

Whitefish Public Works Department Problems

Fixture Unit Count Program Errors

The City of Whitefish and specifically the Department of Public Works (Department) have been overcharging building permit applicants since at least Jan, 2019. Their actions have resulted in significant fee overcharges and needless costs imposed on residents and developers.

The Department is operating a computer program that systematically overcharges developers, builders and homeowners who apply for building permits. This overcharging has been ongoing since the Department adopted this program. This same program is also used to determine the size of water meters required in a facility and has similar errors. The Department does not follow either the city regulation or plumbing codes by using this program.

Specifically, the Department violates the **2018 Uniform Plumbing Code** (UPC) and violates the **2011 Rules and Regulations for the City of Whitefish Water, Sewer and Garbage Services** (Regulation) that govern water meter sizing. The UPC sections relevant to this complaint date back to at least 2012 and are carried forward to the new 2021 UPC revision.

The Department, using this program, systematically:

1. ***Overstates water fixture units (WFU) for certain fixtures***
2. ***Results in Impact Fee overcharges***
3. ***Demands meter upgrades by inflating WFUs and not using the UPC standards***
4. ***Violates city statues while incorrectly sizing meters***
5. ***Requires builders and homeowners to incur needless expenses to obtain a building permit***

Impact Fee Overcharges

When Whitefish applicants apply for a building permit that creates or adds water fixtures (sinks, bathtubs, etc.) to a residential or commercial project, they are required to pay an Impact Fee to the city. Part of the fee is based upon the impact to the Whitefish water and sewer systems. The Public Works Department does the assessment and calculates this fee, as dictated by Montana Statute (7-6-1601-1604). The fee is determined by the project's number of water fixture units (WFU). WFUs are defined in the 2018 Uniform Plumbing Code (UPC), which the Department acknowledges, and the state of Montana requires when calculating fixture units.

Quoting the Whitefish Utility Services Supervisor in an email to me when I asked how she determined our water meter size, "*We use the 2018 Uniform*

Plumbing Code (IAPMO) that is adopted by the building department in conjunction with the Impact fees (Resolution NO. 19-15), and our Rules and Regulations to determine the requirements and or fees”.

But the Department clearly does NOT use the 2018 UPC or follow city regulations as demonstrated in this complaint.

The UPC lists specific water fixture categories and assigns a weight (unit) per category on page 146. When calculating an Impact Fee, one simply needs to determine the number and type of fixtures being added to a project, assign them to appropriate categories, and multiply by the per unit weight. (For example, a bathtub has a unit weight of 4, while a shower has a unit weight of 2). This results in a total WFU count. The impact fee is calculated by using this count and multiplying it by the water and sewer fee. Each additional WFU costs an applicant over \$200 in water and sewer impact fees.

Department Ignores 2018 UPC

A computer program used by the Department overstates the WFU total count and thus systematically overcharges applicants. This is done by assigning certain fixtures into higher weighted (and more costly) categories than specified by the UPC. Certain categories were ***mislabeled*** by the Department in this program and differ substantially from those defined by the 2018 UPC.

(See sample report at end of this document). Impact fees are then calculated based on inflated fixture unit counts, resulting in overcharges.

Note: The correct categories appear as far back as the 2012 Uniform Plumbing Codes and are carried forward into the upcoming 2021 UPC revision, so they are consistent. Fixture categories labeled in the Department program were changed such that an employee using this program assigns a fixture into a more costly category. Other cities in Montana use the correct UPC category labels in similar applications. Any public works professional familiar with both the UPC and the program’s fixture codes would have known this discrepancy existed.

Erroneous Meter Sizing

The Department determines water meter sizes for all homes and businesses. The Regulation states how meter sizing is to be performed:

Section 11: METERING

"Size of Meters. The Utility Services Supervisor, or his designee, will be the sole judge of the size of any meter installed. Judgment will be based on comparative usage of the facility to be served to other similar type facilities served, or by the flow demand of the facility to be serviced in accordance with American Water Works Association Manual M22, Sizing Water Service Lines and Meters". (my emphasis added)

Department Ignores Its Own Regulations

Usage and **demand** are the key determinant factors referenced in the regulation when sizing a water meter. Yet the Department uses a method that is specifically NOT recommended by the standards specified in the regulation when determining the needed meter size for a dwelling.

