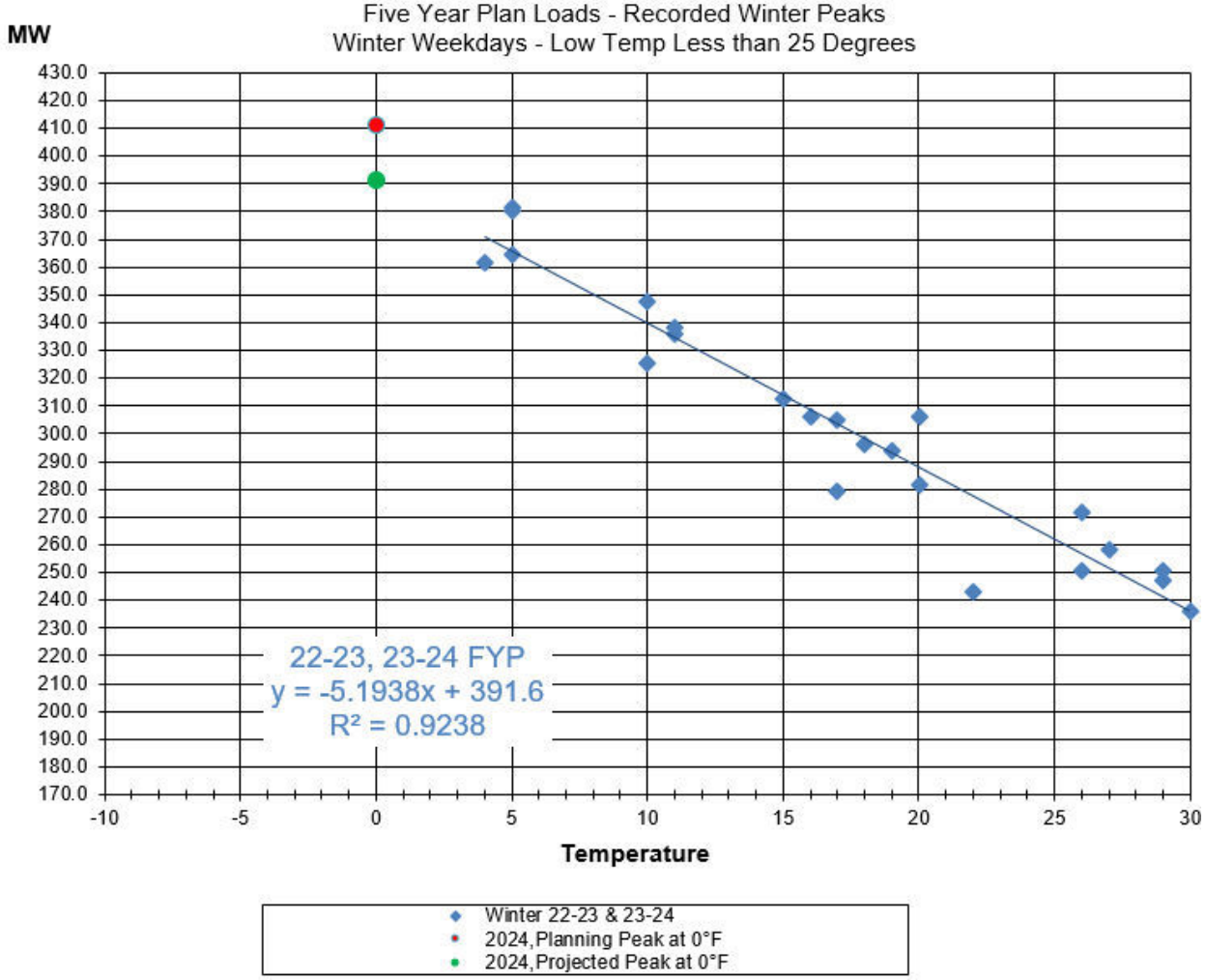
The feeder peaks are recorded by the District's Supervisory Control and Data Acquisition (SCADA) system. Refer to Appendix B, Tables B1-B6 for the detailed feeder peaks. The substation bay peaks are recorded by Bonneville Power Administration (BPA) meters located within District substations. This data was collected from BPA's meter data management website (MDMR). Refer to Appendix C, Tables C1-C6 for the detailed substation bay peaks.

System Peak Forecast

The Plan uses a model of our electrical system and corresponding peak loads during extreme weather conditions. The planning temperature is 0°F for winter and 104°F for summer. When winter temperatures have been mild (above 0°F) or summer temperatures have been mild (below 102°F) or high (above 106°F), a trend line, see Figures 1 & 2 below, are required to estimate the load at 0°F and 104°F. These trend lines are created by plotting several peak load points for the last two winters and summers and assumes a linear load vs. temperature relationship. The trend line is used to estimate what the load would be for a temperature of 0°F and 104°F. Traditionally, the trend line peak estimates are increased by 5% to develop a conservative planning peak for the system and to account for the variability of the trend line estimate.

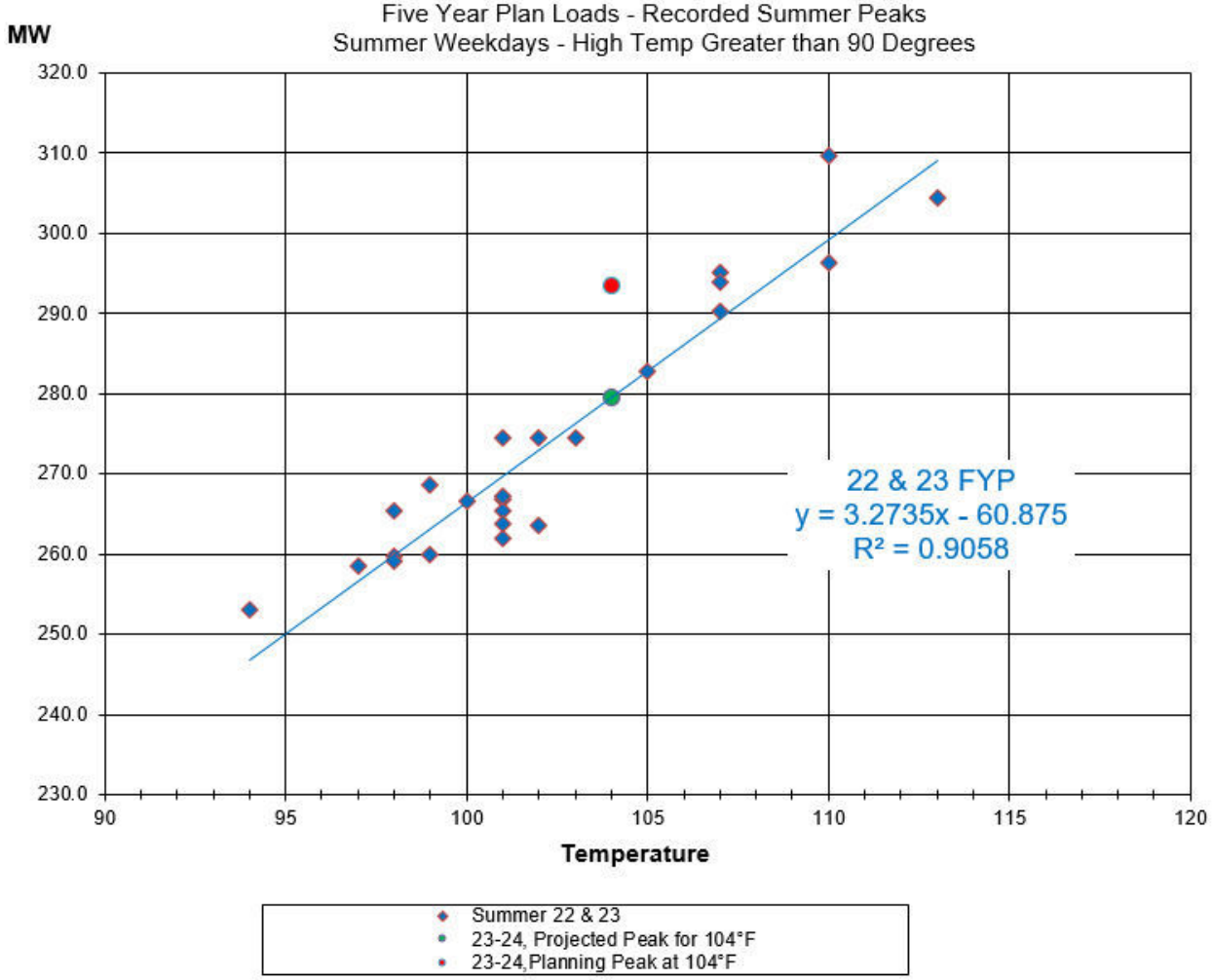
For the 2024 Plan, the loading for winter 2022/2023 and 2023/2024 was used. The total system peak of 408.4 MW was at a temperature of 5°F, with the Plan portion of the system peaking at 381.1 MW. This resulted in setting the 0°F temperature corrected planning peak at 411.2 MW for the Plan portion of the system. The ratio of the planning peak to the actual peak (411.2/408.4) resulted in not needing to apply a temperature correction factor.

Figure 1, Load vs. Temperature Analysis



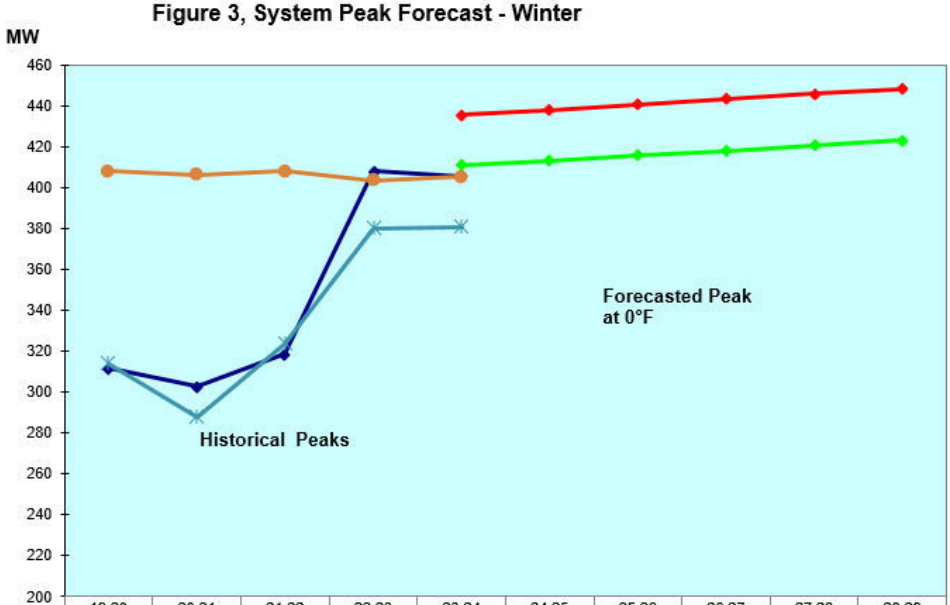
The previous summer (2023) generated a total system peak of 448.1 MW at a temperature of 102°F with the Plan portion of the system peaking at 274.5 MW and occurred on July 20th in hour 18. The previous summer (2022) system peak was 465.7 MW at a temperature of 107°F, with the Plan portion of the system peaking at 293.8 MW on July 27th in hour 18. As a number of the other near peak days in 2022 and 2023 occurred under the 104°F planning threshold additional data from 2021 was included that had a much stronger peak.This resulted in setting the 104°F temperature corrected planning peak at 293.5 MW for the Plan portion of the system.

Figure 2, Load vs. Temperature Analysis



The system peak is forecasted over the next five years so that the total system load growth can be allocated to individual feeders. The system peak forecast uses an annual growth rate of 0.58% for each of the five years. The methodology for the Retail Energy Load Forecast generates a low, medium, and high growth rate that has an underlying assumption of conservation that may be realized. The Plan utilizes the growth rate with this assumption removed as the Plan is reevaluated every two years and allows for updates if growth is not realized. For the 2024 Plan this growth rate was 0.58% per year. This forecast percentage growth rate is more in line with the historical medium growth rate that has been used over the past few planning cycles for the Plan portion of the system. The rate selected defines the load growth to be allocated to 5YP feeders (2.7 MW/year winter, 1.93 MW/year summer). This load growth compares well with the customer growth potential.

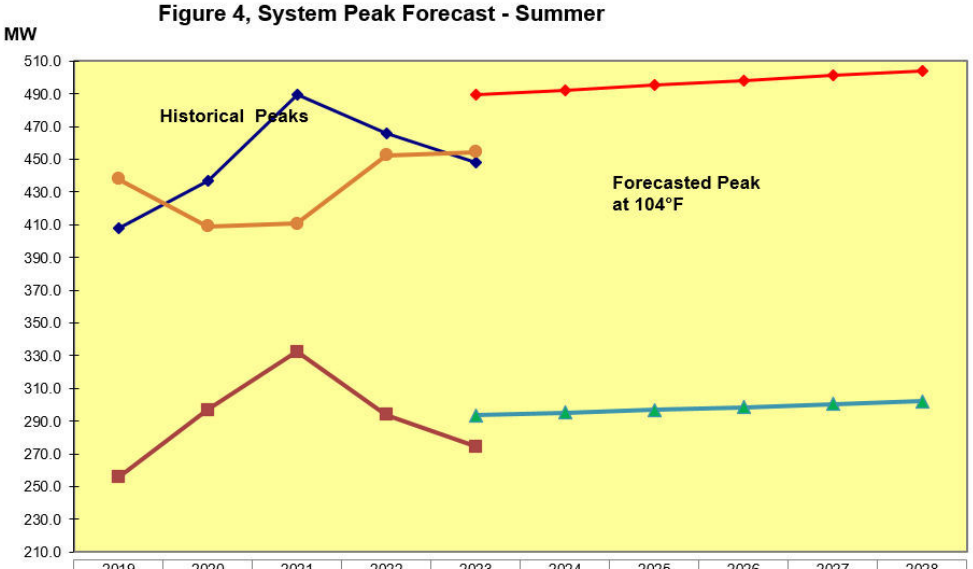
Figure 3, System Peak Forecast - Winter



	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29
System - Actual Peak	311.9	302.7	318.8	408.4	405.7					
System - Historical Forecast	408.3	406.4	408.3	403.8	405.7					
System - 2024 Forecast					435.9	438.4	440.9	443.5	446.1	448.7
POS Loads - Actual Peak	314.1	287.6	323.6	380.4	381.1					
POS Loads - 2024 Forecast					411.2	413.6	416.0	418.4	420.8	423.3
Temperature (°F)	24	18	17	0	0	0	0	0		

Figure 2: Historical and Projected Winter Peak.

Figure 4, System Peak Forecast - Summer



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
System - Actual Peak	407.7	437.0	489.6	465.7	448.1					
System - Historical Forecast	438.0	408.9	410.8	452.5	454.6					
System - 2024 Forecast					489.6	492.4	495.3	498.2	501.1	504.0
POS Loads - Actual Peak	255.7	297.0	332.3	293.8	274.5					
POS Loads - 2024 Forecast					293.5	295.2	296.9	298.6	300.4	302.1
Temperature (°F)	87	108	110	104	104	104	104	104		

Figure 3: Historical and Projected Summer Peak.

Customer Growth

The District's Retail Energy Load Forecast attempts to forecast the amount of growth expected. The Plan is also concerned about the amount of growth, but is more focused on determining the location of the proposed load growth so it can be allocated to distribution feeders and substation bays.

During preparation of the Plan, several areas of customer growth potential were examined for their possible impact on the electrical system. An overview of the major areas is provided in Appendix D. Some of these projects are difficult to forecast with regards to expected load and timing, but they could have a significant impact on the distribution system. The progress of each project is continually being monitored.

In addition to the overview of major growth areas, a more detailed list of customer projects has been developed. The customer projects that are currently known to the District's Engineering department are listed in Appendix D, Table D1. Refer to the system maps, also in Appendix D, for the locations of these projects. The main purpose of Table D1 is to determine the potential load growth that should be assigned to an individual feeder. Some of the projects are under construction; others are in the planning phase. In many cases, the projects are done in phases, with one phase under construction and future phases planned. Some of these projects may not materialize and other unforeseen projects may be initiated and completed in the next five years.

For reference purposes, Appendix D, Table D2 is included with the Plan to provide a snapshot of the customer count by rate schedule for each feeder.

Feeder Growth

Feeder load growth is derived by assigning a percentage of the expected annual system growth to individual feeders. The projected system peak annual load growth of 2.385 MW was diversified by a coincidence factor of 90% and allocated to the feeder level. The coincidence factor of 90% increases (2.385 MW / 0.90) the amount of annual load growth to be assigned to the feeders because the total of the feeder non-coincidental peaks would be greater than the system peak. The resulting annual total feeder load increase for the study was 2.7 MVA for winter and 1.93 MVA for summer. This total annual load growth must be allocated amongst the District's 90 feeders included in the study area.

Load growth on the electrical system is non-uniform by nature. The proposed customer growth shown in Table D1 along with staff knowledge of recent load growth is used to allocate a percentage of the total system growth to individual feeders. To determine the percentage allocated to individual feeders, the estimated load growth for each feeder was divided by the total load growth on the system. A general estimate of 4 kVA for a residential unit, 2 kVA for an apartment, and 50 kVA for a general commercial unit was used in these calculations. Estimated loading for new specific commercial services is adjusted based on the best information available to the District at the time of the Plan.

Residential and Commercial load growth is assumed across a five year period to allow for development. In the case of Electrical Intensive Loads (EILs) the buildout schedule is modified to align with what the District has experienced with established customers. Larger residential growth areas were given a diversity factor due to the low probability of all the houses being occupied in the near future. Each 1.0% assigned to a feeder equals approximately 20.7 kVA of load growth per year in winter and 19.3 kVA of growth in summer. Refer to Table B1 and B2 to determine the percent of system load growth assigned to each feeder.

Feeder Peak Forecast

The feeder historical peaks, temperature adjusted peaks, growth percentages and feeder projected peaks are summarized for winter and summer in Appendix B, Tables B1 and B2 respectively.

Generally, the District's feeders have a winter rating of approximately 12,000 kVA. The planning rating of each feeder is 8,000 kVA, which leaves a reserve capacity of 4,000 kVA per feeder. The reserve capacity is equal to one-half the load that would be served by any adjacent feeder. Therefore, in the event of a feeder outage, the feeder's load can be transferred to any two adjacent feeders. District practice is to begin making plans to reduce load on feeders that are projected to reach the 8,000 kVA planning rating. Feeders exceeding 8,000 kVA are highlighted in red in Tables B1 and B2.

There are two distribution feeders that exceed the 8,000 kVA maximum winter planning rating during the next five years. Kennewick feeder KEN-8 has had some recent incremental growth. While slowing, Reata feeder RTA-2 continues to see incremental residential growth mostly attributed to winter heating load. A previously completed project transferred load from RTA-2 to RTA-1 to provide short to medium term feeder support. Long term growth will require additional system capacity to be provided to the area.

Bay Peak Forecast

The bay/bank historical peaks, projected peaks, rating, and percentage loading are summarized for winter and summer in Appendix C, Tables C1 and C2 respectively. The bay projected peaks are the summation of the feeder non-coincidental projected peaks, multiplied by a calculated coincidence factor, to provide a bank loading estimate used to flag any issues.

The District begins planning for corrective action when the projected peak load of substation power transformers or regulators exceeds 90% of the equipment's normal rating. Each substation bay and feeder was reviewed to update normal and emergency capabilities during winter and summer loading conditions. A summary of each substation's capability is included in Appendix F.

For the 2024 Plan no substation bays exceed the 90% bay normal loading criteria for either summer or winter for normal system configuration.

Projects and/or switching have been completed over previous planning cycles to relieve the loading on bays that previously exceeded 90% normal loading criteria.

System Performance Criteria

Voltage Criteria

The District has developed criteria per ANSI Std. C84.1 for the distribution system to ensure that customers receive reliable service. System voltage criteria, on a 120 volt base, are listed below:

- During normal system operation, with a 124 volt bus voltage, the system shall be designed to limit the maximum voltage to 126 and the voltage drop on the primary distribution lines to less than seven volts, corresponding to a minimum primary voltage level of 117 volts. This allows for a three volt drop through the distribution transformer and customer secondary for a minimum service voltage of 114V at the customer's meter. (ANSI Std. C84.1 Voltage Range A)

- During outage contingency operation, with a 124 volt bus voltage, the system shall be designed to limit the maximum voltage to 127 and the voltage drop on the primary distribution lines to less than ten volts, corresponding to a minimum primary voltage level of 114 volts. This allows for a four volt drop through the distribution transformer and customer secondary for a minimum service voltage of 110V at the customer's meter. (ANSI Std. C84.1 Voltage Range B)

Equipment Loading Criteria

In addition to the system performance criteria, the District has developed criteria for equipment loading. Equipment has been assigned summer and winter normal and emergency ratings to limit operating temperatures to below levels that would damage or accelerate aging of the equipment.

The District begins planning for corrective action when the loading and/or the projected load exceeds 90% of the equipment's rating. High feeder loading can also create the need for substation facilities, as there are physical constraints that often limit the District's ability to extend or install new feeders.

The temperature and ampacity ratings of the major electrical components are listed in Appendix E.

Distribution Efficiency Criteria

The District has traditionally been concerned about distribution efficiency; however, there is an increasing focus on the conservation savings potential associated with distribution efficiency, which will require much greater scrutiny of system performance to

achieve the savings potential. The District is currently working with Bonneville Power Administration (BPA) to evaluate and possibly implement Voltage Optimization for conservation credit toward I-937 compliance. The target criteria to qualify for this credit are outlined in BPA's Simplified Voltage Optimization (VO) Measurement and Verification Protocol. These criteria will be implemented as the District implements Voltage Optimization:

- Feeder-Source Power Factor Minimum (one hour) > 96%
- Feeder-Source Power Factor Average (annual) > 98%
- Feeder-Source Unbalance < 15%
- Feeder-Source Neutral Current < 40A
- Voltage Control Zone Maximum Adjusted Voltage Drop < 3.3%
- Secondary Maximum Allowed Voltage Drop < 4.0%
- Maximum Voltage Drop Variance between multiple Feeders < 2V
- Primary Line Minimum Hourly Voltage > [114V + 1/2 bandwidth + secondary maximum allowable voltage drop]
- Primary Line Maximum Hourly Voltage < [126V - 1/2 bandwidth]

Reliability Criteria

Outage information is logged into the District's Outage Management System (OMS). Every outage that occurs has an associated cause, region, number of customers affected and number of customer minutes out. Quarterly the District compiles SAIFI (system average interruption frequency), SAIDI (system average interruption duration), and CAIDI (customer average interruption duration) values on a rolling 12 month window. These reliability indices are in line with industry best practices and present the data both “as-is” and with Major Event Days (MEDs) excluded. The MED threshold is recalculated annually and is used to determine events that are well beyond the typical outage. For the District these are most often associated with BPA transmission outages.

The District previously attempted to rank feeders using SAIFI, SAIDI, and CAIDI values but the large variability in the number of customers per feeder hampered generating a useful direct ranking comparison. It resulted in the need for a lot of subjective ranking of the available data. The District is currently reevaluating how to best analyze and rank individual feeder reliability and is working to incorporate a regional analysis to the process. The goal is to be able to target reliability improvements to the areas that will make the most impact.

It is anticipated that additional system sectionalization will be a common recommendation. This is usually accomplished through the installation of additional fusing, mid-line reclosers, line switches, and fault indicators. Fusing previously un-fused laterals limits the exposure to the main line from faults that occur on these laterals. The addition of mid-line reclosers limits the exposure to the feeder breaker for main line faults that occur further out from the substation on the main line. The installation of additional line switches allows for more precise fault sectionalizing. Fault indicators allow result in more rapidly

identifying the faulted section of line when patrolling. All of these actions will decrease both the SAIFI and SAIDI rating for that particular feeder over time.

Load Flow Analysis

The District utilizes electric system modeling and analysis software as an integral part of the Plan study. The two pieces of software are MilSoft Utility Solutions' WindMil and LightTable. The WindMil model includes the conductors and equipment on the primary distribution system, except for the distribution transformers. System performance criteria, equipment ratings and other system options are configured to reflect District standards.

The primary input to the WindMil model is the projected feeder peaks. Once the feeder peaks are loaded, the total peak load is allocated to the feeder's line sections and a load flow analysis is ran to evaluate loading and voltage levels on the feeder. Lines can be switched to simulate system performance during outage contingency operation. The effect of system improvement projects, such as regulator bank installations or reconductor projects can be evaluated.

In accordance with the system performance criteria, WindMil was configured to flag any line sections where the voltage was less than 117 volts during normal peak operation and less than 114 volts during outage contingency operation. In addition, equipment that exceeded the allowable loading criteria was also flagged. Note: Substation equipment is not included in the model and is evaluated manually.

Contingency Switching Plan

The 2024 Plan included an additional effort to update the District's outage switching plan, which was last updated by the 2022 Plan. WindMil was used to evaluate outage switching scenarios and bank loading utilizing base loads in the winter and summer models.

The District has been and remains dedicated to constructing and maintaining a robust grid that allows for system recovery should any one bay in the study area (Kennewick, Benton City, and Prosser) be removed from service. This N-1 contingency planning was performed for both the peak summer and winter conditions. For stations that have multiple bays, it was assumed that the remaining bay(s) remained energized. In a typical case this would require the peak loads from 3-4 feeders to be served by other in-service feeders. The 2022 Plan determined that there were 5 cases in which all feeders of a bay could not be picked up in the event of a bay outage. In the 2024 plan, 3 cases were identified that require the use of the District's mobile substation. These are Gum Street (winter), Philips Bay 4 (summer), and Sunset Road (winter and summer). Projects have been identified to correct these issues.

Project Recommendations

The primary output of the Plan is the project recommendations. Refer to Appendix A, Table A1 (Distribution Projects) and Table A2 (Substation Projects) for the recommended project lists and associated project cost estimates. Also refer to Appendix A for detailed project descriptions, overall area maps and detailed maps for the distribution projects.

The project list generated by the Plan is a significant input to the District's capital planning process. Typically, projects identified in the first two years are required by existing loading conditions or imminent customer projects that are well along in development. Projects identified in the third through fifth years are usually dependent on continued load growth or tentative customer projects. Projects identified beyond the fifth year are either previously identified projects that have been deferred due to other improvement projects (previously completed or proposed) reducing their priority, or are new projects identified during the plan cycle with longer term benefits that it would be beneficial to document a plan for. Faster than anticipated growth may accelerate plans for projects and slower growth may allow the District to defer projects. Projects over $100,000 will come before Commission again for job approval per District policies.

FAC-002 Coordination of Plans for New Facilities

The District complies with the requirements of NERC standard FAC-002, Coordination of Plans for New Facilities when planning for the construction of recommended projects. Specifically, all District projects involving the integration of generation and/or transmission facilities will be planned and coordinated in cooperation with the Bonneville Power Administration (BPA).

When requested by BPA, the District will provide information and assistance to support any system studies recommended by BPA to evaluate the reliability impacts of the new facilities and their connections on the BPA transmission system. Assessments may include steady-state, short-circuit, and dynamic studies as necessary to evaluate system performance in accordance with applicable reliability standards. When applicable the District will include copies of report summaries and/or cross-references to BPA studies in our five year plan of service study report to provide evidence of proper project planning and coordination.

It is BPA's responsibility to ensure compliance with NERC Reliability Standards and applicable regional, sub-regional, power pool, and BPA planning criteria and facility connection requirements.

At this time, the District has the following Line Load Interconnection Requests (LLIR) submitted to BPA and is working with BPA to perform the related studies:

#L0506 – Weber Canyon to Prosser, Feasibility Study, BPUD Contract #22-21-64

Additionally, COR is planning a new substation in the Dallas Rd. area. COR previously built the transmission line extension from near Reata substation to the proposed Dallas Rd. substation site and are currently finishing the BPA interconnection process for final

tie in. The District has partnered with COR on this transmission line and plans to extend it from COR's proposed Dallas Rd. substation to the existing transmission line feeding Sunset Road substation that is currently served from BPA's Red Mountain substation. This will alleviate a long standing reliability concern as Leslie Rd. & Reata substations are currently energized via a single source on a radial transmission line from BPA Badger Mountain switchyard and Sunset Road is currently energized from a single source radial transmission line from BPA Red Mountain switchyard. It is the District's preference to have loop feed capability at a substation where practicable.

While partnering with COR on Dallas Rd. (similar to Leslie Rd.) is being considered, it would be more advantageous to pursue acquisition of substation property in Badger Canyon to place the additional capacity adjacent to the load it would be serving. Necessary feeder upgrades would be less extensive, more cost effective, have less line exposure from a reliability standpoint, and load balancing between new and existing feeders would be more easily accomplished. Continuing to coordinate with BPA on the future Weber to Badger line may yield an opportunity to locate the substation along the path, minimizing the required transmission

[This Page Intentionally Left blank}

[For Two Sided Printing]

Appendix A

Projects

[This Page Intentionally Left blank}

[For Two Sided Printing]

Table A1 – Distribution Projects

POS# (WO#)	Feeder, Project Description	Qty. (1000')	Cost Estimate ($K)		
			Mat.	Lab.	Total
2025					
2	Misc. feeder, underground cable replacement, and getaway upgrades – Contract Labor	n/a	300	1200.0	1500.0
41	ZEH-4, new OH tie to GUM-4 at Game Farm (POS 2010)	8	183.8	138.2	322.0
134	HED-3 Line Switch (POS 2024)	-	8	2.5	10.5
58	BEC-3, new feeder to east, tie to SSR-1 (POS 2012)	16.13	465.6	449.4	915.0
143	SSR-3 Line Switch (POS 2024)	-	10	2.5	12.5
137	KEN-6 Line Switch (POS 2024)	-	10	4.0	14.0
132	N-1 Outage Phase Balancing (POS 2024)	-	-	10.0	10.0
133	PSR-3/SSR-2 Outage Support (POS 2024)	21.1	113	17.0	130.0
144	L537V Upgrade to 167kVA Regulators (POS 2024)	-	32	5.3	37.3
130	VTA-3, VTA-4, Get-away Replacement (POS 2024)	4	319	431.0	750.0
	2025 Total		**$1,441.4**	**$2,259.9**	**$3,701.3**

POS# (WO#)	Feeder, Project Description	Qty. (1000')	Cost Estimate ($K)		
			Mat.	Lab.	Total
2026					
2	Misc. feeder, underground cable replacement, and getaway upgrades – Contract Labor	n/a	300	1,200	1500
129	ANG-5, recond. 4/0, Metaline St. (POS 2024)	4	126	144.0	270.0
38	V1 to V6, UG feeder tie across W. Quinault Ave. (POS 2010)	1.2	164.0	64.6	228.6
15	HIG-4, recond. 3/0, W. 10th Ave. (POS 2010)	3.2	152.2	157.9	310.1
	2026 Total		**$742.2**	**$1,566.5**	**$2,308.7**

POS# (WO#)	Feeder, Project Description	Qty. (1000')	Cost Estimate ($K)		
			Mat.	Lab.	Total
2027					
2	Misc. feeder, underground cable replacement, and getaway upgrades – Contract Labor	n/a	300	1,200	1500
36a	SSR-3, relocate and reconductor (POS 2010)	9	109.8	42.8	152.6
36b	SSR-3, relocate and reconductor (POS 2010)	9	118.9	220.5	339.4
128	BEC-1, BEC-2, recond. 4 ACSR, Highland Rd. (POS 2024)	6.7	167.5	144	311.5
81	PHI-8, new feeder, recond. Cochran Rd. (POS 2014)	7.8	213.7	300.9	514.6
131	VTA-1, VTA-7, Get-away Replacement (POS 2024)	4	260	45.0	305.0
	2027 Total		**$1,169.9**	**$1,953.2**	**$3,123.1**

POS# (WO#)	Feeder, Project Description	Qty. (1000')	Cost Estimate ($K)		
			Mat.	Lab.	Total
2028					
2	Misc. feeder, underground cable replacement, and getaway upgrades – Contract Labor	n/a	300	1,200	1500
145	Prosser Get-away Replacement (POS 2024)	2	175.7	22.0	197.7
56	ELY-8, recond. 3/0, near Ely St. (POS 2012)	1.5	86.8	79.8	166.6
102	HED-4 Get-away Reconductor (POS 2018)	0.25	70.3	42.9	113.2
83	Voltage Optimization – Feeders TBD	n/a	85	25.0	110.0
127	PSR-2, recond. 4/0 on OIE (POS 2024)	5.3	130	145	275.0
	2028 Total		**$847.8**	**$1,514.7**	**$2,362.5**

POS# (WO#)	Feeder, Project Description	Qty. (1000')	Cost Estimate ($K)		
			Mat.	Lab.	Total
2029					
2	Misc. feeder, underground cable replacement, and getaway upgrades – Contract Labor	n/a	300	1,200	1500
22	KEN-8, convert OH to UG across fairgrounds (POS 2010)	2	162.5	46.6	209.1
54	ZEH-3, recond. 1/0 for GUM-3 load transfer (POS 2012)	3.8	126.1	125.9	252.0
119	PSR-3 reconductor (POS 2020)	1.9	204.8	124.2	329.0
120	ANG-4, recond. 3/0 Clearwater. (POS 2022)	2.3	54.2	106.8	161.0
105	KEN-9, recond. 3/0 on Washington St (POS 2018)	4.5	134.2	227.1	361.3
	2029 Total		**$981.8**	**$1,830.6**	**$2,812.4**

2025 - 2029 Total	**$5,183.1**	**$9,124.9**	**$14,308.0**

The 2030+ table below captures projects beyond the scope of the 2024 Plan. Some of the listed projects were identified in previous Plans. These have been deferred due to a previously completed project or a project that is scheduled during the current plan cycle reducing the priority from short term to medium term. Other projects were identified during the 2024 Plan but apply to medium term (6-10 yr) growth considerations. The 2030+ portion of the project lists ensures these new and legacy projects remain identified for reevaluation/reprioritization in future plan cycles.

POS# (WO#)	Feeder, Project Description	Qty. (1000')	Cost Estimate ($K)		
			Mat.	Lab.	Total
2030+					
20	HED-4, recond. 3/0, Perkins Rd. (POS 2010)	16.1	250.0	201.0	451.0
21	HED-4, recond. #6 CU along Bernath Rd. and new tie to GUM-4. (POS 2010)	8	226.2	319.9	546.1
39	ZEH-1, new OH line and UG tie with STH-3 (POS 2010)	5.1	134.6	173.6	308.2
79	RTA-2, recond. Badger Rd., L766A to L80R (POS 2014)	5.3	88.8	71.8	160.6
95	HED-2, recond #266.8, Finley Rd (POS 2016)	4.5	166.3	139.8	306.1
113	ELY-2 recond. Garfield St L138A to 82912-3405 (POS 2018)	0.5	8.8	27.3	36.1
121	HLS-7, recond. 4/0 Clearwater. (POS 2022)	1.5	12.0	69.7	81.7
122	ANG-3, recond. 3/0, Clearwater (POS 2022)	1.5	67.7	35.3	103.0
123	Badger Canyon Sub. Feeder Buildout (POS 2022)	TBD	TBD	TBD	TBD
124	GUM-4, recond. 4/0 Bowles. (POS 2024)	5.2	157.0	164.0	321.0
135	HED-3, recond. 3/0 Haney. (POS 2024)	12.1	202.5	214.0	416.5
136	ELY-2, recond. 3/0 Garfield. (POS 2024)	2.1	53.0	75.0	128.0
138	Nutmeg Sub. Feeder Buildout - NMG-1 (POS 2024)	TBD	TBD	TBD	TBD
139	Nutmeg Sub. Feeder Buildout - NMG-2 (POS 2024)	TBD	TBD	TBD	TBD
140	Nutmeg Sub. Feeder Buildout - NMG-3 (POS 2024)	TBD	TBD	TBD	TBD
141	Nutmeg Sub. Feeder Buildout - NMG-4 (POS 2024)	TBD	TBD	TBD	TBD
142	Nutmeg Sub. Feeder Buildout - KEN-1 Extension (POS 2024)	TBD	TBD	TBD	TBD
2030+ Total			**$1,366.9**	**$1,491.4**	**$2,858.3**

Distribution Project Descriptions

 # 00 – Misc. feeders, future system improvements. This project is intended to account for system improvement projects that are not specifically identified in the current Five Year Plan, but that may become necessary in the future years. This project may be used as a placeholder in the third through fifth years.

 # 02 – Misc. feeders, underground cable replacement, and getaway upgrades. This project is intended to account for the annual system wide replacement of aging underground cable. The District started an injection program in 2014. In 2017, the two companies offering injection service merged. Subsequent cost increases have now put the cost of injecting cable on par with outright replacement. Replacement is preferred as it is a 40 year fix (injection is theoretically a 20-25 year fix), and it provides a conduit which allows for much easier replacement in the future. The focus remains areas of the system still utilizing direct buried, high molecular weight (HMW) polyethylene insulated cables, which the District refers to on our maps as "ALCN" cable. It is anticipated that there are about 325 segments of this cable that will be addressed in 2025. These cable replacement efforts will continue replacing cable that is already in conduit, and installing conduit in areas that are currently directly buried. Most of the easily accessible portions of the smaller conductor (#1, 1/0, 4/0) portions of the system have already been replaced. What remains is generally in areas that utilized back of lot construction and rocky soil conditions, which slows the pace of work. In addition, the District has been systematically planning projects to upgrade our aging underground feeder getaway cables and upgrades to our underground getaway vault systems so that no more than two feeders share a vault. By redesigning our getaway vault system in conjunction with the cable replacements we will improve the reliability and operation of the system for the long term. Substations with getaway cable and vault systems that do not meet the newer practices are Vista Substation (XLP Cable & Vaults), Prosser Substation (XLP Cable), and Riverfront Substation (XLP Cable). Prioritization will consider sensitivity of the system to failures of the cables in question, age of the cable, characteristic evaluation (i.e., ampacity (size), neutral integrity, number of past failures), and economic analysis.

 # 15 – HLS-4 (Highlands), reconductor 3/0 ACSR line along W. 10th Ave. from S. Edison St. east to S. Union St. ANG-2 support from HLS-4 is limited by the 3/0 ACSR overhead line on W. 10th Ave., which could be severely overloaded if existing switching was used. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for HLS-4 loading during normal configuration. It should be noted that feeder HLS-4 overhead line to the east (from S. Union St. east to L98A near S. Morain St.) has already been upgraded to 556.5 AAC. Because this will be a main feed normally carrying high load, 556.5 AAC is recommended as the economic conductor for this upgrade. This project will move feeder HLS-4 on W. 10th Ave. closer to 100% upgraded, but additional 3/0 ACSR remains on HLS-4 east of Morain St.

 # 20 – HED-4 (Hedges), reconductor 3/0 ACSR line along E. 19th Ave., S. Yew St., and Perkins Rd. from S. Oak St. east to Haney Rd. The primary need for this project is to improve outage support for Hedges feeder HED-4. For Hedges Substation outages, feeder GUM-1 is the primary support feeder for HED-4, but GUM-1 cannot provide adequate voltage when picking up 100% of HED-4. There are severe voltage problems for HED-4 customers. Customers downstream of L947A, near Perkins & Haney, would need to remain out of service for adequate voltage to other HED-4 customers. This project, combined with the GUM-1 reconductor and the GUM-1 to HED-4 tie and reconductor, will allow feeder GUM-1 to pick up 100% of feeder HED-4 with adequate voltage to nearly all HED-4 customers. A switch should be added north of Perkins Rd. on Haney Rd. This switch would be opened during HED-4 outages when picked up by GUM-1. Because this is primarily a tie line and is normally lightly loaded, 336.4 AAC is recommended as the economic conductor for this upgrade.

 # 21 – HED-4 (Hedges), reconductor #6 CU along Bernath Rd. from Haney Rd. west to S. Yew St. and new feeder tie to GUM-4 (Gum Street). This project is needed to improve outage support for Hedges feeder HED-4. For Hedges Substation outages, feeder GUM-1 is the primary support feeder for HED-4, but GUM-1 cannot provide adequate voltage when picking up 100% of HED-4. There are severe voltage problems for HED-4 customers. Customers downstream of L947A, near Perkins & Haney, would need to remain out of service for adequate voltage to other HED-4 customers. This project, combined with the GUM-1 and HED-4 reconductor and the Perkins Rd. HED-4 reconductor, will allow feeder GUM-1 to pick up 100% of feeder HED-4 with adequate voltage to nearly all HED-4 customers. Feeder GUM-1 and HED-4 currently coexist near S. Yew St. & Bernath St., but are not electrically connected. Fiber does span approximately 320 feet from one circuit to the other with a fiber only pole in the middle. Adding a feeder tie at this location will greatly improve the ability for GUM-1 to support HED-4 customers to the east. The GUM-1 line is a main feeder route at this location and the 3/0 ACSR is recommended for upgrade in a project 20. Feeder HED-4 at this location is not a main feeder route and is currently only three phase #6 CU and some #4. Upgrading this line to main feeder conductor from this location east to Haney Rd. will provide significantly better voltage support when GUM-1 is picking up HED-4 customers. Feeder HED-4 has no other feeder ties on its northern half. Completing this feeder route upgrade along Bernath Rd. will allow for a future feeder tie from feeder KEN-8 on the north. Because this is primarily a tie line and is normally lightly loaded, 336.4 AAC is recommended as the economic conductor for this upgrade. A 167kVA regulator will be required at 83009-4901 for voltage support during a Hedges bay outage.

 # 22 – KEN-8 (Kennewick), convert overhead to underground across fairgrounds
This project recommends converting the 3/0 ACSR overhead line that goes across the county fairgrounds to a 1000 kcmil underground circuit with increased capacity. This will improve the outage transfer capability from KEN-8 to GUM-1 or GUM-4. This project will require significant coordination with the fairgrounds for routing, scheduling, and future load growth considerations.

 # 36 – SSR-3 (Sunset Road), relocate and reconductor 1/0 CU line along E. Jacobs Rd./I-82 from Sunset Rd. Substation east to I-182. The primary purpose of this project is to improve the ability of Reata feeder RTA-4 to pick up a larger portion of Sunset Road feeder SSR-3 during outages and provide better support as load continues to grow in the Red Mountain area. Due to updates to the proposed routing the western portion of this project shall be completed concurrently with the planned transmission project to connect Sunset Road to City of Richland's Dallas Road substation site. The intention is to concurrently work on the western portion that extends past the proposed transmission line route. Growing irrigation load has caused voltage exceptions to emerge near the east end of this portion of feeder. This project will install 336.4 conductor from near the western I-82 crossing to a location near the eastern UG I-82 crossing. The existing line will be left in place and operated as a radial tap line, and subsequent smaller projects will be proposed to DNR to move the loads currently fed from the existing line to the new line along Jacobs Rd. This project will also install a 250kVA regulator bank at the eastern end of the project to help support voltage during Reata outages. As this project will be completed across two budget years it is being denoted as "36a" and "36b" in the tables and on the project maps.

#38 – V1 to V6 (Vista), underground feeder tie south across W. Quinault Ave. In conjunction with the Vista feeder underground getaway upgrades, it is desirable to get a second feeder into the Columbia Center Mall from the south. Currently, only feeder V1 serves the mall with three taps (west, center, east) feeder from north to south. Only the western feed has a loop (V1 to V6). The center and east taps have no loops. This project would utilize existing feeder V6 to add a tie to feeder V1 from the south. Currently, the existing feeder is V7. The preference would be to utilize feeder V6 as the tie because it is lightly loaded. This will require the installation of a switch cabinet along W. Quinault Ave. to move the normal open point between V6 and V7 so that V6 can feed to the north. The City of Kennewick is currently out to bid for improvements to the Quinault Ave. and Columbia Center Blvd. intersection. As part of their project the District is securing a route across Quinault Ave. Work is in progress to determine the requirements for a transfer switch between V1 and V6 at the south end of the mall. Conduits were previously installed as part of the Dick's Sporting Goods remodel but some additional study is required to determine what other upgrades are required to complete the loop around the mall and allow this tie to support Columbia Center, but this project is the first step.

 # 39 – ZEH-1 (Zephyr Heights), new overhead line from Canyon Lakes west to Hwy 395 and underground feeder tie with STH-3 (Southridge). This project would extend an overhead line from Zephyr Heights feeder ZEH-1 in the area near the Heights at Canyon Lakes (South Hill) development, west towards the Southridge area to make an underground tie with Southridge Feeder STH-3 on the east side of Hwy 395. The current likely route is for an overhead line from east to west would be within the Bonneville Power Administration's (BPA) existing transmission line right-of-way; however this route may modify during detailed design depending on development in the area. Extending feeder ZEH-1 will provide additional outage support to the Southridge area and for ZEH-1. Because this is primarily a tie line and would normally be lightly

loaded, 336.4 AAC is recommended as the economic conductor for this upgrade to align with the existing main line portions of ZEH-1.

 # 41 – ZEH-4 (Zephyr Heights) to GUM-4 (Gum Street), new feeder and overhead line from Zephyr Substation east to Game Farm Rd. Feeder GUM-4's 1000 kcmil cable is potentially overloaded when GUM-4 is picking up 100% of HED-3 (Hedges). The previously completed S. Washington St.. reconductor does allow feeder GUM-3 to provide GUM-4 support during outages, but the area will be better served with additional capacity provided via Zephyr Heights. A GUM-4 to ZEH-4 load transfer allows the District to better utilize the exiting investment of Zephyr Heights Substation in addition to increasing outage reliability. This project, combined with the previously completed S. Oak St. and Game Farm Rd. reconductor projects, provides load transfer capability from GUM-4 to ZEH-4 and continues to extend a future main feeder route for permanent load transfer to feeder ZEH-4. Existing load south of Bowles Rd. would be transferred from feeder GUM-4 to feeder ZEH-4 at L1244R. It is anticipated that the GUM-4 to HED-3 tie along Game Farm Rd. will be completed by the end of 2024. This tie will allow the future ZEH-4 to facilitate outage support to other Hedges feeders (HED-2, HED-3) in the area, reducing strain on Gum St. substation during a Hedges bay outage. On going development has provided a viable route east of Zephyr Heights substation to the corner of S. Washington St. and Game Farm Rd. The District will need to determine if ZEH-4 or GUM-3 will be utilized to feed the east side of Jump Off Joe during detailed design. The portion of the overhead line from Zephyr Heights substation to the west end of Game Farm Rd. will be a main feed normally carrying medium load with high loading potential during N-1 support. 556.5 AAC is recommended as the economic conductor for this portion of the upgrade.

#54 – ZEH-3, Reconductor 1/0 Cu OH from just outside Zephyr Heights Substation to tie switch L998A for GUM-3 to ZEH-3 load transfer. Feeder GUM-4's 1000kcmil cable is potentially overloaded when GUM-4 is picking up 100% of HED-3 (Hedges). In order to reduce loading on GUM-4 this project in conjunction with the GUM-3. Getaway rearrangement to pick up GUM-4 load will allow for more support from Gum feeders to the east to tie to Hedges circuits and improve options during outage contingency switching. Reconductor extends one span past L998A to 82924-5502. Because this is primarily a tie line and would normally be lightly loaded, 336.4 AAC is recommended as the economic conductor for this upgrade.

#56 – ELY-8 (Ely), Reconductor 3/0 ACSR OH from S. Ely St. East to S. Conway St. along W. 15th Ave. and from W.15th Ave. north along S. Conway St. to an existing riser. During HIG-4, HIG-2 (Highlands), KEN-2 (Kennewick), and ANG-2 (Angus) outages, ELY-8 is limited by 7 spans of 3/0 ACSR OH conductor. Reconductoring this portion of line would allow better utilization of ELY-8 during these outages. The majority of ELY-8's load is down stream of this section of 3/0. The ideal conductor would be to stay consistent with 336.4 AAC as is installed in the adjacent area.

#58 – BEC-3, New Benton City Feeder east along Transmission ROW across Yakima River. This project will install a new feeder tie with northern portions of SSR-1

(Sunset Rd). This project will allow better support for Sunset Rd outages now that Benton City Substation has been upgraded and can support a 3rd feeder. KID has installed two large pumping stations in the Red mountain area on the east side of the Yakima River which have encouraged further agricultural development. It is anticipated that BEC-3 will route west out of Benton City substation following the BPA transmission line, turn south down Frazier Rd, and turn east along Corral Creek. The existing tap at Corral Creek Rd. and Horne Dr. will be reworked with additional switches to allow BEC-3 to take over the native load on BEC-2 south of this point. 556 AAC is recommended as the economic conductor for this portion of BEC-3 as this will be a main feed carrying medium load with high loading potential during a Sunset Rd bay outage.

BEC-2 will be extended east from 92706-2205 and over build Benton REA on Massingale Rd., to get to the Red Mountain area. The design intention is the extend a new main line east from Demoss Rd. to Sunset Rd. and connect north of 92709-4001 on Sunset Rd. Detailed design is evaluating several possible routes. A minimum of one 333kVA regulator installation will be required for voltage support during switching contingencies as the proposed distance covers several miles. The installation of a switch at 92709-0002 is the recommended location to split SSR-1 to accommodate outage contingency switching. Additional switch locations may be identified during detailed design to provide additional outage sectionalizing.

#79 – Reconductor #4 Badger Rd from L766A to L80R. This reconductor makes it possible for Orchard View feeder ORV-3 to feed loads in the Ridge at Reata West area of Badger Canyon during a Reata Outage. Currently there are voltage issues in the Country Meadows area when ORV-3 is used to pick up load on this portion of RTA-2. This project coincides with previously completed projects #80 (reconductor L80R to Spirit Ln), #57 (reconductor SSR-3 Badger Rd to L767A), #59 (reconductor Badger Rd L767A to L25A), and #60 (reconductor L25A to L70R). The ideal conductor would be to stay consistent with 336.4 AAC as has been called out in the previous projects. Once the final location of Badger Canyon substation is determined this project should be wrapped into the associated feeder reconstruction efforts.

#81 – New Phillips Feeder PHI-8, Reconductor Cochran Rd. from Finley Rd to SR-397 - This project will allow the District to more fully utilize the investment made in Phillips Bay 4, and reduce the District's dependency on Chevron Substation which is primarily used to feed the District's lone industrial customer Nutrien. The use of Chevron Substation for Hedges outages is not ideal since Nutrien has large equipment that when started can introduce large voltage drops on the distribution system when used for contingency switching. This project will install a new feeder getaway from Phillips substation to the north and connect with the reconductored Line on Cochran Rd. The 80T fuses at 83022-5901 will need to be replaced with a line switch and will be the normal open point. In addition a line switch will be required along Finley road between Pole 83022-5906 and the flying tap just north of 83027-9907. This project will also allow more load to be picked up at the east end of HED-4 without exposing customers to the infrequent yet large voltage variations they would experience while being fed from Chevron Substation via CHV-2. The ideal conductor would be to stay consistent with

336.4 AAC as is installed in the adjacent area. This project may require a regulator installation as well, additional study will be required.

At a minimum Cochran Rd. will require reconductoring from the east end of the line back west to Finley Rd. Additional study is necessary to determine if reconductoring further to the west to create a tie to HED-1 is beneficial during N-1 events. Additionally the get-away design for PHL-8 should take the requirements of project #125 (Phillips Plant Re-Feed) into consideration to minimize future rework.

#83 – Voltage Optimization (VO) - An initiative is underway to implement voltage optimization as a qualifying distribution efficiency conservation measure to assist in meeting our I-937 targets. Kennewick substations and its nine feeders were selected for the initial pilot projects. The District previously engaged with Bonneville Power Administration and their technical service provider to evaluate Kennewick bay 1 (K1, K2, K3) and provide an initial study (see Distribution System Efficiency and Voltage Optimization Scoping Study - Benton County PUD" dated March 7th, 2014). The District has implemented the necessary upgrades on Kennewick bay 1 and as of the 2024 FYP are in the measurement and verification phase. The District is currently evaluating the performance of the pilot project to better inform design choices on future VO projects.

#95 – HED-2 (Hedges), Reconductor 266.8 ACSR from Hedges Substation to Finley Rd along Perkins Rd and from Perkins Rd to Bowles Rd along Finley Rd. During PHI-6, PHI-7 (Phillips Bay 4) outages, HED-2 is limited by the 266.8 ACSR feeder get-away. Reconductoring this portion of line would allow better utilization of HED-2 during these outages. This project coincides with previously completed projects #93 (new switch on Piert Rd) and #94 (new switch on Game Farm Rd). The ideal conductor would be to stay consistent with 336.4 AAC as the remaining main line portion of HED-2 is currently 336.4 AAC. Project #102 provides provisions to underground a portion of the get-away to mitigate the single point of failure on the existing three circuit get-away structure. While not specifically part of this project, it should be considered to align this reconductoring with reconductoring of the transmission line overbuild. Current planning is to perform this reconductoring work in conjunction with upgrading the Hedges to Phillips transmission line.

 # 100 – Southridge Feeder Support. This project is intended as a placeholder to account for system improvements with sudden growth in the Southridge area that are not specifically identified in the current Five Year Plan. The District has not been notified to date of any large “anchor” tenants associated with COK’s Bob Olsen Parkway road extension project. However the District anticipates future growth in the Southridge/South Thompson Hill area to correlate with the completion of the project. Additionally the COK UGA has expanded south of I-82 along the Christensen road area and is anticipated to be initially zoned commercial, similar to Brinkley Rd. Long term support for this projected growth will be accomplished through extension of feeders ORV-1, ORV-7, ORV-8, and the construction of Ridgeline Substation. Prior to these projects, existing feeders must be utilized to support growth in the near term. Currently Highlands HIG-1, and HIG-5, Orchard View ORV-3, and Southridge STH-4 feeders are in the vicinity.

Existing facilities in the area will potentially require upgrading and additional feeder ties will need to be constructed. The specific location of these ties and which feeder is most optimal is dependent on where the load growth occurs. Due to the unknown nature of the future loads, budgeting for this project would be accomplished through a budget amendment.

 # 101 – Rural Feeder Reliability and Sectionalizing - In the 2016 Plan three rural feeders were selected for reliability improvements through additional sectionalizing. The District's performance measures, which include outage indices that measure outage customer count and outage duration, were used to select these feeders. Due to their nature the number of customers on rural feeders tends to be lower, but outage times tend to be longer due to the generally more difficult line patrol conditions. This project is intended to account for reliability & sectionalizing improvements on one or two rural feeders a year. This project is meant to be a broad base reliability improvement alongside any actions (animal guards, reconstruction, etc.) that may come out of more targeted reliability analysis performed by the District.

 # 102 – HED-4 (Hedges), Get-away Reconductor. The 3/0 overhead get-away conductor for HED-4 exceeded 90% of the conductor rating during winter peak conditions in 2016-2017 as identified in the 2018 Plan. Additionally feeders HED-2, HED-3, & HED-4 all exit the station via the get-away same overhead structure. This puts an increased reliability risk resulting in de-energizing three of the four Hedges feeders through a single car-pole accident, pole fire, etc. While a direct overhead replacement with 556 AAC is possible, it is desirable to minimize the risk of a large outage associated with a single incident. For this reason it is recommended to replace the overhead get-away for HED-4 with a 1000 kcmil underground one. It is additionally recommended that provisions (additional conduit) be put into place to accommodate replacing the get-away for HED-2 when the reconductor described in project #95 occurs to further reduce the single cause outage exposure on Hedges substation.

 # 105 – KEN-9 (Kennewick), reconductor 3/0 ACSR line along Washington St. from W. 11th Ave. south to W. 16th Ave. GUM-1 support from KEN-9 is limited by the 3/0 ACSR overhead line on Washington St., which is over 90% loaded when existing switching is used. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for KEN-9 loading during normal configuration. The ideal conductor would be to stay consistent with 336.4 AAC as the remaining main line portion of KEN-9 upline is currently 336.4 AAC. This project will move feeder KEN-9 on Washington St. closer to 100% upgraded, but additional 3/0 ACSR remains on KEN-9 between W. 16th Ave and 27th Ave.

 # 113 – ELY-2 (Ely) reconductor 3/0 on Garfield St from L138A south to 82912-3405. ELY-2 support from KEN-5 is limited by the 3/0 ACSR overhead line on Garfield St., which is over 90% loaded when existing switching is used. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for ELY-2 loading during

normal configuration. The ideal conductor would be to stay consistent with 336.4 AAC as the remaining main line portion of KEN-9 upline is currently 336.4 AAC.

FYP #136 upgrades a section of line at the south extents of this project. If the priority of FYP #136 moves up, this project should be considered as well for ease of design/construction. Additionally if 556 is selected as part of FYP #136, this project should be modified to utilize it as well.

 # 117 – SSR-1 offload to SSR-3. With the build out of SSR-4 and subsequent splitting of SSR-3, SSR-3 now has available capacity to accommodate a load shift from SSR-1. While SSR-1 is not overly heavily loaded, it covers a relatively large geographic area that slows patrol times during feeder outages. Furthermore load in Benton City is growing limiting available switching capacity. Load east of L1430A will be moved to SSR-3. With the previous installation of L1410A and L1500A and the installation of additional fault indicators, this load shift will reduce crew patrol times during outages and allow for more flexible switching options and set up the area for the build out of feeder BEC-3. The adjustment to normal open points associated with FYP #58 will supersede this project.

 # 119 – PSR-3 (Prosser), reconductor of 4/0 XLPJ to 1000 kcmil, #2 STRBC to 336.4 AAC. During a summer Prosser Bay 1 outage Riverfront has limited switching options, resulting in an overload of Prosser Bay 2 during switching. Reconductoring the #4/0 XLP from switch L595A to Pole 82402-2804 with 1000 kcmil, and the #2 STRBC from Pole 82402-2804 to Pole 82402-4907 with 336.4 AAC would allow additional load to be transferred to Riverfront and prevent an overload at Prosser Bay 2. 336.4 AAC was selected as the ideal conductor to stay consistent with the other feeder mainlines in the Prosser area.

 # 120 – ANG-4 (Angus) reconductor 3/0 ACSR on Clearwater Ave from L311A east to 82903-9902. ANG-7 support from ANG-4 is limited by the 3/0 ACSR overhead line on Clearwater Ave., which is loaded to 98.3% of its emergency rating when existing switching is used. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for ANG-4 loading during normal configuration. The ideal conductor would be to stay consistent with 336.4 AAC as the remaining main line portion of ANG-4 downline is currently 336.4 AAC.

 # 121 – HLS-7 (Highlands) reconductor 4/0 ACSR on Clearwater Ave from 82904-9303 west to 82904-9002. HLS-3 support from HLS-7 is limited by the 4/0 ACSR overhead line on Clearwater Ave., which is loaded to 97% if ORV-5 is not utilized. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit, simplify switching requirements in the area, and provide a more economical conductor size for HLS-7 loading during normal configuration. The ideal conductor would be to stay consistent with 336.4 AAC as the remaining main line portion of HLS-7 upline & downline is currently 336.4 AAC.

 # 122 – ANG-3 (Angus) reconductor 3/0 ACSR on Clearwater Ave from L314A west to 82903-9002. Ongoing growth in the Vista Field area has limited ANG-9 support from VIS-4 and no longer allows a full transfer from ANG-9 to VIS-4 during summer peaks. Alternate switching to move part of ANG-9 load onto ANG-3 to prevent a VIS-4 get-away overload condition results in the 3/0 ACSR on ANG-3 to be loaded to 90.33% of its emergency rating. Upgrading this line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for ANG-3 loading during normal configuration. The ideal conductor would be to stay consistent with 336.4 AAC as the downline main line portions of ANG-3 is currently 336.4 AAC.

 # 123 – Badger Canyon Feeder Redevelopment. While installation of these feeders is beyond the timeline of the 2024 Plan, this project is intended as a placeholder to account for system improvements to the existing distribution feeder layout associated with the buildout of Badger Canyon substation. Once the final location for Badger Canyon substation is established proposed feeder routing will be determined and noted to coordinate with continued development in the area. It is currently anticipated that one feeder would route along the tap on RTA-2 that feeds L80R, one would head west and tie to SSR-4, and two would double circuit to the east to tie into RTA-3 and LES-1.

 # 124 – GUM-4 (Gum Street), HED-3 (Hedges), reconductor 3/0 ACSR line along Bowles Rd. from Dague Rd. east to Haney Rd. Project #11 was previously completed to upgrade GUM-4 between S. Oak St. and Dague Rd to provide HED-3 support during N-1 conditions. The prior completion of project #13 (Game Farm reconductor), and the scheduled spring 2024 completion of project #14 (Game Farm to Terril tie) allow for 100% pickup of HED-3. Ongoing load growth through the medium to long term will eventually require upgrading the 3/0 ACSR for outage support. Because this tie line is normally lightly loaded, 336.4 AAC is recommended as the economic conductor for this upgrade. This project is currently beyond the scope of the 2024 FYP and is being utilized to capture the remaining future improvements.

 # 125 – Re-Feed Nutrien Phillips Plant. The 4.16kV infrastructure at Phillips substation bay 1, 2, & 3 is aging with replacement parts being difficult to come across. Testing frequency has been reduced to minimize any additional operations. Over time load has reduced at the plant due to Nutrien’s changing needs. Additionally any time the District needs to perform transmission maintenance that requires a Phillips substation outage generators are required to keep the plant operational as there are no field ties to the 12.47kV system. This project would install a 1,500-2,500 kVA 12.47-4.16kV step down transformer to re-feed the plants’ 4.16kV switchboards as well as an OH line to feed cooling pumps located adjacent to the river. This project is dependent on the completion of project #81 (PHL-8 buildout).

This project will have a CAIC component from Nutrien and a schedule for the upgrades has not been determined. As such budgeting for this project would be accomplished through a budget amendment.

