

Ashuelot Annual Water Use versus Stream Flow – Calendar Year 2006

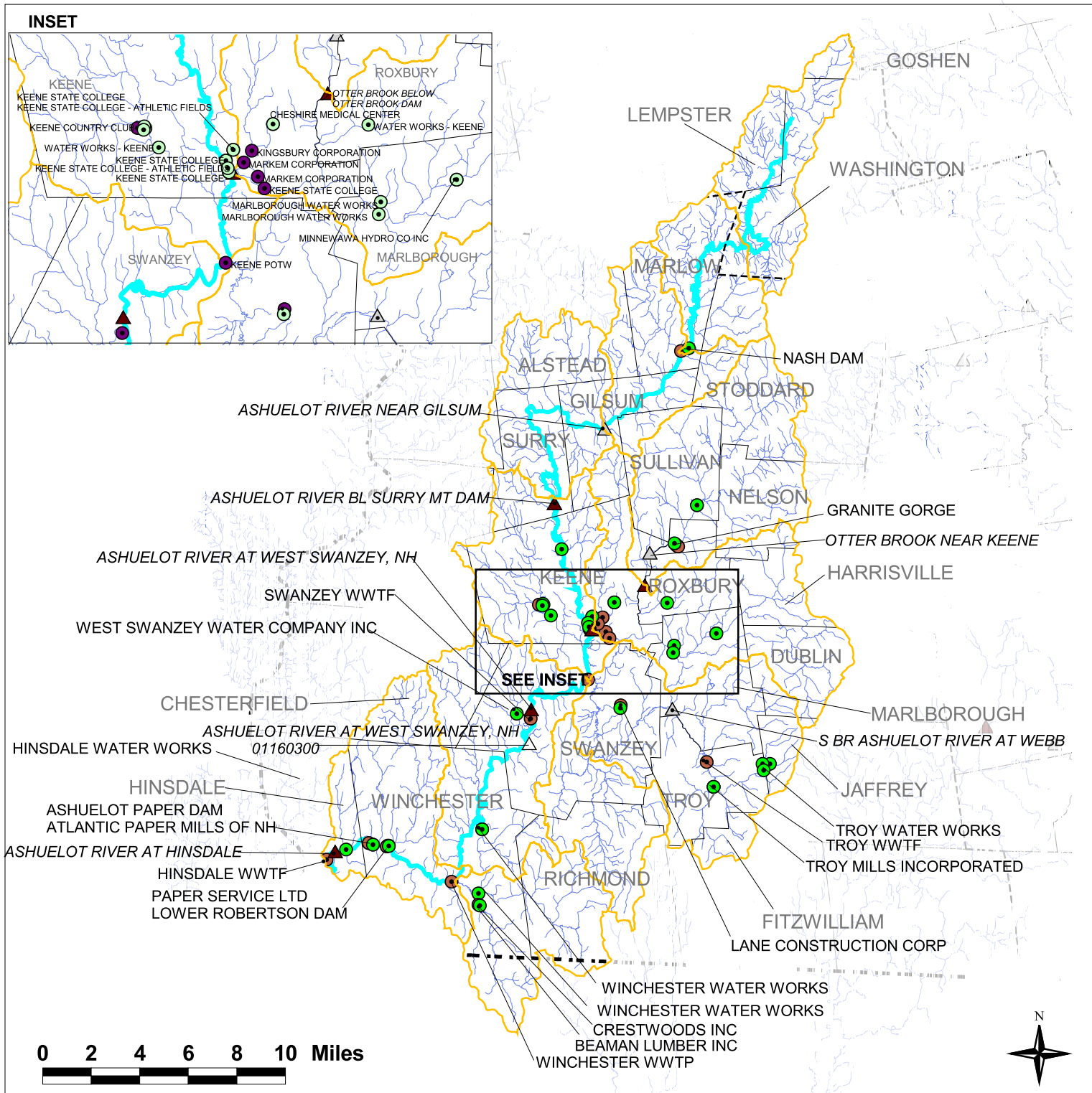
Water use was reported by 28 sources, four water transfers and 12 measured returns in the Ashuelot Water Management Planning Area. The Water Management Planning Area includes registered water use by four hydroelectric facilities. Water use by hydroelectric facilities are not shown in the monthly graphs for two reasons, (1) flow in is expected to equal flow out and (2) the General Standard does not apply to hydroelectric facilities between their point of withdrawal and point of return per Env-Ws 1903.02(d). Other water users include Keene State College for athletic fields and institutional uses; municipal water supplies in Keene, Marlborough, Troy, Winchester and Hinsdale; golf course irrigation at Keene Country Club; snowmaking at Granite Gorge; and four industrial uses that reported no water use. Three of the industrial uses became inactive during the year. Two water users are located between the intakes and outfalls of dams. The Hinsdale WWTF discharges water to the Ashuelot that comes from Hinsdale Water Works whose source lies outside the Water Management Planning Area. Measured, registered returns were reported by three industrial facilities, four hydroelectric facilities, and five waste water treatment facilities.

The South Branch of the Ashuelot, where the Keene and Troy waste water treatment facilities are located, frequently contributes more water to the Designated River than the sum of its reported sources describe. This may indicate unregistered sources or collection of storm water or groundwater infiltration, or all of these are being included in the waste water treatment facilities' discharges resulting in an increase in the reported returns to stream flow that is not linked to water use sources.

The Designated River begins at the dam at Butterfield Pond in Washington and flows 63.0 miles to the Connecticut River. The Ashuelot Water Management Planning Area covers 422 square miles. The watershed includes three stream flow gages used in this report. The gages are: in Surry (USGS 01158000 ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH) measuring 101 square miles of the WMPA; in Swanzey (USGS 01160350 ASHUELOT RIVER AT WEST SWANZEY, NH) measuring 316.1 square miles; and in Hinsdale (USGS 01161000 ASHUELOT RIVER AT HINSDALE, NH) measuring 420 square miles. For this report the streamflow was transposed areally from these gages to all impact points on the Designated River. The 2006 assessment resulted in two months –August and September - not in compliance with the General Standard. The Ashuelot Designated River drains directly into the Connecticut Designated River. The results of the Ashuelot assessment are a component of the Connecticut River assessment.

Ashuelot Designated River	River Miles not in Compliance with General Standard (0 at the mouth)	Length of River Miles not in Compliance with General Standard	Maximum value of Aggregate WU /Stream flow	Previously not in Compliance with the General Standard (2003 to present)
January	--	--	0.37%	--
February	--	--	0.48%	--
March	--	--	1.39%	--
April	--	--	1.11%	--
May	--	--	0.49%	--
June	--	--	0.51%	--
July	--	--	1.37%	2003, 2004
August	24.7 to 23.1	1.5	3.92%	2004, 2005
September	30.7 to 23.1	7.6	5.47%	2005
October	--	--	0.74%	--
November	--	--	0.36%	--
December	--	--	0.81%	--

Ashuelot Affected Water User Facilities: Source and Discharge Locations



The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes. Water users database last updated January 2007.