The regulation references the American Water Works Association, Manual M22. Chapter 2 of M22 states: "*The manual is structured to establish water demand as the fundamental factor to consider when sizing water service lines and meters.*" The Department has the usage history and meter configuration of virtually every home in Whitefish. But instead of using a comparative usage analysis as stated in the regulation, the Department uses a fixture value method, and even the method employed by the City does not conform to the 2018 UPC. The Department is deliberately violating the very regulations that it uses to manage and control builders and homeowners.

The manual states in Chapter 4 that "*The fixture value method is still useful in cases in which demand profile data are not available or applicable.*"

Bottom line, the fixture value method used by the Department may be appropriate for some new facilities with no comparable usage data, but NOT for existing homes or facilities where there is a known usage history and comparative information is readily available.

Department Uses Defective Program to Determine Meter Size

According to the Department Supervisor and Director, the Department uses the fixture value method, even though the regulation requires the use of a comparative usage technique for existing homes. The fixture method parameters are defined in the UPC (pages 146 & 147). However, the Department uses its own methods and meter size calculations which are incorrect as verified in their own reports. The Department relies exclusively on the same defective program that it used to calculate Impact Fees. This program DOES NOT use the 2018 UPC methods and tables.

The correct fixture value method uses WFUs and charts available in the UPC to determine the proper meter size. The table on page 146 shows how WFUs are to be calculated. The table on page 147 lists max number of WFUs

supported by each meter size and water line size. Important factors include water main pressure and distance of farthest fixture from meter. (See below charts below)

Not only does the defective program overstate fixture unit counts, as it did when calculating Impact Fees, it also uses meter size thresholds well below the standards set in the UPC, thus overstating required meter sizes.

Example: A house has a fixture unit count of 32 (per the UPC page 146) with a 3/4" meter and 1 1/4" water line. Water main pressure is > 60psi. Farthest fixture is less than 80 ft. Using the UPC table on page 147 (shown below), the fixture count of 32 would be well within the max threshold limit of 39 for a 3/4" meter with either a 1" or 1 1/4" line. But the defective program inflates the fixture units to 34 and also reduces the 3/4" meter max threshold limit to a number less than 34 for our household. The program produces a report that simply says the meter needs to be 1".

Pressure Range - over 60 psi (available static pressure after head loss)											
3/4	1/2 *	7	7	7	6	5	4	3	3	2	1
3/4	3/4	20	20	20	20	17	13	11	10	8	7
3/4	1	39	39	39	39	35	30	27	24	21	17
1	1	39	39	39	39	38	32	29	26	22	18
3/4	1-1/4	39	39	39	39	39	39	39	39	34	28
1	1-1/4	78	78	78	78	74	62	53	47	39	31
1-1/2	1-1/4	78	78	78	78	78	74	65	54	43	34
1	1-1/2	85	85	85	85	85	85	85	85	81	64

The Department does not publish the meter size threshold limits. The report produced by the Department demonstrates that these thresholds are significantly lower than the UPC standard. ***This overstates meter requirements, particularly for homes with low water usage.***

All of this benefits the Department at the expense of the homeowner. If a permit applicant (for a home addition) is forced to increase the water meter size, the Department can use the Regulation (Section 10, paragraph 9) to demand the applicant, at applicant's expense, move the meter into a street-side meter pit. This appears to be the motivating factor within the Department. This saves the Department the cost of doing this themselves, requires the resident to purchase a costly new meter, and saves the city on maintenance costs. The Department can also charge a higher monthly water fee. The benefits to the Department are significant. The benefits to the homeowner are zero and the upgrade costs are significant.

The irony is that the Department is using the city Regulation (Section 10, Par. 9) to demand residents upgrade their water meters, yet they ignore the same city Regulation (Section 11, Par 2) that tells them how to correctly size water meters.

History

During a recent application I made with Whitefish for a home addition in May, 2021, these problems were discovered. My wife and I are retired, and we wanted to move our master bedroom/bath to the ground floor of our home.

