

Project Information			
Option #	1	Model #	585
Project Name	Example Project		
Country	United States	State	Ohio
City	West Chester	Zipcode	45069
Land Use	Commercial		
Civil Engineer Firm	XYZ Engineering		
Architecture Firm	ABC & Co		
Merlin #			

Contact Information	
First Name	John
Last Name	Smith
Phone #	555-555-5555
Email	Johnsmith@example.com

## Supply Information

### Site Area for Rainwater & Stormwater Sources

	Rooftop - Traditional	Rooftop - Green Roof	Hardscape
Area (sq.ft)	75,000		
Runoff C	0.95	0.50	0.90
Effective Runoff Area	71,250		

### Building Information

# of Floors		
Total Building Sq Footage		sq.ft
Peak Condensation Rate	0.0007	gal/hr/sq.ft
Peak Condensation Volume		gal/month

### Secondary Sources of Re-use Water

Calculation of AC with		% of Peak		
Air Condition Condensation Supply			Gray Water Supply	
Month	(% of Peak)	(gal/month)	Month	(gal/month)
January			January	
February			February	
March			March	
April			April	
May			May	
June			June	
July			July	
August			August	
September			September	
October			October	
November			November	
December			December	
<b>Annual Total</b>			<b>Annual Total</b>	

## Demand Information

Toilet Re-use Demand	
	Office/Com
Weekday (flushes/day)	
Weekend (flushes/day)	
Volume (gal/flush)	
<b>Annual Total</b>	

Laundry Re-use Demand	
Loads/Day	
Gallons/Load	
Cold Fraction	
Daily Total	
<b>Annual Total</b>	

Wash Water Re-use Demand	
Daily Average	gal
<b>Annual Total</b>	gal

Irrigation Re-use Demand	
Input Units	Inches per week
Irrigation Area	15,000 sq.ft

Cooling Makeup Re-use Demand	
Input Units	Gallons per month
Volume in Peak Month	4.60 gal/sq.ft
Total Cooled Area	sq.ft
Peak Monthly Demand	gal

Irrigation		
Month	Inches per week	Gallons per week
January		
February		
March		
April	0.50	4,675
May	0.75	7,013
June	1.25	11,688
July	1.50	14,025
August	1.50	14,025
September	1.00	9,350
October	0.50	4,675
November		
December		
<b>Annual Total</b>		285,179

Cooling Makeup		
Month	(% of Peak)	(gal/month)
January		
February		
March		
April		
May		
June		
July		
August		
September		
October		
November		
December		
<b>Annual Total</b>		

## Analysis Information

Rainfall Data	
Station Name	Kings Mills
Years Modeled	1981-2001
Missing Data	Dec-1981, Jan-1982, Feb-1982, Mar-1982, Apr-1982, May-1982, Jun-1982, Jul-1982, Aug-1982, Sep-1982, Oct-1982
Avg Annual Rainfall	41

Design Storm	
First Flush Bypass (in)	0.00
Design Storm (in)	2.00

Cistern Size	
Cistern Size (gallons)	20,000

Utility Rates		
Water Rate	\$0.0030	\$/gal
Sewer Rate	\$0.0060	\$/gal

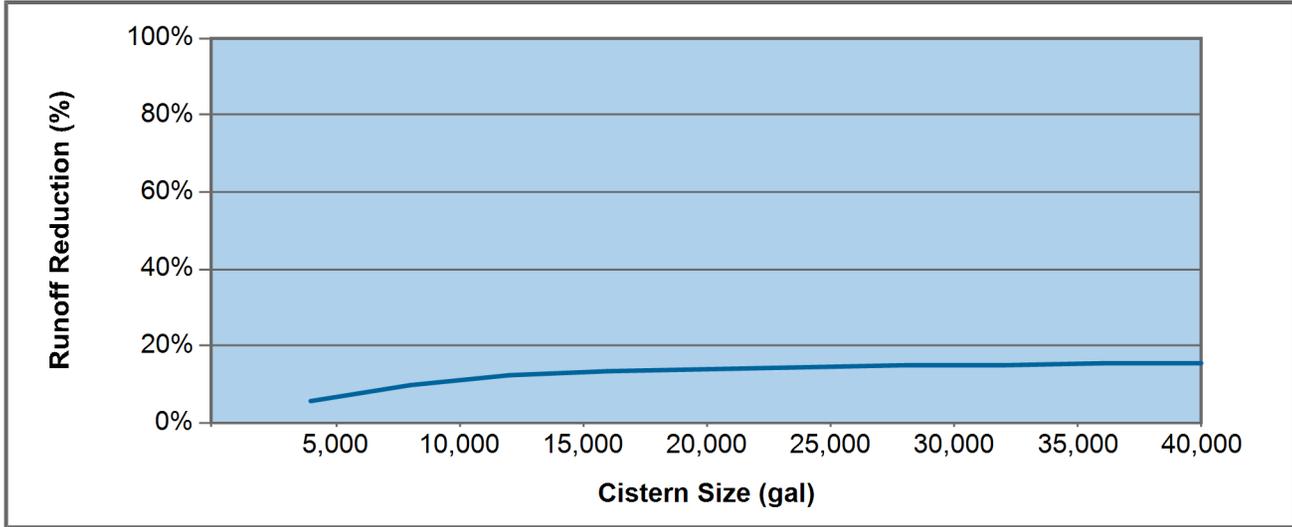
Supply Source		
	Include ?	Annual Volume (gal)
Rooftop	Yes	1,820,912
Hardscape	No	
AC Condensate	No	
Gray Water	No	
<b>Total</b>		<b>1,820,912</b>