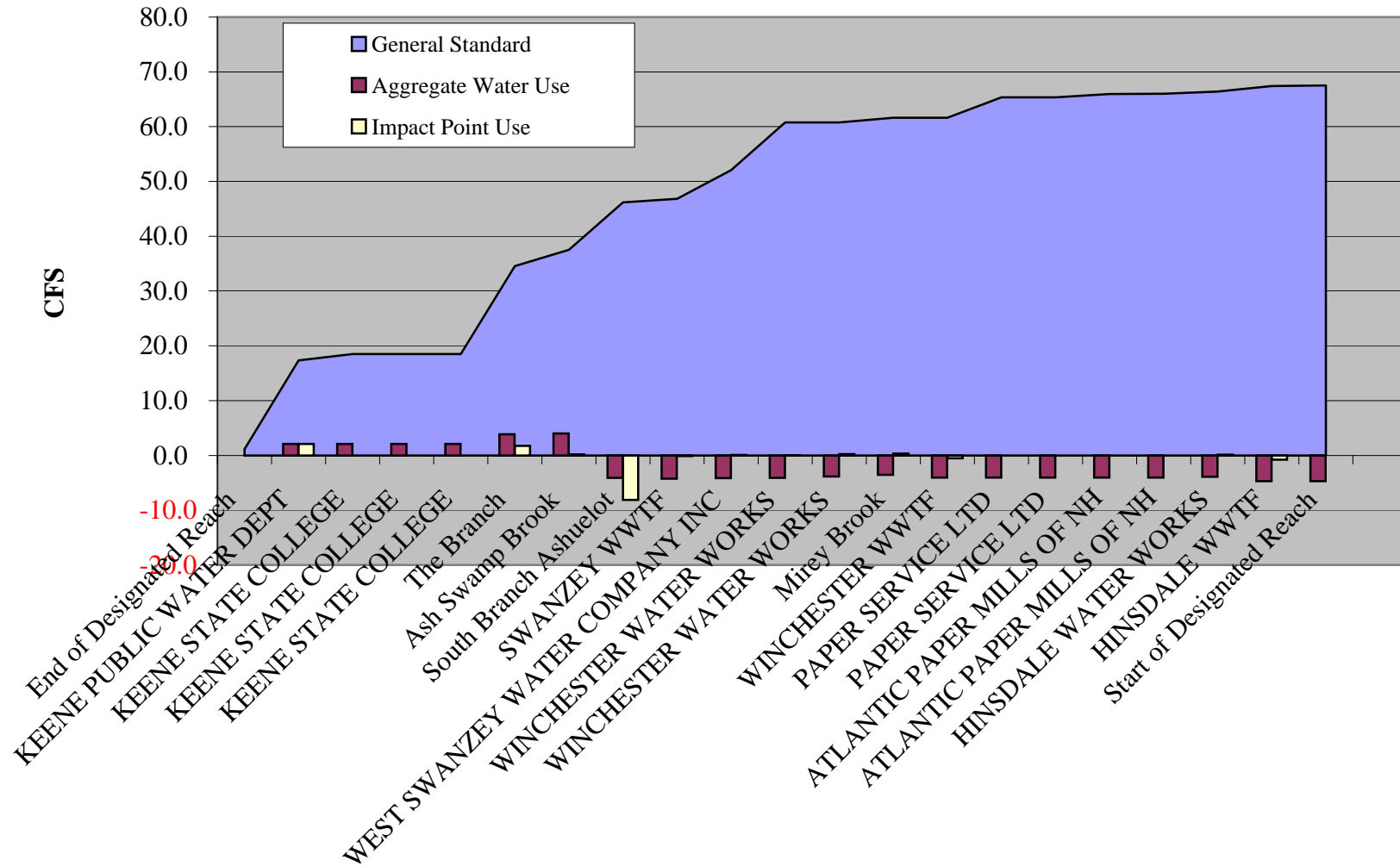
Map produced November 30, 2007.