Our home was built in 2004 by a larger family and has a city approved 3/4" water meter plus a 1 1/4" water line installed in the crawl space. We purchased the home in 2008, added no new fixtures, and have no other occupants living in the house. We have no intention of increasing the occupancy of the house. Our water pressure has been consistent and totally adequate for these 12 years and the equipment and plumbing in our home has been functioning with no problems. Our water usage is low compared to other households and would be the same with or without this addition.

Contacted Utility Services Supervisor

In May 2021, I spoke and exchanged emails with the Public Works Supervisor who provided an Impact Fee estimate of \$3186 for the additional bathroom fixtures we wanted to add. But she also demanded we move our water meter to an outside meter pit near the street. We would not be given a permit without doing this.

During our initial phone conversation, the Public Works Supervisor clearly stated that the City wanted all homes that were built around 2011 or earlier to be updated with their water meters upsized and moved to the street. She explained the high amount of water leakage occurring between the street and the water meters of these older homes and that homeowners were not reporting these leaks (See Update Section below).

The City was highly motivated to upgrade water meters in older homes but was unwilling to pay for this. The City found a convenient way to force this cost onto homeowners by denying permits unless this upgrade was done at the expense of the homeowner. The City was benefiting from using a program that overstated fixture unit counts and understated the thresholds at which meters needed to be upsized.

I wrote back to her asking for the calculations and methods used to make the demand that we needed a new water meter. There was no response.

Contacted Department Director

I then wrote the Director of the Department appealing the Department's decision. I requested again how the Department determined that I needed a new meter.

After multiple requests, I was provided 2 reports generated by the Department computer program. The first report showed the fixture unit calculations for our existing home and the second included our addition (the first is listed below). Both reports overstated the fixture unit counts and simply stated we needed a new 1" meter, with no meter size calculations or the methods it employed. The second report stated my improvement added 12.5 fixture units, when in fact it was only 10.5, according to the UPC charts. This was NOT a clerical error because both reports had the same errors and used altered and mislabeled fixture categories.

Demonstrated Defective Program

I wrote to both managers showing the errors and the correct calculations (from the UPC) and pointed out their improper fixture classifications. ***These calculations were also verified by the Public Works departments of Columbia Falls and the city of Bozeman.*** Our calculations showed the addition only adding 10.5 fixture units, not the 12.5 the Department claimed.

I showed the Department how other cities (that determined meter sizes using the fixture value method) did their calculations. These cities were transparent, and their methods conformed to the 2018 UPC. Using online forms available from these cities, I was able to demonstrate that our home could be serviced with our existing $\frac{3}{4}$ " meter. I did all of this because the Department would not provide their meter sizing calculations.

The first report provided to us by the Department determined that our home's current water meter is too small, ***even without the addition!*** This indicates the program had another serious problem determining the appropriate meter size (besides over counting fixture units). The max thresholds for determining meter sizes appear to be much lower than those specified in the UPC. The program simply states that based on our existing fixture unit counts, we need a 1" meter and 1" water line (which we already have). As with the fixture unit counts, I manually calculated the appropriate meter size for our house using the 2108 UPC. Accordingly, our $\frac{3}{4}$ " meter was appropriate. Without access to the defective Department program, it is impossible to determine how it made this false determination.

Existing Home Fixture Count Report Errors

Our current home has 1 bath, 1 combo bath/shower, and 1 standalone shower, plus other fixtures. I identified multiple problems with this report which is included at the bottom of this document.

1. It counted our shower in the bath/bath-shower combo category. Instead of a count of 3, it should have been 2. Each has a weight of 4.
2. It mislabeled the UPC category "Shower, per head" as "Extra Shower Heads Only". This is where the shower should have been counted with a weight of 2.
3. It calculated Total (WSFU) of 34 when it should be 32.
4. It determines that this configuration requires a "Domestic Water Meter Size" of 1". When using the UPC tables, this should be $\frac{3}{4}$ ". I used pages 146 and 147 of the UPC, our home's water line size, and water pressure of > 60psi (as confirmed by a city engineer).

Since the existing fixture report erroneously calculates my home needing a 1" meter, adding additional fixtures would only compound the error.