Demand Source		
	Include ?	Annual Volume (gal)
Irrigation	Yes	285,179
Toilet Flush	No	
Cooling Makeup	No	
Wash Water	No	
Laundry	No	
<b>Total</b>		<b>285,179</b>

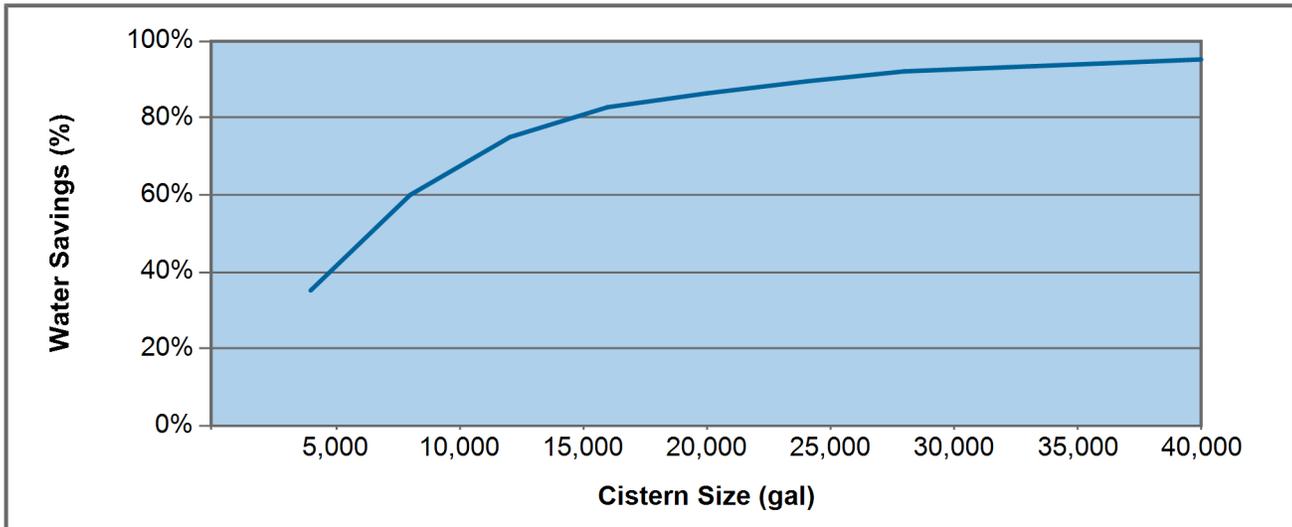
	Rainfall		Stormwater		Supply		Demand	Captured
	Total	Targeted	Targeted	Peak	Targeted SW	Total		
Typical Rainfall Year	41	40	1,774,174	60,196	1,774,174	1,811,438	285,179	246,840
Max Rainfall Year	60	58	2,569,708	87,049	2,569,708	2,656,756	285,179	263,086
21 Year Total	859	840	37,257,652	782,550	37,257,652	38,040,201	5,988,759	5,183,633

	Runoff Retained (Targeted Rainfall)		Water Savings		Total Retained (Targeted, Peak, Secondary)		Savings	
	Volume	Percentage	Volume	Percentage	Volume	Percentage	Volume	Percentage
Typical Rainfall Year	246,840	14%	245,887	86%	246,840	14%	\$2,213	
Max Rainfall Year	263,086	10%	263,086	92%	263,086	10%	\$2,368	
21 Year Total	5,183,631	14%	5,163,633	86%	5,183,633	14%	\$46,473	

