Department of Public Works
Engineering Division
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# PUBLIC WORKS COMMITTEE
# MEETING NOTICE AND AGENDA
## Thursday, December 7, 2023
## 4:00 PM

City Hall Common Council Chambers
W240N3065 Pewaukee Road, Pewaukee WI

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1. Call to Order and Pledge of Allegiance
2. Public Comment - Please limit your comments to 2 minutes. If further time for discussion is needed, please contact your local Alderperson prior to the meeting.
3. Discussion and Action Regarding the Minutes
   - 3.1. Discussion and possible action regarding 9/12/2023 minutes.
4. Storm Water Management Division
   - 4.1. Discussion and possible action regarding Springdale Estates Drainage Easement Rehabilitation.
5. Water and Sewer Division
   - 5.1. Discussion and Possible Action Regarding the Final Sanitary Sewer Facility Plan
   - 5.2. Discussion and Possible Action Regarding Potential Water Rate Increase and Notice of Public Service Commission Public Hearing [Wagner / Mueller]
6. Engineering Division
   - 6.1. Discussion and update regarding the Lindsay Road and Pewaukee Road (STH164) intersection signals.
7. Highway Division
8. Public Comment - Please limit your comments to 2 minutes. If further time for discussion is needed, please contact your local Alderperson prior to the meeting.
9. Adjournment

Magdelene Wagner
Director of Public Works

December 7, 2023

**NOTICE**

It is possible that members of other governmental bodies of the municipality may be in attendance to gather information that may form a quorum. At the above stated meeting, no action will be taken by any governmental body other than the governmental body specifically referred

to above in this notice.

Any person who has a qualifying disability under the Americans with Disabilities Act that requires the meeting or materials at the meeting to be in an accessible format must contact the DPW Main Office, at (262) 691-0804 by 12:00 p.m. the Tuesday prior to the meeting so that arrangements may be made to accommodate your request.

# CITY OF PEWAUKEE
# PUBLIC WORKS COMMITTEE AGENDA ITEM 3.1.

**DATE:** December 7, 2023

**DEPARTMENT:** PW - Water/Sewer

**PROVIDED BY:**

***SUBJECT:***

Discussion and possible action regarding 9/12/2023 minutes.

***BACKGROUND:***

***FINANCIAL IMPACT:***

***RECOMMENDED MOTION:***

**ATTACHMENTS:**

Description

9-12-2023 Minutes

In Attendance
Mayor S. Bierce, Committee Members: M. Kreiter, J. Tormey
Absent: Alderman J. Wamser, Committee Member D. Swan

Also in Attendance
Director of Public Works M. Wagner, Chief Engineer-Utilities R. Wirtz, Chief Engineer-Streets and Development M. Gabbey, Utility Manager J. Mueller, Utility Billing Specialist R. Reed

1. Call to Order and Pledge of Allegiance

   Mayor Bierce called the meeting to order at 4:00 p.m. and requested everyone stand for the Pledge of Allegiance.

2. Public Comment

   None

3. Discussion and Action Regarding the Minutes of July 27, 2023

   3.1. Discussion and Action Regarding Minutes of July 27, 2023 Meeting.

   **A motion was made and seconded (J. Tormey, M. Kreiter) to approve the July 27, 2023 minutes**. Motion passed: For-3, Against-0

4. Storm Water Management Division

   4.1. Discussion and possible action regarding the 2024 Storm Water Utility Budget.

   Ms. Wagner reported on the proposed DPW budget for 2024. She stated it is essentially the same as last year, except for increases in items such as computer programming (update software to subscription service), adding some equipment to support the asset management software rolling out, and tweaking some normal maintenance activities.

   Projects for the 2024 O&M budget include Takoma road project; Shade Lane and Shady Nook ditching and culvert replacement; ongoing city-wide storm water management which will be wrapping up next year; Joseph Road (road project); Springdale Estates (drainage, easement project); and Meadowbrook Phase IV - Fieldhack Drive (supporting infrastructure for road project). Westwood Drive and Corporate Court (road project) were added due to the damage to the curbs and failing road.

   There are no purchases slated for the 2024 Capital budget for the Storm Water Utility, other than the year's portion for future equipment purchases.

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Mr. Tormey stated the budget indicates that expenses exceed revenue by $2.5M. Ms. Wagner replied that some numbers came in late and the budget has been revised and now is in the black by $350,000, but it is not reflected in the version provided in the committee packet.

Ms. Wagner stated that it is not our intention to raise rates at this time; if necessary we would supplement with borrowing for large projects.

5. Water and Sewer Division

5.1. Discussion and Possible Action Regarding the PFAS Levels in Wells 11/12, also known as Entry Point 500.

Ms. Mueller reported that the PFAS public notice was mailed on 9/6/23. Unfortunately, we had a second hit for PFAS in our system. The last time committee met it was decided that Well 8 with the PFAS exceedance would be taken out of service. We tried to take both wells out of service in an attempt to remove the PFAS from getting to our customers, but found there is no way we can reliably continue to serve the west side of town with both wells out of service. The decision was made to put both wells back in service to provide adequate water to the entire customer base.

We are receiving a lot of phone calls with questions about the notice. We are going to try and provide a better way to explain the fact that the water is combined; that all 12 wells can be running at any given time and there isn't any one well providing water to a specific area.

The Utility will put together a plan for a treatment system as soon as we have the design information and a good idea of what we need from the DNR and DHS to move forward.

Mr. Kreiter asked if a PFAS treatment system currently exists. Ms. Mueller replied that granular activated carbon is the process that has been widely accepted. Reverse osmosis is another treatment system which is very expensive with a lot of wasted water.

Ms. Mueller stated the 2024 budget reflects the estimated costs for two treatment systems. The PFAS limits are currently being discussed and likely will be revised by the EPA. We understand that the acceptable levels may be lowered from 70 ppt to 4 ppt, but we don't know that for sure. If that is the case, there are other shallow wells that do have PFAS at levels currently below the acceptable level, that will then be in exceedance of the new level.

Ms. Wagner stated that we are being forced to design for something that isn't a law at this time and we don't know the limits. There are other cities in our state that are in the same position as we are. She said there are all sorts of PFAS; it's a generic term. We will continue to provide information as it becomes available.

5.2. Discussion and possible action regarding the 2024 Water & Sewer Budgets.

Ms. Mueller provided a revised budget for the committee. She noted the numbers are high, especially for electric and chemicals.

**2024 Operating Utility Budget**
Notice the category - wages not charged to projects. This is generally for the majority of the wages of staff. Detailed sheets indicate wages in other accounts as well.

DRAFT

The amount for power was a large number. We Energies expects to raise rates for residential by 11% next year. A 6% increase was included because we were unable to find out what the rates for commercial accounts would be. It is hard to determine the electric rates and the water demand.

Ms. Mueller stated she tried to hold everything at a moderate level while trying to anticipate the repairs on pumps with hope that they are within the realm of regular maintenance.

Ms. Wagner pointed out that they added a laborer position, as there are a number of employees coming into retirement age and an employee out on long-term disability. This position will help with current needs, while it takes a few years to get them fully trained.

Ms. Mueller reported that the budget includes a position that we have not got a chance to fill hyet in 2023. The Assistant Utility Manager position is part of succession planning for the Utility Manager. The city has been reclassified to an AB Utility and will require additional requirements that will need a great deal of reporting and tracking. Ms. Mueller indicated there are so many new regulatory issues that need ongoing attention over and above the daily activities. Mayor Bierce asked if we will try and fill that position internally? Ms. Wagner stated that we will consider internal candidates, but we also plan to go outside the city for applicants.

Ms. Mueller reported that we are in the process of a rate case increase. When reporting the revenues she was very conservative in using the same rate structure that we have now because we have no idea where the PSC is going to land moving forward.

**2024 Sewer Utility Budget**
The wages reflect the positions. Plant maintenance was increased because of the age of our equipment. Of the 12 lift stations, the one slated to be upgraded is a smaller submersible station.

We have not heard for sure what the sewer service charges are for the Waukesha service rates. The budget was increased by 6% for electric rates.

**2024 Capital Budget**
Included are additional PFAS treatment systems for both Well 11 and Well 12 (EP 500), and the Still River Well. Included is the construction of Still River Well 2 (Deep Well) to reduce the radium level in anticipation of taking Well 5 offline by the end of 2024. We will lose capacity of that well.

Ms. Wagner discussed the status of the water main loop which will go from Busse Road easterly to Foster Court. Ms. Mueller indicated that this loop will take care of the radium compliance issues and will increase our firefighting protection and reliability to service that area. The committee discussed some issues involved with the water main loop project.

There are significant capital projects which revolve around drinking water compliance standards. Ms. Mueller discussed additional projects included in the budget.

Mayor Bierce asked with all the additional government regulatory requirements, will the government help us with these costs? Ms. Mueller said that they do offer low interest loans, but they require the use of American-made supplies, which are getting hard to find, which make it difficult to get the projects completed in a timely manner. The city does not qualify for grants due to the high median household incomes.

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The Sewer Utility is replacing the Gun Club lift station at a cost of $5M, as it is at the end of its useful life.

Another big project is the Kopmeier lift station. It will be a shared cost between the City and the Village. The project may be pushed out later than 2024, but we kept our share of the funds in the 2024 budget.

5.3. Discussion and possible action regarding the 2024 Engineering Budget.

Ms. Wagner reported that included the O&M budget is the bulk of staff wages, along with minor increases in the cost of doing business. Engineering is holding steady, as it has in the last several years.

**2024 Engineering Capital Budget**
The only change added to this budget is the purchase of a vehicle. Engineering currently shares a van between eight employees, and one technician uses the van most of the time every day. This forces the rest of the staff to use personal vehicles and request mileage reimbursement, which increases the mileage budget. Purchasing another vehicle will allow the technician to use the van, leaving a second vehicle available for staff to use. The vehicle will be shared between Engineering and Storm Water Utility, and will be purchased in 2025.

**Bike and Pedestrian Budget**
General maintenance funds are included in the budget, along with some Engineering design funds for long-term planning. The city received a grant for the Meadowbrook Trail, which will be constructed in 2026. Ms. Wagner updated the committee on the progress of various projects in 2023, and discussed the pedestrian crossing projects planned for 2024.

**Road Projects**
Ms. Wagner discussed the budget for the various 2024 road projects included in the packet.

**Deer Removal**
The deer roadway pick-up rate increased substantially. The city averages eight deer pick-ups per month.

**Forestry**
The budget includes a large increase in tree removal as we implement the forestry plan completed in 2022 as part of the grant. There will a substantial number of large or dead trees removed in the right-of-way in the next two years that may be hazardous, along with some maintenance. Costs included are to contract some of the services out. Further discussions will take place in the future about replacing some of the trees removed.

**Boat Launch**
The budget includes $50,000 for replacement of fishing piers and rehab of the boat launch. Most of the damage to the launch is being done by barges and commercial boats. Funds were added for future maintenance of the launch.

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6. Engineering Division

6.1. Discussion and possible action regarding establishing the 2024 garbage and recycling collection rates with Johns Disposal, and moving recycling collection to weekly.

Ms. Wagner reported on the annual rate adjustment for garbage and recycling collection based on the consumer price index of fuel and fuel index. In the city's agreement with Johns Disposal, the rate increase is capped at 2.65% each year. Johns is requesting the 2.65% increase for the 2024 recycling and garbage collection.

The 2023 rate was $178.00 per home; the 2024 rate is $183 per home, which includes all the garbage and recycling - and the recycling dropped off at City Hall. This year the city received a dividend payment of almost $11,000 from the county for the operation of the MERF recycling. That dividend payment was incorporated in the rate calculations to bring the rate down. Without the dividend added the rate would be $185 per home. Ms. Wagner pointed out that we will not get that dividend again anytime in the near future due to a fire. Mr. Kreiter asked if she knew what caused the fire, and she replied that she heard it was from a battery that was put in recycling.