 # 127 – PSR-2 (Prosser) reconductor 4/0 ACSR on OIE from 92436-0001 North to 92436-9008. PSR-4 support from PSR-2 is limited by the 4/0 ACSR overhead line along OIE. PSR-2 can support PSR-4 using normal switching for a Prosser bay 2 winter outage. However PSR-2 cannot support a PSR-4 outage that occurs at the river crossing without utilizing emergency ratings. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit, and provide a more economical conductor size for PSR-2 loading during normal configuration. The ideal conductor is 336.4 AAC.

 # 128 – BEC-1, BEC-2 (Benton City) reconductor 4 ACSR on Highland Rd from 92612-9701 South to 92613-9706 and east to 92707-001. Project 36a, 36b, and 58 alleviate most of the limitations for switching Sunset Road out during winter peaks, however SSR-2 support from BEC-1 is still limited. This project assumes 36a, 36b, and 58 have been previously completed. Reconductoring these sections of BEC-1 & BEC-2 and installing additional switches will allow an additional load transfer from BEC to the newly created BEC-3 feeder. This, coupled with phase balancing efforts on the feeder, would allow for transfer of Sunset Road during peak winter events. As this line section will normally be lightly loaded, the economical conductor is 336.4 AAC.

 # 129 – ANG-5 (Angus) reconductor 4/0 ACSR on W. Metaline Ave from 92934-5417 west to L670A. Ongoing growth in the Vista Field area has increased the load transfer from HLS-3 to ANG-5 during a summer peak Highlands bay 1 outage. Projected load growth results in a section of 4/0 ACSR on ANG-5 becoming loaded to over 90% of its normal rating by 2026.

The ideal conductor would be to stay consistent with 336.4 AAC as the upline main line portions of ANG-5 is currently 336.4 AAC. This will remove a potential weak point in the system, increase reliability by replacing an aging circuit, and provide a more economical conductor size for ANG-5 loading during normal configuration. Additionally ANG-5 and ANG-9 cross at N. Volland St. The possibility of adding a tie switch between he circuits should be evaluated during detailed design.

 # 130 – VTA-3, VTA-4 (Vista) getaway upgrades. Currently Vista feeders VTA-1, VTA-3, VTA-4, & VTA-7 share a common vault and conduit system from Vista Substation to the east side of Columbia Center Blvd, with the majority portion crossing north end of Columbia Center mall. Additionally all four feeders are aging XLPJ cable that is approaching 55 years. This project will install an additional set of vaults and conduits adjacent to the existing to allow VTA-3 and VTA-4 to be separated out and upgraded from 750 kcmil XLPJ to 1000 kcmil EPRJ. This will improve reliability and operability of the system for the long term.

It is intended that this project occur before FYP #132. Additionally the existing 750 XLPJ conductors for VTA-3 and VTA-4 will most likely have to be abandoned in place and removed as part of FYP #132 in order to minimize cutover outage(s) at the mall.

 # 131 – VTA-1, VTA-7 (Vista) getaway upgrades. Currently Vista feeders VTA-1, VTA-3, VTA-4, & VTA-7 share a common vault and conduit system from Vista Substation to the east side of Columbia Center Blvd, with the majority portion crossing north end of Columbia Center mall. Additionally all four feeders are aging XLPJ cable that is approaching 55 years. This project will upgrade the existing VTA-1 and VTA-7 get-away cables from 750 kcmil XLPJ to 1000 kcmil EPRJ. This will improve reliability and operability of the system for the long term.

The intention is for this project to occur sometime after FYP #131 and #38 are completed in order to facilitate switching to minimize mall outages during construction. Additionally the abandoned in place 750 XLPJ from VTA-3 and VTA-4 will need to be removed from the conduit & vault system during these improvements.

 # 132 – N-1 Phase Balancing. The Five Year Plan identifies feeders that would generally benefit from phase balancing efforts. This project identifies specific phase balancing efforts that would either allow the District to complete bay outage switching where the Mobile would otherwise be required, or defer a system upgrade to a later plan year for capital work balancing. Preference is given to identifying overhead taps over underground ones, however being able to complete the switching takes precedence. These specific areas identified in the 2024 FYP are:

ANG-3 – While ANG-3 is relatively balanced overall, it has a severe imbalance upline and downline of L958A that impacts N-1 switching.

- 82904-9702: Rephase tap from B-A
- 82904-9608: Rephase tap heading towards 82904-9613 from B to C
- 82904-9901: Rephase from C to B
- 82903-9007: Rephase tap heading towards 82903-8104 from A to B
- 82903-8003: Rephase tap heading towards 82903-8004 from A to B

ELY-4 – Get-away loading is high during a Gum winter outage. These efforts don't completely remove the high loading condition, but significantly reduce it.

- 82914-3505: Rephase from B to C
- 82914-2403: Rephase from B to C

LES-2/RTA-3 – During a Reata winter outage feeder RTA-3 is switched to LES-2. The combined imbalance results in the get-away for LES-2 being loaded to 94.1% on B phase. Phase balancing efforts moving 100A from B and splitting it 50/50 with A and C will alleviate the problem. Additional study is required to identify the specific combination of taps required to achieve this. Note – Special attention must be given to the overall bay imbalance at Reata to prevent an overload of the regulator during Leslie Road winter outages.

LES-4/RTA-1 – During a Reata winter outage feeder RTA-1 is switched to LES-4. The combined imbalance results in the get-away for LES-2 being loaded to 91.1% on A phase. Phase balancing efforts moving 100A from A and splitting it 60/40 with B and C will alleviate the problem. Additional study is required to identify the specific combination

of taps required to achieve this. Note – Special attention must be given to the overall bay imbalance at Reata to prevent an overload of the regulator during Leslie Road winter outages.

SSR-2 – During a Benton City winter outage low voltage exists between L153V and L272R. These both better balance the area and move affected customers to the higher voltage phase.

- 92614-5604: Rephase from A to C
- 92613-1002: Rephase from B to C

 # 133 – PSR-3/SSR-2 N-1 Outage Support. Currently the area between Benton City and Prosser is radially fed from both ends. During N-1 conditions a load transfer is not possible due to concerns about the system neutral in the area. The main line of this portion of the system was originally construction by PPNL in the 1920s as a 3-wire 69kV transmission line that was eventually converted to a 12.47kV distribution line once other transmission assets in the area were established.

Portions of this line section have had a system neutral added over time as other work was performed, but there are remaining sections that have not. In some areas it will be necessary to rebuild portions of the line to add a neutral conductor and maintain required NESC clearances. A budgetary assumption has been made with specific sections to be determined during detailed design.

Additionally the system neutral that is existing closer to Prosser is connected to PSR-4 at pole 92534-9701. Approximately 3.5 miles of line will need a combination of rebuilding/cleaning up to accommodate the addition of a system neutral. It is also recommended to identify some location to add line switches in the area to accommodate sectionalizing during outages instead of having to cut line jumpers.

Note that even with remedying the neutral concerns in the area a transfer of the full load in the Yakitat Rd. area to PSR-3 is not possible without extensive reconductoring efforts and a voltage regulator addition.

 # 134 – HED-2 Additional Line Switch at 83027-9904. FYP #14 and #41 provide additional capacity from Zephyr to support Hedges outages. However feeder HED-3 has limited ability to support a ZEH-4 outage in the Game Farm Rd area once these upgrades are completed and results in a mainline overload when trying to pick up the Santiago Estates area. FYP #135 describes the improvements required to resolve this overload long term.

In the short to medium term, an additional line switch installed on 83027-9904 in conjunction with the improvements of FYP #14 and #41 will allow for additional switching from HED-3 to PHL-7, and from HED-3 to HED-2 to allow HED-2 to support an outage east of L490A and prevent the Santiago estates area from operating like a radial during N-1 conditions caused by an outage to the west of Oak St.

 # 135 – HED-3, reconductor 3/0 ACSR line along Haney Rd. from Perkins to Game Farm, and Perkins from Haney to Hedges Substation. FYP #134 provides N-1 coverage for an outage between Oak St and Nine Canyon Rd on GUM-4 (ZEH-4 in future) in the short to medium term. However it requires extra switching steps that this project would simplify and may not be enough over time if “fill in” style development continues in the area and native load increases.

This project reconductors approximately 2.28 miles of line from Game Farm and Haney north to Perkins, and east from Perkins and Haney to Hedges substation and includes the overhead feeder get-away. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for HED-3 loading during normal configuration. As this line section will normally be lightly loaded, the economical conductor is 336.4 AAC.

FYP #135 is beyond the scope of the 2024 FYP. It is being identified as an overall vision for the feeder so that it can be incorporated into any other work that may occur (rebuild, reconductor, etc.) that would affect the portions of the main line of HED-3. This project assumes FYP #14, #81, and #134 have all been previously completed.

 # 136 – ELY-2 (Ely) reconductor 3/0 on Garfield St from 82912-3405 south to 82914-0406. During Kennewick bay 3 outages the get-away for feeder KEN-4 becomes loaded to 97.1% with available switching. While FYP #137 will allow for additional switching to lessen this condition, KEN-1 still remains relatively high loaded.

Upgrading the 3/0 ACSR overhead line on Garfield St. from 82912-3405 to 82914-0406 would allow KEN-9 to be transferred to ELY-2 via a portion of GUM-1. This will allow for a load transfer from KEN-8 to GUM-1 further reducing loading on KEN-1. ELY-2 is in a congested portion of the system and is key for several bay outage switching plans. Upgrading this section of line will remove a potential weak point in the system, increase reliability by replacing an aging circuit and provide a more economical conductor size for ELY-2 loading during normal configuration. 336 AAC will work as the minimum conductor for this application however 556 AAC should be considered at the time of design.

The benefits of this project assume FYP #137 has been previously completed. During detailed design additional locations for line switches will be evaluated to provide better sectionalizing capability to balance both switching operations and reliability needs.

While this project’s need is beyond the scope of the 2024 FYP, FYP #113 upgrades a section of line at the north extents of this project. If the priority of FYP #113 moves up, this project should be considered as well for ease of design/construction.

 # 137 – KEN-6 Additional Line Switch. During Kennewick bay 3 outages the get-away for feeder KEN-4 becomes loaded to 97.1% with available switching. Adding an additional line switch on KEN-6 between 82901-6711 & 82901-7718 allows for a load

transfer from KEN-6 to ANG-6 and then from KEN-7 to KEN-6 alleviating the heavy loading condition on KEN-4.

 # 138 – Future Nutmeg Substation Feeder Development – Feeder NMG-1. This project captures the expected feeder route for feeder NMG-1 when Nutmeg substation is constructed in the future. This feeder is currently beyond the scope of the 2024 FYP. This project is meant to be considered in conjunction with FYP #139, #140, and #141. These feeders were split out to better encapsulate their complexities and costs.

NMG-1 requires the most extensive system improvement of the Nutmeg substation feeders. NMG-1 will service native load from KEN-8 generally east of Oak St and north of Finley Rd and Chemical Dr.

Anticipated routing is east underground out of the substation with a riser between 83005-6002 & 83005-5003, south of the get-away for NMG-3, as the underbuild to the south of E. 3rd to a new normally open tie switch between NMG-1 and KEN-8 on Oak St. Existing tap to west at 83005-5010 will be re-routed to NMG-3. The main line for NMG-1 will head east down 3rd and south down Yew.

KEN-8 Improvements:

Portion of KEN-8 from E. 3rd and S. Oak St. heading east to S. Yew St. requires upgrading to 556 AAC. and will be the main line for NMG-1. Upgrade to 556 AAC continues from E. 3rd south down Yew St. to E. 10th. L164S will be removed and placed back into inventory. A new normally open tie switch between KEN-8 and NMG-1 will be installed between 83008-9204 and L365V. Existing solid blades at 83005-0503 will be replaced with a normally close switch to facilitate N-1 switching requirements.

Portion of KEN-8 heading east from L365V to S, Havana requires upgrading to 336 AAC. Additional study during detailed design will determine if L163 is to be relocated or removed. Portion of KEN-8 from 10th south along Havana to Finley road requires upgrading to 336 AAC. Portion from Havana along Finley Rd heading east requires upgrading to 336 AAC as well as phasing up on the east end. It is assumed that an underground 1000 EPRJ crossing of existing BPA facilities at Matzat Rd is required for the connection to HED-4.

HED-4 Improvements:

What is described for HED-4 is the minimum upgrades necessary to be able to provide N-1 support to NMG-1 in the event of a Nutmeg substation outage. There is a remaining portion of 4/0 ACSR on HED-4 that does not currently present an N-1 limitation. Improvements to this section will be described in a separate project as part of a future five year plan.

The portion of HED-4 along Haney between 83009-4904 and 83009-7901 requires phasing up and upgrading to 336 AAC.

The portion of HED-4 from Haney east to Hedges Sub requires upgrading from 3/0 ACSR to 336 AAC. This portion of the line is underbuilt with HED-3 which is also 3/0. Detailed design will evaluate the possibility of upgrading one circuit while not the other. Note the upgrades associated with FYP #102 are also required as part of this project.

For improvement routes on both feeders additional study will be performed during detailed design to provide recommendations for additional sectionalizing switches to boost reliability in the area.

 # 139 – Future Nutmeg Substation Feeder Development – Feeder NMG-2. This project captures the expected feeder route for feeder NMG-2 when Nutmeg substation is constructed in the future. This feeder is currently beyond the scope of the 2024 FYP. This project is meant to be considered in conjunction with FYP #138, #140, and #141. These feeders were split out to better encapsulate their complexities and costs.

NMG-2 will serve transferred native load from KEN-7 in roughly between Dayton St. and Gum St. and E. 3rd and Canal Dr. Anticipated routing is west underground out of the substation with a riser between 83006-6902 & 83006-6901, south of the getaway for NMG-4, with the addition of an overhead tie switch between the risers for NMG-2 and NMG-4. Circuit will be overbuilt portion of double circuit with NMG-3 heading west along 3rd/Chemical Drive to Gum St. Circuit will continue west until past L448A and will tie into existing KEN-7 with a new normally closed line switch. L448A will remain a normally open switch between NMG-2 and NMG-3. An additional line switch at 83006-4007 at 4th and Washington will be the normal open between NMG-2 and KEN-7.

The new overbuild along 3rd/Chemical drive area is recommended to be 336 AAC as N-1 switching loads during summer peaks are such that that 400A summer limitation of 336 is not an issue as of the 2024 FYP.

 # 140 – Future Nutmeg Substation Feeder Development – Feeder NMG-3. This project captures the expected feeder route for feeder NMG-3 when Nutmeg substation is constructed in the future. This feeder is currently beyond the scope of the 2024 FYP. This project is meant to be considered in conjunction with FYP #139, #141, and #142. These feeders were split out to better encapsulate their complexities and costs.

NMG-3 will serve transferred native load from KEN-1 in the Chemical Drive and Bruneau Ave. (west of Gum St.) areas. Anticipated routing is east underground out of the substation with a riser between 83005-6002 & 83005-5003, north of the get-away for NMG-1, as the overbuild to the south past the new tie switch between NMG-1 and KEN-8 to a new normally open tie switch between NMG-3 and KEN-8. Existing tap to west at 83005-5010 will be re-routed to NMG-3. Circuit will be underbuilt portion of double circuit with NMG-2 heading west along 3rd/Chemical Drive to Gum St. A new pole between 83006-4405 & 83006-4408 will have the normally open tie switch with KEN-1. An additional line switch at 83006-8501 just east of Gum St will be the normal open with NMG-4.

The line from 3rd to the substation site will require reconductoring as part necessary improvements. The existing line on 3rd/Chemical drive area is already 336 AAC. N-1 switching loads during summer peaks are such that that 400A summer limitation of 336 is not an issue as of the 2024 FYP.

 # 141 – Future Nutmeg Substation Feeder Development – Feeder NMG-4. This project captures the expected feeder route for feeder NMG-4 when Nutmeg substation is constructed in the future. This feeder is currently beyond the scope of the 2024 FYP. This project is meant to be considered in conjunction with FYP #138, #139, and #140. These feeders were split out to better encapsulate their complexities and costs.

NMG-4 will serve transferred native load from KEN-1 and KEN-8 around the City of Kennewick's wastewater treatment plant. Anticipated routing is west underground out of the substation with a riser between 83006-6902 & 83006-6901, north of the getaway for NMG-2, with the addition of an overhead tie switch between the risers for NMG-2 and NMG-4. An additional line switch at 83006-8501 just east of Gum St will be the normal open with NMG-3.

The existing portion of KEN-8 from the substation site up to L701A is already 336 AAC or 1000 EPRJ and does not require additional upgrades. The portion of KEN-1 from Gum/Bruneau to L701A is a mix of 4/0 ACSR and 336 AAC. It does not currently pose any normal or N-1 switching restrictions due to other facilities in the area and is not currently recommended for upgrade as part of this project.

 # 142 – Future Nutmeg Substation Feeder Development – KEN-1 Extension. The buildout of feeder NMG-3 in FYP #140 involves a load transfer from KEN-1. The section of line to be transferred includes the alternate feed to the City of Kennewick's wastewater treatment plant. Historically the District has maintained two feeders to this area from separate substation bays to provide N-1 support. This project is beyond the scope of the 2024 FYP and serves to capture the necessary system improvements to maintain N-1 capability at the wastewater treatment plant area.

The existing line from 83006-5403 north up Gum St to approximately 83006-8404 and east two spans down Bruneau Ave requires rebuilding as a double circuit. The final connection point on the north end of Gum St. will be determined during detailed design due to the intersection of Gum St and Bruneau Ave. being significantly congested. As this line section will normally be lightly loaded and would be available for switching operations, the economical conductor is 336.4 AAC for the KEN-1 overbuild. The existing line that would become the underbuild is 4/0 ACSR in the area and is recommended to also be upgraded to 336.4 AAC to provide additional switching flexibility in the area.

 # 143 – SSR-3 Additional Line Switch. During Benton City summer outages a portion of the Goose Ridge area experiences low voltage with available switching. This issue will be resolved with the completion of FYP #36a and #36b by allowing for alternative

switching; however these projects are scheduled for completion in 2027. Replacing the existing solid blades at 92723-8001 with a line switch will allow for additional switching to be completed now to alleviate the issue.

 # 144 – STH-2 (Southridge) Upgrade L537V to 167kVA Units. Load transfer from ORV-3 to STH-2 is limited during summer & winter by L537V. Currently L537V can be bypassed but this limits load transfer to south of L1050A on Clodfelter to prevent customer loads from experiencing low voltage.

 # 145 – Prosser Substation Getaway Upgrades. The Prosser feeders currently share a common vault and conduit system with feeders PSR-1, PSR-3, & PSR-4 in one set and feeders PSR-2, PSR-5, & PSR-6 in another. All six feeders have aging ALCN cable that is approximately 45 years old. This project will replace all feeders with EPRJ conductor. Existing documentation indicates that the conduits are concrete encased. The intention is to provide an alternate path for one feeder out of each set to achieve the District's current practice of no more than two feeders in a single vault.

[This Page Intentionally Left blank}

[For Two Sided Printing]

Table A2 – Substation Projects

POS#	Substation, Project Description	Cost Estimate ($K)		
		Mat.	Lab.	Total
2025				
S10	Misc. Sub -Aux. Equip., Relays/Controls	15	10	25.0
S39	Misc. Sub. SCADA Equip., RTUs/Comms	20	30	50.0
S44	Vista Bay 2 Metalclad Replacement	839.3	230.0	1069.3
S44	Vista Bay 2 SCADA Upgrades	7.0	8.2	15.2
S10	Sunset Rd Bay Relays Upgrade	59.3	60.6	119.9
S39	Sunset Rd SCADA Upgrades	18.5	11.1	29.6
S47	Sunset Road Regulator Replacement	701.0	20.0	721.0
S10	Angus Bay 2 Bay Relay Upgrade	42.0	60.0	102.0
S39	Angus Bay 2 SCADA Upgrades	7.0	8.0	15.0
S10	Kennewick Bay 1 Fdr. Relay Replacement	30.0	15.0	45.0
S10	Kennewick Bay 3 Fdr. Relay Replacement	30.0	15.0	45.0
S39	Kennewick – RTU Replacement Part 1	20.0	25.0	45.0
S46	Ely Bay 2 Power Transformer Replacement (Delivery)	1100	10	1110.0
S46	Orchard View Bay 1 Ely Power Transformer Replacement (Delivery)	1100	10	1110.0
2025 Total		**$3,989**	**$513**	**$4,502**

POS#	Substation, Project Description	Cost Estimate ($K)		
		Mat.	Lab.	Total
2026				
S10	Misc. Sub -Aux. Equip., Relays/Controls	15	10	25.0
S39	Misc. Sub. SCADA Equip., RTUs/Comms	20	30	50.0
S10	Kennewick Bay 1 Fdr. Relay Replacement	30.0	15.0	45.0
S39	Kennewick – RTU Replacement Part 2	5.0	10.0	15.0
S10	Prosser Bay 1 Fdr. Relay Replacement	30.0	15.0	45.0
S10	Prosser Bay 2 Fdr. Relay Replacement	30.0	15.0	45.0
S46	Ely Bay 2 Power Transformer Replacement (Installation)	40	60	100.0
S46	Orchard View Bay 1 Ely Power Transformer Replacement (Installation)	40	60	100.0
S39	Orchard View Bay 1 – RTU Replacement	25.0	35.0	60.0
S37	Orchard View Battery Bank Replacement	13.9	7.6	21.5
2026 Total		**$249**	**$258**	**$507**

POS#	Substation, Project Description	Cost Estimate ($K)		
		Mat.	Lab.	Total
2027				
S10	Misc. Sub -Aux. Equip., Relays/Controls	15	10	25.0
S39	Misc. Sub. SCADA Equip., RTUs/Comms	20	30	50.0
S10	Bay & Feeder Relay Upgrades – Riverfront	120.2	154.4	274.6
S39	Riverfront – RTU Replacement	25.0	35.0	60.0
S37	Phillips Battery Bank Replacement	13.9	7.6	21.5
S39	Phillips Bay 4 – RTU Replacement	25.0	35.0	60.0
2027 Total		**$219**	**$272**	**$491**

POS#	Substation, Project Description	Cost Estimate ($K)		
		Mat.	Lab.	Total
2028				
S10	Misc. Sub -Aux. Equip., Relays/Controls	15	10	25.0
S39	Misc. Sub. SCADA Equip., RTUs/Comms	20	30	50.0
S05	Prosser Bay 1 Circuit Switcher Addition	168.0	82.4	250.4
S39	Prosser Bay 1 SCADA Upgrades	5.0	10.0	15.0
S39	Cold Creek – RTU Replacement	25.0	35.0	60.0
S39	Chevron – RTU Replacement	25.0	35.0	60.0
S37	Chevron Battery Bank Replacement	13.9	7.6	21.5
2028 Total		**$272**	**$210**	**$482**

POS#	Substation, Project Description	Cost Estimate ($K)		
		Mat.	Lab.	Total
2029				
S10	Misc. Sub -Aux. Equip., Relays/Controls	15	10	25.0
S39	Misc. Sub. SCADA Equip., RTUs/Comms	20	30	50.0
S39	Highlands – RTU Replacement	30.0	50.0	80.0
S05	Prosser Bay 2 Circuit Switcher Addition	168.0	82.4	250.4
S39	Prosser Bay 2 SCADA Upgrades	5.0	10.0	15.0
S39	Reata – RTU Replacement	25.0	35.0	60.0
S37	Reata Battery Bank Replacement	13.9	7.6	21.5
S34	Edison St. Substation	2240.0	530.5	2770.5
2029 Total		**$2,517**	**$755**	**$3,272**

2025 - 2029 Total	**$7,245.9**	**$2,008.0**	**$9,253.9**

Substation Project Descriptions

#S05 – Circuit Switcher Additions (replace high side transformer fusing). These projects will increase protection of the power transformers by allowing additional differential protection and gang operated switching during substation bay faults. Currently some substations utilize fusing on the high side of the power transformer for protection of faults occurring on some piece of equipment included in the bay (i.e., Power Transformer, LTC/Voltage Reg, PT's, CT's, and Busing). Replacing the fusing with a Circuit Switcher will allow the District to monitor the bay as a unit via additional relaying, and allow for the complete, automatic isolation of a bay if problems are detected. This will also eliminate single phase conditions that can occur with high side fusing applications. Priority is driven by system impact, and level of additional work required. Projects may also be "bundled" with other co-located substation projects in order to minimize future project related outages and abnormal switching. The addition of circuit switchers will include transformer protection relay packages to include Overcurrent and Differential Protection.

- Prosser 1 & 2
- Hedges

#S10 – Misc. Substation Auxiliary equipment (Relays/Controls). This project category includes various minor equipment upgrades.

- Sunset Road – The existing ABB bay protection relays have reached the end of their useful life, replacement parts are extremely hard to find due to the units being obsolete, and with the ABB's partial sale to Hitachi support has become limited. Units will be upgraded to the District's typical SEL-787/SEL-751 relay package.
- Angus Bay 2 – The existing ABB bay protection relays have reached the end of their useful life, replacement parts are extremely hard to fine due to the units being obsolete, and with the ABB's partial sale to Hitachi support has become limited. Units will be upgraded to the District's typical SEL-787/SEL-751 relay package.
- Kennewick – Upgrade existing SEL-351R feeders controls to SEL-651Rs.
- Prosser – Upgrade existing SEL-351R feeders controls to SEL-651Rs.

#S28 – 15 kV Breaker Replacement/Upgrade. These projects are necessary to ensure equipment that has, reached its end of life and are difficult to find parts for, are replace with more modern breaker technologies. These projects would generally include relay upgrades to microprocessor based protective relaying at the same time.
Priority (in order):

- Kennewick – The (9) VSML feeder reclosers at Kennewick are from 1975 and are reaching the end of their useful life. It is anticipated that this would be split into (3) projects.
- Prosser – The VSML feeder reclosers at Prosser are reaching the end of their useful life. (5) units are from 1975 and (1) is from 1991. It is anticipated this will be split into (2) projects.

#S31 – Hedges Substation Overhaul. Currently the Hedges Bay consists of high side fusing, a non-LTC power transformer, a low side main bus breaker, and a standalone three phase regulator. The previous oil treatment on DN43 drastically improved oil testing results and no abnormal degradation is being found on routine Doble testing. With the previously completed improvements to the bus breaker and the 125VDC to 48VDC battery bank conversion, this project will most likely be scheduled to coincide with the planned replacement of DN43, which is beyond the scope of the 2024 FYP.

This project will install a new circuit switcher and transformer protection package, and power transformer. The age and health of the freestanding regulator will dictate if the power transformer needs to be an LTC or non-LTC style. Additional scope includes evaluating the existing ground grid to determine if improvements are required. These upgrades to Hedges substation will bring the station on par with rest of the District's substation fleet.

#S34 – Edison St Substation. This station will consist of a Circuit Switcher, 25MVA LTC transformer, and a four breaker metalclad/control house assembly. The District has already submitted an interconnection request with BPA, informing them of our intent to build. The Port of Kennewick has generated a master growth plan for the Vista Field area and this substation will provide needed support to the area as development occurs. Additionally, this substation will provide outage support to Angus feeder ANG-9, Highlands feeder HIG-3, and Vista feeders VIS-3 and VIS-4. Current feeder routes have been determined and infrastructure has been installed on Metaline Drive. Timing for the construction of this substation remains as a 5th year project in the 2024 FYP as it is heavily dependent on the Port of Kennewick coming through with the development they have been speaking of. Construction timing will be reevaluated in the 2026 FYP based on actual realized development by the Port of Kennewick.

#S37 – Battery Bank Replacements. These projects will replace the aging Direct Current (DC) infrastructure at the substations which provide critical backup power in the event of an AC power outage. The battery banks provide power for protective devices to issue tripping commands to circuit switchers, breakers, and reclosers. They also provide the necessary power requirements for opening said devices. The District is replacing battery banks on a 15 year cycle due to the critical nature of the load they support.

#S38 – Animal Fence Installations. These projects will install 4 foot tall electric fences around equipment that can be easily scaled by squirrels or other small animals. The animals are deterred by the electric fence that provides a small amount of negative reinforcement to avoid significant outages or equipment damage.

#S39 – Misc. Substation SCADA Equipment (RTUs/Communication). This project category includes upgrading RTU’s and communications equipment. Also includes installation of fiber to substations that are currently on the radio network. Planned locations for the 2024 FYP include:

- Angus – Completion of SCADA upgrade to be aligned with bay controls upgrades on bay 2.

- Chevron – Upgrade to be associated with planned Agrium maintenance shutdown.
- Highlands
- Kennewick – Upgrade of SCADA equipment associated with bay controls and accumulator points to be aligned with feeder SEL-651R relay upgrades.
- Orchard View Bay 1 – Upgrade of SCADA equipment to be aligned with planned power transformer replacement.
- Reata
- Sunset Rd – Upgrade of SCADA equipment to be aligned with bay controls upgrades.
- Vista Bay 2 – Upgrade of SCADA equipment to be aligned with bay 2 metalclad switchgear replacement.

#S44 – Vista Bay 2 Metalclad Switchgear Replacement. The metalclad switchgear at Vista Bay 2 was installed in approximately 1979 and has reached the end of its operational life. While the original breakers were replaced in 2012, a controls only upgrade was not considered as the internal bus insulation has previously experienced a tracking failure. While this failure was repaired, more failures will occur over time until one of them is catastrophic. This replacement will have (4) magnetically actuated, vacuum breaker positions as well as modern microprocessor relay controls. SCADA RTU improvements will be made concurrently during the replacement.

#S45 – Ridgeline Substation. This station will consist of a Circuit Switcher, 25MVA LTC transformer, and a four breaker metalclad/control house assembly. The District previously purchased property for the future Ridgeline Substation in the Bob Olson Parkway area. Currently Highlands HLS-1 and HLS-5, Orchard View ORV-3, and Southridge STH-4 feeders are in the vicinity for near term growth. Medium term support for this projected growth is expected to be accomplished through the extension of feeders ORV-1, ORV-7, and ORV-8 and associated line upgrades as load requests come in. COK received approval to modify their urban growth plan to extend the UGA boundary south of I-82 into the Christensen Rd. area in 2022. It is expected that this area will be initially commercially zoned. Southridge STH-2 will provide medium term support to the area as heavy development is anticipated to be limited until COK's planned I-82/Center Parkway interchange is completed, which per COK's published 2022-2027 traffic plan is beyond the scope of the 2024 FYP.

Ridgeline substation will be necessary to support the long term growth in these areas. The District has not yet submitted a formal interconnection request with BPA. The District should start this process and work with BPA to prepare the existing 115kV line for a future interconnection to avoid the coordination issues that arose during the construction of Southridge Substation.

#S45 – Badger Canyon Substation. This station will consist of a Circuit Switcher, 25MVA LTC transformer, and a four breaker metalclad/control house assembly. The District can currently switch out Reata substation during N-1 contingency conditions with the anticipated load growth cycle of the 2024 FYP, however that only covers the

buildout of existing subdivisions or known proposed developments. While this moves Badger Canyon substation beyond the scope of the 2024 FYP, taking the load density (all electric) in the subdivision portions of Badger Canyon and applying it to remaining farmland/field areas results in the need for additional capacity in the Badger Canyon area in the medium (6-10 yr) term. The necessary installation year will be reevaluated in the 2026 FYP.

The ideal location for this substation is near L80R as the existing feeder infrastructure in the area provides a “crossroads” that can be utilized for buildout of the new substation. While such routing will be re-evaluated in the 2026 FYP, for this location it is anticipated that one feeder would route up the tap that feeds L80R, one would head west and tie to SSR-4, and two would double circuit to the east to tie into RTA-3 and LES-1.

The District will continue to partner with BPA on the future Weber – Badger Switchyard transmission line to ensure consideration for a substation connection is maintained and submit an interconnection request as soon as practicable. As of the 2024 FYP BPA’s process to secure a route/land rights in ongoing. Once this process concludes the District will be able to narrow down available sites.

Partnering with the City of Richland on their Dallas Rd. substation has been considered; but placing a substation bay at this location would limit feeder routes and make it extremely difficult to get feeder capacity to where it needs to be. Additionally it would create another partially islanded substation on the edge of the system that would be difficult to maintain service during N-1 contingencies.

#S47 – Sunset Road Regulator Swap-out. The District previously purchased a replacement three phase voltage regulator. The former spare was placed into service after the failure of the Highlands Bay 2 unit.

Sunset Road was selected as the District had already scheduled a bay controls and SCADA upgrade, the physical layout of Sunset Road allows for a swap out with minimal additional work, and it allows the District to place the new unit into service during the warranty period. Furthermore the existing regulator requires a controls upgrade to be compatible with the new SCADA upgrades whereas the new unit has a control that’s already set up for it.

The existing voltage regulator is relatively new compared to the in-service fleet and dielectrically tests well. It will be brought back to the District’s pole yard as a spare and the controls upgrade will be completed without potentially extending a bay outage.

#S45 – Nutmeg St Substation. This station will consist of a Circuit Switcher, 25MVA LTC transformer, and a four breaker metalclad/control house assembly. The District has property on Nutmeg Rd adjacent to the City of Kennewick water treatment plant for a future substation. Currently Kennewick KEN-1 & KEN-8 are in the vicinity for near term growth.

It is relatively infrequent for the District to receive significant load growth requests in this portion of the system as a large segment of the eastern area served by feeder KEN-8 is outside the CoK's urban growth boundary and the Port of Kennewick's "bridge-to-bridge" project to the west remains stalled.

As of the 2024 Plan the District has received notice that CoK intends to expand the electrical service needs at the water treatment plant in the short term as part of an overall plan to modernize the facility. The current intention is to retire the existing process over several years and reduce plant loads back down to historical levels. Additionally the District has received a request to add an asphalt recycling plant in the area adjacent to the wastewater treatment plant.

Projects have been prioritized during the near term to provide N-1 outage support to KEN-8 to accommodate these additional loads. If growth continues in the area Nutmeg substation will become necessary in order to provide N-1 outage support to this portion of the system. The need and timing for this will be reevaluated in the next Plan cycle.

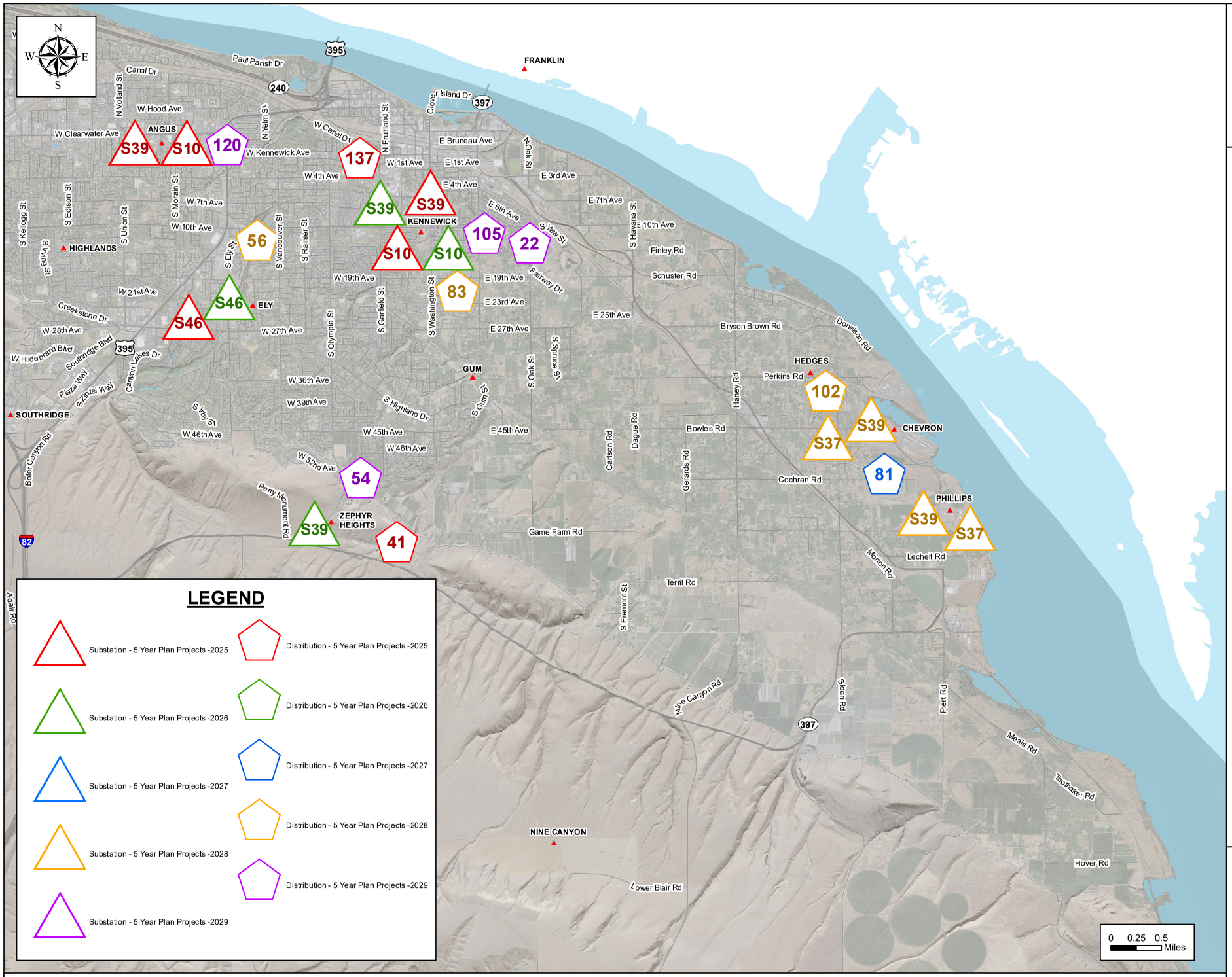
See the descriptions for Plan projects #138, #139, #140, #141 in the Distribution projects listing for the proposed Nutmeg feeder routings. Portions of these buildouts could be completed over time to create additional load transfer opportunities to allow further deference of Nutmeg substation.

#S46 – Power Transformer Replacements. The District has an aging transformer fleet with a number of transformer within 5 years of each other in age. The intention of these projects is to flatten the age curve out to minimize the change of multiple age based failures occurring in a short time span.

- Ely Bay 2 – As of the 2024 FYP the failed transformer at Ely Bay 2 is in the process of being evaluated. As it is currently unknown if the unit is repairable it is assumed that DN20 will be swapped back out to be a spare unit, and allow this unit to go into service during the warranty period. Current planning is to receive the unit late 2025 and install in 2026. If the failed unit is repaired a different site will be selected.
- Orchard View Bay 1 – Of the active fleet (with exception of currently in use spare unit DN20) Orchard View Bay 1 is the only non-vacuum LTC in service. Like DN20, DN 32 has a UZD resistive type Tap changer. While these style LTCs require much less maintenance than their predecessors, a vacuum unit requires almost no maintenance due to normal operations. This would also give the District a second spare LTC transformer. Discussion will continue between the approval of the 2024 FYP and delivery of the unit and the selected location may change. Current planning is to receive the unit late 2025 and install in 2026.

[This Page Intentionally Left blank}

[For Two Sided Printing]



LEGEND

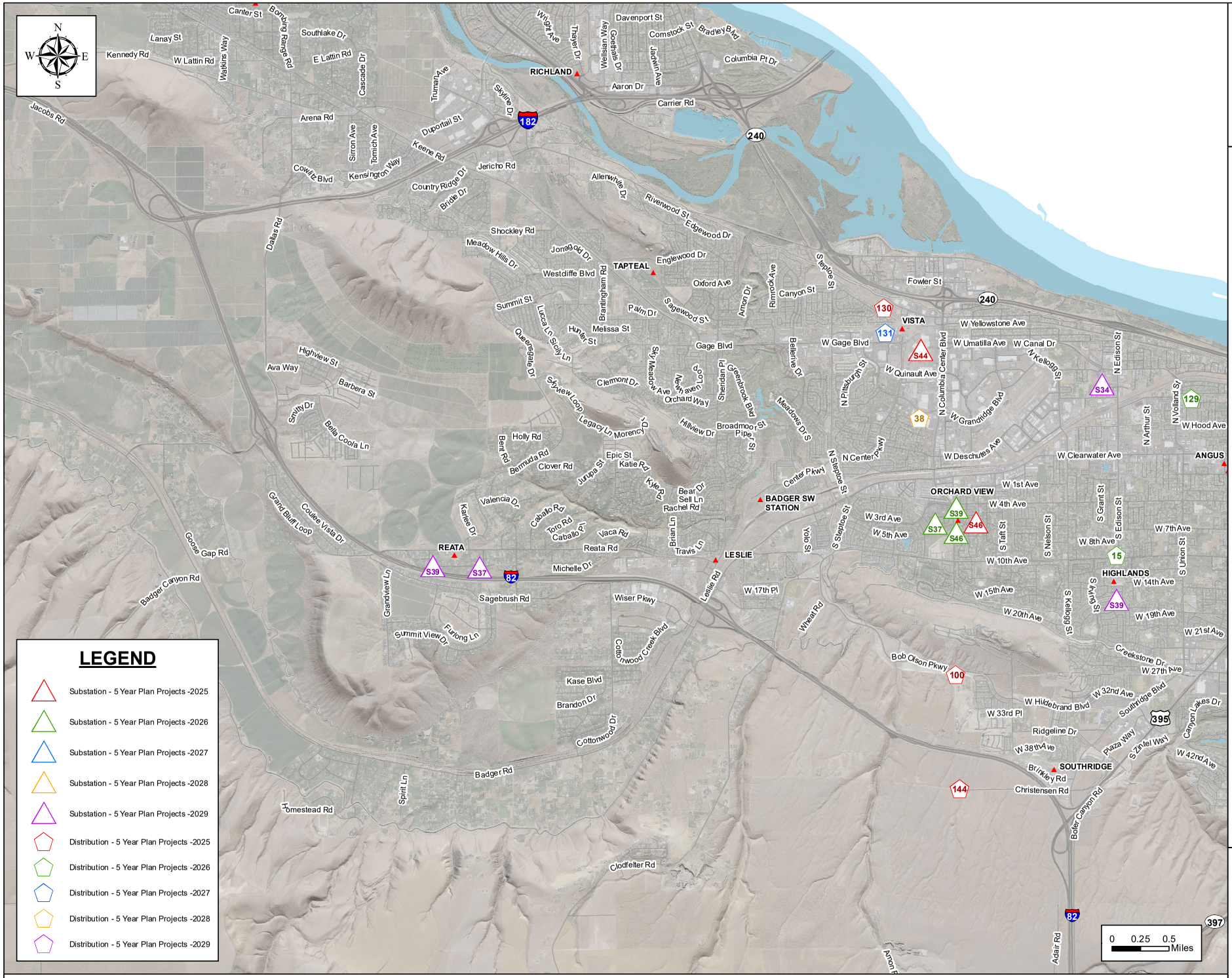
- Substation - 5 Year Plan Projects -2025
- Distribution - 5 Year Plan Projects -2025
- Substation - 5 Year Plan Projects -2026
- Distribution - 5 Year Plan Projects -2026
- Substation - 5 Year Plan Projects -2027
- Distribution - 5 Year Plan Projects -2027
- Substation - 5 Year Plan Projects -2028
- Distribution - 5 Year Plan Projects -2028
- Substation - 5 Year Plan Projects -2029
- Distribution - 5 Year Plan Projects -2029

2024 Five Year Plan
Kennewick East Projects

BENTON P.U.D.

Document Name: Kennewick East Projects.mxd

Print Date: 9/4/2024



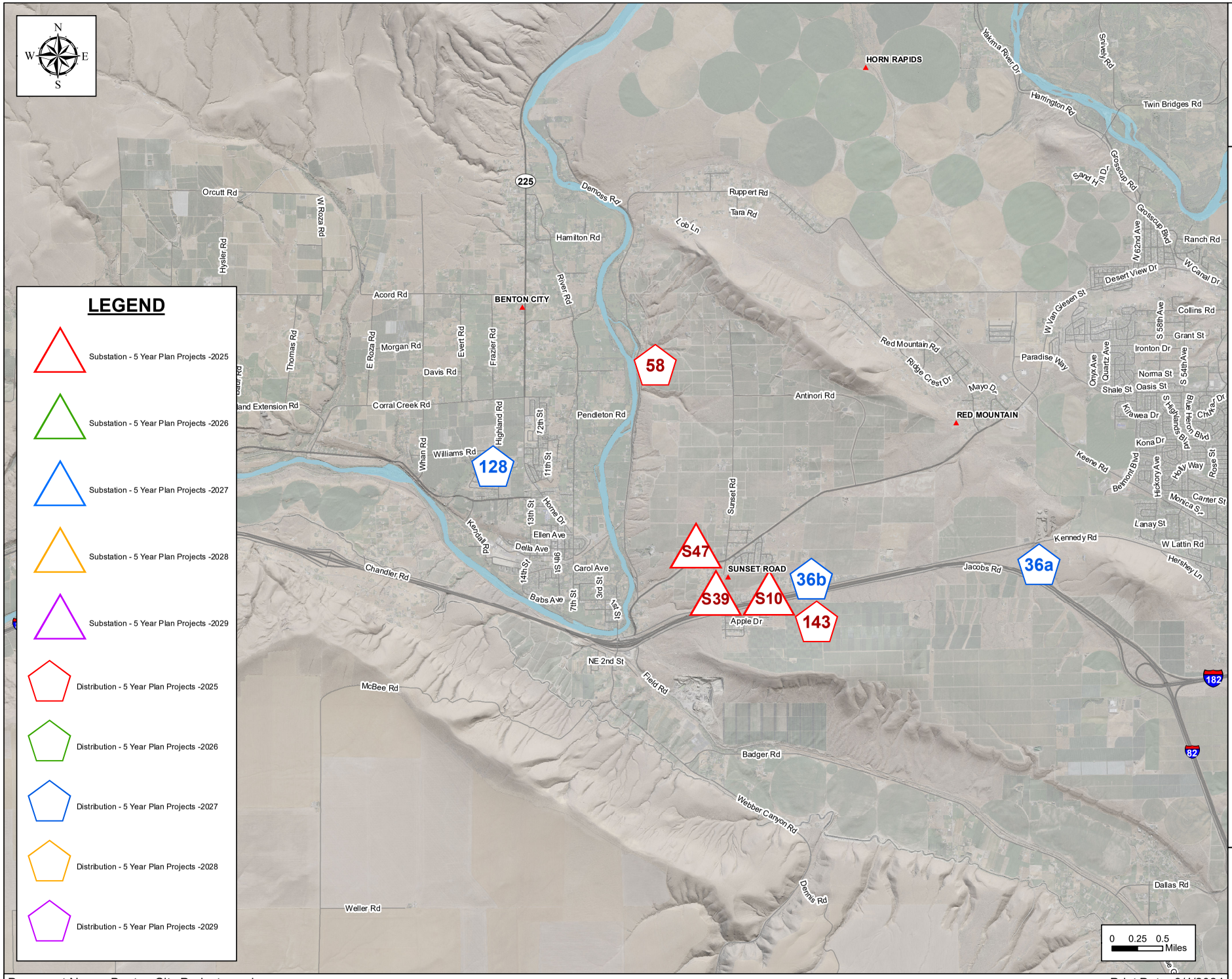
PAGE: 1 of 1
82

2024 Five Year Plan
Kennewick West Projects

BENTON P.U.D.

Document Name: Kennewick West Projects.mxd

Print Date: 8/29/2024

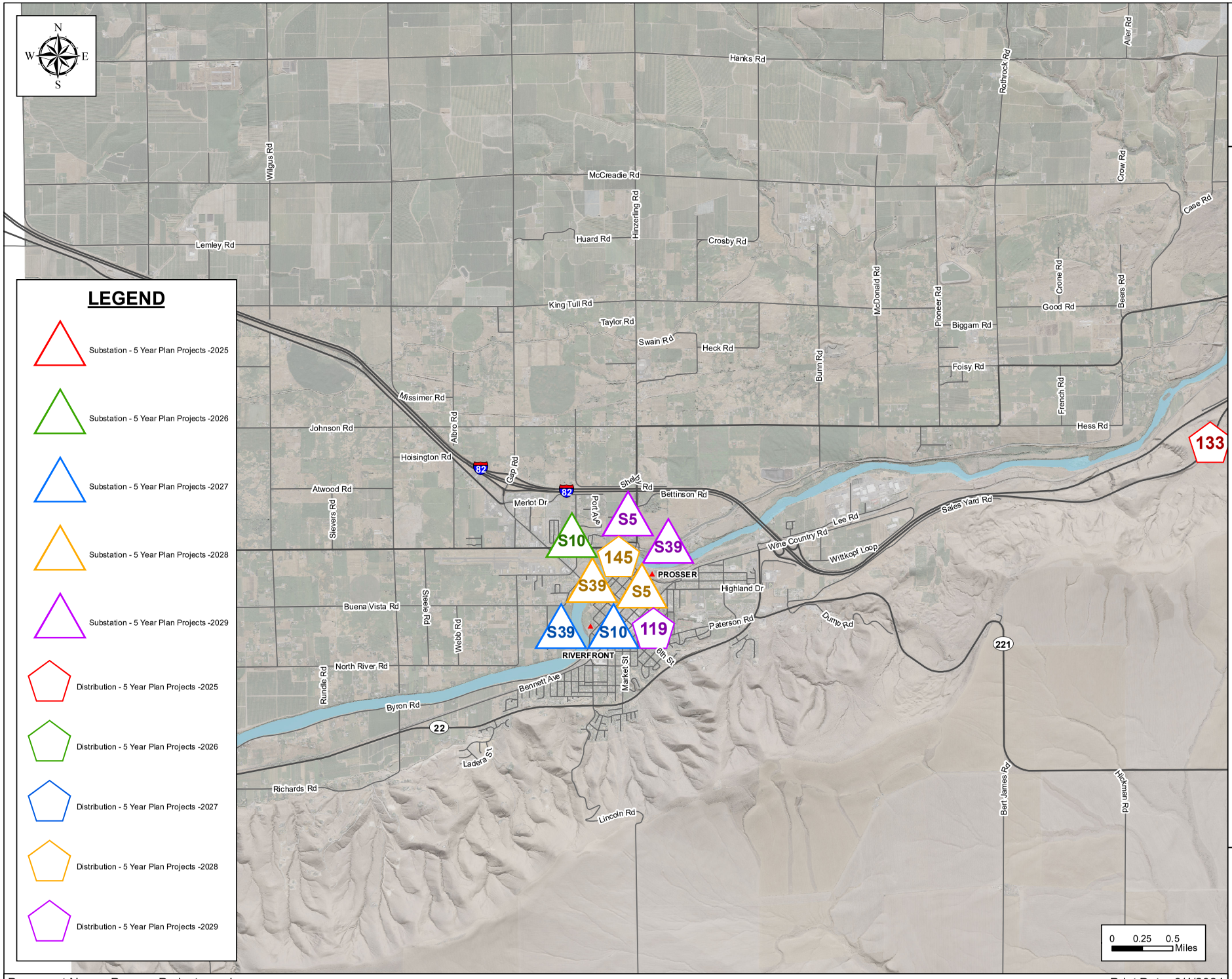


PAGE: 1 of 1
83

2024 Five Year Plan
Benton City Projects

Document Name: Benton City Projects.mxd

Print Date: 9/4/2024



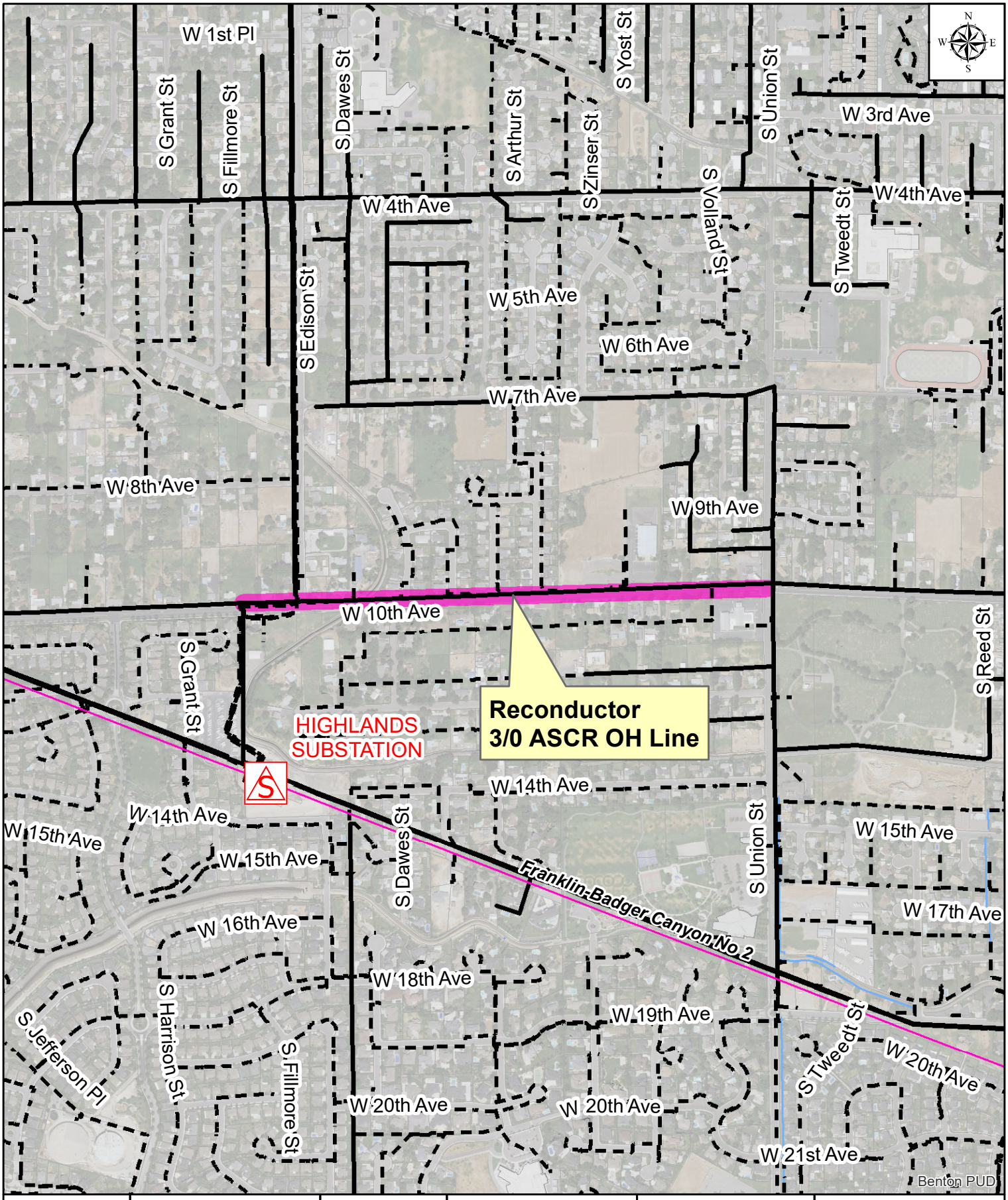
PAGE: 1 of 1
84

2024 Five Year Plan
Prosser Projects

BENTON P.U.D.

