Water Minimization Matrix

Objective	Solution	Outcomes	Benefits	Possible Next Steps
Detailed monitoring of water meter (City) or check meters that exist within the building	IoT sensor on City Water Meter	City Cambridge Omni R2 Ultrasonic not compatible with Alert Labs Flowie Sensor.	Real time usage by min/hr /day Alerts to High Usage, Leaks and/or where there is power outage. Sensors also track temperature & humidity at point of installation.	WCM explore options for remote reading of Omni R2 Ultrasonic meter.
Check Meter Monitoring	Alert Labs Flowie / Flowie-O on any pulse "check" meter. Install check meter prior to DHW boiler where CW supply feeds boiler.	Goal would be to monitor how much water is used for DHW as a % of total and when and if HW leaks are contributing to potential / perceived leaks.	Understand how much hot water is being used and if boiler is drawing cold water to make more hot in off / after hours.	Explore one-time cost of check meter on DHW boiler. Confirm line size 1" feeding DHW Boiler.
Toilet Monitoring	Inline sensors on each supply line to each toilet.	One time hw cost + on-going monitoring costs associated with maintaining sensors.	Identify which specific toilet is leaking and assign work order to address. Notification can be email / text alerts or self-monitored with daily report.	Determine appetite for pricing on self-serve vs text / email alert options. This monitoring option would preclude you from fixing ALL the toilets and simply alert you to those where there is an issue.
Conservation (Kitchen/ Bath / Shower)	Shower, Vanity and Kitchen sink "restrictors" to drop GPM each time tenant uses shower, bath vanity or kitchen sink	Shower "behind the wall" restrictor limiting flow to 1.5 GPM and inline restrictors on H and C supply lines to kitchen faucet and bath vanity.	Tamper resistant restriction for Shower, Bath and Kitchen Vanity that do not involve aerator that tenant can remove / alter.	Understand existing infrastructure. i.e. what are make / model of existing showerheads and presumably bath vanities are standard 2.2 GPM and Kitchen will be a range with tenants installing their own 'spray' nozzles
Toilet Upgrade	Flush Seals / Flush Cartirdges on Proficiency Toilet and/or check / audit Fill Valves and/or Fill Seals	Common for Proficiency Toilets to lose initial gains after 4-5 years where flush seals fail and/or flush cartridge seal goes. Fill valves also act up/ fail and particularly under hard water conditions.	Should realize material drop back to 2015-2016 project when toilets were initially installed. Toilets would need flush seal or flush cartridge plus a dye test to confirm if Fill Valve is operating properly.	Confirm if this upgrade option takes precedent over #3 where a monitoring project would direct you specifically to where problem resides.
Riser Monitoring	Non invasive, clamp on sensor to H and C risers to understand which line(s) relative to the others are running more frequently and/or through the night providing outline of where leaks are.	This solution provides an indication of "where to go looking" It does not isolate a unit - it only isolates a particular line running vertically into multiple units. The measurement & usage indicators are a good measure of volume relative to other risers.	Non invasive, clamp on sensor to H and C risers to understand which line(s) relative to the others are running more frequently and/or through the night providing outline of where leaks are.	Confirm H and C riser count and size and access to shut-off's to get a sense of how many risers can be monitored.