Two more dumpsters were added to the Recycling Center due to complaints received from residents that the dumpsters are always full. It is partly for this reason that we are requesting to change the residential recycling collection from biweekly to weekly pick-up. The weekly recycling collection would cost an additional $2.26 per household per month, increasing the annual 2024 rate from $183 to $210.

Staff recommends changing to the weekly recycling collection. Ms. Wagner stated that the additional price is inflated due to the number of residents with disabilities who qualify for Johns up-the-drive pick-up service at no cost. There are 142 customers in the city who receive that benefit. Similar surrounding communities average 30-40 customers. Johns said if we agree to perform an audit and reduce the number of no cost up-the-drive customers, we might get a better rate on the weekly recycling fee. This audit would not include customers who choose to opt for and pay the up-the-drive service.

The committee agreed that the demand is there for the weekly recycling collection.

Mr. Kreiter asked what the tonnage of recycling is from the City of Pewaukee. Ms. Wagner said she would review the reports and get back to him with that information.

**A motion was made and seconded (J. Tormey, M. Kreiter) to recommend to the Common Council to establish the 2024 Residential Recycling and Garbage Collection Fee at $210 per home per the contract and approve the weekly recycling collection.** Motion Passed: For-3, Against-0.

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7. Highway Division

7.1. Discussion and possible action regarding the 2024 Highway Budget.

Ms. Wagner stated that the Streets Superintendent was unable to attend the meeting, but indicated that the department is status quo with most of the Operations budget. With the DPW garage being so new, the cost for utilities is an estimate. The only substantial increase in this budget is for fuel.

The Capital budget indicates cost increases for equipment that are eye-popping. Ms. Wagner stated that the plow truck we are supposed to acquire in 2024 may not be delivered until 2026, and more likely 2027 because of manufacturing and supply chain issues, and the demand for bigger trucks. She pointed out that the 10-year replacement program for these trucks will be moved to 12-15 years, so the return value on the equipment will not be as high.

The budget also includes the replacement of the chipper. The price included a large trade-in value, but the cost for the new chipper nearly doubled.

Ms. Wagner stated we will have to pay close attention when budgeting for new equipment in the future.

8. Public Comment

None

9. Adjournment

**A motion was made and seconded (J. Tormey, M. Kreiter) to adjourn the meeting at 5:34 p.m.**
Motion Passed: For-3, Against-0

Respectfully Submitted,

Magdelene Wagner
Director of Public Works

DRAFT

# CITY OF PEWAUKEE
# PUBLIC WORKS COMMITTEE AGENDA ITEM 4.1.

**DATE:** December 7, 2023

**DEPARTMENT:** PW - Stormwater

**PROVIDED BY:** Magdelene Wagner

***SUBJECT:***

Discussion and possible action regarding Springdale Estates Drainage Easement Rehabilitation.

***BACKGROUND:***

At the January 26, 2023, the Committee directed Staff to revise the Springdale Estates Drainage Easement project to begin the restoration near the center and to the east to resolve the flooding issues. As such, Staff has updated the plans to reflect this change. See attached plans.

The far west end has the end section being reset to protect the storm sewer in the future from damage. It will be anchored so this separation will not occur in the future.

Staff will review the plans with a tree professional to ensure the trees we are attempting to save can be and should be saved for the project. We will also review access to the project. If these plans are approved today, we will move to bid the project in February for construction in 2024.

***FINANCIAL IMPACT:***

***RECOMMENDED MOTION:***

Public Works Committee recommend approval of the plans for bidding to the Common Council.

**ATTACHMENTS:**

Description

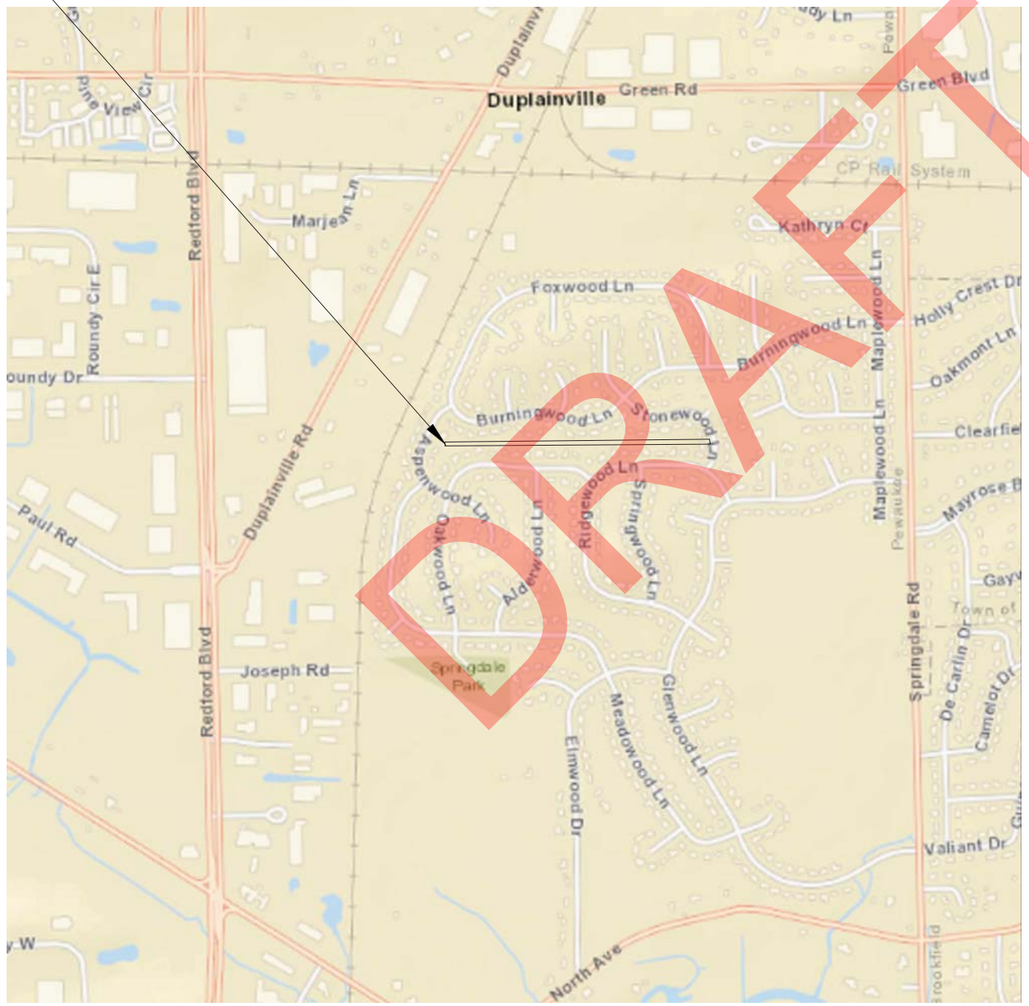
Draft Springdale Estates Drainage Plans

1/23/2023 minutes

# SPRINGDALE ESTATES
# DRAINAGE IMPROVEMENTS

## CITY OF PEWAUKEE
## PEWAUKEE, WI
## November 20, 2023

PROJECT LOCATION




NOTE: MAP NOT TO SCALE

## INDEX OF DRAWINGS

| SHEET NO. | DESCRIPTION |
|---|---|
| 1 | COVER SHEET |
| 2 | LEGEND AND PROJECT INFORMATION |
| 3 | SITE PLAN OVERVIEW |
| 4-5 | EROSION CONTROL SHEETS |
| 6-9 | PLANS AND PROFILES |
| 10-12 | CROSS SECTIONS |
| 13-16 | DETAILS |

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AECOM

**PROJECT**

SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

**CLIENT**

CITY OF PEWAUKEE

W240 N3065 PEWAUKEE ROAD
PEWAUKEE, WI 53072
TELE: 262-691-0770

**CONSULTANT**

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**REGISTRATION**

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| | 12/01/22 | 50% DRAFT |

**KEY PLAN**

**PROJECT NUMBER**

60339891

**SHEET TITLE**

COVER SHEET

**SHEET NUMBER**

1

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## UTILITY CONTACTS


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## ABBREVIATIONS

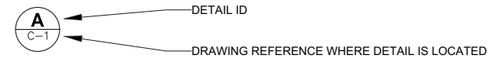
| | |
|---|---|
| B.M. | BENCH MARK |
| CB | CATCH BASIN |
| CL | CENTER LINE |
| C.O. | CLEAN OUT |
| CONC | CONCRETE |
| CP | CONTROL POINT |
| DB | DRAINAGE BASIN |
| EL | ELEVATION |
| EX | EXISTING |
| I.E. | INVERT ELEVATION |
| L.F. | LINEAL FEET |
| MH | MANHOLE |
| PVC | POLYVINYL CHLORIDE PIPE |
| R | RIM ELEVATION |
| RCP | REINFORCED CONCRETE PIPE |
| R/W | RIGHT OF WAY |
| PPOL | POWER POLE |
| SAN | SANITARY SEWER |
| SB | SOIL BORING |
| SS | STORM SEWER |
| STA | STATION |
| TEMP | TEMPORARY |
| TC | TOP OF CURB |
| UD | UNDERDRAIN |
| UG | UNDERGROUND |
| WDNR | WISCONSIN DEPARTMENT OF NATURAL RESOURCES |
| WISDOT | WISCONSIN DEPARTMENT OF TRANSPORTATION |
| WM | WATER MAIN |

## LEGEND

- SANITARY MANHOLE
- CONCRETE END SECTION
- HYDRANT
- WATER VALVE
- POWER POLE
- GUY WIRE
- ELECTRIC METER/PEDESTAL
- TELEPHONE PEDESTAL
- SIGN
- BIRD HOUSE POST
- PROPOSED STORM MANHOLE
- FOUND IRON PIPE
- FOUND REBAR
- AECOM TRAVERSE POINT
- BUSH
- DECIDUOUS TREE
- CONIFEROUS TREE
- ROCK
- EX. STORM SEWER INLET
- EX STORM SEWER CATCH BASIN
- EXISTING RUMBLE (BROKEN CONC.)
- REMOVE TREE
- TREE PROTECTION FENCE

- PROPOSED 1' CONTOUR
- PROPOSED 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING 5' CONTOUR
- SAN SAN SAN — SANITARY SEWER LINE
- ST — STORM SEWER LINE
- OH OH — OVERHEAD ELECTRIC LINE
- ELEC — UNDERGROUND ELECTRIC
- PHON — UNDERGROUND PHONE
- CENTERLINE ROAD
- EDGE OF GRAVEL
- CENTERLINE OF DITCH
- TREELINE/BRUSH LINE
- LANDSCAPE AREA
- CULVERT LINE
- PL — DATA PRODUCED FROM SUBDIVISION PLAT
- DRAINAGE EASEMENT
- LANDSCAPE EASEMENT AND BERM AREA
- SANITARY SEWER EASEMENT
- EXISTING CONCRETE FLUME
- 7+00 — PROPOSED SEWER CENTERLINE ALIGNMENT
- PROPOSED SMALL DIAMETER STORM SEWER