Document Name: Prosser Projects.mxd

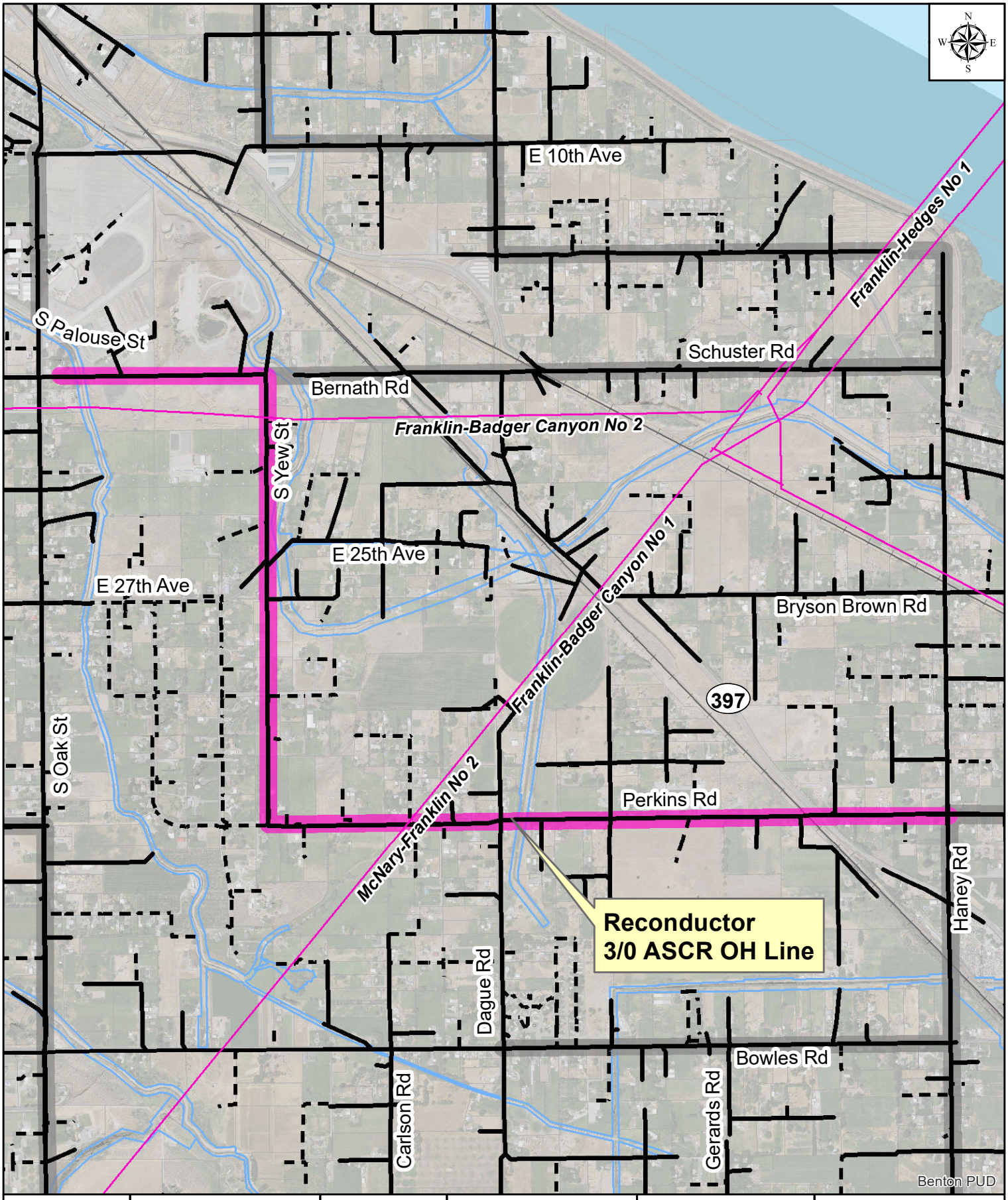
Print Date: 9/4/2024



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82909	1 inch = 800 feet	1 of 1	Project 15

BENTON P·U·D

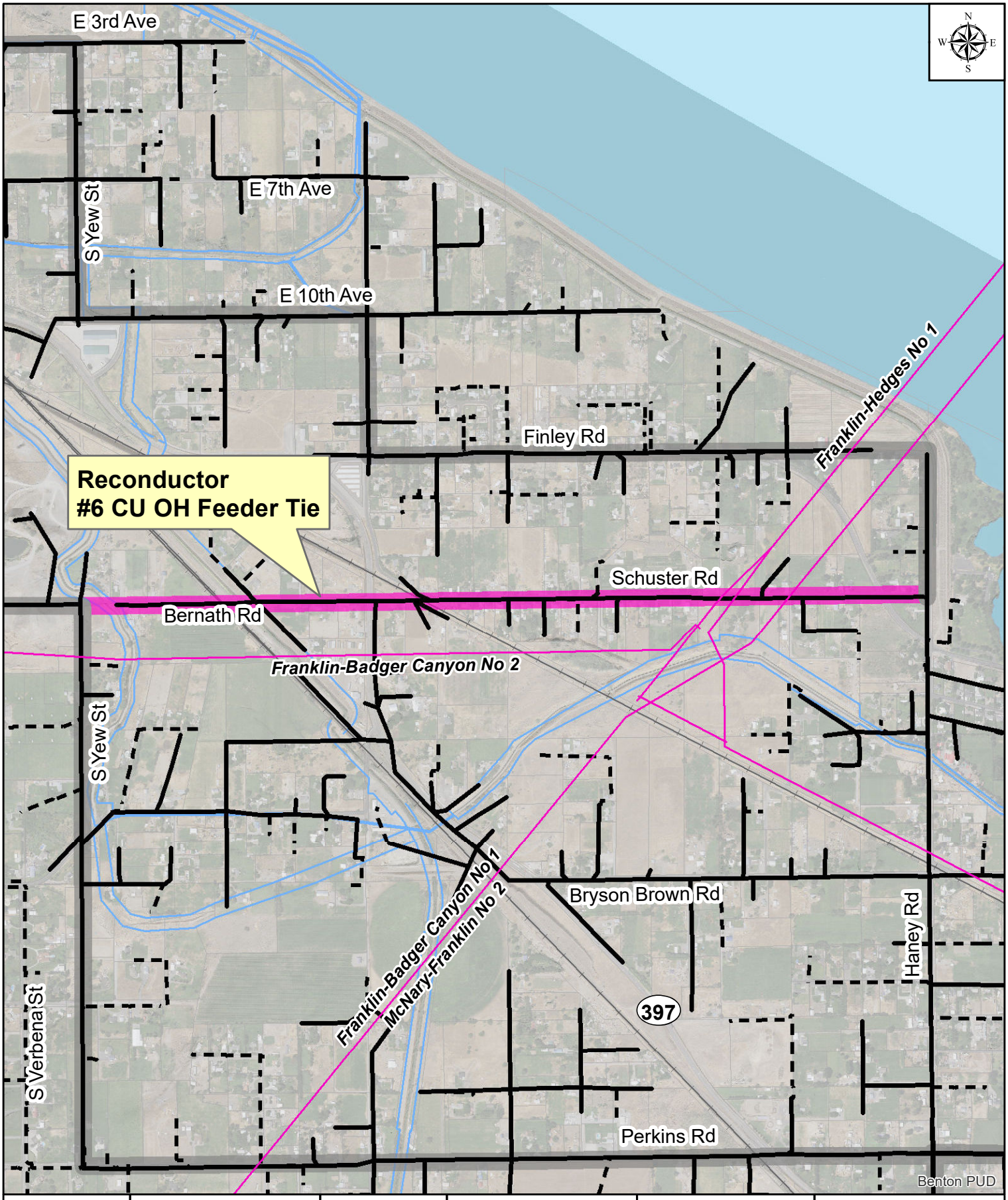
2024 Five Year Plan
HLS-4 (HIGHLANDS)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83017	1 inch = 1,500 feet	1 of 1	Project 20

BENTON P·U·D

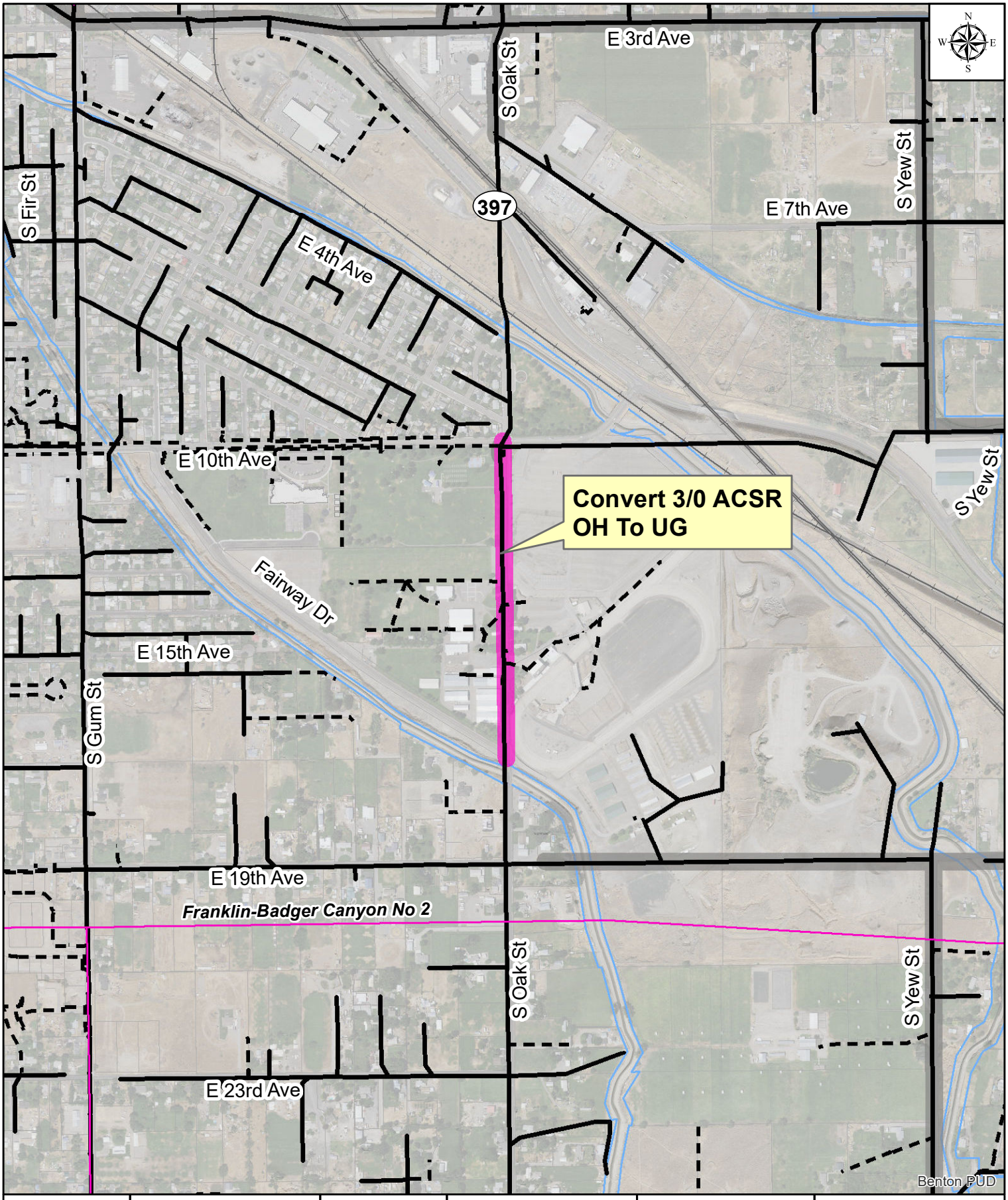
2024 Five Year Plan
HED-4 (HEDGES)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83009	1 inch = 1,200 feet	1 of 1	Project 21

BENTON P·U·D

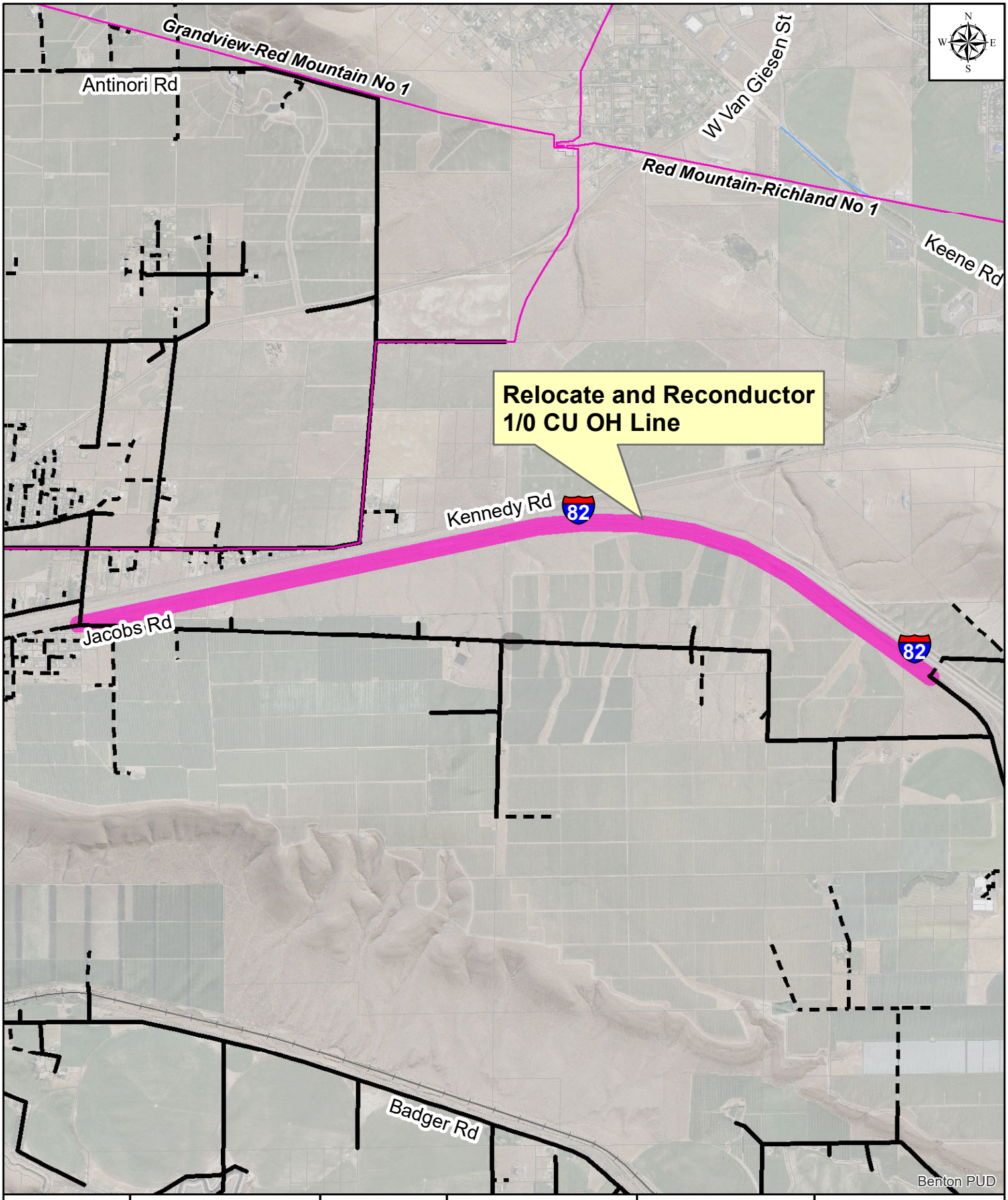
2024 Five Year Plan
HED-4 (HEDGES)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83007	1 inch = 800 feet	1 of 1	Project 22

BENTON P·U·D

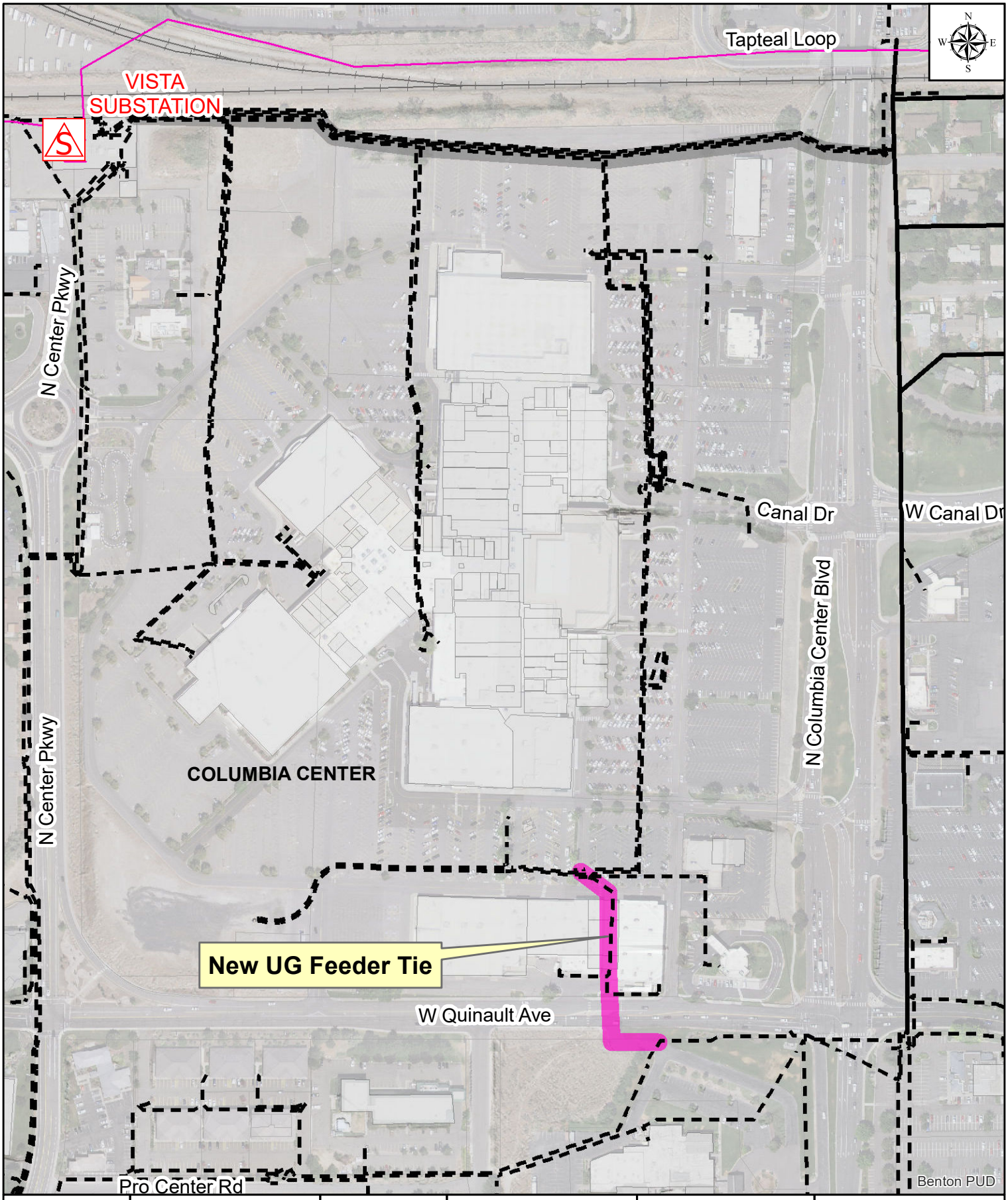
2024 Five Year Plan
KEN-8 (KENNEWICK)
OH to UG Conversion



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	92715	1 inch = 2,500 feet	1 of 1	Project 36

BENTON P·U·D

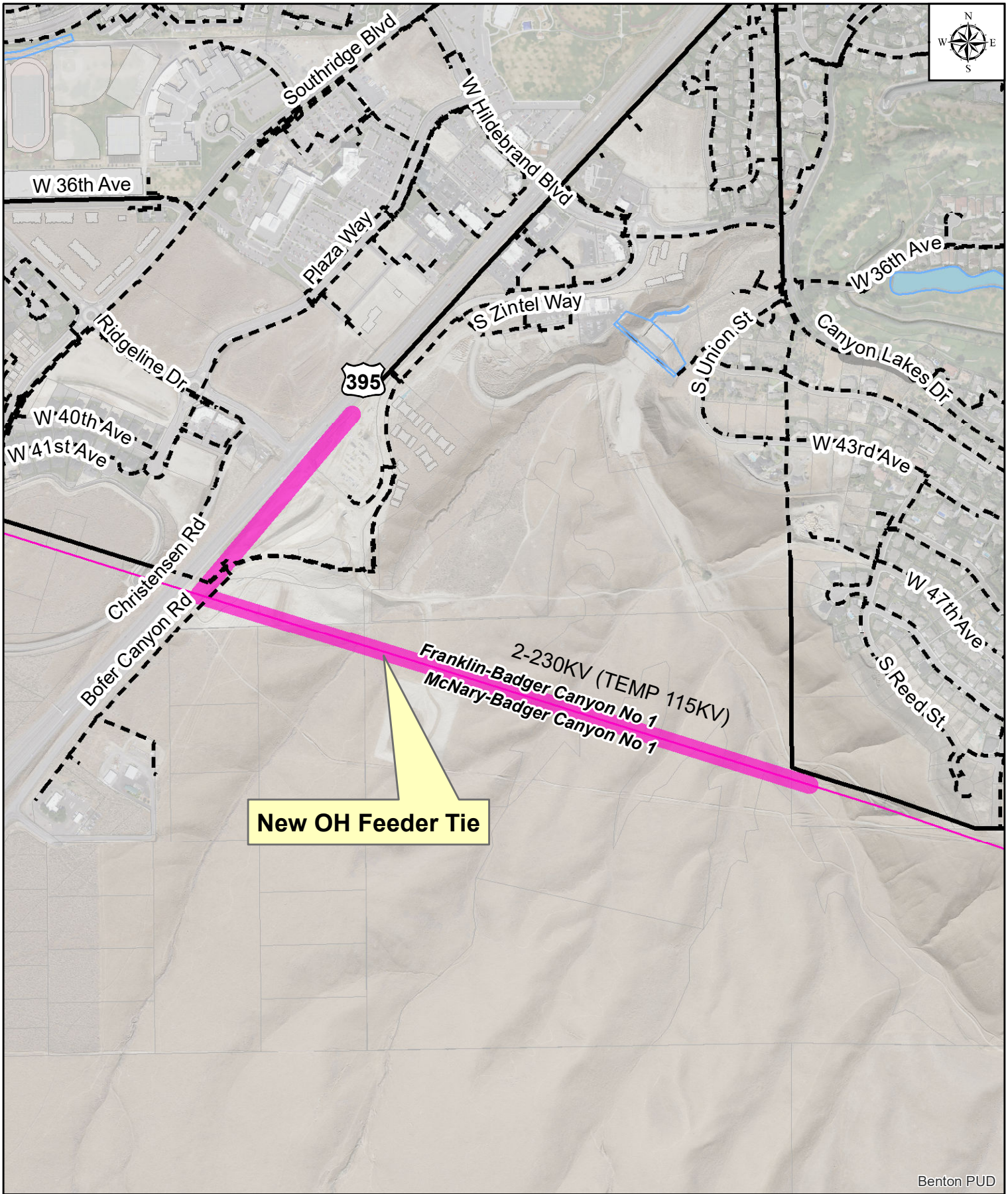
2024 Five Year Plan
SSR-3 (SUNSET RD)
Relocate and Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
9/4/2024	stiversc	92931	1 inch = 300 feet	1 of 1	Project 38

BENTON P·U·D

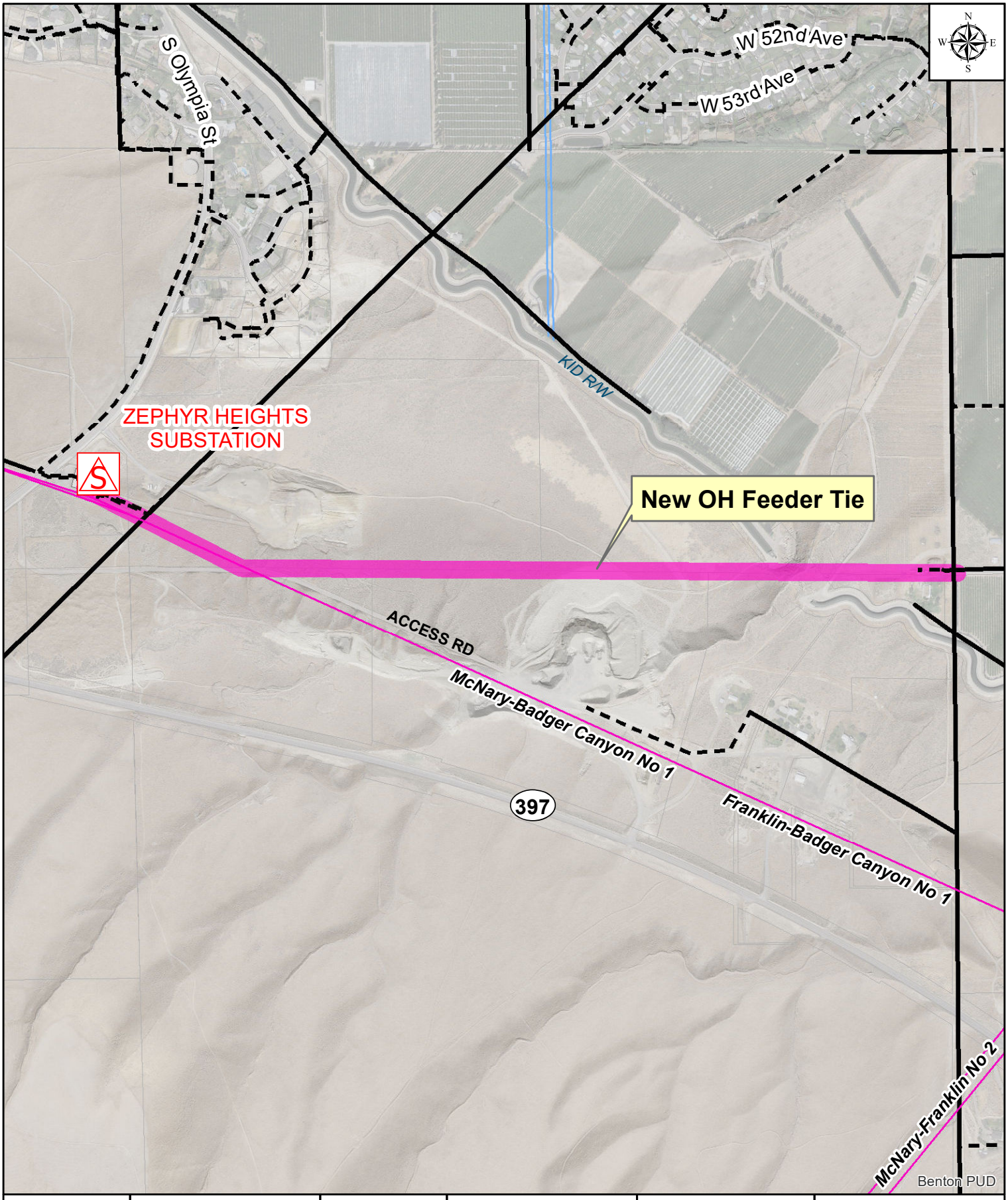
2024 Five Year Plan
VIS-1 to VIS-6 (VISTA)
Feeder Tie



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82810	1 inch = 800 feet	1 of 1	Project 39

BENTON P·U·D

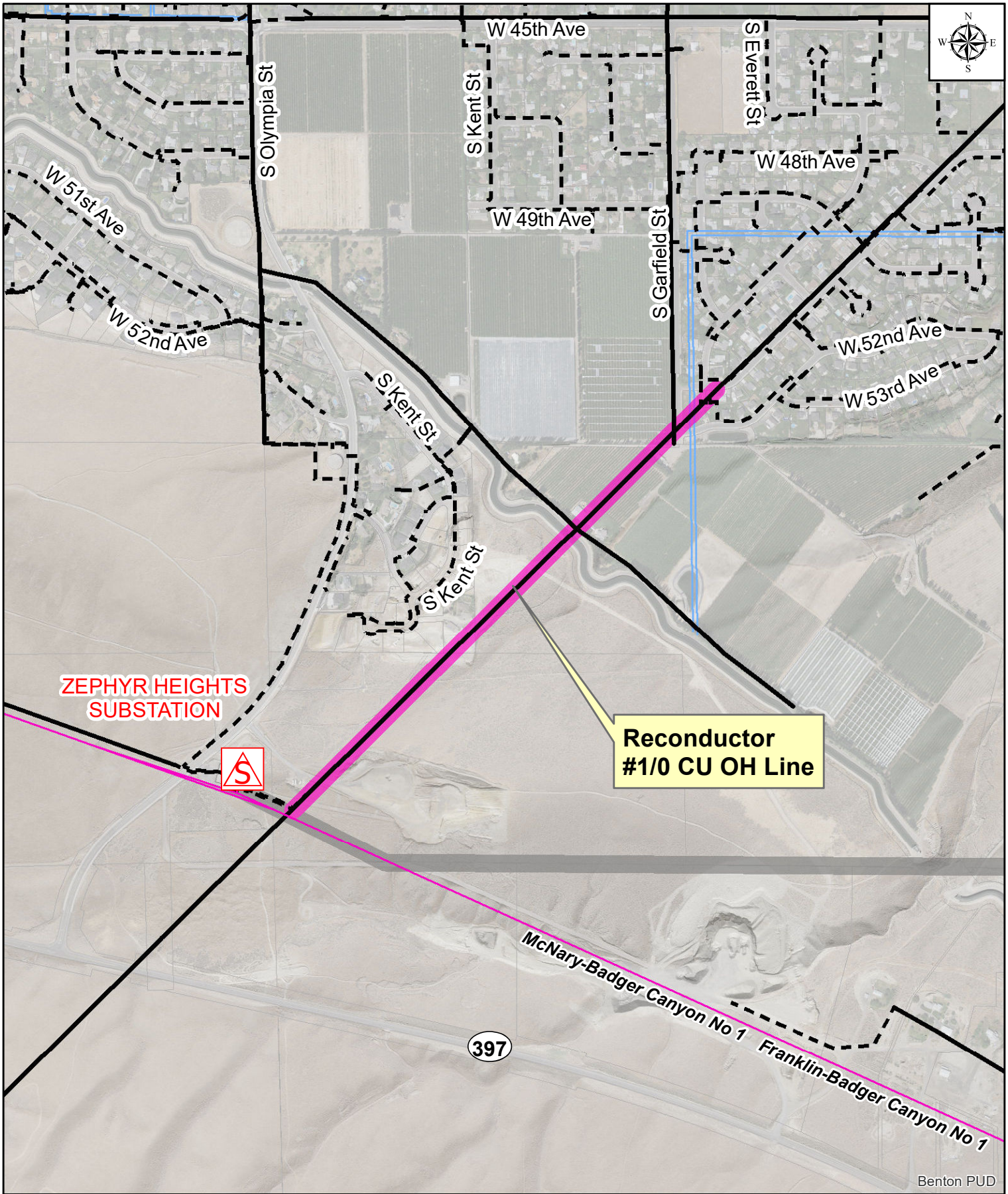
2024 Five Year Plan
ZEH-1 (ZEPHYR HEIGHTS) to STH-3 (SOUTHRIDGE)
Feeder Tie



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82925	1 inch = 800 feet	1 of 1	Project 41

BENTON P·U·D

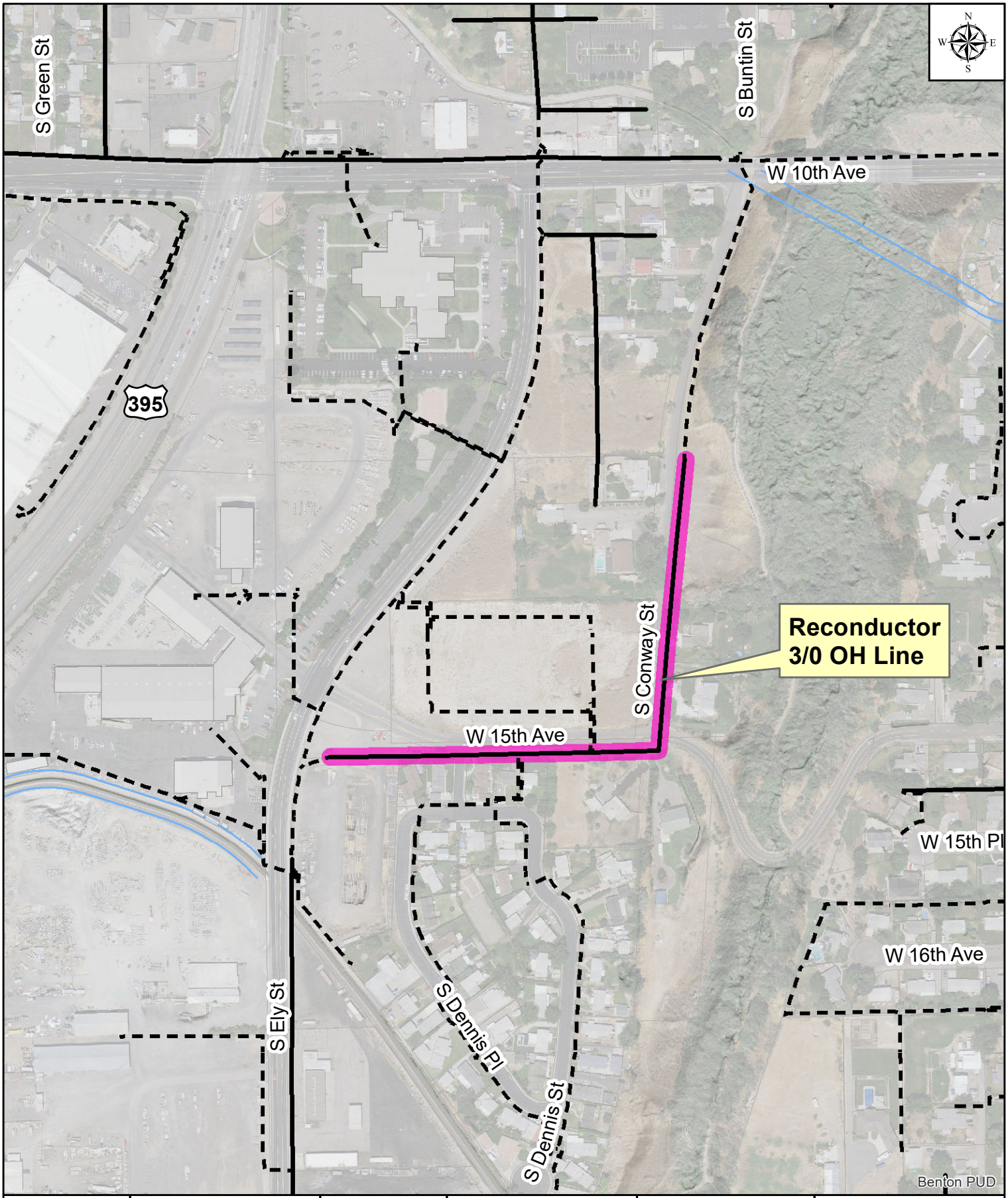
2024 Five Year Plan
ZEH-4 (ZEPHYR HEIGHTS) to GUM-4 (GUM)
Feeder Tie



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82925	1 inch = 800 feet	1 of 1	Project 54

BENTON P·U·D

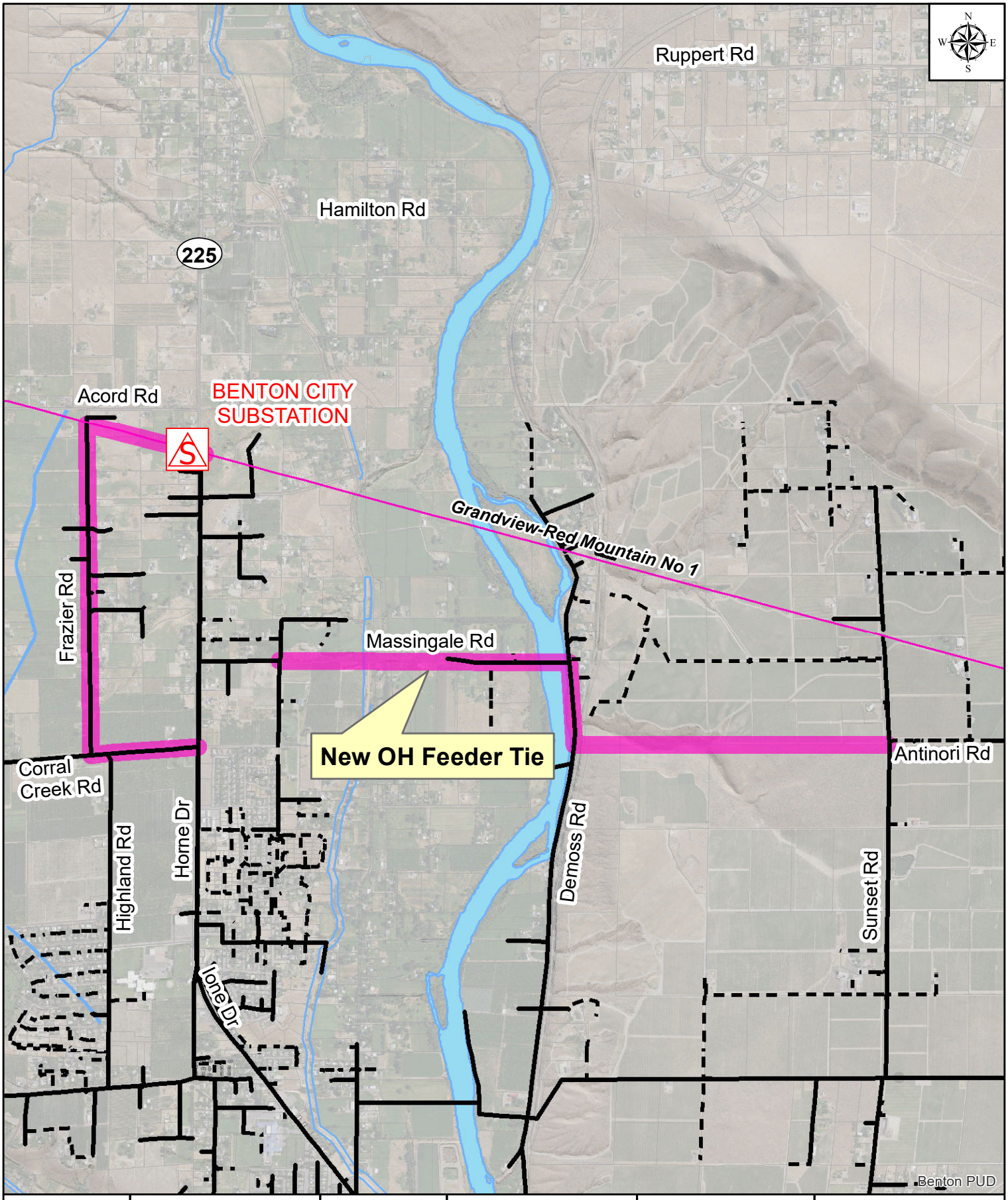
2024 Five Year Plan
ZEH-3 (ZEPHYR HEIGHTS)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82911	1 inch = 300 feet	1 of 1	Project 56

BENTON P·U·D

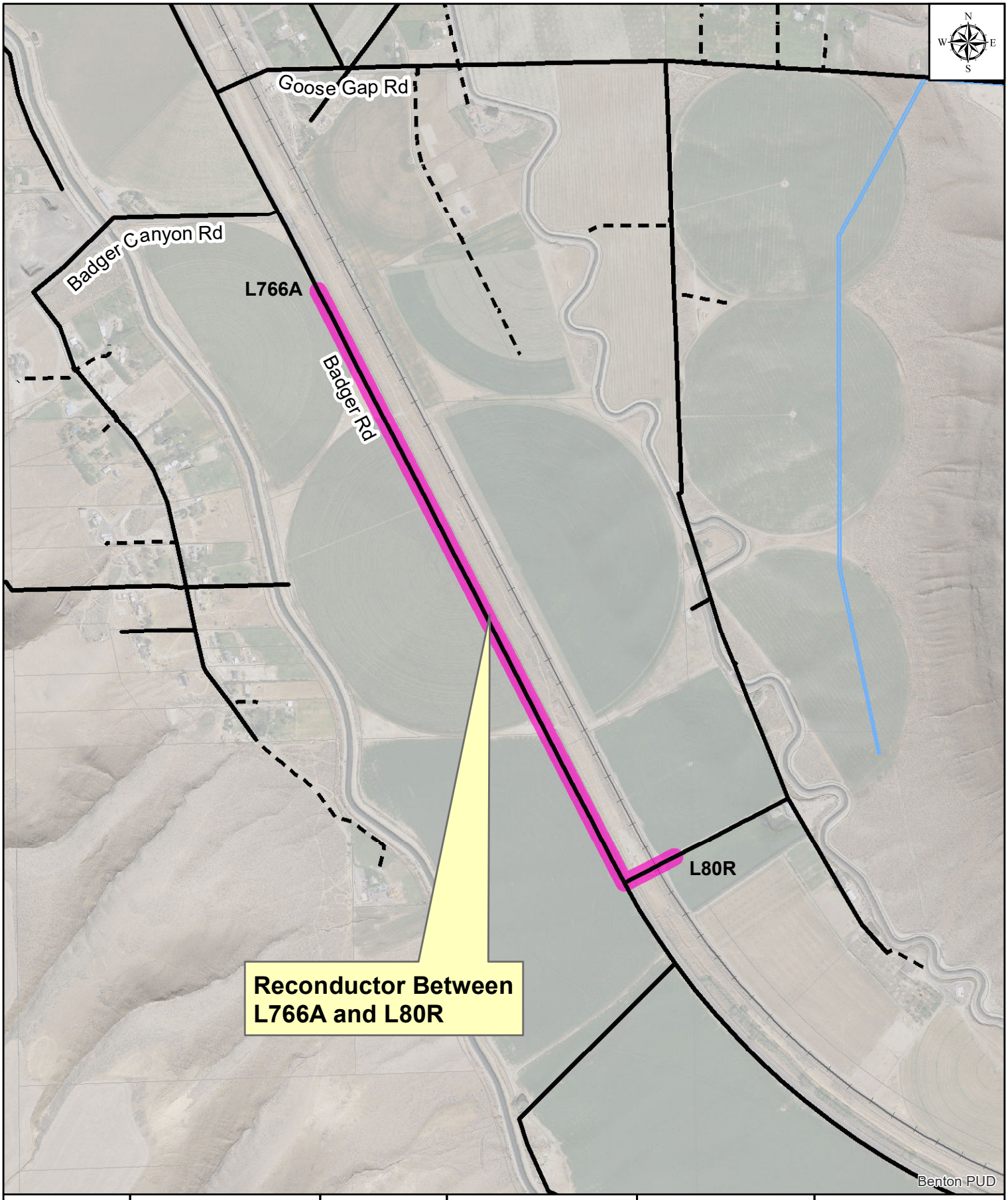
2024 Five Year Plan
ELY-8 (ELY)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92705	1 inch = 2,000 feet	1 of 1	Project 58

BENTON P·U·D

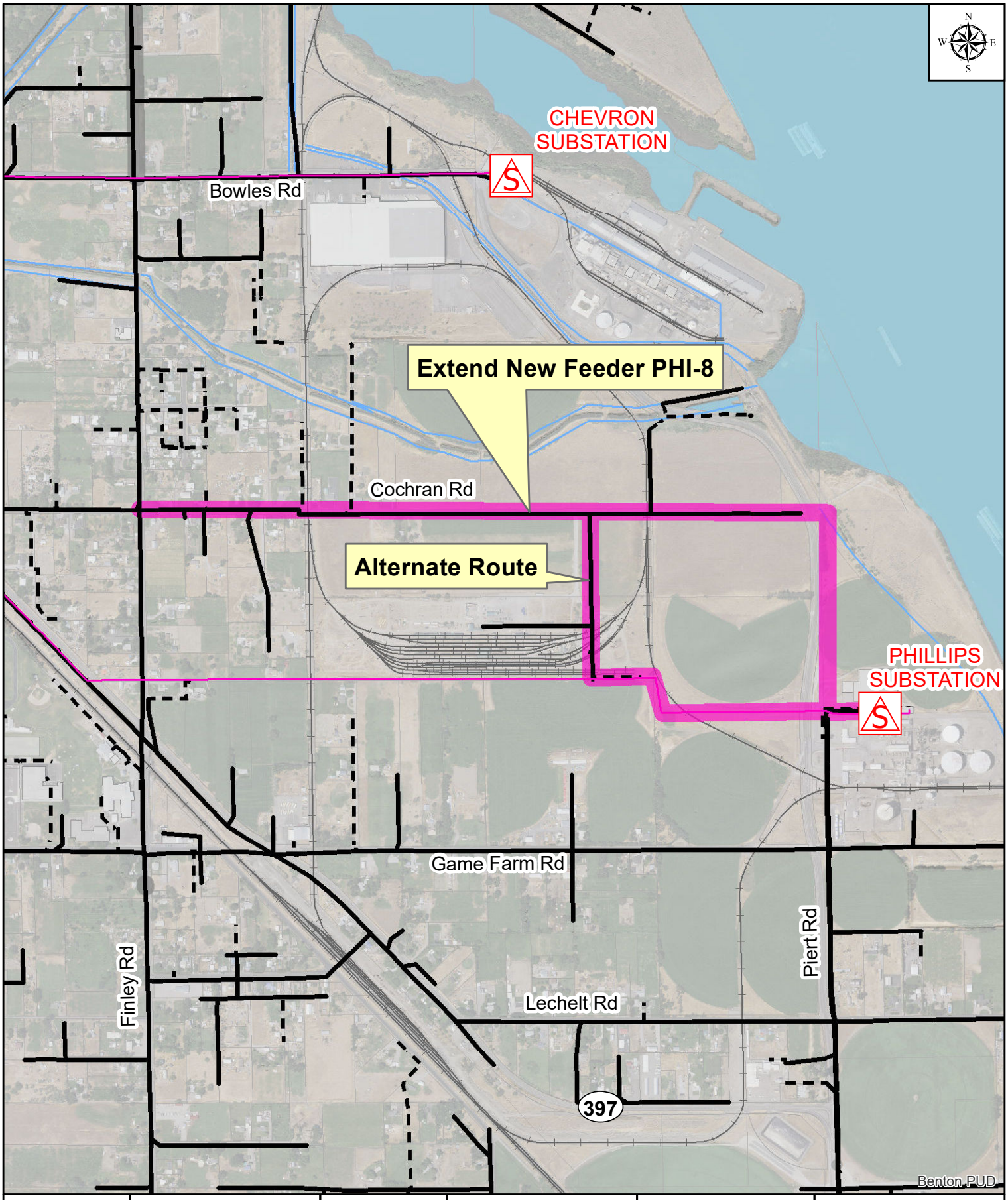
2024 Five Year Plan
BEC-3 (BENTON CITY) to SSR-1 (SUNSET RD)
Feeder Tie



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82807	1 inch = 1,000 feet	1 of 1	Project 79

BENTON P·U·D

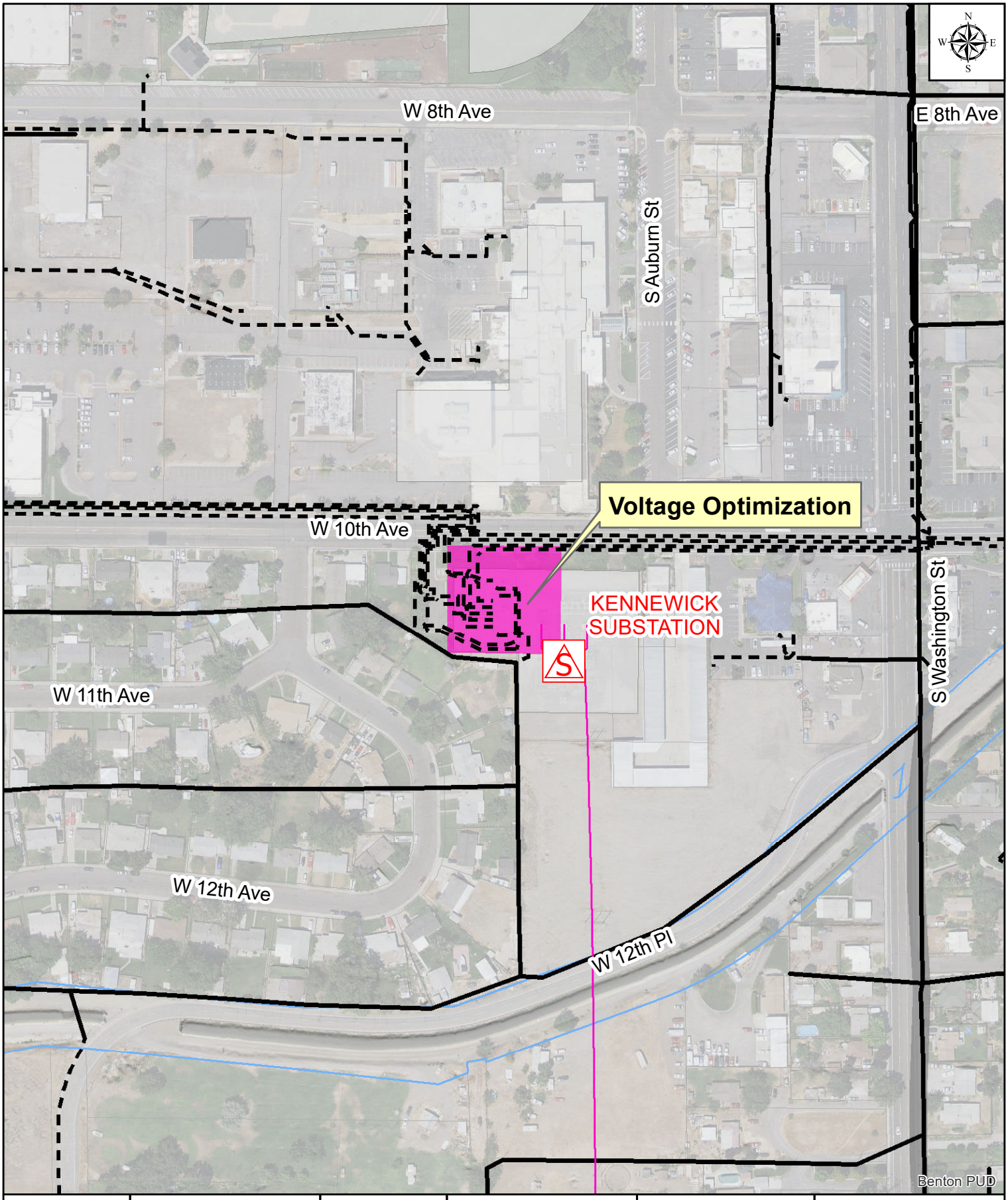
2024 Five Year Plan
Reconductor between L766A and L80R



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83023	1 inch = 1,000 feet	1 of 1	Project 81

BENTON P·U·D

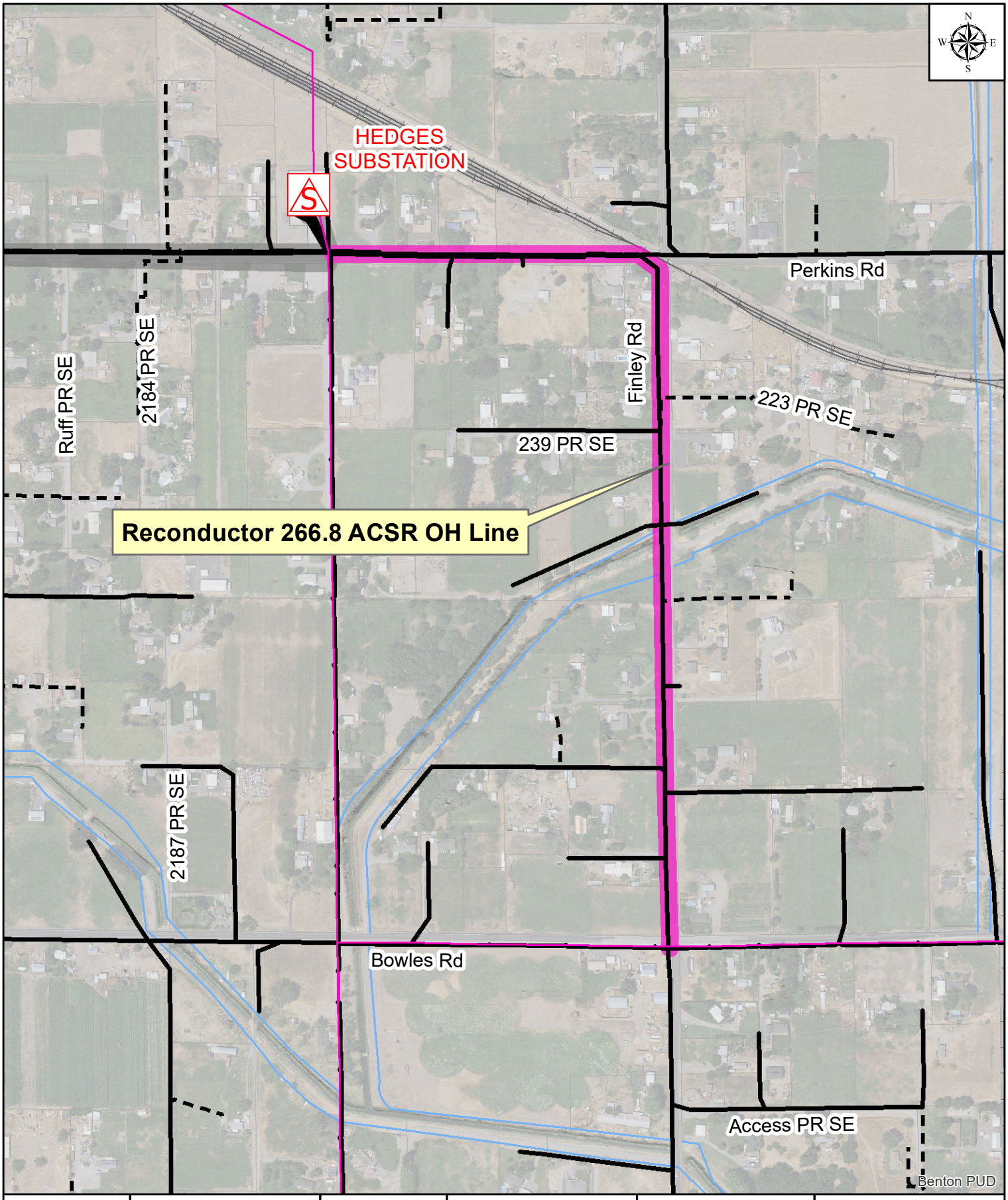
2024 Five Year Plan
Extend New Feeder PHI-8



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82912	1 inch = 200 feet	1 of 1	Project 83

BENTON P·U·D

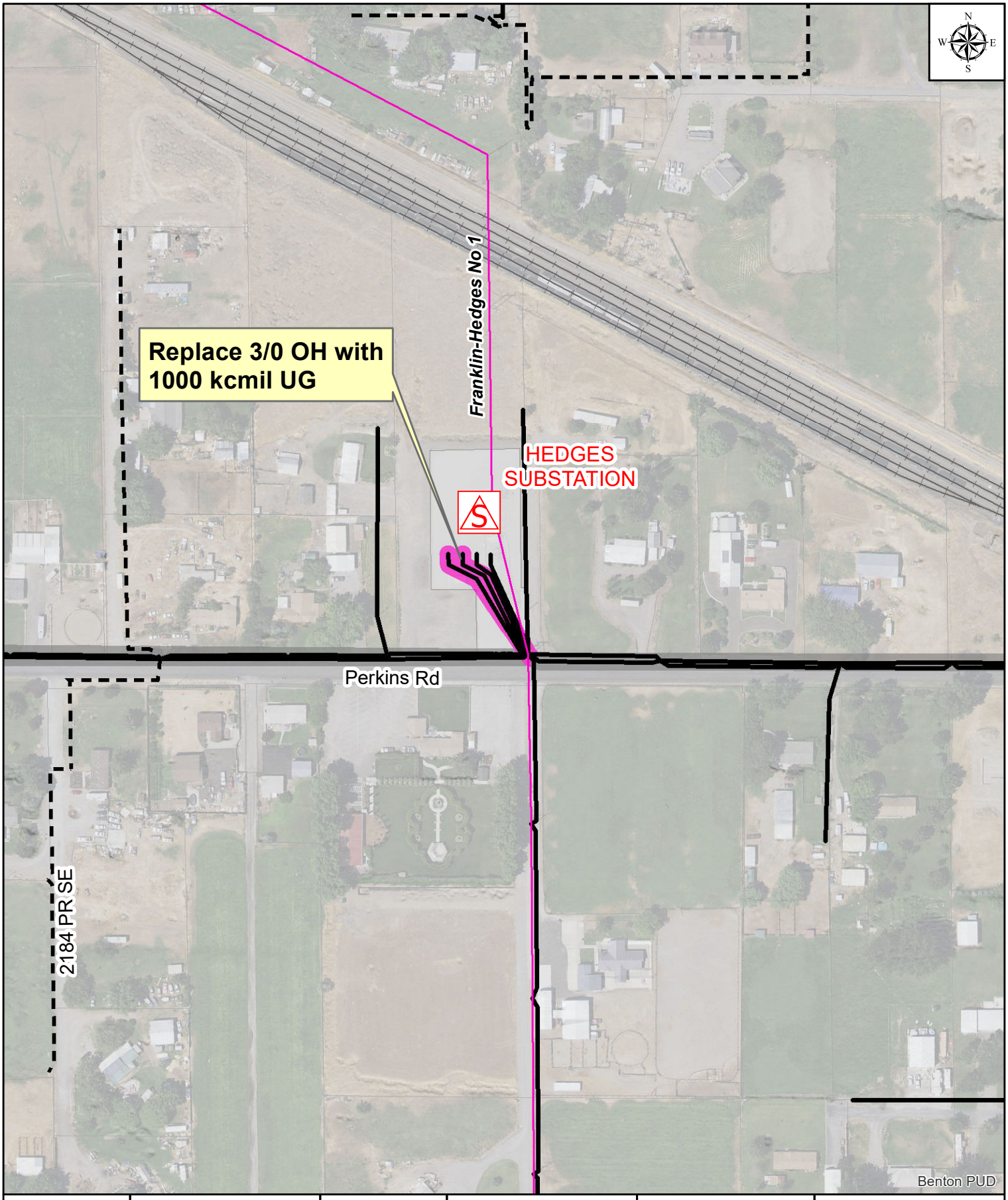
2024 Five Year Plan
Voltage Optimization



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83015	1 inch = 500 feet	1 of 1	Project 95

BENTON P·U·D

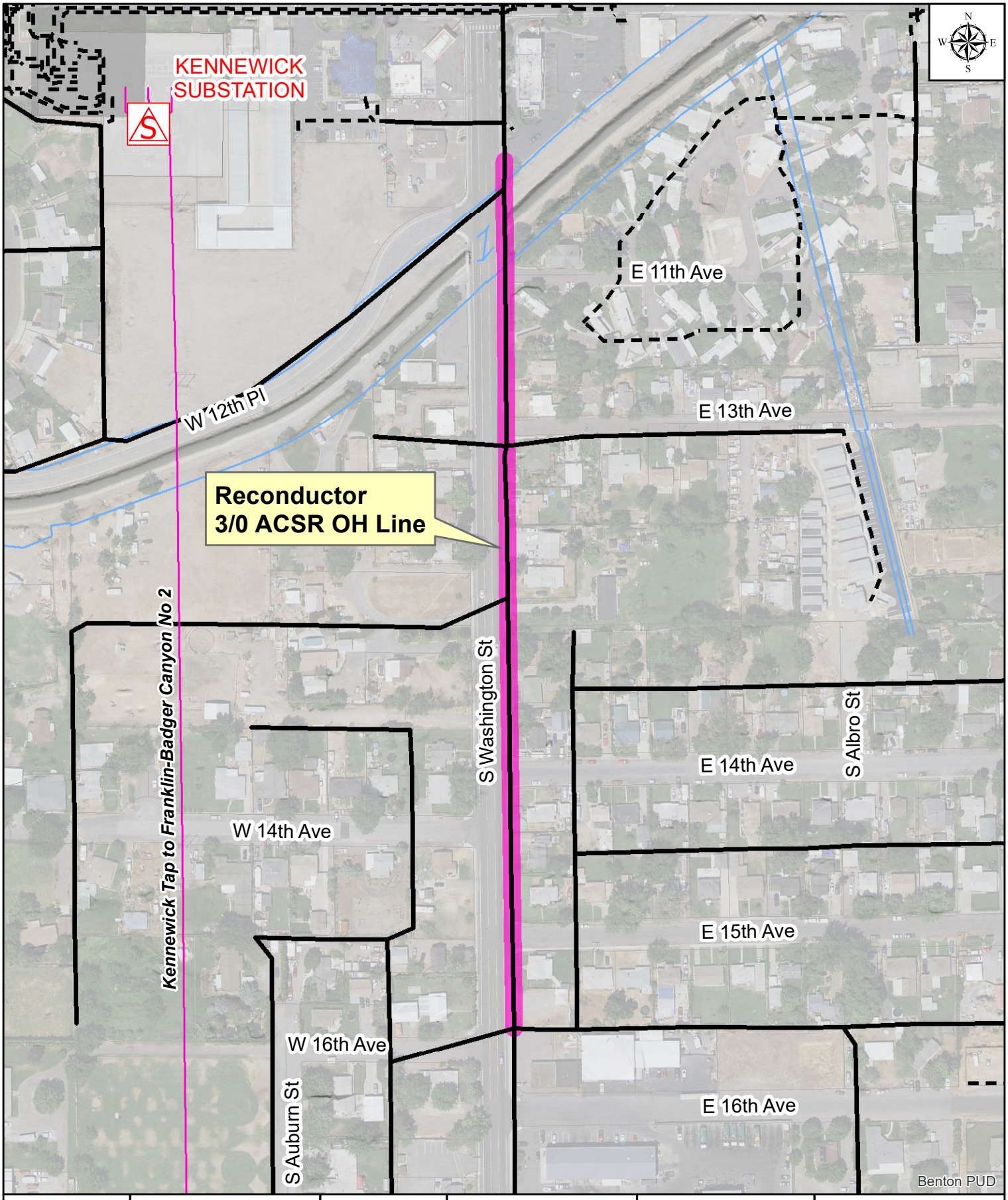
2024 Five Year Plan
Hedges Feeder 2 (HED-2)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83015	1 inch = 200 feet	1 of 1	Project 102

BENTON P·U·D

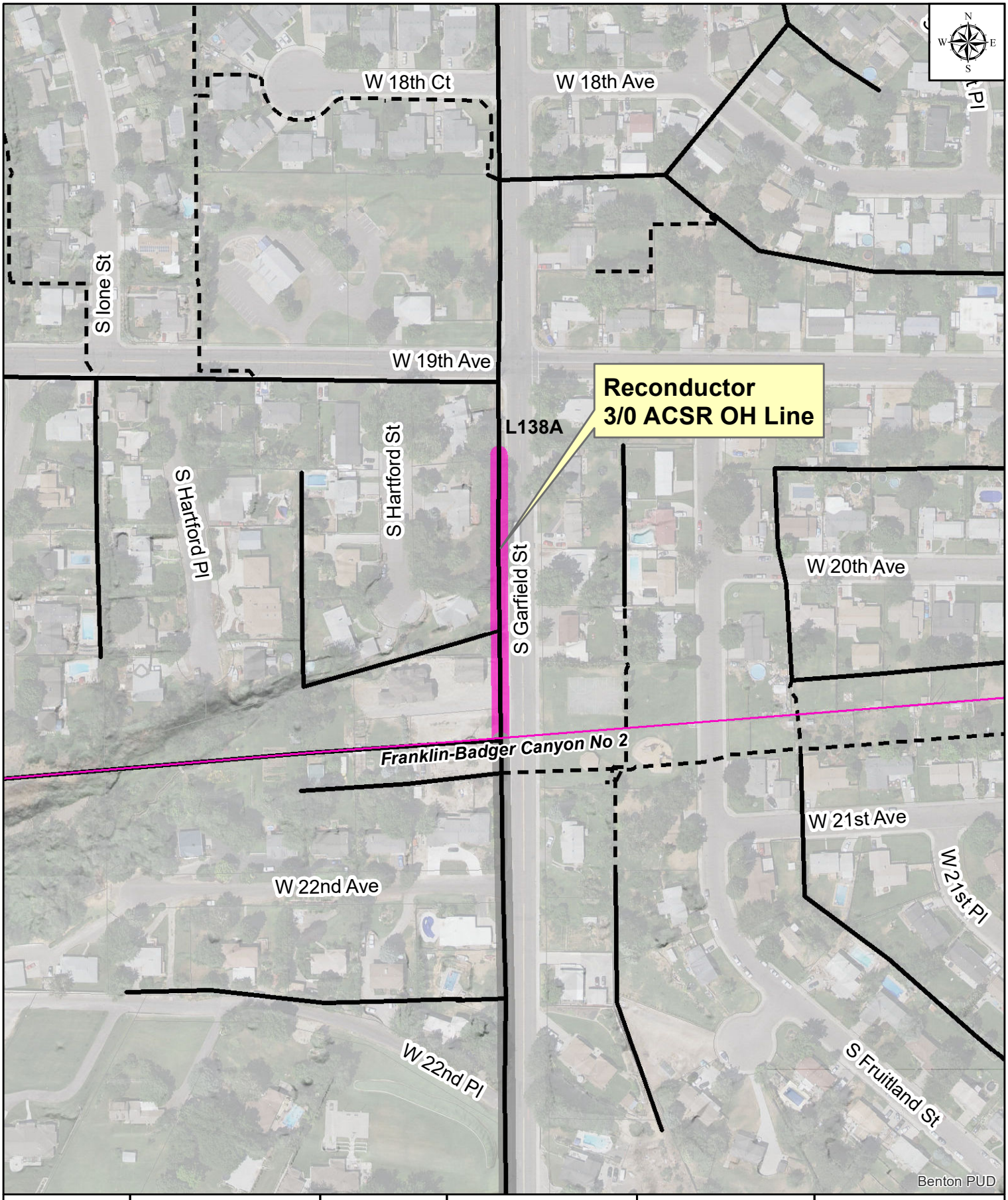
2024 Five Year Plan
HED-4 (HEDGES)
OH to UG Conversion



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	83007	1 inch = 200 feet	1 of 1	Project 105