Contacted City Attorney

After providing this information to the Department and not hearing back from them, I presented this to the Whitefish City Attorney. I also showed the Attorney how the Department was not using the proper method for sizing my water meter according to the city Regulation. I provided the Department and the Attorney's office with our last 12 months water usage statistics showing that as a 2 person household, we were using less than half the water of a comparable 2 person household (based on EPA national averages).

My complaint raised 4 issues:

1. Department was not following 2018 UPC.
2. Impact fees were being overcharged.
3. Department's demand for meter upgrade was not per Regulation
4. Even using Department's method, its program was defective and overstated meter requirements.

The City Attorney wrote back and said she was looking into this situation.

Department Corrects Impact Fee Overcharge

Several days later, Mr. Workman (Department Director) wrote an email to me and produced a revised impact fee estimate. He reduced the overstated WFU count (12.5) for our home addition to the count I had calculated (10.5). Based on this count, he reduced our Impact Fee estimate by \$400. He never

stated his program was defective, but by reducing the counts and fees, he all but admitted that his program was not following the UPC and thus not functioning properly.

Department Continues To Ignore Regulation, Demands Meter Upgrade

The Director continued his demand, however, that we replace and move our meter. He never addressed the specifics of my claim that he failed to follow the City Regulations. I had previously asked for a comparative usage analysis as stated in the regulation, but he did not provide this. He stated that Whitefish had unique issues with their water system, and therefore the Department uses its own methods. What he failed to acknowledge was that the regulations he ignored were written and approved by the Whitefish City Council.

He simply reiterated that we must accept his Department's methods and thus his determination that I upgrade our meter to 1". Our current water usage was not relevant to him when he stated that some hypothetical future homeowner might need a larger meter in our house. This apparently was the basis for his decision. (This logic is nowhere to be found in the regulations or codes). This was our last correspondence.

Water Usage and Comparisons

I submitted an email to the Public Works Director and City Attorney showing the amount of water our household used in the prior year. This came from the Whitefish billing department.

It showed that during the peak 5 months that we live in Whitefish, our average daily water consumption was **92 gallons/day**.

The EPA reports that the national average daily water consumption for a household of 2 is **200 gallons/day**.

According to the 2018 Impact Fee Update prepared for the City of Whitefish (page 7), "The average ERU (Equivalent Residential Unit) within the city consumes **744 gallons per day**" for a typical single family residence with a $\frac{3}{4}$ inch meter.

This simply reinforces the fact that if the Regulation had been properly followed by the Department to determine our water meter size, our current $\frac{3}{4}$ " meter would be more than sufficient to meet our current and future water usage.

If this defective program was used to calculate Impact Fees for all commercial and residential permit applicants in the past, ***the Department has been grossly overcharging these applicants.*** The dollar amount could be significant.

Update

On July 9, 2021 the Montana State Department of Labor and Industry which oversees the Uniform Plumbing Code (UPC) was contacted and presented this report. The Department wrote Whitefish requesting an explanation of the issue identified in this report as it relates to the 2018 UPC.

July 21, 2021: the Whitefish City Manager acknowledges that their fixture count program had an error as outlined in this report and is overcharging customers. She said the city is fixing this program and auditing prior year applications. On Sept 20, 2021, the City Manager confirmed the issue at a City Council meeting but downplayed the amount overcharged and stated that the City would not audit applications until 2022.

Oct 2022: During the discovery process for the current Class Action litigation, the city provided an Oct 30, 2019 report labeled "Hydraulic Model Update Technical Memorandum" from AE2S, an independent utility consulting firm. On page 8, under the title "Non-Revenue Water", AE2S describes a serious problem with the Whitefish water system. The City was experiencing an unusually high amount of loss of water. The study period is from 2011 through 2017, with water losses as high as 37%, well above acceptable levels. One of the major contributors was leakages in the system. The Water Works Supervisor was aware of this, as she communicated to me.

