Appendix C

Workgroup Information Roll-Up:
Re-Use & Conservation Workgroup

City of Spokane
Re-Use and Conservation Workgroup
Submitted by Lloyd Brewer 13 September 2005

Background – Re-use:
The City has identified re-use opportunities of two types:
Those that are pilot actions taken at the Plant itself and could start before all the plant upgrades have been made; and
Those that are within a 1 mile distance of the Treatment Plant where relatively large volumes of water are used for landscape irrigation. It is assumed that the Treatment Plant upgrades will have occurred making water of appropriate quality available to deliver. There are subsequent locations both North and South of the Treatment Plant where extensions could be made in the future as public acceptance and technical/regulatory issues direct.

The above assumptions not withstanding, all of the calculated phosphorus reductions are based on current effluent levels of .65 mg/L and flows of 37.17 MGD resulting in a 201 pound increase in daily river load.

Note: For the City of Spokane we have calculated phosphorous reductions using projected flows the Flows & Loadings Workgroup and a 10-50 µg/L range of technology performance provided by the Technology Workgroup.

Background – Conservation:
The City envisions indoor conservation being addressed in the Water System Comprehensive Plan update next year, in the next Waste Water System Comprehensive Plan update, and both in collaboration with City Council initiatives to increase public awareness of the value of water and elicit citizen action to reduce consumption. It is important to remember that half of the water the City provides goes to seasonal outside landscape irrigation which will continue to be addressed.

Note: The City of Spokane submitted a spreadsheet describing a 5-20% indoor conservation goal, with reductions calculated using the current flow and effluent phosphorous concentration described above. In our Full Matrix sheet describing Conservation Opportunities, we have calculated this range of phosphorous reductions using projected flows the Flows & Loadings Workgroup and a 10-50 µg/L range of technology performance provided by the Technology Workgroup.

Spokane County
Reuse and Conservation Concepts
September 19, 2005
By Bruce Rawls

As an active participant in the Reuse and Conservation Workgroup, under the Spokane River DO TMDL Collaboration, Spokane County offers the following concepts and ideas regarding implementation. The purpose of the review by this Workgroup was to determine if there are opportunities to implement Reuse as a method to reduce phosphorus loading into the Spokane River.

BENEFICIAL REUSE

As requested, the County has prepared a map showing the site of the proposed new regional wastewater treatment plant. Around that site, concentric circles were delineated at 1 mile, 5 mile, 10 mile, and 15 mile radii. Then, locations were identified where there might be an opportunity to reuse treated effluent in the future. A crude analysis was prepared to indicate the volume of water that might be applied to each site, without any site specific review. No feasibility analysis was done on any location, nor was the cost to reuse effluent established for any location. The locations include Jr/Sr High Schools, parks, industries, golf courses, and cemeteries.

In general, Spokane County will evaluate each opportunity for Reuse on a case by case basis considering the benefit and cost effectiveness of Reuse for that specific case. If groups of opportunities can be identified in a cluster or in a linear configuration that would increase the cost effectiveness of those opportunities, they would be considered on that type of basis.

No attempt was made to characterize the willingness of school administrators to reuse effluent on their grounds, nor was there any characterization of support/opposition from public, water purveyors or regulators regarding reuse in the locations listed, as well as over a sole source aquifer.

Generally, the decision to implement reuse will be based on cost-effectiveness of the reduction of phosphorus into the river. Spokane County supports implementation of phosphorus reduction measures in order of cost effectiveness. Therefore, if it is more cost effective to implement measures such as non-point source control, those measures should be implemented before reuse.

Within 1 mile

The most obvious opportunity to reuse effluent will be on the treatment plant site, and Spokane County intends to use this opportunity as a pilot project. The site includes 20 acres, and initially a substantial part can be landscaped and irrigated with effluent.

In addition, the Spokane Interstate Fairgrounds are located about 0.9 miles from the treatment plant site. The manager has indicated an interest in exploring the feasibility of irrigating the grounds with effluent.

Also within one mile are 2 schools that can be considered for reuse in the future.

Within 5 miles

Within 5 miles, numerous reuse opportunities exist, including parks, schools, industries, and golf courses.

One potential opportunity that should be explored after the new regional treatment plant is operational is at Inland Empire Paper Company. As described in the Spokane County Wastewater Facilities Plan, reuse of effluent may feasible at the paper mill for paper processing.

Within 10 miles

Just outside the 5 mile circle is the Plantes Ferry Park, with over 10 soccer fields that could be irrigated with effluent. If a pipeline is extended to the paper mill, as described above, then an opportunity may exist to irrigate the park with reused effluent.