BENTON P·U·D

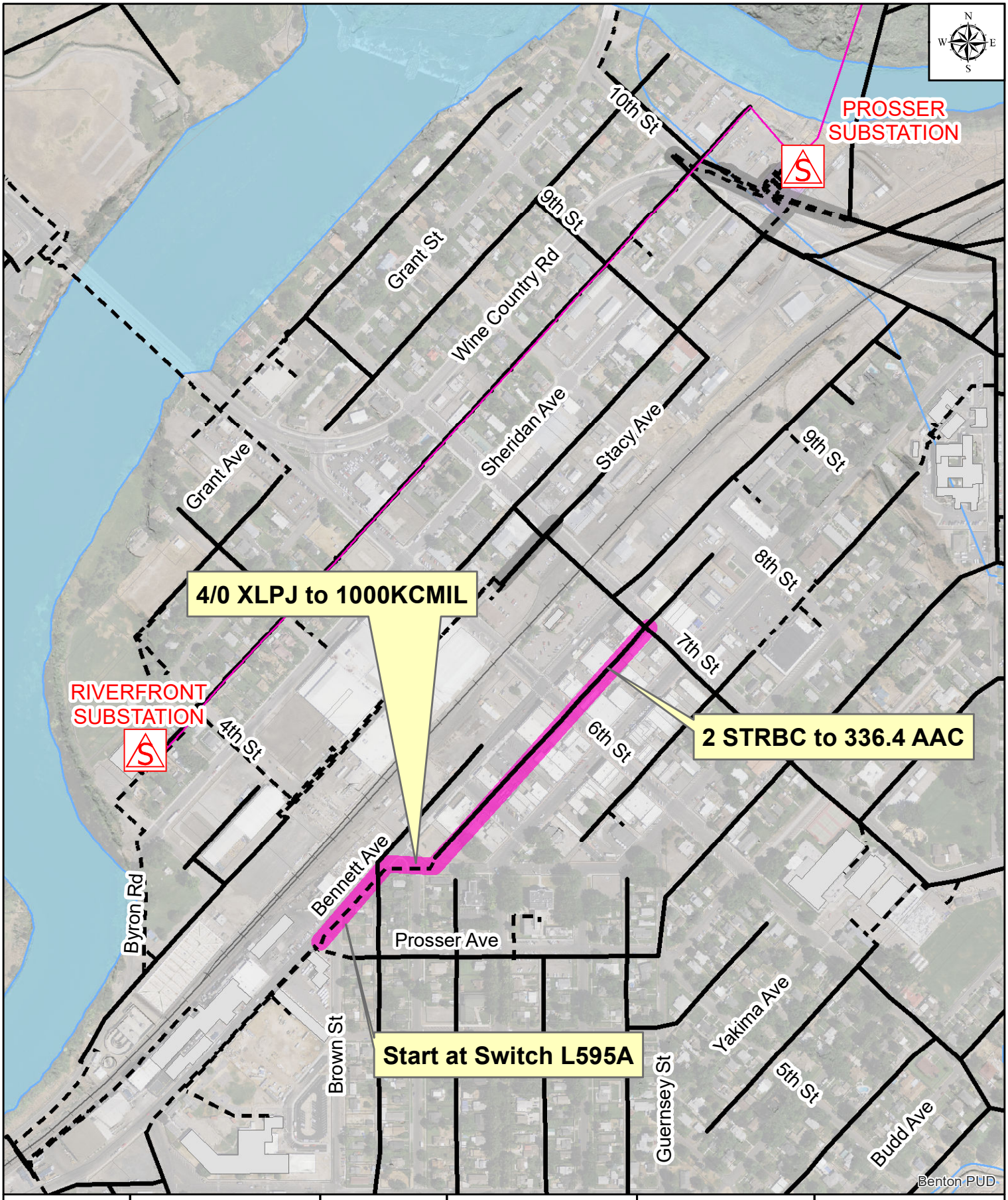
2024 Five Year Plan
KEN-9 (KENNEWICK)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82912	1 inch = 200 feet	1 of 1	Project 113

BENTON P·U·D

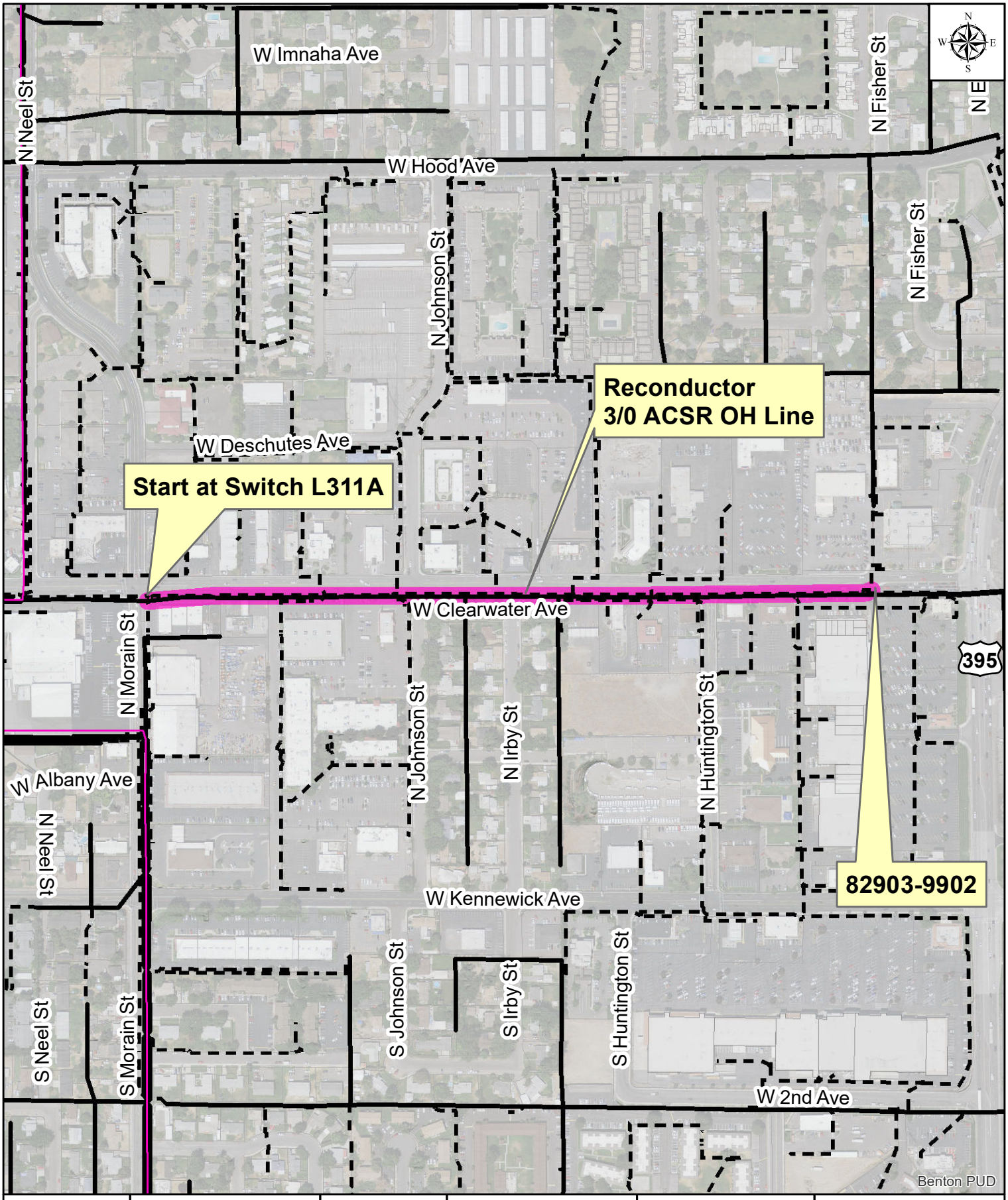
2024 Five Year Plan
ELY-2 (ELY) & KEN-5 (KENNEWICK)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92705	1 inch = 500 feet	1 of 1	Project 119

BENTON P·U·D

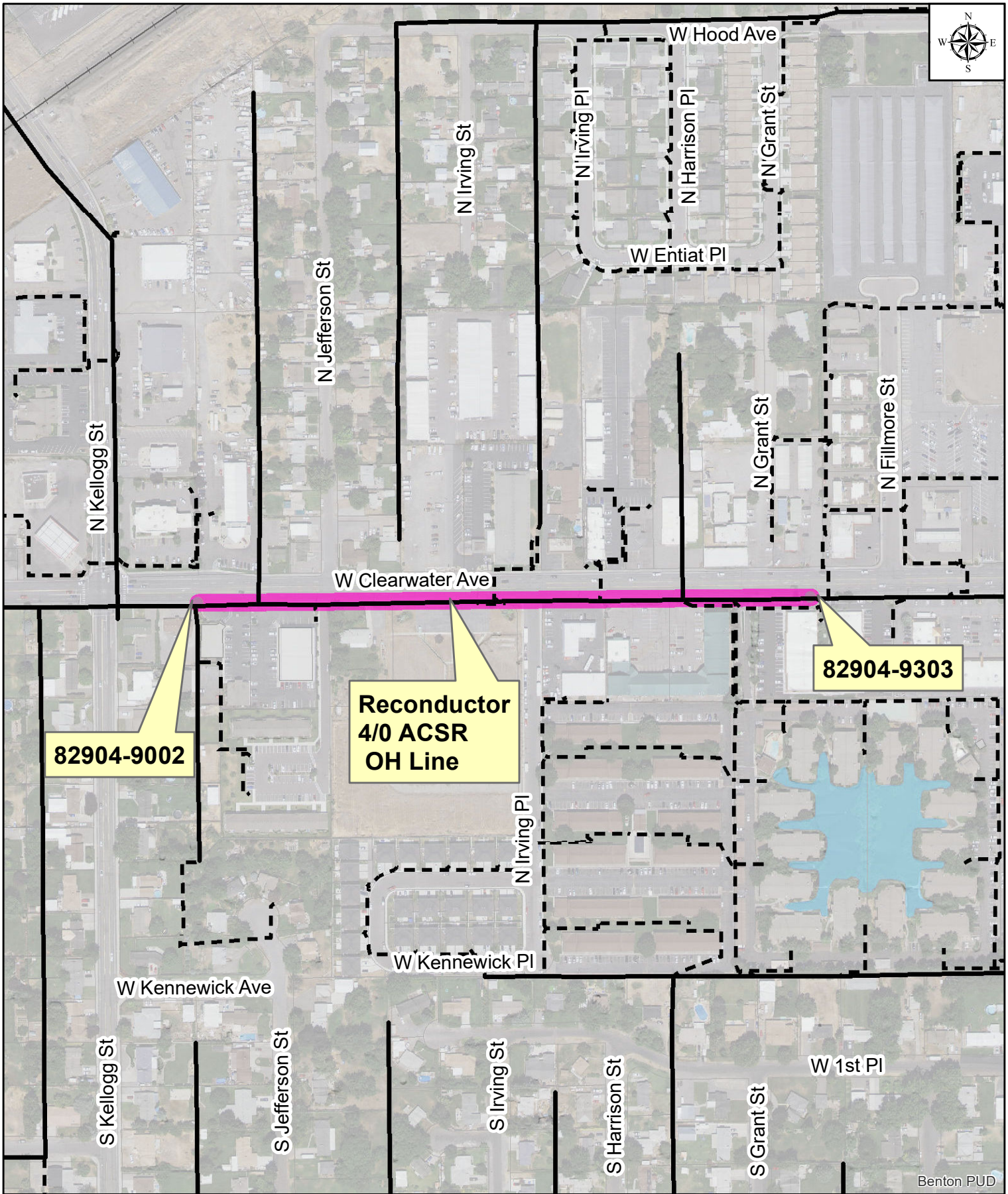
2024 Five Year Plan
PSR-3 Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82903	1 inch = 400 feet	1 of 1	Project 120

BENTON P·U·D

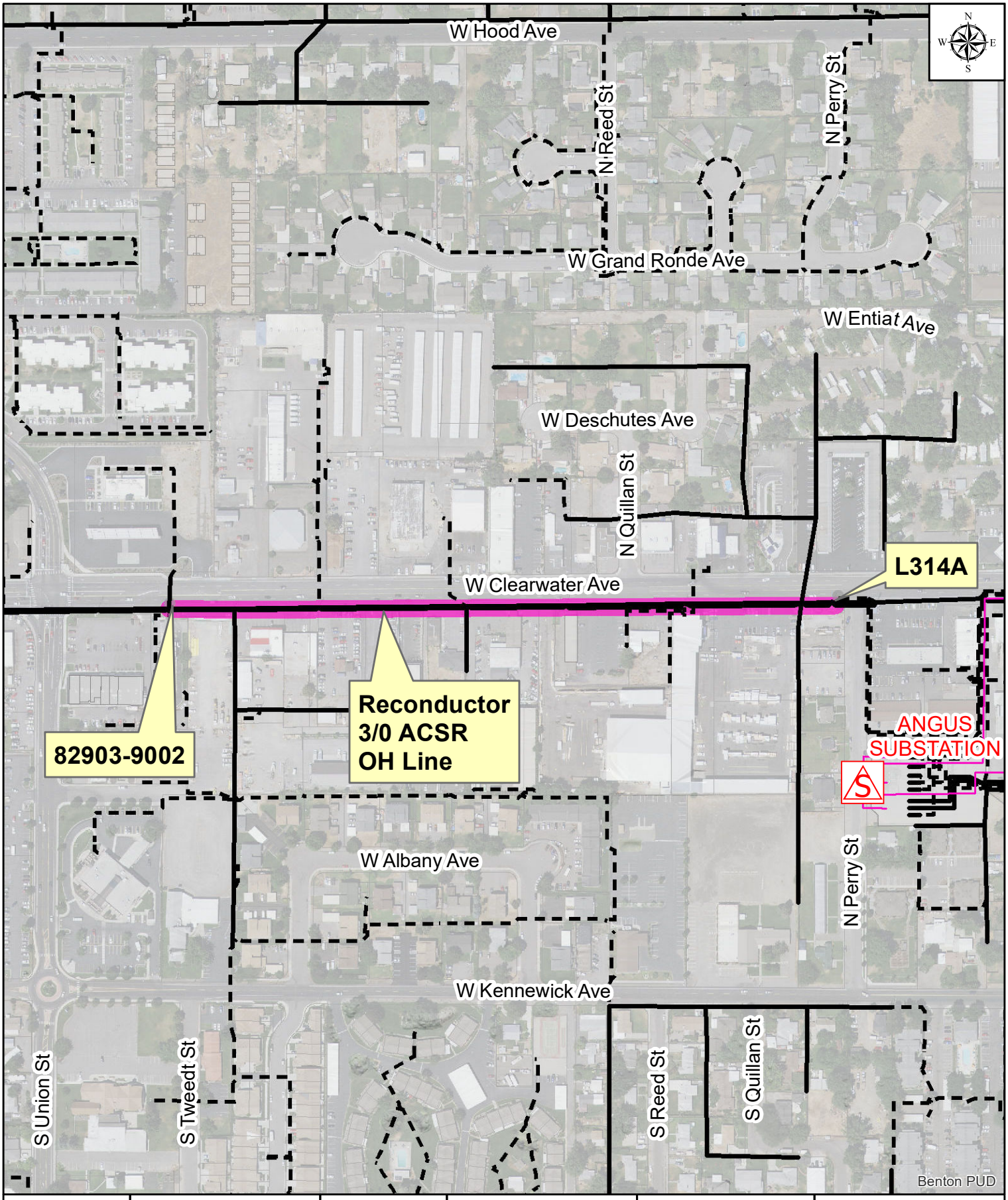
2024 Five Year Plan
ANG-4 Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82904	1 inch = 300 feet	1 of 1	Project 121

BENTON P·U·D

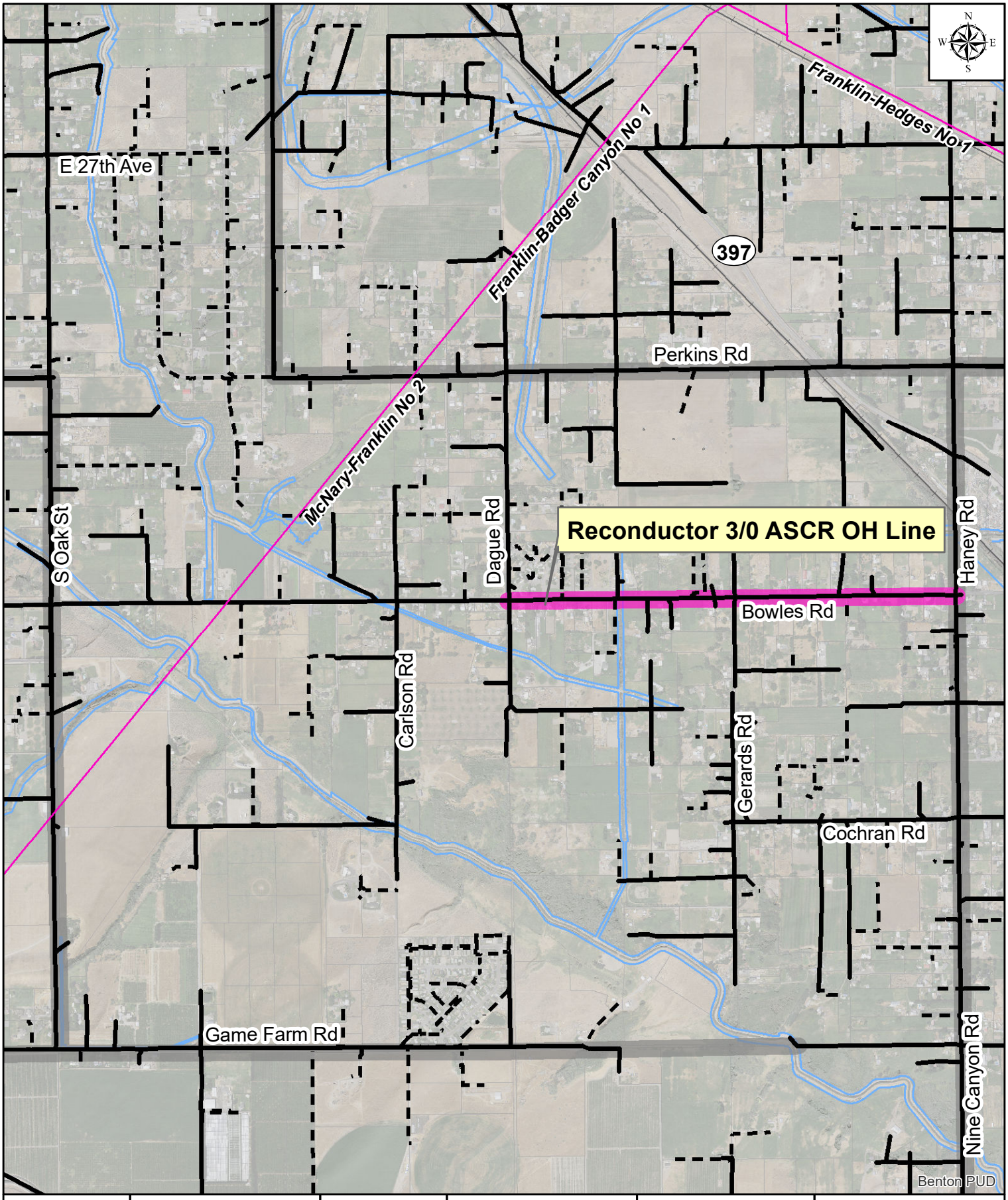
2024 Five Year Plan
HLS-7 Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/27/2024	nielsenj	82903	1 inch = 300 feet	1 of 1	Project 122

BENTON P·U·D

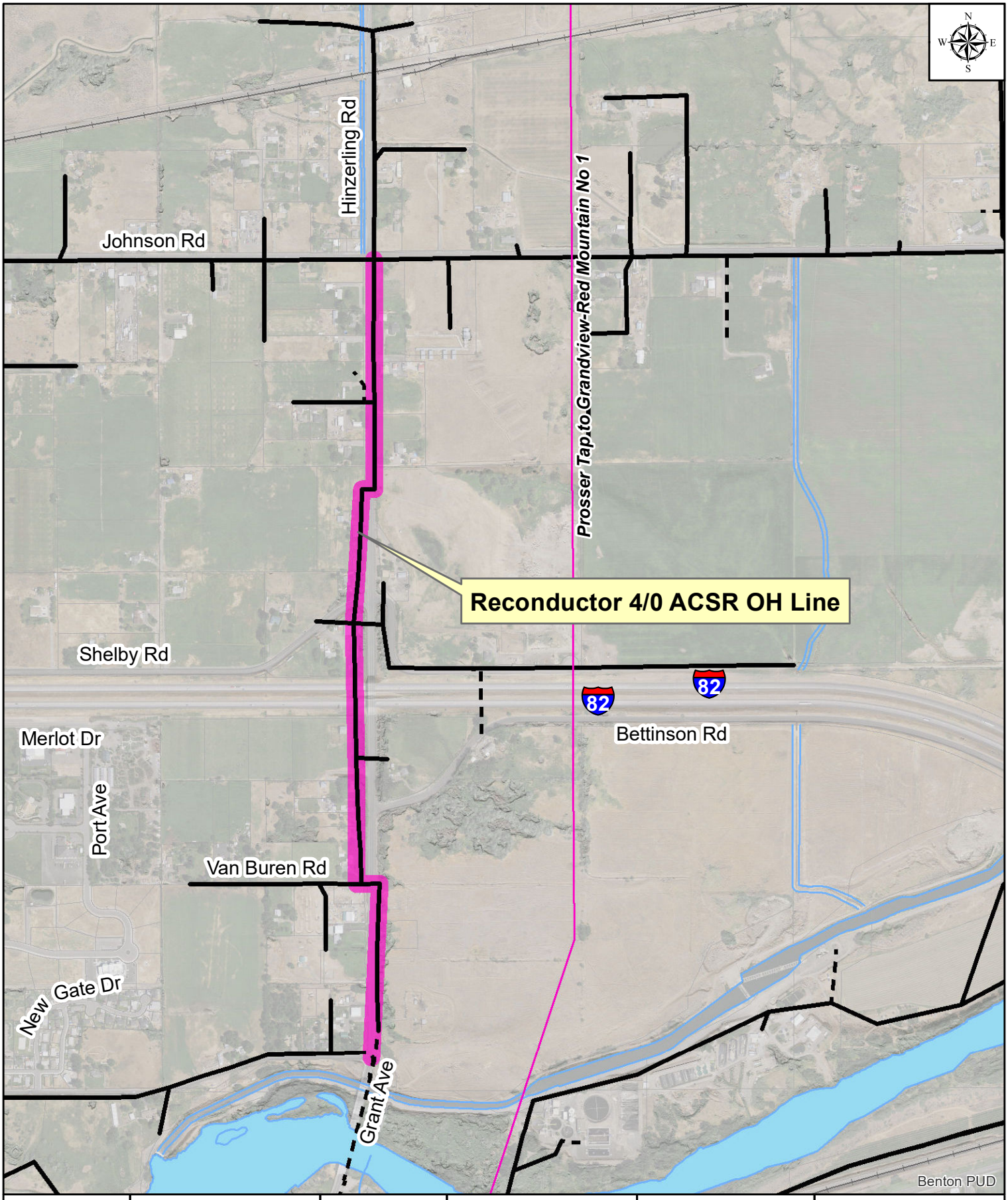
2024 Five Year Plan
ANG-3 Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83017	1 inch = 1,500 feet	1 of 1	Project 124

BENTON P·U·D

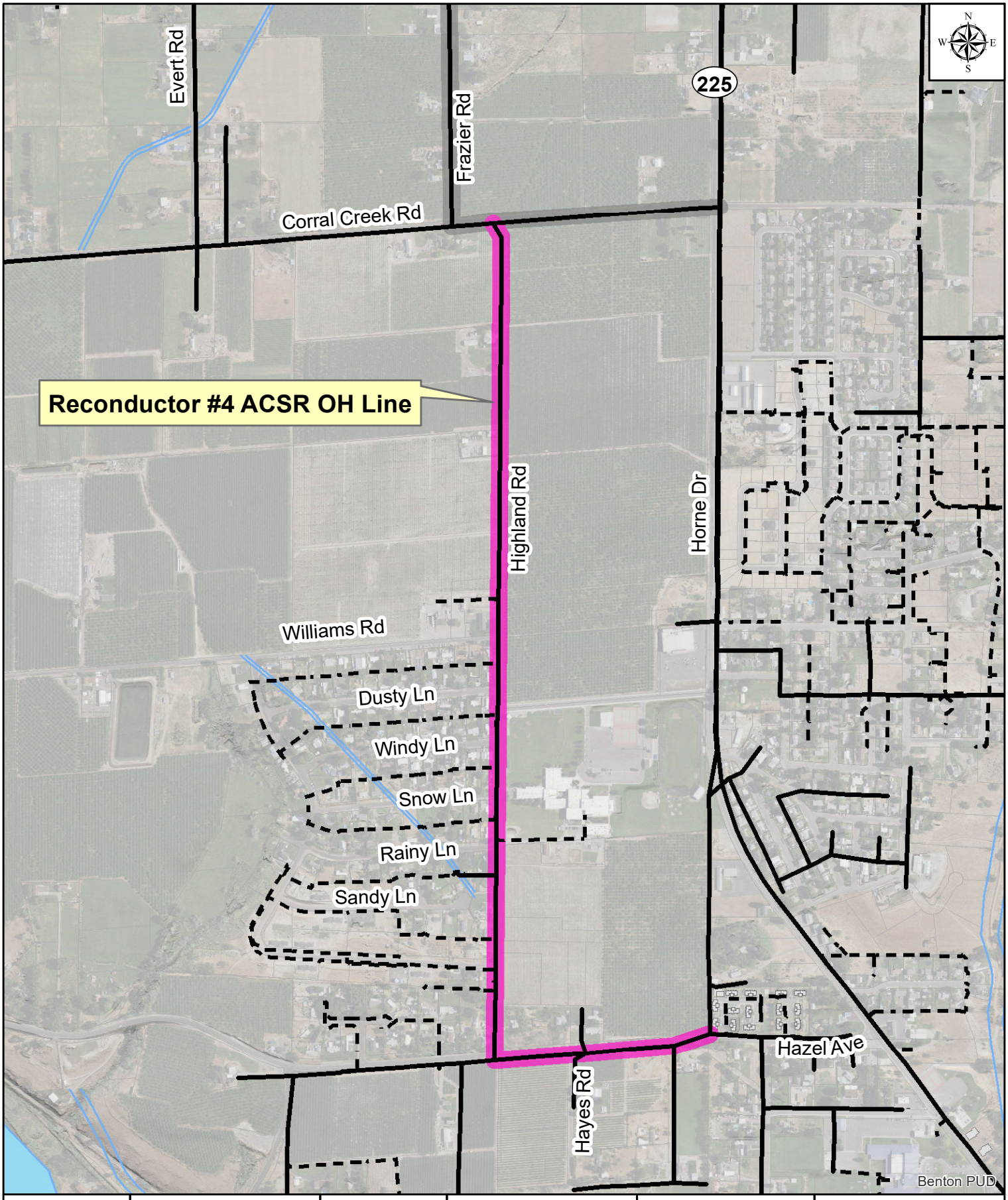
2024 Five Year Plan
GUM-4 (GUM STREET) & HED-3 (HEDGES)
Feeder Tie



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92435	1 inch = 800 feet	1 of 1	Project 127

BENTON P·U·D

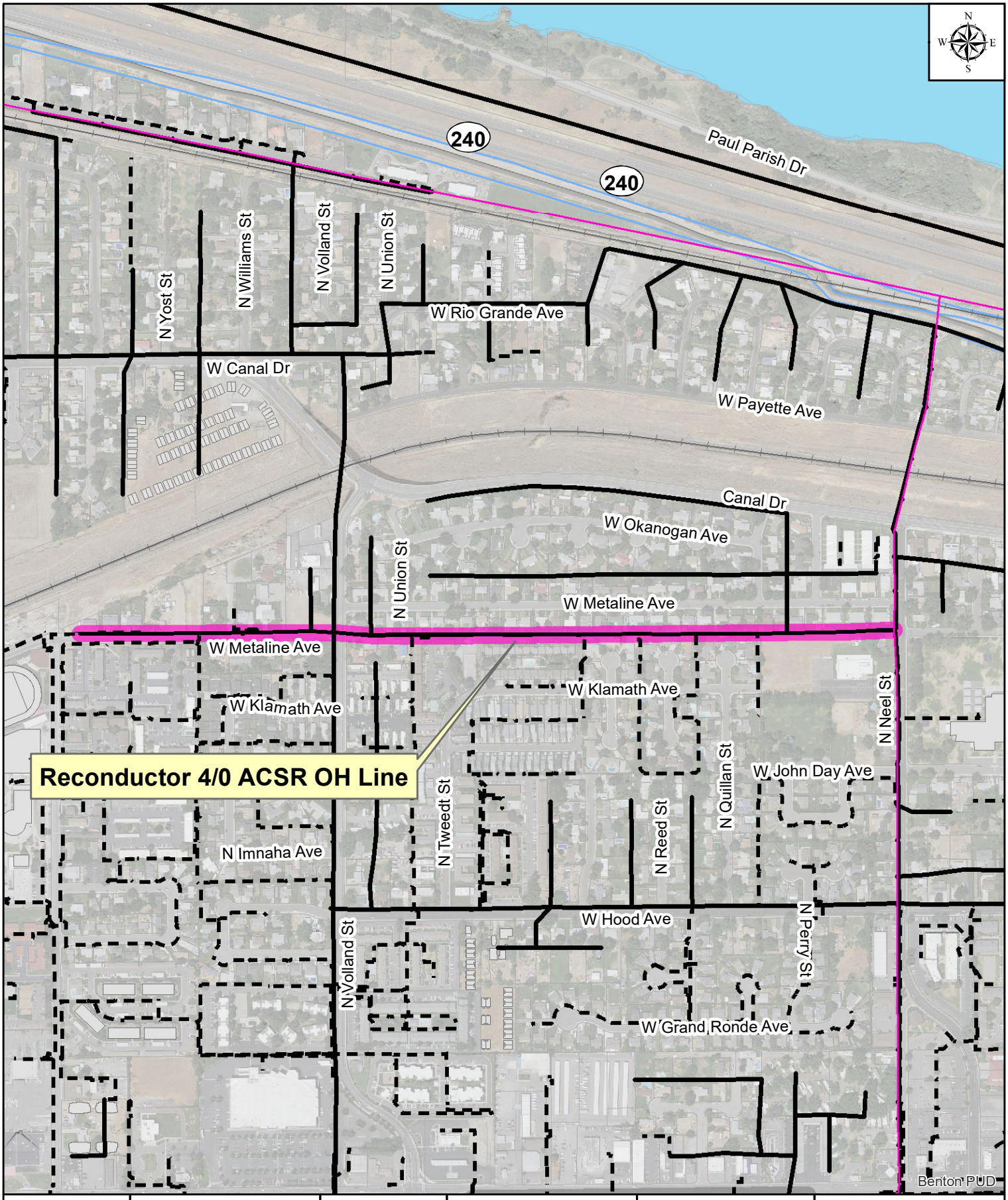
2024 Five Year Plan
PSR-2 (PROSSER)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92612	1 inch = 800 feet	1 of 1	Project 128

BENTON P·U·D

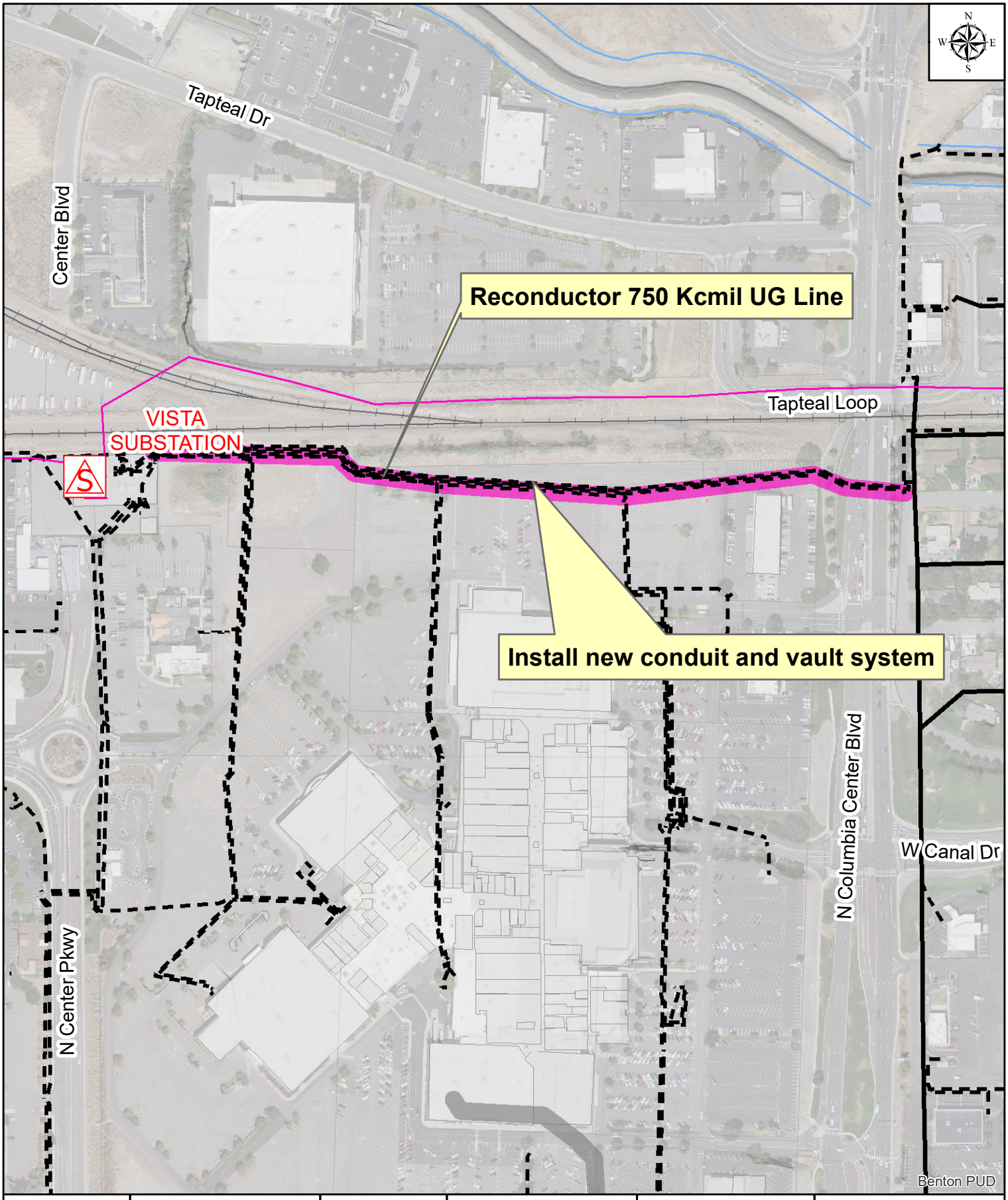
2024 Five Year Plan
BEC-1 & BEC-2 (BENTON CITY)
Feeder Tie



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92934	1 inch = 600 feet	1 of 1	Project 129

BENTON P·U·D

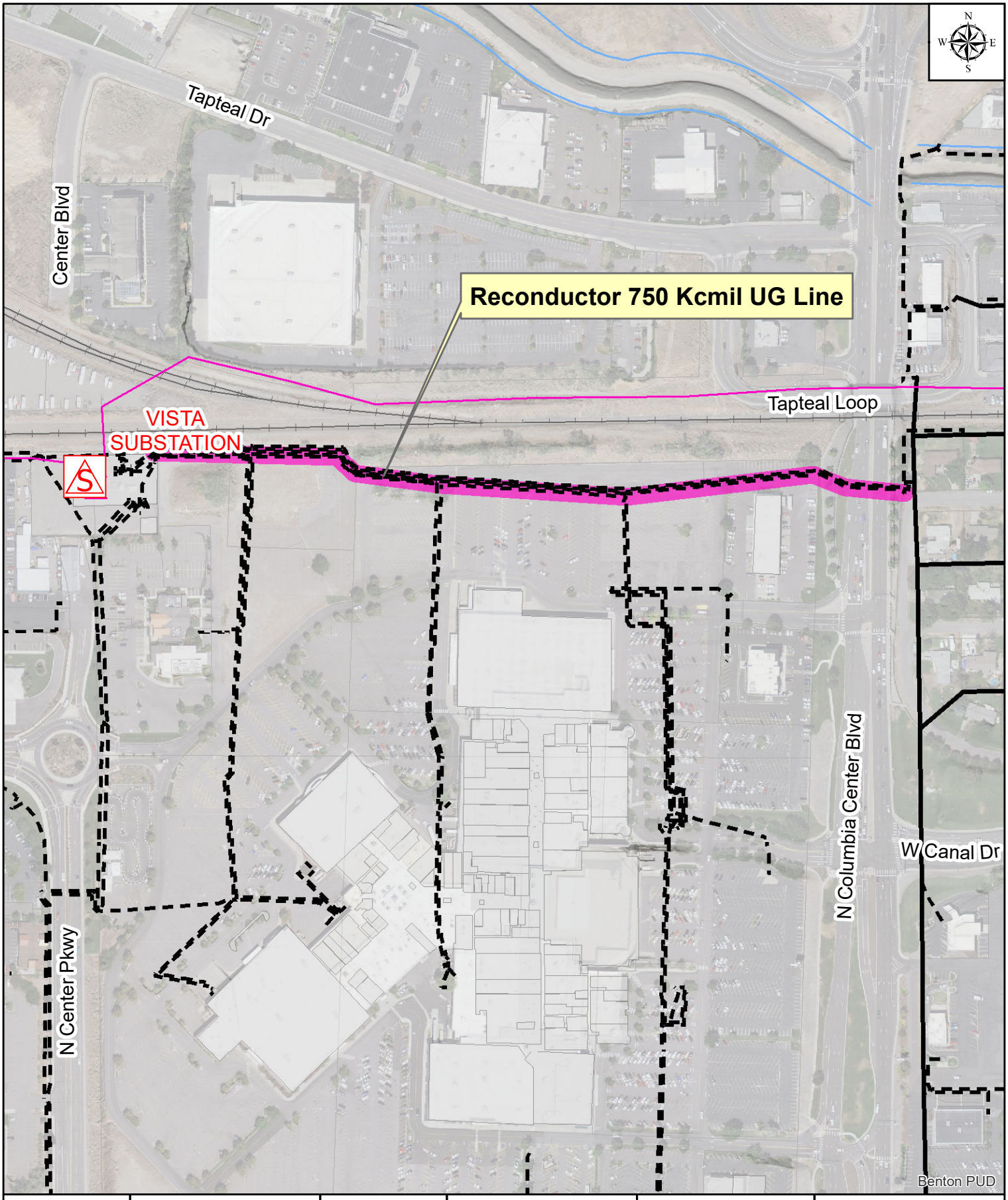
2024 Five Year Plan
ANG-5 (ANGUS)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92930	1 inch = 300 feet	1 of 1	Project 130

BENTON P·U·D

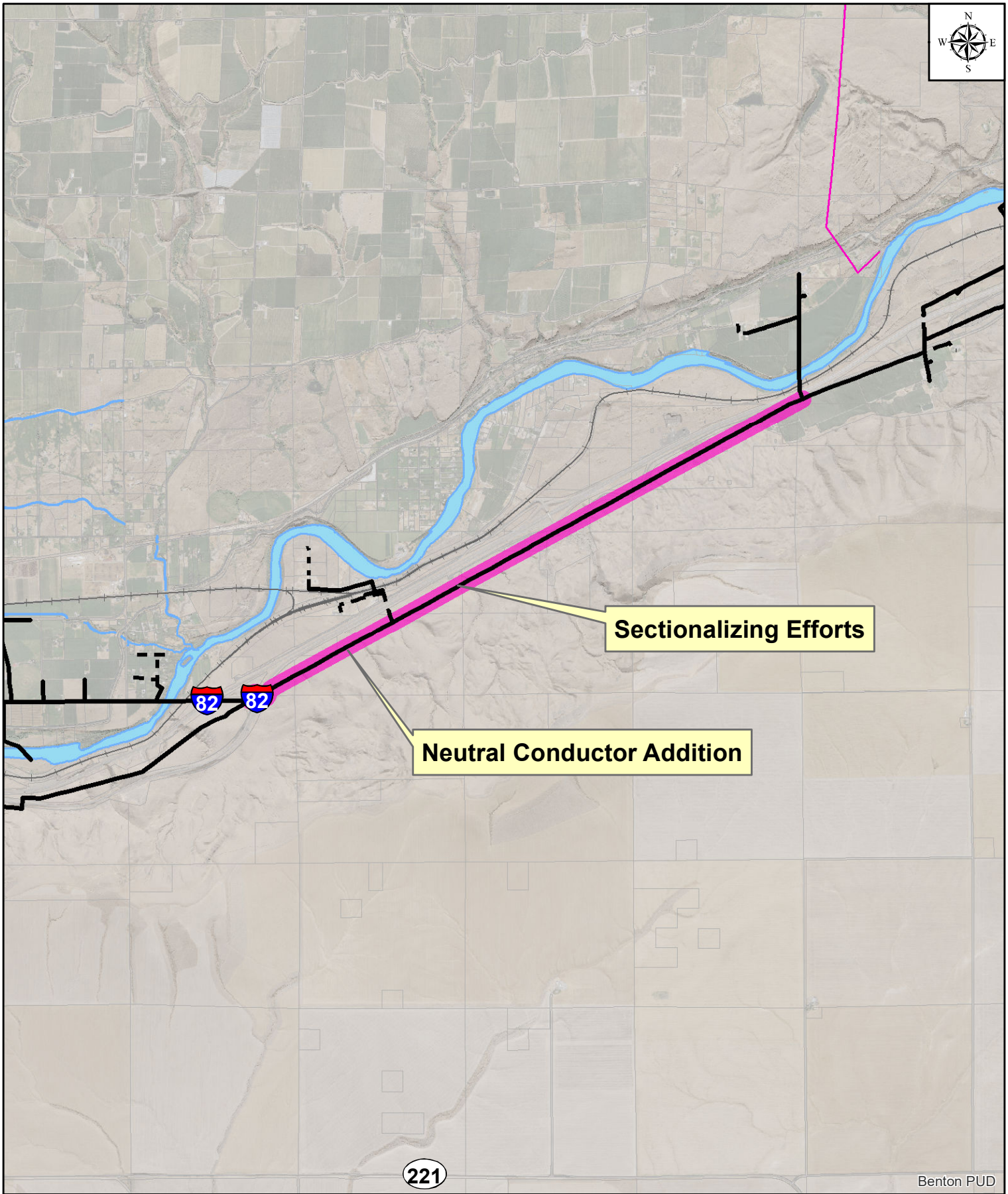
2024 Five Year Plan
VTA-3 & VTA-4 (VISTA)
VTA-3 & VTA-4 Get-away Upgrades



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92930	1 inch = 300 feet	1 of 1	Project 131

BENTON P·U·D

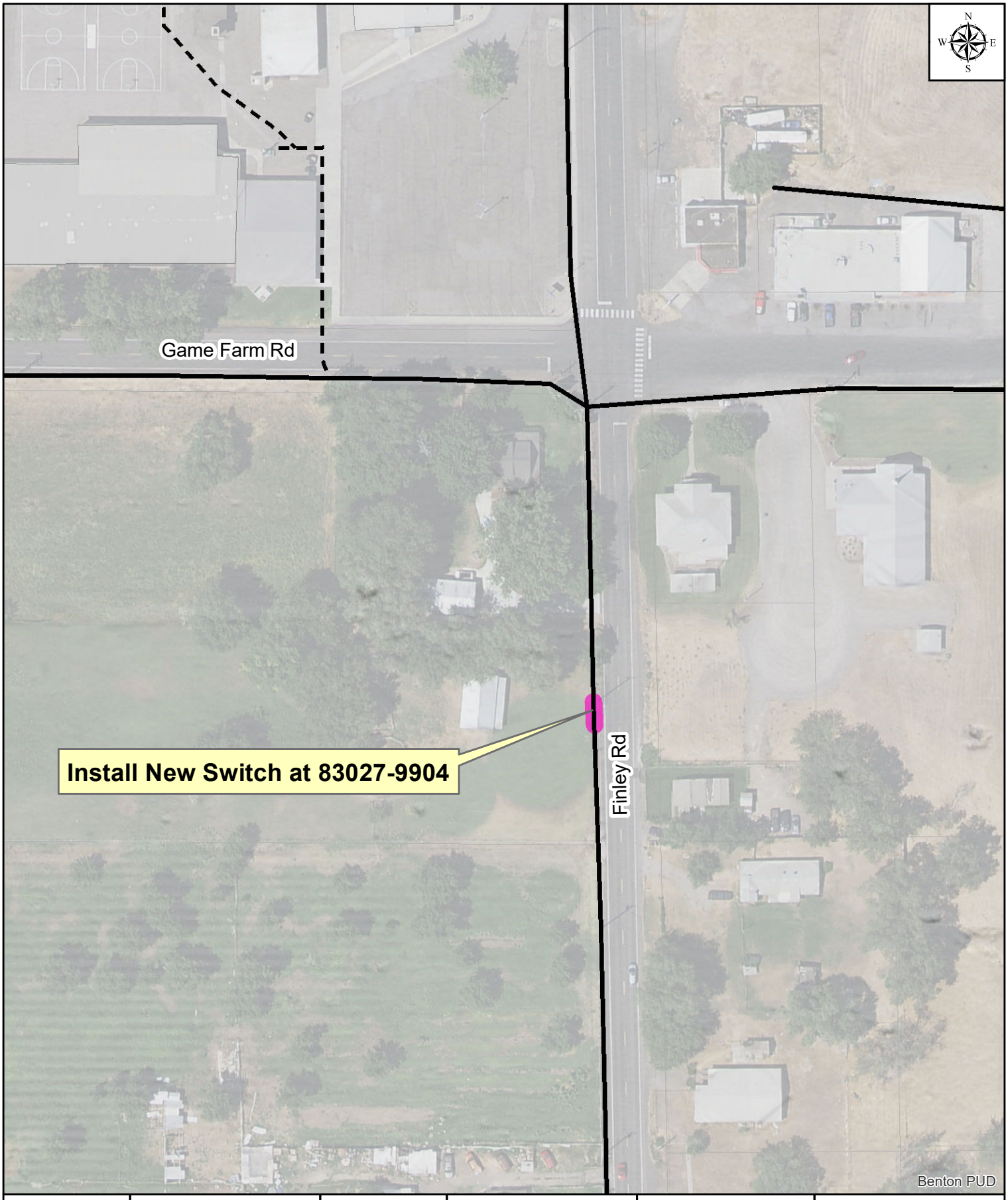
2024 Five Year Plan
VTA-1 & VTA-7 (VISTA)
Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92525	1 inch = 4,000 feet	1 of 1	Project 133

BENTON P·U·D

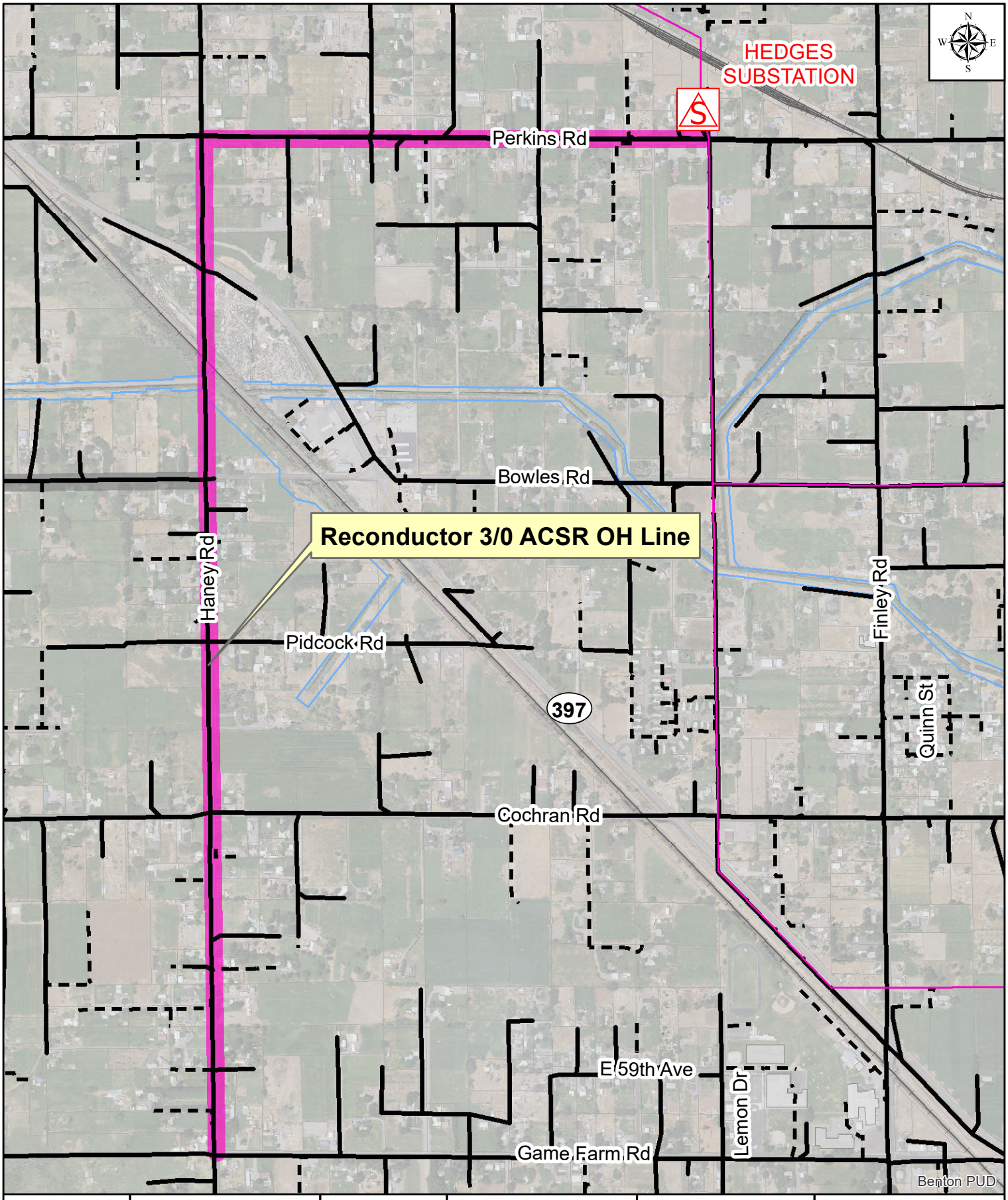
2024 Five Year Plan
PSR-3 (PROSSER) & SSR-2 (SUNSET RD)
PSR-3/SSR-2 Outage Support



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83027	1 inch = 100 feet	1 of 1	Project 134

BENTON P·U·D

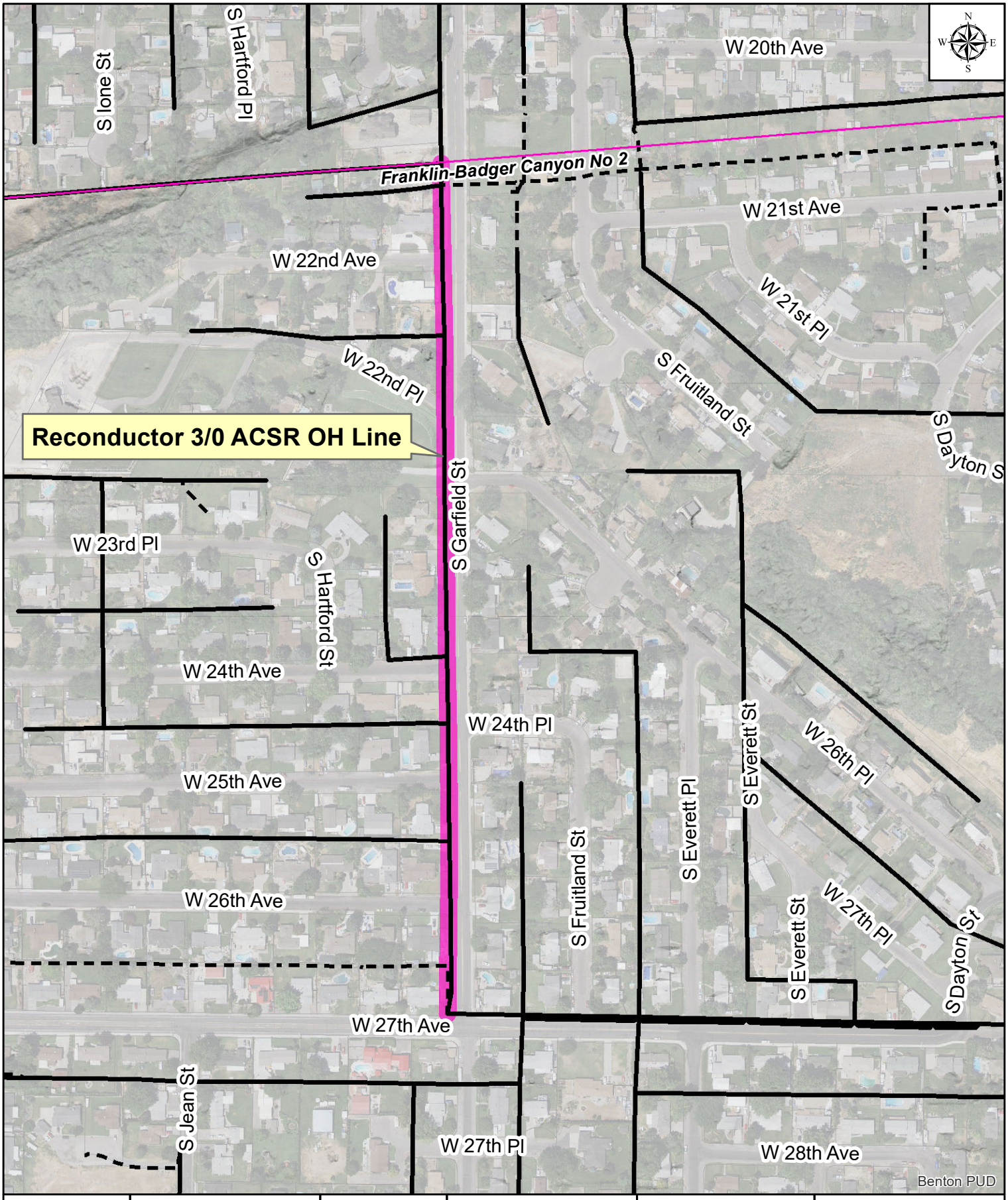
2024 Five Year Plan
HED-3 (HEDGES)
HED-3 Line Switch Addition



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83016	1 inch = 1,000 feet	1 of 1	Project 135

BENTON P·U·D

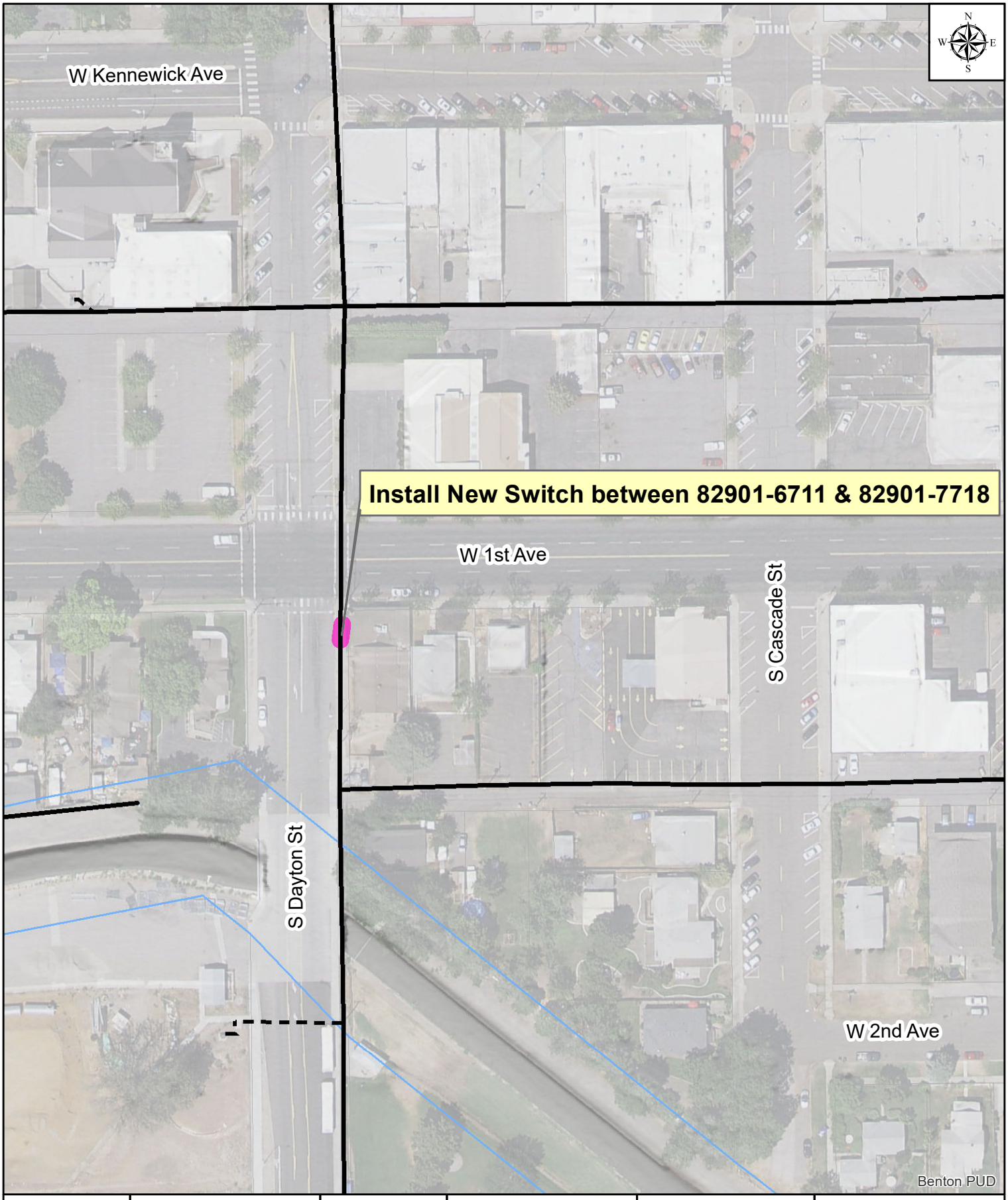
2024 Five Year Plan
HED-3 (HEDGES)
HED-3 Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82912	1 inch = 300 feet	1 of 1	Project 136

BENTON P·U·D

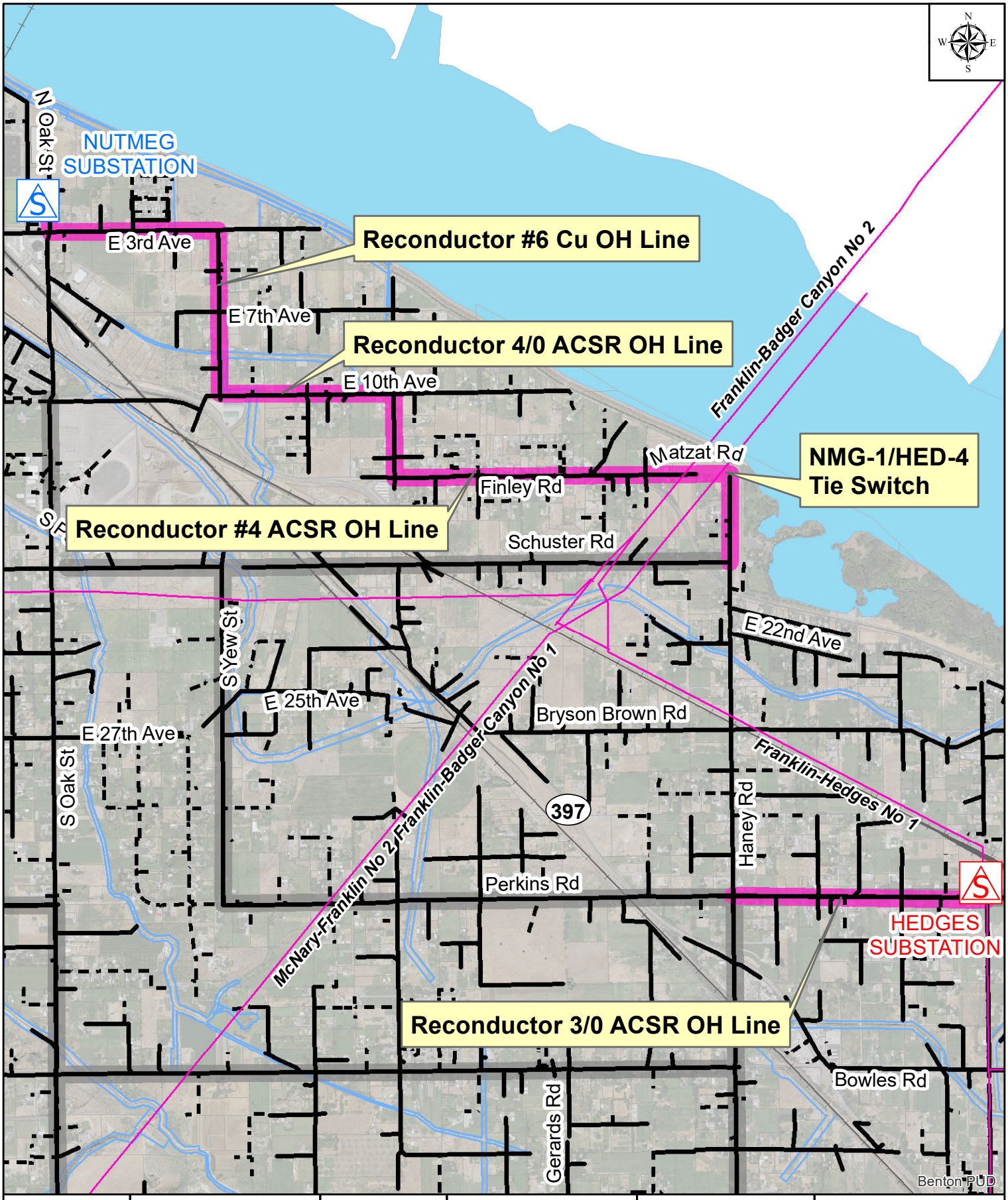
2024 Five Year Plan
ELY-2 (ELY)
ELY-2 Reconductor



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82901	1 inch = 100 feet	1 of 1	Project 137

