



NIAGARA

College Water Efficiency Group

July 14, 2020



CASE STUDIES

The Towers at CCNY



New York, NY



5.38 Mil. Gallons Saved



236 Units



0.5/0.95 GPF Toilets



\$71K

ANNUALLY SAVED



Property results also factor in the use of low-flow showerheads and aerators

UCI – Verano Place Apartments & Campus Village



Irvine, California



Over 21 Mil. Gallons Saved



500 Units



0.8 GPF Toilets



The University of California at Irvine (UCI) partnered with the Irvine Ranch Water District (IRWD) and Niagara to create a water conservation program aimed at reducing water consumption in UCI's student housing properties. Through the installation of ultra-high-efficiency plumbing fixtures in two student housing locations, UCI was able to save nearly 22 million gallons of water in one year.

These measures helped the IRWD towards their goal of reducing per capita water use 20% by 2020.



Property results also factor in the use of low-flow showerheads and aerators

Harvard University



Cambridge, MA



30%-50% Reduction



Over 1200 Units



0.5/0.95 GPF Toilets



In 2018, Harvard University teamed up with the Cambridge Water Department to focus on lowering water consumption within their University Student Housing program.

After identifying old and outdated toilets as a major utility expense and extreme water-abusers, they replaced them with ultra-high-efficiency fixtures. These toilets, paired with installation of UHET aerators and showerheads, led to 30%-50% reduction in each student housing building.



[Harvard University Case Study Video](#)



WATER USE & WATER USE REDUCTION

Indoor Water Consumption – Universities

Universities face 100% of the cost to pay for water and wastewater treatment in student housing

Often, the expense of these utilities is unknown to the student who therefore has little reason to conserve

Many utilities are moving towards tiered rate structures—the more you use, the higher your billing rate goes