Runoff Reduction vs. Cistern Size

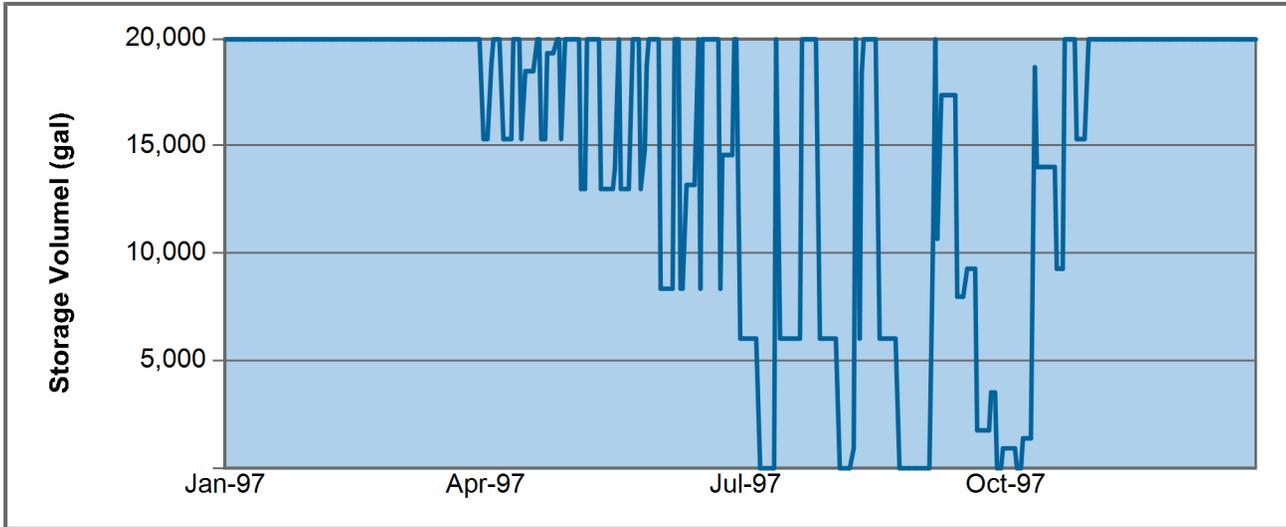


Water Savings vs Cistern Size

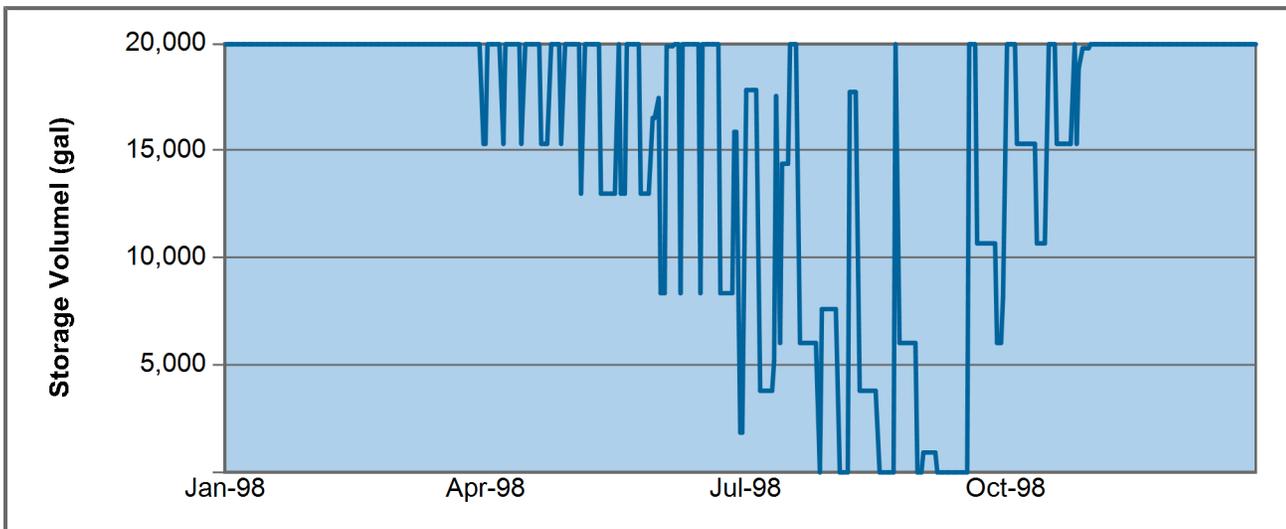


## Daily Ending Cistern Volume Graph

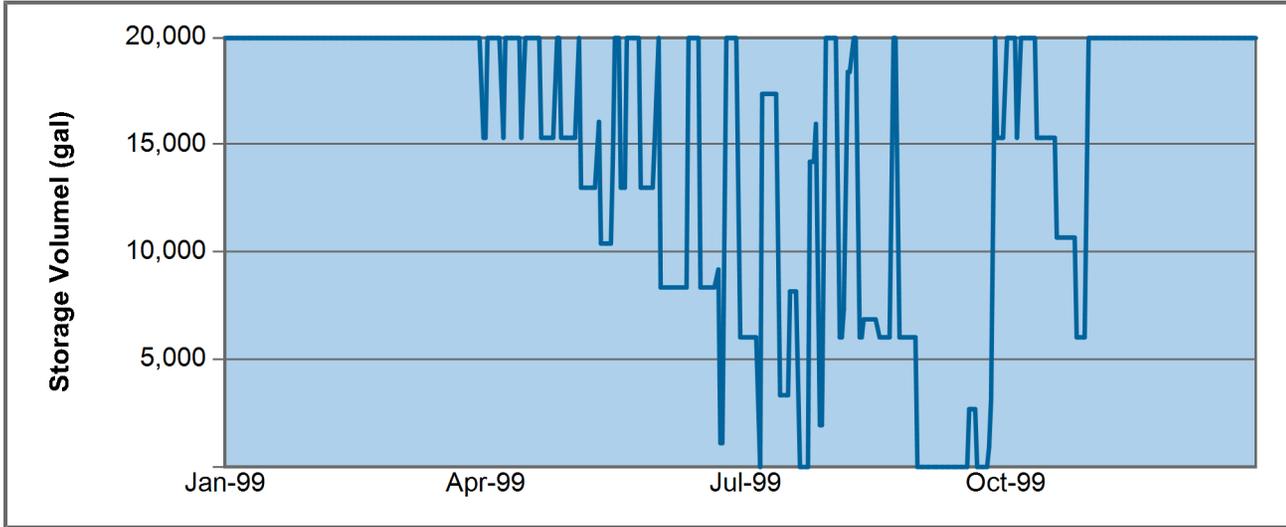
### Year 1997: Daily Ending Cistern Volume