Also in the 5 to 10 mile range there are numerous reuse opportunities at parks, schools, golf courses, and cemeteries.

Within 15 miles

Generally, it is not believed that reuse opportunities outside of 10 miles will be economically viable.

However, one opportunity at about 17 miles distance should be considered. That opportunity is to restore the Saltese Flats wetlands, and should be evaluated in more detail to determine the cost effectiveness and potential benefits/impacts that would accrue from that type of reuse project.

CONSERVATION

Generally, Spokane County is interested in implementing a program similar to the one conducted by the LOTT wastewater agency several years ago. A full discussion is included in the Spokane County Wastewater Facilities Plan.

If approved by our Board of County Commissioners, we would allocate a budget for in-home water conservation measures over a period of 2-3 years, with a focus on replacing toilet fixtures, shower heads, and clothes washers.

Liberty Lake Sewer and Water District
Basis for Reuse

The Liberty Lake Sewer and Water District reviewed reuse possibilities within 1 mile, 2 mile, 3 mile and 4 mile of the wastewater treatment facility at Liberty Lake. The review was not extended beyond these miles because to the east is Idaho, and to the south and north are forested mountains and to the west is overlap with the potential areas of reuse for the County and City of Spokane.

Agricultural lands within the 4-mile radius were looked at and mostly rejected as potential reuse sites because they are mostly scheduled for development within the next twenty years and are in the urban growth boundary. One agricultural area that was considered for reuse as a potential wetlands development was Saltese Meadows area. The area is separated from Liberty Lake by a substantial mountain and could be difficult to access.

The most logical areas for reuse within the next twenty years at Liberty Lake are the three (3) public golf courses within 2 miles of the treatment plant. The total area would be sufficient to reuse effluent during the next twenty-year period.

A second area considered was the I-90 interstate freeway; both shoulder areas from the state line to a distance of 4 miles west of Harvard Rd. It is estimated that if all the shoulder area were utilized, it would provide 196 acres of area with an average water use of .75 MGD.

A limited amount of re-use takes place within the Liberty Lake Treatment Plant fenced site. The area around the facility is rapidly developing, but there is additional facility land potentially available for re-use irrigation.

Another area considered was the riparian area along Spokane River / Centennial Trail. Vegetation along the river could be enhanced with the effluent; however, public acceptance could be a problem.

Effluent could be used to water forest trees on the side of mountains surrounding Liberty Lake. This is being done in other areas in the United States and has enhanced forest growth. Again, this would present the least feasible plan due to cost.

Recharge of the aquifer- The outlet channel of Liberty Lake ends at two sumps that drain up to 50 cubic feet a second during spring runoff. Effluent could be discharged into the channel and recharge the aquifer. Obviously, this is a public perception issue and needs further study.

Note: The City of Liberty Lake submitted a spreadsheet describing a 5% indoor conservation goal, with reductions calculated using the current flow and effluent phosphorous concentrations. In our Full Matrix sheet describing Conservation Opportunities, we have calculated this range of phosphorous reductions using projected flows the Flows & Loadings Workgroup and a 10-50 µg/L range of technology performance provided by the Technology Workgroup.

Inland Empire Paper Company
Water Conservation, Reclamation and Reuse Projects

The Inland Empire Paper Company (IEP) has traditionally operated at discharge levels significantly below its NPDES permit limits. In spite of its already low level of operation, IEP has taken a proactive approach and has implemented several water reclamation projects in an effort to further reduce both flow and loading to the Spokane River.

One project consists of converting an existing primary clarifier to reclaim water from the old newsprint (ONP) recycling process. The existing clarifier was re-piped to receive wastewater directly from the ONP recycling process. The clarifier removes suspended solids from the wastewater and returns the clarified water back to the ONP recycling process. This project reclaims approximately 700,000 gallons/day of wastewater from the ONP recycling process.

Another project involves the reclamation of clarified water from the primary clarifier. The clarified water is processed through a strainer to remove coarse particulate matter and is then reused in both the refining and ONP recycling processes. This project removes approximately 850,000 gallons/day from the primary effluent stream.

The combination of the above projects reduces the wastewater flow to IEP's waste water treatment system (WWTS) and also IEP's discharge to the Spokane River by approximately 1.0 MGD (approximately 20% of IEP's prior total discharge). This flow reduction increases the residence time through the WWTS, subsequently resulting in an increase in the treatment efficiency. In the four months since the completion of the water reclamation projects, the data shows that the lower effluent flow has resulted in a BOD reduction of nearly 50% from the previous year's values.

