

Section III

Village of West Salem
User Charge System Schedules

Schedule 1
Village of West Salem
Equivalent Unit Determination

(Data reflects 2005 Accounts)

1. Total Equivalents

Meter Size	Number Of Users	User Charge Factor	Total Equivalents
Unmetered	0	1.0	0
5/8"	1,452	1.0	1,452
3/4"	12	1.0	12
1"	43	2.5	108
1-1/2"	19	5.0	95
2"	9	8.0	72
3"	4	15.0	60
4"	4	25.0	100
Northern Engraving	1	25.0	25
Total	1,544		1,924
Multi-Unit Housing Additional Units			<u>400</u>
			<u>2,324</u>

Notes: - User charge factor based on volume.
- Northern Engraving has 1-4" meter.

2. Meter Size by User Class

Meter Size	Residential	Commercial	Industrial	Public Authority	Total
Unmetered	0	0	0	0	0
5/8"	1,340	105	2	5	1,452
3/4"	4	8	0	0	12
1"	0	35	4	4	43
1-1/2"	0	11	3	5	19
2"	0	7	0	2	9
3"	0	1	0	3	4
4"	0	2	0	2	4
Multi-Unit Housing Addn. Units	400	0	0	0	400
Northern Engraving	0	0	1	0	1
Total	1,744	169	10	21	1,944

Notes: - Multi-Unit Housing Additional Units are proposed to be 5/8" meter size.
- Northern Engraving has 1-4" meter.

Schedule 2 Village of West Salem Fixed Charge Determination

1. Annual Fixed Costs

The Village of West Salem will be taking a Clean Water Fund Loan to finance construction of the wastewater treatment facility.

CWF Loan Amount	\$4,990,006
Existing Loan Amount	\$0
Interest Rate	<u>3.0%</u>
 CWF Annual Loan Payment	 \$335,407

*Note: - Existing loan amount shall be incorporated as part of the fixed charge calculations.
The Village of West Salem pays \$18,000 per year toward the existing loan amount.*

2. Fixed Charges per Meter Equivalent

Debt Coverage: 10% of the annual debt service payment must be allocated to a segregated account for debt coverage.

Debt Coverage	=	\$335,407	x	10%	
	=	\$33,541			
 Fixed Charge	=	<u>\$335,407</u>	+	<u>\$33,541</u>	+
				2,324	<u>\$18,000</u>
	=	\$166.50	per year per meter equivalent		
 Total:	=	\$41.63	per quarter per meter equivalent		
 Use:		\$45.00	per quarter per meter equivalent		

Meter Size	User Charge Factor	Quarterly Charge	Yearly Charge
Unmetered	1.0	\$45	\$180
5/8"	1.0	\$45	\$180
3/4"	1.0	\$45	\$180
1"	2.5	\$113	\$450
1-1/2"	5.0	\$225	\$900
2"	8.0	\$360	\$1,440
3"	15.0	\$675	\$2,700
4"	25.0	\$1,125	\$4,500
Northern Engraving	25.0	\$1,125	\$4,500

*Notes: - Multi-Unit Housing Additional Units are proposed to be 5/8" meter size.
- Northern Engraving has 1-4" meter.*

Schedule 3
Village of West Salem
Fixed Charge Revenues

(Data reflects 2005 Accounts)

1. Revenue Based on Meter Equivalent Fixed Charges

<u>Meter Size</u>	<u>Number Of Users</u>	<u>Quarterly Charge</u>	<u>Yearly Revenue</u>
Unmetered	0	\$0	\$0
5/8"	1,452	\$45	\$261,360
3/4"	12	\$45	\$2,160
1"	43	\$113	\$19,350
1-1/2"	19	\$225	\$17,100
2"	9	\$360	\$12,960
3"	4	\$675	\$10,800
4"	4	\$1,125	\$18,000
Multi-Unit Housing Addn. Units	400	\$45	\$72,000
Northern Engraving	1	\$1,125	\$4,500
Total	1,944		\$418,230

Notes: - Multi-Unit Housing Additional Units are proposed to be 5/8" meter size.
- Northern Engraving has 1-4" meter.