## DETAIL REFERENCE SYSTEM

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**PROJECT**

SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

**CLIENT**

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**KEY PLAN**

**PROJECT NUMBER**

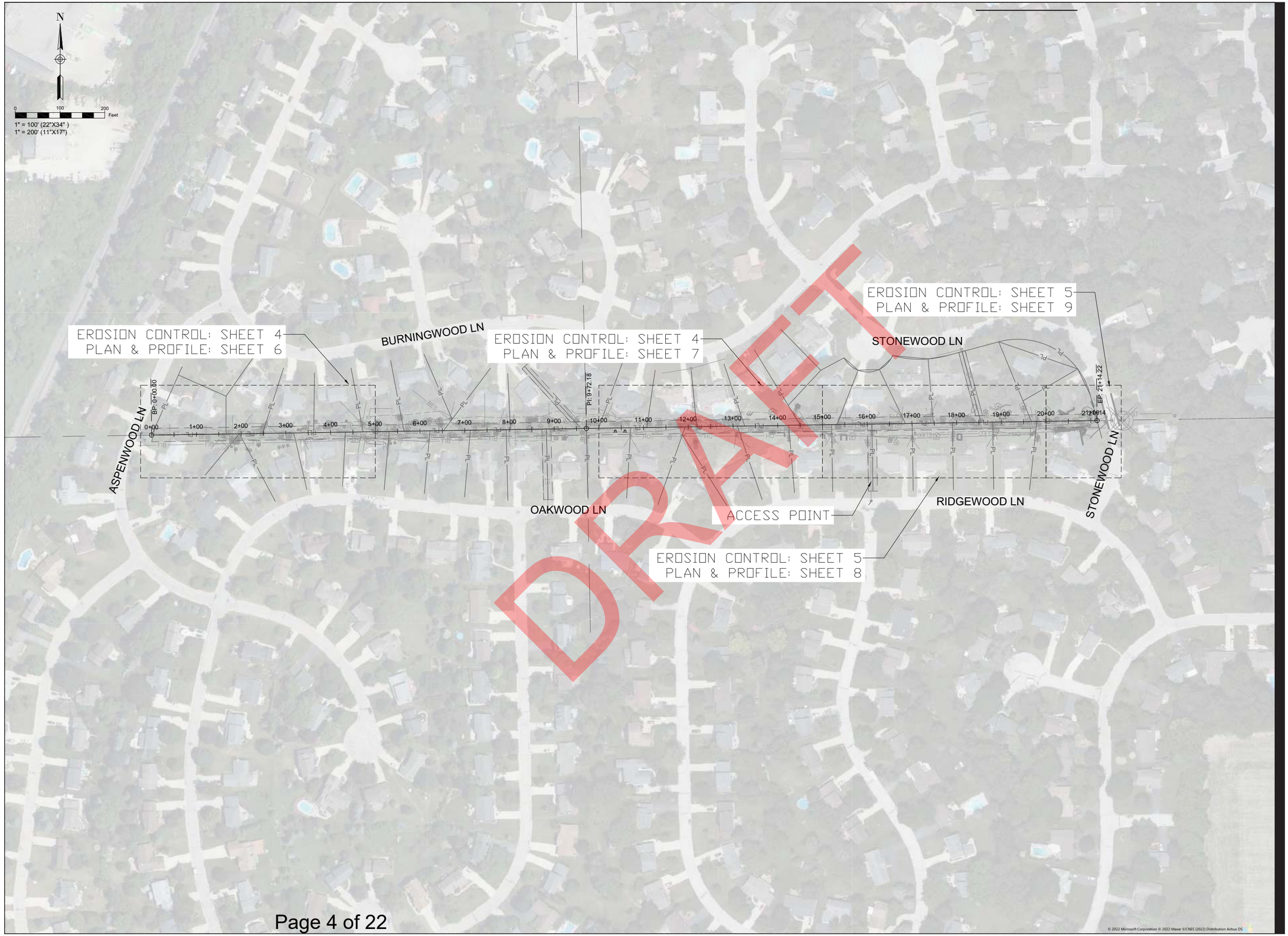
60339891

**SHEET TITLE**

LEGEND AND PROJECT INFORMATION

**SHEET NUMBER**

2

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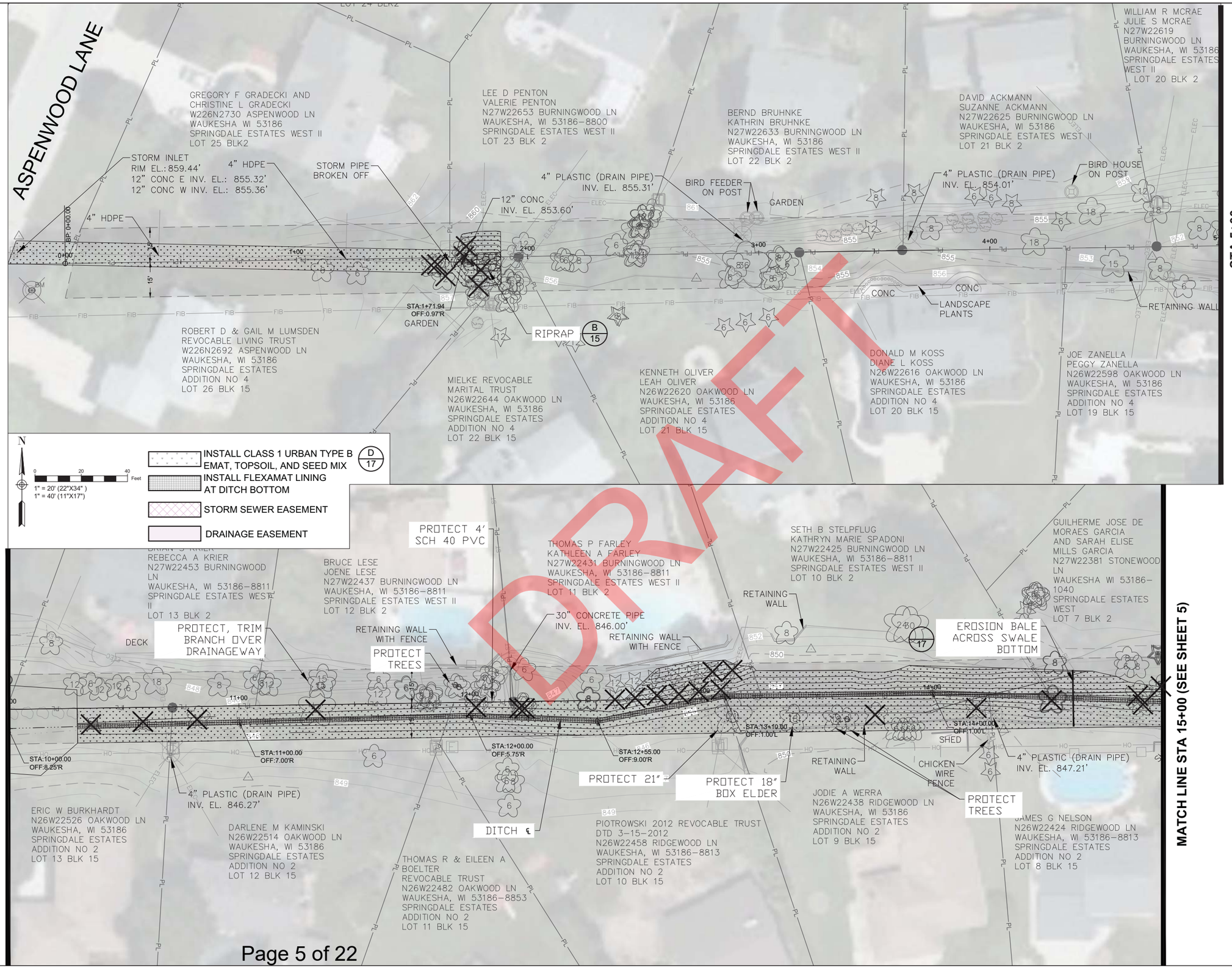
**SHEET TITLE**

OVERVIEW

**SHEET NUMBER**

3





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**KEY PLAN**

**PROJECT NUMBER**

60339891

**SHEET TITLE**

EROSION CONTROL AND RESTORATION

**SHEET NUMBER**

4



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MATCH LINE STA 15+00 (SEE SHEET 4)

KEITH MCCRIGHT
P MCCRIGHT
N27W22377 STONEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES WEST
LOT 6 BLK 2

DAVID SCHAUER
KRISTIN SCHAUER
N27W22363 STONEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES WEST
LOT 5 BLK 2

BRADLEY K UTTS
ANNE UTTS
N27W22341 STONEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES WEST
LOT 4 BLK 2

JOHN HITCHLER
N27W22329 STONEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES WEST
LOT 3 BLK 2

ANDREW J WINTHEISER
N26W22416 RIDGEWOOD LN
WAUKESHA, WI 53186-8813
SPRINGDALE ESTATES
ADDITION NO 2
LOT 7 BLK 15

MICHAEL C MCCORMICK
JENNIFER A MCCORMICK
N26W22388 RIDGEWOOD LN
WAUKESHA, WI 53186-1031
SPRINGDALE ESTATES
ADDITION NO 2
LOT 6 BLK 15

ANDREW M BARNES
KELLY C BARNES
N26W22366 RIDGEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES
ADDITION NO 2
LOT 5 BLK 15

FERK TRUST DATED JULY 9, 1996
N26W22342 RIDGEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES
ADDITION NO 2
LOT 4 BLK 15

EDWARD G DEDOLPH AND
VICTORIA J DEDOLPH
N26W22326 RIDGEWOOD LN
WAUKESHA WI 53186-1031
SPRINGDALE ESTATES
ADDITION NO 2
LOT 3 BLK 15

RICK R FREDERICKS
W223N2685 STONEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES
ADDITION NO 2
LOT 1 BLK 15

JEFFREY PELZEL
PATRICIA PELZEL
N27W22313 STONEWOOD LN
WAUKESHA, WI 53186
SPRINGDALE ESTATES WEST
LOT1 BLK 2

DECK
CONC.
POOL
CONC.
RETAINING WALL
SHED
HOUSE
PORCH
CONC.
LANDSCAPED AREA
BRICKED WALKWAY
FIRE PIT
RETAINING WALLS
RETAINING WALL
SHED

4" DRAIN PIPE
N INV. EL. 845.01'
S INV. EL. 844.29'

30" CONCRETE PIPE
INV. EL. 842.43'

EROSION BALE ACROSS SWALE BOTTOM

2" PLASTIC (DRAIN PIPE)
INV. EL. 847.13'

21" CONCRETE PIPE
INV. EL. 847.48'

42" CONCRETE PIPE
INV. EL. 840.28'

45' - 17"X13" CMP CULVERT W/ ENDWALLS

DITCH ℄

PROTECT 3" SPRUCE TREE

PROTECT 18"

PROTECT 24" CUT AND REMOVE PORTION OF ROOT IN DRAINAGEWAY, CUT PERPENDICULAR TO ROOTS

PROTECT 18", CUT LOWER BRANCHES, CUT VINES, KEEP BANK

PROTECT PINES

PROTECT 30" TREE

STONEWOOD LANE

STORM INLET
RIM EL.: 845.83'
12" CONC E INV. EL.: 840.78'

STORM INLET
RIM EL.: 845.71'
42" CONC SW INV. EL.: 839.81'
42" CONC SE INV. EL.: 839.81'

STONE TRACKING PAD (A/16)

EROSION LOG (D/15)

WALKWAY TO DRIVEWAY

RESET 42" RCP ENDWALL AND ADD STORM SEWER TIES TO DOWNSTREAM PIPE

STA:15+50.00 OFF:7.00'R
STA:16+70.00 OFF:11.00'R
STA:17+50.00 OFF:7.00'R
STA:17+85.00 OFF:7.00'R
STA:18+30.00 OFF:7.00'R
STA:20+50.00 OFF:7.00'R

16+00
17+00
18+00
19+00

N

0 20 40 Feet
1" = 20' (22"X34" )
1" = 40' (11"X17")

- DRAINAGE EASEMENT
- STORM SEWER EASEMENT
- INSTALL CLASS 1 URBAN TYPE B EMAT, TOPSOIL, AND SEED MIX (D/17)
- INSTALL FLEXAMAT LINING AT DITCH BOTTOM

MATCH LINE STA 20+00 (SEE SHEET 5)

MATCH LINE STA 20+00 (SEE SHEET 5)

DRAFT



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AECOM

**PROJECT**

SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

**CLIENT**

CITY OF PEWAUKEE

W240 N3065 PEWAUKEE ROAD
PEWAUKEE, WI 53072
TELE: 262-691-0770

**CONSULTANT**

AECOM
1555 NORTH RIVERCENTER DRIVE
SUITE 214
MILWAUKEE, WI 53212
414.944.6080 tel 414.944.6081 fax
www.aecom.com