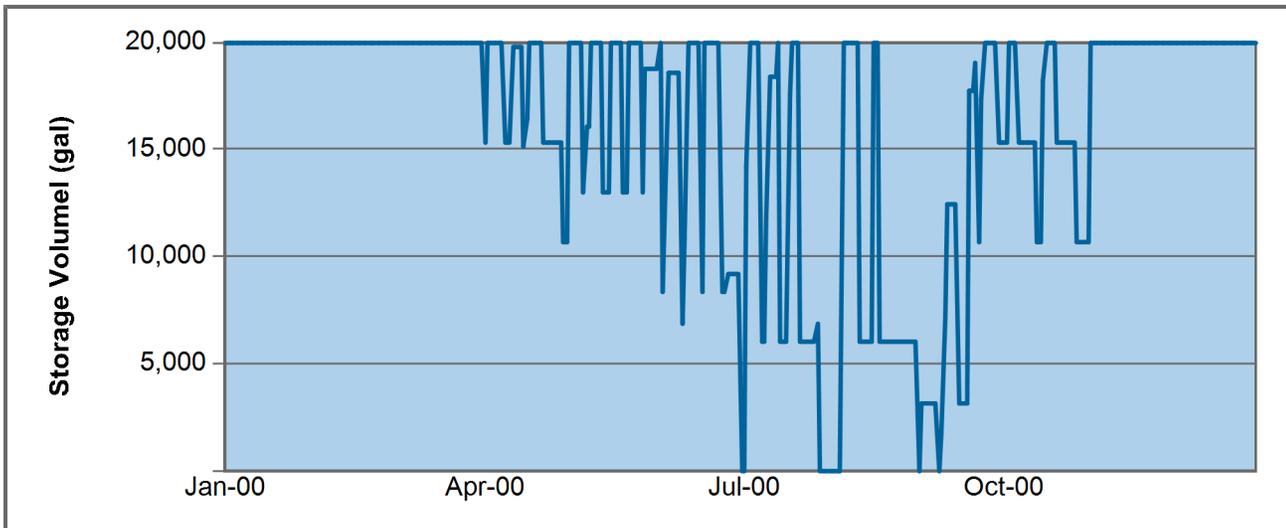
### Year 1998: Daily Ending Cistern Volume



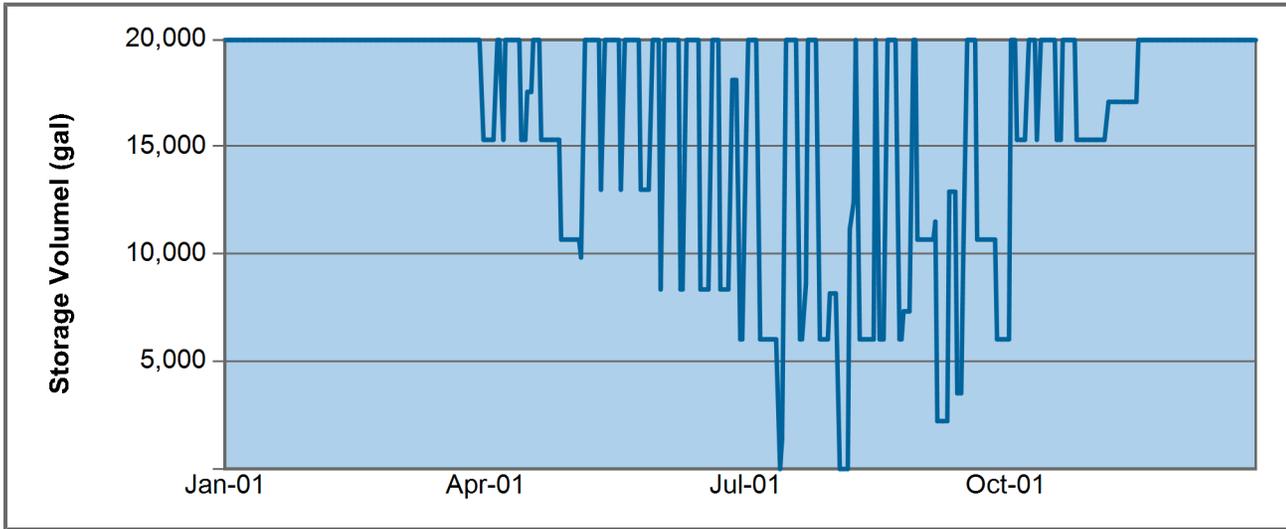
**Year 1999: Daily Ending Cistern Volume**