2. Projected Revenue

Yearly Revenue	\$418,230
Annual Payment	\$335,407
10% Debt Coverage	\$33,541
Existing Loan Payment	\$18,000
Total	\$31,282

Schedule 4
Village of West Salem
Annual Flow and Waste Load Summary

(Data reflects 2005 Accounts)

User Class	Number Of Users	Water Usage (gal/yr)	Pollutant Loadings		
			BOD (lbs/yr)	TSS (lbs/yr)	PHOS (lbs/yr)
Residential	1,744	77,765,000	145,926	145,926	3,243
Commercial	169	39,650,000	74,403	74,403	1,653
Industrial	10	12,093,000	22,693	22,693	504
Public Authority	21	27,158,000	50,962	50,962	1,132
Total	1,944	156,666,000	293,984	293,984	6,533

Schedule 5

Village of West Salem

Replacement Fund Budget

(Data reflects 2005 Accounts)

Replacement Fund Interest Rate = 6.0%

Date Installed	Equipment	Service Life (Years)	Installed Cost	Sinking Fund Annuity	Flow %	Flow Cost	BOD %	BOD Cost	TSS %	TSS Cost	PHOS %	PHOS Cost
1998	Bar Screen	15	\$50,000	\$2,148	100%	\$2,148	0%	\$0	0%	\$0	0%	\$0
1998	Grit Chamber/Dewatering	15	\$80,000	\$3,437	20%	\$687	10%	\$344	70%	\$2,406	0%	\$0
1998	Raw WW Pumps (4)	20	\$50,000	\$1,359	100%	\$1,359	0%	\$0	0%	\$0	0%	\$0
1998	Aeration Diffusers	20	\$15,000	\$408	0%	\$0	100%	\$408	0%	\$0	0%	\$0
1998*	Aeration Blowers	15	\$50,000	\$2,148	0%	\$0	100%	\$2,148	0%	\$0	0%	\$0
1998	Final Clarifiers	20	\$95,000	\$2,583	20%	\$517	40%	\$1,033	40%	\$1,033	0%	\$0
1992	UV System	20	\$40,000	\$1,087	100%	\$1,087	0%	\$0	0%	\$0	0%	\$0
1998	RAS Pumps (2)	20	\$25,000	\$680	100%	\$680	0%	\$0	0%	\$0	0%	\$0
1998	Scum Pumps	20	\$10,000	\$272	100%	\$272	0%	\$0	0%	\$0	0%	\$0
2004	Polymer Feed System	15	\$7,500	\$322	0%	\$0	0%	\$0	100%	\$322	0%	\$0
1998	FeCl3 Feed Pumps	15	\$12,500	\$537	0%	\$0	0%	\$0	0%	\$0	100%	\$537
1998	Sludge Tank Blower	20	\$10,000	\$272	0%	\$0	0%	\$0	100%	\$272	0%	\$0
1998	Raw Wetwell Mixer	20	\$10,000	\$272	100%	\$272	0%	\$0	0%	\$0	0%	\$0
1998	Belt Press Feed Pump	15	\$15,000	\$644	0%	\$0	0%	\$0	100%	\$644	0%	\$0
1998	Belt Filter Press	20	\$175,000	\$4,757	0%	\$0	0%	\$0	100%	\$4,757	0%	\$0
1998	Conveyors	20	\$40,000	\$1,087	0%	\$0	0%	\$0	100%	\$1,087	0%	\$0
1998	Lime Feed System	15	\$150,000	\$6,444	0%	\$0	0%	\$0	100%	\$6,444	0%	\$0
1998	Filtrate Pump	20	\$10,000	\$272	100%	\$272	0%	\$0	0%	\$0	0%	\$0
1998	Emergency Generator	20	\$30,000	\$816	30%	\$245	30%	\$245	30%	\$245	10%	\$82
1998	Samplers	10	\$9,000	\$683	10%	\$68	30%	\$205	30%	\$205	30%	\$205
1997	Waterloo Heights L.S.	20	\$42,000	\$1,142	100%	\$1,142	0%	\$0	0%	\$0	0%	\$0
2004	Lakeview Industrial L.S.	20	\$45,293	\$1,231	100%	\$1,231	0%	\$0	0%	\$0	0%	\$0
2006	Mark Street L.S.	20	\$58,000	\$1,577	100%	\$1,577	0%	\$0	0%	\$0	0%	\$0
1990	Portable Generator	20	\$20,000	\$544	100%	\$544	0%	\$0	0%	\$0	0%	\$0
1981	Sewer Jetter	20	\$45,000	\$1,223	100%	\$1,223	0%	\$0	0%	\$0	0%	\$0
1998	SCADA system	10	\$18,000	\$1,366	30%	\$410	30%	\$410	30%	\$410	10%	\$137
Total			\$1,112,293	\$37,311		\$13,734		\$4,792		\$17,825		\$960