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| | 12/01/22 | 50% DRAFT |

**KEY PLAN**

**PROJECT NUMBER**

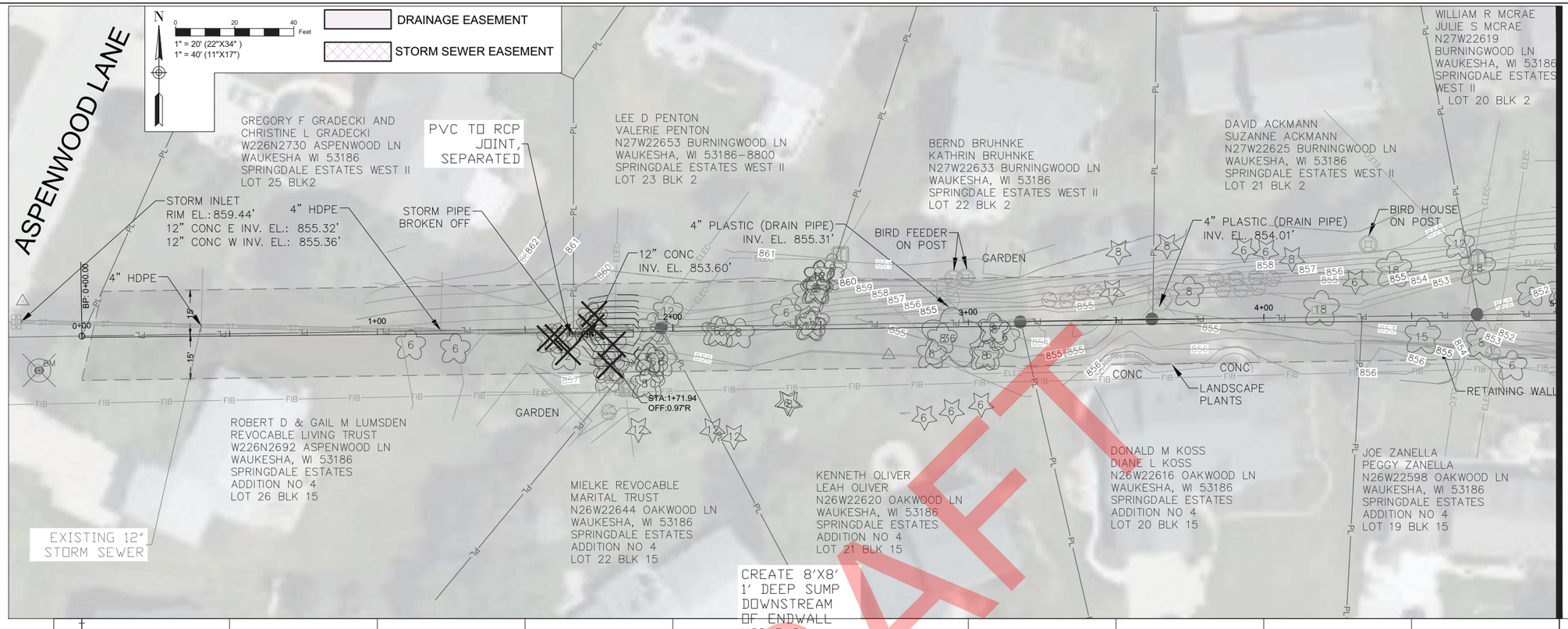
60339891

**SHEET TITLE**

EROSION CONTROL AND RESTORATION

**SHEET NUMBER**

5

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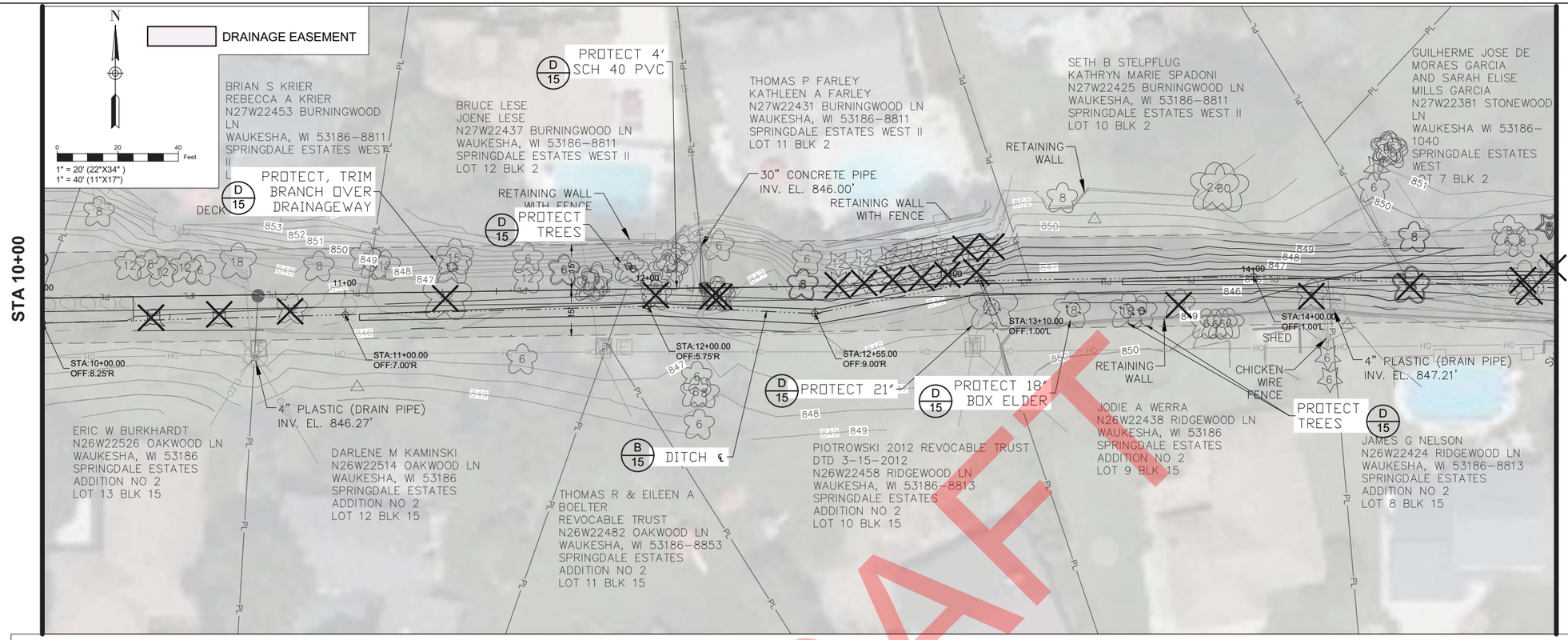
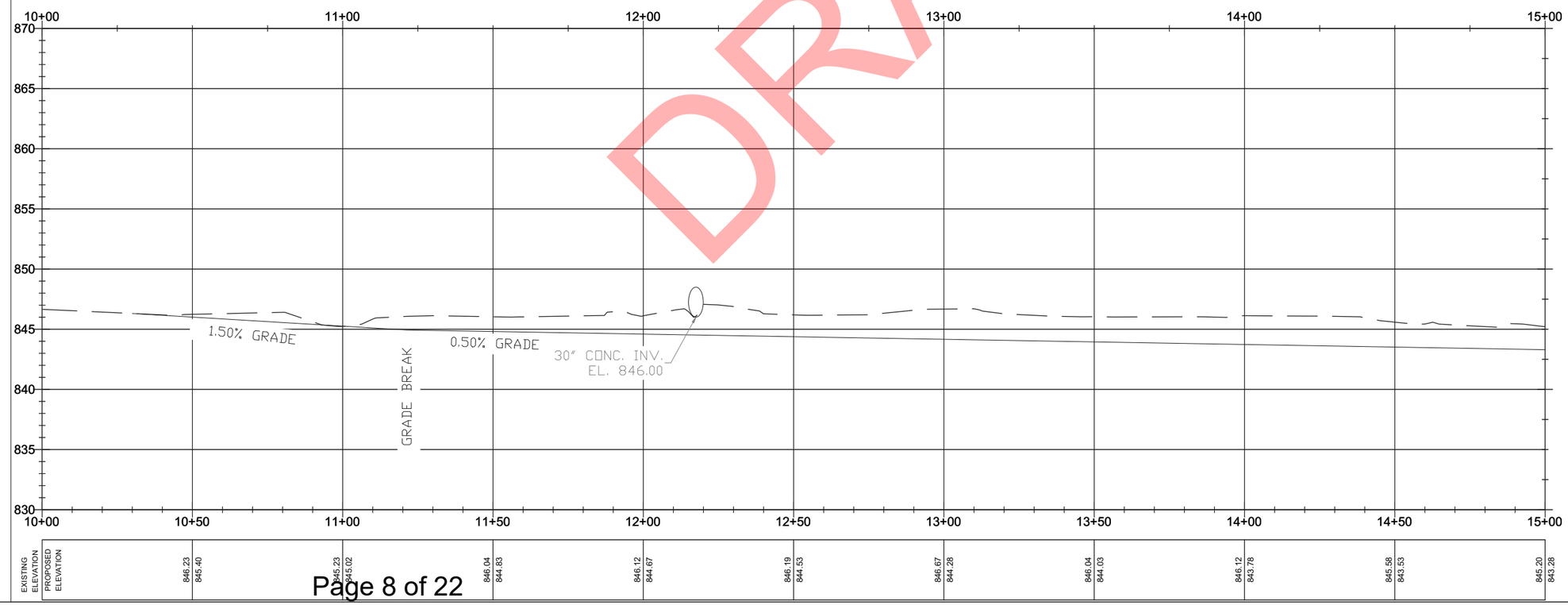
**SHEET TITLE**

PROPOSED CONDITIONS

**SHEET NUMBER**

6

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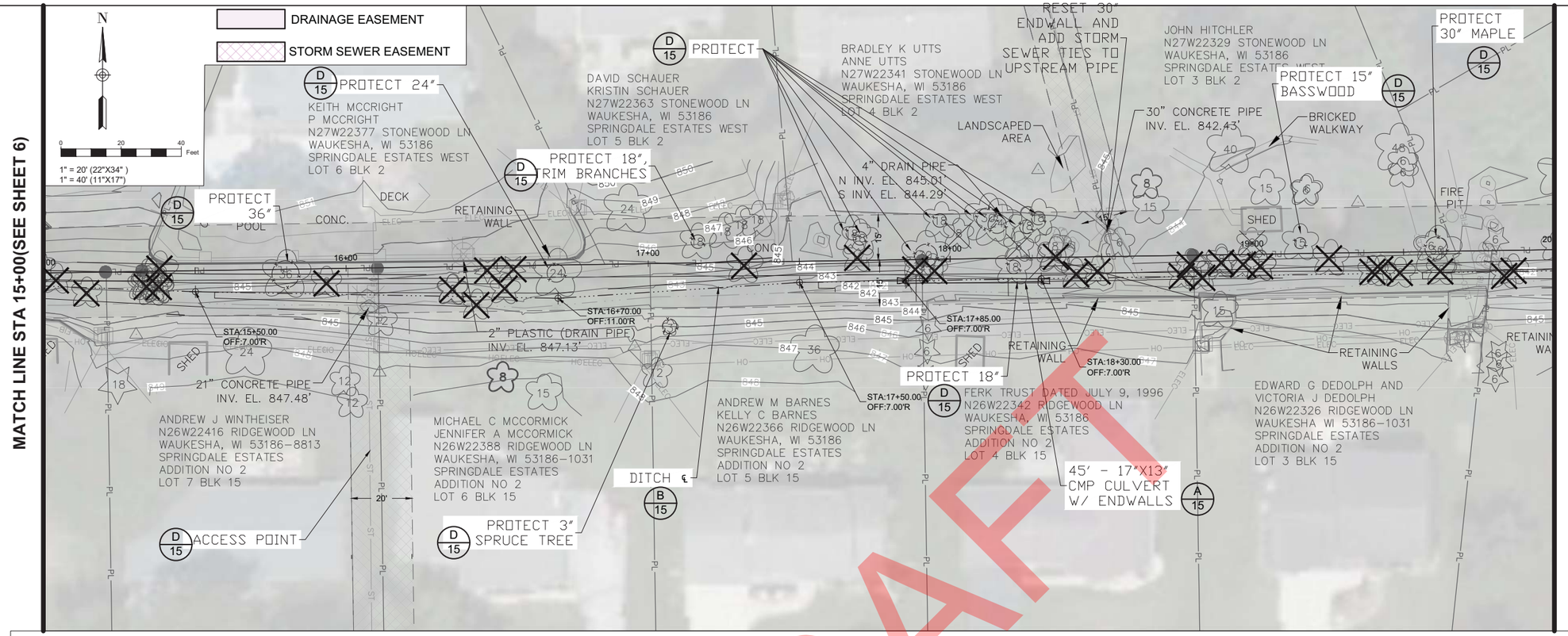