BENTON P·U·D

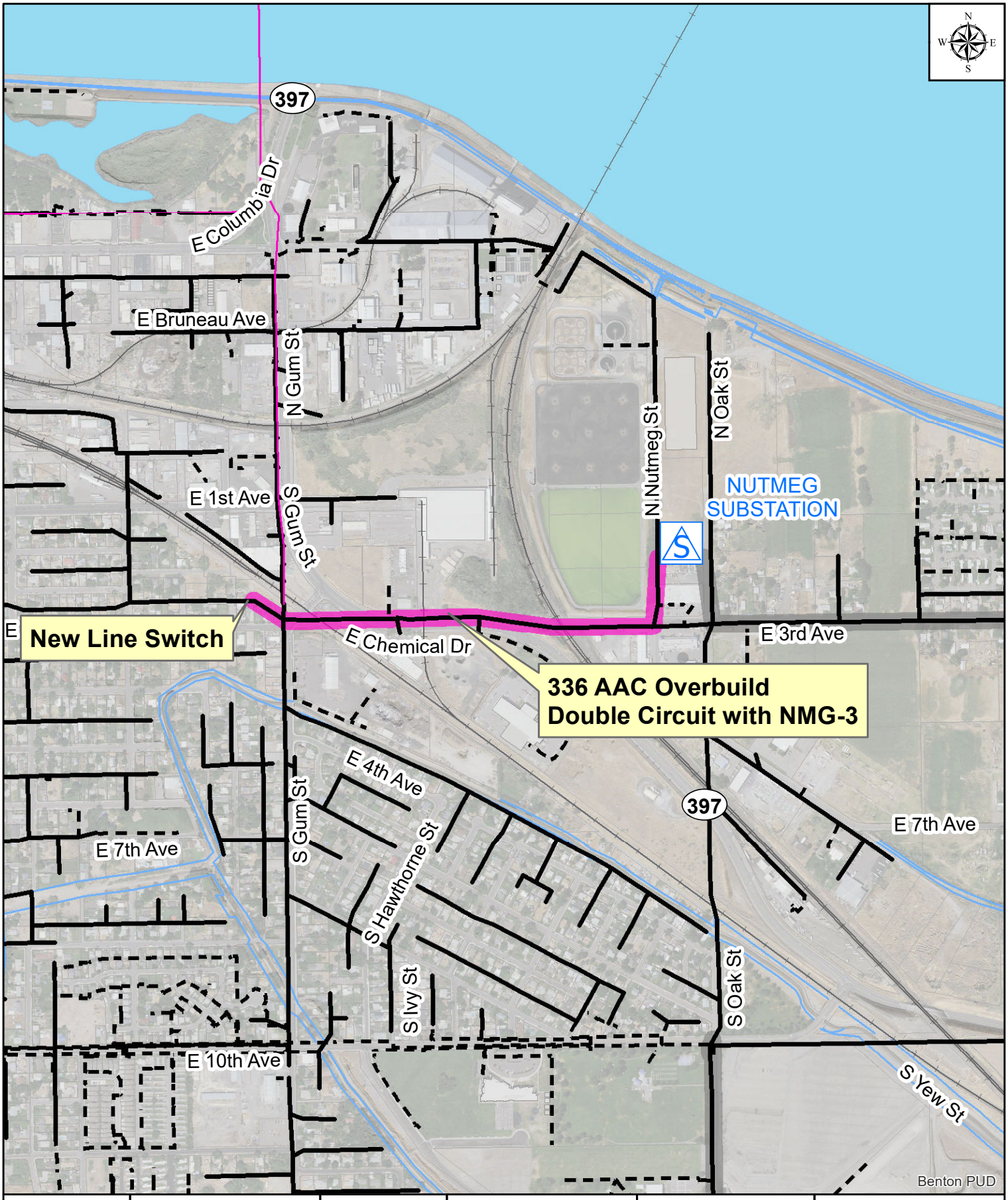
2024 Five Year Plan
KEN-6 (KENNEWICK)
KEN-6 Line Switch Addition



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83005	1 inch = 2,000 feet	1 of 1	Project 138

BENTON P·U·D

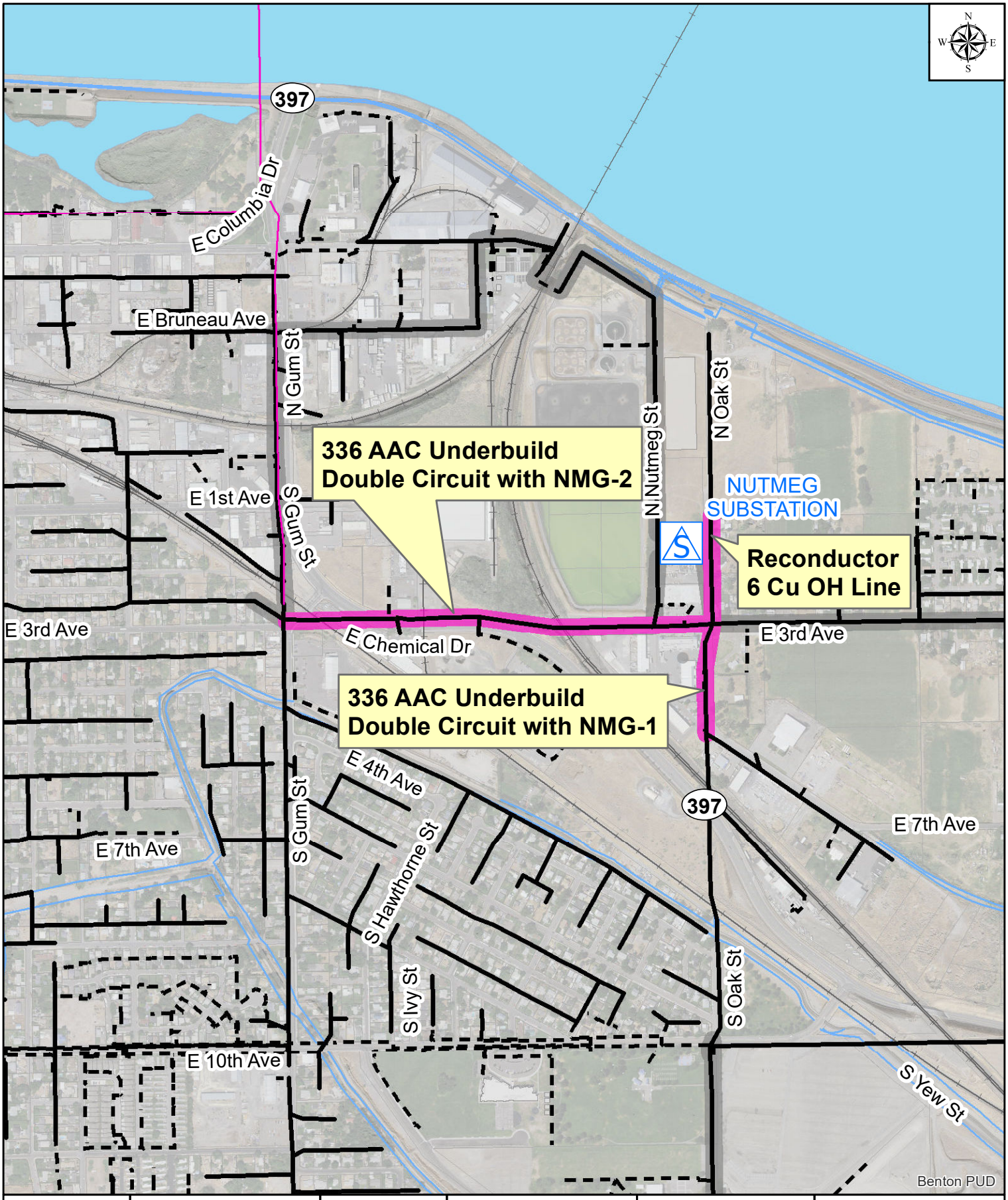
2024 Five Year Plan
NMG-1 (NUTMEG)
Proposed Nutmeg feeder NMG-1 Buildout



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83006	1 inch = 800 feet	1 of 1	Project 139

BENTON P·U·D

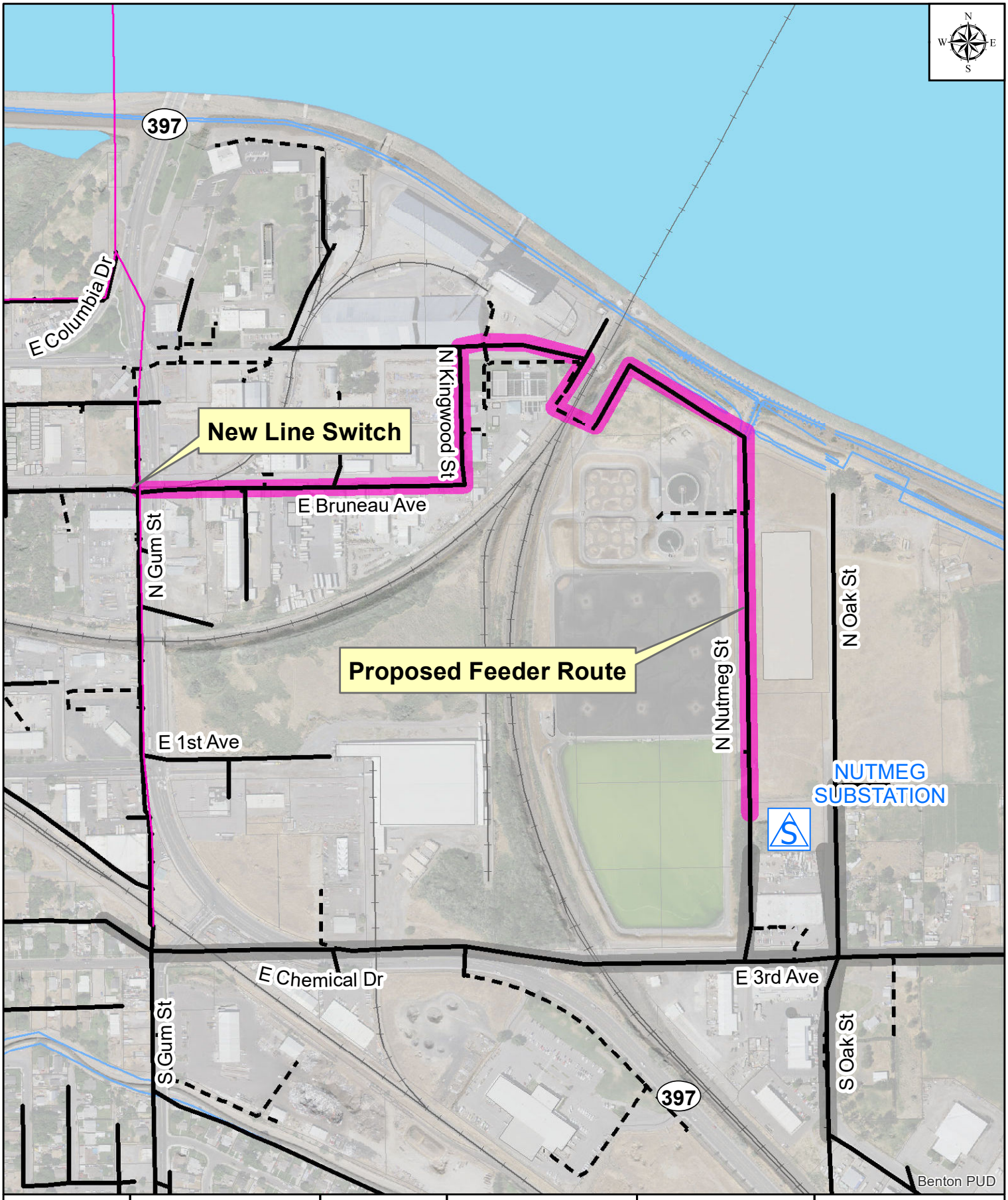
2024 Five Year Plan
NMG-2 (NUTMEG)
Proposed Nutmeg feeder NMG-2 Buildout



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/30/2024	nielsenj	83006	1 inch = 800 feet	1 of 1	Project 140

BENTON P·U·D

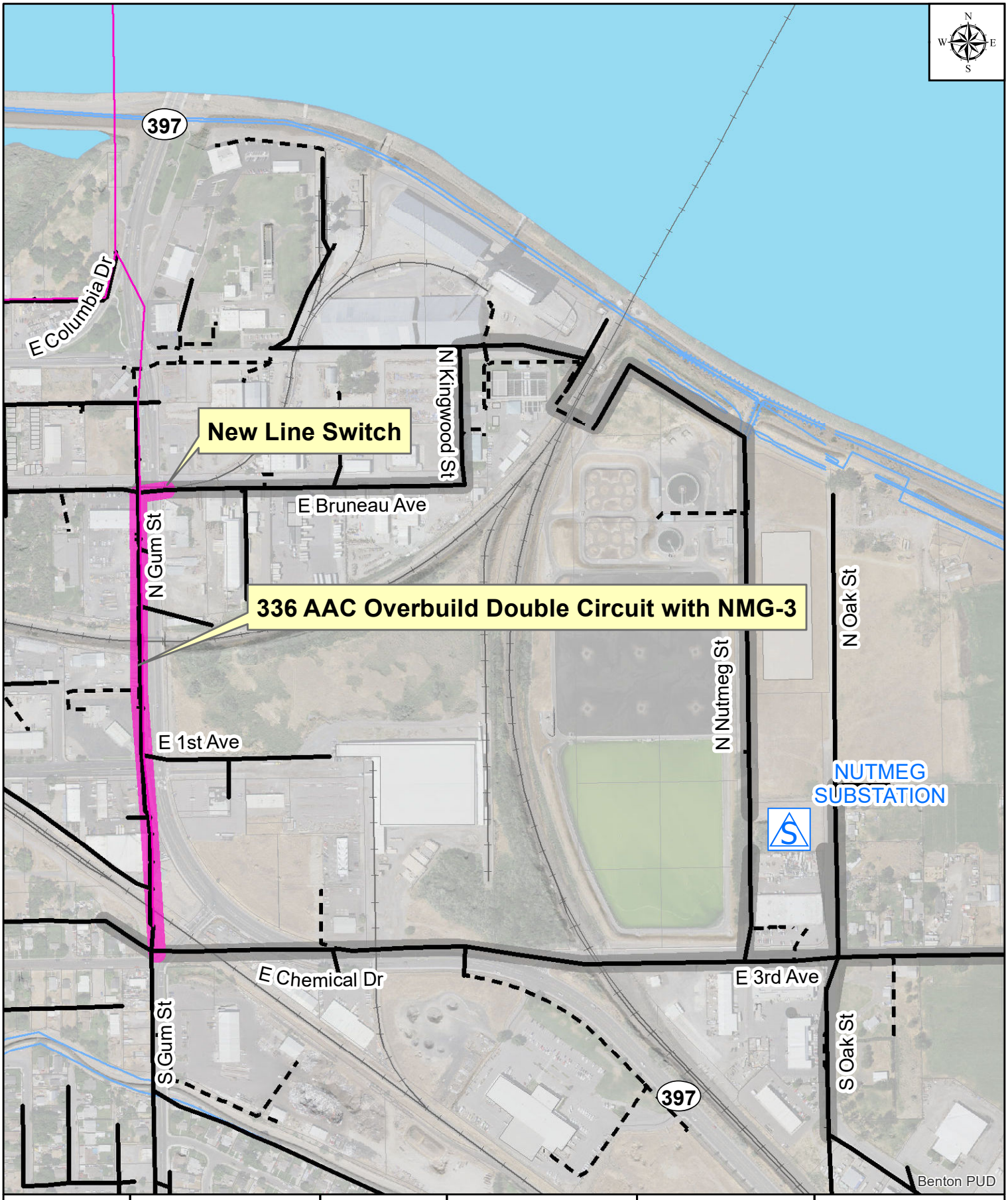
2024 Five Year Plan
NMG-3 (NUTMEG)
Proposed Nutmeg feeder NMG-3 Buildout



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83006	1 inch = 500 feet	1 of 1	Project 141

BENTON P·U·D

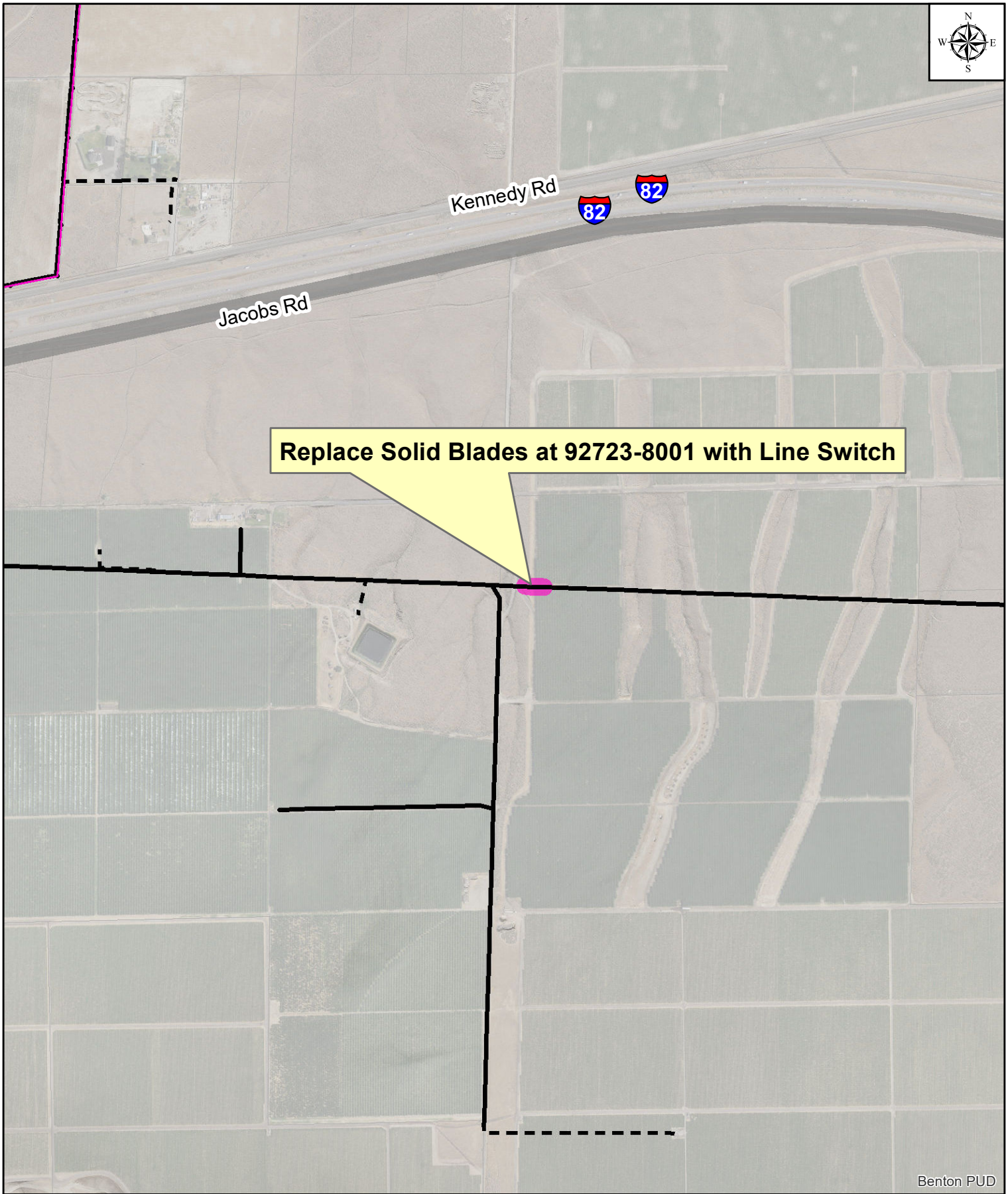
2024 Five Year Plan
NMG-4 (NUTMEG)
Proposed Nutmeg feeder NMG-4 Buildout



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	83006	1 inch = 500 feet	1 of 1	Project 142

BENTON P·U·D

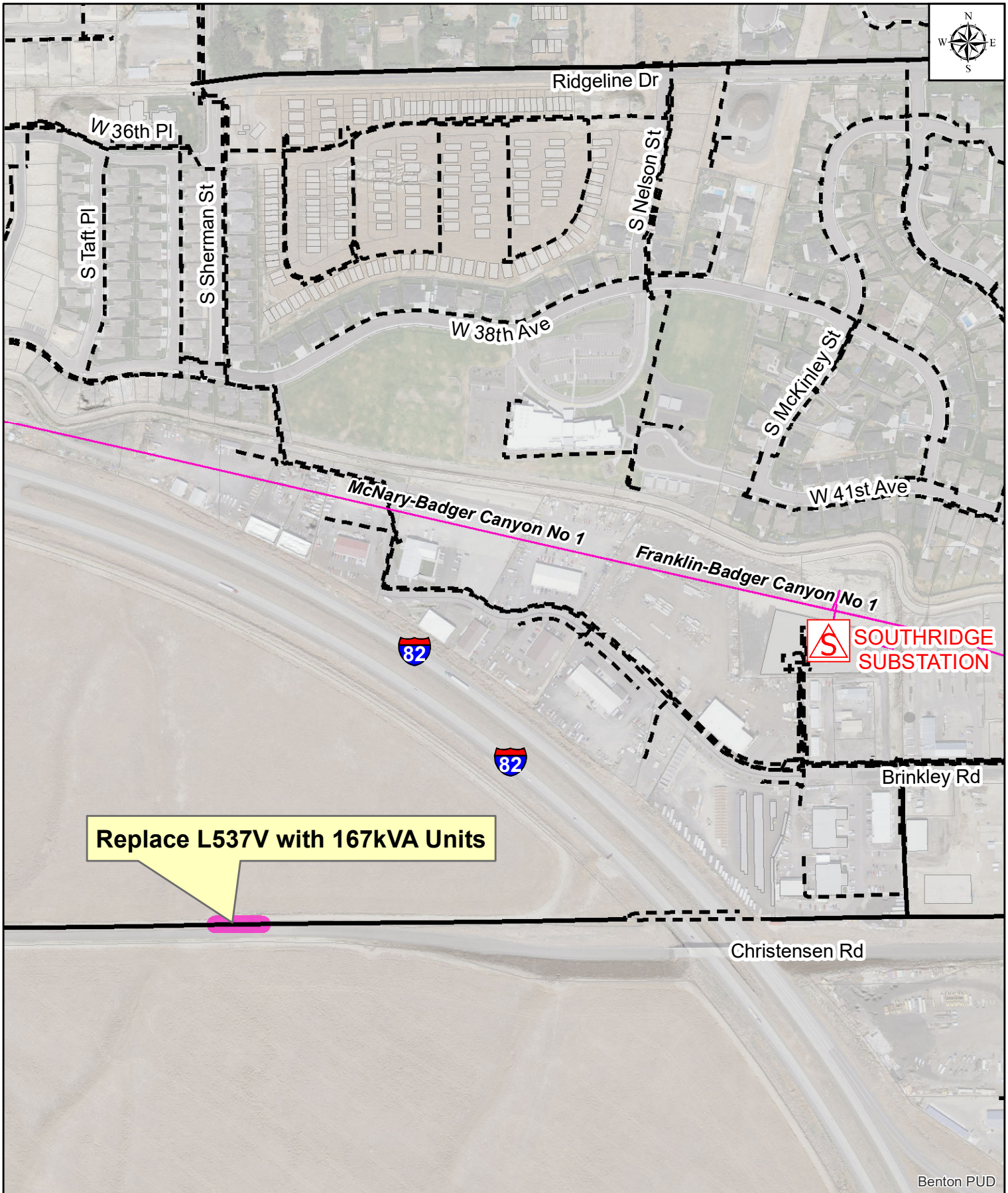
2024 Five Year Plan
NMG-4 (NUTMEG)
KEN-1 Overbuild



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	92723	1 inch = 800 feet	1 of 1	Project 143

BENTON P·U·D

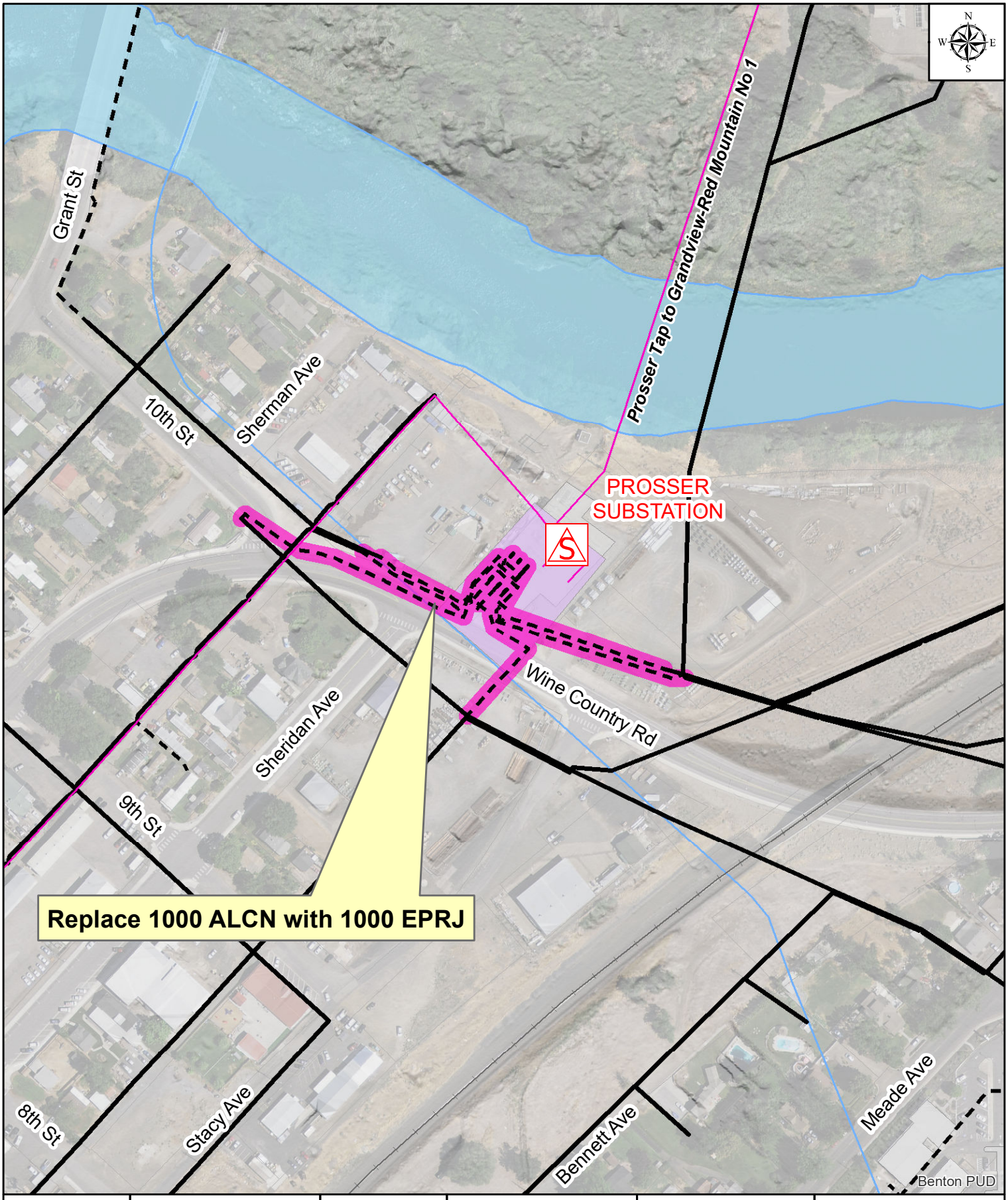
2024 Five Year Plan
SSR-3 (SUNSET RD)
SSR-3 Line Switch Addition



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82917	1 inch = 400 feet	1 of 1	Project 144

BENTON P·U·D

2024 Five Year Plan
STH-2 (SOUTHRIDGE)
UPGRADE L537V



DATE:	DRAWN BY:	MAP NUMBER:	SCALE:	PAGE:	DRAWING NAME:
8/26/2024	nielsenj	82401	1 inch = 200 feet	1 of 1	Project 145

BENTON P·U·D

2024 Five Year Plan
PSR-1, PSR-2, PSR-3, PSR-4, PSR-5, PSR-6 (PROSSER)
Prosser Substation Get-away Replacements

[This Page Intentionally Left blank}

[For Two Sided Printing]

Appendix B

Feeder Peaks

[This Page Intentionally Left blank}

[For Two Sided Printing]

Table B1

Feeder Non-Coincidental Peaks - Winter

Substation Feeder/Bay (P.O.D)	1.15	1.24	1.18	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 0°F					Peak Season
	19-20	20-21	21-22	22-23	23-24		24-25	25-26	26-27	27-28	28-29	
Angus *(Kennewick P.O.D.)*												
ANG-9	5,107	5,175	5,406	5,029	4,895	0.0%	4,895	4,895	4,895	4,895	4,895	Winter
ANG-1	3,833	3,911	4,216	3,653	3,995	0.1%	3,998	4,001	4,005	4,008	4,011	Winter
ANG-2	5,715	5,609	6,347	5,795	6,547	0.0%	6,547	6,547	6,547	6,547	6,547	Winter
Bay 3	14,655	14,695	15,968	14,477	15,437	0.1%	15,440	15,443	15,446	15,449	15,453	Winter
ANG-3	5,638	5,821	6,061	5,922	6,234	0.7%	6,253	6,273	6,292	6,311	6,330	Winter
ANG-4	4,534	4,612	4,409	4,664	4,657	0.0%	4,657	4,657	4,657	4,657	4,657	Winter
ANG-5	6,143	5,987	6,937	6,457	6,747	0.0%	6,747	6,747	6,747	6,747	6,747	Winter
Bay 1	16,315	16,420	17,407	17,043	17,639	0.7%	17,658	17,677	17,696	17,715	17,735	Winter
ANG-6	4,757	4,815	4,843	3,906	4,330	0.0%	4,330	4,330	4,330	4,330	4,330	Winter
ANG-7	4,158	4,216	4,723	3,809	4,307	0.0%	4,307	4,307	4,307	4,307	4,307	Winter
ANG-8	5,313	5,277	5,636	4,545	5,780	0.0%	5,780	5,780	5,780	5,780	5,780	Winter
Bay 2	14,227	14,308	15,202	12,260	14,417	0.0%	14,417	14,417	14,417	14,417	14,417	Winter
Benton City *(Benton City P.O.D.)*												
BEC-1	6,425	6,513	7,481	6,710	7,424	0.4%	7,436	7,448	7,459	7,471	7,482	Winter
BEC-2	5,073	5,046	6,144	5,557	5,885	4.1%	5,996	6,108	6,219	6,331	6,443	Winter
BEC-3	-	-	-	-	-	0.0%	-	-	-	-	-	Winter
BEC-4	-	-	-	-	-	0.0%	-	-	-	-	-	Winter
REA	2,000	2,000	-	-	-	-	-	-	-	-	-	Winter
Bay 1	13,498	13,559	13,625	12,267	13,309	4.6%	13,432	13,555	13,679	13,802	13,925	Winter
Note: REA load went away in 11-12 due to their new substation. Projected value of 2,000 kVA was a reserved capacity value. After Benton City sub rebuild agreement was modified to not have to hold capacity for REA.												
Note: Benton City rebuild completed fall 2019. BEC-3, BEC-4 currently spare positions.												
Note: BEC-3 buildout anticipated spring 2021.												
Cold Creek *(Cold Creek P.O.D.)*												
CCR-1	565	341	360	387	394	0.0%	394	394	394	394	394	Summer
Bay 1	565	341	360	387	394	-	394	394	394	394	394	Summer
Ely *(Kennewick P.O.D.)*												
ELY-1	4,568	4,529	5,563	4,977	5,157	0.4%	5,167	5,177	5,187	5,197	5,207	Winter
ELY-2	2,712	2,583	3,136	2,916	2,931	0.0%	2,931	2,931	2,931	2,931	2,931	Winter
ELY-3	5,843	6,633	7,260	6,085	5,966	1.5%	6,008	6,050	6,091	6,133	6,174	Winter
ELY-4	5,227	5,083	6,162	7,335	6,030	0.0%	6,030	6,030	6,030	6,030	6,030	Winter
Bay 1	18,351	18,828	22,121	21,314	20,084	1.9%	20,136	20,188	20,239	20,291	20,342	Winter
ELY-5	3,653	3,413	3,967	3,496	3,339	0.0%	3,339	3,339	3,339	3,339	3,339	Summer
ELY-6	6,562	6,319	7,675	6,919	6,807	0.0%	6,808	6,809	6,809	6,810	6,811	Winter
ELY-7	4,697	4,428	5,341	4,769	4,650	0.0%	4,650	4,650	4,650	4,650	4,650	Summer
ELY-8	4,355	4,299	4,871	6,904	4,642	2.2%	4,702	4,762	4,822	4,882	4,942	Winter
Bay 2	19,266	18,459	21,853	22,087	19,438	2.2%	19,499	19,560	19,621	19,681	19,742	Winter
Note: Southridge Sub feeders STH-1, STH-2, STH-4 completed Fall 2022. Permanent load shift from EL-3 to STH-1 STH-2.												
Note: Southridge Sub feeder STH-3 overhead shoe-fly constructed winter 23/24. Underground permanent feed planned for fall 2024 installation. Permanent load shift from ELY-7 to STH-3.												
Note: Ely Bay 2 was on the Mobile during winter 23/24 peak due to transformer failure. Modeled loads used for ELY-1, ELY-4, ELY-5, & ELY-7 due to abnormal switching.												
Gum Street *(Kennewick P.O.D.)*												
GUM-1	6,023	7,195	5,594	6,636	6,777	1.3%	6,812	6,846	6,880	6,915	6,949	Winter
GUM-2	4,004	3,801	3,950	3,303	4,174	0.0%	4,174	4,174	4,174	4,174	4,174	Winter
GUM-3	5,458	5,277	6,015	3,973	6,733	2.8%	6,807	6,881	6,956	7,030	7,105	Winter
GUM-4	7,015	7,094	6,498	7,357	7,610	0.6%	7,626	7,642	7,658	7,674	7,690	Winter
Bay 1	22,500	23,366	22,057	21,269	25,294	4.6%	25,419	25,544	25,669	25,793	25,918	Winter
Note: Ely Bay 2 was on the Mobile during winter 23/24 peak due to transformer failure. Modeled loads used for GUM-2 due to abnormal switching.												

Table B1

Feeder Non-Coincidental Peaks - Winter

Substation Feeder/Bay (P.O.D)	1.15	1.24	1.18	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 0°F					Peak Season
	19-20	20-21	21-22	22-23	23-24		24-25	25-26	26-27	27-28	28-29	
Hedges *(Hedges P.O.D.)*												
HED-1	1,574	1,697	1,734	1,533	1,533	0.0%	1,533	1,533	1,533	1,533	1,533	Winter
HED-2	6,057	6,088	5,632	6,539	6,256	0.0%	6,256	6,256	6,256	6,256	6,256	Winter
HED-3	4,337	4,880	4,307	4,672	4,769	0.3%	4,777	4,785	4,793	4,801	4,809	Winter
HED-4	6,416	6,503	6,152	7,201	7,365	1.5%	7,405	7,445	7,485	7,525	7,565	Winter
Bay 1	18,385	19,169	17,826	19,945	19,923	1.8%	19,971	20,019	20,067	20,115	20,163	Winter
Note: Lineage Logistics have indicated intention to rebuild facility. No reduction in out year loads.												
Highlands *(Kennewick P.O.D.)*												
HLS-1	3,431	4,742	5,415	5,014	4,545	0.5%	4,560	4,574	4,589	4,603	4,617	Winter
HLS-2	3,781	3,718	4,133	3,868	3,727	2.9%	3,804	3,882	3,959	4,036	4,114	Summer
HLS-3	6,220	6,688	7,260	5,170	6,190	5.7%	6,343	6,496	6,649	6,802	6,955	Winter
Bay 1	13,432	15,147	16,808	14,053	14,462	9.0%	14,707	14,951	15,196	15,441	15,686	Winter
HLS-4	5,133	4,972	5,812	5,498	5,609	0.4%	5,619	5,629	5,639	5,649	5,659	Winter
HLS-5	3,251	3,745	4,539	2,403	2,254	6.4%	2,427	2,600	2,773	2,946	3,119	Winter
HLS-6	4,834	4,649	5,286	4,888	5,007	0.0%	5,007	5,007	5,007	5,007	5,007	Winter
Bay 2	13,218	13,367	15,636	12,788	12,870	6.8%	13,053	13,236	13,419	13,602	13,785	Winter
HLS-7	5,065	5,802	6,273	6,108	6,547	0.7%	6,567	6,587	6,607	6,627	6,647	Winter
HLS-8	4,971	4,815	5,599	5,274	5,423	0.0%	5,423	5,423	5,423	5,423	5,423	Winter
HLS-9	5,766	5,360	6,531	5,780	6,026	1.5%	6,065	6,105	6,145	6,184	6,224	Winter
Bay 3	15,801	15,977	18,403	17,163	17,996	2.2%	18,055	18,115	18,175	18,234	18,294	Winter
Note: Southridge Sub feeders STH-1, STH-2, STH-4 completed Fall 2022. Permanent load shift from HLS-5 to STH-1 STH-4.												
Note: ORV-4 buildout to Vista Field completed in fall 2020. Permanent load shift from HLS-7 to ORV-4.												
Kennewick *(Kennewick P.O.D.)*												
KEN-1	5,073	4,815	7,075	4,389	4,116	0.3%	4,125	4,134	4,142	4,151	4,160	Winter
KEN-2	5,279	5,378	4,612	5,379	5,572	0.5%	5,586	5,599	5,613	5,626	5,640	Winter
KEN-3	6,639	6,633	6,334	6,614	6,829	0.1%	6,831	6,833	6,834	6,836	6,837	Winter
Bay 1	16,991	16,826	18,022	16,381	16,517	0.9%	16,541	16,565	16,589	16,613	16,637	Winter
KEN-4	5,946	6,245	5,450	7,640	6,085	1.2%	6,118	6,151	6,184	6,217	6,249	Winter
KEN-5	5,552	5,304	5,230	8,711	5,671	0.0%	5,671	5,671	5,671	5,671	5,671	Winter
KEN-6	5,835	6,079	5,352	5,460	5,416	1.1%	5,446	5,476	5,506	5,536	5,566	Winter
Bay 2	17,333	17,629	16,032	21,812	17,172	2.3%	17,235	17,298	17,361	17,423	17,486	Winter
KEN-7	5,244	5,083	4,263	3,645	5,066	0.0%	5,066	5,066	5,066	5,066	5,066	Winter
KEN-8	7,588	8,145	7,070	8,540	8,439	8.9%	8,679	8,679	8,679	8,679	8,679	Winter
KEN-9	3,816	3,635	3,549	4,188	3,965	0.4%	3,975	3,984	3,994	4,004	4,013	Winter
Bay 3	16,648	16,863	14,882	16,374	17,470	9.2%	17,720	17,730	17,739	17,749	17,758	Winter
Note: KEN-5 was partially abnormally switched due to a primary fault during 23/24 peak. Modeled loads used for KEN-2 & KEN-5 due to the abnormal switching.												
Note: KEN-1 & KEN-8 abnormally switched during winter 23/24 peak for load balancing. Modeled loads used.												
Leslie Road *(Kennewick P.O.D.)*												
LES-1	5,689	5,535	6,026	6,495	6,837	0.2%	6,842	6,848	6,854	6,859	6,865	Winter
LES-2	3,123	3,238	2,567	5,699	3,764	1.0%	3,791	3,817	3,843	3,870	3,896	Winter
LES-3	3,200	3,256	3,050	3,318	3,489	0.0%	3,489	3,489	3,489	3,489	3,489	Winter
LES-4	1,754	1,836	1,004	2,939	2,998	0.4%	3,008	3,017	3,027	3,036	3,046	Winter
Bay 1	13,765	13,865	12,647	18,450	17,088	1.5%	17,130	17,171	17,213	17,255	17,296	Winter

Table B1

Feeder Non-Coincidental Peaks - Winter

Substation Feeder/Bay (P.O.D)	1.15	1.24	1.18	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 0°F					Peak Season
	19-20	20-21	21-22	22-23	23-24		24-25	25-26	26-27	27-28	28-29	
Orchard View *(Kennewick P.O.D.)*												
ORV-1	-	-	-	-	-	0.0%	-	-	-	-	-	-
ORV-2	3,585	5,387	4,216	6,829	3,452	2.6%	3,521	3,590	3,659	3,728	3,797	Summer
ORV-3	5,184	5,240	7,029	6,368	6,911	2.6%	6,982	7,052	7,123	7,193	7,264	Winter
ORV-4	-	3,155	3,210	4,464	1,912	4.0%	2,019	2,127	2,234	2,342	2,449	Summer
Bay 1	8,769	13,782	14,455	17,661	12,275	9.1%	12,522	12,769	13,016	13,264	13,511	Summer
ORV-5	4,440	5,175	6,301	3,645	5,341	5.1%	5,479	5,617	5,754	5,892	6,029	Winter
ORV-6	4,817	4,603	5,249	3,638	4,955	0.0%	4,955	4,955	4,955	4,955	4,955	Summer
ORV-7	-	-	-	-	-	0.0%	-	-	-	-	-	-
ORV-8	-	-	-	-	-	0.0%	-	-	-	-	-	-
Bay 2	9,257	9,778	11,549	7,283	10,296	5.1%	10,434	10,571	10,709	10,846	10,984	Winter
Note: Orchard View Bay 2 energized Fall 2019. Permanent load shifts from ORV-1 to ORV-5 and ORV-4 to ORV-6.												
Note: ORV-4 buildout to Vista Field completed in fall 2020. Permanent load shift from HLS-7 to ORV-4.												
Phillips *(Hedges P.O.D.)*												
PHL-6	103	157	157	126	126	0.0%	126	126	126	126	126	Summer
PHL-7	4,235	4,732	4,732	6,681	6,956	0.4%	4,446	4,456	4,466	4,476	4,486	Winter
Bay 4	4,337	4,889	4,889	6,807	7,082	0.4%	4,572	4,582	4,592	4,602	4,612	Summer
Note: Modeled loads used for PHL-7 out years due to large EIL load going away												
Prosser *(Prosser P.O.D.)*												
PSR-1	4,406	4,539	4,317	3,534	3,965	0.0%	3,965	3,965	3,965	3,965	3,965	Summer
PSR-2	3,730	3,718	3,847	3,467	4,196	3.0%	4,276	4,356	4,436	4,516	4,596	Winter
PSR-3	5,946	6,042	6,328	5,609	5,907	0.0%	5,908	5,908	5,909	5,910	5,911	Winter
Bay 1	14,082	14,298	14,492	12,610	14,068	3.0%	14,149	14,229	14,310	14,391	14,472	Winter
PSR-4	5,732	5,452	5,765	5,245	5,208	0.4%	5,218	5,228	5,238	5,248	5,258	Winter
PSR-5	1,395	1,301	1,255	1,168	1,278	0.0%	1,278	1,278	1,278	1,278	1,278	Winter
PSR-6	5,655	5,230	5,885	5,386	5,127	0.1%	5,130	5,133	5,137	5,140	5,143	Winter
REA	8,400	7,700	7,390	8,770	10,090	1.0%	10,117	10,218	10,320	10,424	10,528	Winter
Bay 2	21,182	19,683	20,295	20,569	21,703	0.5%	21,743	21,857	21,973	22,089	22,206	Winter
Note: BREA Huard substation brought online Fall 2023. Huard substation was out of service for during winter 23/24 peak.Out years left as projection of all load on Prosser Bay 2 as unknown what the REA's normal load split between the two feeds is going to be during peak events.												
Note: PRO-5 swtiched to RVF-3 during winter 23/24 peak for load balancing. Modeled loads used												
Note: PRO-6 partially swtiched to RVF-1 during winter 23/24 peak for load balancing. Modeled loads used												
Reata *(Kennewick P.O.D.)*												
RTA-1	2,028	4,649	4,783	6,353	6,755	0.3%	6,762	6,769	6,777	6,784	6,791	Winter
RTA-2	8,778	9,197	9,158	4,746	7,843	1.7%	7,889	7,934	7,980	8,025	8,071	Winter
RTA-3	6,288	3,911	4,121	4,657	4,664	0.2%	4,671	4,677	4,684	4,690	4,696	Winter
RTA-4	3,679	3,563	3,541	4,240	4,121	0.0%	4,121	4,121	4,121	4,121	4,121	Winter
Bay 1	20,772	21,321	21,604	19,997	23,384	2.2%	23,443	23,502	23,561	23,621	23,680	Winter
Note: RTA-3 to RTA-1 offload completed fall 2020.												
Note: RTA-1 to LES-4 and RTA-2 to RTA-1 offloads completed fall 2022.												
Note: RTA-2 abnormally switched to SSR-4 winter 22/23 for load balancing purposes.												
Note: RTA-2 abnormally switched to SSR-4 winter 23/24 for load balancing purposes. Modeled loads used												
Riverfront *(Prosser P.O.D.)*												
RVF-1	5,133	5,286	4,975	3,779	4,711	0.0%	4,711	4,711	4,711	4,711	4,711	Winter
RVF-2	385	249	517	327	335	0.0%	335	335	335	335	335	Winter
RVF-3	4,654	4,732	4,812	4,590	5,242	2.5%	5,311	5,380	5,448	5,517	5,586	Winter
Bay 1	10,172	10,267	10,304	8,697	10,288	2.5%	10,357	10,425	10,494	10,563	10,632	Winter
Note: PSR-6 partially switched to RVF-1 for winter 23/24 peak for load balancing. Modeled loads used in out years.												
Note: PSR-5 switched to RVF-3 for winter 23/24 peak for load balancing. Modeled loads used in out years												

Table B1

Feeder Non-Coincidental Peaks - Winter

Substation Feeder/Bay (P.O.D)	1.15	1.24	1.18	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 0°F					Peak Season
	19-20	20-21	21-22	22-23	23-24		24-25	25-26	26-27	27-28	28-29	
Southridge *(Kennewick P.O.D.)*												
STH-1	-	-	-	1,964	2,611	4.4%	2,730	2,799	2,868	2,936	3,005	Summer
STH-2	-	-	-	714	751	3.4%	844	912	981	1,050	1,119	Summer
STH-3	-	-	-	-	195	0.0%	195	195	195	195	195	Summer
STH-4	-	-	-	1,547	1,391	8.7%	1,627	1,746	1,865	1,983	2,102	Winter
Bay 1	-	-	-	2,678	3,558	7.8%	3,769	3,906	4,044	4,181	4,319	Summer
Note: Feeders STH-1, STH-2, STH-4 brought online fall 2022. Permanent load shift from ELY-3 to STH-1, STH-2, STH-3, and HLS-5 to STH-1 and STH-4.												
Note: Feeder STH-3 brought online winter 23/24. All of ELY-7 switched to STH-3 during peak. Modeled loads used.												
Sunset Road *(Benton City P.O.D.)*												
SSR-1	3,191	3,487	4,575	4,218	4,508	0.0%	4,508	4,508	4,508	4,508	4,508	Winter
SSR-2	3,653	3,321	4,151	4,620	4,783	0.1%	4,785	4,787	4,788	4,790	4,791	Winter
SSR-3	1,951	2,933	1,937	1,547	1,778	0.0%	1,778	1,778	1,778	1,778	1,778	Summer
SSR-4	2,284	2,684	3,883	4,969	1,477	3.1%	1,561	1,645	1,729	1,813	1,897	Winter
Bay 1	11,079	12,426	14,547	15,355	12,547	0.1%	11,071	11,073	11,075	11,076	11,078	Summer
Note: RTA-2 load past L70R shifted to SSR-4 during winter 22/23 peak for load banacing purposes.												
Note: RTA-2 load past L70R shifted to SSR-4 during winter 23/24 peak for load banacing purposes. Modeled loads used.												
Vista *(Kennewick P.O.D.)*												
VTA-1	2,079	1,993	2,343	2,135	2,023	0.0%	2,023	2,023	2,023	2,023	2,023	Summer
VTA-2	3,893	2,684	3,377	3,809	4,099	0.0%	4,099	4,099	4,099	4,099	4,099	Winter
VTA-3	2,498	2,352	2,239	2,321	2,366	0.0%	2,366	2,366	2,366	2,366	2,366	Winter
VTA-4	5,535	6,227	4,754	5,416	5,758	2.7%	5,832	5,905	5,978	6,052	6,125	Winter
Bay 1	14,005	13,256	12,714	13,681	14,246	2.7%	14,320	14,393	14,467	14,540	14,614	Winter
VTA-5	5,364	4,981	5,096	5,632	5,810	1.5%	5,850	5,890	5,930	5,970	6,010	Winter
VTA-6	1,728	1,633	1,848	1,838	1,718	0.9%	1,744	1,770	1,795	1,821	1,846	Summer
VTA-7	4,842	4,428	5,176	4,203	4,627	0.0%	4,627	4,627	4,627	4,627	4,627	Winter
VTA-8	6,562	6,365	5,995	5,245	5,490	0.0%	5,490	5,490	5,490	5,490	5,490	Winter
Bay 2	18,496	17,407	18,114	16,917	17,646	2.4%	17,712	17,777	17,843	17,908	17,974	Winter
Zephyr Heights *(Kennewick P.O.D.)*												
ZEH-1	3,396	4,013	4,188	3,712	4,060	2.7%	4,133	4,206	4,278	4,351	4,424	Winter
ZEH-2	4,851	5,064	5,904	8,161	6,517	1.8%	6,565	6,613	6,661	6,709	6,757	Winter
ZEH-3	496	803	507	461	439	0.0%	439	439	439	439	439	Winter
Bay 1	8,743	9,880	10,599	12,334	11,016	4.5%	11,137	11,258	11,378	11,499	11,620	Winter
Note: ZEH-2 switched abnormally during winter 22/23 for load balancing purposes.												
Note: Ely Bay 2 was on the Mobile during winter 23/24 peak due to transformer failure. Modeled loads used for ZEH-1 & ZEH-2 due to abnormal switching.												
Continguous P.O.D. Totals (PUD Only)												
Benton City	22,577	23,984	28,172	27,622	25,856	4.6%	24,503	24,628	24,753	24,878	25,003	Winter
Hedges	22,723	24,058	22,715	26,752	27,005	2.1%	24,543	24,601	24,659	24,717	24,775	Winter
Kennewick	269,524	277,530	291,877	287,612	287,364	61.0%	289,014	290,663	292,313	293,962	295,612	Winter
Prosser	37,036	36,549	37,701	33,105	35,968	6.0%	36,131	36,294	36,456	36,619	36,782	Winter
Total	351,859	362,121	380,465	375,091	376,193	74%	374,191	376,186	378,181	380,177	382,172	Winter
Miscellaneous Substations & P.O.D.'s												
251 (DOE)	153	122	153	149	116	0.0%	149	149	149	149	149	
451B (Ligo)	1,409	1,388	1,409	1,185	1,444	0.0%	1,015	1,015	1,015	1,015	1,015	
Chevron	8,044	8,606	8,494	7,225	7,440	0.0%	7,440	7,440	7,440	7,440	7,440	
Cold Creek	281	283	347	296	328	0.0%	328	328	328	328	328	
Phillips 1,2,3	1,300	1,327	1,079	950	1,010	0.0%	1,010	1,010	1,010	1,010	1,010	
Total	11,186	11,724	11,481	9,805	10,338	0.0%	9,942	9,942	9,942	9,942	9,942	

Table B2

Feeder Non-Coincidental Peaks - Summer

Substation Feeder/Bay *(P.O.D)*	1.03	1.00	0.92	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 104°F					Peak Season
	2019	**2020**	**2021**	**2022**	**2023**		**2024**	**2025**	**2026**	**2027**	**2028**	
Angus *(Kennewick P.O.D.)*												
ANG-9	3,574	3,578	6,447	3,492	4,285	0.0%	3,492	3,492	3,492	3,492	3,492	Winter
ANG-1	3,169	3,816	2,723	2,477	2,485	0.1%	2,487	2,489	2,492	2,494	2,496	Winter
ANG-2	3,498	3,526	3,710	3,735	3,854	0.0%	3,854	3,854	3,854	3,854	3,854	Winter
Bay 3	10,241	10,921	12,880	9,704	10,623	0.1%	9,833	9,835	9,837	9,839	9,842	Winter
ANG-3	4,300	4,040	4,086	4,211	4,263	0.7%	4,276	4,290	4,304	4,318	4,331	Winter
ANG-4	3,971	3,578	2,327	3,831	3,801	0.0%	3,831	3,831	3,831	3,831	3,831	Winter
ANG-5	3,689	3,496	5,681	3,913	3,943	0.0%	3,943	3,943	3,943	3,943	3,943	Winter
Bay 1	11,960	11,114	12,094	11,955	12,007	0.7%	12,051	12,064	12,078	12,092	12,105	Winter
ANG-6	4,025	3,787	3,675	3,801	3,563	0.0%	3,801	3,801	3,801	3,801	3,801	Winter
ANG-7	3,261	2,953	4,688	3,214	2,953	0.0%	3,214	3,214	3,214	3,214	3,214	Winter
ANG-8	3,513	3,422	-	3,504	3,258	0.0%	3,504	3,504	3,504	3,504	3,504	Winter
Bay 2	10,799	10,162	8,364	10,519	9,775	0.0%	10,519	10,519	10,519	10,519	10,519	Winter
Note: Feeder VTA-4 was partially switched onto ANG-9 during summer 2022 & 2023 peaks to reduce loading on Vista substation.												
Note: Modeled loads used for feeders ANG-9 for 2022 and out years due to abnormal switching.												
Benton City *(Benton City P.O.D.)*												
BEC-1	3,460	3,496	3,436	3,749	3,653	0.4%	3,758	3,766	3,774	3,783	3,791	Winter
BEC-2	2,704	2,842	2,854	3,050	2,998	4.1%	3,130	3,209	3,289	3,369	3,448	Winter
BEC-3	-	-	-	-	-	0.0%	-	-	-	-	-	Winter
BEC-4	-	-	-	-	-	0.0%	-	-	-	-	-	Winter
REA	2,000	2,000	-	-	-	-	-	-	-	-	-	Winter
Bay 1	8,163	8,338	6,290	6,800	6,651	4.6%	6,887	6,975	7,063	7,151	7,239	Winter
Notes: REA load went away in 11-12 due to their new substation. Projected value of 2,000 kVA was a reserved capacity value. After Benton City sub rebuild the agreement was modified to remove the requirement to hold capacity.												
Note: Benton City rebuild completed fall 2019. BEC-3, BEC-4 currently spare positions.												
Note: BEC-3 buildout anticipated 2025.												
Cold Creek *(Cold Creek P.O.D.)*												
CCR-1	3,765	4,040	4,079	4,359	4,188	0.0%	4,359	4,359	4,359	4,359	4,359	Summer
Bay 1	3,765	4,040	4,079	4,359	4,188	-	4,359	4,359	4,359	4,359	4,359	Summer
Notes: Cold Creek added to 5 Year Plan in 2018.												
Ely *(Kennewick P.O.D.)*												
ELY-1	2,566	2,760	2,580	2,782	2,738	0.4%	2,789	2,797	2,804	2,811	2,818	Winter
ELY-2	1,573	1,726	1,711	1,756	1,681	0.0%	1,756	1,756	1,756	1,756	1,756	Winter
ELY-3	5,850	6,026	6,392	6,606	5,847	1.5%	6,636	6,666	6,695	6,725	6,755	Summer
ELY-4	4,094	7,305	4,421	4,486	4,374	0.0%	4,486	4,486	4,486	4,486	4,486	Winter
Bay 1	14,083	17,817	15,105	15,630	14,641	1.9%	15,667	15,704	15,741	15,777	15,814	Winter
ELY-5	3,811	5,088	3,949	3,980	3,697	0.0%	3,980	3,980	3,980	3,980	3,980	Summer
ELY-6	4,330	-	4,538	4,746	4,657	0.0%	4,747	4,747	4,748	4,749	4,749	Winter
ELY-7	4,682	-	4,921	5,036	4,858	0.0%	5,036	4,610	4,610	4,610	4,610	Summer
ELY-8	3,192	3,072	3,025	3,132	3,028	2.2%	3,175	3,218	3,260	3,303	3,346	Winter
Bay 2	16,015	8,161	16,433	16,895	16,240	2.2%	16,938	16,555	16,598	16,642	16,685	Winter
Note: Feeders STH-1, STH-2, STH-4 brought online fall 2022. Permanent load shift from ELY-3 to STH-1, STH-2, STH-3.												
Note: Additional load switched onto ELY-4 during 2020 peak to support Ely Bay 2 relay upgrade project.												
Note: ELY-6 and ELY-7 switched out during 2020 peak as part of Ely Bay 2 relay upgrade project.												
Gum Street *(Kennewick P.O.D.)*												
GUM-1	3,177	4,783	3,141	3,325	3,348	1.3%	3,372	3,397	3,421	3,446	3,470	Winter
GUM-2	2,261	4,240	2,423	2,425	2,358	0.0%	2,425	2,425	2,425	2,425	2,425	Winter
GUM-3	3,124	3,162	3,121	3,504	3,430	2.8%	3,557	3,610	3,663	3,716	3,769	Winter
GUM-4	4,781	4,761	4,627	4,382	4,478	0.6%	4,490	4,501	4,513	4,524	4,536	Winter
Bay 1	13,342	16,947	13,312	13,636	13,614	4.6%	13,844	13,933	14,023	14,112	14,201	Winter
Note: Additional load switched onto GUM-1 & GUM-2 during 2020 peak to support Ely Bay 2 relay upgrade project.												
Hedges *(Hedges P.O.D.)*												
HED-1	901	759	814	841	833	0.0%	841	841	841	841	841	Winter
HED-2	4,796	4,441	4,914	4,545	4,806	0.0%	4,806	4,806	4,806	4,806	4,806	Winter
HED-3	2,673	2,805	2,656	3,035	2,924	0.3%	3,041	3,047	3,052	3,058	3,064	Winter
HED-4	4,063	4,218	4,154	4,159	4,166	1.5%	4,195	4,223	4,252	4,280	4,309	Winter
Bay 1	12,433	12,223	12,539	12,580	12,729	1.8%	12,882	12,916	12,950	12,985	13,019	Winter
Note: Lineage Logistics have indicated intention to rebuild facility. No reduction in out year loads.												

Table B2

Feeder Non-Coincidental Peaks - Summer

Substation Feeder/Bay (P.O.D)	1.03	1.00	0.92	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 104°F					Peak Season
	2019	2020	2021	2022	2023		2024	2025	2026	2027	2028	
Highlands *(Kennewick P.O.D.)*												
HLS-1	3,093	3,370	2,840	3,333	2,775	0.5%	3,343	3,353	3,364	3,374	3,384	Winter
HLS-2	5,338	6,100	5,708	5,721	5,498	2.9%	5,776	5,831	5,886	5,941	5,997	Summer
HLS-3	5,942	4,873	5,701	5,408	5,222	5.7%	5,518	5,627	5,736	5,845	5,954	Winter
Bay 1	14,373	14,343	14,250	14,462	13,495	9.0%	14,637	14,811	14,986	15,161	15,335	Winter
HLS-4	3,238	3,251	3,265	3,340	3,370	0.4%	3,377	3,384	3,391	3,399	3,406	Winter
HLS-5	4,460	7,439	5,776	2,265	2,299	6.4%	2,422	2,546	2,669	2,793	2,916	Summer
HLS-6	2,933	3,013	3,607	2,946	2,827	0.0%	2,946	2,946	2,946	2,946	2,946	Winter
Bay 2	10,631	13,703	12,648	8,551	8,496	6.8%	8,745	8,876	9,007	9,137	9,268	Winter
HLS-7	3,704	3,913	3,716	3,980	4,032	0.7%	4,046	4,061	4,075	4,089	4,103	Winter
HLS-8	2,940	5,624	2,929	2,872	2,648	0.0%	2,872	2,872	2,872	2,872	2,872	Winter
HLS-9	4,651	4,523	4,661	4,612	5,513	1.5%	5,541	5,569	5,597	5,626	5,654	Winter
Bay 3	11,295	14,060	11,307	11,464	12,193	2.2%	12,459	12,501	12,544	12,586	12,629	Winter
Note: ORV-4 buildout to Vista Field completed fall 2020. Permanent load shift from HLS-7 to ORV-4.												
Note: Southridge Sub feeders STH-1, STH-2, STH-3 completed Fall 2022. Permanent load shift from HLS-5 to STH-1 and STH-4 completed after peak. Modeled loads used for HLS-5												
Kennewick *(Kennewick P.O.D.)*												
KEN-1	6,262	4,263	4,620	4,054	3,980	0.3%	4,061	4,067	4,073	4,080	4,086	Winter
KEN-2	3,208	3,727	3,237	3,392	3,221	0.5%	3,402	3,412	3,421	3,431	3,441	Winter
KEN-3	4,529	4,493	4,743	4,650	4,471	0.1%	4,651	4,652	4,653	4,654	4,655	Winter
Bay 1	13,999	12,483	12,600	12,096	11,672	0.9%	12,113	12,131	12,148	12,165	12,182	Winter
KEN-4	4,559	4,426	4,148	4,531	4,493	1.2%	4,554	4,577	4,601	4,624	4,648	Winter
KEN-5	3,276	5,475	3,224	3,333	3,214	0.0%	3,333	3,333	3,333	3,333	3,333	Winter
KEN-6	6,102	4,947	6,550	5,274	4,888	1.1%	5,296	5,317	5,339	5,360	5,382	Winter
Bay 2	13,938	14,849	13,921	13,138	12,595	2.3%	13,183	13,227	13,272	13,317	13,362	Winter
KEN-7	3,811	3,675	4,579	3,645	3,645	0.0%	3,645	3,645	3,645	3,645	3,645	Winter
KEN-8	5,018	4,880	5,188	6,576	6,018	8.9%	6,748	6,748	6,748	6,748	6,748	Winter
KEN-9	2,322	2,314	3,367	2,314	2,343	0.4%	2,350	2,357	2,364	2,371	2,378	Winter
Bay 3	11,150	10,869	13,134	12,535	12,007	9.2%	12,743	12,750	12,757	12,764	12,771	Winter
Note: Feeder KEN-5 was switched with additional load during 2020 peak due to Ely Bay 1 relay upgrade project.												
Leslie Road *(Kennewick P.O.D.)*												
LES-1	3,001	3,355	3,449	3,801	3,839	0.2%	3,843	3,847	3,851	3,855	3,859	Winter
LES-2	2,650	3,973	3,792	3,125	4,092	1.0%	2,438	2,457	2,476	2,494	2,513	Summer
LES-3	1,634	1,741	1,533	1,540	1,525	0.0%	1,525	1,525	1,525	1,525	1,525	Winter
LES-4	901	900	1,732	558	1,287	0.4%	1,294	1,301	1,308	1,314	1,321	Winter
Bay 1	8,187	9,969	10,506	9,024	10,742	1.5%	9,099	9,129	9,159	9,189	9,218	Winter
Note: Permanent load shift from RTA-1 to LES-4 completed fall 2022.												
Note: LES-2 partially loaded with ORV-2 during 2021, 2022, 2023 peak for load balancing.												
Note: Modeled loads used for LES-2 out years due to abnormal switching during peak.												
Orchard View *(Kennewick P.O.D.)*												
ORV-1	5,552	-	-	-	-	0.0%	-	-	-	-	-	-
ORV-2	2,383	2,418	5,804	4,612	4,270	2.6%	1,856	1,906	1,955	2,004	2,054	Summer
ORV-3	3,093	3,846	4,230	5,751	4,545	2.6%	5,801	5,851	5,902	5,952	6,002	Winter
ORV-4	5,430	-	3,997	2,976	2,700	4.0%	2,395	2,471	2,548	2,625	2,702	Summer
Bay 1	16,458	6,264	14,031	13,339	11,516	9.1%	10,052	10,228	10,405	10,581	10,758	Summer
ORV-5	-	4,248	4,065	4,501	5,803	5.1%	5,901	5,999	6,097	6,195	6,294	Winter
ORV-6	-	5,669	5,366	5,356	5,550	0.0%	7,031	7,031	7,031	7,031	7,031	Summer
ORV-7	-	-	-	-	-	0.0%	-	-	-	-	-	-
ORV-8	-	-	-	-	-	0.0%	-	-	-	-	-	-
Bay 2	-	9,917	9,431	9,857	11,352	5.1%	12,932	13,030	13,128	13,226	13,325	Winter
Note: Orchard View Bay 2 energized Fall 2019. Permanent load shifts from ORV-1 to ORV-5 and ORV-4 to ORV-6.												
Note: ORV-4 buildout to Vista Field completed fall 2020. Permanent load shift from HLS-7 to ORV-4.												
Note: ORV-1, ORV-7, ORV-8 currently spare circuits. Intention is to build out to west end of Bob Olsen Pkwy area in the future.												
Note: ORV-2 partially loaded with ORV-6 & VIS-8 and partially offloaded to LES-2 during 2021, 2022, 2023 peaks for load balancing.												
Note: ORV-4 partially loaded with VTA-4 during 2022 & 2023 peaks for load balancing.												
Note: Modeled loads used for ORV-2, ORV-4, ORV-6 out years due to abnormal switching during peak.												