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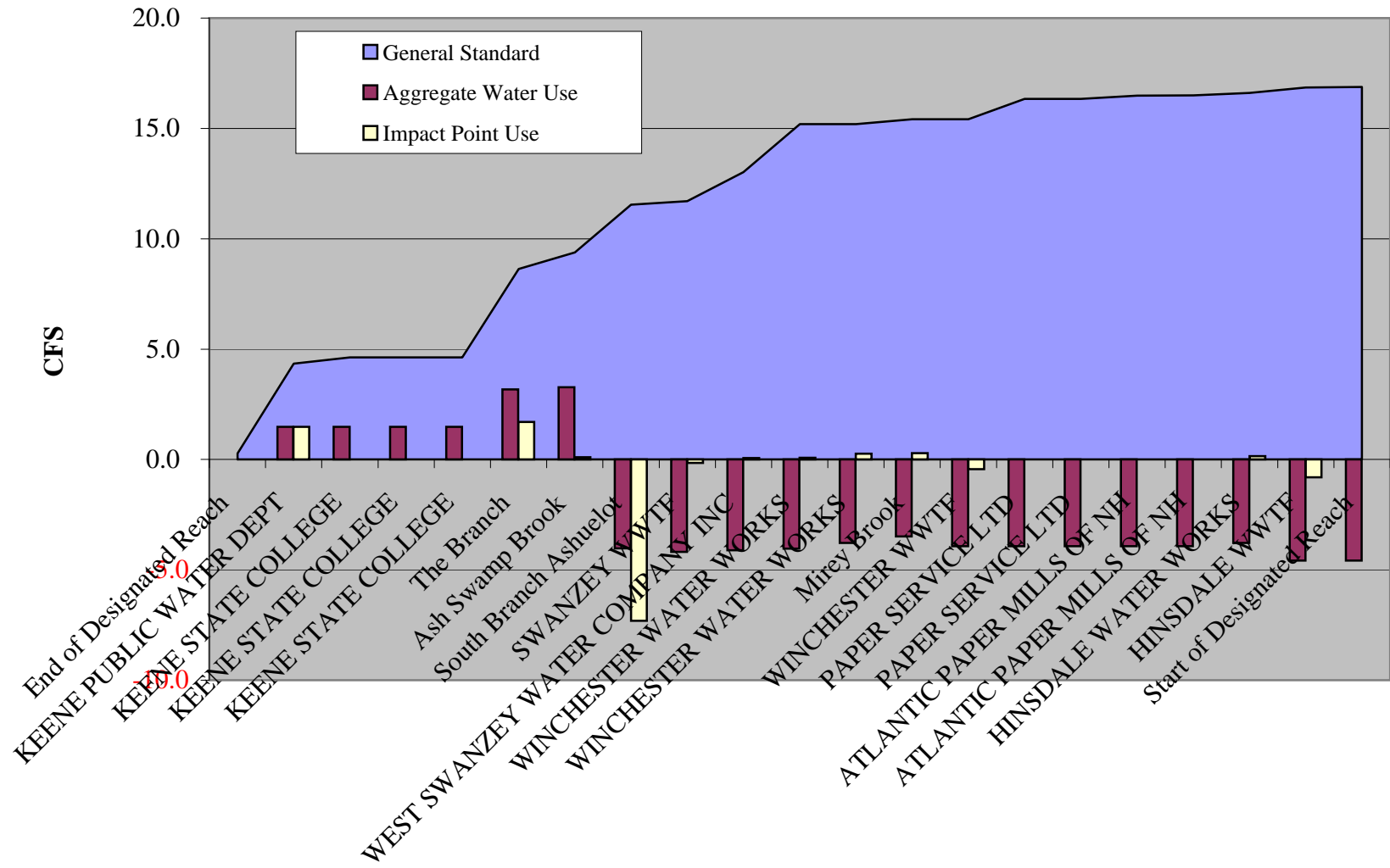
CRESTWOODS INC	CRESTWOODS INC	20537 20537-D01	385.28													
WINCHESTER WATER WORKS	WINCHESTER WATER WORKS	20434 20434-S03	385.28	0.348	0.289	0.392	0.401	0.391	0.374	0.392	0.366	0.396	0.357	0.388	0.395	
Mirey Brook			385.28													
WINCHESTER WWTF	WASTE WATER TREAT PLANT	20314 20314-D01	385.30	(0.542)	(0.441)	(0.307)	(0.288)	(0.363)	(0.370)	(0.297)	(0.261)	(0.253)	(0.280)	(0.403)	(0.324)	
ALGONQUIN POWER SYST INC	LOWER ROBERTSON DAM	20590 20590-S01	408.36	729.956	649.084	439.510	504.182	481.000	519.267	68.252	138.967	115.128	11.526	420.019	487.149	
PAPER SERVICE LTD		20137 20137-S01	408.36	0.00	0.00	0.00	0.00	0.00	0.00							
PAPER SERVICE LTD		20137 20137-D01	408.41	0.00	0.00	0.00	0.00	0.00	0.00							
ALGONQUIN POWER SYST INC	LOWER ROBERTSON DAM	20590 20590-D01	408.49	(729.956)	(649.084)	(439.510)	(504.182)	(481.002)	(519.267)	(68.252)	(138.967)	(115.128)	(11.526)	(420.019)	(487.149)	
ATLANTIC PAPER MILLS OF NH	ATLANTIC PAPER MILLS OF NH	20627 20627-S01	412.26	0.00	0.00	0.00										
ALGONQUIN POWER SYST INC	ASHUELOT PAPER DAM	20589 20589-S01	412.26	0.000	372.193	449.989	505.355	545.082	597.990	247.683	215.622	155.494	266.538	462.346	591.507	
ATLANTIC PAPER MILLS OF NH	ATLANTIC PAPER MILLS OF NH	20627 20627-D01	412.58	0.00	0.00	0.00										
ALGONQUIN POWER SYST INC	ASHUELOT PAPER DAM	20589 20589-D01	412.58	0.00	(372.193)	(449.989)	(505.355)	(545.082)	(597.990)	(247.683)	(215.622)	(155.494)	(266.538)	(462.346)	(591.507)	
HINSDALE WATER WORKS	HINSDALE WATER WORKS	20050 20050-S02	415.05	0.151	0.154	0.162	0.158	0.166	0.166	0.155	0.148	0.161	0.153	0.144	0.159	
HINSDALE WWTF	WASTE WATER TREAT PLANT	20089 20089-D01	421.23	(0.780)	(0.804)	(0.506)	(0.458)	(0.580)	(0.577)	(0.389)	(0.302)	(0.288)	(0.375)	(0.655)	(0.496)	
Start of Designated Reach			421.92													
Tributaries and DR endpoints																
2006 Ashuelot Aggregate Water Use in CFS																
WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
End of Designated Reach			7.01	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
KEENE PUBLIC WATER DEPT	WATER WORKS	20338 20338-S03	108.46	2.09	1.48	1.65	1.45	1.65	1.49	1.48	1.65	1.77	1.48	1.27	1.24	
KEENE STATE COLLEGE	ATHLETIC FIELDS	20757 20757-S01	115.52	2.09	1.48	1.65	1.45	1.65	1.49	1.48	1.65	1.77	1.48	1.27	1.24	
KEENE STATE COLLEGE	ATHLETIC FIELDS	20757 20757-S03	115.58	2.09	1.48	1.73	1.54	1.73	1.58	1.56	1.73	1.86	1.56	1.27	1.24	
KEENE STATE COLLEGE	ATHLETIC FIELDS	20757 20757-S02	115.60	2.09	1.48	1.73	1.54	1.73	1.58	1.56	1.73	1.86	1.56	1.27	1.24	
The Branch			215.83	3.84	3.17	3.48	3.31	3.32	3.19	3.36	3.46	3.37	3.13	2.71	2.71	
Ash Swamp Brook			234.59	4.02	3.28	4.64	4.55	4.71	4.75	5.02	5.16	4.65	4.29	3.88	3.84	
South Branch Ashuelot			288.59	(4.12)	(4.03)	(0.50)	(0.84)	(1.89)	(2.20)	(0.35)	0.54	0.47	(0.25)	(3.00)	(2.62)	
SWANZEY WWTF	WEST SWANZEY WWTP	20120 20120-D01	292.56	(4.23)	(4.18)	(0.54)	(0.95)	(2.03)	(2.34)	(0.47)	0.43	0.36	(0.36)	(3.12)	(2.75)	
WEST SWANZEY WATER COMPA		20785 20785-S01	325.37	(4.15)	(4.11)	(0.42)	(0.86)	(1.94)	(2.24)	(0.37)	0.54	0.47	(0.28)	(3.04)	(2.64)	
WINCHESTER WATER WORKS	WINCHESTER WATER WORKS	20434 20434-S02	379.98	(4.11)	(4.04)	(0.42)	(0.86)	(1.94)	(2.14)	(0.24)	0.67	0.50	(0.28)	(3.03)	(2.64)	
WINCHESTER WATER WORKS	WINCHESTER WATER WORKS	20434 20434-S01	379.98	(3.87)	(3.78)	(0.11)	(0.54)	(1.57)	(1.81)	0.05	0.97	0.78	0.03	(2.78)	(2.39)	
Mirey Brook			385.28	(3.52)	(3.49)	0.28	(0.14)	(1.18)	(1.44)	0.45	1.33	1.17	0.39	(2.40)	(1.99)	
WINCHESTER WWTF	WASTE WATER TREAT PLANT	20314 20314-D01	385.30	(4.06)	(3.93)	(0.03)	(0.42)	(1.54)	(1.80)	0.15	1.07	0.92	0.11	(2.80)	(2.32)	
PAPER SERVICE LTD		20137 20137-S01	408.36	(4.06)	(3.93)	(0.03)	(0.42)	(1.54)	(1.80)	0.15	1.07	0.92	0.11	(2.80)	(2.32)	
PAPER SERVICE LTD		20137 20137-D01	408.41	(4.06)	(3.93)	(0.03)	(0.42)	(1.54)	(1.80)	0.15	1.07	0.92	0.11	(2.80)	(2.32)	
ATLANTIC PAPER MILLS OF NH	ATLANTIC PAPER MILLS OF NH	20627 20627-S01	412.26	(4.06)	(3.93)	(0.03)	(0.42)	(1.54)	(1.80)	0.15	1.07	0.92	0.11	(2.80)	(2.32)	
ATLANTIC PAPER MILLS OF NH	ATLANTIC PAPER MILLS OF NH	20627 20627-D01	412.58	(4.06)	(3.93)	(0.03)	(0.42)	(1.54)	(1.80)	0.15	1.07	0.92	0.11	(2.80)	(2.32)	
HINSDALE WATER WORKS	HINSDALE WATER WORKS	20050 20050-S02	415.05	(3.91)	(3.78)	0.14	(0.27)	(1.37)	(1.64)	0.30	1.22	1.08	0.26	(2.66)	(2.16)	
HINSDALE WWTF	WASTE WATER TREAT PLANT	20089 20089-D01	421.23	(4.69)	(4.58)	(0.37)	(0.72)	(1.95)	(2.22)	(0.08)	0.92	0.79	(0.11)	(3.31)	(2.66)	
Start of Designated Reach			421.92	(4.69)	(4.58)	(0.37)	(0.72)	(1.95)	(2.22)	(0.08)	0.92	0.79	(0.11)	(3.31)	(2.66)	
2006 Ashuelot Estimated Monthly Stream Flow at Each Impact Point in CFS																
	USGS 01158000 ASHUELOT RIVER BELOW SURRY MT DAM, NEAR KEENE, NH	Calculated monthly mean streamflow in CFSM	101	5.18	2.98	1.41	1.82	4.48	4.32	1.80	0.561	0.321	2.59	4.77	1.98	
	USGS 01160350 ASHUELOT RIVER AT WEST SWANZEY, NH	Calculated monthly mean streamflow in CFSM	316.1	5.25	3.10	1.43	1.69	3.93	3.70	1.41	0.562	0.388	2.41	4.45	2.05	
	USGS 01161000 ASHUELOT RIVER AT HINSDALE, NH	Calculated monthly mean streamflow in CFSM	420	5.09	3.20	1.52	1.71	3.71	3.37	1.47	0.624	0.405	2.01	4.08	2.00	