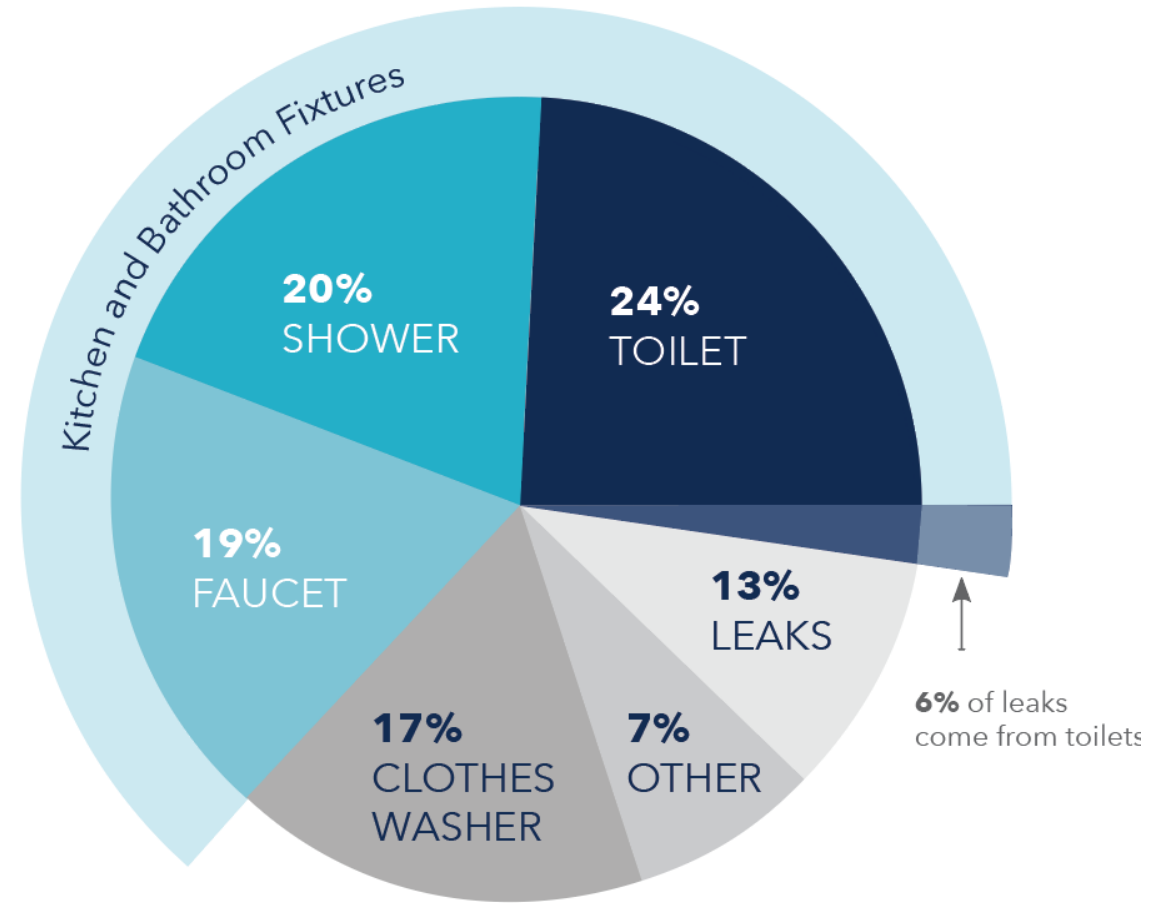
Indoor Water Consumption

Toilet flushing is the largest indoor water use

Toilet flushing frequency is, on average, 5.0 flushes per person per day

Toilets account for approximately half of the leaks from indoor household plumbing fixtures