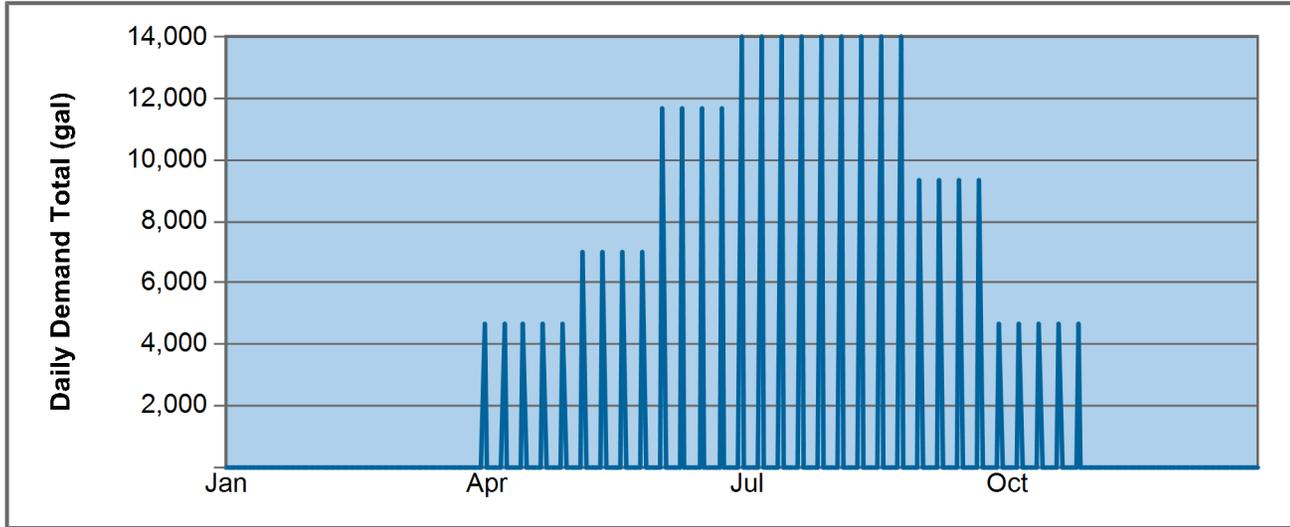
**Year 2000: Daily Ending Cistern Volume**