Table B2

Feeder Non-Coincidental Peaks - Summer

Substation Feeder/Bay (P.O.D)	1.03	1.00	0.92	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 104°F					Peak Season
	2019	2020	2021	2022	2023		2024	2025	2026	2027	2028	
Phillips *(Hedges P.O.D.)*												
PHL-6	6,438	5,914	5,284	4,664	4,925	0.0%	4,925	4,925	4,925	4,925	4,925	Summer
PHL-7	3,551	3,325	3,395	4,166	5,609	0.4%	4,166	4,173	4,180	4,188	4,195	Winter
Bay 4	9,989	9,240	8,678	8,830	10,534	0.4%	9,091	9,098	9,105	9,112	9,120	Summer
Note: Modeled load was used for PHL-7 out years due to EIL load removal.												
Prosser *(Prosser P.O.D.)*												
PSR-1	5,522	4,389	4,004	3,995	5,007	0.0%	5,007	5,007	5,007	5,007	5,007	Summer
PSR-2	2,940	2,723	2,484	2,827	2,834	3.0%	2,891	2,949	3,006	3,063	3,120	Winter
PSR-3	5,262	4,962	5,202	5,081	5,014	0.0%	5,082	5,082	5,083	5,083	5,084	Winter
Bay 1	13,724	12,074	11,690	11,903	12,855	3.0%	12,980	13,037	13,095	13,153	13,210	Winter
PSR-4	5,995	5,416	5,072	4,471	4,568	0.4%	4,575	4,582	4,589	4,596	4,603	Winter
PSR-5	863	789	-	863	856	0.0%	863	863	863	863	863	Winter
PSR-6	3,864	3,749	3,648	4,017	3,854	0.1%	4,020	4,022	4,024	4,026	4,029	Winter
REA	7,520	8,010	8,210	6,230	6,140	1.0%	6,249	6,312	6,375	6,439	6,503	Winter
Bay 2	18,243	17,964	16,929	15,581	15,417	0.5%	15,707	15,779	15,851	15,924	15,998	Winter
Note: PRO-5 was switched to RVF-3 during 2021 peak for load balancing purposes.												
Note: BREA Huard substation brought online Fall 2023. Out years left as projection of all load on Prosser Bay 2 as unknown what the REA's normal load split between the two feeds is going to be during peak events.												
Reata *(Kennewick P.O.D.)*												
RTA-1	832	2,247	2,573	3,608	3,363	0.3%	3,613	3,618	3,623	3,629	3,634	Winter
RTA-2	5,445	6,256	5,900	6,442	4,501	1.7%	6,475	6,508	6,540	6,573	6,605	Winter
RTA-3	3,971	2,857	2,238	2,574	2,410	0.2%	2,579	2,583	2,588	2,592	2,597	Winter
RTA-4	2,077	1,994	2,087	2,299	2,232	0.0%	2,299	2,299	2,299	2,299	2,299	Winter
Bay 1	12,326	13,354	12,799	14,923	12,506	0	14,966	15,008	15,050	15,092	15,135	Winter
Note: RTA-3 to RTA-1 offload completed fall 2020.												
Note: RTA-2 load past L70R shifted to SSR-4 during 2021 peak for load banacing purposes.												
Note: RTA-1 to LES-4 and RTA-2 to RTA-1 offloads completed fall 2022.												
Riverfront *(Prosser P.O.D.)*												
RVF-1	4,246	4,471	3,593	3,906	3,906	0.0%	3,906	3,906	3,906	3,906	3,906	Winter
RVF-2	412	268	459	275	312	0.0%	312	312	312	312	312	Winter
RVF-3	2,696	2,760	3,319	2,916	2,812	2.5%	2,965	3,014	3,064	3,113	3,162	Winter
Bay 1	7,355	7,499	7,371	7,097	7,030	2.5%	7,183	7,233	7,282	7,331	7,380	Winter
Note: PRO-5 was switched on RVF-3 during 2021 peak for load balancing purposes.												
Southridge *(Kennewick P.O.D.)*												
STH-1	-	-	-	-	4,218	4.4%	4,303	4,388	4,442	4,496	4,551	Summer
STH-2	-	-	-	-	885	3.4%	951	1,017	1,059	1,101	1,143	Summer
STH-3	-	-	-	-	-	0.0%	279	279	279	279	279	Summer
STH-4	-	-	-	-	1,138	8.7%	1,307	1,475	1,583	1,691	1,798	Winter
Bay 1	-	-	-	-	6,242	7.8%	6,839	7,158	7,363	7,567	7,772	Summer
Note: Feeders STH-1, STH-2, STH-4 brought online fall 2022. Permanent load shift from ELY-3 to STH-1, STH-2, STH-3, and HLS-5 to STH-1 and STH-4.												
Note: Feeder STH-3 brought online winter 23/24. Modeled loads used for out years.												
Sunset Road *(Benton City P.O.D.)*												
SSR-1	4,155	4,553	4,011	4,404	4,203	0.0%	4,404	4,404	4,404	4,404	4,404	Winter
SSR-2	2,719	3,110	2,703	2,939	2,968	0.1%	2,969	2,971	2,972	2,973	2,974	Winter
SSR-3	5,209	4,672	4,414	4,813	4,828	0.0%	4,828	4,828	4,828	4,828	4,828	Summer
SSR-4	3,414	2,842	3,381	3,943	2,410	3.1%	2,470	2,530	2,590	2,650	2,710	Winter
Bay 1	15,496	15,176	14,510	16,099	14,410	0.1%	14,672	12,203	12,204	12,205	12,206	Winter
Note: RTA-2 load past L70R shifted to SSR-4 during 2021 & 2022 peaks for load balancing purposes.												

Table B2

Feeder Non-Coincidental Peaks - Summer

Substation Feeder/Bay (P.O.D)	1.03	1.00	0.92	1.00	1.00	% of Annual System Growth	Projected Peak (kVA) at 104°F					Peak Season
	2019	2020	2021	2022	2023		2024	2025	2026	2027	2028	
Vista *(Kennewick P.O.D.)*												
VTA-1	3,192	2,864	2,909	3,169	3,035	0.0%	3,169	3,169	3,169	3,169	3,169	Summer
VTA-2	3,047	3,095	2,813	2,939	2,857	0.0%	2,939	2,939	2,939	2,939	2,939	Winter
VTA-3	1,512	1,399	1,348	1,369	1,317	0.0%	1,369	1,369	1,369	1,369	1,369	Winter
VTA-4	4,239	5,126	5,872	5,751	5,289	2.7%	4,780	4,833	4,885	4,938	4,990	Winter
Bay 1	11,990	12,483	12,942	13,227	12,498	2.7%	12,257	12,309	12,362	12,414	12,467	Winter
VTA-5	5,063	5,051	5,010	5,371	5,170	1.5%	5,400	5,428	5,457	5,485	5,514	Winter
VTA-6	2,192	1,287	2,149	2,165	2,217	0.9%	2,235	2,253	2,272	2,290	2,308	Summer
VTA-7	7,064	6,100	6,119	3,519	6,487	0.0%	5,455	5,455	5,455	5,455	5,455	Winter
VTA-8	5,697	5,594	3,771	4,032	3,898	0.0%	6,540	6,540	6,540	6,540	6,540	Winter
Bay 2	20,017	18,033	17,049	15,087	17,773	2.4%	19,630	19,677	19,724	19,770	19,817	Winter
Note: Feeder VTA-8 partially off-loaded to ORV-2 during 2021, 2022, & 2023 peak for load balancing.												
Note: Feeder VTA-7 partially off-loaded to VTA-4 during 2022 & 2023 peak for load balancing.												
Note: Feeder VTA-4 partially off-loaded to ANG-9 & ORV-4 during 2022 & 2023 peak for load balancing.												
Note: Modeled loads used for VTA-4, VTA-7, VTA-8 out years due to abnormal switching during peak.												
Zephyr Heights *(Kennewick P.O.D.)*												
ZEH-1	2,375	2,306	2,450	2,500	2,403	2.7%	2,552	2,604	2,655	2,707	2,759	Winter
ZEH-2	4,330	4,664	5,277	4,642	4,612	1.8%	4,676	4,711	4,745	4,779	4,813	Winter
ZEH-3	359	387	712	424	320	0.0%	424	424	424	424	424	Winter
Bay 1	7,064	7,357	8,439	7,566	7,335	4.5%	7,652	7,738	7,824	7,911	7,997	Winter
Continguous P.O.D. Totals (PUD Only)												
Benton City	21,659	21,515	20,799	22,898	21,061	4.6%	21,559	19,178	19,267	19,356	19,445	Winter
Hedges	22,423	21,462	21,217	21,410	23,263	2.1%	21,973	22,014	22,056	22,097	22,139	Winter
Kennewick	219,683	212,921	221,305	218,808	215,227	61.0%	217,288	218,039	219,217	220,394	221,572	Winter
Prosser	31,801	29,527	27,781	28,351	29,162	6.0%	29,621	29,737	29,853	29,969	30,085	Winter
Total	295,566	285,425	291,102	291,468	288,713	73.8%	290,441	288,969	290,393	291,817	293,241	Winter
Miscellaneous Substations & P.O.D.'s												
251 (DOE)	58	70	75	62	58	0.0%	58	58	58	58	58	
451B (Ligo)	1,025	978	2,023	1,058	1,057	0.0%	1,057	1,057	1,057	1,057	1,057	
Chevron	7,150	6,875	7,045	6,955	6,745	0.0%	6,745	6,745	6,745	6,745	6,745	
Cold Creek	2,910	2,156	3,568	3,176	2,740	0.0%	2,740	2,740	2,740	2,740	2,740	
Phillips #1,2,3	1,060	910	799	990	680	0.0%	680	680	680	680	680	
Total	12,203	10,989	13,510	12,241	11,280	0.0%	11,280	11,280	11,280	11,280	11,280	

Table B3 Feeder Metered Peak Amps Winter - 2023-2024											
Feeder Id	AØ Amps	BØ Amps	CØ Amps	Avg. Amps	AØ Calc. kVA	BØ Calc. kVA	CØ Calc. kVA	Total Calc. kVA	Total Meas. kVA	Calc to Meas kVA % diff	Unbalance Amps
ANG-9	213	260	185	219	1585	1934	1376	4895	4866	1%	66
ANG-1	179	250	108	179	1332	1860	804	3995	3970	1%	123
ANG-2	391	257	232	293	2909	1912	1726	6547	6526	0%	148
ANG-3	300	260	278	279	2232	1934	2068	6234	6283	-1%	35
ANG-4	193	248	185	209	1436	1845	1376	4657	4786	-3%	59
ANG-5	286	287	334	302	2128	2135	2485	6747	6734	0%	48
ANG-6	160	228	194	194	1190	1696	1443	4330	4404	-2%	59
ANG-7	211	205	163	193	1570	1525	1213	4307	4369	-1%	45
ANG-8	211	294	272	259	1570	2187	2024	5780	5814	-1%	74
BEC-1	326	332	340	333	2425	2470	2530	7424	7501	-1%	12
BEC-2	308	225	258	264	2292	1674	1920	5885	5905	0%	72
CCR-1	30	13	10	18	223	97	74	394	389	1%	19
ELY-1	266	222	206	231	1979	1652	1533	5163	5179	0%	54
ELY-2	136	117	141	131	1012	870	1049	2931	2889	1%	22
ELY-3	270	300	232	267	2009	2232	1726	5966	5976	0%	59
ELY-4	311	433	294	346	2314	3222	2187	7722	7717	0%	131
ELY-5	0	0	0	0	0	0	0	0	0	#DIV/0!	0
ELY-6	272	310	333	305	2024	2306	2478	6807	6807	0%	53
ELY-7	0	0	0	0	0	0	0	0	0	#DIV/0!	0
ELY-8	276	151	197	208	2053	1123	1466	4642	4642	0%	110
GUM-1	300	304	307	304	2232	2262	2284	6777	6769	0%	6
GUM-2	161	79	98	113	1198	588	729	2514	2536	-1%	74
GUM-3	281	320	304	302	2091	2381	2262	6733	6884	-2%	34
GUM-4	432	279	312	341	3214	2076	2321	7610	7432	2%	139
HEG-1	83	105	18	69	618	781	134	1533	1617	-6%	78
HEG-2	267	253	321	280	1986	1882	2388	6256	6335	-1%	62
HEG-3	266	183	192	214	1979	1362	1428	4769	4796	-1%	79
HEG-4	336	329	325	330	2500	2448	2418	7365	7505	-2%	10
HLS-1	254	184	173	204	1890	1369	1287	4545	4849	-7%	76
HLS-2	179	147	175	167	1332	1094	1302	3727	3812	-2%	30
HLS-3	294	252	286	277	2187	1875	2128	6190	6285	-2%	39
HLS-4	225	308	221	251	1674	2292	1644	5609	5667	-1%	85
HLS-5	158	85	60	101	1176	632	446	2254	2620	-16%	88
HLS-6	268	189	216	224	1994	1406	1607	5007	5034	-1%	70
HLS-7	243	304	333	293	1808	2262	2478	6547	6529	0%	80
HLS-8	233	207	289	243	1734	1540	2150	5423	5471	-1%	73
HLS-9	325	220	265	270	2418	1637	1972	6026	6043	0%	91
KEN-1	187	198	207	197	1391	1473	1540	4404	4569	-4%	17
KEN-2	266	358	380	335	1979	2664	2827	7469	7425	1%	105
KEN-3	290	285	343	306	2158	2120	2552	6829	7198	-5%	56
KEN-4	260	292	266	273	1934	2172	1979	6085	6075	0%	29
KEN-5	163	190	157	170	1213	1414	1168	3794	4050	-7%	30
KEN-6	251	255	222	243	1867	1897	1652	5416	5368	1%	31
KEN-7	219	225	237	227	1629	1674	1763	5066	5454	-8%	16
KEN-8	400	346	346	364	2976	2574	2574	8124	8582	-6%	54
KEN-9	159	172	202	178	1183	1280	1503	3965	4135	-4%	38
LES-1	284	309	326	306	2113	2299	2425	6837	6841	0%	37
LES-2	149	162	195	169	1109	1205	1451	3764	3755	0%	41
LES-3	166	83	220	156	1235	618	1637	3489	3487	0%	120
LES-4	86	174	143	134	640	1295	1064	2998	3021	-1%	77
ORV-2	139	179	146	155	1034	1332	1086	3452	3422	1%	37
ORV-3	334	305	290	310	2485	2269	2158	6911	6812	1%	39
ORV-4	85	91	81	86	632	677	603	1912	1923	-1%	9
ORV-5	231	260	227	239	1719	1934	1689	5341	5318	0%	31
ORV-6	217	171	278	222	1614	1272	2068	4955	4998	-1%	93
PHL-6	3	4	10	6	22	30	74	126	98	23%	7
PHL-7	330	301	304	312	2455	2239	2262	6956	7018	-1%	28
PSR-1	175	192	166	178	1302	1428	1235	3965	3932	1%	23
PSR-2	193	171	200	188	1436	1272	1488	4196	4160	1%	26
PSR-3	261	284	249	265	1942	2113	1853	5907	5924	0%	31
PSR-4	282	182	236	233	2098	1354	1756	5208	3474	33%	87
PSR-5	0	0	0	0	0	0	0	0	0	#DIV/0!	0
PSR-6	126	156	128	137	937	1161	952	3050	2115	31%	29
RTA-1	267	393	248	303	1986	2924	1845	6755	6765	0%	136
RTA-2	133	158	242	178	990	1176	1800	3965	3977	0%	99
RTA-3	322	156	149	209	2396	1161	1109	4664	4624	1%	170
RTA-4	188	173	193	185	1399	1287	1436	4121	4127	0%	18
RVF-1	418	254	262	311	3110	1890	1949	6948	4572	34%	160
RVF-2	27	9	9	15	201	67	67	335	302	10%	18
RVF-3	286	338	273	299	2128	2515	2031	6673	6673	0%	60
STH-1	113	141	97	117	841	1049	722	2611	2653	-2%	39
STH-2	45	33	23	34	335	246	171	751	761	-1%	19
STH-3	204	209	246	220	1518	1555	1830	4903	4973	-1%	40
STH-4	41	58	88	62	305	432	655	1391	1412	-1%	41
SSR-1	284	150	172	202	2113	1116	1280	4508	4474	1%	124
SSR-2	247	229	167	214	1838	1704	1242	4783	4691	2%	73
SSR-3	99	65	75	80	737	484	558	1778	1781	0%	30
SSR-4	243	226	275	248	1808	1681	2046	5535	5415	2%	43
VTA-1	90	93	89	91	670	692	662	2023	2023	0%	4
VTA-2	204	204	143	184	1518	1518	1064	4099	4099	0%	61
VTA-3	107	103	108	106	796	766	804	2366	2366	0%	5
VTA-4	238	255	281	258	1771	1897	2091	5758	5758	0%	38
VTA-5	265	280	236	260	1972	2083	1756	5810	5810	0%	39
VTA-6	77	79	75	77	573	588	558	1718	1718	0%	3
VTA-7	220	207	195	207	1637	1540	1451	4627	4627	0%	22
VTA-8	265	203	270	246	1972	1510	2009	5490	5490	0%	65
ZEH-1	305	373	336	338	2269	2775	2500	7543	7483	1%	59
ZEH-2	406	384	315	368	3021	2857	2344	8220	8156	1%	82
ZEH-3	38	12	9	20	283	89	67	439	455	-4%	28

Table B3 Feeder Metered Peak Amps Winter - 2022-2023											
Feeder Id	AØ Amps	BØ Amps	CØ Amps	Avg. Amps	AØ Calc. kVA	BØ Calc. kVA	CØ Calc. kVA	Total Calc. kVA	Total Meas. kVA	Calc to Meas kVA % diff	Unbalance Amps
ANG-9	208	245	223	225	1548	1823	1659	5029	5029	0%	32
ANG-1	171	218	102	164	1272	1622	759	3653	3653	0%	101
ANG-2	338	239	202	260	2515	1778	1503	5795	5795	0%	122
ANG-3	283	256	257	265	2106	1905	1912	5922	6142	-4%	27
ANG-4	195	247	185	209	1451	1838	1376	4664	4779	-2%	58
ANG-5	283	268	317	289	2106	1994	2358	6457	6518	-1%	43
ANG-6	148	197	180	175	1101	1466	1339	3906	3926	-1%	43
ANG-7	180	184	148	171	1339	1369	1101	3809	3791	0%	34
ANG-8	170	221	220	204	1265	1644	1637	4545	4624	-2%	51
BEC-1	301	286	315	301	2239	2128	2344	6710	6718	0%	25
BEC-2	286	207	254	249	2128	1540	1890	5557	5568	0%	69
CCR-1	30	11	11	17	223	82	82	387	290	25%	19
ELY-1	246	215	208	223	1830	1600	1548	4977	5015	-1%	35
ELY-2	150	111	131	131	1116	826	975	2916	2880	1%	34
ELY-3	281	301	236	273	2091	2239	1756	6085	6114	0%	58
ELY-4	289	429	268	329	2150	3192	1994	7335	7371	0%	152
ELY-5	138	210	122	157	1027	1562	908	3496	3588	-3%	81
ELY-6	307	321	302	310	2284	2388	2247	6919	7000	-1%	17
ELY-7	192	199	250	214	1428	1481	1860	4769	4877	-2%	55
ELY-8	381	265	282	309	2835	1972	2098	6904	7042	-2%	109
GUM-1	285	289	318	297	2120	2150	2366	6636	6844	-3%	31
GUM-2	123	166	155	148	915	1235	1153	3303	3389	-3%	39
GUM-3	138	156	240	178	1027	1161	1786	3973	4080	-3%	94
GUM-4	431	255	303	330	3207	1897	2254	7357	7280	1%	158
HEG-1	80	111	15	69	595	826	112	1533	1611	-5%	85
HEG-2	263	279	337	293	1957	2076	2507	6539	6672	-2%	67
HEG-3	265	168	195	209	1972	1250	1451	4672	4762	-2%	87
HEG-4	326	332	310	323	2425	2470	2306	7201	7341	-2%	20
HLS-1	246	206	222	225	1830	1533	1652	5014	4887	3%	35
HLS-2	190	142	188	173	1414	1056	1399	3868	3866	0%	47
HLS-3	249	221	225	232	1853	1644	1674	5170	5130	1%	26
HLS-4	223	289	227	246	1659	2150	1689	5498	5471	0%	64
HLS-5	142	104	77	108	1056	774	573	2403	2408	0%	57
HLS-6	238	196	223	219	1771	1458	1659	4888	4886	0%	37
HLS-7	235	259	327	274	1748	1927	2433	6108	6125	0%	83
HLS-8	215	216	278	236	1600	1607	2068	5274	5336	-1%	63
HLS-9	319	200	258	259	2373	1488	1920	5780	5836	-1%	103
KEN-1	189	193	208	197	1406	1436	1548	4389	4328	1%	17
KEN-2	226	251	246	241	1681	1867	1830	5379	5386	0%	23
KEN-3	277	281	331	296	2061	2091	2463	6614	6616	0%	52
KEN-4	329	368	330	342	2448	2738	2455	7640	7965	-4%	39
KEN-5	354	399	418	390	2634	2969	3110	8711	8696	0%	57
KEN-6	250	264	220	245	1860	1964	1637	5460	5556	-2%	39
KEN-7	164	159	167	163	1220	1183	1242	3645	3537	3%	7
KEN-8	418	388	342	383	3110	2887	2544	8540	8815	-3%	66
KEN-9	190	166	207	188	1414	1235	1540	4188	4199	0%	36
LES-1	268	289	316	291	1994	2150	2351	6495	6439	1%	42
LES-2	205	283	278	255	1525	2106	2068	5699	5671	0%	76
LES-3	161	75	210	149	1198	558	1562	3318	3301	1%	118
LES-4	95	155	145	132	707	1153	1079	2939	2942	0%	56
ORV-2	293	327	298	306	2180	2433	2217	6829	6783	1%	32
ORV-3	275	280	301	285	2046	2083	2239	6368	6360	0%	24
ORV-4	210	203	187	200	1562	1510	1391	4464	4462	0%	20
ORV-5	171	168	151	163	1272	1250	1123	3645	3589	2%	19
ORV-6	172	143	174	163	1280	1064	1295	3638	3663	-1%	30
PHL-6	2	4	11	6	15	30	82	126	101	20%	8
PHL-7	314	291	293	299	2336	2165	2180	6681	6763	-1%	22
PSR-1	152	171	152	158	1131	1272	1131	3534	3588	-2%	19
PSR-2	186	114	166	155	1384	848	1235	3467	3662	-6%	64
PSR-3	250	271	233	251	1860	2016	1734	5609	5564	1%	33
PSR-4	271	180	254	235	2016	1339	1890	5245	5117	2%	84
PSR-5	53	67	37	52	394	498	275	1168	1149	2%	26
PSR-6	260	222	242	241	1934	1652	1800	5386	5342	1%	33
RTA-1	254	352	248	285	1890	2619	1845	6353	6362	0%	101
RTA-2	179	180	279	213	1332	1339	2076	4746	4789	-1%	100
RTA-3	312	149	165	209	2321	1109	1228	4657	4638	0%	156
RTA-4	176	183	211	190	1309	1362	1570	4240	4250	0%	32
RVF-1	237	130	141	169	1763	967	1049	3779	3779	0%	102
RVF-2	26	9	9	15	193	67	67	327	301	8%	17
RVF-3	199	222	196	206	1481	1652	1458	4590	4590	0%	25
STH-1	77	117	70	88	573	870	521	1964	2032	-3%	44
STH-2	43	35	18	32	320	260	134	714	715	0%	22
STH-3	0	0	0	0	0	0	0	0	0	#DIV/0!	0
STH-4	81	69	58	69	603	513	432	1547	1569	-1%	20
SSR-1	270	141	156	189	2009	1049	1161	4218	4167	1%	122
SSR-2	213	233	175	207	1585	1734	1302	4620	4522	2%	51
SSR-3	88	55	65	69	655	409	484	1547	1497	3%	29
SSR-4	215	202	251	223	1600	1503	1867	4969	4900	1%	44
VTA-1	95	99	93	96	707	737	692	2135	2135	0%	5
VTA-2	176	215	121	171	1309	1600	900	3809	3809	0%	82
VTA-3	100	102	110	104	744	759	818	2321	2321	0%	9
VTA-4	238	216	274	243	1771	1607	2039	5416	5416	0%	51
VTA-5	251	280	226	252	1867	2083	1681	5632	5632	0%	47
VTA-6	82	85	80	82	610	632	595	1838	1606	13%	4
VTA-7	198	187	180	188	1473	1391	1339	4203	4203	0%	16
VTA-8	256	225	224	235	1905	1674	1667	5245	5245	0%	32
ZEH-1	149	153	197	166	1109	1138	1466	3712	3709	0%	46
ZEH-2	401	388	308	366	2983	2887	2292	8161	8044	1%	87
ZEH-3	36	10	16	21	268	74	119	461	467	-1%	24

Table B5
Feeder Metered Peak Amps Summer - 2023

Feeder Id	AØ Amps	BØ Amps	CØ Amps	Avg. Amps	AØ Calc. kVA	BØ Calc. kVA	CØ Calc. kVA	Total Calc. kVA	Total Meas. kVA	Calc to Meas kVA % diff	Unbalance Amps
ANG-9	169	192	215	192	1257	1428	1600	4285	4156	3%	40
ANG-1	115	149	70	111	856	1109	521	2485	2494	0%	69
ANG-2	209	155	154	173	1555	1153	1146	3854	3850	0%	55
ANG-3	207	174	192	191	1540	1295	1428	4263	4256	0%	29
ANG-4	166	194	151	170	1235	1443	1123	3801	3782	1%	38
ANG-5	165	173	192	177	1228	1287	1428	3943	3935	0%	24
ANG-6	136	178	165	160	1012	1324	1228	3563	3549	0%	37
ANG-7	133	141	123	132	990	1049	915	2953	2983	-1%	16
ANG-8	123	181	134	146	915	1347	997	3258	3256	0%	53
BEC-1	157	167	167	164	1168	1242	1242	3653	3568	2%	10
BEC-2	161	109	133	134	1198	811	990	2998	2972	1%	45
CCR-1	186	192	185	188	1384	1428	1376	4188	4080	3%	7
ELY-1	144	108	116	123	1071	804	863	2738	2747	0%	33
ELY-2	79	79	68	75	588	588	506	1681	1679	0%	11
ELY-3	285	275	226	262	2120	2046	1681	5847	5717	2%	55
ELY-4	181	235	172	196	1347	1748	1280	4374	4374	0%	59
ELY-5	161	192	144	166	1198	1428	1071	3697	3699	0%	42
ELY-6	217	185	224	209	1614	1376	1667	4657	4629	1%	36
ELY-7	196	230	227	218	1458	1711	1689	4858	4758	2%	33
ELY-8	153	111	143	136	1138	826	1064	3028	3091	-2%	38
GUM-1	152	147	151	150	1131	1094	1123	3348	3260	3%	5
GUM-2	114	95	108	106	848	707	804	2358	2330	1%	17
GUM-3	142	165	154	154	1056	1228	1146	3430	3397	1%	20
GUM-4	227	184	191	201	1689	1369	1421	4478	4408	2%	40
HEG-1	45	57	10	37	335	424	74	833	838	-1%	42
HEG-2	206	221	219	215	1533	1644	1629	4806	4694	2%	14
HEG-3	164	117	112	131	1220	870	833	2924	2989	-2%	50
HEG-4	195	184	181	187	1451	1369	1347	4166	4154	0%	13
HLS-1	161	117	95	124	1198	870	707	2775	2813	-1%	58
HLS-2	281	225	233	246	2091	1674	1734	5498	5407	2%	52
HLS-3	250	231	221	234	1860	1719	1644	5222	5098	2%	26
HLS-4	135	199	119	151	1004	1481	885	3370	3315	2%	73
HLS-5	131	94	84	103	975	699	625	2299	2310	0%	43
HLS-6	138	108	134	127	1027	804	997	2827	2872	-2%	28
HLS-7	169	184	189	181	1257	1369	1406	4032	4033	0%	18
HLS-8	115	106	135	119	856	789	1004	2648	2586	2%	26
HLS-9	278	267	196	247	2068	1986	1458	5513	5553	-1%	77
KEN-1	163	176	196	178	1213	1309	1458	3980	4016	-1%	29
KEN-2	132	138	163	144	982	1027	1213	3221	3311	-3%	28
KEN-3	198	186	217	200	1473	1384	1614	4471	4386	2%	27
KEN-4	198	226	180	201	1473	1681	1339	4493	4582	-2%	40
KEN-5	115	156	161	144	856	1161	1198	3214	3154	2%	44
KEN-6	236	229	192	219	1756	1704	1428	4888	4968	-2%	41
KEN-7	164	159	167	163	1220	1183	1242	3645	3537	3%	7
KEN-8	295	277	237	270	2195	2061	1763	6018	5987	1%	51
KEN-9	105	92	118	105	781	684	878	2343	2349	0%	23
LES-1	159	178	179	172	1183	1324	1332	3839	3809	1%	20
LES-2	155	223	172	183	1153	1659	1280	4092	4111	0%	61
LES-3	70	40	95	68	521	298	707	1525	1533	-1%	48
LES-4	36	69	68	58	268	513	506	1287	1279	1%	33
ORV-2	178	191	205	191	1324	1421	1525	4270	4244	1%	23
ORV-3	206	189	216	204	1533	1406	1607	4545	4548	0%	24
ORV-4	123	134	106	121	915	997	789	2700	2683	1%	24
ORV-5	254	274	252	260	1890	2039	1875	5803	5787	0%	21
ORV-6	253	238	255	249	1882	1771	1897	5550	5448	2%	16
PHL-6	218	223	221	221	1622	1659	1644	4925	4371	11%	4
PHL-7	259	251	244	251	1927	1867	1815	5609	5708	-2%	13
PSR-1	221	237	215	224	1644	1763	1600	5007	4907	2%	20
PSR-2	131	121	129	127	975	900	960	2834	2807	1%	9
PSR-3	228	233	213	225	1696	1734	1585	5014	4934	2%	18
PSR-4	226	175	213	205	1681	1302	1585	4568	4464	2%	46
PSR-5	38	46	31	38	283	342	231	856	848	1%	13
PSR-6	186	155	177	173	1384	1153	1317	3854	3816	1%	28
RTA-1	150	178	124	151	1116	1324	923	3363	3336	1%	47
RTA-2	192	174	239	202	1428	1295	1778	4501	4376	3%	58
RTA-3	157	83	84	108	1168	618	625	2410	2416	0%	74
RTA-4	103	91	106	100	766	677	789	2232	2244	-1%	14
RVF-1	212	157	164	175	1577	1168	1220	3906	3906	0%	52
RVF-2	24	9	9	14	179	67	67	312	293	6%	15
RVF-3	135	128	115	126	1004	952	856	2812	2812	0%	18
STH-1	184	210	173	189	1369	1562	1287	4218	4114	2%	33
STH-2	48	43	28	40	357	320	208	885	911	-3%	18
STH-3	0	0	0	0	0	0	0	0	0	#DIV/0!	0
STH-4	49	43	61	51	365	320	454	1138	1185	-4%	16
SSR-1	224	159	182	188	1667	1183	1354	4203	4067	3%	57
SSR-2	124	159	116	133	923	1183	863	2968	2918	2%	40
SSR-3	216	219	214	216	1607	1629	1592	4828	4384	9%	4
SSR-4	97	115	112	108	722	856	833	2410	2392	1%	17
VTA-1	136	138	134	136	1012	1027	997	3035	3095	-2%	3
VTA-2	142	141	101	128	1056	1049	751	2857	2857	0%	41
VTA-3	56	59	62	59	417	439	461	1317	1317	0%	5
VTA-4	239	237	235	237	1778	1763	1748	5289	5289	0%	3
VTA-5	227	241	227	232	1689	1793	1689	5170	5491	-6%	14
VTA-6	103	102	93	99	766	759	692	2217	2217	0%	10
VTA-7	299	287	286	291	2225	2135	2128	6487	6487	0%	13
VTA-8	190	161	173	175	1414	1198	1287	3898	3911	0%	25
ZEH-1	137	73	113	108	1019	543	841	2403	2368	1%	56
ZEH-2	225	199	196	207	1674	1481	1458	4612	4588	1%	28
ZEH-3	21	12	10	14	156	89	74	320	326	-2%	10

Table B5
Feeder Metered Peak Amps Summer - 2022

Feeder Id	AØ Amps	BØ Amps	CØ Amps	Avg. Amps	AØ Calc. kVA	BØ Calc. kVA	CØ Calc. kVA	Total Calc. kVA	Total Meas. kVA	Calc to Meas kVA % diff	Unbalance Amps
ANG-9	178	200	227	202	1324	1488	1689	4501	4370	3%	43
ANG-1	113	148	72	111	841	1101	536	2477	2463	1%	66
ANG-2	193	152	157	167	1436	1131	1168	3735	3737	0%	39
ANG-3	211	168	187	189	1570	1250	1391	4211	4220	0%	37
ANG-4	170	193	152	172	1265	1436	1131	3831	3814	0%	36
ANG-5	179	166	181	175	1332	1235	1347	3913	3914	0%	14
ANG-6	172	148	191	170	1280	1101	1421	3801	3679	3%	37
ANG-7	133	142	157	144	990	1056	1168	3214	3110	3%	21
ANG-8	165	115	191	157	1228	856	1421	3504	3391	3%	67
BEC-1	161	166	177	168	1198	1235	1317	3749	3730	1%	14
BEC-2	159	111	140	137	1183	826	1042	3050	3035	0%	42
CCR-1	202	193	191	195	1503	1436	1421	4359	4190	4%	10
ELY-1	153	113	108	125	1138	841	804	2782	2800	-1%	43
ELY-2	81	78	77	79	603	580	573	1756	1756	0%	4
ELY-3	325	315	248	296	2418	2344	1845	6606	6463	2%	73
ELY-4	192	240	171	201	1428	1786	1272	4486	4482	0%	61
ELY-5	175	207	153	178	1302	1540	1138	3980	3937	1%	47
ELY-6	222	184	232	213	1652	1369	1726	4746	4813	-1%	44
ELY-7	200	243	234	226	1488	1808	1741	5036	4957	2%	39
ELY-8	161	113	147	140	1198	841	1094	3132	3185	-2%	43
GUM-1	145	147	155	149	1079	1094	1153	3325	3288	1%	9
GUM-2	117	99	110	109	870	737	818	2425	2364	3%	16
GUM-3	150	168	153	157	1116	1250	1138	3504	3461	1%	17
GUM-4	220	178	191	196	1637	1324	1421	4382	4373	0%	37
HEG-1	12	59	42	38	89	439	312	841	868	-3%	41
HEG-2	217	200	194	204	1614	1488	1443	4545	4549	0%	21
HEG-3	118	127	163	136	878	945	1213	3035	3043	0%	41
HEG-4	178	193	188	186	1324	1436	1399	4159	4213	-1%	13
HLS-1	181	145	122	149	1347	1079	908	3333	3313	1%	52
HLS-2	289	232	248	256	2150	1726	1845	5721	5506	4%	51
HLS-3	255	240	232	242	1897	1786	1726	5408	5124	5%	20
HLS-4	139	190	120	150	1034	1414	893	3340	3347	0%	63
HLS-5	321	275	257	284	2388	2046	1912	6346	6059	5%	57
HLS-6	148	118	130	132	1101	878	967	2946	2981	-1%	26
HLS-7	159	174	202	178	1183	1295	1503	3980	4014	-1%	38
HLS-8	119	119	148	129	885	885	1101	2872	2995	-4%	29
HLS-9	210	252	158	207	1562	1875	1176	4612	4591	0%	82
KEN-1	170	188	187	182	1265	1399	1391	4054	4333	-7%	18
KEN-2	146	149	161	152	1086	1109	1198	3392	3421	-1%	14
KEN-3	206	191	228	208	1533	1421	1696	4650	4564	2%	32
KEN-4	192	242	175	203	1428	1800	1302	4531	4637	-2%	60
KEN-5	124	151	173	149	923	1123	1287	3333	3312	1%	43
KEN-6	241	260	208	236	1793	1934	1548	5274	5240	1%	46
KEN-7	167	157	166	163	1242	1168	1235	3645	3706	-2%	10
KEN-8	309	298	277	295	2299	2217	2061	6576	6681	-2%	28
KEN-9	108	89	114	104	804	662	848	2314	2317	0%	23
LES-1	163	180	168	170	1213	1339	1250	3801	3789	0%	15
LES-2	103	202	115	140	766	1503	856	3125	3085	1%	94
LES-3	78	37	92	69	580	275	684	1540	1520	1%	50
LES-4	4	41	30	25	30	305	223	558	570	-2%	33
ORV-2	188	209	223	207	1399	1555	1659	4612	4583	1%	31
ORV-3	276	225	272	258	2053	1674	2024	5751	5703	1%	49
ORV-4	139	145	116	133	1034	1079	863	2976	2974	0%	27
ORV-5	201	211	193	202	1495	1570	1436	4501	4498	0%	16
ORV-6	237	230	253	240	1763	1711	1882	5356	5116	4%	20
PHL-6	210	210	207	209	1562	1562	1540	4664	4210	10%	3
PHL-7	197	183	180	187	1466	1362	1339	4166	4237	-2%	16
PSR-1	172	190	175	179	1280	1414	1302	3995	3938	1%	17
PSR-2	134	118	128	127	997	878	952	2827	2785	1%	14
PSR-3	242	231	210	228	1800	1719	1562	5081	4976	2%	28
PSR-4	229	165	207	200	1704	1228	1540	4471	4366	2%	56
PSR-5	45	43	28	39	335	320	208	863	866	0%	16
PSR-6	193	165	182	180	1436	1228	1354	4017	3952	2%	24
RTA-1	193	166	126	162	1436	1235	937	3608	3577	1%	58
RTA-2	294	260	312	289	2187	1934	2321	6442	6301	2%	46
RTA-3	167	78	101	115	1242	580	751	2574	2525	2%	80
RTA-4	103	91	115	103	766	677	856	2299	2313	-1%	21
RVF-1	220	176	174	175	1637	1309	1295	3906	3201	18%	45
RVF-2	25	6	6	12	186	45	45	275	293	-6%	19
RVF-3	142	125	125	131	1056	930	930	2916	2916	0%	17
STH-1	0	0	0	0	0	0	0	0	0	#DIV/0!	0
STH-2	0	0	0	0	0	0	0	0	0	#DIV/0!	0
STH-3	0	0	0	0	0	0	0	0	0	#DIV/0!	0
STH-4	42	42	40	41	312	312	298	922	965	-5%	2
SSR-1	225	180	187	197	1674	1339	1391	4404	4243	4%	42
SSR-2	124	160	111	132	923	1190	826	2939	2882	2%	44
SSR-3	215	213	219	216	1600	1585	1629	4813	4326	10%	5
SSR-4	167	182	181	177	1242	1354	1347	3943	3634	8%	15
VTA-1	140	146	140	142	1042	1086	1042	3169	3095	2%	6
VTA-2	145	147	103	132	1079	1094	766	2939	2939	0%	43
VTA-3	66	60	58	61	491	446	432	1369	1369	0%	7
VTA-4	262	249	262	258	1949	1853	1949	5751	5751	0%	13
VTA-5	230	254	238	241	1711	1890	1771	5371	5371	0%	21
VTA-6	98	101	92	97	729	751	684	2165	2165	0%	8
VTA-7	161	157	155	158	1198	1168	1153	3519	3516	0%	5
VTA-8	194	171	177	181	1443	1272	1317	4032	4053	-1%	21
ZEH-1	133	82	121	112	990	610	900	2500	2439	2%	46
ZEH-2	228	200	196	208	1696	1488	1458	4642	4610	1%	30
ZEH-3	21	13	23	19	156	97	171	424	421	1%	9

Appendix C

Bank Peaks

[This Page Intentionally Left blank}

[For Two Sided Printing]

Table C1
Bank Loading - Winter

SUBSTATION BANK	Winter Rating (Amps)		Winter Rating (KVA)		19/20	20/21	21/22	22/23	23/24	Projected Peak (kVA)[2]		% of Normal Winter Rating		% of Emer. Winter Rating	
	Normal	Emer.	Normal	Emer.	10°F	18°F	7°F	5°F	5°F	24/25	28/29	24/25	28/29	24/25	28/29
Angus #1 (A3,A4,A5)	1235	1482	26,674	32,009	13,200	13,040	13,730	16,450	16,890	16,908	16,982	63%	64%	53%	53%
Angus #2 (A6,A7,A8)	1235	1482	26,674	32,009	11,350	10,730	12,010	16,600	13,850	13,850	13,850	52%	52%	43%	43%
Angus #3 (A9,A1,A2)	1235	1482	26,674	32,009	11,340	11,120	12,510	17,220	14,380	14,383	14,395	54%	54%	45%	45%
Benton City	1436	1616	31,016	34,903	9,212	8,979	10,493	11,807	12,362	12,476	12,934	40%	42%	36%	37%
Cold Creek	367	440	7,927	9,503	246	246	288	888	328	328	328	4%	4%	3%	3%
Ely #1	1296	1555	27,992	33,586	15,070	14,550	17,090	20,117	20,425	20,477	20,687	73%	74%	61%	62%
Ely #2	1296	1555	27,992	33,586	15,060	14,289	16,762	21,052	0	19,499	19,742	70%	71%	58%	59%
Gum Street	1296	1500	27,992	32,398	17,470	16,720	21,318	19,703	22,775	22,887	23,337	82%	83%	71%	72%
Hedges	1235	1389	26,674	30,001	15,510	14,060	17,430	19,420	19,270	19,316	19,502	72%	73%	64%	65%
Highlands #1	1235	1372	26,674	29,633	11,300	10,925	12,150	12,775	13,650	13,881	15,686	52%	59%	47%	53%
Highlands #2	1235	1372	26,674	29,633	10,150	10,025	11,700	11,875	12,500	12,678	13,389	48%	50%	43%	45%
Highlands #3	1235	1460	26,674	31,534	12,225	12,450	14,200	16,100	16,975	17,031	17,256	64%	65%	54%	55%
Kennewick #1	1235	1248	26,674	26,955	13,200	12,730	13,600	14,940	18,120	16,541	16,637	62%	62%	61%	62%
Kennewick #2	1235	1248	26,674	26,955	13,810	13,600	14,420	21,350	14,880	14,934	15,152	56%	57%	55%	56%
Kennewick #3	1235	1248	26,674	26,955	13,180	13,090	14,900	20,160	17,260	17,507	18,493	66%	69%	65%	69%
Leslie Road	1296	1555	27,992	33,586	10,295	10,215	11,833	17,261	15,924	15,963	16,118	57%	58%	48%	48%
Orchard View #1	1280	1440	27,646	31,102	9,570	7,644	9,616	16,452	11,158	11,383	12,281	41%	44%	37%	39%
Orchard View #2	1296	1555	27,992	33,586	8,082	6,617	8,001	6,383	9,409	9,535	10,037	34%	36%	28%	30%
Phillips #4	1296	1555	27,992	33,586	3,680	6,360	3,660	6,660	6,820	4,403	4,442	16%	16%	13%	13%
Prosser #1	962	1097	20,778	23,694	10,690	10,240	10,690	12,080	12,370	12,441	12,725	60%	61%	53%	54%
Prosser #2 (Includes BREA)	962	1154	20,778	24,925	18,120	16,800	16,800	19,560	18,060	18,093	18,479	87%	89%	73%	74%
Reata	1235	1482	26,674	32,009	15,740	15,980	20,650	17,600	18,230	18,276	18,461	69%	69%	57%	58%
Riverfront	1296	1555	27,992	33,586	8,150	7,700	8,625	13,375	13,675	10,357	10,632	37%	38%	31%	32%
Southridge	1500	1800	32,398	38,878	-	-	-	4,157	8,971	3,769	4,319	12%	13%	10%	11%
Sunset Road	1235	1440	26,674	31,102	13,130	8,200	11,050	14,220	15,110	11,071	11,078	42%	42%	36%	36%
Vista #1	1296	1512	27,992	32,657	13,700	10,450	11,250	12,800	13,900	13,972	14,258	50%	51%	43%	44%
Vista #2	1296	1555	27,992	33,586	14,850	14,350	15,900	14,850	16,450	16,511	16,756	59%	60%	49%	50%
Zephyr Heights	1280	1440	27,646	31,102	6,700	6,700	8,000	11,700	14,800	11,137	11,620	40%	42%	36%	37%
Total Benton City POD (includes REA)					22,342	17,179	21,543	26,027	27,472	23,548	24,012				
Total Hedges POD					19,190	20,420	21,090	26,080	26,090	23,720	23,944				
Total Kennewick POD					228,210	218,608	251,639	299,005	272,167	260,473	295,100				
Total Prosser POD (includes REA)					36,960	34,740	36,115	45,015	44,105	40,891	41,836				
Total 5-Year Plan Loads					306,702	290,947	330,387	396,127	369,834	348,632	384,892				

Note:

1. Historical peaks are non-coincidental from BPA meters.
2. Projected peaks are the summation of feeder non-coincidental peak projections.
3. Phillips Bay 4 was added due to the addition of PHI-7 feeder, which offloaded some of Hedges.

Table C2
Bank Loading - Summer

SUBSTATION BANK	Summer Rating (Amps)		Summer Rating (KVA)		2019	2020	2021	2022	2023	Projected Peak (kVA)[2]		% of Normal Summer Rating		% of Emer. Summer Rating	
	Normal	Emer.	Normal	Emer.	103°F	108°F	110°F	107°F	102°F	2024	2028	2024	2028	2024	2028
Angus #1 (A3,A4,A5)	933	1037	20,152	22,398	11,080	10,900	14,050	11,770	11,680	11,864	11,918	59%	59%	53%	53%
Angus #2 (A6,A7,A8)	933	1037	20,152	22,398	13,430	10,030	9,070	10,360	9,600	10,360	10,360	51%	51%	46%	46%
Angus #3 (A9,A1,A2)	933	1037	20,152	22,398	9,010	9,430	13,090	10,330	9,900	10,467	10,477	52%	52%	47%	47%
Benton City	744	827	16,069	17,862	5,600	6,152	6,629	6,523	6,333	6,607	6,945	41%	43%	37%	39%
Cold Creek	330	367	7,128	7,927	3,564	3,960	4,112	4,184	4,052	4,184	4,184	59%	59%	53%	53%
Ely #1	1041	1157	22,484	24,990	12,840	15,880	15,970	14,389	14,199	14,423	14,559	64%	65%	58%	58%
Ely #2	1166	1296	25,184	27,992	15,520	14,933	16,906	15,981	15,535	16,022	16,685	64%	66%	57%	60%
Gum Street	1166	1296	25,184	27,992	12,180	16,000	14,081	13,217	13,015	13,419	13,764	53%	55%	48%	49%
Hedges	833	926	17,992	20,000	11,180	11,920	12,900	12,430	12,390	12,728	12,864	71%	71%	64%	64%
Highlands #1	834	927	18,013	20,022	14,750	12,375	14,450	13,325	12,700	13,486	14,130	75%	78%	67%	71%
Highlands #2	834	927	18,013	20,022	9,450	12,900	12,475	11,875	8,200	8,221	8,713	46%	48%	41%	44%
Highlands #3	1040	1155	22,463	24,946	11,000	13,600	12,425	11,125	15,800	12,090	12,255	54%	55%	48%	49%
Kennewick #1	860	1090	18,575	23,543	10,640	11,220	11,560	11,410	11,180	11,426	12,182	62%	66%	49%	52%
Kennewick #2	1111	1128	23,996	24,363	12,660	13,370	14,230	12,430	12,040	12,472	12,642	52%	53%	51%	52%
Kennewick #3	933	1037	20,152	22,398	13,870	10,440	11,340	11,570	11,670	11,762	12,420	58%	62%	53%	55%
Leslie Road	1166	1296	25,184	27,992	10,396	7,832	8,961	8,403	10,028	8473	8584	34%	34%	30%	31%
Orchard View #1	1130	1296	24,407	27,992	15,030	6,081	11,054	12,500	10,708	9,420	10,081	39%	41%	34%	36%
Orchard View #2	1166	1296	25,184	27,992	0	9,357	9,005	8,562	10,785	11233	11574	45%	46%	40%	41%
Phillips #4	1130	1296	24,407	27,992	8,280	8,210	8,490	8,240	9,610	8,483	8,510	35%	35%	30%	30%
Prosser #1	667	741	14,406	16,005	12,810	10,970	11,810	11,550	11,630	12,595	12,819	87%	89%	79%	80%
Prosser #2 (Includes BREA)	827	827	17,862	17,862	16,420	16,660	17,090	14,740	14,770	14,859	15,134	83%	85%	83%	85%
Reata	1040	1155	22,463	24,946	12,770	12,240	13,220	13,340	11,760	13,378	13,529	60%	60%	54%	54%
Riverfront	1130	1296	24,407	27,992	6,300	6,525	7,650	6,975	6,850	7,060	7,253	29%	30%	25%	26%
Southridge	1130	1296	24,407	27,992	-	-	-	4,223	5,905	6,471	7,353	27%	30%	23%	26%
Sunset Road	1112	1235	24,018	26,674	13,980	15,010	13,430	13,090	13,380	11,930	9,925	50%	41%	45%	37%
Vista #1	1166	1296	25,184	27,992	12,050	12,950	11,900	12,750	12,150	11,815	12,017	47%	48%	42%	43%
Vista #2	1130	1296	24,407	27,992	18,350	18,200	18,750	17,900	18,850	19,630	19,817	80%	81%	70%	71%
Zephyr Heights	1166	1296	25,184	27,992	6,100	10,900	9,800	7,200	7,100	7,282	7,610	29%	30%	26%	27%
Total Benton City POD (includes REA)					19,580	21,162	20,059	19,613	19,713	18,537	16,870				
Total Hedges POD					19,460	20,130	21,390	20,670	22,000	21,212	12,986				
Total Kennewick POD					221,126	219,281	233,332	219,875	216,115	216,011	221,743				
Total Prosser POD (includes REA)					35,530	34,155	36,550	33,265	33,250	34,513	35,206				
Total 5-Year Plan Loads					295,696	294,728	311,331	293,423	291,078	290,273	286,804				

Note:

1. Historical peaks are non-coincidental from BPA meters.
2. Projected peaks are the summation of feeder non-coincidental peak projections scaled by calculated coincidence factors

Table C3
Bank Peaks - Winter 2023-2024

Meter #	Substation Bay	During BPUD System Peak[1] (kW)	Non-Coincidental Bank Peak (kW)	(kvar)	Date	Hour	PF	Non-Coincidental Feeder Peaks (kVA)
854	Angus #1 (A3, A4, A5)	16,850	16,890	440	1/13/2024	12	100.0%	17,639
855	Angus #2 (A6, A7, A8)	13,580	13,850	230	1/13/2024	13	100.0%	14,417
1074	Angus #3 (A9, A1, A2)	14,250	14,380	10	1/13/2024	12	100.0%	15,437
221+213	Benton City (includes REA)	12,362	12,362	1,642	1/13/2024	7	99.1%	13,309
94	Cold Creek	328	328	0	1/12/2024	20	100.0%	394
913	Ely #1	20,303	20,425	1,283	1/13/2024	9	99.8%	20,084
940	Ely #2	0	0	0	1/13/2024	-	#DIV/0!	19,438
1106	Gum Street	22,709	22,775	1,962	1/13/2024	9	99.6%	25,294
119	Hedges	19,270	19,270	960	1/13/2024	10	99.9%	19,923
1120	Highlands #1	13,575	13,650	525	1/13/2024	9	99.9%	14,462
945	Highlands #2	12,500	12,500	475	1/13/2024	10	99.9%	12,870
946	Highlands #3	16,975	16,975	1,100	1/13/2024	10	99.8%	17,996
173	Kennewick #1	17,700	18,120	760	1/13/2024	13	99.9%	16,517
175	Kennewick #2	14,760	14,880	160	1/13/2024	12	100.0%	17,172
1111	Kennewick #3	17,260	17,260	1,130	1/13/2024	10	99.8%	17,470
4892	Leslie Road	15,737	15,924	1,170	1/13/2024	9	99.7%	17,088
-	Mobile	11,000	11,000	1,319	1/13/2024	10	99.3%	-
2034	Orchard View #1	11,089	11,158	408	1/13/2024	9	99.9%	12,275
4979	Orchard View #2	9,397	9,409	-976	1/12/2024	12	99.5%	10,296
4111	Phillips Bay 4	6,640	6,820	-270	1/13/2024	14	99.9%	7,082
870	Prosser #1	12,250	12,370	260	1/13/2024	11	100.0%	14,068
869+190	Prosser #2 (Includes REA)	16,800	18,060	270	1/15/2024	8	100.0%	21,703
1156	Reata	17,900	18,230	120	1/13/2024	9	100.0%	23,384
1789	Riverfront	12,750	13,675	275	1/16/2024	8	100.0%	10,288
5087	Southridge	8,971	8,971	636	1/13/2024	10	99.7%	3,558
2628	Sunset Road	15,000	15,110	1,740	1/13/2024	13	99.3%	12,547
966	Vista #1	13,500	13,900	0	1/13/2024	12	100.0%	14,246
967	Vista #2	16,350	16,450	1,850	1/13/2024	13	99.4%	17,646
3150	Zephyr Heights	12,900	14,800	1,200	1/13/2024	13	99.7%	11,016
Subtotal - 5 Year Plan Loads (includes REA)		**392,706**	**399,542**					**417,619**
921	Chevron	7,440	7,585	2,110	11/5/2023	1	96.3%	
799	Phillips #1	1,010	1,160	920	1/11/2024	22	78.3%	
800	Phillips #2	0	0	0	-	-	N/A	
801	Phillips #3	0	0	0	-	-	N/A	
355	251 (4th Street)	116	158	-24	1/15/2024	7	98.9%	
2023	451B LIGO 1	1,444	1,647	-442	1/13/2024	7	96.6%	
x	River System	2,984						
Subtotal - Non 5 Year Plan Loads		**12,994**						
Total - System (without losses)		**405,700**						

Note:
1. Winter 23/24 system peak 405.7 MW in HE10, January 13, 2024. Low in hour temperature of 5°F, low daily temp of 2°F.
2. REA total load during BPUD System Peak = 9,400 kW, (Benton City = 0; Prosser = 9,400), total system without REA = 383,306 kW (no losses).
3. Mobile was in service during Winter 23/24 system peak.

Table C4
Bank Peaks - Winter 2022-2023

Meter #	Substation Bay	During BPUD System Peak[1] (kW)	Non-Coincidental Bank Peak (kW)	(kvar)	Date	Hour	PF	Non-Coincidental Feeder Peaks (kVA)
854	Angus #1 (A3, A4, A5)	16,360	16,450	490	12/22/2022	10	100.0%	17,043
855	Angus #2 (A6, A7, A8)	16,580	16,600	480	12/22/2022	10	100.0%	12,260
1074	Angus #3 (A9, A1, A2)	17,220	17,220	10	12/22/2022	9	100.0%	14,477
221+213	Benton City (includes REA)	11,793	11,807	1,683	12/22/2022	8	99.0%	12,267
94	Cold Creek	296	888	2	11/3/2022	10	100.0%	387
913	Ely #1	20,001	20,117	1,293	12/22/2022	8	99.8%	21,314
940	Ely #2	21,052	21,052	1,694	12/22/2022	9	99.7%	22,087
1106	Gum Street	19,510	19,703	1,736	12/22/2022	8	99.6%	21,269
119	Hedges	19,230	19,420	1,080	12/22/2022	8	99.8%	19,945
1120	Highlands #1	12,750	12,775	0	12/22/2022	8	100.0%	14,053
945	Highlands #2	11,875	11,875	600	12/22/2022	9	99.9%	12,788
946	Highlands #3	16,075	16,100	1,100	12/22/2022	8	99.8%	17,163
173	Kennewick #1	14,940	14,940	1,380	12/21/2022	18	99.6%	16,381
175	Kennewick #2	21,200	21,350	1,000	12/22/2022	10	99.9%	21,812
1111	Kennewick #3	20,160	20,160	970	12/22/2022	9	99.9%	16,374
4892	Leslie Road	17,016	17,261	1,264	12/22/2022	8	99.7%	18,450
2034	Orchard View #1	16,452	16,452	632	12/22/2022	9	99.9%	17,661
4979	Orchard View #2	6,283	6,383	-886	12/19/2022	11	99.1%	7,283
4111	Phillips Bay 4	6,660	6,660	-270	12/22/2022	9	99.9%	6,807
870	Prosser #1	10,870	12,080	400	12/22/2022	11	99.9%	12,610
869+190	Prosser #2 (Includes REA)	19,510	19,560	160	12/22/2022	8	100.0%	20,569
1156	Reata	16,990	17,600	310	12/22/2022	7	100.0%	19,997
1789	Riverfront	8,650	13,375	0	11/3/2022	8	100.0%	8,697
5087	Southridge	3,037	4,157	93	1/3/2023	8	100.0%	2,678
2628	Sunset Road	14,220	14,220	1,640	12/22/2022	9	99.3%	15,355
966	Vista #1	12,700	12,800	250	12/22/2022	10	100.0%	13,681
967	Vista #2	13,100	14,850	1,600	12/2/2022	18	99.4%	16,917
3150	Zephyr Heights	11,300	11,700	800	12/22/2022	8	99.8%	12,334
Subtotal - 5 Year Plan Loads (includes REA)		**395,830**	**407,555**					**412,658**
921	Chevron	7,225	7,745	1,870	1/28/2023	19	97.2%	
799	Phillips #1	950	1,260	890	2/12/2023	3	81.7%	
800	Phillips #2	0	0	0	-	-	N/A	
801	Phillips #3	0	0	0	-	-	N/A	
355	251 (4th Street)	149	149	-26	12/22/2022	9	98.5%	
2023	451B LIGO 1	1,185	1,273	-446	12/22/2022	6	94.4%	
x	River System	3,061						
Subtotal - Non 5 Year Plan Loads		**12,570**						
Total - System (without losses)		**408,400**						

Note:
1. Winter 22/23 system peak 408.4 MW in HE9, December 22, 2022. Low in hour temperature of 5°F, low daily temp of 0°F.
2. REA total load during BPUD System Peak = 8,640 kW, (Benton City = 0; Prosser = 8,640), total system without REA = 387,190 kW (no losses).