Most commonly, toilet leaks come from flapper-style technology



Source:
www.epa.gov/watersense/how-we-use-water

History of the Flush

BEFORE 1980

7.0 GPF



FROM 1980-1992

3.5 GPF



FROM 1992-94

1.6 GPF



FROM 2006-07

1.28 GPF



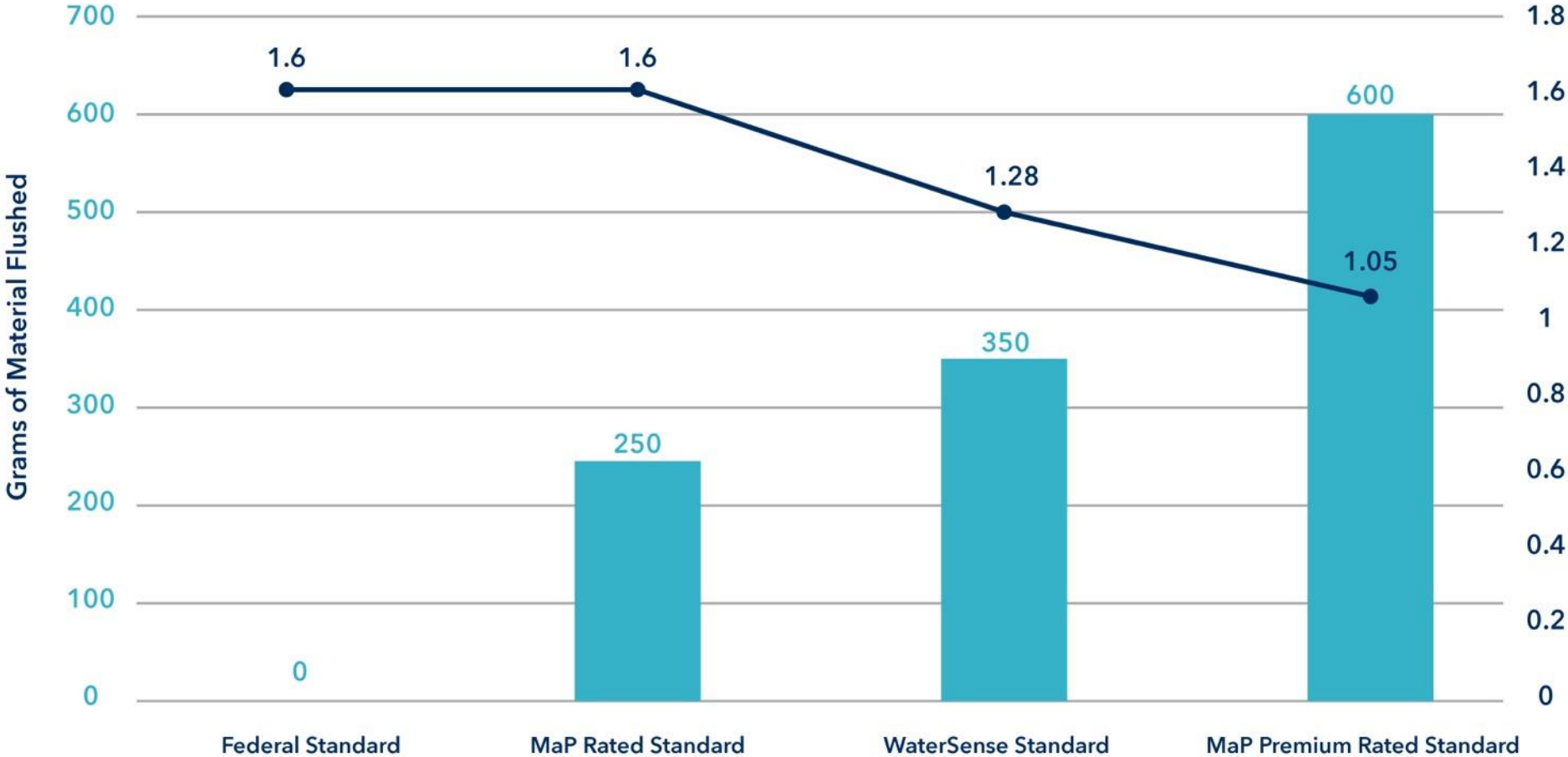
TODAY

0.8 GPF



There are more than 1,100 models of high-efficiency toilets (HETs) on the market today. New models have been introduced and the performance of HETs has improved dramatically. Today, HETs outperform their ultra-low-flow toilet (1.6 GPF) predecessors as well as the 3.5 GPF toilets that were installed in the 1980's.

Flush Rating Standards



Flush Rating

GPF Max

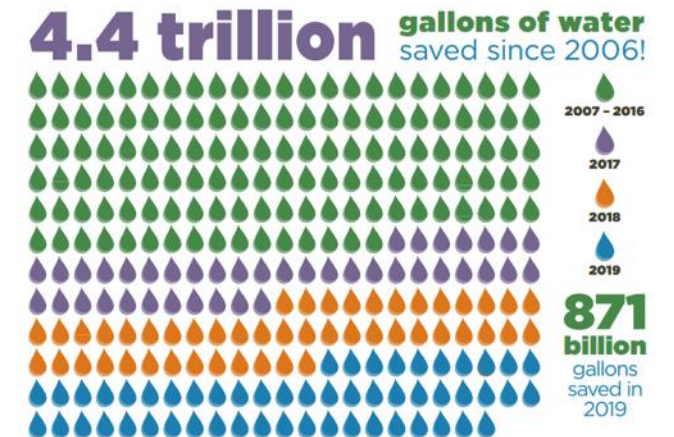
Product Performance: WaterSense® Label

Voluntary partnership program sponsored by the U.S. Environmental Protection Agency (EPA)

To earn the WaterSense label, products and services must:

- be independently certified, with measurable results
- use at least 20% less water – must be 1.28 GPF or less
- save energy
- perform as well as or better than regular models

Since the program's launch in 2006, WaterSense has helped save 4.4 trillion gallons of water!



MaP™ Toilet Testing

MaP™ is a Maximum Performance scale

MaP score = number of grams (g) of solid waste a toilet can remove completely from the fixture in a single flush

MaP PREMIUM labelled toilets:

- WaterSense certified
- flush with no more than **1.06 GPF**
- MaP rating of at least **600g**

