



Water Efficiency  
Project  
Showers & Sinks

***Westin Michigan Avenue***

Chicago, IL



This report summarizes the Water & Cost savings achieved resulting from the custom calibrated flow limiting technology of Indoor Water Conservation (IWC).

## Preliminary Estimated Savings with Flow Limiters

- Estimated cost savings of **\$78,629** year 1
- ROI of **5.6** months.
- Average shower flows were **2.85 gpm**. (chart page 5)
- Sink flows without flow limiters (page 7), averaged **1.52 gpm**
- Water consumption Per Occupied Room (POR) **77.02** gals/day

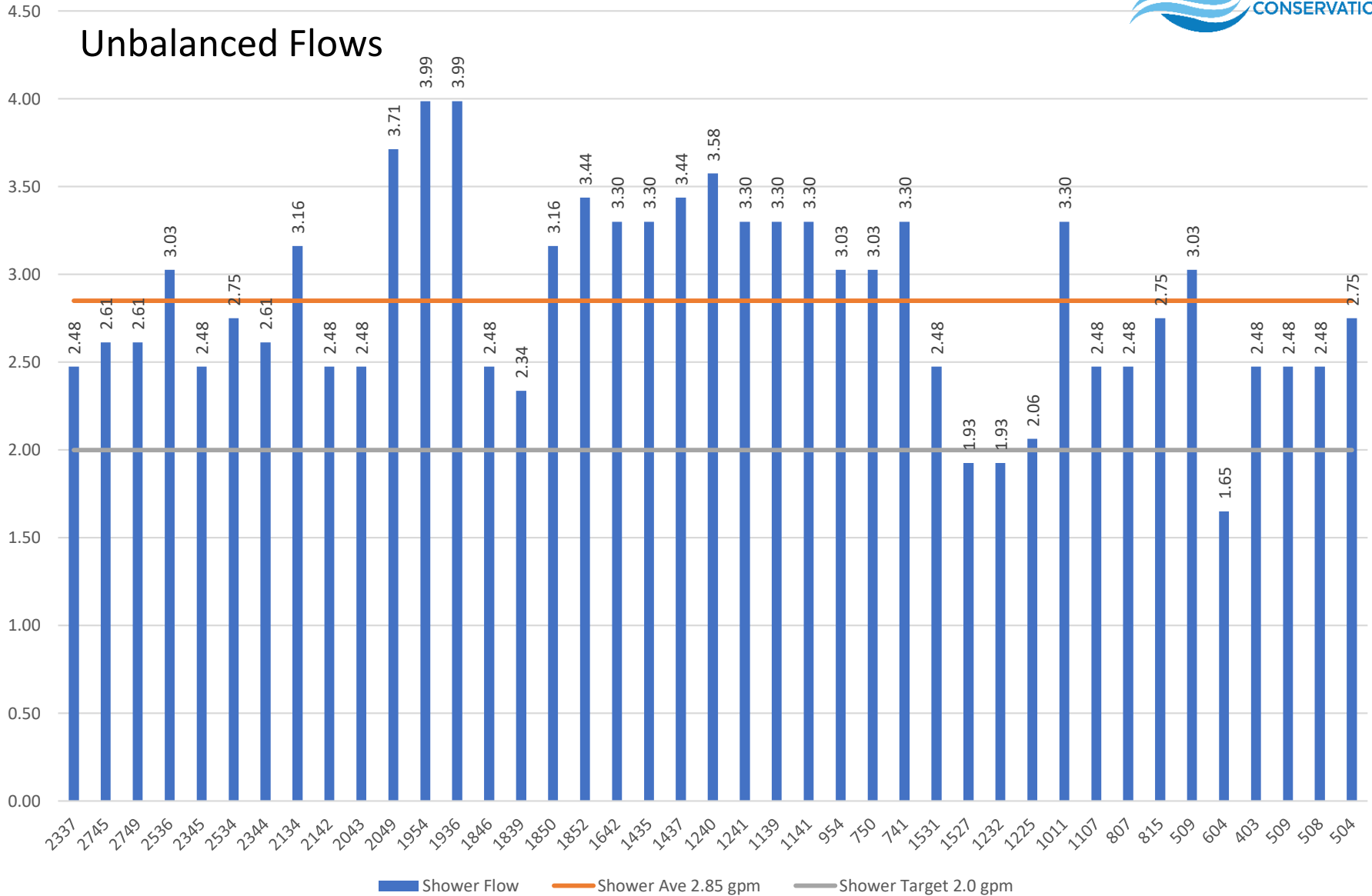
## Actual Savings with Flow Limiters

- Actual cost savings are **\$80,495** year 1
- ROI of **5.5** months.
- Average shower flows are **1.97 gpm** (target flow rate 2.0 gpm, chart page 6).
- Sink Flows with flow limiters (page 6), average **1.19 gpm** (target flow rate 1.25 gpm).
- Water consumption Per Occupied Room (POR) **67.22** gals/day – a decrease of **22.6** gals POR per day.

