

Information Item: **MCES Flow Metering**

Kyle Colvin, Manager, Engineering Programs

Ryan Vial, Assistant Manager, Metering and Alarm

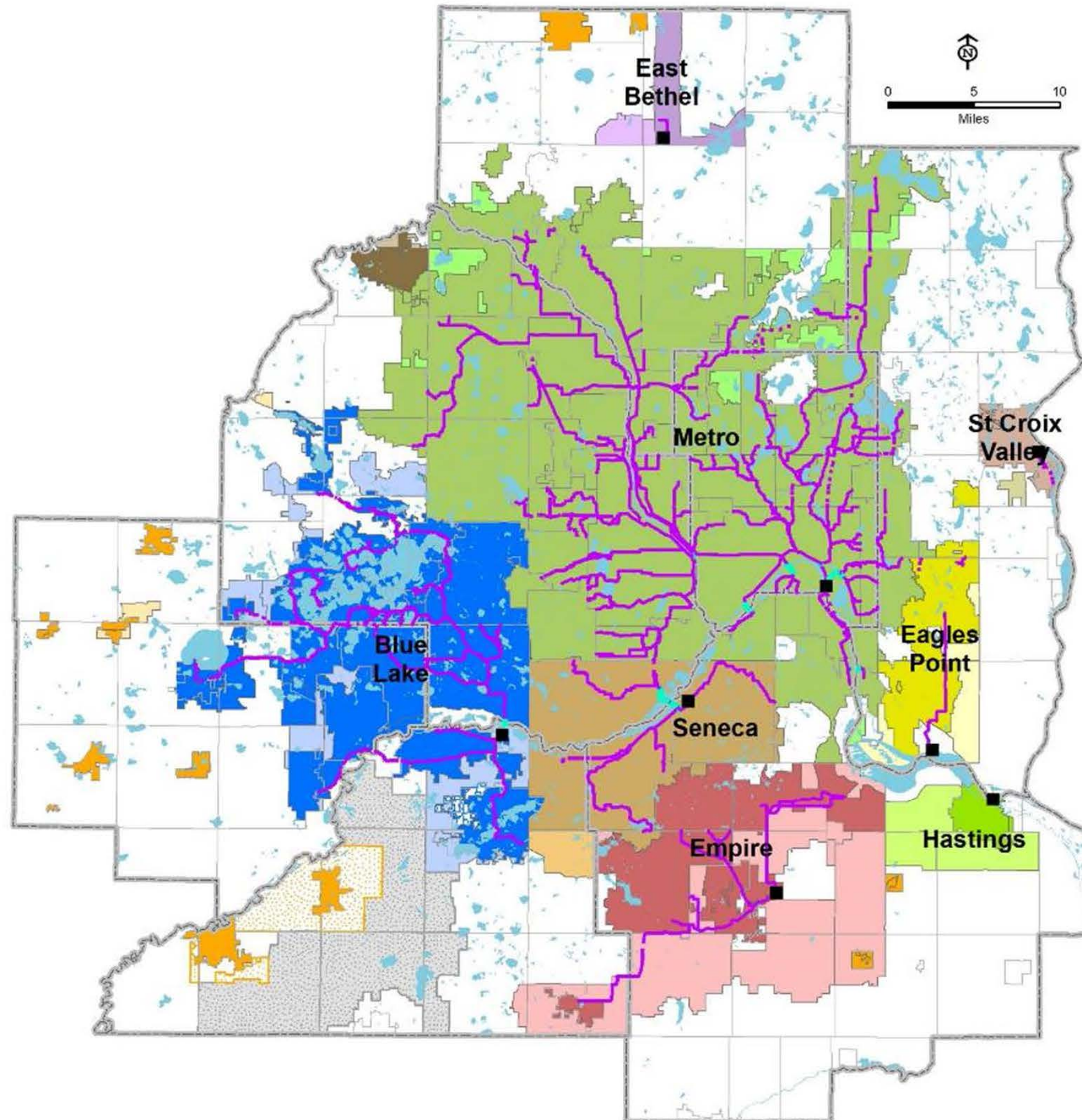
Environment Committee: July 23, 2019





#6 - CONTRACT 105 - JOB
TUNNEL VIEW AT STATION
SEPT. 1, 1954

Metropolitan Council Environmental Services



Protects public health and safety



Protects the environment



Fosters the economic growth of the region

WHO WE SERVE

7-county Twin Cities Metro Area
110 communities
2,700,000+ people

OUR FACILITIES

9 wastewater treatment plants
610 miles of interceptors
250 million gallons per day (avg)
224 flow meters

OUR ORGANIZATION

600+ employees
\$7 billion in valued assets
\$150 million / yr capital program



Reset Connection

Primary Comm

L32

Brooklyn Park SvcArea N
Brooklyn Park
7700 Mississippi Lane
PHONE 763-569-1811
POLICE/FIRE 763-525-6215