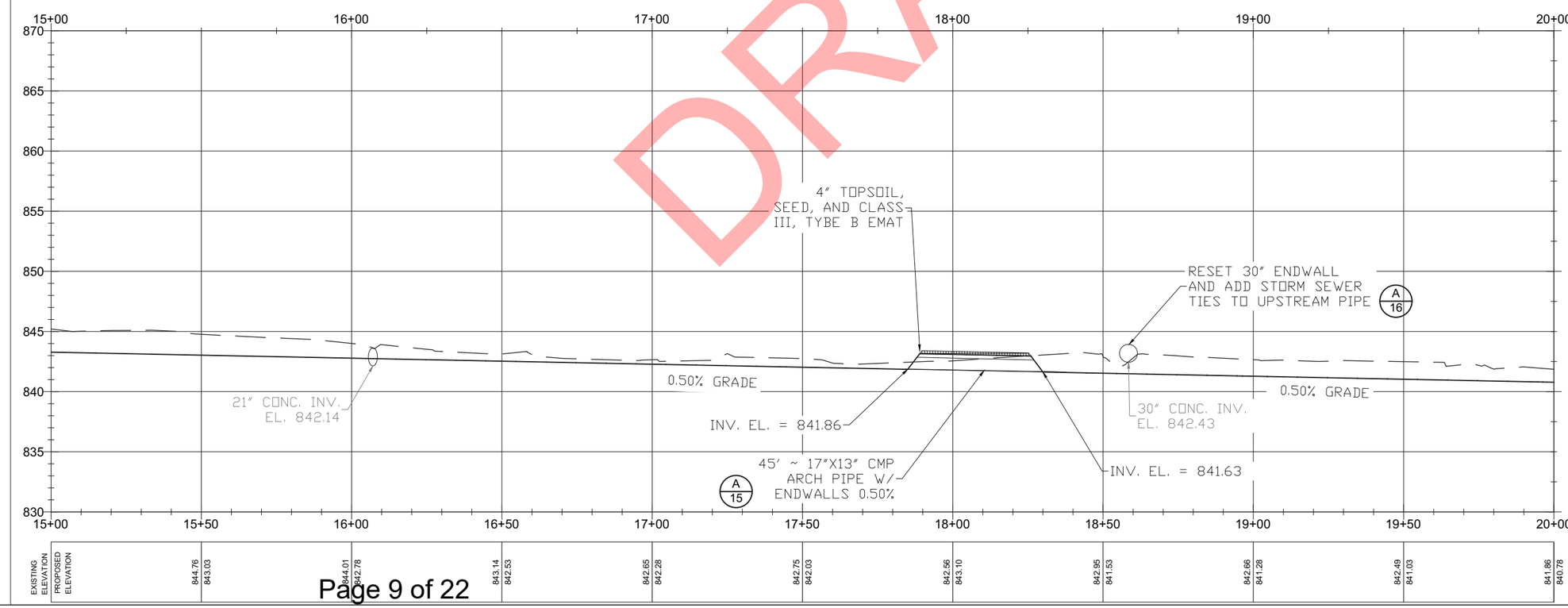


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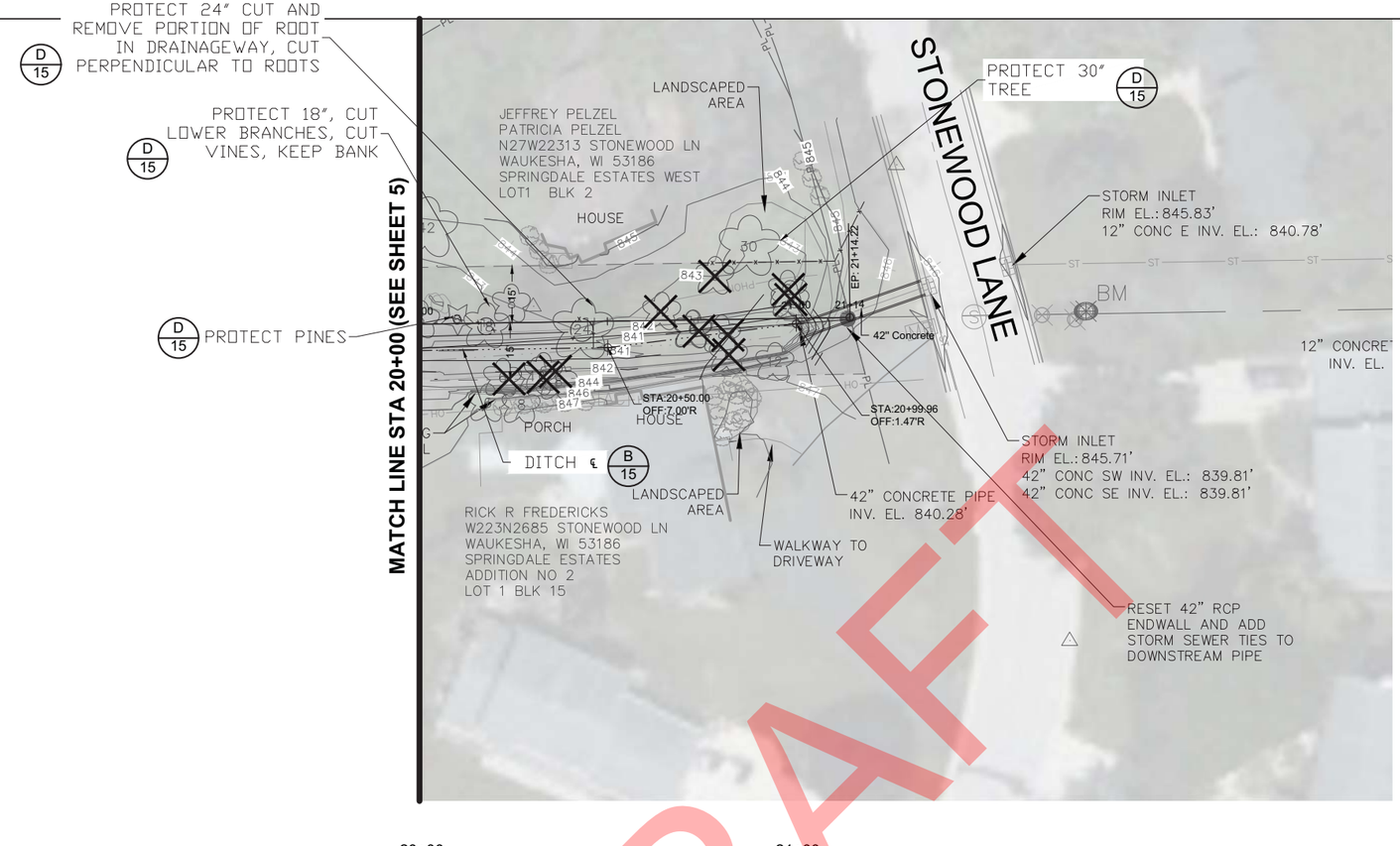
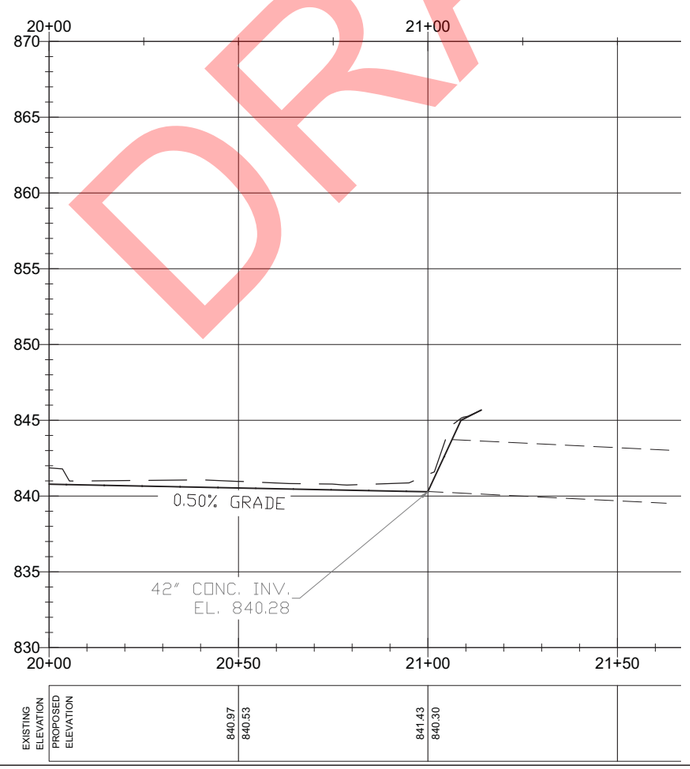
**SHEET TITLE**