2006 Ashuelot Estimated Monthly Margin of the Aggregate Water Use Below the General Standard in CFS															
USERNAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
End of Designated Reach			7.01	1.12	0.28	0.28	0.28	1.12	1.12	0.28	0.14	0.01	0.28	1.1	0.28
KEENE PUBLIC WATER DEPT	WATER WORKS	20338 20338-S03	108	15	2.9	2.7	2.9	16	16	2.9	0.52	(1.61)	2.9	16	3.1
KEENE STATE COLLEGE	ATHLETIC FIELDS	20757 20757-S01	116	16	3.1	3.0	3.2	17	17	3.1	0.66	(1.59)	3.1	17	3.4
KEENE STATE COLLEGE	ATHLETIC FIELDS	20757 20757-S03	116	16	3.1	2.9	3.1	17	17	3.1	0.58	(1.68)	3.1	17	3.4
KEENE STATE COLLEGE	ATHLETIC FIELDS	20757 20757-S02	116	16	3.1	2.9	3.1	17	17	3.1	0.58	(1.68)	3.1	17	3.4
The Branch			216	31	5.5	5.2	5.3	31	5.4	5.3	0.85	(2.84)	5.5	32	5.9
Ash Swamp Brook			235	34	6.1	4.7	4.8	33	4.6	4.4	(0.47)	(4.05)	5.1	34	5.5
South Branch Ashuelot			289	50	16	12	12	13	14	12	5.2	0.42	12	49	14
SWANZEY WWTF	WEST SWANZEY WWTP	20120 20120-D01	293	51	16	12	13	14	14	12	5.4	0.55	12	50	14
WEST SWANZEY WATER COMPA		20785 20785-S01	325	56	17	13	14	15	15	13	6.0	0.67	13	55	16
WINCHESTER WATER WORKS	WINCHESTER WATER WORKS	20434 20434-S02	380	65	19	16	16	17	17	15	6.9	1.2	15	64	18
WINCHESTER WATER WORKS	WINCHESTER WATER WORKS	20434 20434-S01	380	65	19	15	16	17	17	15	6.6	0.96	15	64	18
Mirey Brook			385	65	19	15	16	17	17	15	6.4	0.63	15	64	17
WINCHESTER WWTF	WASTE WATER TREAT PLANT	20314 20314-D01	385	66	19	15	16	17	17	15	6.6	0.88	15	64	18
PAPER SERVICE LTD		20137 20137-S01	408	69	20	16	17	18	18	16	7.1	1.2	16	68	19
PAPER SERVICE LTD		20137 20137-D01	408	69	20	16	17	18	18	16	7.1	1.2	16	68	19
ATLANTIC PAPER MILLS OF NH	ATLANTIC PAPER MILLS OF NH	20627 20627-S01	412	70	20	17	17	18	18	16	7.2	1.2	16	69	19
ATLANTIC PAPER MILLS OF NH	ATLANTIC PAPER MILLS OF NH	20627 20627-D01	413	70	20	17	17	18	18	16	7.2	1.2	16	69	19
HINSDALE WATER WORKS	HINSDALE WATER WORKS	20050 20050-S02	415	70	20	16	17	18	18	16	7.1	1.1	16	69	19
HINSDALE WWTF	WASTE WATER TREAT PLANT	20089 20089-D01	421	72	21	17	18	19	19	17	7.5	1.5	17	71	20
Start of Designated Reach			422	72	21	17	18	19	19	17	7.5	1.5	17	71	20