TELEMETRY : Century Link
POWER : Xcel - West

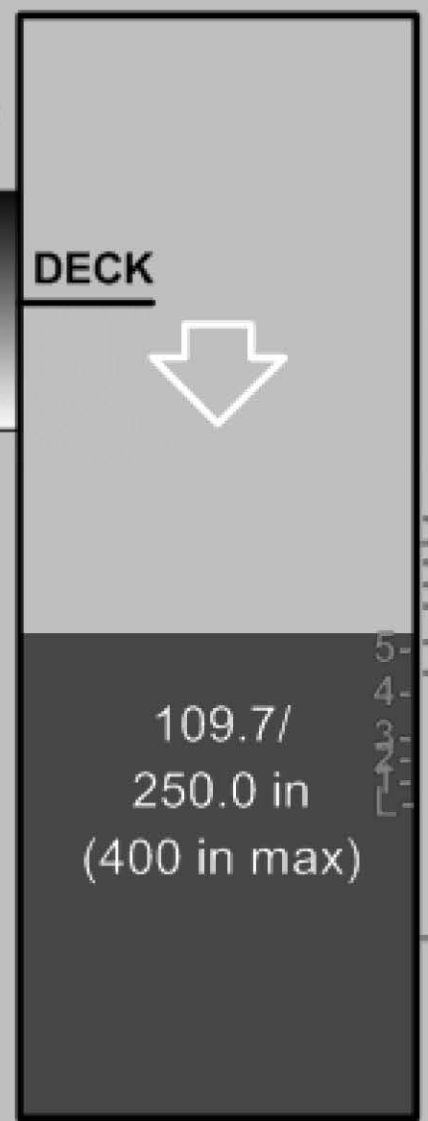
DS1ITDT-17401911 wet_dry_bldg
612-321-7424/7425 or 800-895-1999 Prem# 303443047

7/ 17/ 19
13: 49: 53

Wetwell Hi Sens
Wetwell Hi Float

Detention
0.5 hrs

Invert
156 in
817.8 ft



Wetwell Lo Sens

BIOXIDE TANK IS UNDER 610 BRIDGE.

AUTO(LVL)	P01	7100 GPM 100 HP	VS	START/STOP MAN FAIL TIMEOUT HI TEMP MOISTURE NO FLOW DRIVE FAIL OVERLOAD
AUTO(LVL)	P02	6800 GPM 100 HP	VS	0 RPM START/STOP MAN FAIL TIMEOUT HI TEMP MOISTURE NO FLOW DRIVE FAIL OVERLOAD
AUTO(LVL)	P03	7100 GPM 100 HP	VS	830 RPM START/STOP MAN FAIL TIMEOUT HI TEMP MOISTURE NO FLOW DRIVE FAIL OVERLOAD
AUTO(LVL)	P04	7100 GPM 100 HP	VS	826 RPM START/STOP MAN FAIL TIMEOUT HI TEMP MOISTURE NO FLOW DRIVE FAIL OVERLOAD
AUTO(LVL)	P05	6800 GPM 100 HP	VS	START/STOP MAN FAIL TIMEOUT HI TEMP MOISTURE NO FLOW DRIVE FAIL OVERLOAD
AUTO(LVL)	P06	7100 GPM 100 HP	VS	1 RPM START/STOP MAN FAIL TIMEOUT HI TEMP MOISTURE NO FLOW DRIVE FAIL OVERLOAD

Door Open **RESET**

Var Spd Ctrl 93.9 %
Not Enough Spare Pumps

Sequence

- Lead 3
- Lag1 4
- Lag2 5
- Lag3 6
- Lag4 1
- Lag5 2

Effluent Flow

M221A -5 GPM
M221B -9 GPM

Effluent Flow New Barrels

M221C 6706 GPM
M221D 7056 GPM

Station Alarms

Station Power Fail
Utility Power Fail

Fixed 350KW onsite **REM OFF**
Generator Run #1 Xfer SW UTIL
Generator Trip/Pretrip #1

Fixed 400KW onsite **REM OFF**
Generator Run #2 Xfer SW UTIL
Generator Trip/Pretrip #2