# Shower Flows without Flow Limiters Westin Michigan Avenue



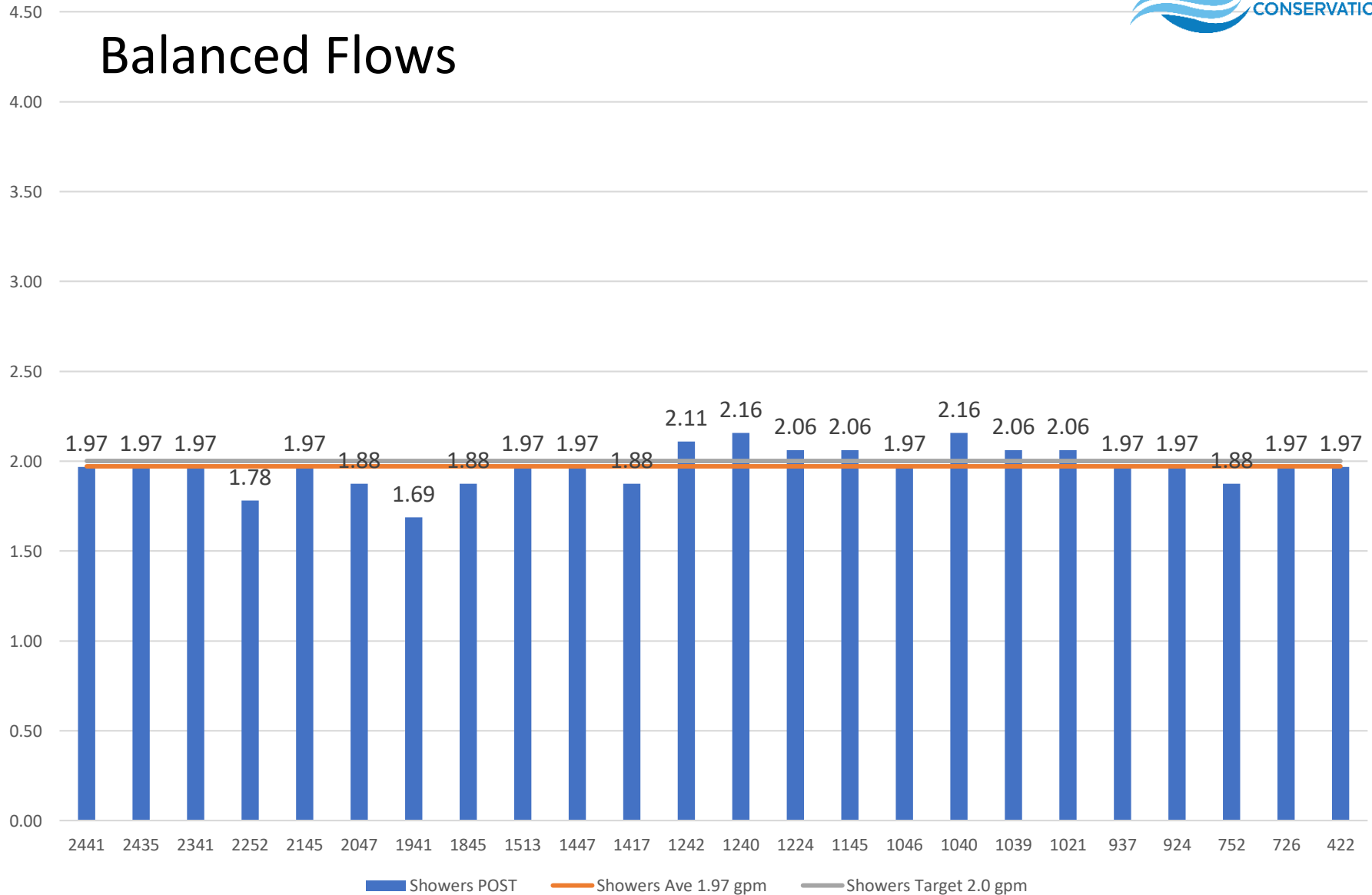
## Unbalanced Flows



Shower Flows with Flow Limiters  
Westin Michigan Avenue



# Balanced Flows

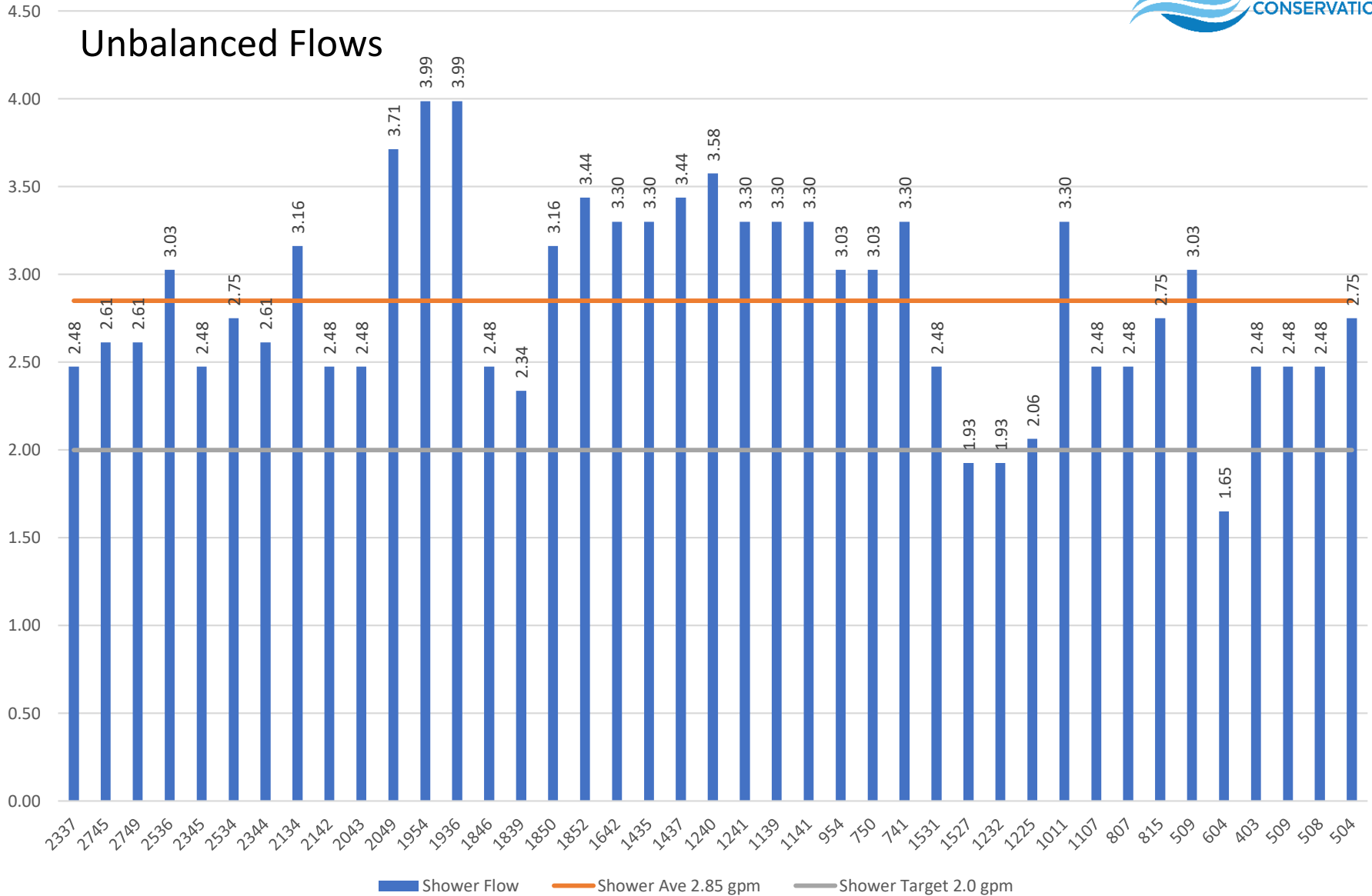


10/8/2019

# Shower Flows without Flow Limiters Westin Michigan Avenue

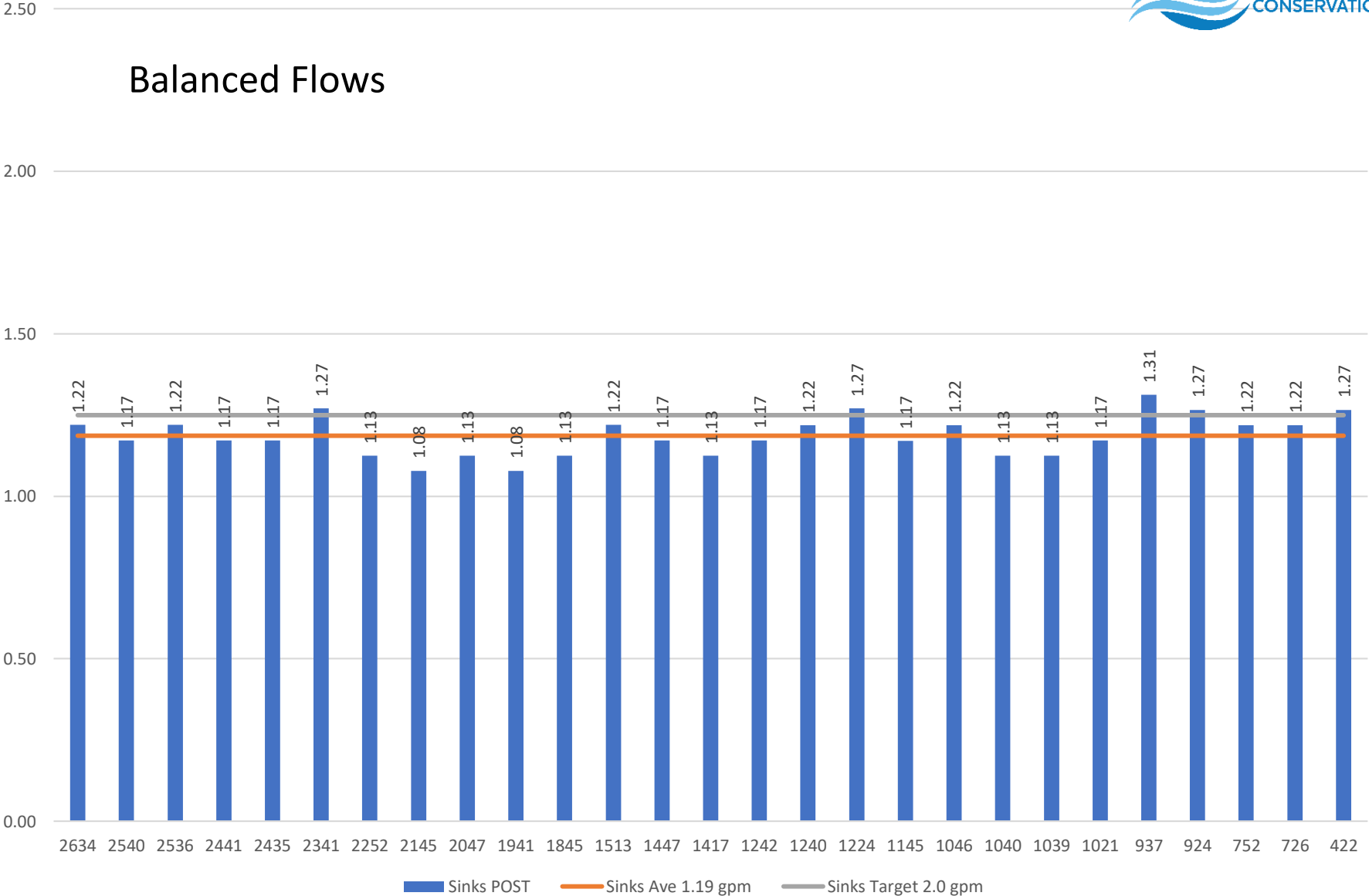


## Unbalanced Flows





# Balanced Flows



**Westin Michigan Avenue - Chicago**  
**Water, Cost & Energy Saving from IWC Flow Limiters**  
**Showers and Sinks**

**ROI**  
 Investment (Flow Limiters)  
 Savings (annualized)

	1st Year	Projected
	<b>5.5</b>	<b>5.6</b>
Investment (Flow Limiters)	\$36,848	\$36,848
Savings (annualized)	\$80,495	\$78,629



**September 2019 - 1st Year with Flow Limiters**

Report reflects water and cost savings from lower fixture flow rates achieved from IWC Flow Limiter installation at current water rates. This reflects the cost that the property would have paid without Flow Limiters compared to the current audited water usage and cost billings with Flow Limiters.

Days in period - Occupancy Days	31	30	31	31	28	31	30	31	30	31	30	31	<b>SAVINGS</b>
Days in period - Water Bill	29	33	28	33	35	25	29	33	32	32	30	35	
	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>June</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Cumulative</u>