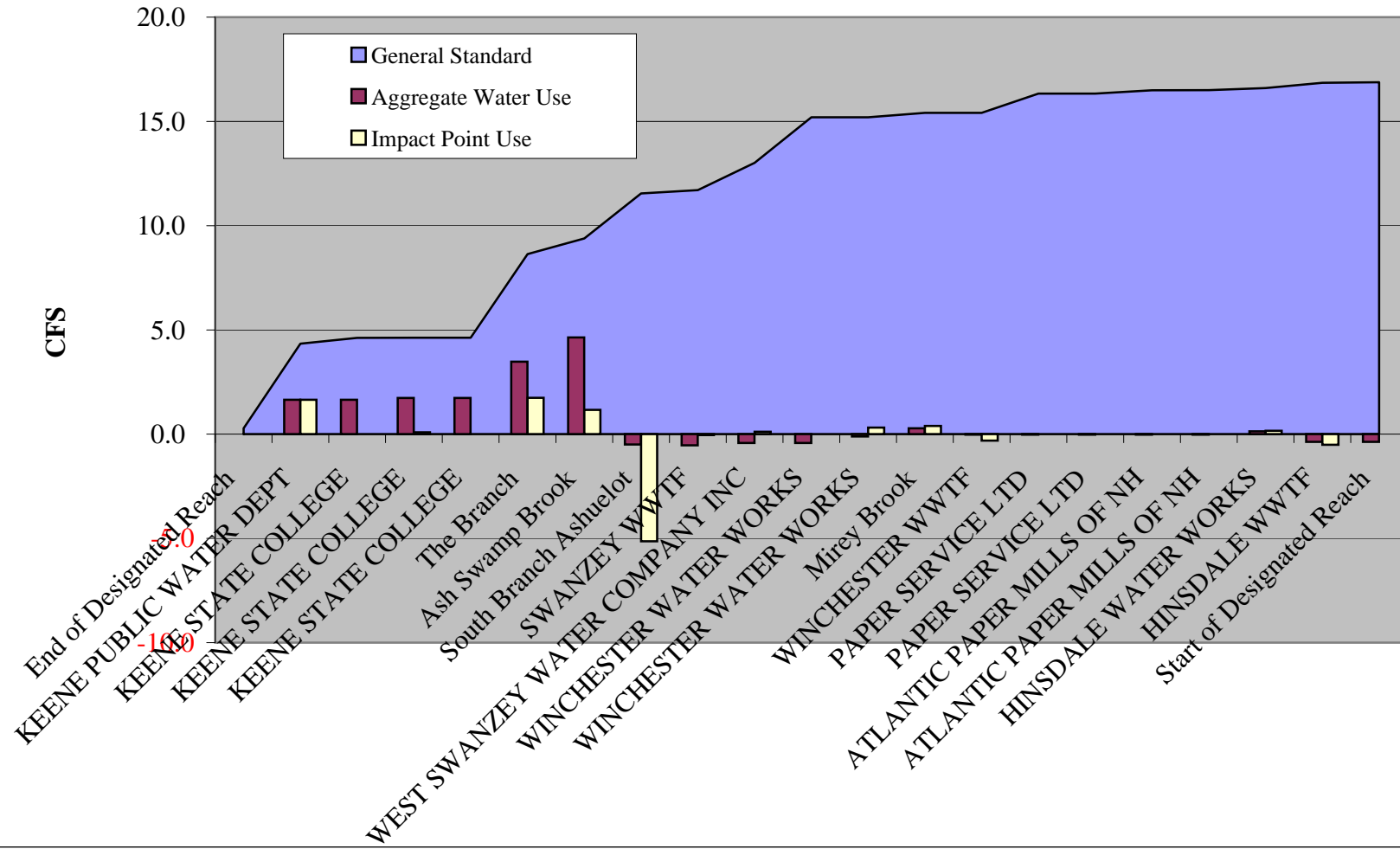
January 2006 Ashuelot



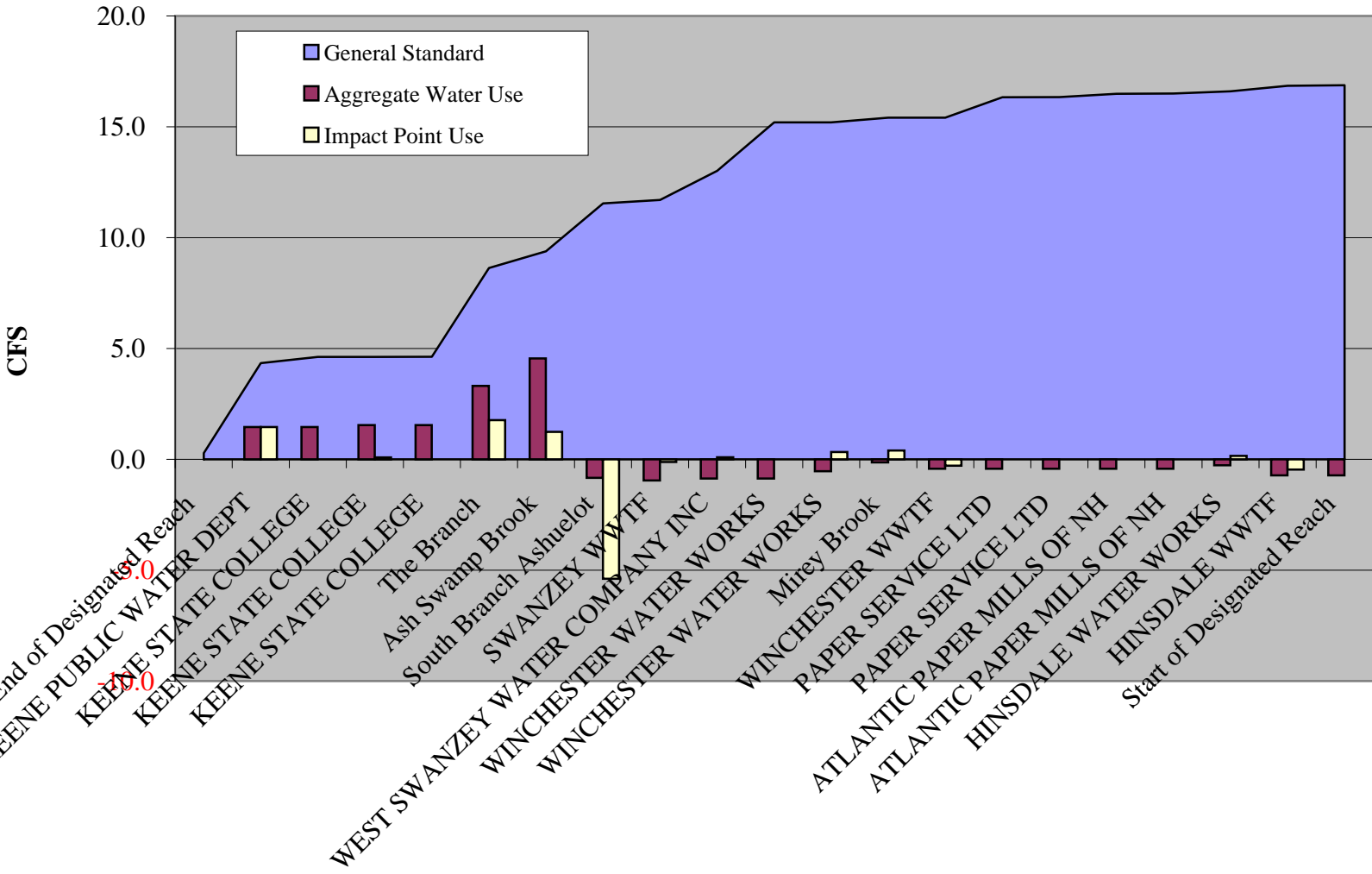
February 2006 Ashuelot



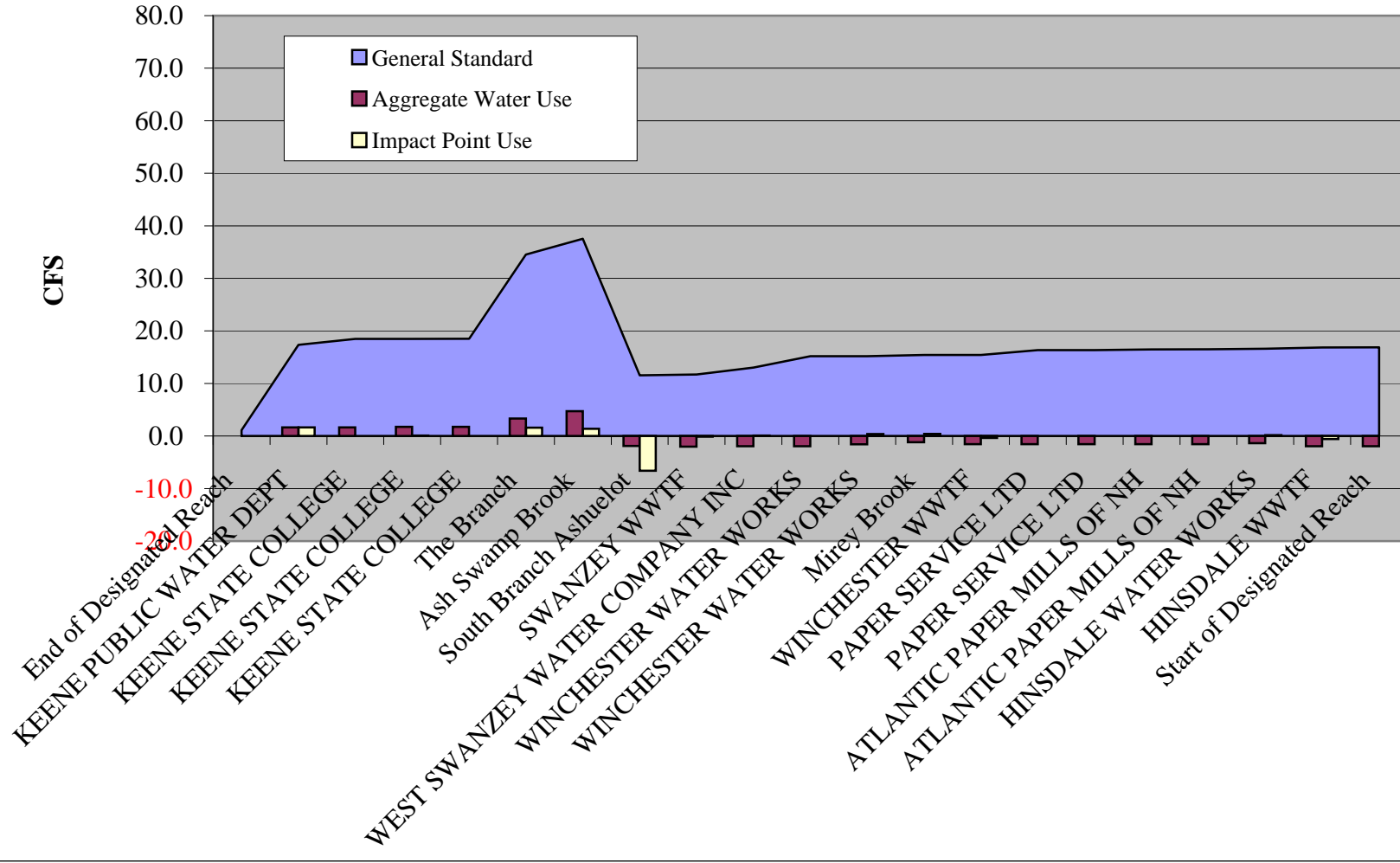
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