**Year 2001: Daily Ending Cistern Volume**

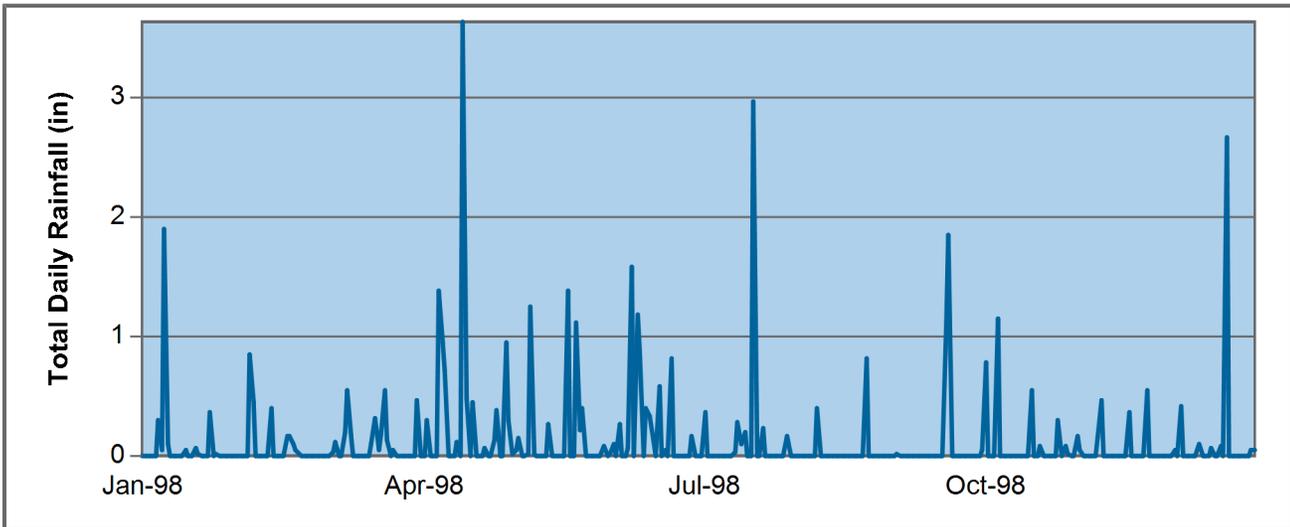


## Total Daily Demand

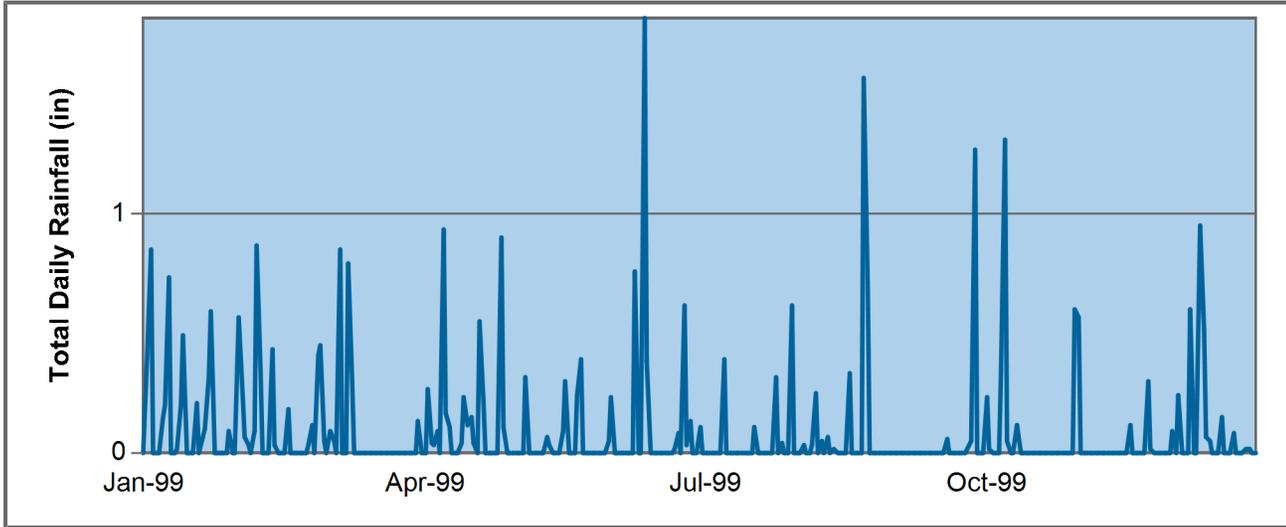


## Annual Rainfall History

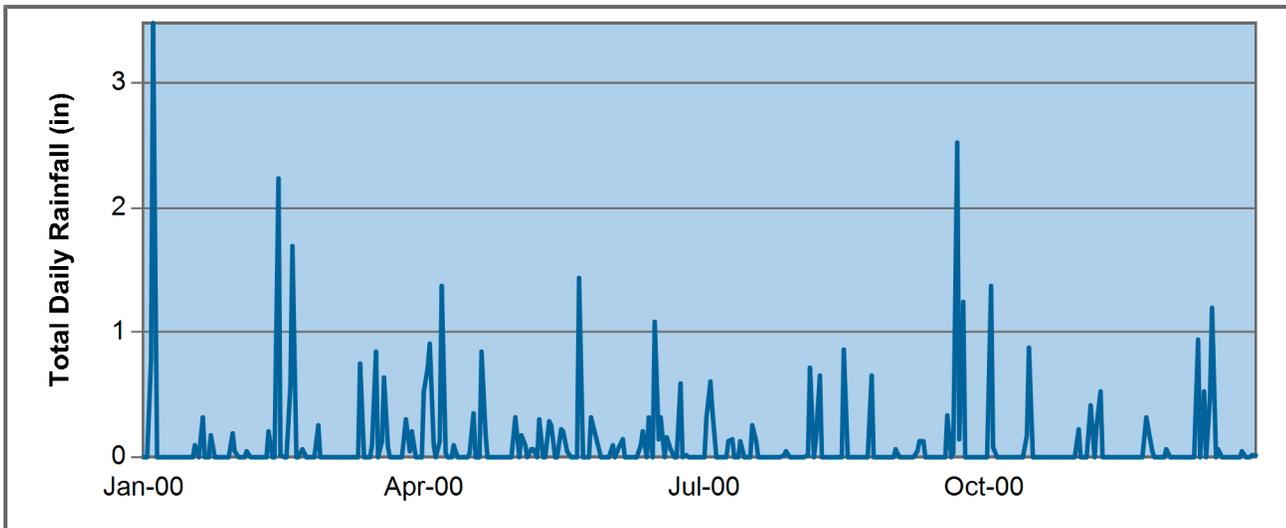
### Kings Mills - 1998



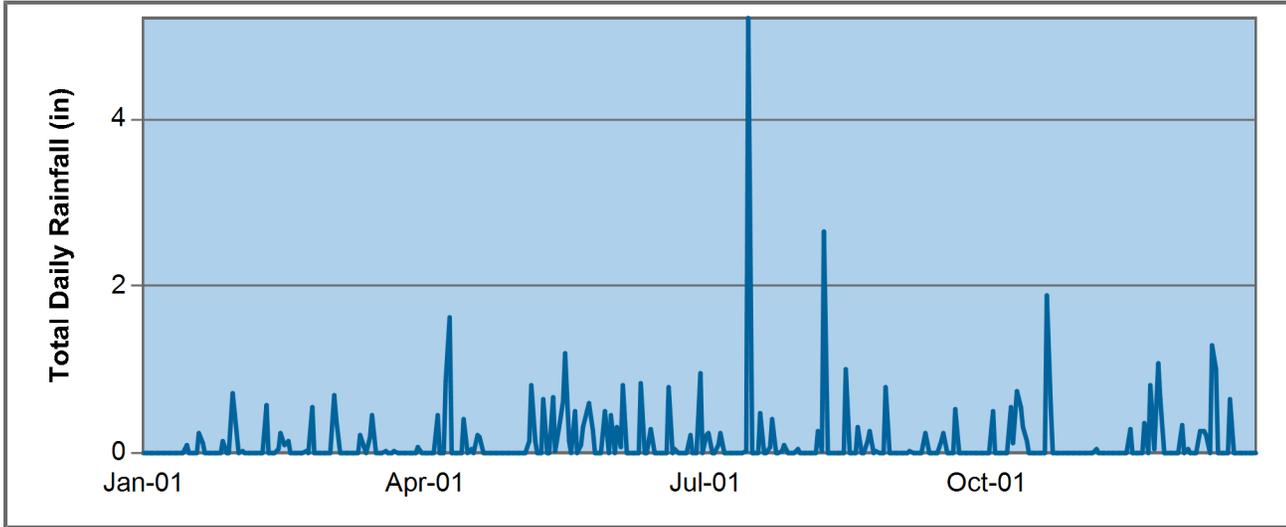
**Kings Mills - 1999**



**Kings Mills - 2000**



**Kings Mills - 2001**



## Detail Result

Year	Rainfall				Supply							
	Total	FF	Target	Peak	Stormwater			Secondary Supply		Total		
			0.00 to 2.00 in		FF BP	Targeted	Peak	AC	Gray Water	Targeted	Total	Targeted / Total
1981	42		42			1,846,672				1,846,672	1,846,672	100%
1982	8		8			377,062				377,062	377,062	100%
1983	41		41			1,801,815				1,801,815	1,801,815	100%
1984	42		42			1,881,758				1,881,758	1,881,758	100%
1985	45		45	1		1,978,133	23,539			1,978,133	2,001,672	99%
1986	40		40			1,757,403				1,757,403	1,757,403	100%
1987	30		30			1,335,040				1,335,040	1,335,040	100%
1988	38		37			1,664,581	15,989			1,664,581	1,680,569	99%
1989	50		49	1		2,170,883	31,089			2,170,883	2,201,972	99%
1990	53		53			2,356,972	12,880			2,356,972	2,369,851	99%
1991	37		37	1		1,627,718	25,759			1,627,718	1,653,478	98%
1992	39		38			1,705,884	15,544			1,705,884	1,721,429	99%
1993	40		40			1,777,833				1,777,833	1,777,833	100%
1994	35		34	1		1,490,928	46,189			1,490,928	1,537,117	97%
1995	43		42	1		1,873,764	25,759			1,873,764	1,899,523	99%
1996	60		58	2		2,569,708	87,049			2,569,708	2,656,756	97%
1997	45		43	2		1,896,858	83,940			1,896,858	1,980,798	96%
1998	46		43	3		1,894,193	144,785			1,894,193	2,038,978	93%
1999	33		33			1,448,292				1,448,292	1,448,292	100%
2000	44		41	2		1,840,010	99,040			1,840,010	1,939,050	95%
2001	48		44	4		1,962,145	170,988			1,962,145	2,133,133	92%
