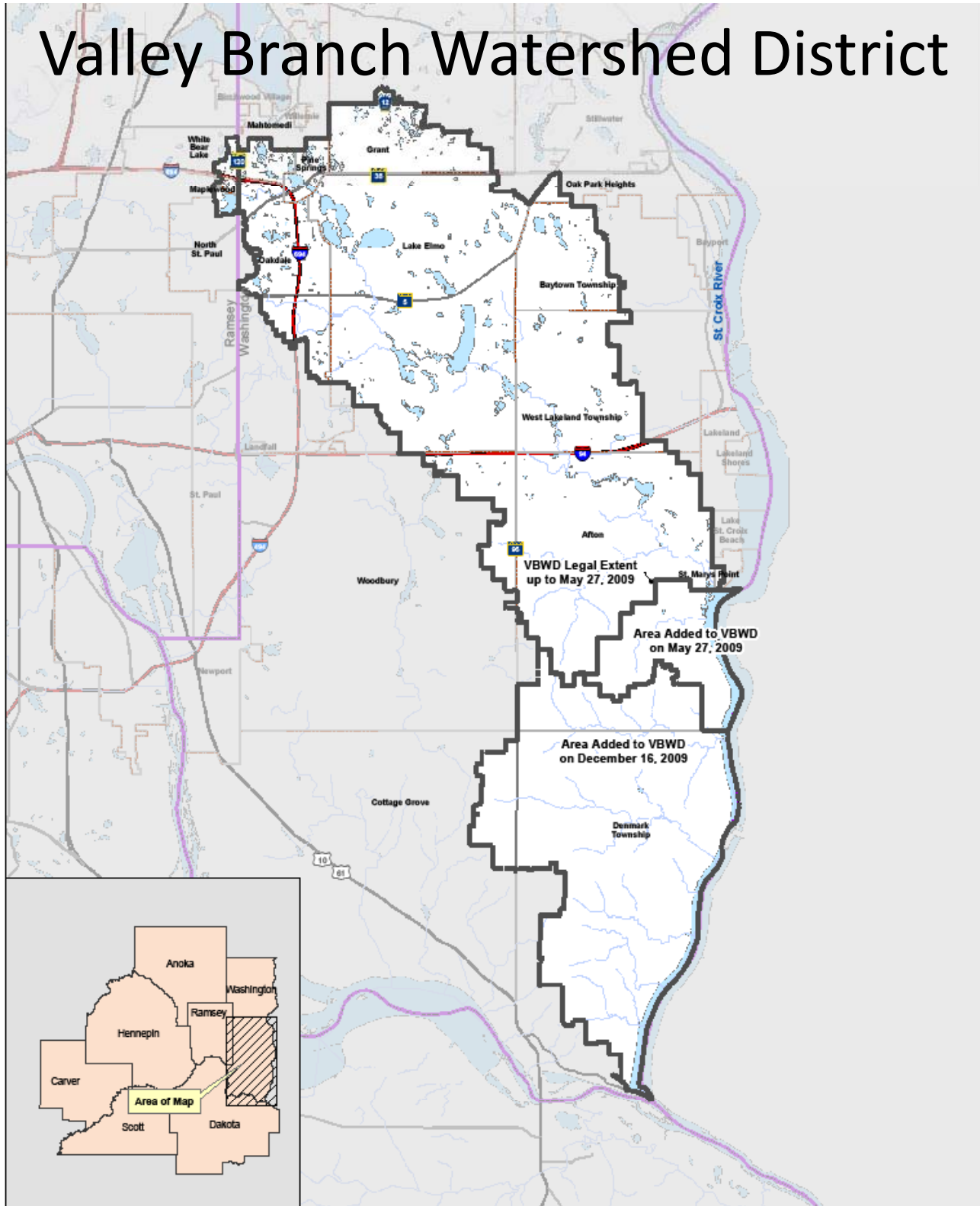






Valley Branch Watershed District

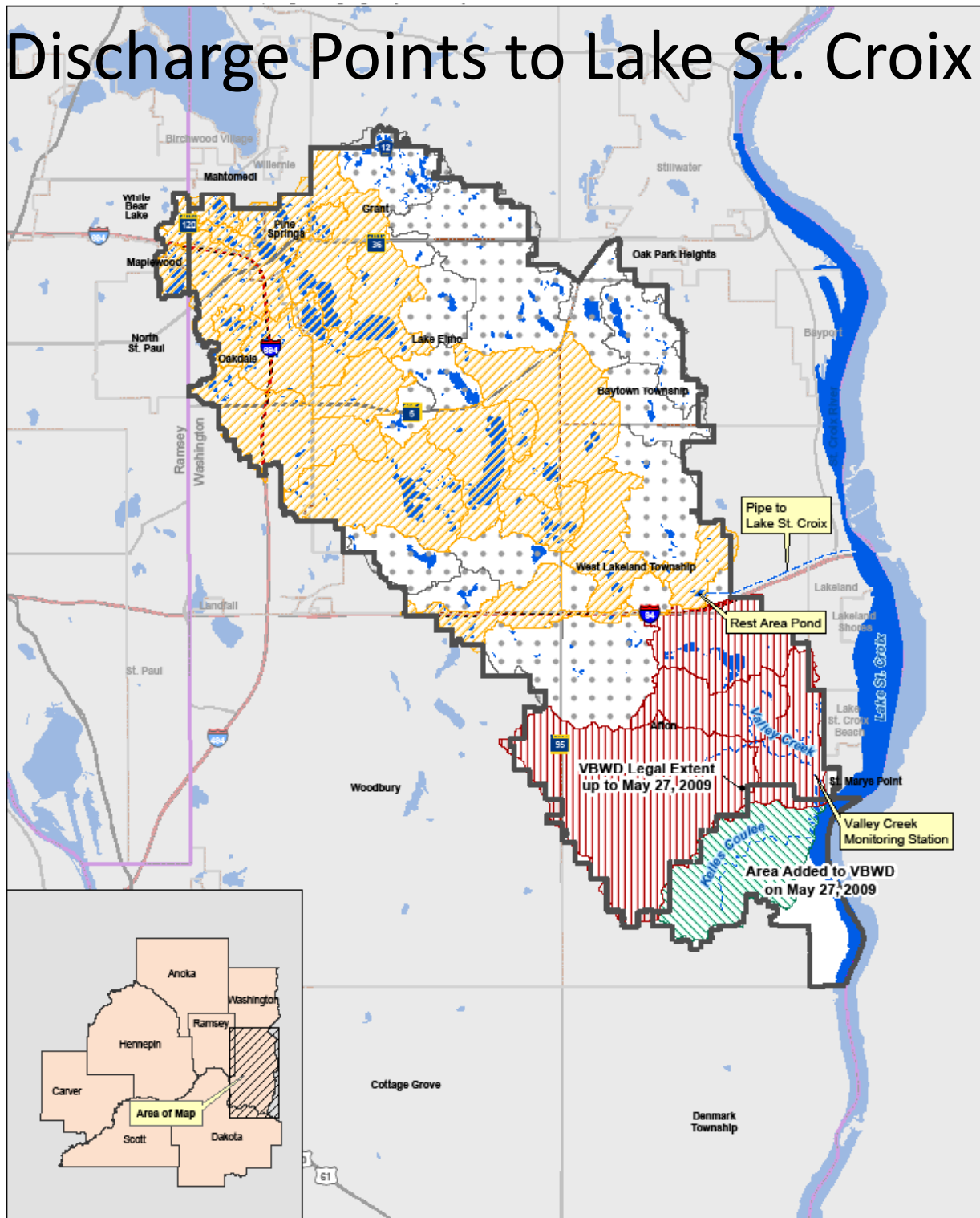










-  VBWD Legal Boundary
-  Municipal Boundary
-  County Boundary
-  Lakes, Ponds, Streams and Rivers