Table C5
Bank Peaks - Summer 2023

Meter #	Substation Bay	During BPUD System Peak (kW)	Non-Coincidental Bank Peak (kW)	(kvar)	Date	Hour	PF	Non-Coincidental Feeder Peak (kVA)
854	Angus #1 (A3, A4, A5)	10,720	11,680	1,760	8/15/2023	17	98.9%	12,007
855	Angus #2 (A6, A7, A8)	9,320	9,600	-340	8/15/2023	18	99.9%	9,775
1074	Angus #3 (A9, A1, A2)	8,690	9,900	710	8/16/2023	18	99.7%	10,623
221+213	Benton City (includes REA)	5,871	6,333	1,855	8/15/2023	18	96.0%	6,651
94	Cold Creek	2,740	4,052	782	8/3/2023	8	98.2%	4,188
913	Ely #1	13,195	14,199	2,070	8/15/2023	18	99.0%	14,641
940	Ely #2	14,286	15,535	3,537	8/15/2023	18	97.5%	16,240
1106	Gum Street	12,395	13,015	2,060	8/15/2023	18	98.8%	13,614
119	Hedges	11,660	12,390	2,340	8/15/2023	18	98.3%	12,729
1120	Highlands #1	11,925	12,700	2,900	8/16/2023	17	97.5%	13,495
945	Highlands #2	7,600	8,200	1,625	8/16/2023	18	98.1%	8,496
946	Highlands #3	14,425	15,800	2,750	6/12/2023	17	98.5%	12,193
173	Kennewick #1	10,470	11,180	1,950	8/15/2023	18	98.5%	11,672
175	Kennewick #2	11,350	12,040	0	8/15/2023	17	100.0%	12,595
1111	Kennewick #3	11,140	11,670	1,350	8/15/2023	18	99.3%	12,007
4892	Leslie Road	7,834	10,028	2,162	8/16/2023	18	97.8%	10,742
2034	Orchard View #1	7,826	10,708	859	8/16/2023	17	99.7%	11,516
4979	Orchard View #2	8,219	10,785	1,184	8/15/2023	17	99.4%	11,352
4111	Phillips Bay 4	8,610	9,610	2,530	8/15/2023	16	96.7%	10,534
870	Prosser #1	10,630	11,630	1,490	7/20/2023	19	99.2%	12,855
869+190	Prosser #2 (Includes BREA)	12,680	14,770	1,140	8/15/2023	18	99.7%	15,417
1156	Reata	11,000	11,760	1,410	8/15/2023	19	99.3%	12,506
1789	Riverfront	5,675	6,850	1,475	8/15/2023	18	97.8%	7,030
5087	Southridge	5,395	5,905	1,222	8/15/2023	18	97.9%	6,242
2628	Sunset Road	12,040	13,380	3,160	8/2/2023	15	97.3%	14,410
966	Vista #1	10,050	12,150	1,700	8/16/2023	18	99.0%	12,498
967	Vista #2	17,400	18,850	5,000	8/15/2023	17	96.7%	17,773
3150	Zephyr Heights	6,500	7,100	800	8/15/2023	18	99.4%	7,335
Subtotal - 5 Year Plan Loads (includes REA)		**279,646**	**311,820**					**321,136**
921	Chevron	6,745	7,455	2,060	7/7/2023	1	96.4%	
799	Phillips #1	680	1,110	860	8/11/2023	20	79.1%	
800	Phillips #2	0	0	0	N/A	N/A	-	
801	Phillips #3	0	0	0	N/A	N/A	-	
355	251 (4th Street)	58	144	30	7/26/2023	15	97.9%	
2023	451B LIGO 1	1,057	1,126	-287	8/15/2023	16	96.9%	
x	River System	159,914						
Subtotal - Non 5 Year Plan Loads		**168,454**						
Total - System (without losses)		**448,100**						

Note:
1. Summer 2023 system peak of 448.1 MW (includes losses, excludes REA) was hour 18, July 20, 2023. High in hour temperature of 102°F.
2. REA total load during BPUD System Peak = 5,840 kW (Benton City = 0; Prosser = 5,840),
3. During Summer 2023 System Peak the River System comprised 168,454 kW of the Total; the River System controls the Peak day.

Table C6
Bank Peaks - Summer 2022

Meter #	Substation Bay	During BPUD System Peak (kW)	Non-Coincidental Bank Peak (kW)	(kvar)	Date	Hour	PF	Non-Coincidental Feeder Peak (kVA)
854	Angus #1 (A3, A4, A5)	11,430	11,770	1,700	7/28/2022	17	99.0%	11,955
855	Angus #2 (A6, A7, A8)	10,100	10,360	10	7/29/2022	18	100.0%	10,519
1074	Angus #3 (A9, A1, A2)	10,140	10,330	890	7/28/2022	18	99.6%	9,704
221+213	Benton City (includes REA)	6,386	6,523	1,688	7/28/2022	18	96.8%	6,800
94	Cold Creek	3,176	4,184	1,096	8/5/2022	11	96.7%	4,359
913	Ely #1	14,148	14,389	2,133	7/28/2022	18	98.9%	15,630
940	Ely #2	15,624	15,981	3,882	7/29/2022	18	97.2%	16,895
1106	Gum Street	13,173	13,217	1,636	7/27/2022	19	99.2%	13,636
119	Hedges	12,270	12,430	1,940	7/28/2022	18	98.8%	12,580
1120	Highlands #1	13,300	13,325	2,625	7/28/2022	17	98.1%	14,462
945	Highlands #2	11,500	11,875	2,025	7/29/2022	18	98.6%	12,632
946	Highlands #3	11,125	11,125	1,400	7/27/2022	18	99.2%	11,464
173	Kennewick #1	11,380	11,410	2,360	7/28/2022	17	97.9%	12,096
175	Kennewick #2	12,030	12,430	100	7/29/2022	16	100.0%	13,138
1111	Kennewick #3	10,750	11,570	810	8/23/2022	18	99.8%	12,535
4892	Leslie Road	8,268	8,403	1,366	8/31/2022	19	98.7%	9,024
2034	Orchard View #1	12,341	12,500	1,167	7/28/2022	17	99.6%	13,339
4979	Orchard View #2	7,738	8,562	1,203	7/26/2022	17	99.0%	9,857
4111	Phillips Bay 4	7,570	8,240	2,580	8/26/2022	17	95.4%	8,830
870	Prosser #1	11,240	11,550	1,730	7/27/2022	17	98.9%	11,903
869+190	Prosser #2 (Includes BREA)	14,410	14,740	1,250	7/28/2022	18	99.6%	15,581
1156	Reata	12,980	13,340	2,100	7/27/2022	19	98.8%	14,923
1789	Riverfront	6,975	6,975	1,500	7/27/2022	18	97.8%	7,097
5087	Southridge	895	4,223	1,051	8/31/2022	18	97.0%	0
2628	Sunset Road	12,440	13,090	2,780	7/29/2022	16	97.8%	16,099
966	Vista #1	12,500	12,750	2,650	7/29/2022	17	97.9%	13,227
967	Vista #2	14,250	17,900	4,850	7/25/2022	17	96.5%	15,087
3150	Zephyr Heights	7,000	7,200	900	7/29/2022	18	99.2%	7,566
Subtotal - 5 Year Plan Loads (includes REA)		**295,139**	**310,392**					**320,939**
921	Chevron	6,955	7,080	2,060	7/27/2022	16	96.0%	
799	Phillips #1	990	1,150	960	7/28/2022	7	76.8%	
800	Phillips #2	0	0	0	N/A	N/A	-	
801	Phillips #3	0	0	0	N/A	N/A	-	
355	251 (4th Street)	62	151	30	7/20/2022	14	98.1%	
2023	451B LIGO 1	1,058	1,137	-259	7/29/2022	12	97.5%	
x	River System	161,496						
Subtotal - Non 5 Year Plan Loads		**170,561**						
Total - System (without losses)		**465,700**						

Note:
1. Summer 2022 system peak of 465.7 MW (includes losses, excludes REA) was hour 18, July 27, 2022. High in hour temperature of 108°F.
2. REA total load during BPUD System Peak = 6,090 kW (Benton City = 0; Prosser = 6,090),
3. During Summer 2022 System Peak the River System comprised 161,496 kW of the Total; the River System controls the Peak day.

Appendix D

Customer Growth

[This Page Intentionally Left blank}

[For Two Sided Printing]

Customer Growth Overview

Prosser Area – In December 2017 the City of Prosser (COP) held a meeting with local utilities to share a plan to extend city services to existing undeveloped land within the city limits. The infrastructure expansion is expected to bring about the construction of up to 500 new homes, play fields, and an Amphitheater across both the District's and Benton REA's service territories in the area. Phase 1 of the first development adjacent to the District's Prosser facility is completed and served by feeder RVF-3. Design/development of additional requests east of I-82 and Gap Rd. are ongoing and will be served by feeder PSR-2. Both of these feeders have adequate load serving capacity in the near to medium term. However the District will want to evaluate easement acquisitions to the west of the Prosser area for additional feeder tiers as both PSR-2 and RVF-3 are largely radial and will have medium to long term N-1 outage limitations. Development of the proposed Playfields and Amphitheater in the areas of the Old Inland Empire Highway, Bettison Road and the Chandler Canal has not occurred yet but could be served by Prosser Substation (feeder PSR-2).

In Summer 2017 Prosser Bay 2 Load was made up of more than 50% Benton REA (BREA) load (10.9 MW). For the 2020 Plan Prosser Bay 2 load was made up of approximately 42% BREA load (7.8 MW). As of the 2024 Plan BREA has brought Huard substation online and offloaded a portion of Prosser Bay 2's loading. During contingencies BREA will be able to transfer a substantial portion (or all in some cases) of their native load off Prosser Bay 2 if necessary to facilitate the District performing N-1 switching for a Prosser Bay 1, Prosser Bay 2, or Riverfront outage.

Benton City/Red Mountain Area – Land development has continued to occur in the area including vineyards, wine making, and other agricultural support. Growth in the area has slowed as the area continues to mature and development continues to move beyond the District's service territory and into Benton REA's service territory. Load transfer capability from Sunset Road Substation to Benton City Substation is limited due to circuit distance and the increasing load resulting in the need to employ the Mobile substation for a Sunset Rd. outage during both Summer and Winter peak events. This is driving the requirement for additional capacity in the way of a new Benton City Substation Feeder and the Sunset to Dallas transmission line under build to the area.

Badger Canyon/Reata Area – Development in the Summit View, Ridge at Reata West, and continued development in the Cottonwood Springs Area has led to increasing residential loads in the area over the last few planning cycles. The installation of Leslie Road Substation and Orchard View Bay 2 allowed for significant load reduction of Reata Substation. While projects have been completed to reduce loading on feeder RTA-2, it remains heavily loaded during the winter. In the short term the District has moved to switching the system to an alternative configuration as needed, but this is a short term solution should load growth continue. The medium to long term plan for load reduction on feeders RTA-2 and SSR-4 requires the installation of the future Badger Canyon Substation.

Previously the District was evaluating partnering with City of Richland on their Dallas Rd substation site in much the same vein as the agreement on Leslie Road. While this site should

be kept in mind as a backup, the Dallas Rd site is far from ideal as it is located away from the load it would need to serve, and feeder routes out of the Dallas Rd site that would be beneficial for the District are extremely constrained.

While the construction of Badger Canyon substation is beyond the scope of the 2024 FYP, the District needs to continue evaluating properly for purchase, preferentially near L80R. This location places the substation local to the loads it would serve; and provides a crossroads of existing main line conductor that would facilitate feeder distribution out of the substation. The District should continue to collaborate with BPA on the routing of their proposed Weber Canyon Substation to Badger Switchyard 115kV transmission line so it can be designed with a future substation tap in mind.

Kennewick Urban Growth Area (UGA) – Approximately 500 acres south of I-82 and west of U.S. 395 are included within the Urban Growth Area (UGA). The city has indicated that this area will be zoned for commercial/industrial development similar to the Brinkley Rd. area. The City of Kennewick currently has a boring project planned for 2024/2025 to get water/sewer across I-82 into the area. Until this is completed it is anticipated that load growth in the area will be minimum. The District currently has a circuit going east to west on Christianson Rd. that is an extension of Southridge Substation (feeder STH-2), however it is a small tie line that is used to pick up load in the Triple Vista Area of Badger Canyon should outages occur. This line can be upgraded to accommodate short term growth until additional capacity is installed. Southridge Substation includes a transmission tap that can be extended to follow the same STH-2 route to a future substation site that would likely be located on the south side of I-82 in the UGA area near Locust Grove Rd. Additionally the District has acquired property for the future Ridgeline substation that would support medium term growth. Commercial/Industrial growth in the proposed UGA will be needed in order to foster a new substation project.

Southridge Area – The City of Kennewick has developed a master plan to coordinate the development of the Southridge Planning Area. The Southridge Planning Area is about 2,500 acres of mostly undeveloped land. The Southridge area is located on the south end of Kennewick, between U.S. 395 and Clodfelter Road. It is expected that the area will be developed over a 40-year period and is being planned for the following:

- ≈1100 acres of residential units (houses, condos and apartments)
- 64 acres of light industrial development
- 92 acres of commercial/office space
- 20 acres of village center type area.

Based on load densities in similar areas currently served by the District it is estimated this type of development would have a peak demand of about 32 MW. Ultimately, it is expected the District will need two substations to serve this area. The District previously constructed Southridge Substation on the east end of the Southridge area. The District previously purchased the Ridgeline substation property in the middle section, adjacent to the BPA double circuit 115 kV transmission line running through the area.

Development continues within the Southridge areas as you move west from Southridge Blvd. Currently the Southcliffe, Southridge, and Sunridge developments are the largest, and include a total of 843 residential lots.

On the west end of the Southridge area feeder ORV-3 from Orchard View Bay 1 serves current loads. Additional feeders from Orchard View Bay 1 (ORV-1) & Bay 2 (ORV-7, ORV-8) will be used to support growth in the western end of the Southridge area. On the east end a feeder from Southridge Bay 1 (STH-4) and Highlands feeder HLS-5 will be used to support growth on the eastern end of the Southridge area. Support of long term load growth will be accommodated through the construction of Ridgeline substation and its associated feeders.

For the 2024 Plan peak summer loading was utilized as currently installed/developing loads predominately utilize gas heating in this area, with electrically operated air conditioning. However this area may become a hybrid of winter and summer peaking “zones” depending on the outcome of the state of Washington’s efforts to fade out residential natural gas usage.

On the east end feeders HLS-5 and STH-4 have a capacity for an additional 9.5 MW of peak summer load based on temperature corrected Summer 2022 loading. For the west end ORV-3 has approximately 1 MW of winter capacity and 2.5 MW of summer capacity. Load growth beyond these limits or the arrival of commercial “anchor tenants” along the Hildebrand/Bob Olson Parkway corridor will require extension(s) of Orchard View Substation (feeders ORV-1 & ORV-7) to the area via conduit infrastructure installed during construction of Bob Olsen Pkwy. This expansion would include 1000 EPRJ conductor installations for ORV-3 to facilitate feeder ties.

While the city’s plans to extend Ridgeline Drive from S. Sherman St to Clodfelter Road is being modified due to being unable to acquire all the land on the preferred path, the city continues to have future plans for installing freeway entry/exit ramp(s) that will feed into the area from I-82 and provide additional access to the City of Kennewick UGA expansion on the south side of I-82. The extension of these roads allows the District to expand its infrastructure as well. It is planned that this area will continue to be served with existing area feeders in the near term. With the addition of Orchard View Bay 2, feeder support will be routed in from the west as necessary and will make ties with feeders from Southridge Substation. Continuing to extend new feeders into the area, creating new feeder ties and upgrading the existing facilities will establish the distribution circuits needed for medium term future growth. Longer term growth will be supported by the future installation of Ridgeline substation.

See appendix G (Capitol Planning Strategic Planning Discussion, June 13, 2017)

Vista Field – In October 2017, the Port of Kennewick approved a master plan to coordinate the development of the approximately 100 acre Vista Field area. The Port’s plan anticipated developing the area over 8 phases and is being planned for the following:

- 1,095 residential units (houses, condos and apartments)
- 740,000 sq. ft. of commercial/office space

It is estimated this type of development would have a peak demand of approximately 13 MW (5.5 MW of residential load and 7.5 MW of commercial/office load). The Port's initial schedule indicated that that the design for the first phase will take place during 2018, with construction during 2018/2019. While the Port does have a schedule for phased development, the timeline is fluid as it is dependent on the Port attracting developers and tenants. COVID-19 impacts limited opportunities for new businesses to move into the area over the previous planning cycle. Several major system upgrade projects have been completed in this area and several are planned to ensure that the distribution system is adequate to serve the undeveloped areas within Vista Field.

Feeders from Orchard View Bay 1 (ORV-4) and Bay 2 (ORV-5) and Vista Bay 1 (VIS-4) will be utilized to cover the near term load growth of the Vista field area. As loads continue to grow in this area, the District owns a substation site on Edison Street to support long-term development and relieve existing feeders. The plan for Vista Field is currently for a complete build out in the year 2033. Although the master plan that was approved by the Port of Kennewick indicated an 8-year buildout, growth was stalled due to the economic slowdowns associated with the COVID-19 pandemic. Development interest to the area has begun to return, and the District is assuming a buildout of one phase completed every other year. With the addition of an express feeder from Orchard View Bay 1 (ORV-4) into Vista Field, plus available capacity in the vicinity of Vista Field, the District will have 9.2 MW available utilizing Vista Substation (feeder VIS – 4) Orchard View Substation (feeders ORV-4, ORV-5). This should be considered a shorter-term solution, however, if additional Electrically Intense Load (EIL) tenant or tenants were to be located in the area, the long term plan would be to utilize new conduits installed down Metaline Ave. to install feeders from the future Edison Street Substation site.

Bridge to Bridge/River to Railroad Project – The City of Kennewick, Port of Kennewick, Downtown Kennewick, and Columbia Drive Association formed the Historic Downtown Kennewick Partnership. The partnership hired a consulting team in 2003 to develop a plan for the future of the area roughly between the Blue and Cable Bridges from the Columbia River to Canal Drive. The result was a 20 year plan that laid out a vision the group had for re-development of the area.

While the Port of Kennewick has built a few commercial buildings and has near term plans for a small culinary school, significant development or increased load appears to be outside of the scope of the Five Year Plan. The first 10 years were concentrated on laying the groundwork and getting funding. Significant load increases were expected in the 10 to 20 year time frame. We are now past the 20 year timeframe and load has been materializing at a slow rate. The Study had low, medium, and high forecasts for growth. The medium forecast expected an additional 82 boat slips, 71,350 sq. ft of retail space, 125 lodging rooms, 277,500 sq. ft. of office space, 615 residential units (530 condominiums and 85 apartments), and 100 RV spaces.

Currently Kennewick Substation (feeders KEN – 4 & KEN – 1) feed the west end and east end respectively in the development area. Their combined available capacity is about 3MW and about 60% of that capacity on KEN-1 on the west end. Should load growth accelerate, it is

anticipated the District could serve this area from either the future Nutmeg Substation on the east end or form the future Entiat Street substation site near Fruitland Park on the west end.

Future Main Feeder Routes -- Areas within our system have also been identified for potential future main feeder routes. These areas are typically denoted on our system planning maps as a reminder that we may be upgrading in the future and that it may be feasible to upgrade these areas or install spare conduit and vaults when doing other projects or customer development is going on in the area. Additionally, as conductor upgrades are required on main portions of feeders in town, the standard practice is to install 556.4 AAC. For feeders on the edges of the urban system, the standard practice is to install 336.4 AAC.

Table D1 - Customer Growth List

Map Key	Project Name or Customer	Area Eng.	Growth Potential[1]	Electrical Status[1]	Cust. Type[2]
	Kennewick Area				
A1-A	Buckingham, 3119 W 7th Ave JO 657872	Shanna	8 units	Installed	Res
A3-A	Arthur Street Apartments (JO# 685588)	Tina	48 Units	Operations	Res
E1-A	Zintel Creek (JO# 602477)	Tina	1 Lots Left	Installed	Res
E3-A	SR Urgent Care, 3601 Plaza Way JO 659417	Shanna	2 suites	Installed	Com
E3-B	COK Creekstone Reservoir (JO#586171)	Chad	3 future 125HP pumps	Planning	Com
E3-C	Alvarez Auto JO 666668	Shanna	6 EV chargers Large Building	Installed	Com
E6-A	Lauria Meadows (JO #539155)	Tina	1 lot remaining	Installed	Res
E8-A	Electrify America, 2811 W 10th JO 656878	Shanna	6 fast chargers	Installed	Com
G1-C	Highland Vineyards (JO #626006)	Chad	20 lots remaining	Installed	Res
	Highland Vineyards Ph2 JO# 700566	Angela	23 Lots	Construction	Res
G3-A	Habitat for Humanity JO# 701605	Angela	15 Lots	Design	Res
G3-B	Sunny Meadows JO #701606	Angela	78 Lots	Planning	Res
G4-A	Schmelzer SR-397 Seal Springs (JO #107002)	Dave	3 lots remaining	Installed	Res
G4-B	Highland View Heights subdivision (JO #514484)	Shanna	2 lots remaining	Installed	Res
G4-C	Kingwood Phase 1 - Brad Beauchamp (JO #533995)	Shanna	5 lots remaining	Installed	Res
	Kingwood Estates Ph2 JO#672225	Chad	8 lots	Designed	Res
G4-E	Nunez (JO #589815)	Shanna	2 - 5 acre lots	Installed	Res
HE3-A	Hanberg JO#667276	Chad	25HP pump 9HP irr tower	Installed	Com
HE4-A	Rocking River (JO#633745)	Chad	(2) 600A 3-ph (2) 200A 1-ph	Installed	Com
H1-A	Citiadel Estates (JO #616029) (See H5-D)	Chad	36 lots	Installed	Res
H2-A	The Falls JO 645526	Shanna	106 units/8 comm	Installed	Res/Com
H2-B	Anderson short plat (JO#567980)	Chad	1 lots	Installed	Res
H2-C	Fairchild short plat (JO#572020)	Chad	7 lots remaining	Installed	Res
H3-A	Vista Field Area - see H3, O4, O5, V4 (build A9 to support)				
	Vista Field Development Phase 2 (2027) - Split between O5 & H3 - See O5-A	Mike	0.3 MW Res 0.55 MW Com	Planning	Res/Com
	Vista Field Development Phase 4 (2031) - Split between H3 & V4 - See V4-A	Mike	0.3 MW Res 0.05 MW Com	Planning	Res/Com
	Vista Field Development Phase 7 (2033) - Split between V4 & H3 - See V4-A	Mike	0.48 MW Res 0.25 MW Com	Planning	Res/Com
	Vista Field Development Phase 8 (2039) - Split between V4 & H3 - See V4-A	Mike	0.34 MW Res 0.48 MW Com	Planning	Res/Com
H3-B	Try City Remodel JO 649553	Shanna	9 homes	Installed	Res
H3-C	Sun Pacific, 825 N Edison St. JO 674551	Shanna	11-200A Suites	Installed	Com
H3-E	Quality Tint, 5205 W Okanogan JO 675218	Shanna	3-200a Suites	Installed	Com
H3-F	TTB-JSI, 5216 W Okanogan PL JO 685053	Shanna	3 suites	Installed	Com

Table D1 - Customer Growth List - Continued

Map Key	Project Name or Customer	Area Eng.	Growth Potential[1]	Electrical Status[1]	Cust. Type[2]
	Kennewick Area (Continued)				
H3-G	Maple Meadows (JO# 711323) (See V4-E)	Tina	17 Lots	Designed	Res
H5-A	Symphone Ridge Ph 1 (JO# 587394)	Chad	1 Lot Remaining	Installed	Red
	Symphony Ridge Ph 2 (JO# 624522)	Shanna	3 lots Remaining	Installed	Res
	Symphony Ridge Ph 3 (JO# 679390)	Shanna	12 lots Remaining	Installed	Res
H5-B	Valley View Homes (JO #605792)	Chad	28 lots Remaining	Installed	Res
H5-C	Southridge Ph 7, 16, 20 (JO #608070)	Chad	2 lots remaining	Installed	Res
	Southridge Ph 6 JO 625342	Shanna	75 lots	Designed	Res
	Southridge Development Future Phases	Rick	23 lots remaining	Planning	Res
H5-D	Citiadel Estates (JO #616029) (See H1-A)	Chad	36 lots	Installed	Res
H5-E	Wondrack, 7018 W 22nd JO 685911	Shanna	1-30,000 sqr foot home	Installed	Res
H5-F	Southcliffe Phase 2 (JO #551203) 14 Lots	Chad	2 lots Remaining	Installed	Res
	Southcliff Phase 4 (#513345)	Dave	2 Lots Remaining	Installed	Res
	Southcliff Phase 5 (#574933)	Chad	3 Lots Remaining	Installed	Res
	Southcliffe Phase7 (JO #615851)	Chad	15 lots remaining	Installed	Res
	Southcliffe PH 8 JO 664249	Shanna	40 lots	Designed	Res
	Southcliffe, Sherman Rd., Milo Bauder, Phase 6 -15	Rick	234 lots remaining	Planning	Res
H7-A	AAA Storage Units/office building (JO#557275)	Chad	800A 3-ph(future)	Planning	Comm
H7-B	NJATC Building 142 N Edison JO 673296	Shanna	1200A Service	Designed	Com
H9-A	Hansen Park Mixed Use (JO#641921) (See O3-A)	Shanna	10 apartments open	Installed	Res
H9-B	Hansen Park MU Building JO 663240	Shanna	74 units	Installed	Res
H9-C	Shade Tree Estates (JO# 690952)	Tina	10 Lots	Installed	Res
K1-A	Padilla Elm St Apartments JO#692431	Chad	4 townhomes, 22 units	In design	Res
K2-A	Peach Farm JO#659847	Chad	17 lots	Construction	Res
K3-A	Habitat for Humanity (JO #125893)	Ken	2 Lots remaining	Installed	Res
K4-A	Clover Island Misc.???	Dave	3 buildings	Planning	Com
K4-B	Clover Island Mobile Home Park, Blue Bridge	Rick	Unknown	Planning	Com
K4-C	PMI Townhomes - Entiat (JO# 618838)	Tina	7 Townhomes remaining	Installed	Res
K6-A	KGH Retrofit JO# 700571	Angela	300A, 480V	Planning	Com
K6-B	Firestation #1 JO#652022	Chad	1,600A 208V Fut. 800A EV 480V	Installed	Com
K8-A	Asphalt Plant JO#TBD	Angela	1,500 kVA	Planning	Com
K8-B	COK Treatment Plant Addition JO#TBD	Shanna	1,500 kVA	Planning	Com
K9-A	Desert Pines JO#675050 - See K3-B	Chad	12 lots	Construction	Res
L1-C	Canyon Ranch Ph 9 & 10 (#527809)	Dave	7 Lots remaining	Installed	Res

Table D1 - Customer Growth List - Continued

Map Key	Project Name or Customer	Area Eng.	Growth Potential[1]	Electrical Status[1]	Cust. Type[2]
	Kennewick Area (Continued)				
L2-B	Cottonwood Creek Ph3 (#532446)	Chad	12 lots remaining	Installed	Res
	Cottonwood Creek Ph. 4 (JO# 645333)	Tina	13 Lots remaining	Installed	Res
L2-C	J. Sullins, Cottonwood Dr. (JO #105290)	Ken	1 lot remaining	Installed	Res
L2-D	A. Sidibe, Cottonwood Dr. (JO #105264)	Ken	3 lots remaining	Installed	Res
	Sidibe, Aissata (JO #124826)	Dave	1 lot remaining	Installed	Res
	Aissata Sidibe (JO #123891)	Dave	1 lot remaining	Installed	Res
L2-G	Wiser (#516974)	Chad	5-5acre lots 2-5acre remaining	Installed	Res
L4-A	Bermuda Infill (JO #639684)	Tina	12 Lots 10 lots remaining	Installed	Res
O2-A	Crimson Hills (JO#618016)	Shanna	138 lots 69 lots remaining	Installed	Res
O2-B	Clearwater North Ph. 1	Tina	97 Lots	Designing	Res
O2-C	Clearwater North 10th Ave Ext.	Tina	4 Commercial Lots	Designing	Comm
O3-A	Hansen Park PH 1 JO #641921 (See H9-A)	Shanna	130 Apartments	Installed	Res
O3-C	Hansen Park Apartments JO 623922	Shanna	120 Apartments	Installed	Res
O3-D	Ridge at Hanson Park Ph 2 (#526423)	Dave	1 Lot remaining	Installed	Res
O3-F	Lenkersdorfer, Travis Ln (JO #124003)	Dave	1 lot remaining	Installed	Res
O3-H	Mammoth Acres (JO# 639685)	Tina	12 Lots 11 lots remaining	Installed	Res
O3-I	Anderson (JO #595270)	Shanna	9 Lots remaining	Installed	Res
O4-A	Vista Field Area - see H3, O4, O5, V4 (build A9 to support)				
	Vista Field Development Phase 1 (2025) - Split between O4 & O5 - See O5-A	Mike	0.43 MW Res 1.2 MW Com	Planning	Res/Com
	Vista Field Development Phase 3 (2029) - Split between O4 & O5 - See O5-A	Mike	0.29 MW Res 0.23 MW Com	Planning	Res/Com
	Vista Field Development Phase 5 (2033) - Split between O4 & O5 - See O5-A	Mike	0.17 MW Res 0.05 MW Com	Planning	Res/Com
	Vista Field Development Phase 6 (2035) - Split between O4 & O5 - See O5-A	Mike	0.47 MW Res 0.9 MW Com	Planning	Res/Com
O5-A	Vista Field Area - see H3, O4, O5, V4 (build A9 to support)				
	Vista Field Development Phase 1 (2025) - Split between O4 & O5 - See O4-A	Mike	0.43 MW Res 1.2 MW Com	Planning	Res/Com
	Vista Field Development Phase 2 (2027) - Split between O5 & H3 - See H3-A	Mike	0.3 MW Res 0.55 MW Com	Planning	Res/Com
	Vista Field Development Phase 3 (2029) - Split between O4 & O5 - See O4-A	Mike	0.28 MW Res 0.23 MW Com	Planning	Res/Com
	Vista Field Development Phase 5 (2033) - Split between O4 & O5 - See O4-A	Mike	0.17 MW Res 0.05 MW Com	Planning	Res/Com
	Vista Field Development Phase 6 (2035) - Split between O5 & H7 - See H7-B	Mike	0.47 MW Res 0.9 MW Com	Planning	Res/Com
P7-B	Purdie (JO#627104)	Chad	2500A 3-ph	Installed	Com
R1-A	Steeplechase Phase 1&2 (JO #576483) (See R3-A)	Shanna	3 lots remaining	Installed	Res
	Steeplechase Future Phase	Shanna	4 lots remaining	Installed	Res
R1-B	Ridgeview Lane (JO #576479)	Shanna	2 lots remaining	Installed	Res
R2-A	Country Acres (JO #599244)	Shanna	14 lots remaining	Installed	Res

Table D1 - Customer Growth List - Continued

Map Key	Project Name or Customer	Area Eng.	Growth Potential[1]	Electrical Status[1]	Cust. Type[2]
	Kennewick Area (Continued)				
R2-B	Harvest Ridge Ph. 1 (JO# 649080)	Tina	42 Lots remaining	Installed	Res
R2-E	Country Heights (JO #22108)	Ken	1 lot remaining	Installed	Res
R3-A	Steeplechase Phase 1&2 (JO #576483) (See R1-A)	Shanna	3 lots remaining	Installed	Res
	Steeplechase Future Phase	Shanna	4 lots remaining	Installed	Res
R3-D	Summitview Ph11 (JO #129498)	Chad	1 lot remaining	Installed	Res
S1-A	Southridge Ph 5 (JO #623885)	Shanna	1 lot remaining	Installed	Res
	Southridge Ph 6 (JO #625342)	Shanna	138 Lots	Operations	Res
	Southridge Ph 20 (JO #608070)	Chad	1 lot remaining	Installed	Res
S1-B	Sunridge Subdivision (JO#631649) (See S4-C)	Shanna	141 lots 64 lots remaining	Installed	Res
S1-C	Southridge Apartments (JO# 700540)	Tina	182 Units	Operations	Res
S1-D	Tumbleridge Development (JO #123206)	Ken	2 lots remaining	Installed	Res
S2-A	Village at Southridge Phase 4 (JO #632483)	Shanna	19 lots remaining	Installed	Res
	Village at Southridge Phase 3 (JO #604579)	Chad	3 lots remaining	Installed	Res
S2-B	BRL Development (JO#670943)	Chad	12 Industrial lots	Designed	Com
S2-C	Brinkley, 6116 W Brinkley JO 657299	Shanna	3 Suites	Installed	Com
S4-A	Apple Valley PH 6B JO #660365	Shanna	39 lots	Installed	Res
	Apple Valley Ph7a JO#692999	Chad	24 lots	Installed	Res
	Apple Valley Future	Chad	127 Lots	Planning	Res
S4-B	Sherman Heights PH 1 JO 622551	Shanna	53 lots	Installed	Res
	Sherman Heights PH 2 JO 637066	Shanna	42 lots	Installed	Res
	Sherman Heights PH 3 JO 681716	Shanna	30 lots	Designed	Res
	Sherman Heights Ph.4 (JO# 699752)	Tina	33 Lots	Designed	Res
	Sherman Heights Future Phases (JO #TBD)	Shanna	TBD	Planning	Res
S4-C	Sunridge subdivision PH 1 JO 631649	Shanna	85 lots	Installed	Res
	Sunridge PH 2, Ridgeline Dr. JO 658084	Shanna	81 lots	Installed	Res
	Sunridge Subdivision (JO#631649) (See S1-B)	Shanna	141 lots 64 lots remaining	Installed	Res
V4-A	Vista Field Area - see H3, O4, O5, V4 (build A9 to support)				
	Vista Field Development Phase 4 (2031) - Split between H3 & V4 - See H3-A	Mike	0.6 MW Res 0.1 MW Com	Planning	Res/Com
	Vista Field Development Phase 7 (2033) - Split between V4 & H3 - See H3-A	Mike	0.925 MW Res 0.5 MW Com	Planning	Res/Com
	Vista Field Development Phase 8 (2039) - Split between V4 & H3 - See H3-A	Mike	0.675 MW Res 0.95 MW Com	Planning	Res/Com
V4-B	Brett Lott, Irving PL JO 684370	Shanna	5 lots	Installed	Res
V4-C	Ivy Warehouse JO 650162	Shanna	9 Suites	Installed	Com

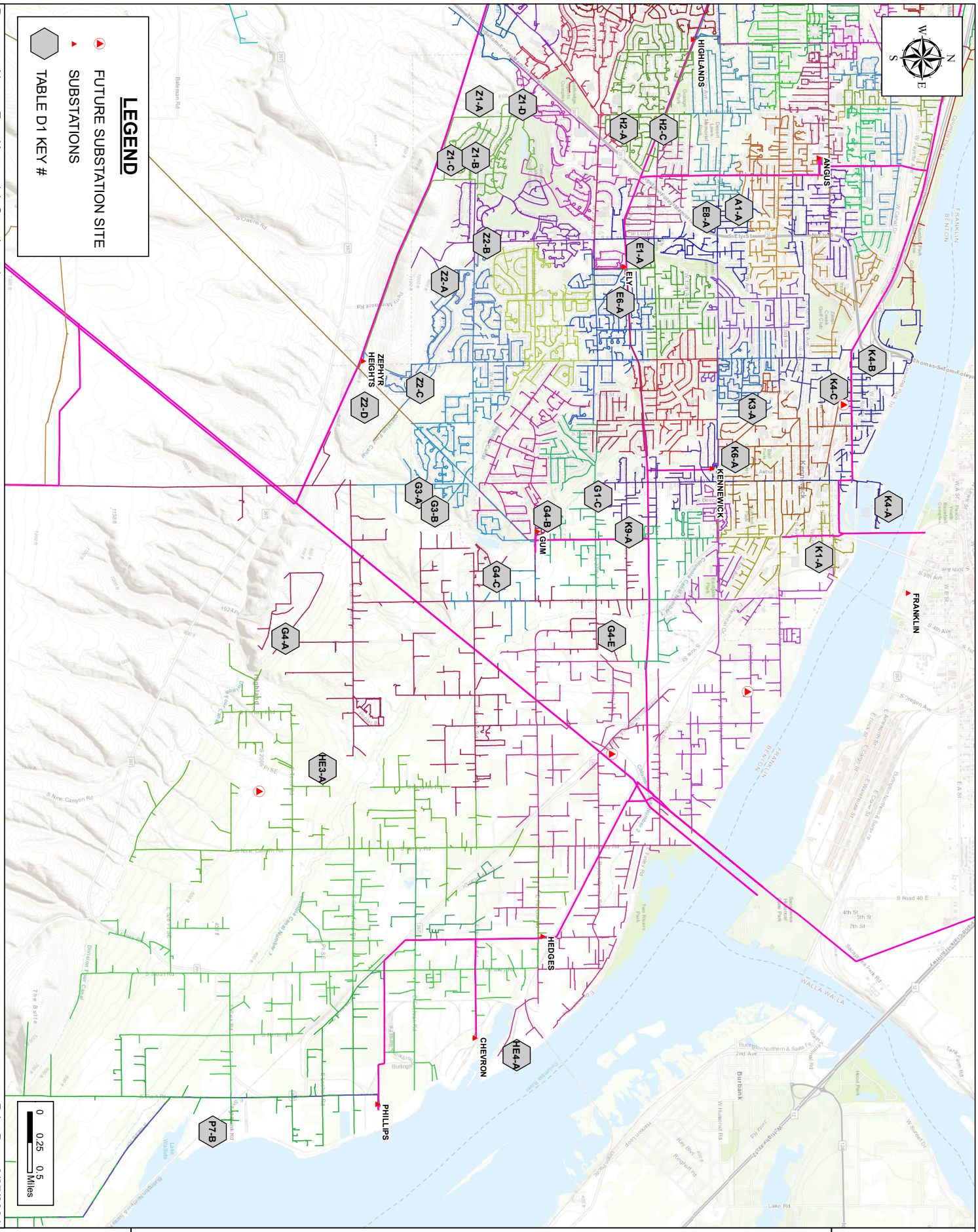
Table D1 - Customer Growth List - Continued

Map Key	Project Name or Customer	Area Eng.	Growth Potential[1]	Electrical Status[1]	Cust. Type[2]
	Kennewick Area (Continued)				
V4-D	1derful Food Park. 6494 W Skagit JO 639683	Shanna	20 food trucks & Restaurant	Installed	Com
V4-E	Maple Meadows (JO# 711323) (See H3-G)	Tina	17 Lots	Designed	Res
V5-A	Lacoste Law, 2602 N Steptoe JO 660307	Shanna	4 suites	Installed	Com
V6-A	Quality Inn to Apartments JO 651818	Shanna	64 units	Installed	Res
Z1-A	Heights at Canyon Lakes Ph 5 (JO #117436)	Dave	2 lots remaining	Installed	Res
Z1-B	South Hill Estates Ph1 (#130091)	Shanna	3 lots remaining	Installed	Res
	South Hill Estates Ph2 (#577710)	Tina	19 lots remaining	Installed	Res
Z1-C	Zone 6 East Booster Pump Station JO#666541	Chad	2- 100HP 1- 10HP booster	Designed	COM
Z1-D	Zintel Canyon (JO# 604768)	Tina	6 Lots Left	Installed	Res
Z1-E	Canyon View Apartments JO#687735	Chad	1000A service per bldg 5 bldg, 12 units each	Designed	Res
Z2-A	Inspiration Estates Ph 4 (JO #105903)	Ken	1 lot remaining	Installed	Res
	Inspiration Estates Ph V, W 52 (JO #118537)	Rick	2 lots remaining	Installed	Res
	Inspiration Estates Ph 7, W 52 (JO #124558)	Rick	1 lot remaining	Installed	Res
	Inspiration estates PH 8 (JO #515700)	Shanna	8 lots remaining	Installed	Res
Z2-B	Cherry Creek Phase 1 (JO #114616)	Dave	2 lots remaining	Installed	Res
	Cherry Creek Phase 3 (JO #130224)	Shanna	2 lots remaining	Installed	Res
Z2-C	Sunrise Ridge-Jim Aust Phase 1& 2 (JO #519961 & #526055)	Shanna	1 lot remaining	Installed	Res
	Sunrise Ridge Ph 3 (JO #597000)	Tina	14 Lots remaining	Installed	Res
Z2-D	South Hill Manors JO# 691203	Angela	29 Lots	Design	Res
Benton City Area					
B1-A	Paul Ilin JO#691544	Chad	4-plex & ADU bldg	Installed	Res
B2-A	Wrangler Addition (JO #115564)	Ken	1 lot remaining	Installed	Res
B2-B	Olson Bros Subdivision Ph1 JO#700303	Chad	58 lots	Design	Res
	Olson Bros Subdivision Ph 2-5 Future	Chad	152 lots	Future	Res
B2-C	Paul Ilin JO#703788	Chad	2 Duplex, 2- 4-Plex Fut. Duplex, 2-4-Plex	Duplex built	Res
B2-D	River North Subdivision (JO #669249)	Tina	46 Lots remaining	Installed	Res
B2-E	Vintners Vista (JO #682198)	Tina	31 Lots	Design	Res
SR2-A	Yakitat Pl., Cohu Torchey (JO #111174)	Ken	2 lots remaining	Installed	Res
SR4-A	KID MC 12.0 Pump Station JO#687193	Chad	50HP pump 480V Fut. 50-100HP	Construction Future	Com
SR4-B	AAA Concrete JO#703058	Chad	1,000A 480V	Design	COM

Table D1 - Customer Growth List - Continued

Map Key	Project Name or Customer	Area Eng.	Growth Potential[1]	Electrical Status[1]	Cust. Type[2]
Prosser Area					
P2-A	Prosser Memorial Hospital (JO #617485)	Shanna	5,000A, 480V Service 1,000 kVA Xfmr	Installed	Com
P2-B	Wamba Meadows (JO #682903)	Tina	60 Lots	Planning	Res
P3-A	Candy Mt Construction (JO #513384)	Chad	3-5acre lots 1-5acre lot remain	Installed	Res
P4-A	USDA Hop Picker- Peak Contractors JO#687350	Chad	400A 480V	Construction	Res
P6-A	Red Blend Villas (JO #557269)	Shanna	4 lots remaining	Installed	Res
RF3-A	Mustang Estates Ph. 1 (JO #620629)	Tina	22 Lots remaining	Installed	Res
	Mustang Estates Future Phases		150 Lots	Planning	Res

Notes: 1. Growth potential and electrical status estimated as of 03/2024. 2. Customer type, Res = Residential, Com = Commercial, Irr = Irrigation, EIL =

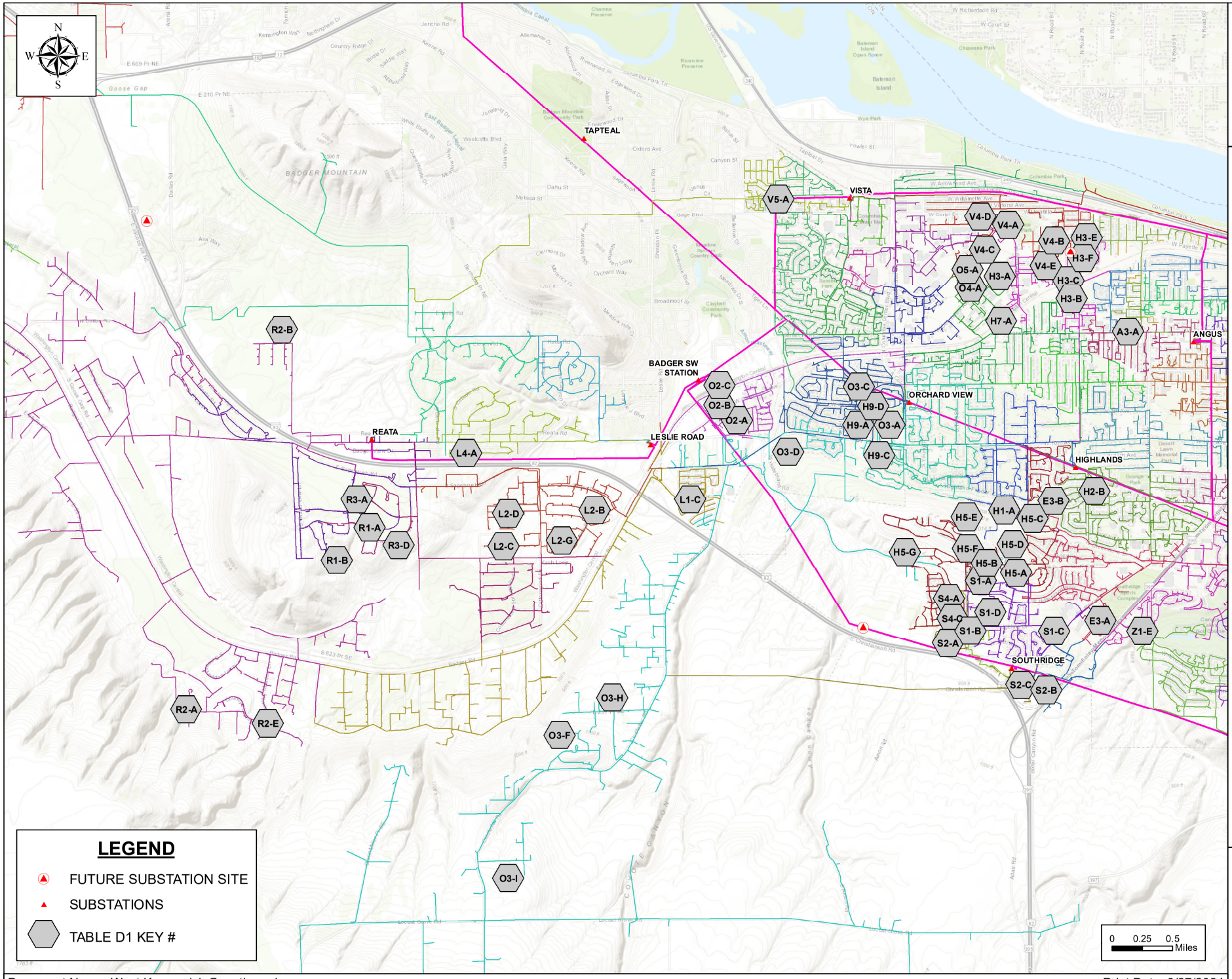


Document Name: East Kennewick Growth.mxd

Print Date: 8/27/2024

BENTON P·U·D

EAST KENNEWICK AREA
CUSTOMER GROWTH LOCATIONS



LEGEND

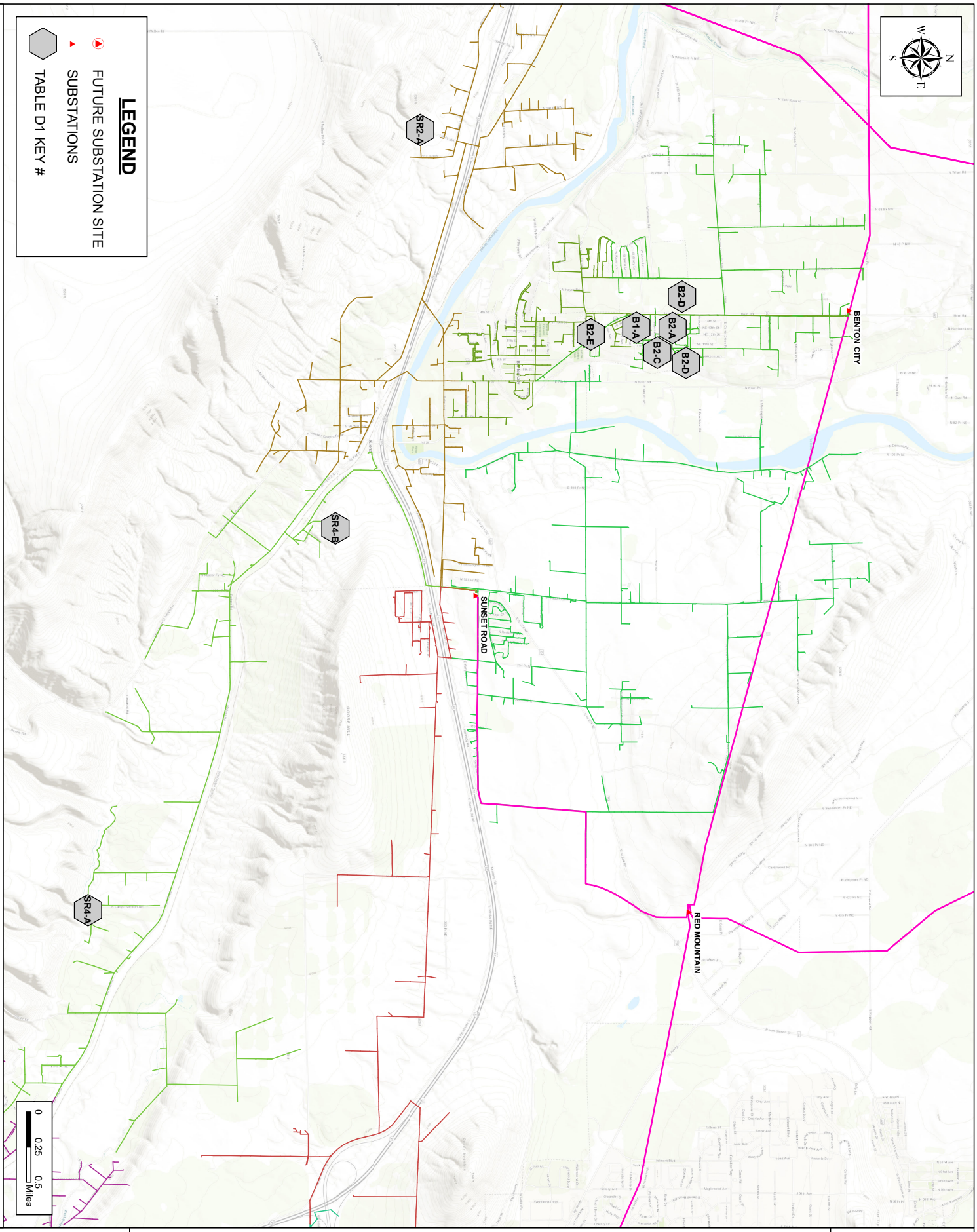
- FUTURE SUBSTATION SITE
- SUBSTATIONS
- TABLE D1 KEY #

WEST KENNEWICK AREA
CUSTOMER GROWTH LOCATIONS

BENTON P.U.D

Document Name: West Kennewick Growth.mxd

Print Date: 8/27/2024

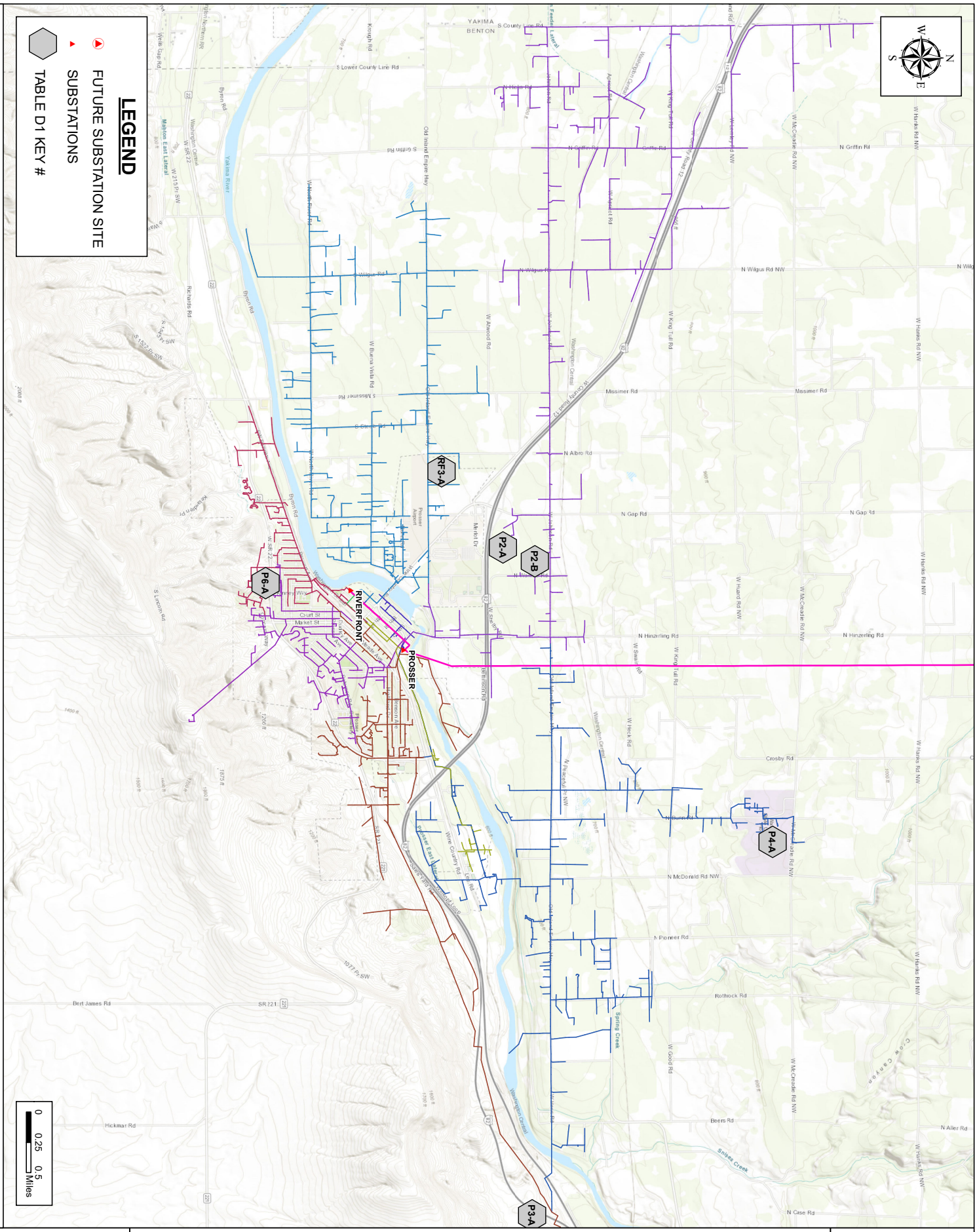


Document Name: Benton City Growth.mxd

Print Date: 8/27/2024

BENTON P·U·D

BENTON CITY AREA
CUSTOMER GROWTH LOCATIONS



Document Name: Prosser Growth.mxd

Print Date: 8/27/2024

BENTON P·U·D

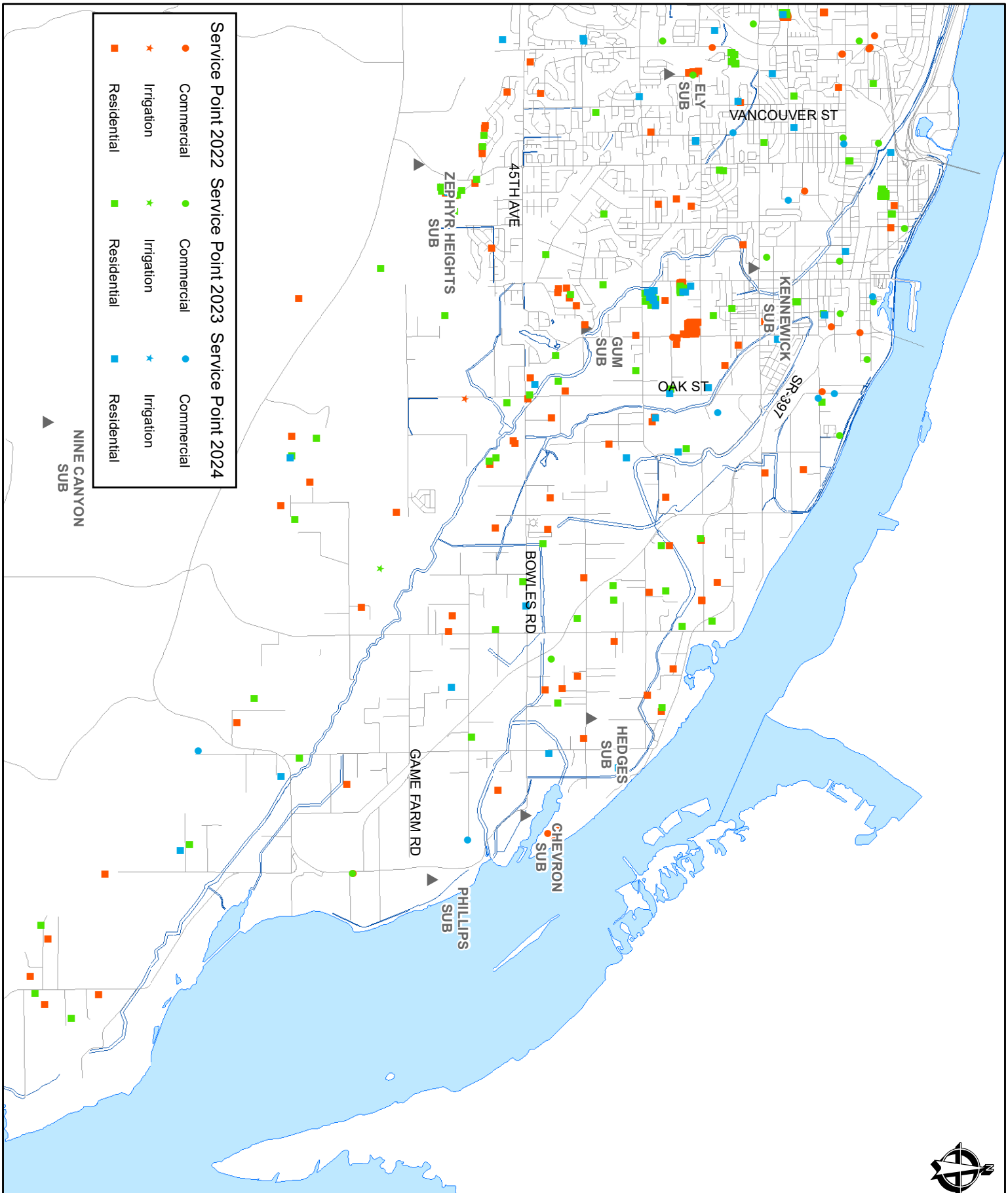
PROSSER AREA
CUSTOMER GROWTH LOCATIONS

Table D2 Rate Schedule Count by Feeder as of June 2024								
	Total	Schedule 11 Residential	Schedule 21 Small General	Schedule 22 Medium General	Schedule 23 Large General Non- TOU	Schedule 34 Industrial	Schedule 70 Irrigation	Schedule 71 Small Irrigation
Angus Substation								
ANG-3	1,028	812	206	9	1	0	0	0
ANG-4	407	207	170	30	0	0	0	0
ANG-5	1,069	1,001	60	8	0	0	0	0
Bank 1	2504	2020	436	47	1	0	0	0
ANG-6	831	706	110	15	0	0	0	0
ANG-7	663	538	117	7	1	0	0	0
ANG-8	1,133	1,064	62	7	0	0	0	0
Bank 2	2627	2308	289	29	1	0	0	0
ANG-9	598	573	23	1	1	0	0	0
ANG-1	803	753	49	0	1	0	0	0
ANG-2	1,013	912	95	5	0	0	0	1
Bank 3	2414	2238	167	6	2	0	0	1
Benton City Substation								
BEC-1	893	783	100	7	1	0	0	2
BEC-2	729	695	28	4	1	0	0	1
BEC-3	0	0	0	0	0	0	0	0
BEC-4	0	0	0	0	0	0	0	0
Bank 1	1622	1478	128	11	2	0	0	3
Cold Creek Substation								
CCR-1	60	19	24	1	0	0	14	2
Bank 1	60	19	24	1	0	0	14	2
Ely Substation								
ELY-1	691	672	16	3	0	0	0	0
ELY-2	382	381	1	0	0	0	0	0
ELY-3	847	732	97	15	3	0	0	0
ELY-4	945	932	12	1	0	0	0	0
Bank 1	2865	2717	126	19	3	0	0	0
ELY-5	799	767	30	1	1	0	0	0
ELY-6	926	897	25	3	1	0	0	0
ELY-7	638	557	65	14	2	0	0	0
ELY-8	461	391	60	7	2	0	0	1
Bank 2	2824	2612	180	25	6	0	0	1
Gum Street Substation								
GUM-1	904	857	25	5	0	0	0	17
GUM-2	525	505	10	1	0	0	0	9
GUM-3	773	743	17	2	0	0	0	11
GUM-4	973	866	65	3	0	0	0	39
Bank 1	3175	2971	117	11	0	0	0	76
Hedges Substation								
HED-1	191	164	21	0	0	0	0	6
HED-2	705	609	40	9	2	0	1	44
HED-3	507	456	20	3	1	0	1	26
HED-4	1009	922	42	3	0	1	0	41
Bank 1	2412	2151	123	15	3	1	2	117