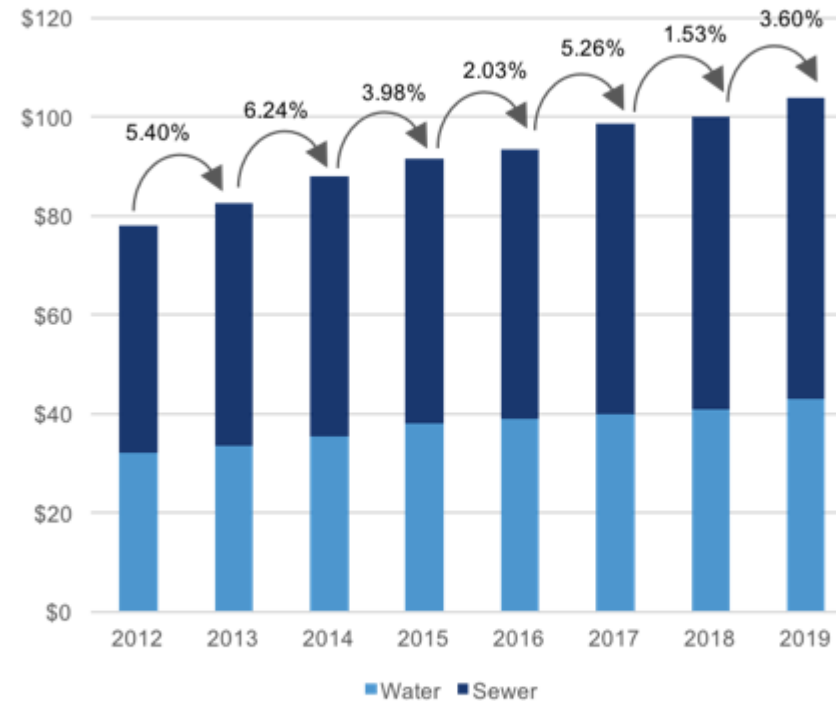
This is more than 170% of current WaterSense requirement and 3 times normal demand upon a typical toilet



Rising Water Costs

- Across the U.S., residential water rates have steadily been increasing year over year, outpacing the rise in costs of both gasoline and grocery costs.
- It's expected they will continue to rise due to increasing water scarcity and infrastructure costs.
- Many municipalities have inefficient or outdated water infrastructures. The burden of processing and cleaning non-potable water is an expensive and time-consuming endeavor.