Drywell Flood
Drywell Low Temp
Wetwell Low Temp

Bubbler Low Pressure **PLC Alarms**
HVAC Fail
Meter Pit Flood
Valve Pit Flood

PLC Module 0 Fail
PLC On Battery Power
PLC Not Running
Control Cab Temp - 81 deg

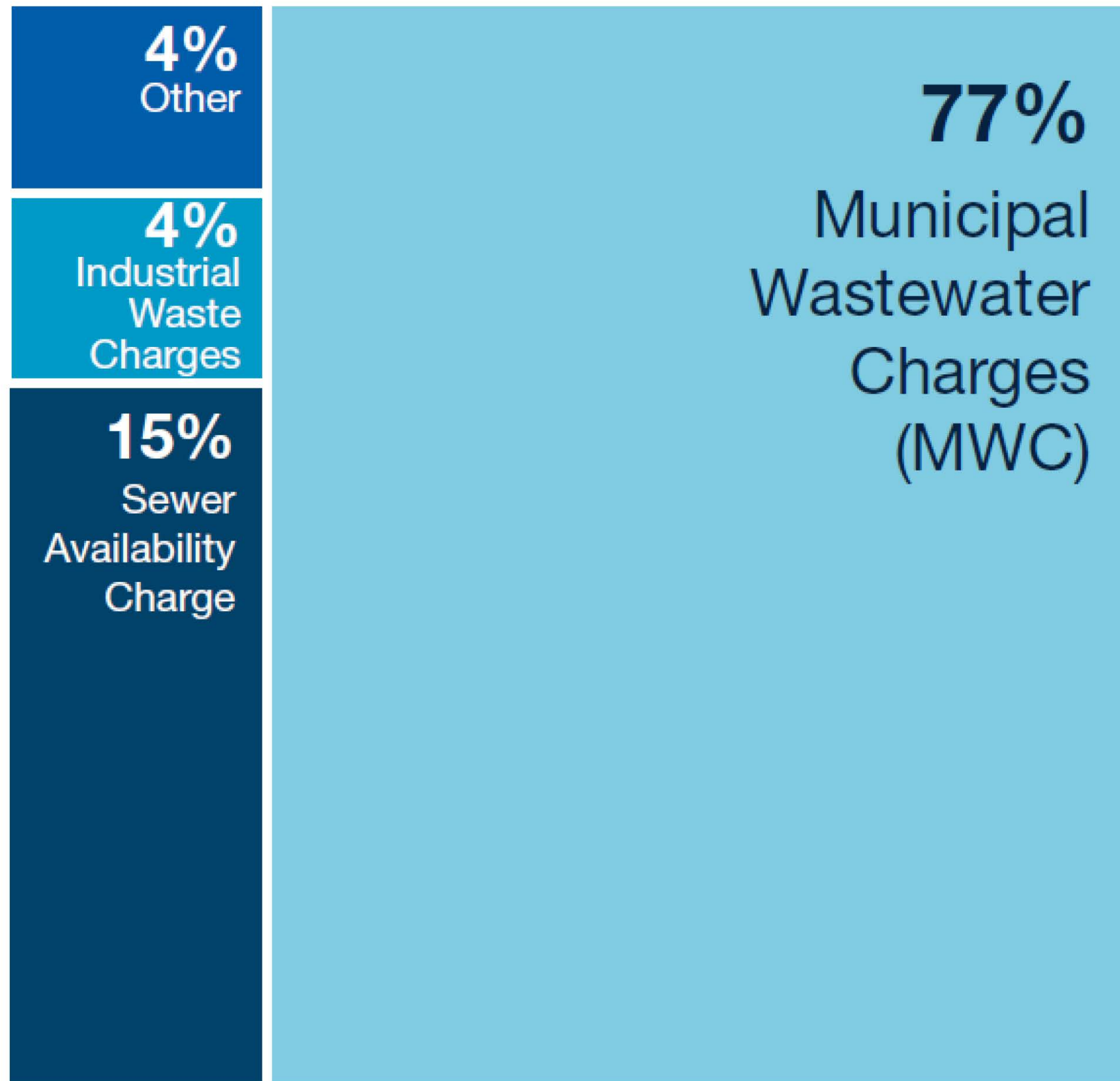
- Info Page
- Daily Notes
- Pump Seq
- WW Trend

Why Do We Meter?

- Community flow allocation (billing)
- Treatment plant permit compliance
- Inflow and Infiltration (I/I) identification and monitoring
 - Peak flows for I/I Program
- Evaluating system performance and planning
- Identify issues with Interceptor and community systems