<b>Total</b>	<b>859</b>		<b>840</b>	<b>18</b>		<b>37,257,652</b>	<b>782,550</b>			<b>37,257,652</b>	<b>38,040,201</b>	<b>98%</b>

Year	Demand						Captured			Overflow		
	Toilet	Laundry	Wash	Irrigate	Cooling	Total	Targeted	Peak	Total	Targeted	Peak	Total
1981				285,179		285,179	283,992		283,992	1,562,680		1,562,680
1982				285,179		285,179	20,000		20,000	357,062		357,062
1983				285,179		285,179	236,110		236,110	1,565,706		1,565,706
1984				285,179		285,179	264,080		264,080	1,617,678		1,617,678
1985				285,179		285,179	269,453		269,453	1,708,680	23,539	1,732,219
1986				285,179		285,179	243,638		243,638	1,513,765		1,513,765
1987				285,179		285,179	256,736		256,736	1,078,304		1,078,304
1988				285,179		285,179	240,816		240,816	1,423,765	15,989	1,439,753
1989				285,179		285,179	267,545		267,545	1,903,338	31,089	1,934,427
1990				285,179		285,179	261,029		261,029	2,095,943	12,880	2,108,822
1991				285,179		285,179	256,525		256,525	1,371,194	25,759	1,396,953
1992				285,179		285,179	275,857		275,857	1,430,027	15,544	1,445,572
1993				285,179		285,179	261,272		261,272	1,516,561		1,516,561
1994				285,179		285,179	267,466		267,466	1,223,462	46,189	1,269,651
1995				285,179		285,179	256,985		256,985	1,616,779	25,759	1,642,538
1996				285,179		285,179	263,086		263,086	2,306,622	87,049	2,393,671
1997				285,179		285,179	253,376		253,376	1,643,482	83,940	1,727,421
1998				285,179		285,179	239,182		239,182	1,655,011	144,785	1,799,796
1999				285,179		285,179	242,525		242,525	1,205,767		1,205,767
2000				285,179		285,179	252,660		252,660	1,587,350	99,040	1,686,390
2001				285,179		285,179	271,300		271,300	1,690,845	170,988	1,861,833
<b>Total</b>				5,988,759		5,988,759	5,183,633		5,183,633	32,074,021	782,550	32,856,569