The affects of these water conservation projects on phosphorous reduction is still being studied. The in-feed of phosphorous from the processing of wood products remains unchanged, so the effluent phosphorous may not be affected. However, the increased residence time of the WWTS may result in additional consumption of the residual phosphorus as a nutrient. IEP continues to collect data to further evaluate any benefits in phosphorous reduction associated with these projects and will report on the results in the near future.

IEP has also exerted significant effort into the research of phosphorous reduction technologies and has performed pilot trials of the top performing technologies determined from this research. The following technologies were selected and trialed at IEP:

- Blue Water Technologies – Vandal Ion Sand Filter
- Parkson – DynaSand Filter
- U.S. Filter – Trident Technology
- Zenon – ZeeWeed Membrane Filtration

It appears from the results of these pilot trials that specific technologies may be able to achieve average final phosphorous discharge levels at or slightly below 0.10 mg/L.

IEP has maintained a long standing policy of environmental stewardship, going above and beyond regulatory requirements. In keeping with this policy and under its own accord, IEP has invested significant manpower and capital into the above projects. We will continue to strive for further reductions of flows and loadings, and have already begun to identify additional water conservation, reclamation and reuse projects for the coming year. Some of the proposed projects that we are researching include: additional biological treatment, increasing the capacity of the recently installed water reclamation projects, the installation of a WWTS analysis/control system to optimize nutrient feed, and optimizing water use within mill processes.

Re-Use Opportunities Combined Sheet

This sheet contains information from the Re-Use & Conservation Workgroup's database, "combined" spreadhseet. Several columns have been hidden for viewing purposes. The full spreadhseet is available on the Spokane River TMDL Collaboration website.