Appliances, Appurtenances, or Fixtures	Minimum Fixture Branch Pipe Size (inches)	Private	Public
Bathtub or Combination Bath/Shower	1/2	4.0	4.0
3/4" Bathtub Fill Valve	3/4	10.0	10.0
Bidet	1/2	1.0	--
Clothes Washer	1/2	4.0	4.0
Dental Unit, Cuspidor	1/2	--	1.0
Dishwasher, Domestic	1/2	1.5	1.5
Drinking Fountain or Water Cooler	1/2	0.5	0.5
Hose Bibb	1/2	2.5	2.5
Hose Bibb, Each Additional *	1/2	1.0	1.0
Lavatory	1/2	1.0	1.0
Lawn Sprinkler, Each Head	--	1.0	1.0
Mobile Home, Each (minimum)	--	12.0	--
Bar Sink	1/2	1.0	2.0
Clinic Faucet Sink	1/2	--	3.0
Clinic Flushometer Valve Sink (with or without faucet)	1	--	8.0
Kitchen Sink, Domestic (with or without dishwasher)	1/2	1.5	1.5
Laundry Sink	1/2	1.5	1.5
Service Sink or Mop Basin	1/2	1.5	1.5
Washup Sink (each set of faucets)	1/2	--	2.0
Shower, Per Head	1/2	2.0	2.0
Urinal, Flush Tank	1/2	2.0	2.0
Wash Fountain (circular spray)	3/4	--	4.0
Water Closet, 1.6 GPF Gravity Tank	1/2	2.5	2.5
Water Closet, 1.6 GPF Flushometer Tank	1/2	2.5	2.5
Water Closet, Greater Than 1.6 GPF Gravity Tank	1/2	3.0	5.5

Pressure Range - over 60 psi (available static pressure after head loss)															
3/4	1/2 *	7	7	7	6	5	4	3	3	2	1	1	1	1	0
3/4	3/4	20	20	20	20	17	13	11	10	8	7	6	6	5	4
3/4	1	39	39	39	39	35	30	27	24	21	17	14	13	12	11
1	1	39	39	39	39	38	32	29	26	22	18	14	13	12	11
3/4	1-1/4	39	39	39	39	39	39	39	39	34	28	26	25	23	21
1	1-1/4	78	78	78	78	74	62	53	47	39	31	26	25	23	21
1-1/2	1-1/4	78	78	78	78	78	74	65	54	43	34	26	25	23	21
1	1-1/2	85	85	85	85	85	85	85	85	81	64	51	48	46	40
1-1/2	1-1/2	151	151	151	151	151	151	130	113	88	73	51	51	46	40
2	1-1/2	151	151	151	151	151	151	142	122	98	82	64	51	46	40
1	2	85	85	85	85	85	85	85	85	85	85	85	85	85	85
1-1/2	2	370	370	370	370	360	335	305	282	244	212	187	172	153	129
2	2	370	370	370	370	370	370	370	340	288	245	204	172	153	129
2	2-1/2	654	654	654	654	654	650	610	570	510	460	430	404	380	329

City of Whitefish Utilities

Water Meter and Service Sizing

Service Address: _____

Date: _____

Fixture Unit Calculation Table

(Derived from Service Sizer Computer Program)

See Blue Prince Program

Appliance / Fixture:	Use		Water Fixture Units
	Private <small>(See Note 3)</small>	Public <small>(See Note 4)</small>	
Bath / Tub-Shower	3		12
Bidet			
Clothes Washer **	1		4
Dishwasher	1		1.5
Drinking Fountain			
Hose Bib - 1st onle only	1		2.5
Hose Bib / Irr. Sys. * ²	2		2
Lavatory (Bath Sink)	3		3
Sinks:			
Bar			
Kitchen	1		1.5
Laundry Tub			
Service/MoP			
Xtra Shower Heads Only			
Urinal (Tank) (Flushometer)			
Water Closet (Toilet)** (Flushometer)	3		7.5
Other: * ²			
Hot Tub			
3/8" Supply			
1/2" Supply			
3/4" Supply			
1" Supply			
1-1/2" Supply			
2" Supply			

NO TES:

Current
Fixtures
in Home

Total Water (WSFU) 34

Total Sewer 29.5

Existing Fixture Count

Calculated Minimum Water Service Line Size 1 Inch

Domestic Water Meter Size 1 Inch