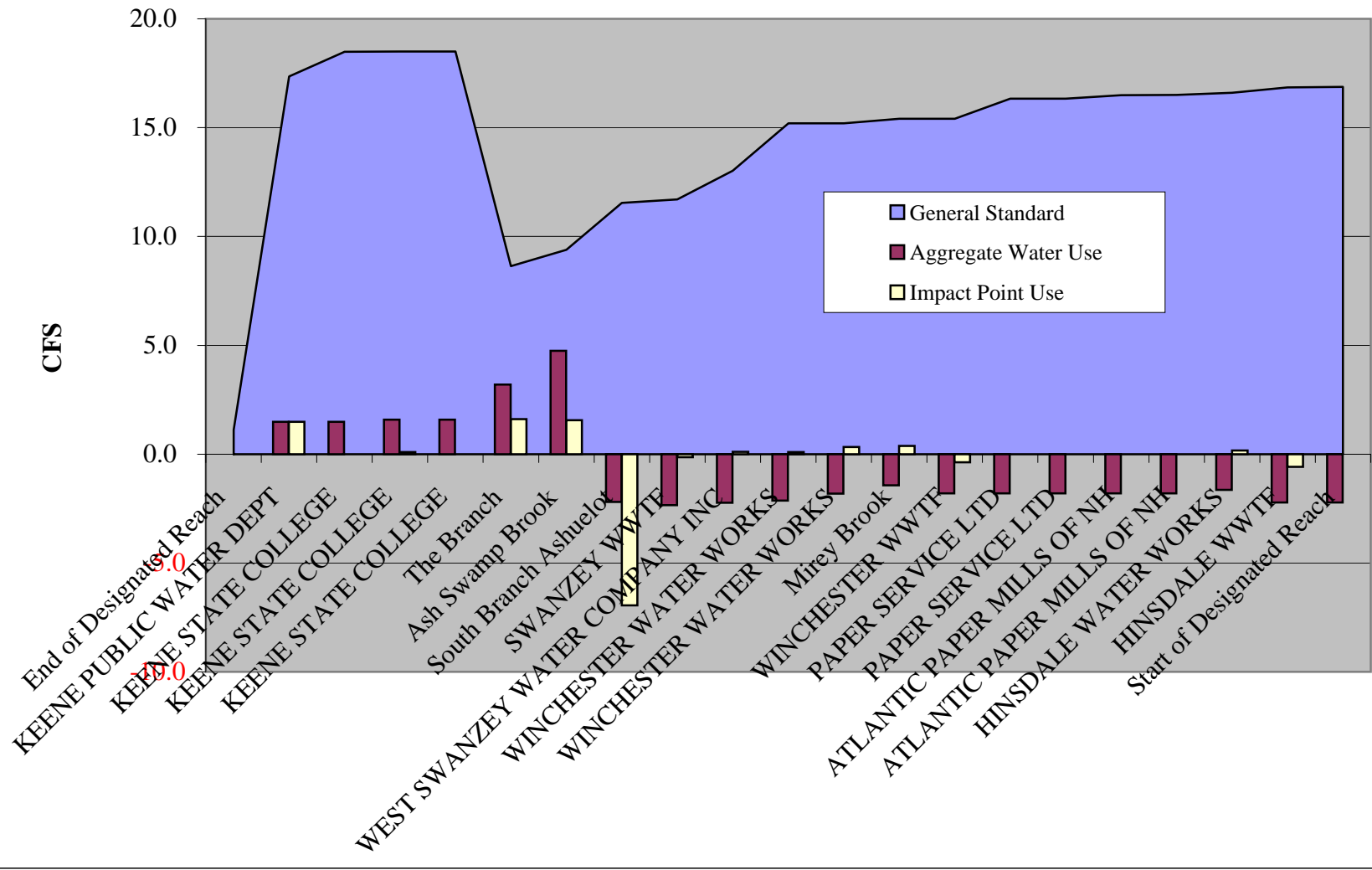
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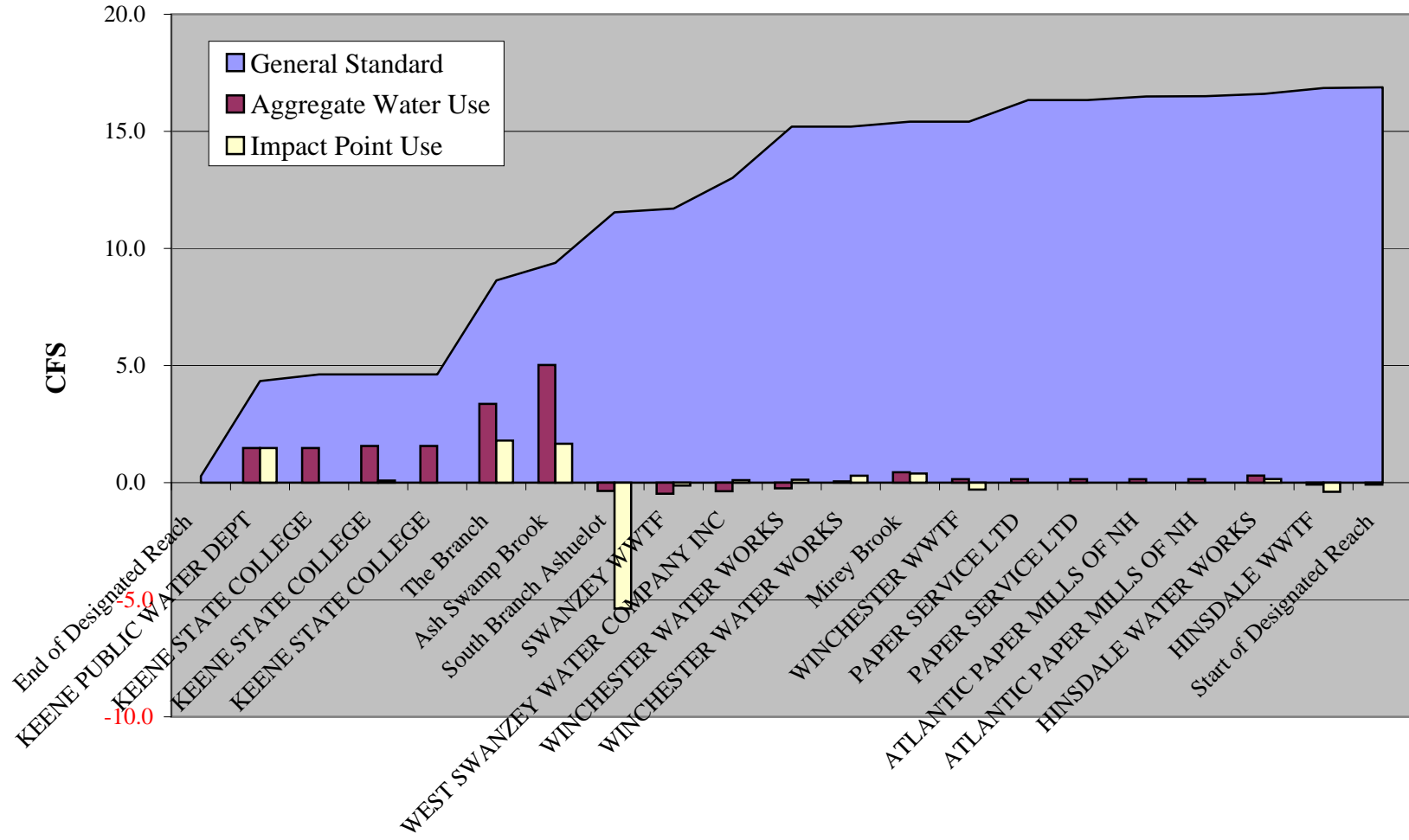
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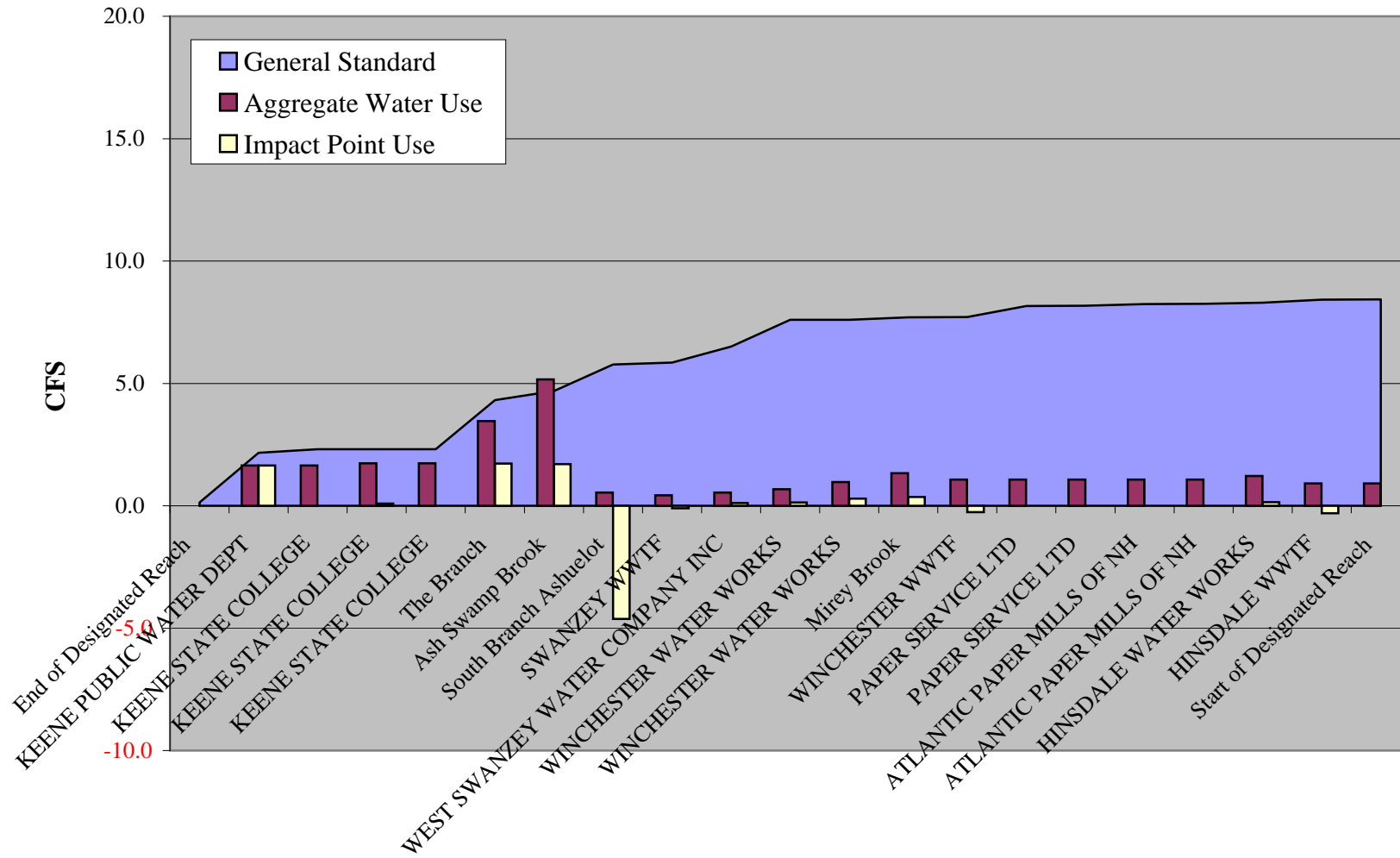