										Use Charactistics						Source Characteristics		
										Current Source	Volume							
		Map Ref. No.	Landuse	Acreage	Reference No.	Name	Address	Category or Type of Use	Primary Function (Activity, Product)	Purveyor (name)	Average MGD (Note 3)	Peak MGD (Note 4)	Number of Days of Use	Acre-Feet	Irrigation Area (ac)	Likely Source	Distance from Source (mi)	Information Source
num	from	mapid	landuse	acreage	refnum	name	address	type	function	purveyor	mean	peak	daysuse	Acre-Feet	irrarea	reusesource	mi	inf
1	COS				COS1	GONZAGA UNIVERSITY	1022 N ASTOR ST	dom/landscp	School	Spo	0.2561	0.3332		286.9				Utility Billing
2	COS				COS2	COMM COLLEGES OF SPOKANE	3410 W CUSTER DR	dom/landscp	School	Spo	0.2156	0.3365		241.5				Option 1 / Utility Billing
3	COS				COS3	QUALCHAN GC PARK DEPARTMENT	303 E MEADOW LANE RD	irrigate	Golf	Spo	0.2634	0.5637		187.0		Spo RPWRF	< 10	Utility Billing
4	COS				COS4	ESMERALDA GC PARK DEPARTMENT	3900 E RICH AVE	irrigate	Golf	Spo	0.2708	0.5796		177.9		Spo RPWRF	< 10	Utility Billing
5	COS				COS5	DOWNRIVER GC PARK DEPARTMENT	3300 W RIVERVIEW DR	irrigate	Golf	Spo	0.2401	0.5138		170.7		Spo RPWRF	< 1	Option 1 / Utility Billing
6	COS				COS6	MISSION SPOKANE COMMUNITY COLLEG	3403 E MISSION AVE	dom/landscp	School	Spo	0.1517	0.2208		169.9				Utility Billing
7	COS				COS7	INTERSTATE FAIRGROUNDS	522 N HAVANA ST	dom/landscp	Park	Spo	0.1472	0.1986		164.9				Utility Billing
8	COS				COS8	WASTE - TO - ENERGY	2900 S GEIGER BLVD	process	Industrial	Spo	0.1353	0.1491		151.6		Spo RPWRF	< 5	Utility Billing
9	COS				COS9	MUKOGAWA UNIVERSITY	4100 W CUSTER RD	dom/landscp	School	Spo	0.1308	0.1811		146.6				Option 1 / Utility Billing
10	COS				COS10	WASHINGTON WATER POWER	331 N POST ST	process	Industrial	Spo	0.1188	0.1190		133.1		Spo RPWRF	< 5	Utility Billing
11	COS				COS11	BF GOODRICH AEROSPACE	11135 W WESTBOW BLVD	process	Industrial	Spo	0.1132	0.1522		126.8		Spo RPWRF	< 10	Utility Billing
12	COS				COS12	FAIRWAYS GOLF INC	9810 W MELVILLE RD	irrigate	Golf	Spo	0.1808	0.3869		118.7		Spo RPWRF	< 10	Utility Billing
13	COS				COS13	FERRIS DIST 81	3020 E 37TH AVE	dom/landscp	School	Spo	0.0920	0.1382		103.0				Utility Billing
14	COS				COS14	ROGERS DIST 81	1622 E WELLESLEY AVE	dom/landscp	School	Spo	0.0872	0.1301		97.7				Utility Billing
15	COS				COS15	HART FIELD DIST 81	425 E 37TH AVE	irrigate	School	Spo	0.1216	0.2602		83.5				Utility Billing
16	COS				COS16	SPO YOUTH SPORTS	3501 N REGAL ST	irrigate	Park	Spo	0.1171	0.2507		76.9				Utility Billing
17	COS				COS17	SPOKANE MEMORIAL GARDENS	5909 S CHENEY SPOKANE RD	irrigate	Cemetery	Spo	0.1132	0.2423		75.8		Spo RPWRF	< 10	Utility Billing
18	COS				COS18	RIVERFRONT PARK DEPARTMENT	326 N POST ST	irrigate	Park	Spo	0.1042	0.2230		75.5		Spo RPWRF	< 5	Utility Billing
19	COS				COS19	MAIN ACC SUNDANCE SHOP	8701 N INDIAN TRAIL RD	dom/landscp	Industrial	Spo	0.1063	0.1063		75.2		Spo RPWRF	< 5	Utility Billing