2019 Revenue Sources

\$300M







NE Lowry Av

NE H

M104

EMERGENCY
NOTIFY
MCES
651-686-6674

Breakers

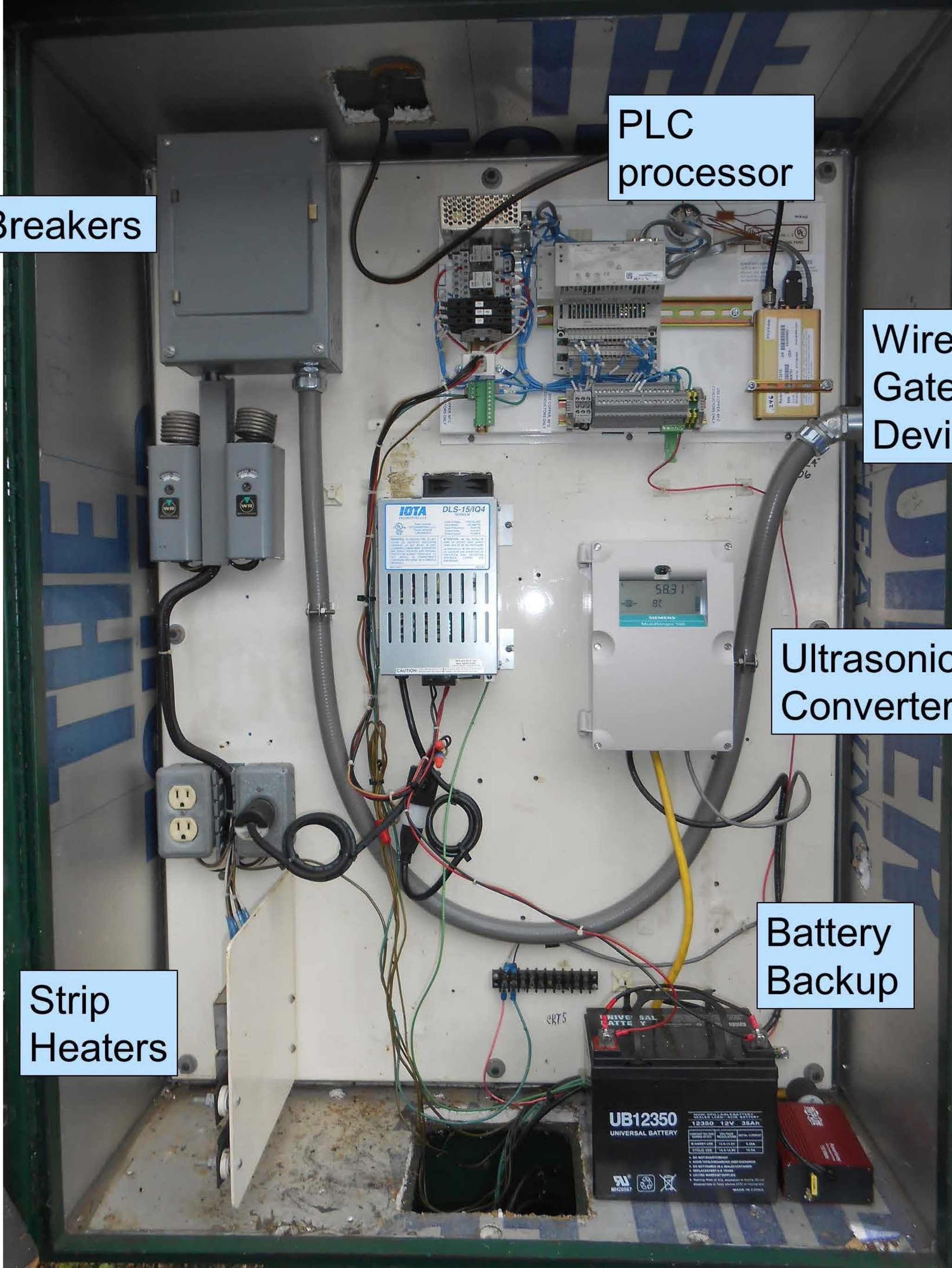
PLC processor

Wireless Gateway Device

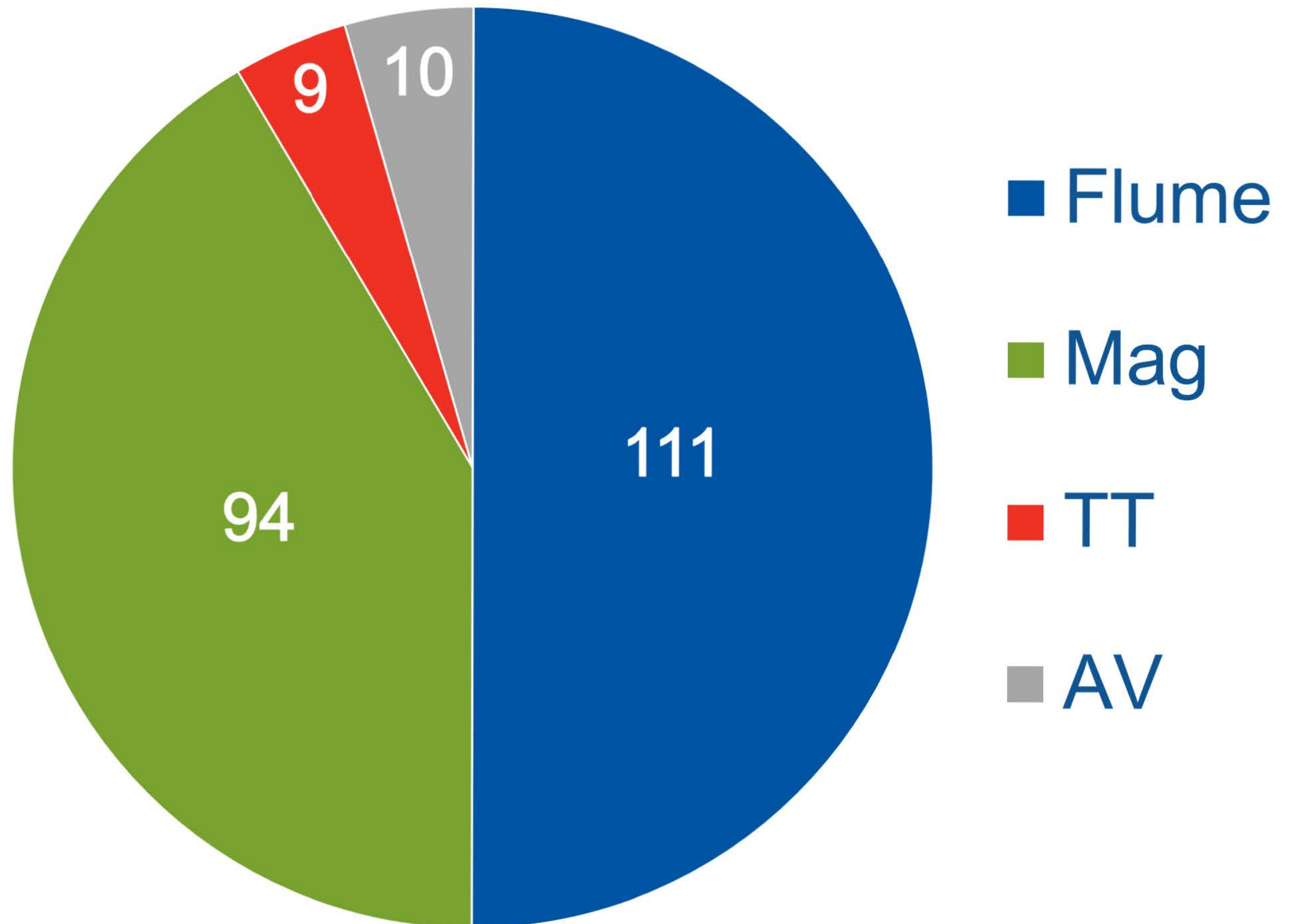