Exhibit: Utility Water & Wastewater Bills for 50 U.S. Cities, 2019



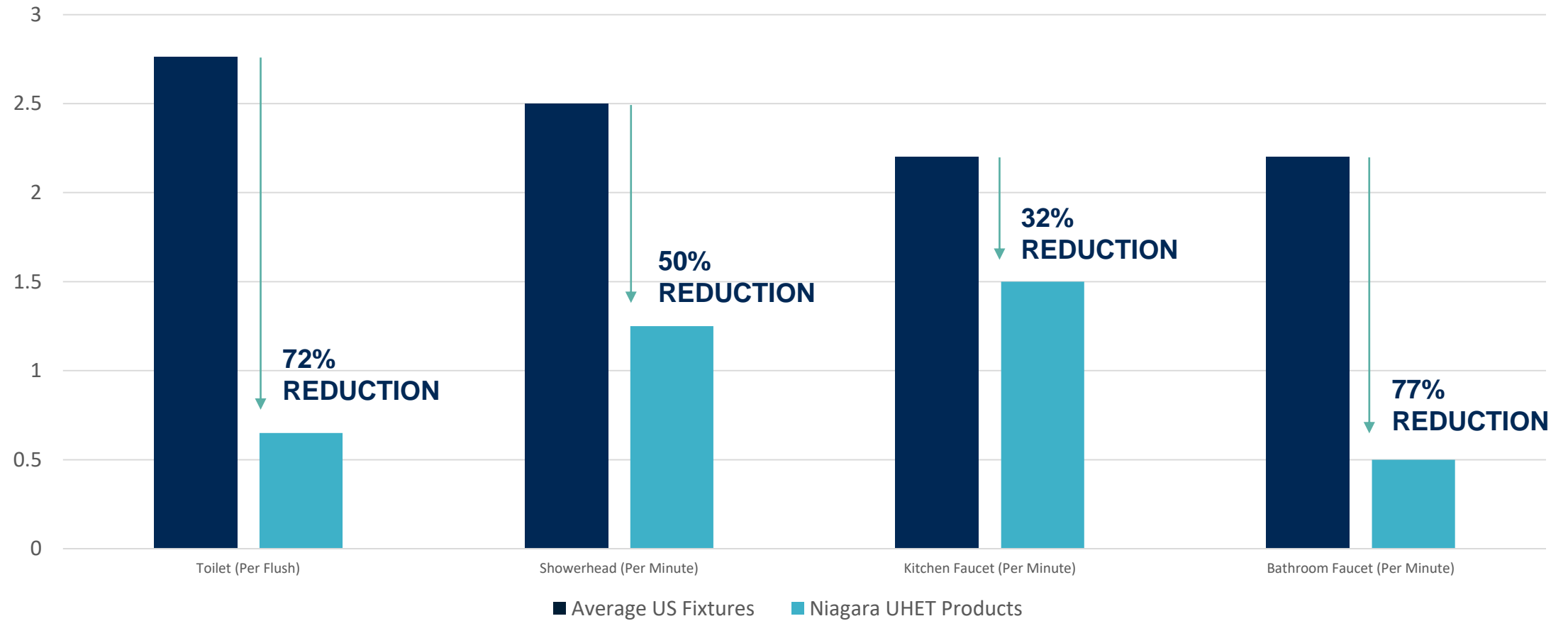
Source: Bluefield Research

Water-Saving Products

- With plumbing fixtures accounting for 2/3 of daily water use, reducing this consumption can make a huge difference.
- What can you do? Switching out old toilets, showerheads, and faucet aerators with ultra high efficiency fixtures can save thousands of gallons per year.

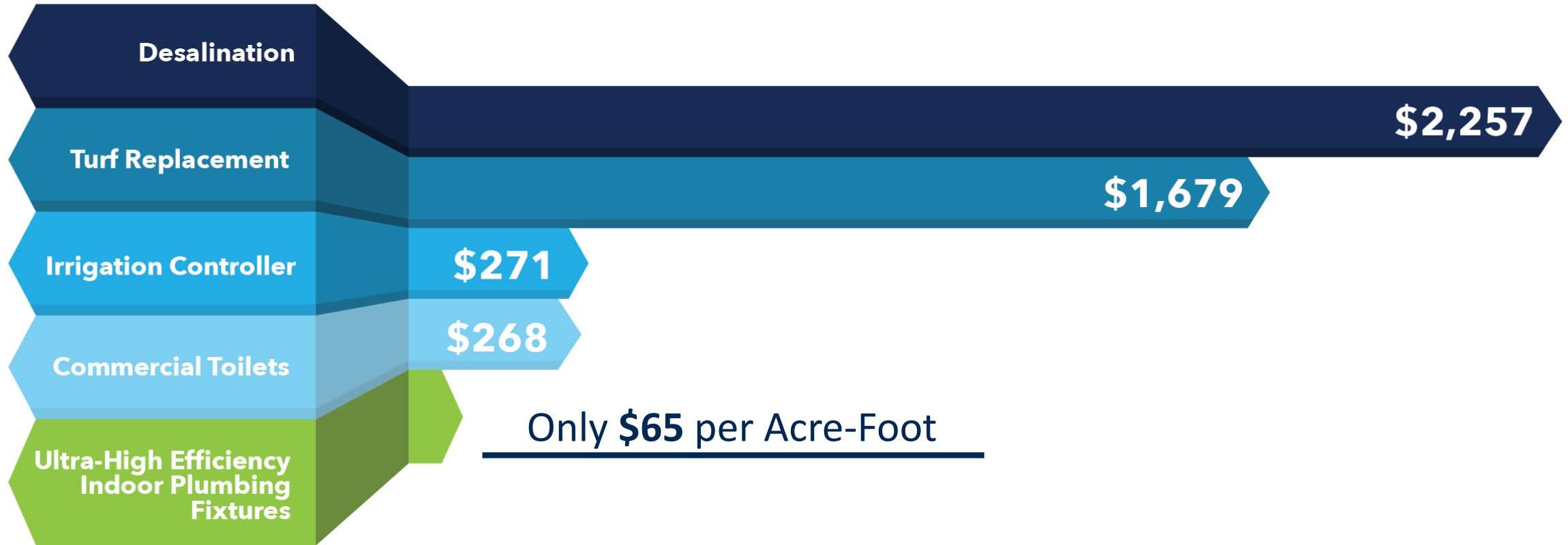


Indoor Water Use



*EPA / WaterSense

Indoor Water Conservation Vs. Other Methods



Sources: San Diego County Water Authority: www.sdcwa.org/seawater-desalination
Alliance for Water Efficiency's Water Conservation Tracking Tool

Water-Saving Calculator

Saving more water means saving more money. Use our water calculator to see how much you can save simply by switching out your toilets, showerheads, and aerators to Niagara products.