PROPOSED CONDITIONS

**SHEET NUMBER**

7

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**KEY PLAN**

**PROJECT NUMBER**

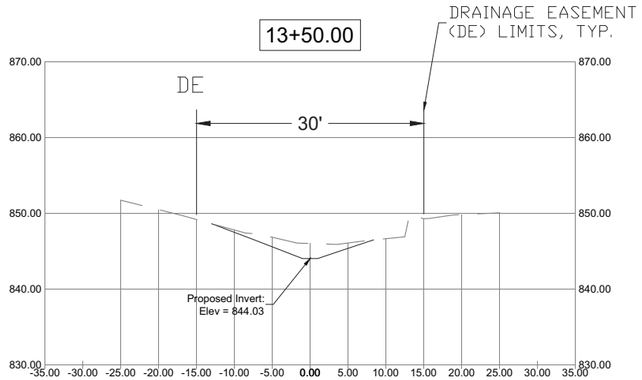
60339891

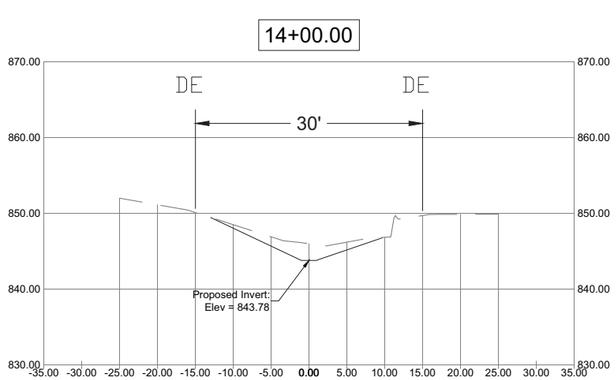
**SHEET TITLE**

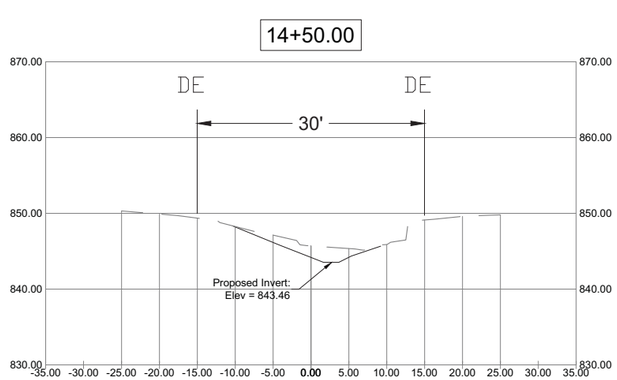
EXISTING CONDITIONS

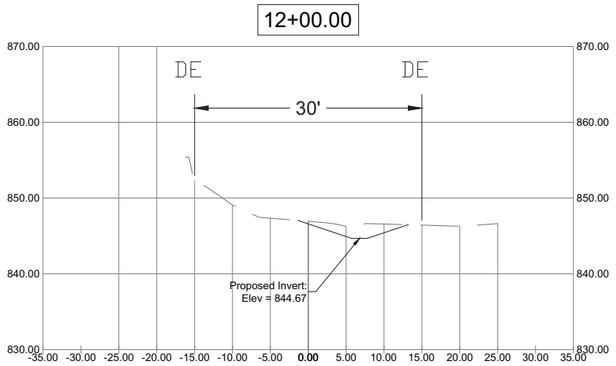
**SHEET NUMBER**

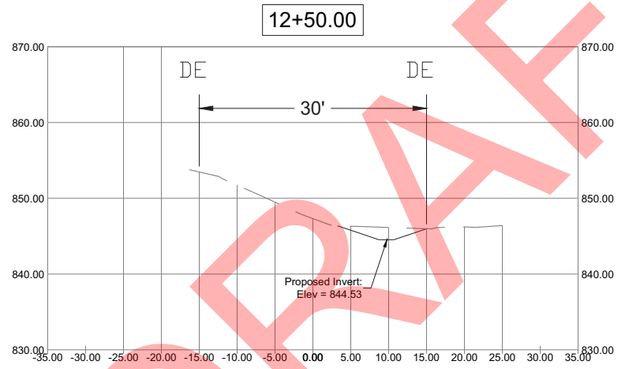
9

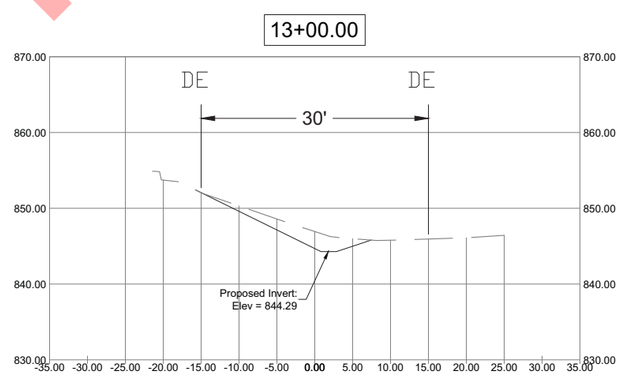


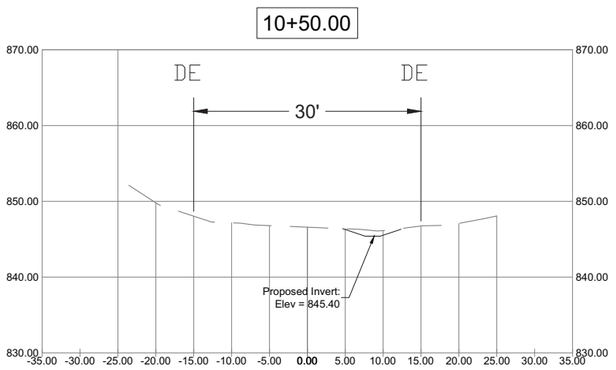



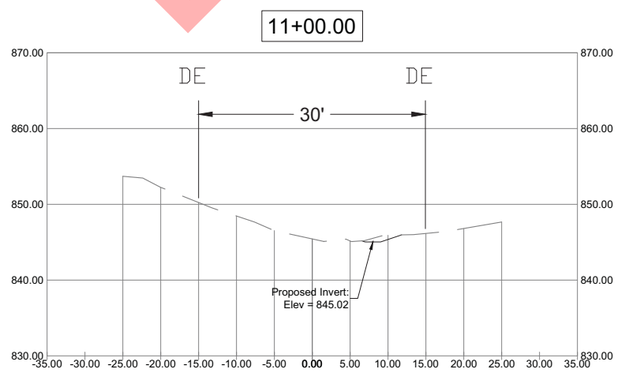



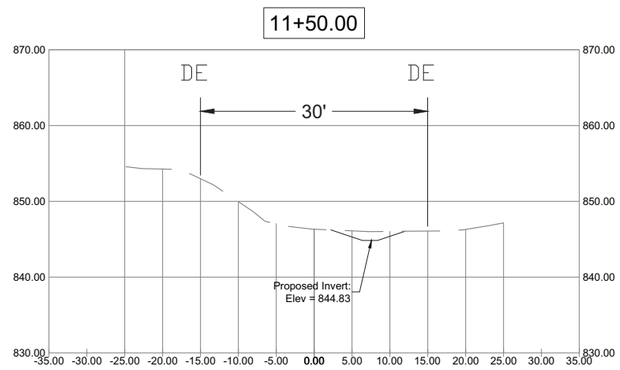

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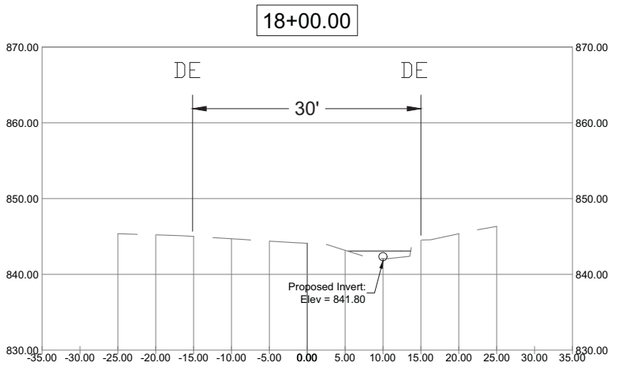
60339891

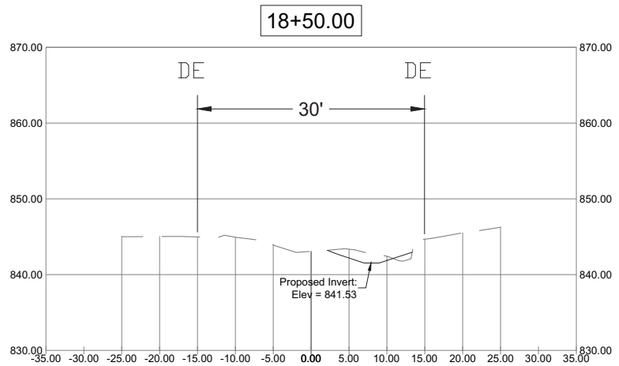
**SHEET TITLE**

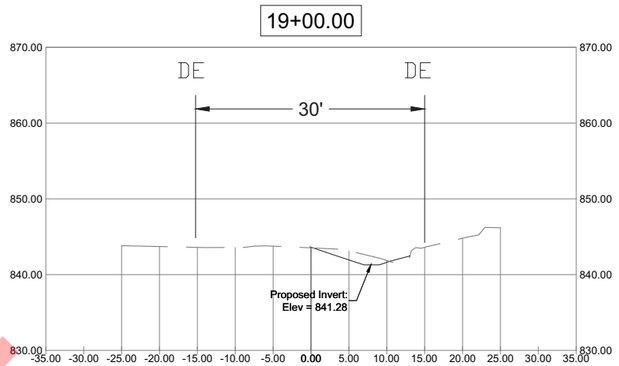
CROSS SECTIONS

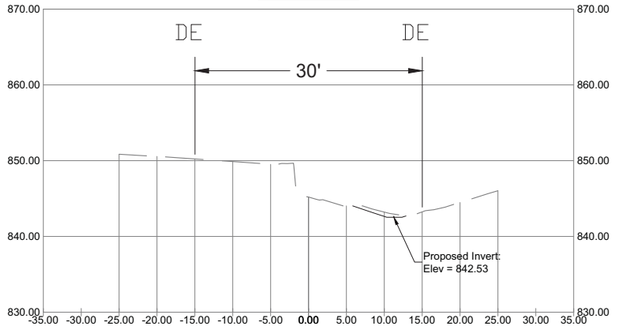
**SHEET NUMBER**

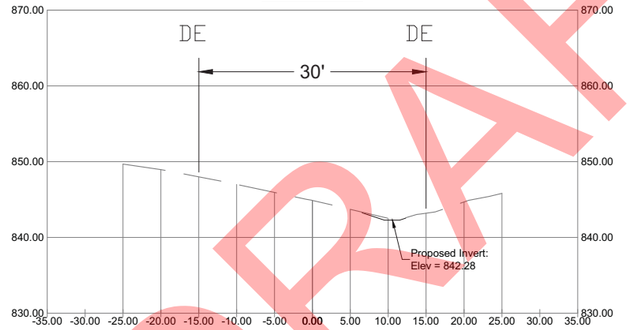
10

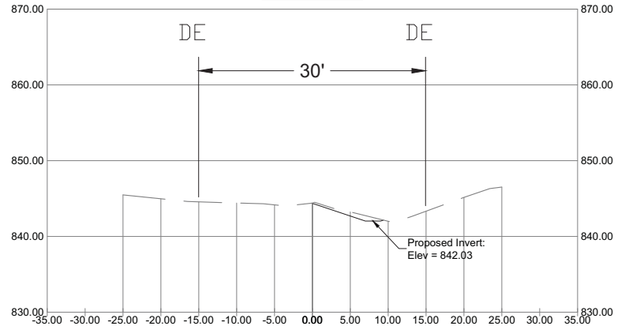


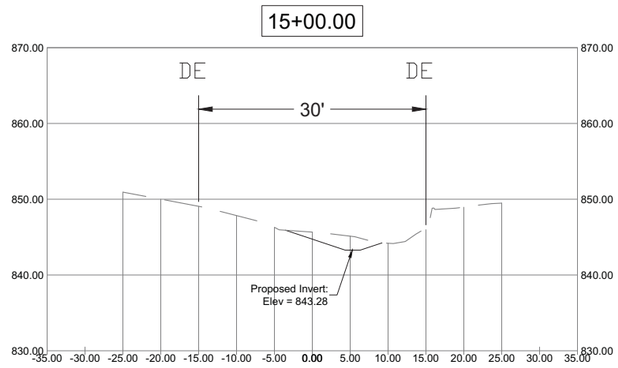



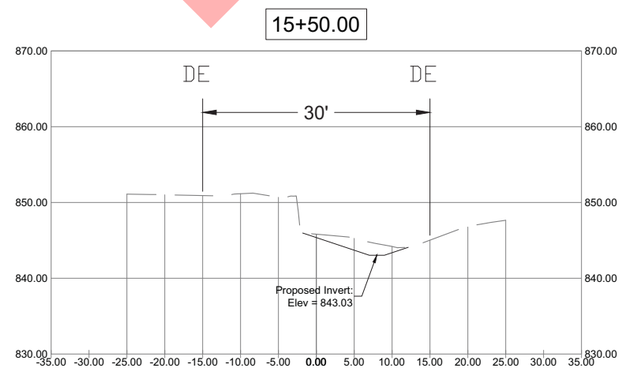



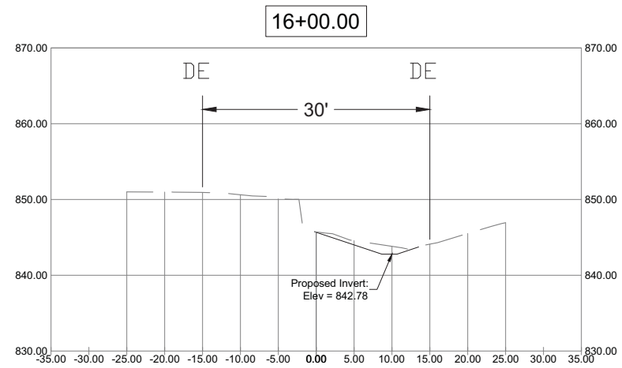

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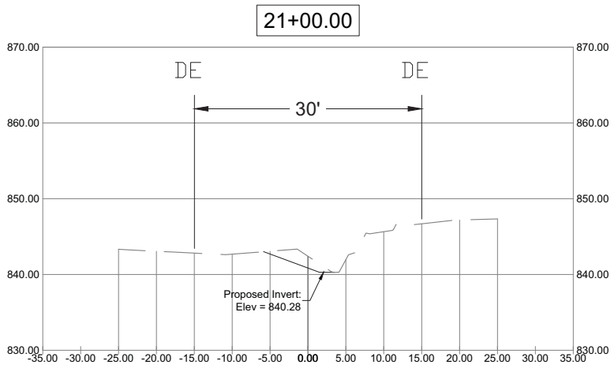
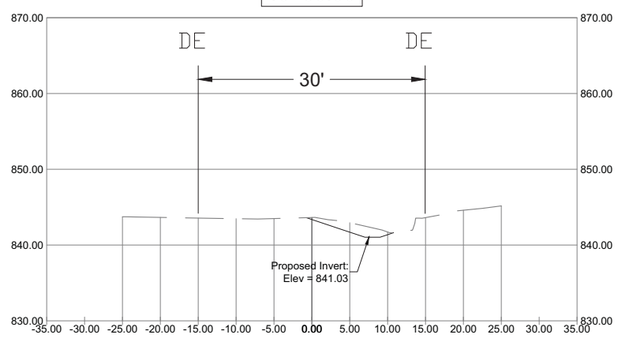
**SHEET TITLE**