Ultrasonic Converter

Battery Backup

Strip Heaters



MCES Meter Types



Parshall Flume



Mag Meters



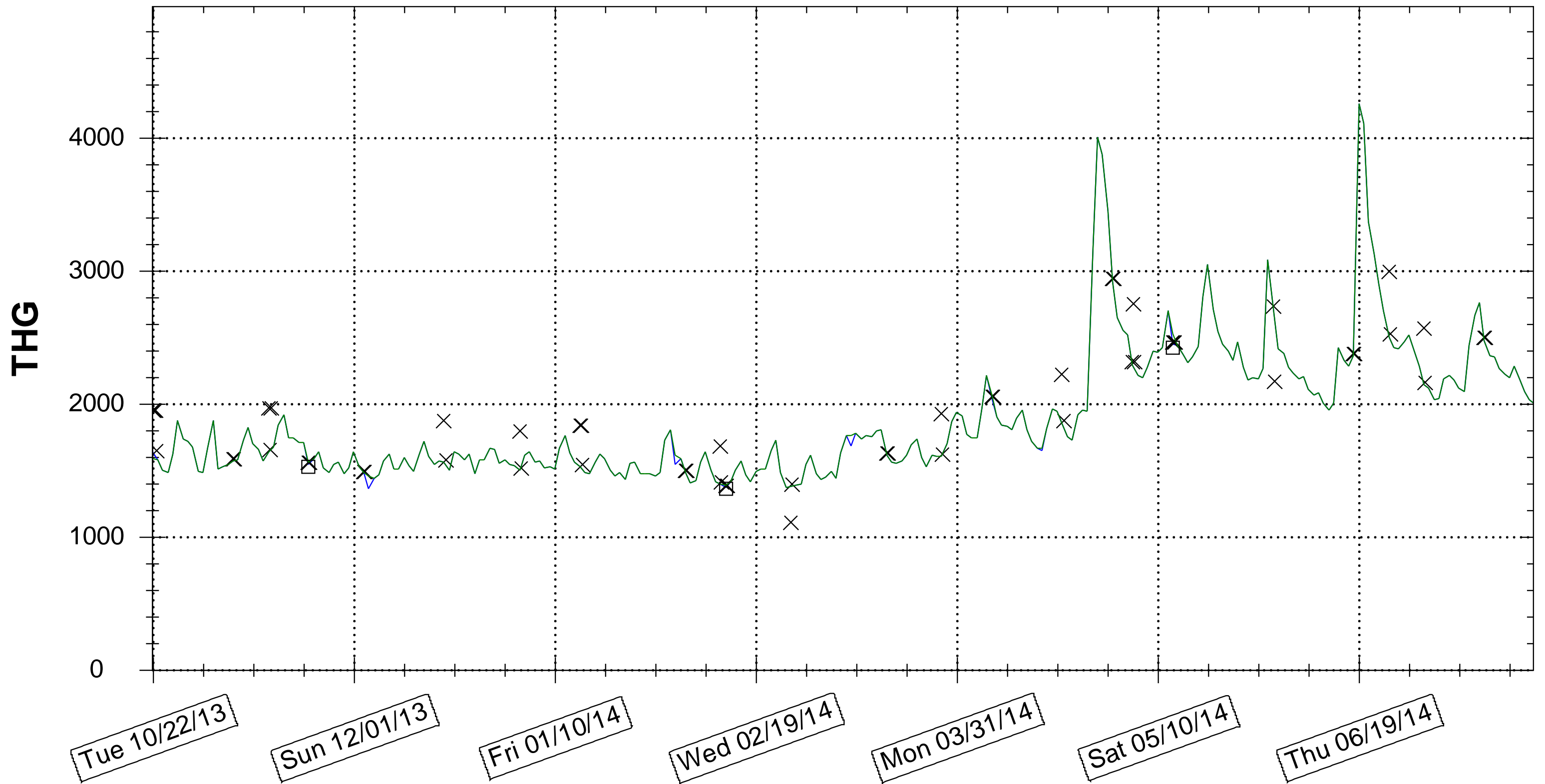
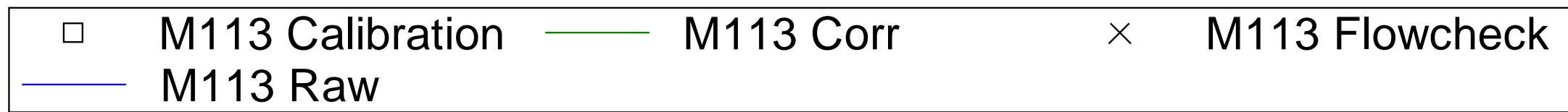
Mag Meters