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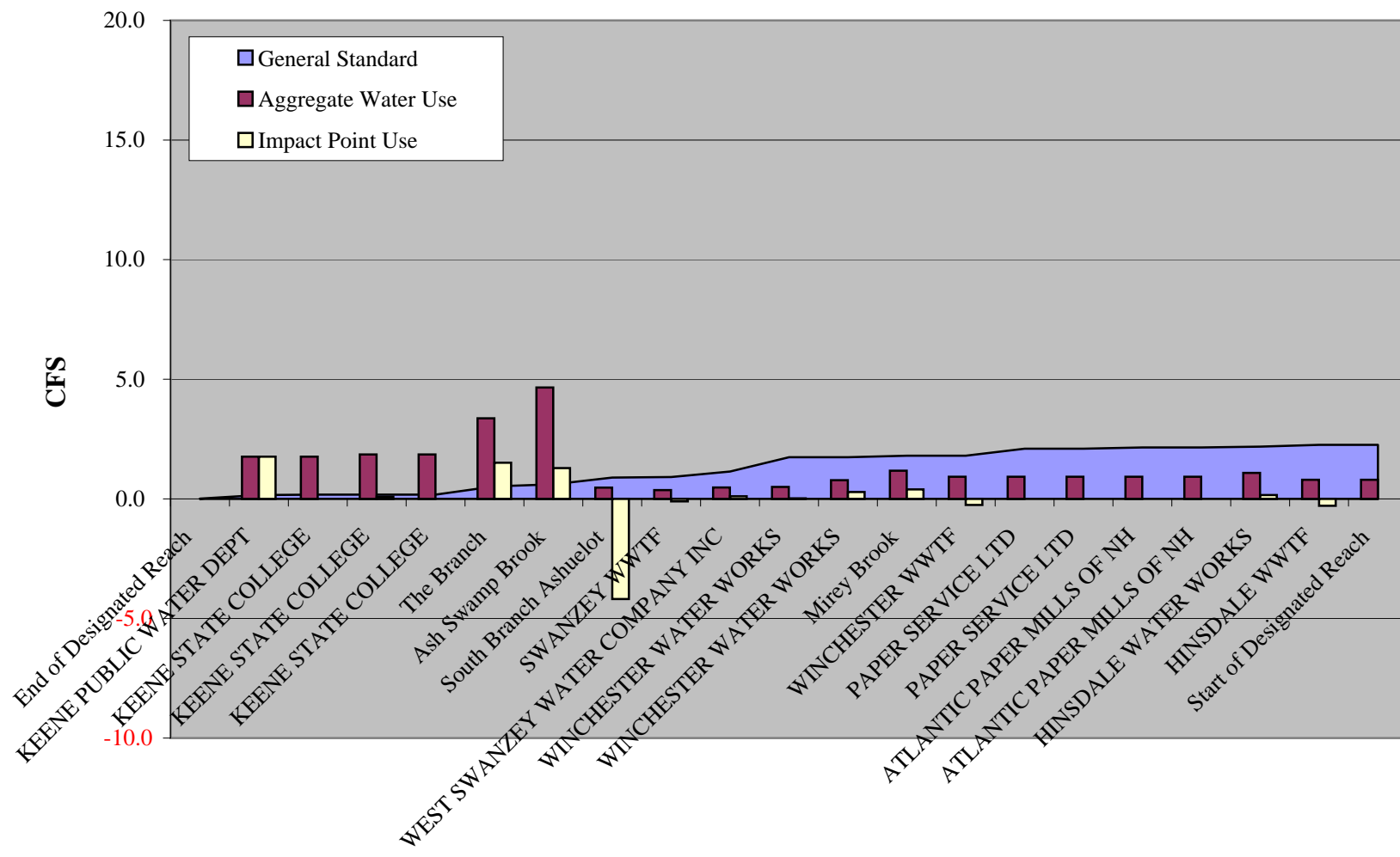
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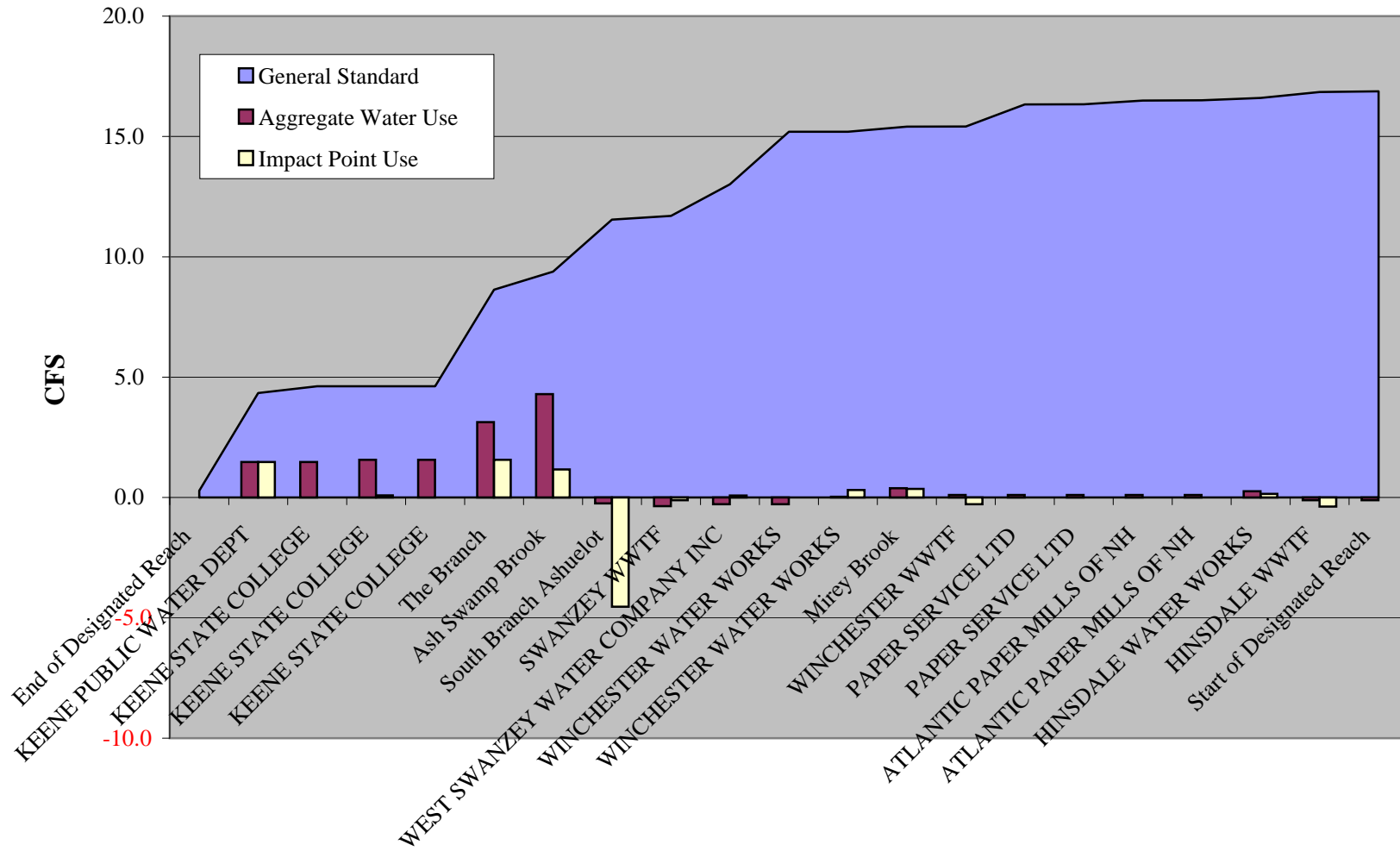
August 2006 Ashuelot