Table D2 Rate Schedule Count by Feeder as of June 2024								
	Total	Schedule 11 Residential	Schedule 21 Small General	Schedule 22 Medium General	Schedule 23 Large General Non- TOU	Schedule 24 Large General TOU	Schedule 71 Small Irrigation	Schedule 72 Large Irrigation
Highlands Substation								
HLS-1	456	445	9	2	0	0	0	0
HLS-2	1012	905	102	5	0	0	0	0
HLS-3	842	627	193	20	2	0	0	0
Bank 1	2310	1977	304	27	2	0	0	0
HLS-4	812	786	19	4	0	0	0	3
HLS-5	1000	965	33	2	0	0	0	0
HLS-6	780	757	21	2	0	0	0	0
Bank 2	2592	2508	73	8	0	0	0	3
HLS-7	965	667	287	11	0	0	0	0
HLS-8	635	612	17	6	0	0	0	0
HLS-9	1090	1052	34	3	0	0	0	1
Bank 3	2690	2331	338	20	0	0	0	1
Kennewick Substation								
KEN-1	527	401	106	17	3	0	0	0
KEN-2	990	962	27	1	0	0	0	0
KEN-3	1575	1500	67	8	0	0	0	0
Bank 1	3092	2863	200	26	3	0	0	0
KEN-4	807	569	214	22	1	0	0	1
KEN-5	799	779	17	1	0	0	0	2
KEN-6	744	446	269	27	2	0	0	0
Bank 2	2350	1794	500	50	3	0	0	3
KEN-7	839	696	131	12	0	0	0	0
KEN-8	1005	869	89	21	3	0	0	23
KEN-9	599	573	22	3	0	0	0	1
Bank 3	2443	2138	242	36	3	0	0	24
Leslie Road Substation								
LES-1	1018	974	24	14	0	0	0	6
LES-2	280	230	42	8	0	0	0	0
LES-3	259	253	5	1	0	0	0	0
LES-4	276	274	1	1	0	0	0	0
Bank 1	1833	1731	72	24	0	0	0	6
Orchard View Substation								
ORV-1	0	0	0	0	0	0	0	0
ORV-2	377	273	89	14	1	0	0	0
ORV-3	1063	969	75	11	2	0	0	6
ORV-4	126	0	120	4	2	0	0	0
Bank 1	1566	1242	284	29	5	0	0	6
ORV-5	222	1	196	24	1	0	0	0
ORV-6	1370	1284	82	4	0	0	0	0
ORV-7	0	0	0	0	0	0	0	0
ORV-8	0	0	0	0	0	0	0	0
Bank 2	1592	1285	278	28	1	0	0	0

Table D2 Rate Schedule Count by Feeder as of June 2024								
	Total	Schedule 11 Residential	Schedule 21 Small General	Schedule 22 Medium General	Schedule 23 Large General Non- TOU	Schedule 24 Large General TOU	Schedule 71 Small Irrigation	Schedule 72 Large Irrigation
Phillips Substation								
PHI-6	41	2	8	1	0	0	25	5
PHI-7	355	282	37	9	4	0	0	23
Bank 4	396	284	45	10	4	0	25	28
Prosser Substation								
PSR-1	74	16	41	9	6	0	0	2
PSR-2	543	420	42	7	0	0	0	74
PSR-3	792	607	156	22	3	0	0	4
Bank 1	1409	1043	239	38	9	0	0	80
PSR-4	452	342	52	20	4	0	1	33
PSR-5	196	158	35	2	1	0	0	0
PSR-6	774	686	80	5	1	0	0	2
Bank 2	1422	1186	167	27	6	0	1	35
Reata Substation								
RTA-1	494	485	4	2	0	0	2	1
RTA-2	649	583	28	0	0	0	12	26
RTA-3	366	358	3	2	0	0	0	3
RTA-4	252	224	20	4	0	0	1	3
Bank 1	1761	1650	55	8	0	0	15	33
River Front Substation								
RVF-1	561	523	27	3	4		0	4
RVF-2	3	0	1	2	0	0	0	0
RVF-3	791	667	74	8	0	0	1	41
Bank 1	1355	1190	102	13	4	0	1	45
Sunset Road Substation								
SSR-1	518	415	42	11	0	0	2	48
SSR-2	583	518	43	5	0	0	1	16
SSR-3	135	109	5	5	1	0	9	6
SSR-4	189	121	31	5	2	0	3	27
Bank 1	1425	1163	121	26	3	0	15	97
Southridge Substation								
STH-1	473	438	26	4	3	0	0	2
STH-2	226	150	73	3	0	0	0	0
STH-3	54	30	23	1	0	0	0	0
STH-4	32	31	1	0	0	0	0	0
Bank 1	785	649	123	8	3	0	0	2

Table D2 Rate Schedule Count by Feeder as of June 2024								
	Total	Schedule 11 Residential	Schedule 21 Small General	Schedule 22 Medium General	Schedule 23 Large General Non- TOU	Schedule 24 Large General TOU	Schedule 71 Small Irrigation	Schedule 72 Large Irrigation
Vista Substation								
VIS-1	137	0	119	17	1	0	0	0
VIS-2	672	551	114	7	0	0	0	0
VIS-3	348	317	27	4	0	0	0	0
VIS-4	549	440	86	22	1	0	0	0
Bank 1	1706	1308	346	50	2	0	0	0
VIS-5	1052	939	101	12	0	0	0	0
VIS-6	76		65	10	1	0	0	0
VIS-7	165	19	110	30	6	0	0	0
VIS-8	1133	1001	120	11	1	0	0	0
Bank 2	2426	1959	396	63	8	0	0	0
Zephyr Heights Substation								
ZEH-1	422	411	10	1	0	0	0	0
ZEH-2	988	964	19	3	0	0	0	2
ZEH-3	47	22	21	2	0	0	0	2
Bank 1	1457	1397	50	6	0	0	0	4

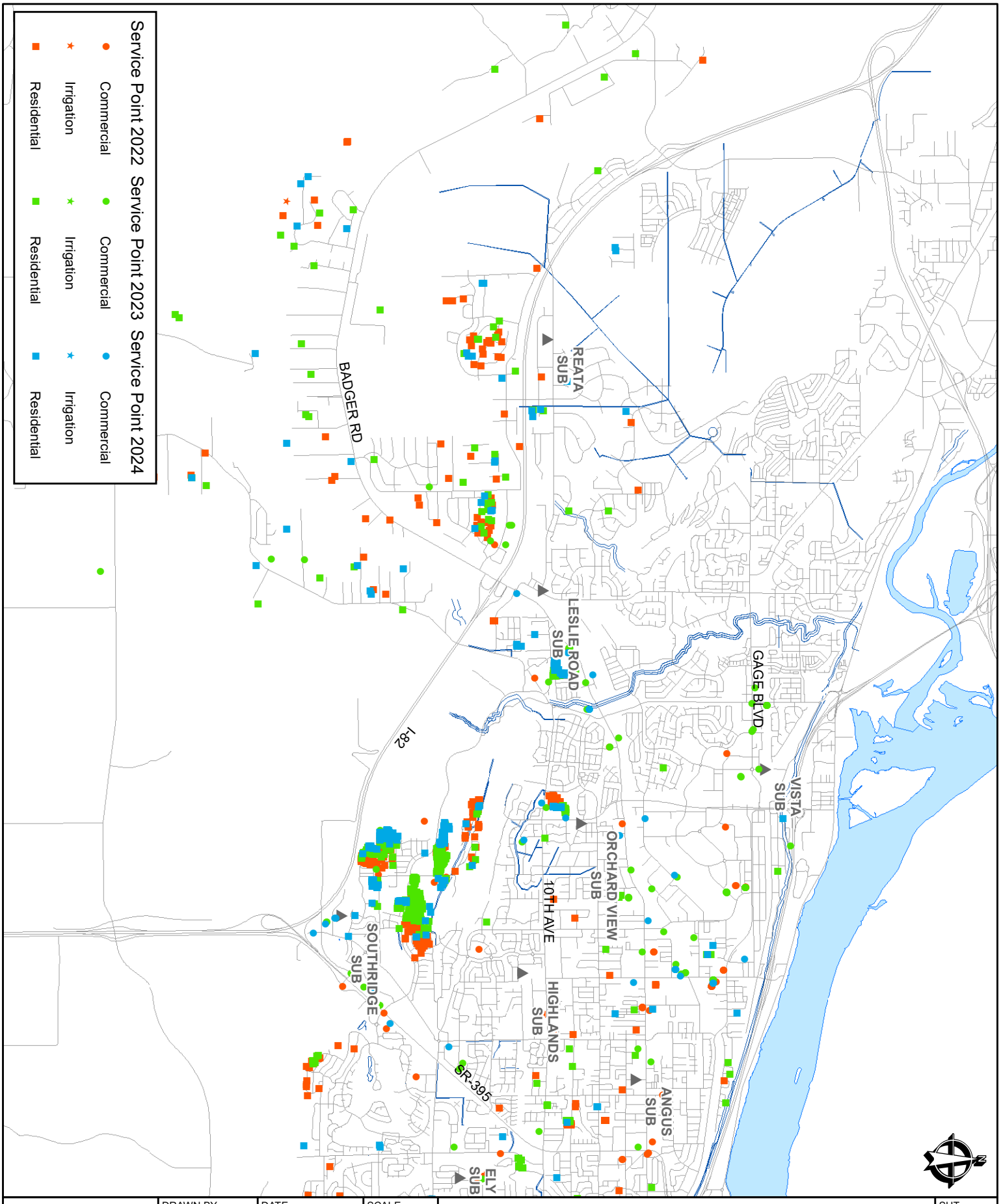


BENTON P·U·D	DRAWN BY: nielsenj	DATE: 6/18/2024	SCALE: N.T.S.
	MAP NO.: N/A		
	DRAWING NAME: Kenn Cust 2		

KENNEWICK EAST AREA
NEW CUSTOMERS

170

SHT. 1 of 1



BENTON P·U·D

DRAWN BY	DATE	SCALE
nielsenj	6/18/2024	N.T.S.

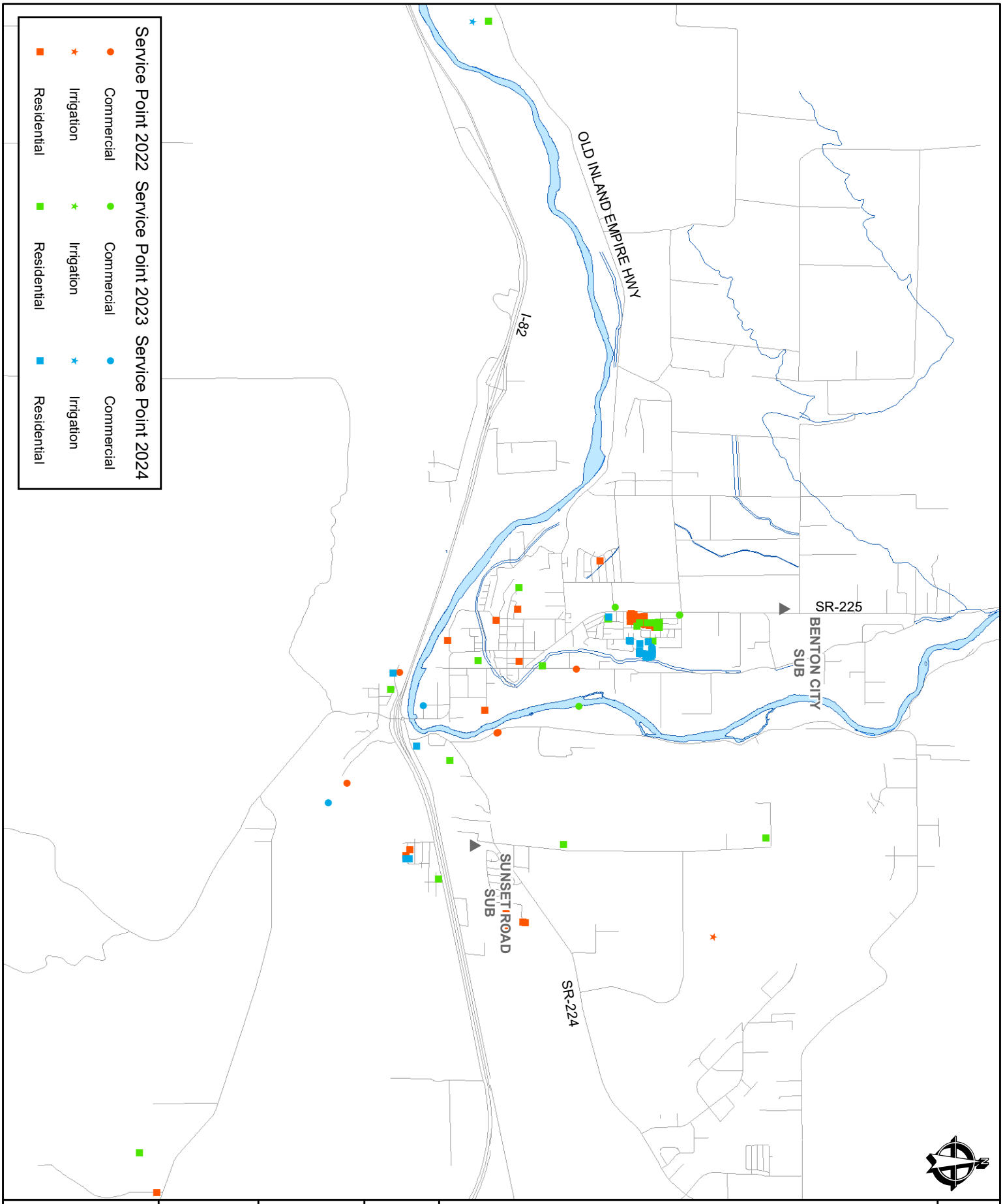
MAP NO.
N/A

DRAWING NAME
Kenn Cust 1

KENNEWICK WEST AREA NEW CUSTOMERS

171

SHT.
1 of 1

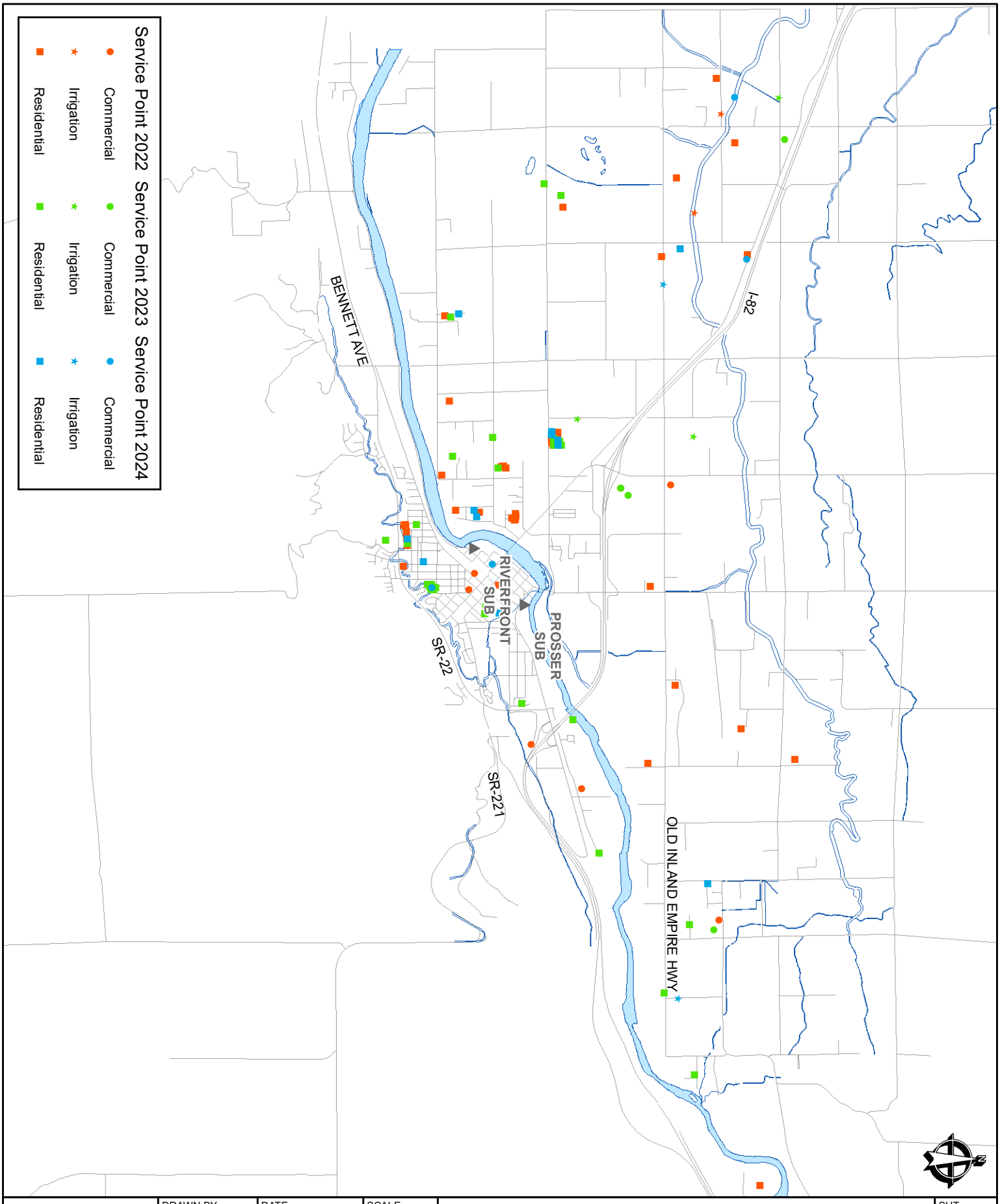


BENTON P·U·D	DRAWN BY: nielsenj	DATE: 6/18/2024	SCALE: N.T.S.
	MAP NO.: N/A		
	DRAWING NAME: Benton City Cust		

BENTON CITY AREA NEW CUSTOMERS

172

SHT. 1 of 1



BENTON P·U·D

DRAWN BY	DATE	SCALE
nielsenj	6/18/2024	N.T.S.

MAP NO.
N/A

DRAWING NAME
Prosser Cust

PROSSER AREA NEW CUSTOMERS

173

SHT.
1 of 1

[This Page Intentionally Left blank}

[For Two Sided Printing]

Appendix E

Equipment & Conductor Ratings

[This Page Intentionally Left blank}

[For Two Sided Printing]

Summary of Equipment Ratings

Table #E1

Power Transformer/Regulator Loading Limits[1]	**Normal**	**Emergency**
Ambient - Winter @ 0°F (-18ºC)	136%	150%
Ambient - Summer @ 104°F (40°C)	90%	100%

	(Tapchanging Normal)		**(Tapchanging Blocked)**	
LTC / Regulators Loading Limits [2]	**Normal**	**Emergency**	**Normal**	**Emergency**
Ambient - Winter @ 0°F (-18ºC)	100%	120%	136%	150%
Ambient - Summer @ 104°F (40°C)	90%	100%	90%	100%

			Amibient Temperatures	
Substation Bus Temperature Limits	**Normal**	**Emergency**	**Summer**	**Winter**
Al and Cu	70°C	90°C	40°C	-10°C

	Conductor Temperature		**Ambient Temperatures**		
OH Conductor Temperature Limits	**Normal**	**Emergency**	**Summer**	**Winter**	**Ext. Winter**
AAC & Cu	75°C	85°C	43°C	16°C	-15°C
ACSR	80°C	90°C	43°C	16°C	-10°C

	Conductor Temperature		**Earth Temperatures**	
UG Conductor Temperature Limits	**Normal**	**Emergency**	**Summer**	**Winter**
XLPE/TR-XLPE insulation	90°C	90°C	30°C	16°C
EPR insulation	90°C	90°C	30°C	16°C

	Summer		**Winter**	
Reclosers / Circuit Breakers	**Normal**	**Emergency**	**Normal**	**Emergency**
Reclosers	100%	100%	100%	100%
Breakers	100%	100%	100%	100%

	Summer		**Winter**	
Switches [3]	**Normal**	**Emergency**	**Normal**	**Emergency**
General Switch	100%	125%	150%	175%
S&C Alduti Rupters	1200 A	1820 A	1820 A	2425 A
S&C Disconnects - 600A	600 A	930 A	930 A	1180 A
Table #E6	900 A	1115 A	1115 A	1425 A
S&C Reg. Bypass Disc. - 1200A	1200 A	1820 A	1820 A	2425 A

115 kV Fuses (SMD-2B)	**Normal**	**Emergency**
Ambient - Summer @ 104°F (40°C)	Fuse Size	Cont.Rating
Ambient - Winter @ 61°F (16°C)	1.07 x Fuse size	1.07 x Cont.Rating
Ambient - Winter @ 0°F (-18ºC)	1.24 x Fuse size	1.24 x Cont.Rating

Typical Ambient Temperatures	**Farenheit**	**Celsuis**
Summer	110°F	43°C
Summer	104°F	40°C
Summer	86°F	30°C
Winter	61°F	16°C
Winter Extreme	14°F	-10°C
Winter Extreme	5°F	-15°C
Winter Extreme	0°F	-18°C

Notes

(1) - Recommended loading per PSE study.

(2) - Proposed guideline for limiting tap-changing of LTC's and Regulators.

(3) - Switch ratings are current carrying capacity only.

Table #E2

OVERHEAD CONDUCTOR

OH Conductor	Ambient Temp.	Norm. 75°C	Norm. 80°C	Emer. 85°C	Emer. 90°C
500 Cu	43°C 109°F	640		750	
336 AAC		400		465	
336 ACSR			450		510
266.8 ACSR			390		440
4/0 ACSR			305		350
3/0 ACSR			270		300
500 Cu	16°C 61°F	970		1040	
336 AAC		600		640	
336 ACSR			645		685
266.8 ACSR			555		590
4/0 ACSR			440		465
3/0 ACSR			380		400
500 Cu	-10°C 14°F	1158		1223	
336 AAC		720		760	
336 ACSR			760		790
266.8 ACSR			643		679
4/0 ACSR			513		541
3/0 ACSR			445		470

Ampacity Values from Benton PUD Standard ED-060 for 43^{0}C and 16^{0}C
Assumes Wind Velocity 2 Ft.Per Sec, crosswise to conductors

Table #E3

UNDERGROUND CONDUCTOR - IN CONDUIT

		Summer		Winter		Per Okonite*		
UG Conductor	Earth Temp.	Norm.	Emer.	Norm.	Emer.	Norm. 90°C	Norm. 105°C	Emer. 130°C
1000 A		400	500	500	500			
Table #E6		400	445	445	445			
1000 A	30^{0}C					488	530	593
750 A						425	461	516
4/0 A						214		
1/0 A						146		
#2 A						112		
1000 A	16^{0}C					541	577	630
750 A						471	502	548
4/0 A						237		
1/0 A						162		
#2 A						120		

* - Based on 100% LF, 3 Conductors in 1 Conduit, No derating for other conduits in close proximity

Table #E4

UNDERGROUND CONDUCTOR - DIRECT BURIED

UG Conductor	Earth Temp.	Per Okonite* Norm. 90°C	Norm. 105°C
1000 kcmil	30°C	740***	795***
4/0 AWG		315**	340**
1/0 AWG		215**	230**
#2 AWG		150	155

* - Based on 100% LF, 3 Single Conductors laid on 7-1/2" centers
** - Limited to 200A due to the elbows utilized.
*** Limited to 600A due to the elbows utilized.

Table #E5

COPPER BUS

Size of Tube	Ambient Temp.	Current Rating in Amperes @ Bus Temperatures 0°C	10°C	20°C	30°C	40°C	50°C	60°C	Norm. 70°C	80°C	Emer. 90°C	100°C
1"	-10°C	505	710	860	985	1090	1185	1280	1360	1420	1460	1490
1-1/4"		660	930	1130	1290	1430	1550	1660	1760	1830	1900	1940
1-1/2"		750	1050	1285	1460	1620	1760	1890	2000	2090	2170	2240
2"		925	1300	1585	1800	1980	2140	2240	2350	2430	2500	2580
1"	40°C	---	---	---	---	---	505	710	860	985	1090	1185
1-1/4"		---	---	---	---	---	660	930	1130	1290	1430	1550
1-1/2"		---	---	---	---	---	750	1050	1285	1460	1620	1760
2"		---	---	---	---	---	925	1300	1585	1800	1980	2140

100% I.A.C.S., Schedule 40

Table #E6

ALUMINUM BUS

Size of Tube	Ambient Temp.	Current Rating in Amperes @ Bus Temperatures 0°C	10°C	20°C	30°C	40°C	50°C	60°C	Norm. 70°C	80°C	Emer. 90°C	100°C
1"	-10°C	394	554	671	768	850	924	990	1040	1090	1120	1150
1-1/2"		585	819	1002	1139	1264	1373	1470	1560	1640	1690	1730
2"		722	1014	1236	1404	1560	1716	1850	1980	2080	2170	2240
3"		1160	1640	1995	2260	2540	2770	2970	3140	3280	3400	3500
1"	40°C	---	---	---	---	---	394	554	671	768	850	924
1-1/2"		---	---	---	---	---	585	819	1002	1139	1264	1373
2"		---	---	---	---	---	722	1014	1236	1404	1560	1716
3"		---	---	---	---	---	1160	1640	1995	2260	2540	2770

57% I.A.C.S., 6063-T6, Schedule 40

Ampacity values from Benton PUD Standard ED-060
Assumes partially sheltered locations, Wind Velocity 2 Ft.Per Sec, crosswise to conductors

Table #E7

Fuse Ratings

Fuse Type	Summer Normal (40°C)	Summer Emer. (40°C)	Winter Normal (16°C)	Winter Emer. (16°C)	Winter Normal (-10°C)	Winter Emer. (-10°C)
115 kV Fuses (SMD-2B)						
150E	150	207	161	221	186	257
125E	125	181	134	194	155	224
100E	100	165	107	177	124	205
80E	80	132	86	141	99	164

[This Page Intentionally Left blank}

[For Two Sided Printing]

Appendix F

Substation and Feeder Capability Sheets

[This Page Intentionally Left blank}

[For Two Sided Printing]

Substation and Feeder Capability Sheets

Substation : ANGUS					
Bay No: #1 (Middle Bay)					
		Winter		Summer	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #40 (BPA Bk #1)	**12/16/20 MVA @55° (1037A)**	1410	1555	**933**	**1037**
	13.44/17.92/22.4 MVA @65°				
Regulator - DN #47 A17V (Siemens SFR)	**2000/2667 kVA (1235A)**	**1235**	**1482**	1111	1235
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher, BC720	1200 amp (S&C 2030)	11066	11066	11066	11066
12 kV					
Bus - Xfmr to Reg	1-1/4" Cu	1760	1900	1130	1430
Bus/OH - Reg to Dist. Bay	1272 ACSR (verify)	1516	1584	960	1104
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1920A	1536	1728	1536	1728
Regulator Bypass Switches	1200A	1800	2100	1200	1500
Bus Disconnect Switch	1200A	1800	2100	1200	1500
Bay Rating		**1235**	**1482**	**933**	**1037**
Feeders - A3B, A4B					
Circuit Recloser	G&W Viper-S (800A)	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
UG Feeder	1000 A EPRJ	530	530	530	530
OH Feeder	3/0 ACSR (win. ambient= -10°C)	445	470	270	300
OH Feeder	3/0 ACSR (win. ambient= 16°C)	**380**	**400**	**270**	**300**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**380**	**400**	**270**	**300**
Feeders - A5B					
Circuit Recloser	G&W Viper-S (800A)	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
UG Feeder	1000 A EPRJ	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 8/19/2024 by DAB					

Substation and Feeder Capability Sheets

Substation : ANGUS					
Bay No: #2 (North Bay)					
		Winter		Summer	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #41 (BPA Bk #2)	**12/16/20 MVA @55° (1037A)**	1410	1555	**933**	**1037**
	13.44/17.92/22.4 MVA @65°				
Regulator - DN #4 A18V (Siemens SFR)	**2000/2667 kVA (1235A)**	**1235**	**1482**	1111	1235
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher - BC0721	1200 Amp (S&C 2030)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Reg	1-1/4" Cu	1760	1900	1130	1430
Bus/OH - Reg to Dist. Bay	2 - 500 Cu (@ win amb. 16^{0}C)	1940	2080	1280	1500
Bus/OH - Reg to Dist. Bay	1192 AAC (verify)	1370	1430'	'865'	'980'
Phase Relay Setting (N=80%, E=90%)	Min Trip = 240A @ 115 kV	1770	1992	1770	1992
Regulator Bypass Switches	1200A	1800	2100	1200	1500
Bus Disconnect Switch	1200A	1800	2100	1200	1500
Bay Rating		**1235**	**1482**	**933**	**1037**
Feeders - A6R,A7R,A8R					
Circuit Recloser	G&W Viper-S (800A)	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - recommend disable tapchanging if exceed ratings					
Verify Bus conductor size and ratings (1192 AAC)					
Last Updated: 5/16/2022 by DAB					

Substation and Feeder Capability Sheets

Substation : ANGUS					
Bay No: #3 (South Bay)					
		Winter		Summer	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #39 (BPA Bk #3)	**12/16/20 MVA @55° (1037A)**	1410	1555	**933**	**1037**
	13.44/17.92/22.4 MVA @65°				
Regulator - DN #46, A16V (Siemens SFR)	**2000/2667 kVA (1235A)**	**1235**	**1482**	1111	1235
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 722	1200 Amp (S&C 2030)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Reg	1-1/4" Cu	1760	1900	1130	1430
Bus/OH - Reg to Dist. Bay	1272 ACSR (verify)	1516	1584	960	1104
Phase Relay Setting (N=80%, E=90%)	Min Trip = 200A @ 115 kV	1475	1660	1475	1660
Regulator Bypass Switches	1200A	1800	2100	1200	1500
Bus Disconnect Switch	1200A	1800	2100	1200	1500
Bay Rating		**1235**	**1482**	**933**	**1037**
Feeders - A9B					
Circuit Recloser	G&W Viper-S (800A)	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
UG Feeder	1000 A XLP	530	530	530	530
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - A1B,A2B					
Circuit Recloser	G&W Viper-S (800A)	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**576**	**640**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 8/19/2024 by DAB					

Substation and Feeder Capability Sheets

Substation : BENTON CITY					
Bay No: 1					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer with LTC - DN #67	15/20/25 MVA @55 deg (1296A)	1763	1944	1167	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Reinhausen RMV-II-1500		1500	1800	1350	1500
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 1403	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	**1-1/4" Cu (1130A @ 30^{0}C rise)**	1760	1900	**1130**	1430
Switch	2000A (ABB)	2000	2000	2000	2000
Main Bus - Metalclad	States Manufacturing - 2000A	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 1795A**	**1436**	**1615.5**	1436	1616
Bay Rating		**1436**	**1616**	**1130**	**1296**
Feeders - B1B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - B2B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - B3B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - B4B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Note: B3B and B4B are risers built up on the get-away pole, but do not have any overhead distribution yet.					
Last Updated: 1/23/2020 by DAB					

Substation and Feeder Capability Sheets

Substation : Cold Creek					
Bay No: #1					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN #26	**8.4/10.5 @65° (486A)**	661	729	438	486
Manufacture: HK Porter	7.5/9.375 MVA @55° (434A)				
Conenction type: D-Y	115/12.47kV				
Regulator - C16V (DN #166,67,168)	**750 kVA Regulation**	**367**	**440**	**330**	**367**
115 kV (rated by eqiuvalent 12.47kV Amps)					
Switch, B923	Switch (600A)	8300	9683	5533	6917
Switch, B925	Switch (600A)	8300	9683	5533	6917
Bus **(1995A Per Phase)**	3" IPS AL	25537	27597	18398	20790
Bus **(1236A Per Phase)**	2" IPS AL	15821	17098	11399	12880
Fuse, 65E	S&C SM-2B, 65E (65A)	641	1056	599	987
12.47kV					
Bus - Xfmr to Reg by-pass switches	2" IPS AL	1716	1854	1236	1397
Reg by-pass switches	S&C 1200A	1200	1200	1200	1200
Bus - Reg by-pass switches to main	1" IPS AL	1066	1152	768	868
Bus - Main	1" IPS AL	1066	1152	768	868
Bay Rating		**367**	**440**	**330**	**367**
Notes:					
equivelant ratings obtained using:					
Rated current * 115kV / 12.47kV					
Feeder - C1R					
Recloser	Cooper VSA-16	800	800	800	800
UG Getaway	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Feeder Rating		**530**	**530**	**400**	**465**

Substation and Feeder Capability Sheets

Substation : ELY					
Bay No: #1					
		Winter		Summer	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #30	15/20/25 MVA @65° (1157A)	1573	1736	**1041**	**1157**
LTC - Reinhausen RMV-II-1500	15/20/25 MVA @55°	**1296**	**1555**	1166	1296
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher - BC360	1200A (S&C 2010)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Swt.	1-1/4" Cu	1760	1900	'1130'	1430
Switch - S359A (HK Porter)	1200 Amp	1800	2100	1200	1500
Metal Clad Main Bus	1200 Amp (1/2" x 3" Cu)	1600	1800	1200	1400
Phase Relay Setting (N=80%, E=90%)	Min. Trip = 1805A	1444	1625	1444	1625
Bay Rating		**1296**	**1555**	**1041**	**1157**
Feeders - E1B, E2B, E4B					
Circuit Breaker	ABB AMVAC	1200	1200	1200	1200
UG Getaway (# ckt)	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - E3B					
Circuit Breaker	ABB AMVAC	1200	1200	1200	1200
UG Getaway (# ckt)	1000 EPRJ	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Notes:					
Ratings use KV=12.47					
LTC - recommend disable tapchanging if exceed ratings					
Last Updated: 5/16/2022 by DAB					

Substation and Feeder Capability Sheets

Substation : ELY					
Bay No: #2					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN #20	16.8/22.4/28 MVA @65° (1296A)	1763	1944	1166	1296
LTC - ASEA UZD	15/20/25 MVA @55°	**1296**	**1555**	**1166**	**1296**
115 kV (rated by egiuvalent 12 kV Amps)					
Circuit Switcher - BC 469	1200A (S&C 2010)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Swt.	1-1/4" Cu	1760	1900	'1130'	1430
Switch - S390A (S&C)	1200 Amp - Type?	1800	2100	1200	1500
Metal Clad Main Bus	2000 Amp Al	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1908 A	1526	1717	1526	1717
Bay Rating		**1296**	**1555**	**1166**	**1296**
Feeders - E5B, E6B,					
Circuit Breaker	FSV 1200A	1200	1200	1200	1200
UG Getaway (# ckt)	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720 A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - E7B					
Circuit Breaker	FSV 1200A	1200	1200	1200	1200
UG Getaway (# ckt)	1000 EPRJ	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720 A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - E8B					
Circuit Breaker	FSV 1200A	1200	1200	1200	1200
UG Getaway (# ckt)	1000 EPRJ	**530**	**530**	**530**	**530**
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting ( )	Min Trip = 720 A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
LTC - recommend disable tapchanging if exceed ratings					
Last Updated: 4/8/2022 by DAB					

Substation and Feeder Capability Sheets

Substation : GUM STREET					
Bay No:					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN # 55	16.8/22.4/28 MVA @65° (1296A)	1762	1944	1166	1296
	15/20/25 MVA @55°				
LTC - Reinhausen RMV-II-1500-15	**1500 Amp**	**1296**	**1500**	**1166**	**1296**
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 129	1200A (S&C 2010)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Switch/Metalclad	1-1/4" Cu	1760	1900	'1130'	1430
Bus Switch	1200A	1800	2100	1200	1500
Main Bus - Metalclad	2000A	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1840 A	1472	1656	1472	1656
Bay Rating		**1296**	**1500**	**1166**	**1296**
Feeders - G1,G2,G3,G4					
Circuit Breaker	FSV-500	1200	1200	1200	1200
UG Getaway (1 ckt)	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720 A	576	648	576	648
Aux Bus Tie Switch	600 Amp	600	600	600	600
Aux Bus - cable tie	1000 A XLP	530	530	530	530
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
LTC - Maximum rating by Reinhausen = 1500A					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 5/4/2021 by MDC					

Substation and Feeder Capability Sheets

Substation : HEDGES					
Bay No: 1					
		Winter		Summer	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #43	12/16/20 MVA @55° (926A)	1259	1389	833	926
Regulator - DN #10 H16V (Siemens SFR -1983)	2000/2667 kVA (1235A)	1235	1482	1112	1235
115 kV (rated by egiuvalent 12 kV Amps)					
Fuse - 125E SMD-2D, (std speed 153-1)		1430	2065	1152	1668
12 kV					
Bus - Xfmr to OCB	1" Cu	1360	1460	860	1090
OCB - Disconnects	1200 Amp (verify)	1800	2100	1200	1800
OCB - S708B	ABB R-MAG (1200A)	'1200'	'1200'	1200	1200
Bus - old BPA to Regulator	2 - 500 Cu (@ win amb. 16^{0}C)	1940	2080	1280	1500
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1600 A	1280	1440	1280	1440
Bus - Regulator to Main Bus	1-1/4" Cu	1760	1900	1130	1430
Bay Rating		1235	1389	833	926
Feeder - H1B					
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600A	930	1180	600	930
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		600	640	400	465
Feeder - H2B					
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600A	930	1180	600	930
OH Feeder	266.8 ACSR (Win @16^{0}C)	515	550	345	400
OH Feeder	266.8 ACSR (Win @-10^{0}C)	643	679	345	400
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		515	550	345	400
Feeders - H3B,H4B					
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600A	930	1180	600	930
OH Feeder	3/0 ACSR (Win @16^{0}C)	380	400	270	300
OH Feeder	3/0 ACSR (Win @-10^{0}C)	445	470	270	300
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		380	400	270	300
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - Maximum rating by Siemens = 1300A					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 8/19/2024 by DAB					

Substation and Feeder Capability Sheets

Substation : HIGHLANDS					
Bay No: #1					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #36	**12/16/20 MVA @55 deg (927A)**	1261	**1372**	**834**	**927**
Regulator - H17V	**2000/2667 KVA**	**1235**	1482	1112	1235
115 kV (rated in egiuvalent 12 kV Amps)					
Circuit Switcher BC728	S&C 2030 (1200 Amp)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Reg	1-1/4" Cu (1130A @ 30^{0}C rise)	1760	1900	1130	1430
Reg by-pass switches	1200A (S&C)	1800	2100	1200	1500
Bus - Reg to Metalclad	1192 AAC	1430	1430	980	980
Metal Clad Main Bus	1200A	1600	1800	1200	1400
Bay Rating		**1235**	**1372**	**834**	**927**
Feeders - HI1B					
Circuit Breaker	1200A (G.E.)	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - HI2B					
Circuit Breaker	1200A (G.E.)	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - HI3B					
Circuit Breaker	1200A (G.E.)	1200	1200	1200	1200
UG Feeder	1000 EPRJ	**530**	**530**	**530**	**530**
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 1/17/2018 by DAB					

Substation and Feeder Capability Sheets

Substation : HIGHLANDS					
Bay No: #2					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #37	**12/16/20 MVA @55 deg (927A)**	1261	**1372**	**834**	**927**
Regulator - H18V	**2000/2667 KVA**	**1235**	1482	1112	1235
115 kV (rated in eqiuvalent 12 kV Amps)					
Fuse 125E, SMD-2B		1430	2070	1152	1670
12 kV					
Bus - Xfmr to Reg	1-1/4" Cu (1130A @ 30°C rise)	1760	1900	1130	1430
Reg by-pass switches	1200A (S&C)	1800	2100	1200	1500
Bus - Reg to Metalclad	1192 AAC	1430	1430	980	980
Metal Clad Main Bus	2000	1600	1800	1200	1400
Bay Rating		**1235**	**1372**	**834**	**927**
Feeders - HI4B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 KCM EPR	**530**	**530**	**530**	**530**
OH Feeder	3/0 ACSR (win. ambient= -10°C)	445	470	270	300
OH Feeder	3/0 ACSR (win. ambient= 16°C)	380	400	270	300
Phase Relay Setting (N=80%, E=90%)	720A = min trip	546	648	576	648
Feeder Rating		**380**	**400**	**270**	**300**
Feeders - HI5B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 EPRJ	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	720A = min trip	546	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - HI6B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 EPRJ	**530**	**530**	**530**	**530**
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	546	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 8/11/2014 by ECE					

Substation and Feeder Capability Sheets

Substation : HIGHLANDS					
Bay No: #3					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #38	**15/20/25 MVA @65 deg (1155A)**	1571	1709	**1040**	**1155**
Regulator - H19V	**2000/2667 KVA Regulation**	**1235**	1482	1112	1235
115 kV (rated in egiuvalent 12 kV Amps)					
Circuit Switcher BC730	S&C 2030 (1200 Amp)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Reg	1-1/4" Cu (1130A @ 30^{0}C rise)	1760	1900	1130	1430
Reg By-pass Switches	1200A (S&C)	1800	2100	1200	1500
Bus - Reg by-pass Switches	**1" Cu (860A @ 30^{0}C rise - verify)**	1360	**1460**	'860'	'1090'
Bus - Reg to Metalclad	1292 AAC				
Metal Clad Main Bus	2000	2000	2000	2000	2000
Bay Rating		**1235**	**1460**	**1040**	**1155**
Feeders - HI7B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 KCM EPR	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - HI8B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - HI9B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	**530**	**530**
OH Feeder	556.5 ACSR (win. ambient= -10°C)	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 6/28/2018 by DAB					

Substation and Feeder Capability Sheets

Substation : KENNEWICK					
Bay No: #1					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN #56	15/20/25 MVA @65° (1157A)	1573	1736	1041	1155
Regulator - DN #62 K16V	**2000/2667 kVA (1235A)**	**1235**	1482	1111	1235
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher BC709	S&C 2030 (1200 Amp)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to OCB	**1" Cu**	1360	1460	**860**	**1090**
OCB - Disconnects	1200 Amp	1800	2100	1200	1800
Bus/UG - 3-1000 A XLP / phase	**S=3x376A, W=3x416A**	1248	**1248**	1128	1128
Bus @ Regulator	1-1/4" Cu	1760	1900	1130	1430
Bus - 12 kV Main	2" Al	1980	2170	1236	1560
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1920A	1536	1728	1536	1728
Bay Rating		**1235**	**1248**	**860**	**1090**
Feeders - K1R,K2R,K3R					
Bus	1"Al	1040	1120	671	850
Jumper to Recloser	500 Cu	970	1040	640	750
Circuit Recloser	VSA = 800A	800	800	800	800
Disconnect Swt	600A	930	1180	600	930
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 6/26/2012 by EAP					

Substation and Feeder Capability Sheets

Substation : KENNEWICK					
Bay No: #2					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN #33	16.8/22.4/28 MVA @65° (1296A)	1763	1944	1166	1296
	15/20/25 MVA @55° (1037A)				
Regulator - DN #63 K17V	**2000/2667 kVA (1235A)**	**1235**	1482	**1111**	1235
115 kV (rated by egiuvalent 12 kV Amps)					
Circuit Switcher - BC 711	1200 Amp (S&C 2030)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to OCB	1" Cu (verify)	1360	1460	'860'	'1090'
Bus - Xfmr to OCB	1-1/2" Al (verify)	1460	1560	'1002'	1264
OCB - S718B	1200 Amp	1200	1200	1200	1200
OCB - Disconnects	1200 Amp	1800	2100	1200	1800
Bus/UG - 3-1000 A XLP / phase	**S=3x376A, W=3x416A**	1248	**1248**	1128	**1128**
Bus @ Regulator	1-1/4" Cu	1760	1900	1130	1430
Bus - 12 kV Main	2" Al	1980	2170	1236	1560
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1920A	1536	1728	1536	1728
Bay Rating		**1200**	**1200**	**1111**	**1128**
Feeders - K4R,K5R,K6R					
Bus	1"Al	1040	1120	671	850
Jumper to Recloser	500 Cu	970	1040	640	750
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600 A	930	1180	600	930
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 6/26/2012 by EAP					

Substation and Feeder Capability Sheets

Substation : KENNEWICK					
Bay No: #3					
		Winter		Summer	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #35	**12/16/20 MVA @55°**	1410	1555	**933**	**1037**
	13.44/17.92/22.4 MVA @65°				
Regulator - DN #63 (K18V)	**2000/2667 kVA (1235A)**	**1235**	1482	1111	1235
115 kV (rated by eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 712	1200 Amp (S&C 2030)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to OCB	2"Al	1980	2170	1236	1560
Bus disconnect - S719A	1200A	1800	2100	1200	1800
Bus/UG - 3-1000 A XLP / phase	**S=3x376A, W=3x416A**	1248	**1248**	1128	1128
Bus @ Regulator	1-1/4" Cu	1760	1900	1130	1430
Bus - 12 kV Main	2" Al	1980	2170	1236	1560
Phase Relay Setting (N=80%, E=90%)	MT=204A @ 115 kV(1880A @ 12 kV)	1504	1692	1504	1692
Bay Rating		**1235**	**1248**	**933**	**1037**
Feeders - K7R					
Bus	1"Al	1040	1120	671	850
Jumper to Recloser	500 Cu	970	1040	640	750
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600 A	930	1180	600	930
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - K8R					
Bus	1"Al	1040	1120	671	850
Jumper to Recloser	500 Cu	970	1040	640	750
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600 A	930	1180	600	930
UG Feeder	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - K9R					
Bus	1"Al	1040	1120	671	850
Jumper to Recloser	500 Cu	970	1040	640	750
Circuit Breaker	VSA = 800A	800	800	800	800
Disconnect Swt	600 A	930	1180	600	930
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 6/26/2012 by EAP					

Substation and Feeder Capability Sheets

Substation : LESLIE ROAD					
Bay No: #1					
		Winter (Amps)		**Summer (Amps)**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer with LTC - DN #64	15/20/25 MVA @55 deg (1296A)	1763	1944	**1167**	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Reinhausen RMV-II-1500		**1500**	**1800**	1350	1500
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 1374	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	**3" AL (2260A @ 30^{0}C rise)**	3140	3400	1995	2540
Switch	2000A (ABB)	2000	2000	2000	2000
Main Bus - Metalclad	AZZ - 2000A	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 2160A**	1728	1944	1728	1944
Bay Rating		**1500**	**1800**	**1167**	**1296**
Feeders - L1B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - L2B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - L3B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - L4B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 1/23/2020 by DAB					

Substation and Feeder Capability Sheets

Substation : ORCHARD VIEW					
Bay No: #1					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer with LTC - DN #32	15/20/25 MVA @55 deg (1296A)	1763	1918	1166	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Waukesha UZD		**1296**	**1555**	1166	1296
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 687	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	**1-1/4" Cu (1130A @ 30^{0}C rise)**	1760	1900	**1130**	1430
Switch	2000A (ABB)	2000	2000	2000	2000
Main Bus - Metalclad	Pederson - 2000A	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 2052A**	1642	1847	1642	1847
Bay Rating		**1296**	**1555**	**1130**	**1296**
Feeders - O1B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - O2B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	**530**	**530**
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - O3B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - O4B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
OH Feeder	556.5 AAC	840	890	540	640
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Note: As part of bay 2 build out and feeder rerouting, O1B 1000 kcmil get-away taken to vault and landed on DBC's with 600A elbows, but does not have distribution yet.					
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 9/5/2018 by DAB					

Substation and Feeder Capability Sheets

Substation : ORCHARD VIEW					
Bay No: #2					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer with LTC - DN #65	15/20/25 MVA @55 deg (1296A)	1763	1944	1167	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Reinhausen RMV-II-1500		1500	1800	1350	1500
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 1403	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	**1-1/4" Cu (1130A @ 30^{0}C rise)**	1760	1900	**1130**	1430
Switch	2000A (ABB)	2000	2000	2000	2000
Main Bus - Metalclad	AZZ - 2000A	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 1735A**	**1388**	**1562**	1388	1562
Bay Rating		**1388**	**1562**	**1130**	**1296**
Feeders - O5B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - O6B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A XLP	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - O7B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - O8B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Note: As part of bay 2 build out and feeder rerouting, O7B & O8B 1000 kcmil get-aways taken to vault and landed on DBC's with 600A elbows, but do not have distribution yet.					
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 1/23/2020 by DAB					

Substation and Feeder Capability Sheets

Substation : Phillips					
Bay No: #4					
		Winter (Amps)		**Summer (Amps)**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer with LTC - DN #60	15/20/25 MVA @55 deg (1296A)	1763	1918	**1166**	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Reinhousen		1296	1555	1166	1296
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 817	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus	**3" Al**	3140	3400	1995	2540
Switch	2000A (Pascor)	2000	2000	2000	2000
Transfer Bus	**2" Al**	1980	2170	1236	1560
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 1632A**	**1306**	**1469**	1306	1469
Bay Rating		**1296**	**1469**	**1166**	**1296**
Feeders - P6R					
Circuit Breaker	G&W Viper Recloser	800	800	800	800
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - P7R					
Circuit Breaker	G&W Viper Recloser	800	800	800	800
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - P8R					
Circuit Breaker	G&W Viper Recloser	800	800	800	800
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 5/16/2022 by DAB					

Substation and Feeder Capability Sheets

Substation : PROSSER					
Bay No: #1					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #47	**12/16 MVA @55 deg (741A)**	**1008**	**1097**	**667**	**741**
	(12/16/20, but pumps not installed)				
Regulator - P16V (DN #71)	**(2000/2667 kVA)**	1500	1800	1350	1500
(Reinhausen RMV-II-1500)					
115 kV (rated in eqiuvalent 12 kV Amps)					
Fuse 125E, SMD-2B		1430	2070	1152	1670
12 kV					
Bus - Xfmr to Reg	1192 AAC	1430	1430	980	980
Reg by-pass switches	1200A (S&C)	1800	2100	1200	1500
Bus - Reg by-pass Switches	1" Cu (860A @ 30^0C rise)	1360	1460	860	1090
Bus - Reg to Main Bus	2" Alum	1716	1872	1236	1404
Bus - Main	2" Alum	1716	1872	1236	1404
Bus - Disconnect Switches	1200A (S&C)	1800	2100	1200	1500
Bay Rating		**1008**	**1097**	**667**	**741**
Feeders - P1B & P2B					
Circuit Breaker	560A VSML Recloser	560	560	560	560
UG Feeder	1000 XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - P3B					
Circuit Breaker	560A VSML Recloser	560	560	560	560
UG Feeder	1000 XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC (3/0 ACSR)	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 8/19/2024 by DAB					

Substation and Feeder Capability Sheets

Substation : PROSSER					
Bay No: #2					
		Winter (Amps)		**Summer (Amps)**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN #48	**12/16/20 MVA @55 deg (927A)**	1261	1372	**834**	**927**
Regulator - P17V (DN #29)	**1500/2000 KVA Regulation**	**962**	**1154**	866	962
115 kV (rated in egiuvalent 12 kV Amps)					
Fuse 125E, SMD-2B		1430	2070	1152	1670
12 kV					
Bus - Xfmr to Reg	1192 AAC	1430	1430	980	980
Reg by-pass switches	1200A (S&C)	1800	2100	1200	1500
Bus - Reg by-pass Switches	1" Cu (860A @ 30^0C rise)	1360	1460	860	1090
Bus - Reg to Main Bus	2" Alum	1716	1872	1236	1404
Bus - Main	2" Alum	1716	1872	1236	1404
Bus - Disconnect Switches	1200A (S&C)	1800	2100	1200	1500
Bay Rating		**962**	**1154**	**834**	**927**
Feeders - P4B & P5B					
Circuit Breaker	560A VSML Recloser	560	560	560	560
UG Feeder	1000 XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - P6B					
Circuit Breaker	560A VSA Recloser	560	560	560	560
UG Feeder	1000 XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC (3/0 ACSR)	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 6/26/2012 by EAP					

Substation and Feeder Capability Sheets

Substation : REATA					
Bay No: #1					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer - DN #42	**15/20/25 MVA @65 deg (1155A)**	1571	1709	**1040**	**1155**
Regulator - R16V (VTC w/ Reinhausen)	**2000/2667 KVA (1235A)**	**1235**	**1482**	1112	1235
115 kV (rated by egiuvalent 12 kV Amps)					
Switch - BC 739	Side Break - 600A	5533	5533	5533	5533
Bus	2" & 3" NPS Alum	15825	15825	11398	11398
Circuit Switcher - BC 739	S&C Model 2030 -1200A	11066	11066	11066	11066
12 kV					
Bus - Xfmr to Reg	2" NPS Alum	1716	1872	1236	1404
Reg by-pass switches	1200A	1800	2100	1200	1500
Bus @ Reg	1-1/4" CU	1760	1900	1130	1430
Bus - Reg to Dist. Bay)	3" NPS Alum	2770	3000	1995	2260
Bus - Main	2" Al	1716	1872	1236	1404
Phase Relay Setting (N=80%, E=90%)	SEL-787W2 pickup = 2316A	1851	2084	1851	2084
Bay Rating		**1235**	**1482**	**1040**	**1155**
Feeders - R1R					
Circuit Recloser	G&W Viper-S	800	800	800	800
Disconnect Switch	600A	900	1050	600	750
UG Feeder	1000 XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - R2R					
Circuit Recloser	Cooper VSA 16	800	800	800	800
Disconnect Switch	600A	900	1050	600	750
UG Feeder	1000 XLP	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - R3R					
Circuit Recloser	G&W Viper-S	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
UG Feeder	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - R4R					
Circuit Recloser	Cooper VSA 16	800	800	800	800
Disconnect Swt	600A	900	1050	600	750
UG Feeder	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	800A = min trip	640	720	640	720
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 5/22/2014 by MDC					

Substation and Feeder Capability Sheets

Substation : RIVERFRONT					
Bay No: #1					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer with LTC - DN #19	**15/20/25 MVA @55 deg (1296A)**	**1296**	1918	1166	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Allis Chambers TLH-21		1500	**1800**	1350	1500
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 586	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	**1-1/4" Cu (1130A @ 30^0C rise)**	1760	1900	**1130**	1430
Switch	2000A (ABB)	2000	2000	2000	2000
Main Bus - Metalclad	2000A (Pederson)	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	Min Trip = 251 @115kv (2315A)	1852	2084	1852	2084
Bay Rating		**1296**	**1800**	**1130**	**1296**
Feeders - RF1B & RF2B					
Circuit Breaker	1200A (Siemens)	1200	1200	1200	1200
UG Feeder	1000 XLP	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - RF3B					
Circuit Breaker	1200A (Siemens)	1200	1200	1200	1200
UG Feeder	1000 EPRJ	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 2/18/2020 by DAB					

Substation and Feeder Capability Sheets

Substation : SOUTHRIDGE					
Bay No: 1					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer with LTC - DN #68	15/20/25 MVA @55 deg (1296A)	1763	1944	1167	**1296**
	16.8/22.4/28 MVA @65°				
LTC - Reinhausen RMV-II-1500		**1500**	**1800**	1350	1500
115 kV (rated by egiuvalent 12 kV Amps)					
Circuit Switcher - BC 1403	1200A (S&C Model 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	**1-1/4" Cu (1130A @ 30°C rise)**	1760	1900	**1130**	1430
Switch	2000A (ABB)	2000	2000	2000	2000
Main Bus - Metalclad	States Manufacturing - 2000A	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 2316**	1853	2084	1853	2084
Bay Rating		**1500**	**1800**	**1130**	**1296**
Feeders - S1B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - S2B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	**530**	**530**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**530**	**530**
Feeders - S3B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - S4B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 A EPR-J	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720A	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Last Updated: 3/17/2020 by DAB					

Substation and Feeder Capability Sheets

Substation : SUNSET ROAD					
Bay No: 1					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN #51	16.8/22.4/28 MVA @65° (1296A)	1762	1944	1166	1296
	15/20/25 MVA @55°				
Regulator - DN #123 S16V (Siemens SFR)	**2000/2667 KVA (1235 A)**	**1235**	1482	**1112**	**1235**
115 kV (rated by egiuvalent 12 kV Amps)					
Switch - BC 805	600 Amp	5532	5532	5532	5532
Circuit Switcher - BC 806	1200 Amp (S&C 2010)	11064	11064	11064	11064
12 kV					
Bus - Xfmr to Regulator	3" Al tube	3140	3400	1995	2540
Regulator Switch - S&C	1200A	1820	2425	1200	1820
Bus - Reg. To Switch	1-1/4" Cu	1760	1900	1130	1430
Main Bus	3" Al tube	3140	3400	1995	2540
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 1600 A**	1280	**1440**	1280	1440
Bay Rating		**1235**	**1440**	**1112**	**1235**
Feeders - SSR-1,SSR-4					
Bus	1-1/2" Al tube	1460	1560	1002	1264
Disconnect Switches	900 Amp	1115	1425	900	1115
Jumpers	500 Cu	1158	1223	640	750
Circuit Recloser	G&W Viper-S (800 A)	800	800	800	800
UG Getaway (1 ckt)	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 800 A	640	720	640	720
Aux Bus Tie Switch	900 Amp	1115	1425	900	1115
Feeder Rating		**530**	**530**	**400**	**465**
Feeders - SSR-2,SSR-3					
Bus	1-1/2" Al tube	1460	1560	1002	1264
Disconnect Switches	900 Amp	1115	1425	900	1115
Jumpers	500 Cu	1158	1223	640	750
Circuit Recloser	Cooper NOVA (800 A)	800	800	800	800
UG Getaway (1 ckt)	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 800 A	640	720	640	720
Aux Bus Tie Switch	900 Amp	1115	1425	900	1115
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Regulator - Maximum rating by Siemens = 1300A					
Regulator - recommend disable tapchanging if exceed ratings					
Phase Relay needs to be raised if projected loading approaches setting.					
Last Updated: 8/19/2024 by DAB					

Substation and Feeder Capability Sheets

Substation : VISTA					
Bay No: #1					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer with LTC - DN #9	**15/20/25 MVA @55 deg (1296A)**	1763	1918	1166	1296
	16.8/22.4/28 MVA @65°				
LTC - Reinhausen RMV-II-1500		**1296**	1555	**1166**	**1296**
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 192	1200A (S&C 2010)	11066	11066	11066	11066
12 kV					
Outdoor Bus - Xfmr to Metalclad	2" CU (1585A @ 30^{0}C rise)	2350	2500	1585	2000
Switch	1200A (S&C)	1800	2100	1200	1500
Metal Clad Main Bus	2000A (FPE)	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1680A	1344	**1512**	1344	1512
Bay Rating		**1296**	**1512**	**1166**	**1296**
Feeders - V1B, V3B & V4B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	750 AA	**445**	**445**	445	**445**
OH Feeder	336.4 AAC	600	640	**400**	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**445**	**445**	**400**	**445**
Feeders - V2B					
Circuit Breaker	1200A (ABB)	1200	1200	1200	1200
UG Feeder	1000 EPRJ	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 8/19/2024 by DAB					

Substation and Feeder Capability Sheets

Substation : VISTA					
Bay No: #2					
		Winter (Amps)		Summer (Amps)	
Equipment	Size / Type	Normal	Emer.	Normal	Emer
Power Transformer with LTC - DN #61	15/20/25 MVA @55 deg (1296A)	1763	1918	1166	1296
LTC - Reinhausen RMV-II-1500	16.8/22.4/28 MVA @65°	1296	1555	1166	1296
115 kV (rated in eqiuvalent 12 kV Amps)					
Circuit Switcher - BC 127	1200A (S&C Mark V)	11066	11066	11066	11066
12 kV					
Outdoor Bus (transformer - metalclad)	1-1/4" Cu (1130A @ 30^{0}C rise)	1760	1900	1130	1430
Switch	1200A (S&C)	1800	2100	1200	1500
Metal Clad Main Bus	2000A (Phoenix)	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	Min Trip = 1740A	1392	1566	1392	1566
Bay Rating		1296	1555	1130	1296
Feeders - V5B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	1000 XLP	530	530	530	530
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		530	530	400	465
Feeders - V6B & V8B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	1000 EPRJ	530	530	530	530
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		530	530	400	465
Feeders - V7B					
Circuit Breaker	Siemens 1200A	1200	1200	1200	1200
UG Feeder	750 AA	445	445	445	445
OH Feeder	336.4 AAC	600	640	400	465
Phase Relay Setting (N=80%, E=90%)	720A = min trip	576	648	576	648
Feeder Rating		445	445	400	445
Notes:					
Ratings use KV=12.47 => 12.47*1.732=21.6					
Last Updated: 6/26/2012 by EAP					

Substation and Feeder Capability Sheets

Substation : ZEPHYR HEIGHTS					
Bay No: n/a					
		Winter		**Summer**	
Equipment	**Size / Type**	**Normal**	**Emer.**	**Normal**	**Emer**
Power Transformer - DN # 58	**16.8/22.4/28.0 MVA @65°**	1762	1944	1166	1296
	15/20/25 MVA @55°				
LTC - Reinhausen RMV-II-1500-15	**1500 Amp**	1296	1500	**1166**	**1296**
115 kV (rated by egiuvalent 12 kV Amps)					
Circuit Switcher - BC 986	1200A (S&C 2010)	11066	11066	11066	11066
12 kV					
Bus - Xfmr to Switch/Metaclad	3" Al	3140	3400	1995	2540
Bus Switch	2000 amp - Pascor TTR-8	2000	2000	2000	2000
Main Bus - Metalclad	2000 amp	2000	2000	2000	2000
Phase Relay Setting (N=80%, E=90%)	**Min Trip = 1600 A**	**1280**	**1440**	1280	1440
Bay Rating		**1280**	**1440**	**1166**	**1296**
Feeders - Z1,Z2,Z3					
Circuit Breaker	ABB-AMVAC (1200 amp)	1200	1200	1200	1200
UG Getaway (1 ckt)	1000 EPR 1/6N	**530**	**530**	530	530
OH Feeder	336.4 AAC	600	640	**400**	**465**
Phase Relay Setting (N=80%, E=90%)	Min Trip = 720 A	576	648	576	648
Aux Bus Tie Switch	1200 amp	1200	1200	1200	1200
Feeder Rating		**530**	**530**	**400**	**465**
Notes:					
LTC - Maximum rating by Reinhausen = 1500A					
Regulator - recommend disable tapchanging if exceed ratings					
Last Updated: 6/26/2012					