20	COS				COS20	FRANKLIN PARK DEPARTMENT	302 W QUEEN AVE	irrigate	Park	Spo	0.1120	0.2396		73.6				Utility Billing
21	COS				COS21	INDIAN CANYON GC (note 2)	4302 W. WEST DR.	irrigate	Golf		0.2104	0.4503		141.0		Spo RPWRF	< 5	Option 1
22	COS				COS22	RIVERSIDE CEMETERY (note 5)	508 N. GOVN'MT WAY	irrigate	Cemetery		1.5342	3.2832				Spo RPWRF	< 5	Option 1
23	COS				COS23	GREENWOOD CEMETERY (note 5)	211 N. GOVN'MT WAY	irrigate	Cemetery		1.2200	2.6107				Spo RPWRF	< 5	Option 1
24	COS				COS24	FAIRMOUNT CEMETERY (note 5)	5200 W. WELLESLEY	irrigate	Cemetery		1.0766	2.3040				Spo RPWRF	< 5	Option 1
25	COS				COS25	SUNDANCE GC (note 5)	9723 N 9 MI. RD.	irrigate	Golf		0.4239	0.9072				Spo RPWRF	< 5	Option 1
26	COS				COS26	FINCH ARBORETUM	3520 W. WOODLAND BLVD	irrigate	Park	Spo	0.0726	0.1553		48.8		Spo RPWRF	< 5	Option 1
27	COS				COS27	HIGH BRIDGE PARK (note 5)	2520 W HARTSON	irrigate	Park	Spo						Spo RPWRF	< 5	Option 1
28	COS				COS28	COEUR D'ALENE PARK	2202 W. 4TH	irrigate	Park	Spo	0.0374	0.0800		24.6				Option 1
29	COS				COS29	AUDUBON PARK	2802 W NORTHWEST BLVD	irrigate	Park	Spo	0.0378	0.0808		25.1				Option 1
30	COS				COS30	NORTHWEST BLVD GREENSPACE		irrigate	Park	N/A						Spo RPWRF	< 1	Option 1
31	COS				COS31	CROP IRRIGATION IN DEEP CREEK		irrigate	Ag/Wetland	N/A	11	44		7191-28764		Spo RPWRF	< 15	Option 2
32	COS				COS32	RECHARGE OF WATER RES. CRAB CREEK		irrigate	Ag/Wetland	N/A	11	44		7191-28764		Spo RPWRF	< 20	Option 3
34	COS				COS34	GREENBLUFF ORCHARDS		irrigate	Ag/Wetland	Whitworth WD							<15	Whitworth WD
35	COS				COS35	MT SPO.HIGH SCHOOL	6105 E.MT. SPO. DR.	irrigate	School	Whitworth WD	0.027196	0.0582					< 10	Whitworth WD
36	COS				COS36	MEAD HIGH SCHOOL	302 W HASTINGS	irrigate	School	Whitworth WD	0.019486	0.0417					< 5	Whitworth WD
37	COS				COS37	HOLMBERG PARK	WALL & HOLLAND	irrigate	Park	Whitworth WD	0.034159	0.0731					< 5	Whitworth WD
38	COS				COS38	CAMELOT PARK	GUINEVERE & PERCIVAL	irrigate	Park	Whitworth WD	0.294393	0.6300					< 10	Whitworth WD
39	COS				COS39	BELLWOOD PARK	REGINA & FLORENCE	irrigate	Park	Whitworth WD	0.008551	0.0183					< 10	Whitworth WD
40	COS				COS40	GLENEDEN PARK	LITTLE SPO DR. & COLUMBUS	irrigate	Park	Whitworth WD	0.014299	0.0306					< 10	Whitworth WD
41	COS				COS41	LINWOOD PARK	COUNTRY HMS & WARREN W'	irrigate	Park	Whitworth WD	0.028318	0.0606					< 5	Whitworth WD
43	COS				COS43	WHITWORTH COLLEGE	600 W HAWTHRONE RD	irrigate	School	Whitworth WD	0.044299	0.0948					< 5	Whitworth WD
45	COS				COS45	PINE ACRES PAR 3 (note 5)	11912 N. DIVISION	irrigate	Golf	Whitworth WD		Note 5					< 5	Whitworth WD
48	SC	C01	Cemetery	73	C01	Holy Cross	7200 N. Wall	irrigate	Cemetery		0.265317	0.5678			73	COS		Areas from GIS
49	SC	C05	Cemetery	17	C05	Pines	1400 S. Pines	irrigate	Cemetery		0.061786	0.1322			17	SPO CO	<10	Areas from GIS
50	SC	C06	Cemetery	17	C06	Pines	1600 S. Pines	irrigate	Cemetery		0.061786	0.1322			17	SPO CO	<10	Areas from GIS
51	SC	C07	Cemetery	29	C07	St. Joseph	17825 E. Trent	irrigate	Cemetery		0.1054	0.2256			29	SPO CO	<10	Areas from GIS