**Comparative Cost Analysis - Fixtures with Flow Limiters only**

<b>Without Flow Limiters</b>													
Water Cost (current rates w/ tax)	\$ 14,803	\$ 16,094	\$ 11,915	\$ 8,602	\$ 10,020	\$ 10,520	\$ 14,223	\$ 14,727	\$ 15,700	\$ 19,964	\$ 19,347	\$ 21,162	\$ 177,078
Sewer Cost (current rates)	\$ 9,836	\$ 10,694	\$ 7,917	\$ 5,716	\$ 6,657	\$ 6,990	\$ 9,451	\$ 9,785	\$ 10,432	\$ 13,265	\$ 12,855	\$ 14,061	\$ 117,658
Energy Cost	\$ 3,438	\$ 5,026	\$ 3,721	\$ 2,687	\$ 3,129	\$ 3,286	\$ 4,442	\$ 6,149	\$ 6,555	\$ 8,336	\$ 8,078	\$ 8,836	\$ 63,683
<b>Total Costs Without</b>	<b>\$ 28,077</b>	<b>\$ 31,814</b>	<b>\$ 23,552</b>	<b>\$ 17,004</b>	<b>\$ 19,806</b>	<b>\$ 20,795</b>	<b>\$ 28,116</b>	<b>\$ 30,660</b>	<b>\$ 32,687</b>	<b>\$ 41,565</b>	<b>\$ 40,281</b>	<b>\$ 44,059</b>	<b>\$ 358,419</b>
<b>Current w/Flow Limiters</b>													
Water Cost (current rates w/ tax)	\$ 12,387	\$ 10,021	\$ 7,290	\$ 5,643	\$ 6,290	\$ 6,020	\$ 8,662	\$ 12,220	\$ 13,112	\$ 17,515	\$ 16,898	\$ 18,713	\$ 134,769
Sewer Cost (current rates)	\$ 8,231	\$ 6,659	\$ 4,844	\$ 3,749	\$ 4,179	\$ 4,000	\$ 5,755	\$ 8,119	\$ 8,712	\$ 11,638	\$ 11,228	\$ 12,434	\$ 89,546
Energy Cost	\$ 2,510	\$ 4,184	\$ 3,044	\$ 2,356	\$ 2,626	\$ 2,514	\$ 3,616	\$ 5,102	\$ 5,475	\$ 7,313	\$ 7,055	\$ 7,813	\$ 53,608
<b>Total Costs With Flow Limiters</b>	<b>\$ 23,128</b>	<b>\$ 20,864</b>	<b>\$ 15,177</b>	<b>\$ 11,748</b>	<b>\$ 13,095</b>	<b>\$ 12,533</b>	<b>\$ 18,033</b>	<b>\$ 25,441</b>	<b>\$ 27,299</b>	<b>\$ 36,465</b>	<b>\$ 35,181</b>	<b>\$ 38,959</b>	<b>\$ 277,923</b>
<b>Savings</b>	<b>\$ 4,950</b>	<b>\$ 10,950</b>	<b>\$ 8,375</b>	<b>\$ 5,257</b>	<b>\$ 6,712</b>	<b>\$ 8,262</b>	<b>\$ 10,083</b>	<b>\$ 5,220</b>	<b>\$ 5,388</b>	<b>\$ 5,100</b>	<b>\$ 5,100</b>	<b>\$ 5,100</b>	<b>\$ 80,495</b>
	18%	34%	36%	31%	34%	40%	36%	17%	16%	12%	13%	12%	<b>22%</b>
Occupied rooms	17,847	14,901	11,984	5,849	8,902	13,658	14,608	18,519	19,117	18,094	18,094	18,094	
Savings POR	\$0.28	\$0.73	\$0.70	\$0.90	\$0.75	\$0.60	\$0.69	\$0.28	\$0.28	\$0.28	\$0.28	\$0.28	

**Comparative Usage Analysis - Total Billed Gallons**

Usage without Flow Limiters*	2,471,348	2,009,767	1,487,842	1,074,189	1,251,188	1,313,675	1,776,145	2,458,535	2,621,050	3,332,930	3,229,930	3,532,930	<b>26,559,531</b>
Usage with Flow Limiters**	<u>2,068,000</u>	<u>1,673,000</u>	<u>1,217,000</u>	<u>942,000</u>	<u>1,050,000</u>	<u>1,005,000</u>	<u>1,446,000</u>	<u>2,040,000</u>	<u>2,189,000</u>	<u>2,924,000</u>	<u>2,821,000</u>	<u>3,124,000</u>	<b>22,499,000</b>
Savings	403,348	336,767	270,842	132,189	201,188	308,675	330,145	418,535	432,050	408,930	408,930	408,930	<b>4,060,531</b>
	16%	17%	18%	12%	16%	23%	19%	17%	16%	12%	13%	12%	<b>15%</b>
Occupied rooms	17,847	14,901	11,984	5,849	8,902	13,658	14,608	18,519	19,117	18,094	18,094	18,094	
Savings per Occupied Room per day	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.6	

\*Calculated using average fixture water flow rate prior to installation of Flow Limiters, current water bill rates and occupancy.

\*\* Calculated using current fixture water flow rates with Flow Limiters installed, current water bill rates and occupancy.



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