* Replaced Blower #2 in 2005

Schedule 6
Village of West Salem
Operation and Maintenance Budget

(Data reflects 2006 Budget)

Category	Annual		Flow		BOD		TSS		PHOS	
	Cost	%	Cost	%	Cost	%	Cost	%	Cost	
<u>Administration</u>										
Labor	\$10,700	35%	\$3,745	30%	\$3,210	30%	\$3,210	5%	\$535	
Insurance	\$1,500	35%	\$525	30%	\$450	30%	\$450	5%	\$75	
Employee Pen/Ben	\$2,293	35%	\$803	30%	\$688	30%	\$688	5%	\$115	
Supplies	\$4,000	35%	\$1,400	30%	\$1,200	30%	\$1,200	5%	\$200	
Postage	\$1,500	35%	\$525	30%	\$450	30%	\$450	5%	\$75	
WDNR	\$3,500	35%	\$1,225	30%	\$1,050	30%	\$1,050	5%	\$175	
Meter Reading	\$1,100	35%	\$385	30%	\$330	30%	\$330	5%	\$55	
Miscellaneous	\$10,000	35%	\$3,500	30%	\$3,000	30%	\$3,000	5%	\$500	
Subtotal	\$34,593		\$12,108		\$10,378		\$10,378		\$1,730	
<u>Collection System</u>										
Labor	\$20,000	35%	\$7,000	30%	\$6,000	30%	\$6,000	5%	\$1,000	
Insurance	\$2,865	35%	\$1,003	30%	\$860	30%	\$860	5%	\$143	
Employee Pen/Ben	\$4,410	35%	\$1,544	30%	\$1,323	30%	\$1,323	5%	\$221	
Supplies	\$1,500	35%	\$525	30%	\$450	30%	\$450	5%	\$75	
Sewer Maintenance	\$6,000	35%	\$2,100	30%	\$1,800	30%	\$1,800	5%	\$300	
Vehicle Maintenance	\$1,500	35%	\$525	30%	\$450	30%	\$450	5%	\$75	
Electric	\$500	35%	\$175	30%	\$150	30%	\$150	5%	\$25	
Subtotal	\$36,775		\$12,872		\$11,033		\$11,033		\$1,839	
<u>WWTF</u>										
Labor	\$50,673	35%	\$17,736	30%	\$15,202	30%	\$15,202	5%	\$2,534	
Insurance	\$7,105	35%	\$2,487	30%	\$2,132	30%	\$2,132	5%	\$355	
Employee Pen/Ben	\$10,935	35%	\$3,827	30%	\$3,281	30%	\$3,281	5%	\$547	
Power/Fuel	\$30,000	35%	\$10,500	30%	\$9,000	30%	\$9,000	5%	\$1,500	
Telephone	\$500	35%	\$175	30%	\$150	30%	\$150	5%	\$25	
Training	\$1,750	35%	\$613	30%	\$525	30%	\$525	5%	\$88	
Supplies	\$10,000	35%	\$3,500	30%	\$3,000	30%	\$3,000	5%	\$500	
Chemicals	\$21,000	35%	\$7,350	30%	\$6,300	30%	\$6,300	5%	\$1,050	
Maintenance	\$25,000	35%	\$8,750	30%	\$7,500	30%	\$7,500	5%	\$1,250	
Engineering	\$1,000	35%	\$350	30%	\$300	30%	\$300	5%	\$50	
Laboratory	\$8,000	35%	\$2,800	30%	\$2,400	30%	\$2,400	5%	\$400	
Replacement Fund	\$37,311	35%	\$13,059	30%	\$11,193	30%	\$11,193	5%	\$1,866	
Miscellaneous	\$10,000	35%	\$3,500	30%	\$3,000	30%	\$3,000	5%	\$500	
Subtotal	\$213,274		\$74,647		\$63,983		\$63,983		\$10,665	
Total	\$284,642		\$99,627		\$85,394		\$85,394		\$14,234	

Schedule 7

Village of West Salem

Significant Contributors

1. Fixed Cost Allocation Based on Flow, BOD, TSS, PHOS

Assume Annual Fixed Cost = \$335,407 + \$33,541 + \$18,000
 = \$386,948

Flow %	35%
BOD %	30%
TSS %	30%
PHOS %	5%

Calculation

Flow Fixed Cost	=	\$135,432
BOD Fixed Cost	=	\$116,084
TSS Fixed Cost	=	\$116,084
PHOS Fixed Cost	=	\$19,347