52	SC	G01	Golf Course	113	G01	Wandermere	13700 N. Wandermere	irrigate	Golf Course		0.350467	0.7500			113	SPO CO	<10	Areas from GIS
53	SC	G02	Golf Course	180	G02	Spokane C.C.	2010 W. Waikiki	irrigate	Golf Course		0.350467	0.7500			180	SPO CO	<10	Areas from GIS
54	SC	G08	Golf Course	129	G08	Manito C.C.	5305 S. Hatch	irrigate	Golf Course		0.350467	0.7500			129	SPO CO	<5	Areas from GIS
55	SC	G09	Golf Course	165	G09	Hangman	2210 E. Hangman Valley	irrigate	Golf Course		0.350467	0.7500			165	SPO CO	<10	Areas from GIS
56	SC	G11	Golf Course	125	G11	Liberty Lake	24403 E. Sprague	irrigate	Golf Course		0.350467	0.7500			125	LLSWD		Areas from GIS
57	SC	G12	Golf Course	136	G12	Meadow Wood	24501 E. Valleyway	irrigate	Golf Course		0.350467	0.7500			136	LLSWD		Areas from GIS
58	SC	G13	Golf Course	55	G13	Valley View	1402 N. Liberty Lake	irrigate	Golf Course		0.175234	0.3750			55	LLSWD		Areas from GIS
59	SC	G15	Golf Course	28	G15	Pine Acres	11912 N. Division	irrigate	Golf Course		0.175234	0.3750			28	SPO CO	<10	Areas from GIS
60	SC	I01	Industry	934	I01	Kaiser, Mead	2111 E. Hawthorne		Industry							SPO CO	<10	
61	SC	I02	Industry	53	I02	Inland Empire Paper	3320 N. Argonne		Industry							IEPC		
62	SC	I03	Industry	509	I03	Kaiser, Trentwood	15000 E. Euclid		Industry							SPO CO	<10	
63	SC	I04	Industry	283	I04	Spokane Industrial Park	3808 N. Sullivan		Industry							SPO CO	<10	
64	SC	I05	Industry	235	I05	Central Premix	2010 N. Sullivan		Industry							SPO CO	<10	
65	SC	I06	Industry	105	I06	Acme	302 N. Park		Industry							COS / SPO CO	<5	
66	SC	I07	Industry	70	I07	Central Premix	5217 E. Broadway		Industry							COS / SPO CO	<1	
67	SC	P01	Park	369	P01	McLellan Convsservation Area	w. of 24213 N. Westlake Dr.	irrigate	Park		1.341125	2.8700			369		>15	Areas from GIS
68	SC	P02	Park	63	P02	Sontag	e. of 10103 W. Charles	irrigate	Park		0.228973	0.4900			63	COS		Areas from GIS
69	SC	P03	Park	667	P03	Edburge-Bass Conservation Area	e.of 14914 N. River Park Ln	irrigate	Park		2.424202	5.1878			667	COS		Areas from GIS
70	SC	P04	Park	48	P04	Holmberg Conservation Area	w. of 716 W. Holland	irrigate	Park		0.174455	0.3733			48	COS		Areas from GIS
71	SC	P05	Park	818	P05	Lower Little Spokane Natural Area	w. of 4411 W. Rutter Pkwy	irrigate	Park		2.97301	6.3622			818	COS		Areas from GIS
72	SC	P09	Park	97	P09	Haynes Estate Conservation Area	1700 Leona Dr.	irrigate	Park		0.352545	0.7544			97	SPO CO	<10	Areas from GIS
73	SC	P10	Park	13	P10	Pine River	Little Spokane Dr. & Greenleaf D	irrigate	Park		0.047248	0.1011			13	SPO CO	<10	Areas from GIS
74	SC	P13	Park	19	P13	Bidwell	Hatch & Handy	irrigate	Park		0.069055	0.1478			19	SPO CO	<15	Areas from GIS
75	SC	P14	Park	159	P14	Bear Lake	Newport Hwy & Calispel	irrigate	Park		0.577883	1.2367			159		>15	Areas from GIS
76	SC	P17	Park	183	P17	Airway Heights ORV	e. of 124 N. Craig	irrigate	Park		0.665111	1.4233			183	AWYHTS		Areas from GIS