[GET STARTED](#)

How effective, water-efficient, and reliable a toilet is depends on its:

- design
- flush volume (GPF)
- flushing technology





FLUSH TECHNOLOGY

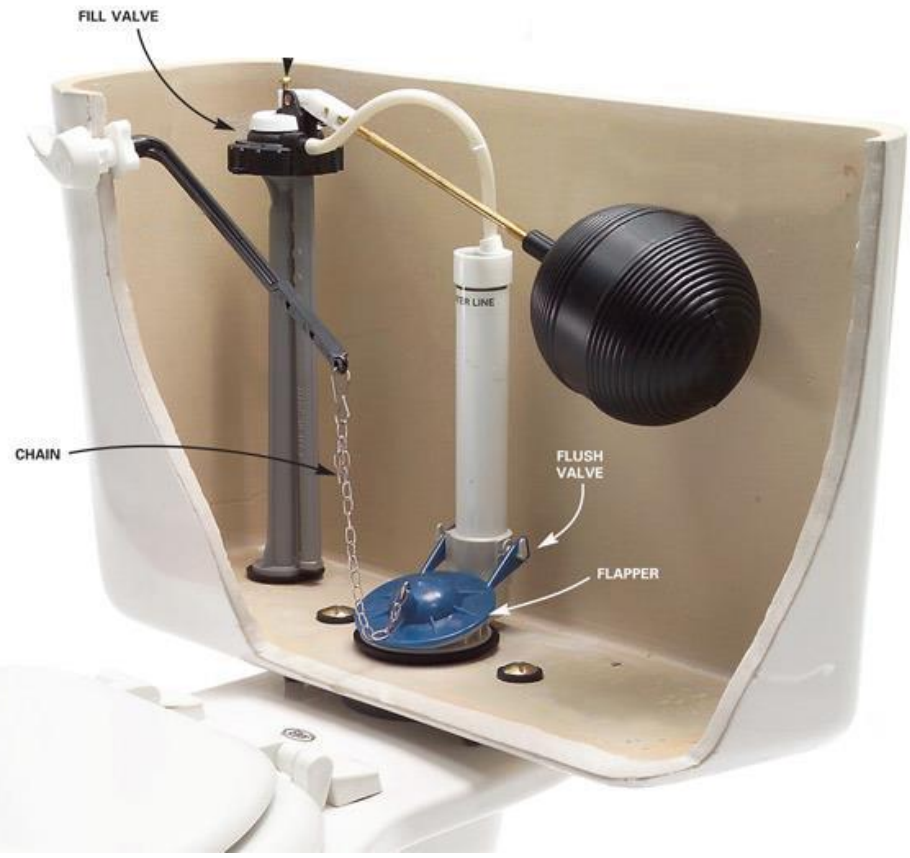
Gravity-Fed Toilets



Pressure-Assist Toilets



Gravity-Fed Toilets With Flapper



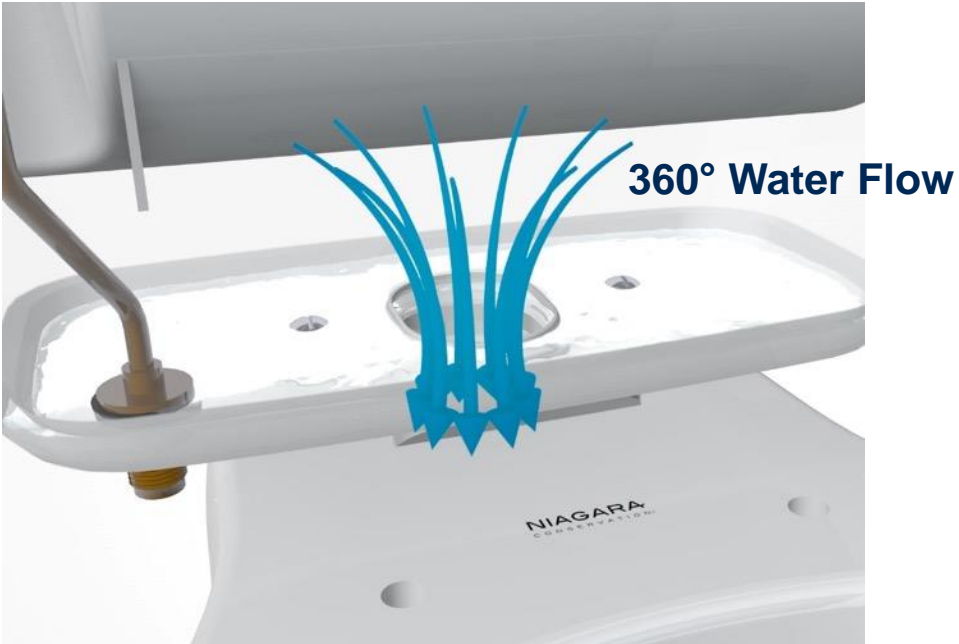
Gravity-Assist Flapperless Toilet

Example: Tip bucket technology



Gravity-Assist Flapperless Toilet

Example: Tip bucket technology



Vacuum-Assist Toilets

Example:

- inner chamber and patented air transfer tube create a powerful 0.8 GPF single flush or a 0.5/0.8 GPF dual flush



PRODUCTS





THE ORIGINAL™

- 0.8 GPF Single Flush
- Patented Vacuum-Assist Stealth Technology™
- Unique Proprietary 400A Fluidmaster Valve
- Fully Glazed 2" Trapway
- 800g MaP Premium Rated
- Meets and exceeds IAPMO line carry standards
- One of the industry's largest footprints, great for retrofitting
- EZ Height for comfort – Meets ADA Height Requirements
- Lifetime warranty on china and 15-year warranty on the parts



ELONGATED



ROUND



12" ROUGH-IN



10" ROUGH-IN



Inside the Tank

AIR TRANSFER TUBE

Air in transfer tube pressurizes trapway, creating a vacuum-assisted flush.

NOISE-CANCELLING TANK

Submerged fill valve cancels out the noise.

FLAPPERLESS

No leaks, no running, no worries.





RIM WASH

360-degree rim wash for superior cleaning.