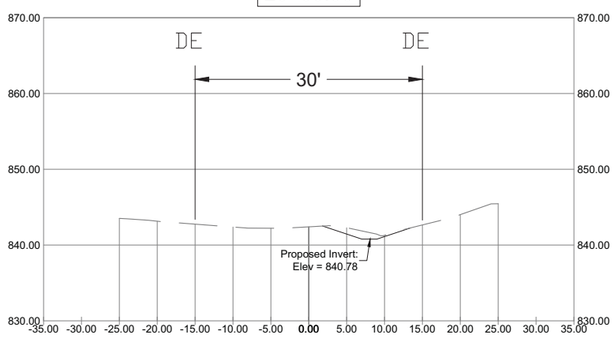
CROSS SECTIONS

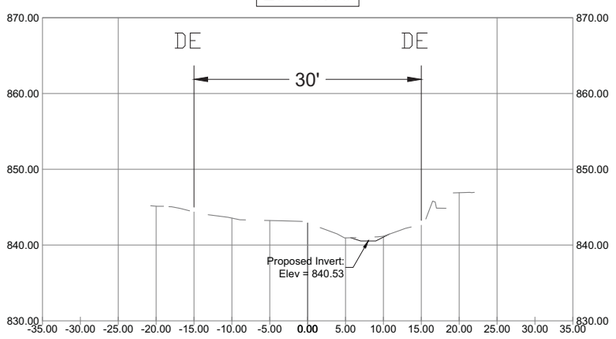
**SHEET NUMBER**

11

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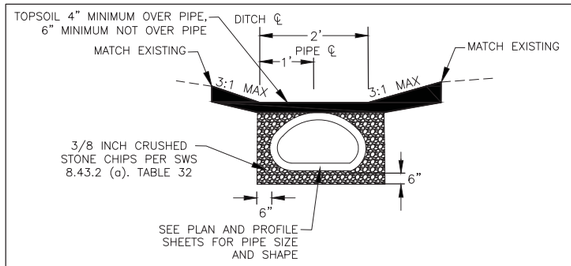
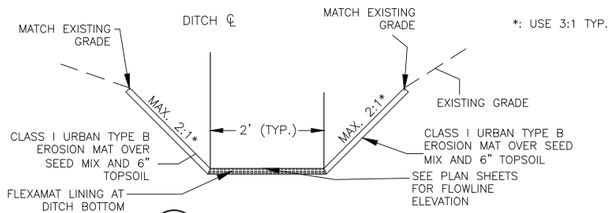
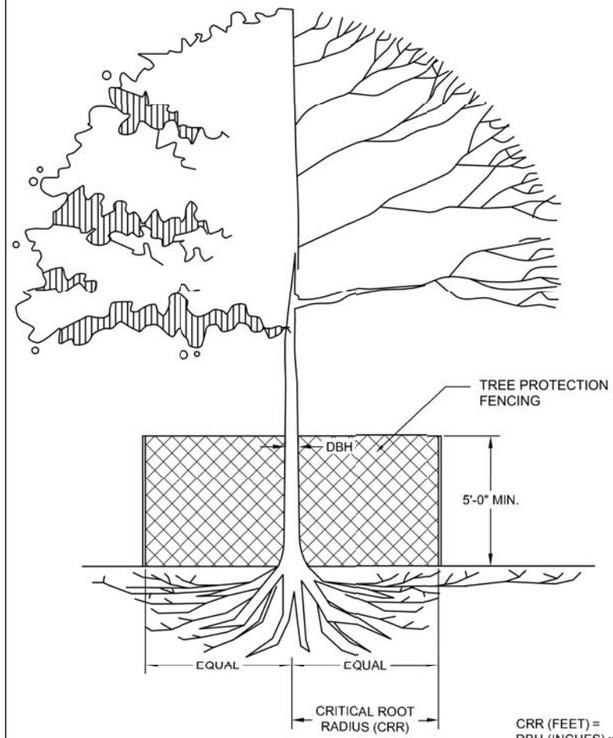
12




A 14 DITCH CULVERT DETAIL
NOT TO SCALE



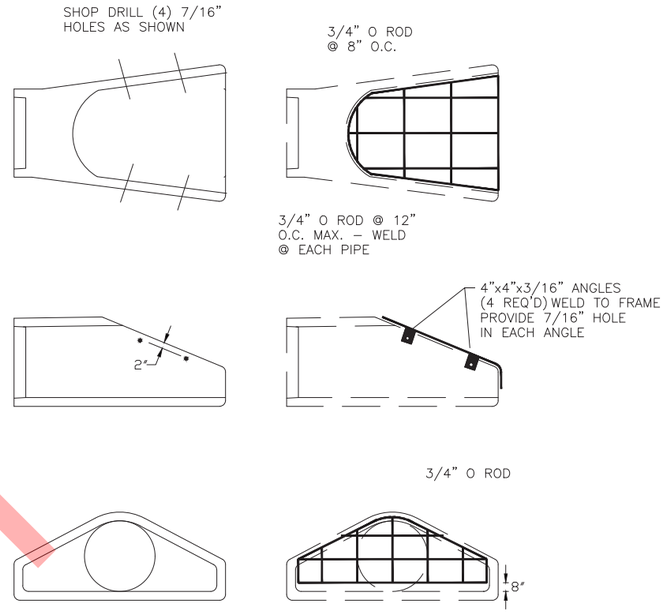

B 14 SWALE CROSS-SECTION
NOT TO SCALE




NOTES:

1. ALL TREES SHOWN TO BE RETAINED WITHIN THE LIMITS OF CONSTRUCTION ON THE PLANS SHALL BE PROTECTED DURING CONSTRUCTION WITH TREE PROTECTION FENCING.
2. TREE PROTECTION FENCES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION WORK (CLEARING, GRUBBING, OR GRADING) AND SHALL BE MAINTAINED THROUGHOUT ALL PHASES OF THE CONSTRUCTION PROJECT. NO CONSTRUCTION MATERIALS, EQUIPMENT, OR SUPPLIES MAY BE STORED IN THE TREE PROTECTION AREA.
3. SEE SPECIFICATIONS FOR MORE INFORMATION.
4. TRUNK DIAMETER AT BREAST HEIGHT (DBH) MEASURED AT 4.5' ABOVE THE GROUND.
5. TREE PROTECTION FENCE STAKES 4' O.C. MAX.

D 14 TREE PROTECTION DETAIL
NOT TO SCALE




THE CONTRACTOR SHALL BOLT THE GRATE TO THE CONCRETE END WALL WITH FOUR 3/8" x 6" MACHINE BOLTS WITH NUTS ON INSIDE WALL.

PAINTING SPECIFICATIONS

THE PIPE GRATE SHALL RECEIVE THE FOLLOWING PREPARATION & PAINTING, SEE NOTES:
FIRST COAT – RUST-OLEUM X-60 RED BARE METAL PRIMER OR EQUAL
SECOND COAT – RUST-OLEUM 960 ZINC CHROMATE PRIMER OR EQUAL
THIRD COAT – RUST-OLEUM 1282 HIGH GLOSS & METALLIC FINISH OR EQUAL.
NOTES: 1. BARE SURFACES – AFTER THROUGH SCRAPING, WIRE BRUSHING & CLEANING, APPLY THE THREE COAT SYSTEM LISTED.
2. EACH COAT AN OVERALL COAT
3. ALLOW 24-48 HOURS DRYING TIME BETWEEN COATS.

C 14 END SECTION GRATE DETAIL (ALL END SECTIONS TO BE CONSTRUCTED WITH GRATES)
NOT TO SCALE

DRAFT

AECOM

**PROJECT**
SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

**CLIENT**
CITY OF PEWAUKEE

W240 N3065 PEWAUKEE ROAD
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**REGISTRATION**

**ISSUE/REVISION**

| I/R | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | 12/01/22 | 50% DRAFT |

**KEY PLAN**

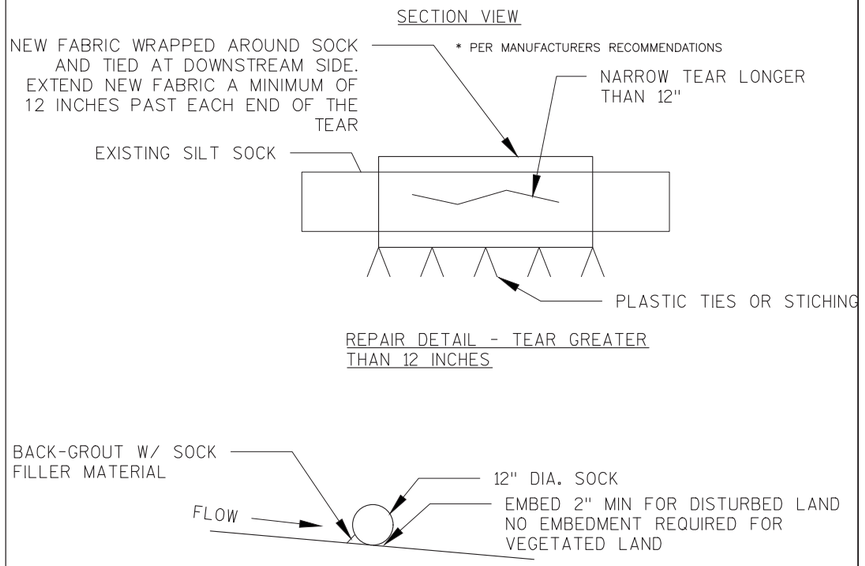
**PROJECT NUMBER**
60339891

**SHEET TITLE**
DETAILS SHEET

**SHEET NUMBER**
13

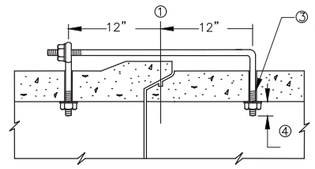


Filename: C:\ONEDRIVE\AECOM\SWM REVIEWS - PEWAUKEE\22.01 SPRINGDALE ESTATES\900_CAD_GIS\910_CAD\913_SHEETS\SPRINGDALE ESTATES_CT_DETAILS.DWG Last saved by: LAWTONS1 Last Plotted: 2023-11-30

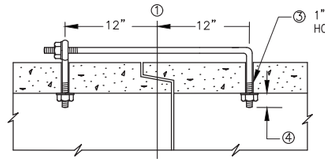



REPAIR DETAIL - TEAR GREATER THAN 12 INCHES




(MODIFIED BELL PIPE)
LONGITUDINAL SECTION

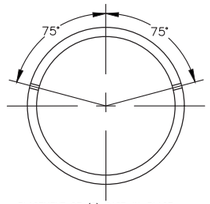



(TONGUE & GROOVE PIPE)

EYE BOLT DIMENSION TABLE

| PIPE SIZE | L = LENGTH | |
|---|---|---|
| | TONGUE & GROOVE PIPE | MODIFIED BELL PIPE |
| 12" TO 15" | 3 3/4" | 5 3/4" |
| 18" TO 24" | 4 1/2" | 6 1/4" |
| 36" | 5 1/2" | 7" |
| 48" | 6 1/2" | * |
| 54" | * | * |
| 60" | * | * |
| | | |

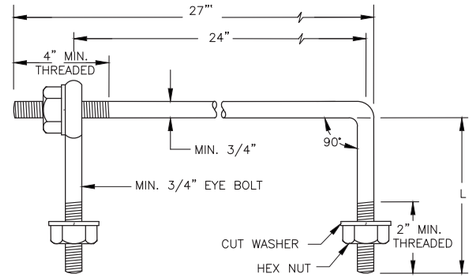
NOTE:
JOINT TIE THE NEW ENDWALL AND THE EXISTING 15" PIPE SECTION TOGETHER. SEE DETAIL.