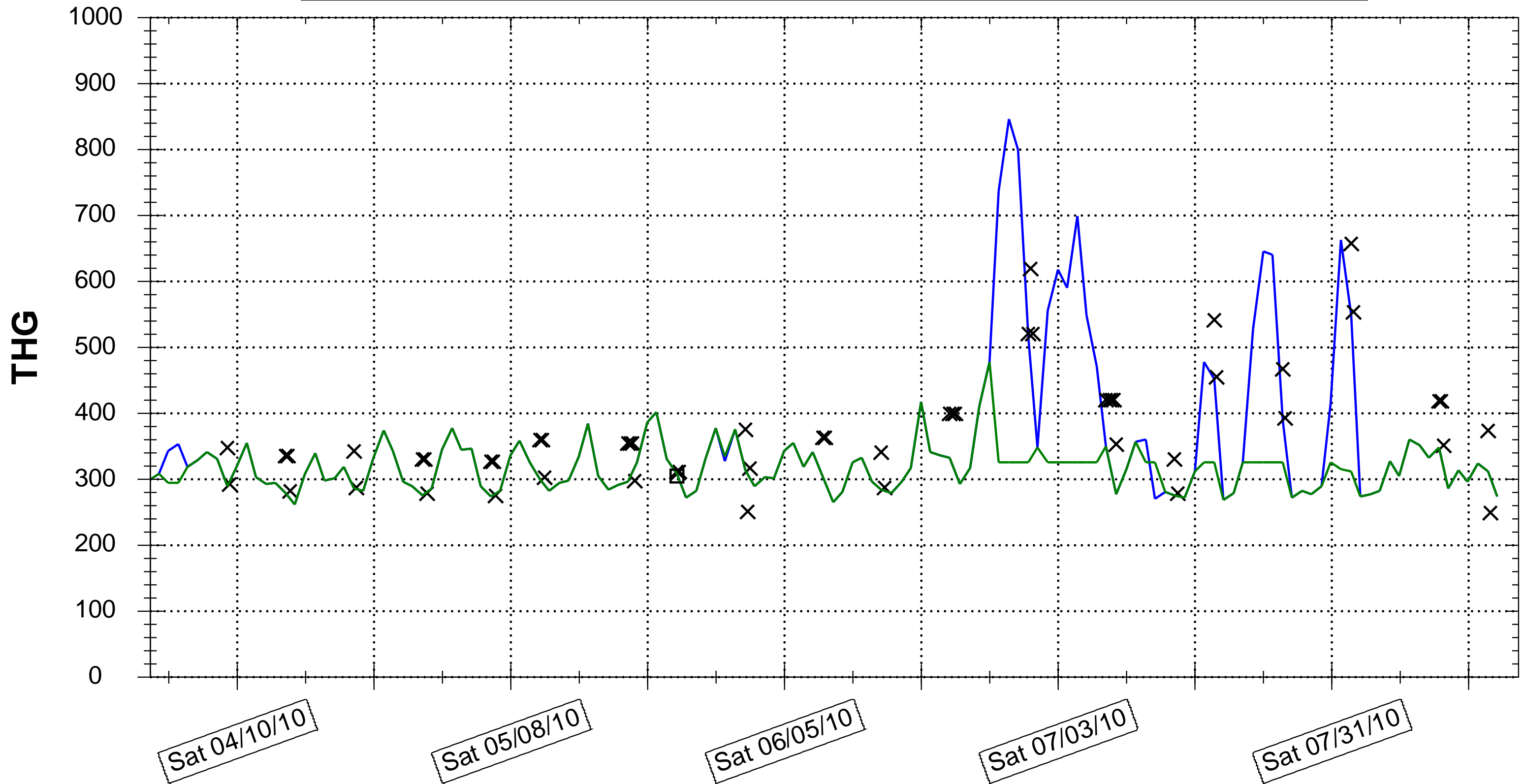
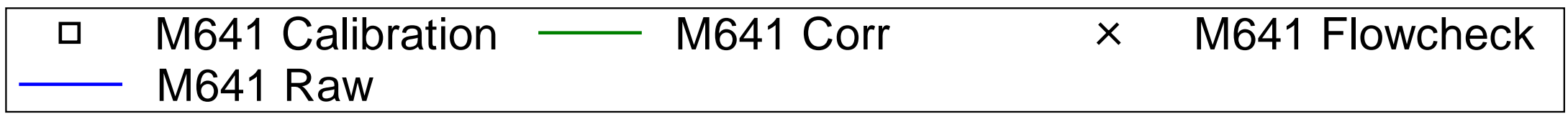
Mag Meters