Re-Use Opportunities Combined Sheet

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										Use Charactistics								
										Current Source	Volume				Source Characteristics			
		Map Ref. No.	Landuse	Acreage	Reference No.	Name	Address	Category or Type of Use	Primary Function (Activity, Product)	Purveyor (name)	Average MGD (Note 3)	Peak MGD (Note 4)	Number of Days of Use	Acre-Feet	Irrigation Area (ac)	Likely Source	Distance from Source (mi)	Information Source
num	from	mapid	landuse	acreage	refnum	name	address	type	function	purveyor	mean	peak	daysuse	Acre-Feet	irrarea	reusesource	mi	inf
77	SC	P19	Park	625	P19	Slavin Family Conservation Area	Washington & Keeney	irrigate	Park		2.271554	4.8611			625	SPO CO	<10	Areas from GIS
78	SC	P20	Park	20	P20	Fish Lake	Cheney Spokane & Myers Park	irrigate	Park		0.07269	0.1556			20	COS		Areas from GIS
79	SC	P21	Park	808	P21	Ilier Creek Conservation Area	9000 E. Holman	irrigate	Park		2.936665	6.2845			808	SPO CO	<10	Areas from GIS
80	SC	P22	Park	520	P22	Dishman Hills	940 E. 10th	irrigate	Park		1.889933	4.0445			520	COS / SPO CO	<5	Areas from GIS
81	SC	P23	Park	94	P23	Plante's Ferry	12500 E. Wellesley	irrigate	Park		0.341642	0.7311			94	SPO CO	<10	Areas from GIS
82	SC	P24	Park	40	P24	Morrow Conservation Area	end of Morrow Park	irrigate	Park		0.145379	0.3111			40	SPO CO	<10	Areas from GIS
83	SC	P25	Park	22	P25	Valley Ford	Marshall & Connor	irrigate	Park		0.079959	0.1711			22	SPO CO	<15	Areas from GIS
84	SC	P26	Park	2727	P26	Liberty Lake	se of Liberty Lake	irrigate	Park		9.911243	21.2101			2727	LLSWD		Areas from GIS
85	SC	P27	Park	14	P27	Pavilion	Molter & Country Vista	irrigate	Park		0.050883	0.1089			14	LLSWD		Areas from GIS
86	SC	P28	Park	26	P28	Spokane River Conservation Area	nw of I90 Truck Inspection Stn.	irrigate	Park		0.094497	0.2022			26	LLSWD		Areas from GIS
87	SC	P30	Park	49	P30	Newman Lake Future Development	8500 N. Harvard	irrigate	Park		0.17809	0.3811			49	SPO CO	<15	Areas from GIS
88	SC	P31	Park	133	P31	Feryn Conservation Area	n. of 9411 E. Peone	irrigate	Park		0.483387	1.0344			133	SPO CO	<10	Areas from GIS
89	SC	P33	Park	13	P33	Shields (Minnehaha Rocks)	Upriver Dr.	irrigate	Park		0.047248	0.1011			13	COS / SPO CO	<5	Areas from GIS
90	SC	S06	School	24	S06	Centennial Middle	915 N Ella Rd	irrigate	School		0.087228	0.1867			14	COS / SPO CO	<5	Areas from GIS
91	SC	S07	School	59	S07	Central Valley Senior High	821 S Sullivan Rd	irrigate	School		0.214435	0.4589			35	SPO CO	<10	Areas from GIS
92	SC	S08	School	24	S08	Chase(Libby) Middle	4747 E 37th Av	irrigate	School		0.087228	0.1867			14	COS / SPO CO	<5	Areas from GIS
93	SC	S09	School	35	S09	Cheney Junior High	2716 N 6th St	irrigate	School		0.127207	0.2722			21		>15	Areas from GIS
94	SC	S10	School	31	S10	Cheney Senior High	460 N 6th St	irrigate	School		0.112669	0.2411			19		>15	Areas from GIS
95	SC	S12	School	39	S12	Deer Park High	545 S Weber Av	irrigate	School		0.141745	0.3033			23		>15	Areas from GIS
96	SC	S13	School	24	S13	Deer Park Junior High	347 S Colville Rd	irrigate	School		0.087228	0.1867			14		>15	Areas from GIS
97	SC	S14	School	35	S14	East Valley Middle	4920 N Progress Rd	irrigate	School		0.127207	0.2722			21	SPO CO	<10	Areas from GIS
98	SC	S15	School	38	S15	East Valley Senior High	15711 E Wellesley Av	irrigate	School		0.13811	0.2956			23	SPO CO	<10	Areas from GIS
99	SC	S16	School		S16	Eastern Washington University	516 9th Cheney	irrigate	School								>15	
100	SC	S19	School	392	S19	Felts Field	5711 E Rutter Av	irrigate	School		1.424719	3.0489			235	COS / SPO CO	<5	Areas from GIS
101	SC	S23	School	23	S23	Gonzaga Preperatory (High)	1224 E Euclid Av	irrigate	School		0.050156	0.1073			14	COS / SPO CO	<5	Areas from GIS
102	SC	S25	School	21	S25	Greenacres Junior High	17409 E Sprague Av	irrigate	School		0.045795	0.0980			13	SPO CO	<10	Areas from GIS
103	SC	S27	School	21	S27	Horizon Junior High	3915 S Pines Rd	irrigate	School		0.045795	0.0980			13	SPO CO	<10	Areas from GIS
104	SC	S28	School		S28	Institute for Extended Learning (IEL)	3305 W Fort George Wright Dr	irrigate	School							COS		
105	SC	S29	School		S29	Intercollegiate Center for Nursing	2917 W Fort George Wright Dr	irrigate	School							COS		
106	SC	S33	School	25	S33	Mead Junior High	12509 N Market St	irrigate	School		0.054517	0.1167			15	SPO CO	<10	Areas from GIS
107	SC	S34	School	38	S34	Mead Senior High	302 W Hastings R	irrigate	School		0.082866	0.1773			23	SPO CO	<10	Areas from GIS
108	SC	S36	School	23	S36	Medical Lake Senior High	200 Barker St	irrigate	School		0.050156	0.1073			14		>15	Areas from GIS