Year	City Makeup		Water Savings		Runoff Reduction						Secondary Reduction		Total Retained	
	Total	Makeup %	Total	Savings %	Target		Peak		Total		From Secondary Supply		Volume	%
					Volume	%	Volume	%	Volume	%	Volume	%		
1981	21,187	7%	263,992	93%	283,992	15%		---	283,992	15%		---	283,992	15%
1982	265,179	93%	20,000	7%	20,000	5%		---	20,000	5%		---	20,000	5%
1983	49,069	17%	236,110	83%	236,109	13%		---	236,109	13%	1	---	236,110	13%
1984	21,099	7%	264,080	93%	264,080	14%		---	264,080	14%		---	264,080	14%
1985	15,726	6%	269,453	94%	269,453	14%			269,453	13%		---	269,453	13%
1986	41,541	15%	243,638	85%	243,638	14%		---	243,638	14%		---	243,638	14%
1987	28,443	10%	256,736	90%	256,736	19%		---	256,736	19%		---	256,736	19%
1988	44,363	16%	240,816	84%	240,816	14%			240,816	14%		---	240,816	14%
1989	17,634	6%	267,545	94%	267,545	12%			267,545	12%		---	267,545	12%
1990	24,150	8%	261,029	92%	261,029	11%			261,029	11%		---	261,029	11%
1991	28,654	10%	256,525	90%	256,524	16%			256,524	16%	1	---	256,525	16%
1992	9,322	3%	275,857	97%	275,857	16%			275,857	16%		---	275,857	16%
1993	23,907	8%	261,272	92%	261,272	15%		---	261,272	15%		---	261,272	15%
1994	17,713	6%	267,466	94%	267,466	18%			267,466	17%		---	267,466	17%
1995	28,194	10%	256,985	90%	256,985	14%			256,985	14%		---	256,985	14%
1996	22,093	8%	263,086	92%	263,086	10%			263,086	10%		---	263,086	10%
1997	31,803	11%	253,376	89%	253,376	13%			253,376	13%		---	253,376	13%
1998	45,997	16%	239,182	84%	239,182	13%			239,182	12%		---	239,182	12%
1999	42,654	15%	242,525	85%	242,525	17%		---	242,525	17%		---	242,525	17%
2000	32,519	11%	252,660	89%	252,660	14%			252,660	13%		---	252,660	13%
2001	13,879	5%	271,300	95%	271,300	14%			271,300	13%		---	271,300	13%
<b>Total</b>	<b>825,126</b>	<b>14%</b>	<b>5,163,633</b>	<b>86%</b>	<b>5,183,631</b>	<b>14%</b>		<b>0%</b>	<b>5,183,631</b>	<b>14%</b>	<b>2</b>	<b>---</b>	<b>5,183,633</b>	<b>14%</b>



# Rainwater Harvesting Runoff Calculator

Project Name : Example Project

Model # : 585

Water Savings				
Year	Gallons	Water	Sewer	Total
1981	263,992	\$792	\$1,584	\$2,376
1982	20,000	\$60	\$120	\$180
1983	236,110	\$708	\$1,417	\$2,125
1984	264,080	\$792	\$1,584	\$2,376
1985	269,453	\$808	\$1,617	\$2,425
1986	243,638	\$731	\$1,462	\$2,193
1987	256,736	\$770	\$1,540	\$2,310
1988	240,816	\$722	\$1,445	\$2,167
1989	267,545	\$803	\$1,605	\$2,408
1990	261,029	\$783	\$1,566	\$2,349
1991	256,525	\$770	\$1,539	\$2,309
1992	275,857	\$828	\$1,655	\$2,483
1993	261,272	\$784	\$1,568	\$2,352
1994	267,466	\$802	\$1,605	\$2,407
1995	256,985	\$771	\$1,542	\$2,313
1996	263,086	\$789	\$1,579	\$2,368
1997	253,376	\$760	\$1,520	\$2,280
1998	239,182	\$718	\$1,435	\$2,153
1999	242,525	\$728	\$1,455	\$2,183
2000	252,660	\$758	\$1,516	\$2,274
2001	271,300	\$814	\$1,628	\$2,442
Total Savings	5,163,633	\$15,491	\$30,982	\$46,473

Cistern Dimensions	
Diameter	Total Linear Feet
4	213
6	95
8	53
10	34