Allocation

Total Flow	156,666,000 gal/yr
Total BOD	293,984 lb/yr
Total TSS	293,984 lb/yr
Total PHOS	6,533 lb/yr
Flow Cost	\$0.86 per 1,000 gal
BOD Cost	\$0.39 per lb BOB
TSS Cost	\$0.39 per lb TSS
PHOS Cost	\$2.96 per lb PHOS

Schedule 9
Village of West Salem
Operation and Maintenance Charges by User Class

User Class	Water Usage (1,000 gal)	Volume Charge	Surcharges			Total Charges
			BOD	TSS	NH3	
Residential	77,765,000	\$143,865	\$0	\$0	\$0	\$143,865
Commercial	39,650,000	\$73,353	\$0	\$0	\$0	\$73,353
Industrial	12,093,000	\$22,372	\$0	\$0	\$0	\$22,372
Public	27,158,000	\$50,242	\$0	\$0	\$0	\$50,242
Totals	156,666,000	\$289,832	\$0	\$0	\$0	\$289,832

Projected Revenue

Total Charges	\$289,832
Minus O&M Expense	<u>\$284,642</u>
Total	\$5,190

Unit Treatment Costs for Significant Contributors (Debt Retirement)

Flow	\$0.86	per 1,000 gallons
BOD	\$0.39	per lb
TSS	\$0.39	per lb
PHOS	\$2.96	per lb

Unit Rate for Wastewater of Significant Contributors

Flow									\$0.86
BOD	225	mg/l	x	\$0.39	x	0.00834	=		\$0.73
TSS	225	mg/l	x	\$0.39	x	0.00834	=		\$0.73
PHOS	5	mg/l	x	\$2.96	x	0.00834	=		\$0.12
								Total	\$2.45 per 1,000 gallons
								Use	\$2.45 per 1,000 gallons **

** Plus the unit treatment costs for flow, BOD, TSS and PHOS provided the concentration exceed 225 mg/l for BOD and TSS and 5 mg/l for PHOS.

**Schedule 8
Village of West Salem
Unit Treatment Costs**

Unit Treatment Costs (O, M & R)

Flow	\$0.64	per 1,000 gallons
BOD	\$0.29	per lb
TSS	\$0.29	per lb
PHOS	\$2.18	per lb

Unit Rate for Normal Strength Wastewater (O, M & R)

Flow								\$0.64
BOD	225	mg/l	x	\$0.29	x	0.00834	=	\$0.55
TSS	225	mg/l	x	\$0.29	x	0.00834	=	\$0.55
PHOS	5	mg/l	x	\$2.18	x	0.00834	=	\$0.09
							Total	\$1.83 per 1,000 gallons
							Use	\$1.85 per 1,000 gallons

Flat Rate for Unmetered Residential Users (O, M & R)

Average Residential Usage	=	11,148 gallon
Flat Rate Total	=	\$20.62 per quarter
Use	=	\$30.00 per quarter

Low Strength Waste Disposal Charges (O, M & R)

Flow	1,000	gal	x	\$0.64			=	\$0.64
BOD	500	mg/l	x	\$0.29	x	0.00834	=	\$1.21
TSS	1,300	mg/l	x	\$0.29	x	0.00834	=	\$3.15
							Total	\$5.00 per 1,000 gallons
							Use	\$5.00 per 1,000 gallons

Medium Strength Waste Disposal Charges (O, M & R)

Flow	1,000	gal	x	\$0.64			=	\$0.64
BOD	1,600	mg/l	x	\$0.29	x	0.00834	=	\$3.88
TSS	5,000	mg/l	x	\$0.29	x	0.00834	=	\$12.11
							Total	\$16.63 per 1,000 gallons
							Use	\$16.63 per 1,000 gallons

High Strength Disposal Charges (O, M & R)

Flow	1,000	gal	x	\$0.64			=	\$0.64
BOD	2,400	mg/l	x	\$0.29	x	0.00834	=	\$5.81
TSS	9,000	mg/l	x	\$0.29	x	0.00834	=	\$21.80
							Total	\$28.25 per 1,000 gallons
							Use	\$28.25 per 1,000 gallons