109	SC	S38	School	53	S38	Mountain View Middle	6011 N Chase Rd	irrigate	School		0.115577	0.2473			32	SPO CO	<15	Areas from GIS
110	SC	S42	School	36	S42	Northwood Junior High	13120 N Pittsburg St	irrigate	School		0.078505	0.1680			22	COS / SPO CO	<10	Areas from GIS
111	SC	S44	School	50	S44	Riverside Middle	3814 E Deer Park Milan Rd	irrigate	School		0.109035	0.2333			30		>15	Areas from GIS
112	SC	S45	School	104	S45	Riverside Senior High	4120 E Deer Park Milan Rd	irrigate	School		0.226792	0.4853			62		>15	Areas from GIS
113	SC	S47	School	44	S47	Sacajawea Junior High	401 E 33rd Av	irrigate	School		0.09595	0.2053			26	COS / SPO CO	<5	Areas from GIS
114	SC	S49	School	42	S49	Shadle Park Senior High	4327 N Ash St	irrigate	School		0.091589	0.1960			25	COS		Areas from GIS
115	SC	S50	School	35	S50	Shaw Junior High	4106 N Cook St	irrigate	School		0.076324	0.1633			21	COS / SPO CO	<5	Areas from GIS
116	SC	S56	School	27	S56	University Senior High	10212 E 9th Av	irrigate	School		0.058879	0.1260			16	COS / SPO CO	<5	Areas from GIS
117	SC	S59	School	23	S59	West Valley Senior High	8301 E Buckeye Av	irrigate	School		0.050156	0.1073			14	COS / SPO CO	<5	Areas from GIS
118	SC	S60	School	116	S60	Whitworth College	300 W Hawthorne	irrigate	School		0.25296	0.5413			70	SPO CO	<10	Areas from GIS
121	LL				SCWD3-1	PAINTED HILLS GC	4403 S DISHMAN MICA RD	irrigate	Golf	SCWD3	0.1908	0.4654		213.69				SCWD 3
122	LL				LL01	PAVILLION PARK	N. MOLTER	irrigate	Park	SPO CO			180		16	SRPA	1	LLWSD
123	LL				LL02	TRAILHEAD GC	1102 N LIBERTY LK RD	irrigate	Golf	CITY LIB LK	0.2500	0.5350	180	1200	55	SRPA	1	LLWSD
124	LL				LL03	MEADOWOOD GC	24501 E VALLEYWAY	irrigate	Golf	SPO CO	0.7500	1.6050	180	1080.0	148	SRPA	2	LLWSD
125	LL				LL04	LIBERTY LAKE GC	24403 E SPRAGUE	irrigate	Golf	SPO CO	0.5000	1.0700	0 - 180	365	124	SRPA	2	LLWSD
126	LL				LL05	OUTLET CHANNEL LIB LK	1100 N LIBERTY LK RD	aquifer recharg	surface	WA	32.0000		180			LL WWTP	1	LLWSD
127	LL				LL06	I-90 SHOULDER IRRIGATE	STATELINE - SULLIVAN	irrigate	Ag/Wetland	WA	0.7500	1.6050	180		196	LL WWTP	1	LLWSD
128	LL				LL07	LIB LK SEWER & WATER	1900 N HARVARD RD	irrigate	process		0.7500		180		39	LL WWTP	0	LLWSD
129	LL				LL08	CENTRAL VALLEY SD	23606 E BOONE	irrigate	School	LLSWD		0.0000	180		10	LL WWTP	1	LLWSD
130	LL				LL09	SPO GUN CLUB	19615 E SPRAGUE	irrigate	Ag/Wetland	CON IRR	0.0370	0.0792	180		118		2	LLWSD
131	LL				LL10	ST. JOSEPH CATH CHURCH	4521 N ARDEN	irrigate	Church	CON IRR	0.0020	0.0043	180		20		2	LLWSD
132	LL				LL11	EAST FARM ELEM.	26203 E ROWAN	irrigate	School	CON IRR	0.1190	0.2547	180		20		4	LLWSD
133	LL				LL12	MT. VIEW JR. HI.	6011 N CHASE	irrigate	School	CON IRR	0.0280	0.0599	180		20		4	LLWSD
134	LL				LL13	SKYVIEW ELEM	16924 E WELLESLEY	irrigate	School	CON IRR	0.0310	0.0663	180					LLWSD
135	LL				LL14	ST. JOSEPH CEMETERY	17825 E TRENT	irrigate	Cemetery	CON IRR	0.0190	0.0407	180		38	LIB LK	4	LLWSD
136	LL				LL15	NEW HOPE CHRISTIAN	4506 N HARVARD	irrigate	Church	CON IRR	0.0030	0.0064	180		5	LIB LK	1	LLWSD
137	LL				LL16	OTIS ORCHARD COMM CH	23304 E WELLESLEY	irrigate	Church	CON IRR	0.0080	0.0171	180		15	LIB LK	2	LLWSD
138	LL				LL17	PEACE LUTHERN	4124 N HARVARD	irrigate	Church	CON IRR	0.0060	0.0128	180		5	LIB LK	1	LLWSD
139	LL				LL18	GOOD SAM NURSING HM	17121 E 8TH	irrigate	Nursing Hm	CON IRR	0.0130	0.0278	180			LIB LK	4	LLWSD

Note 1 - Greenwood, Riverside, & Fairmount do not meter water use
Note 2 - Indian Canyon GC served by single well not on City system
Note 3 - Average MGD is the 2004 total water usage divided by 365 days
Note 4 - Peak MGD for "irrigate" users is the average daily 2004 total water usage for April-Oct mulitplied by 2.14
----peak MGD for "process" and "dom/landscp" is the average daily 2004 total water usage for April-Oct with no mulitplier
Whitworth WD info is actual average daily peak usage during month of greatest use

Note 5 - actually water pumpage not available

Information Source Notations

Utility Billing: From water billing with customers using greater
Note: original list of customers with greater than 100,000 gal./day was scrubbed to remove customers in the following categories hospitals, residential communities (i.e. PUDs), food processing /
Option 1,2,or 3

denotes conceptual options described in City of Spokane Wastewater Facility Plan (11/1999) Appendix I - Long-Term Planning Studies
SCWD 3
customer using >100,000 from Spokane County Water District 3
Whitworth WD
Whitworth Water District customer using >100,000 from Spokane County Water District 3
Whitworth WD
Whitworth Water District