LOCATION AND COMMUNITIES
Valley Branch Watershed District

Discharge Points to Lake St. Croix



-  VBWD Legal Boundary
-  Drainage Area Tributary to Rest Area Pond
-  Drainage Area Tributary to Valley Creek Monitoring Station
-  Drainage Area Tributary to Kelles Coulee
-  Landlocked Areas
-  County Boundary
-  Municipal Boundary
-  Lakes, Ponds, Streams and Rivers

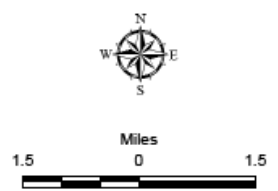


Figure 2
 VBWD DISCHARGE POINTS
 TO LAKE SAINT CROIX
 Valley Branch Watershed District

Background & Plan

- Pre-1987, Valley Branch (AKA Valley Creek) only discharge point from VBWD to St. Croix
- VBWD's Project 1007 connected to MnDOT's I-94 storm sewer in 1987
- VBWD has monitored Valley Creek since 1973, first with grab samples and now continuously since fall of 1997
- VBWD has monitored Rest Area Pond sporadically since 1987
- Kelles Coulee was added to VBWD in 2009
- LSCWI grant will provide \$26,683 for VBWD to monitor the outlets of Rest Area Pond and Kelles Coulee continuously in 2011 and 2012

Monitoring Plan

- Goal: Collect 15-20 samples during baseflow, rain storm, and snowmelt conditions using an automated sampler and grab samples.
- Parameters:

Stage	Velocity	Discharge
Precipitation	Total Phosphorus	Dissolved Phosphorus
Chlorides	Trace Metals	Total Kjeldahl Nitrogen
Nitrate/Nitrite	Ammonia	Hardness
Total Suspended Solids	Volatile Suspended Solids	E. Coli
Dissolved Oxygen	Temperature	Conductivity
pH		

Data will be used to determine actual phosphorus load to St. Croix



Excerpt of Figure 5, Lake St. Croix Total Phosphorus Loading Study, May 7, 2009 , Suzanne Magdalene, Ph.D., Science Museum of Minnesota St. Croix Watershed Research Station

Data will be used to determine actual phosphorus load to St. Croix

Table 9. Comparison of 1990's total upland source loads estimated for gaged locations with the 1999 gaged water quality phosphorus loads.

Subwatershed	Gaged Area (sq.km)	1990's Upland Source Loads (T)			1999 Gaged Loads (T)
		Dry	Average	Wet	
Upper Tamarack River	257	1.9	2.9	4.3	5.49
Yellow River	816	12.7	19.0	28.5	12.6
Lower Tamarack River	470	4.0	6.0	9.0	8.1
Crooked Creek	239	2.8	4.2	6.4	4.14
Clam River	934	15.9	23.4	34.7	7.74
Sand River	281	3.0	4.5	6.7	4.49
Kettle River	2234	27.4	38.3	54.6	43.4
Snake River	2500	34.7	49.6	71.9	37.4
Wood River	209	6.1	8.5	12.1	3.53
Sunrise River	958	28.7	38.4	53.1	17.5
Trade River	345	7.4	10.8	16.0	3.7
Apple River	1406	37.9	55.8	82.7	25.8
Silver Creek *	20	0.5	0.8	1.1	0.31
Browns Creek *	78	1.9	2.8	4.2	2.95
Willow River	755	20.5	43.5	63.1	19.2
Valley Creek *	115	3.1	4.6	7.0	0.75
Kinnickinnic River	427	22.3	30.1	41.9	9.52
subtotal of loads		257	368	534	198

* upland source loads for tributary outlet

Table 9, Lake St. Croix Total Phosphorus Loading Study, May 7, 2009 , Suzanne Magdalene, Ph.D., Science Museum of Minnesota St. Croix Watershed Research Station