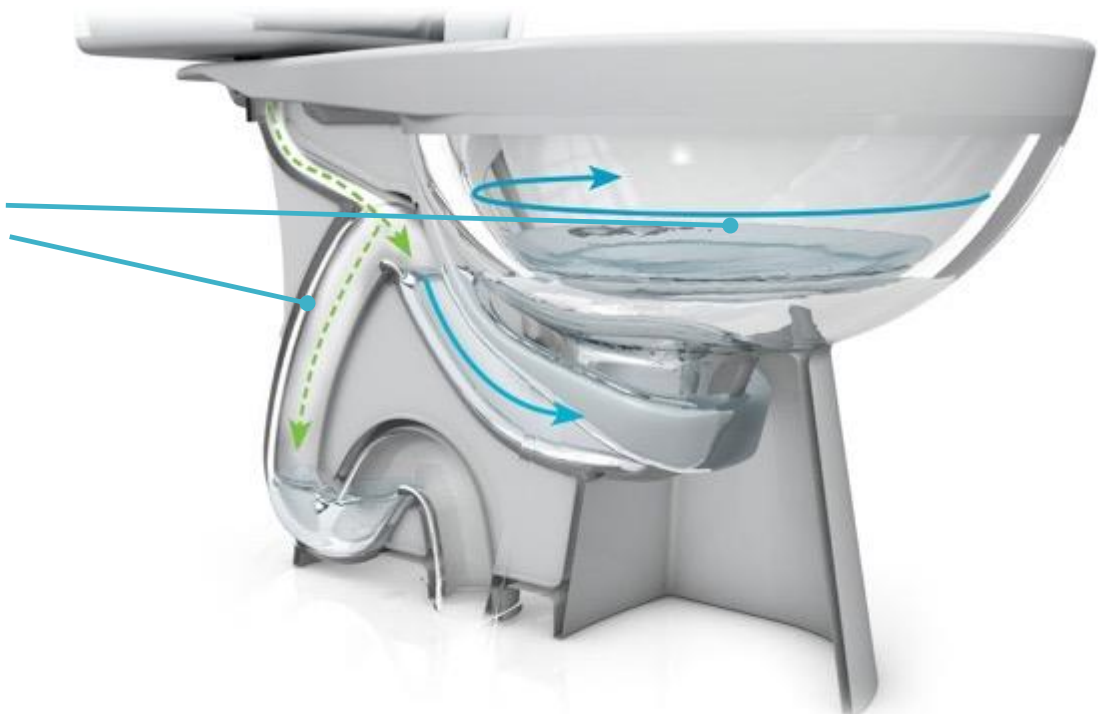
RIM JET

Circular water motion cleans bowl with every flush.

Inside the Bowl

TRAPWAY + WATER SURFACE

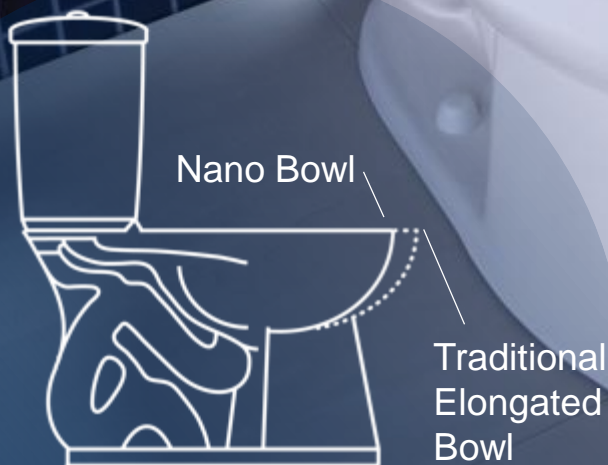
Pressurized air from the transfer tube is exerted into the trapway, forcing water in the bowl to rise creating a large water spot.





NANO[®] *Compact Elongated, Dual Flush*

- 0.5/0.8 GPF Dual Flush (Average 0.6 GPF)
- Patented Stealth Vacuum-Assist Technology™
- Unique Proprietary 400A Fluidmaster Valve
- Fully Glazed 2" Trapway
- 600g MaP Premium Rated
- Meets and exceeds IAPMO line carry standards
- One of the industry's largest footprints, great for retrofitting
- EZ Height for comfort – Meets ADA Height Requirements
- Compact Elongated Bowl offers comfortable seat in the same space as a round
- Lifetime warranty on china and 15-year warranty on the parts



ELONGATED



ROUND



12" ROUGH-IN



10" ROUGH-IN

Guaranteed to work better... and waste nothing!



WaterSense, a partnership program by the U.S. Environmental Protection Agency, seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products, new homes, and services.

To be WaterSense certified, a toilet must use 20% less water, flushing at 1.28 GPF or less.



LEED, or Leadership in Energy & Environmental Design, is a green building certification program that recognizes best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification.



MaP, a maximum performance scale, has everything from toilet reviews and flush ratings, to water usage reports and efficiency grades. MaP is an industry-leading provider of the most current plumbing data.

MaP Premium toilets must be WaterSense Certified, flush with no more than 1.06 GPF and flush at least 600g of waste.

Building Performance: LEED®

LEED v4, Water Efficiency (WE) category

- **Intent:** Reduce a building's consumption of potable water and minimize indoor demand for water through water-efficient fixtures and fittings.
- **Main parts:** indoor water, outdoor irrigation water, and total building water metering
- All newly installed fittings and fixtures must be WaterSense labeled (or a local equivalent for projects outside the U.S.)
- LEED certified buildings must track water consumption and water delivery (volume and rate)



High-efficiency toilets may contribute to attaining LEED WE points in residential, multifamily, non-residential, and mixed-use building projects

Questions?

Thank you for your time!

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Video Links

[Stealth Single Flush Technology Video](#)

[Harvard University Case Study Video](#)



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