Daily Flow Data for Selected Meters



Daily Flow Data for Selected Meters



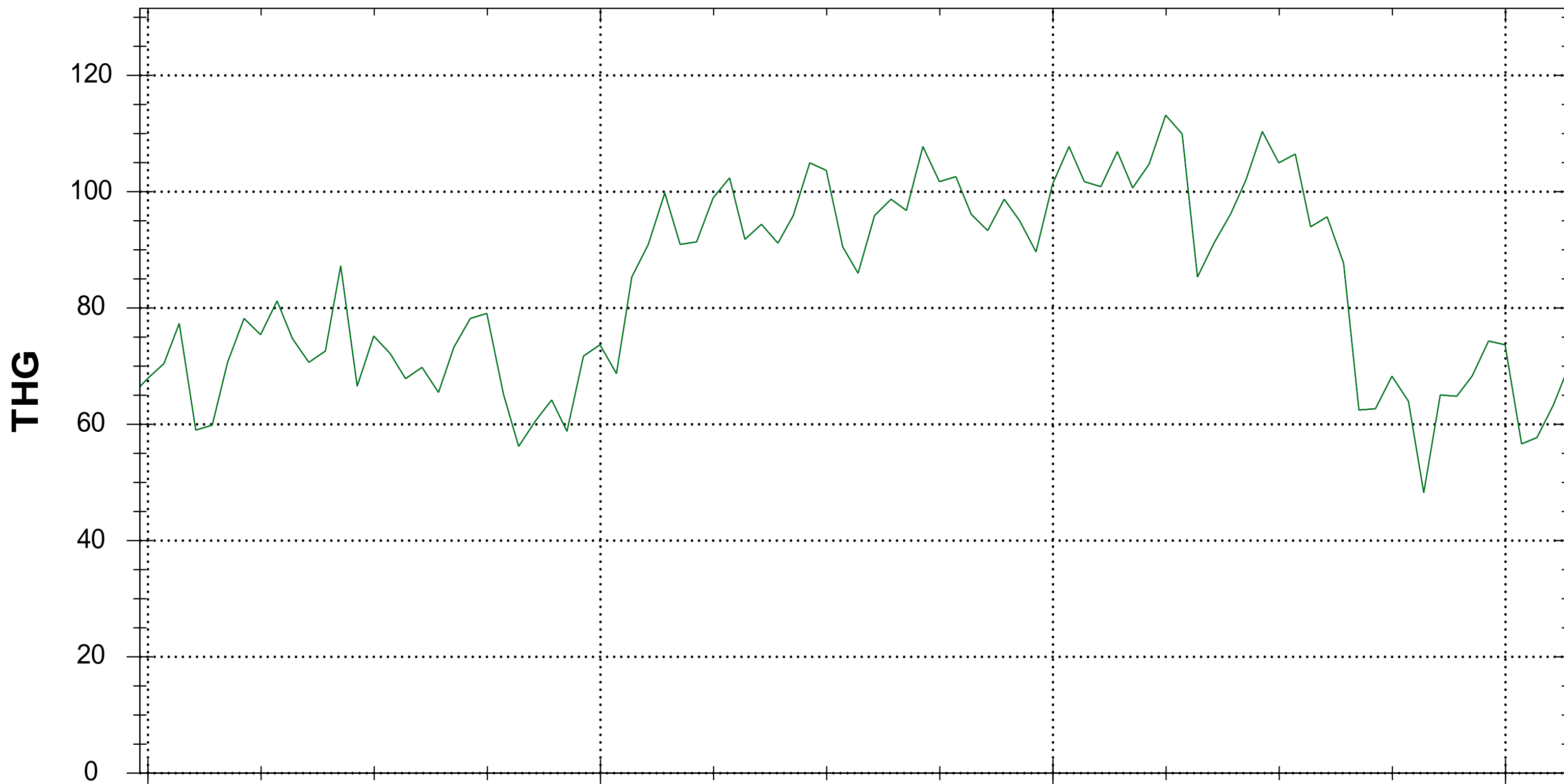


Examples of Community Assistance Using Regional Meter Data

- Orono
- Shoreview

Daily Flow Data for Selected Meters

L49MDD Corr L49MDD Raw



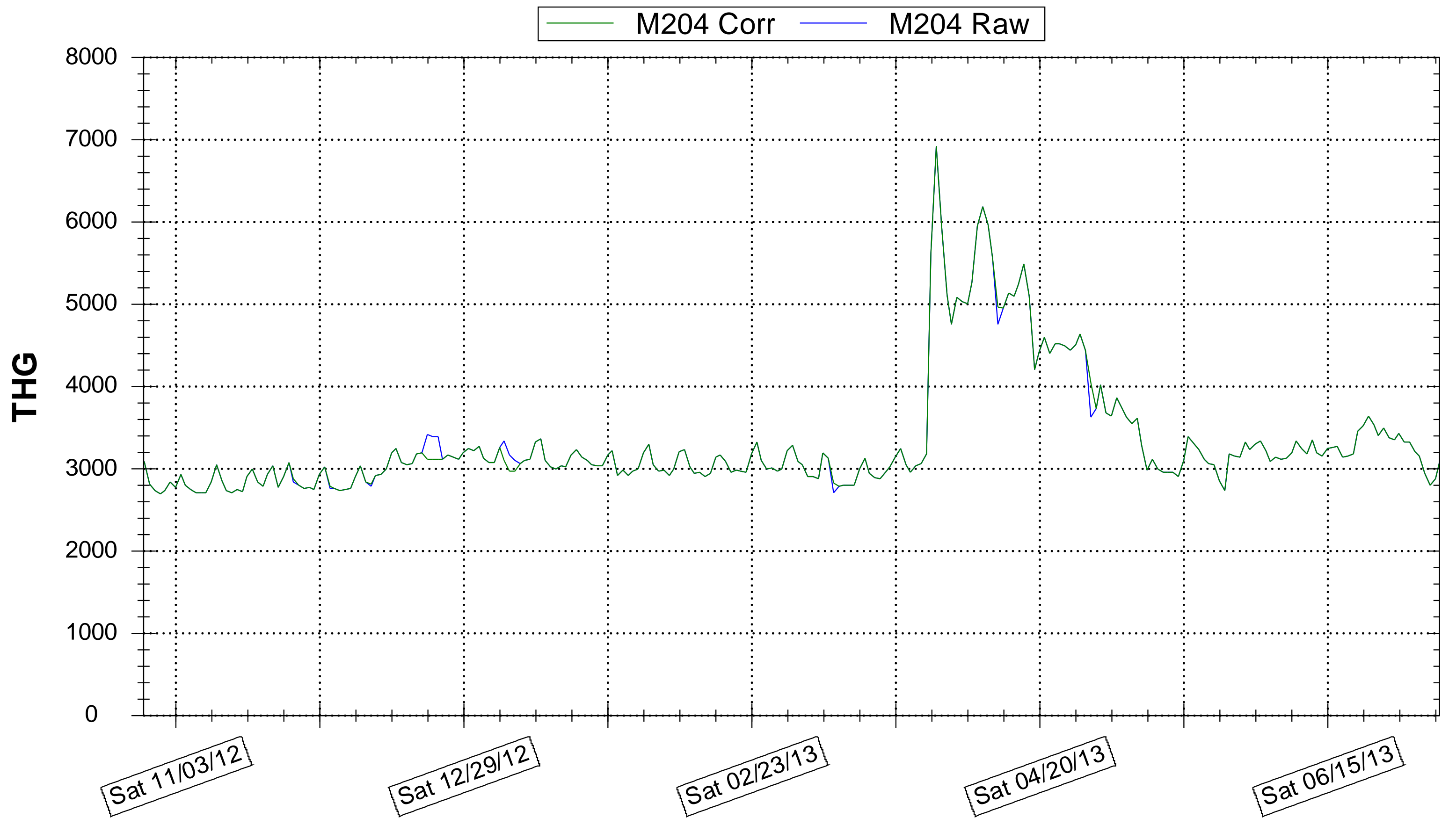
Sat 12/29/12

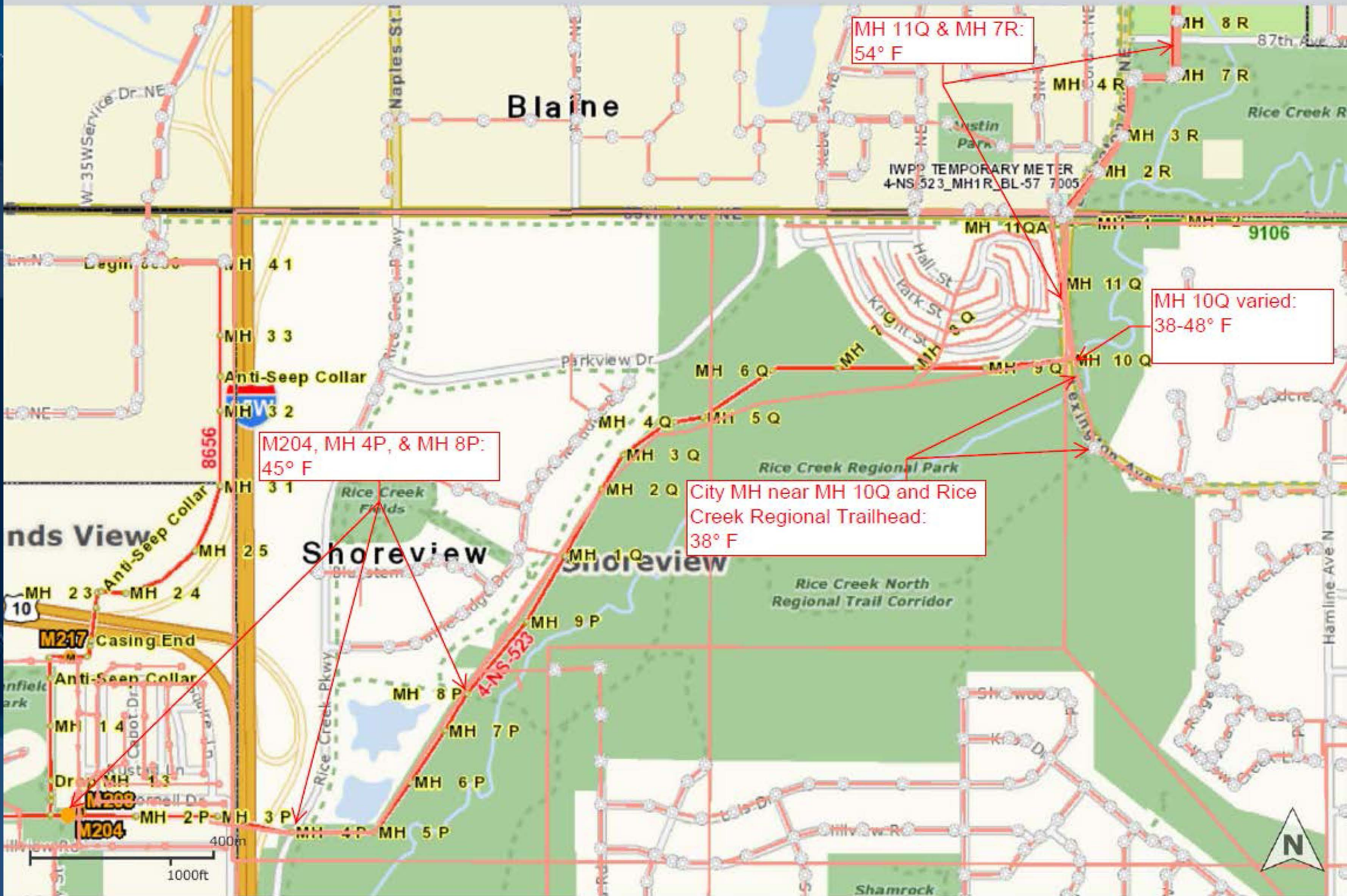
Sat 01/26/13

Sat 02/23/13

Sat 03/23/13

Daily Flow Data for Selected Meters





This map is for geographical representation only, for a general location of M should not be used as a reference for excavation or engineering purposes.

Printed 4/16/2013



In Summary

- Metering system is one of the most extensive and sophisticated in the Country
- Primary basis for regional flow allocation to communities (billing)
- Requires unique technical knowledge
- Metering type based on specific conditions
- Continuing advances in technology
- Used to identify local community system events

Questions

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