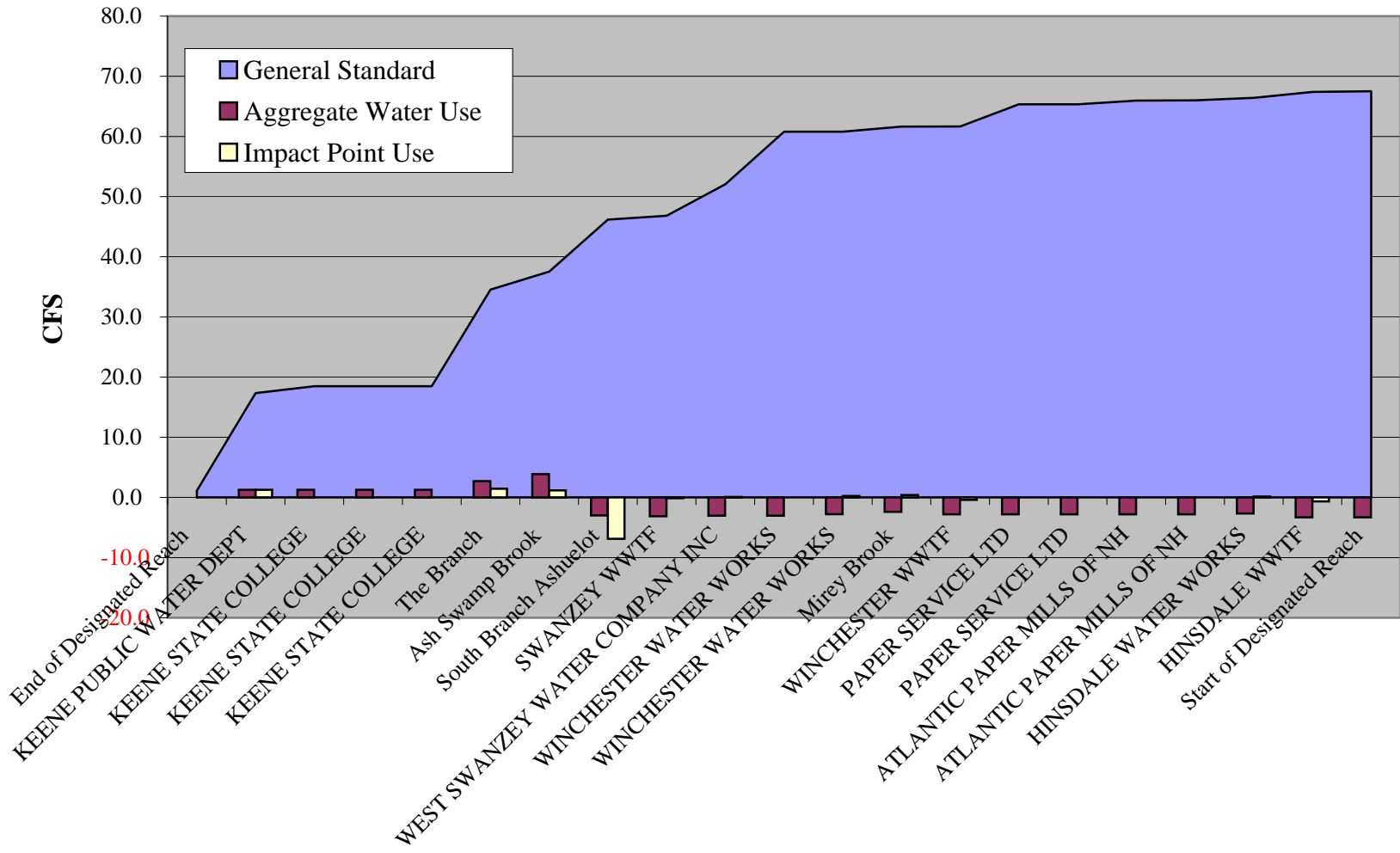
September 2006 Ashuelot



October 2006 Ashuelot



November 2006 Ashuelot



December 2006 Ashuelot