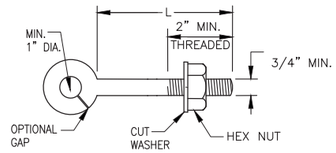



PLACEMENT OF (2) CAST-IN-PLACE INSERTS OR HOLES DURING FABRICATION FOR PIPE SECTIONS REQUIRING TIE RODS

TRANSVERSE SECTION

NOTE: TWO EYE BOLTS MAY BE USED WITH A 30" LONG THREADED ROD IN LIEU OF THE 90° BENT TIE ROD.



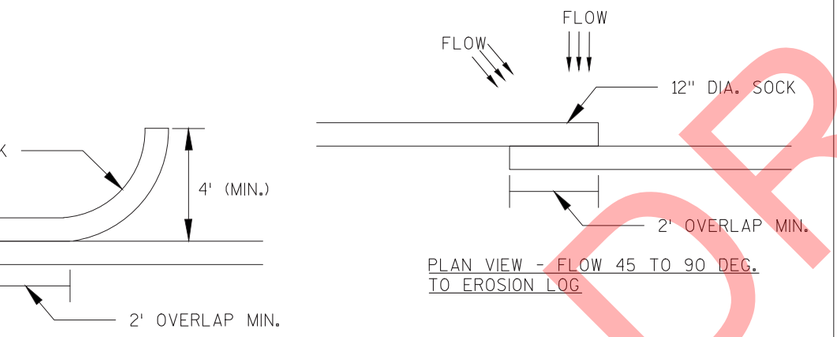

EYE BOLT

EYE BOLT AND TIE ROD

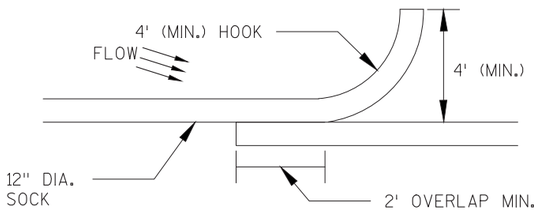
UNLESS OTHERWISE STATED IN THE CONTRACT, THE MATERIALS, FABRICATIONS AND WORK NECESSARY TO TIE REINFORCED CONCRETE PIPE WILL BE CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK.

1. ℄ OF TONGUE AND GROOVE OR BELL AND SPIGOT JOINTS.
3. HOLES SHALL BE CAST-IN-PLACE OR DRILLED 12" FROM C OF TONGUE AND GROOVE.
4. BOLT PROJECTION INSIDE OF PIPE SHALL NOT EXCEED 2".

A/15 JOINT TIE DETAIL
NOT TO SCALE



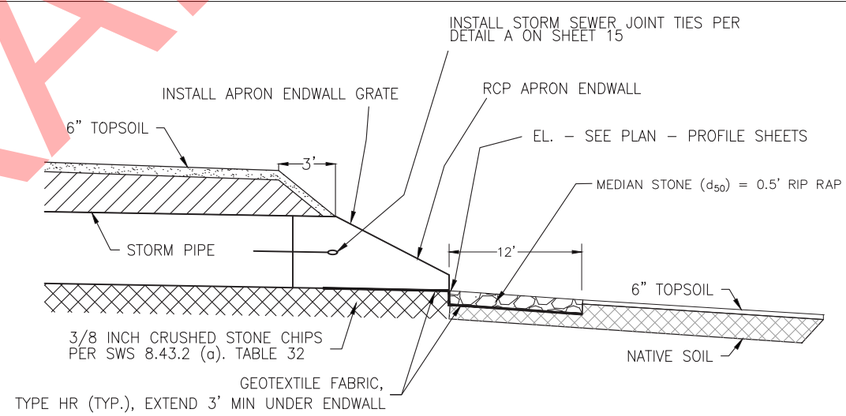

PLAN VIEW - FLOW 45 TO 90 DEG. TO EROSION LOG



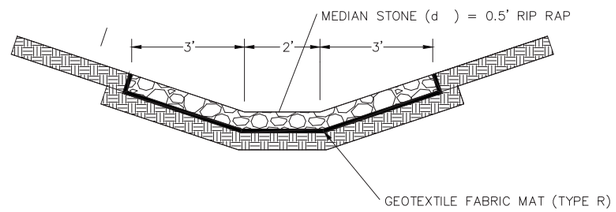

PLAN VIEW - FLOW LESS THAN 45 DEG. TO EROSION LOG

NOTES:
1. LOG MATERIAL PER WISDOT EROSION CONTROL PRODUCT ACCEPTABILITY LIST, TEMPORARY DITCH CHECKS. LOG FILLER TO BE COMPOST OR WOOD CHIPS (2" MAX.) MEETING WDNR TECHNICAL STANDARD INTERIM MANUFACTURED PERIMETER CONTROL AND SLOPE INTERRUPTION PRODUCTS #1071.
2. WHEN LOG IS USED ON A PAVED SURFACE CONCRETE BLOCKS SHALL BE USED TO SECURE LOG IN PLACE
3. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM BEHIND LOG WHEN IT HAS REACHED A HEIGHT EQUAL TO HALF OF THE LOG HEIGHT.
4. SMALL HOLES OR RIPS LESS THAN 12" LONG MAY BE STITCHED CLOSED USING PLASTIC ZIP TIES. LARGER RIPS SHALL BE FIXED PER THE REPAIR DETAIL. HEAVILY DAMAGED SECTIONS SHALL BE REPLACED ENTIRELY. MAINTAIN A 2' MINIMUM OVERLAP AT EACH END.
5. INSTALL LOG SIZE THAT IS IDENTIFIED IN THE PROJECT SPECIFICATIONS.

D/15 EROSION LOG INSTALLATION DETAIL
NOT TO SCALE




C/15 APRON ENDWALL DETAIL
NOT TO SCALE




B/15 RIPRAP DETAIL
NOT TO SCALE

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PROJECT
SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

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REGISTRATION

ISSUE/REVISION

| I/R | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | 12/01/22 | 50% DRAFT |

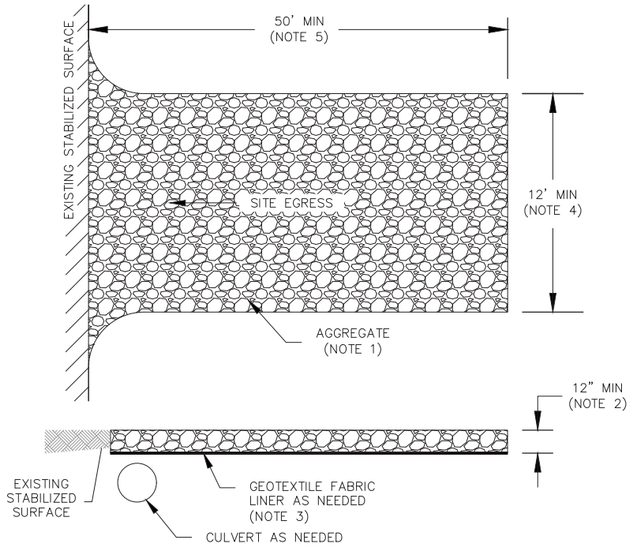
KEY PLAN

PROJECT NUMBER
60339891

SHEET TITLE
DETAILS SHEET

SHEET NUMBER
14

Filename: C:\ONEDRIVE\AECOM\SWM REVIEWS - PEWAUKEE\22.01 SPRINGDALE ESTATES\900_CAD_GIS\910_CAD\913_SHEETS\SPRINGDALE ESTATES_CT_DETAILS.DWG Last saved by: LAWTONS1 Last Plotted: 2023-11-30




NOTE:

1. USE HARD, DURABLE, ANGULAR STONE OR RECYCLED CONCRETE MEETING THE GRADATION IN TABLE 1 OF WDNR TECHNICAL STANDARD 1057.
2. SLOPE THE STONE TRACKING PAD IN A MANNER TO DIRECT RUNOFF TO AN APPROVED TREATMENT PRACTICE.
3. SELECT FABRIC TYPE BASED ON SOIL CONDITIONS AND VEHICLES LOADING.
4. INSTALL TRACKING PAD ACROSS FULL WIDTH OF THE ACCESS POINT, OR RESTRICT EXISTING TRAFFIC TO A DEDICATED EGRESS LANE AT LEAST 12 FEET WIDE ACROSS THE TOP OF THE PAD.
5. IF A 50' PAD LENGTH IS NOT POSSIBLE DUE TO SITE SITE GEOMETRY, INSTALL THE MAXIMUM LENGTH PRACTICABLE AND SUPPLEMENT WITH ADDITIONAL PRACTICES AS NEEDED.
6. IN LIEU OF A STONE TRACKING PAD, CONTRACTOR MAY UTILIZE OTHER TRACK OUT CONTROL PRACTICES IN ACCORDANCE WITH THE WDNR TECHNICAL STANDARD 1057.

A/16 STONE TRACKING PAD
NOT TO SCALE

CONSTRUCTION SEQUENCE:

1. INSTALL TREE PROTECTION
2. INSTALL EROSION CONTROL AND TRACK OUT PRACTICES
3. REMOVE TREES, SHRUBS, AND STUMPS
4. REMOVE AND REPLACE 12" CONCRETE END SECTION NEAR STATION 1+72
5. GRADE BOTTOM OF DITCH AND INSTALL CULVERTS. RESET AND REPAIR STORM SEWER ENDWALLS AS NOTED IN THE PLANS
6. RESTORE DISTURBED AREAS AND CHANNEL INVERT AS NOTED IN THE PLANS
7. ONCE SEED IS ESTABLISHED, REMOVE EROSION CONTROL

SEEDING SPECIFICATIONS:

TEMPORARY:

1. USE ANNUAL OATS AT 3.0 LB/1,000 SF FOR SPRING AND SUMMER SEEDING.
2. USE WINTER WHEAT OR WINTER RYE AT 3.0 LB/1,000 SF FOR FALL SEEDING AFTER SEPTEMBER 15.

PERMANENT:

1. TURF GRASS SEED MIX: USE REINDERS INC DELUXE 50 SEED MIX AT 125 LB/ACRE

FERTILIZING SPECIFICATIONS:

1. TYPE A MEETING REQUIREMENTS OF SECTION 629 – FERTILIZER OF "STATE SPECIFICATIONS."

TEMPORARY AND PERMANENT:

1. USE WISDOT "SOWING METHOD" TYPE A OR B AT 5.5 LB/1,000 SF

GRADING AND EROSION CONTROL NOTES

1. CONTRACTOR SHALL POST WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR) PERMIT ON SITE. CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE CITY OF PEWAUKEE AND WDNR PERMIT REQUIREMENTS. SEE DETAILS FOR MINIMUM EROSION CONTROL MEASURES AND REFERENCES TO APPLICABLE WDNR TECHNICAL STANDARDS. CONTRACTOR SHALL DOWNLOAD APPLICABLE TECHNICAL STANDARDS FROM https://dnr.wisconsin.gov/topic/Stormwater/standards AND THE WISCONSIN CONSTRUCTION SITE EROSION CONTROL FIELD GUIDE FROM https://dnr.wi.gov/topic/stormWater/documents/WIconstECfieldGuide.pdf AND KEEP AVAILABLE ON THE JOB SITE UNTIL FINAL STABILIZATION.
2. FOLLOW CONSTRUCTION SEQUENCE NOTED ON THIS PAGE UNLESS OTHERWISE DIRECTED IN THE FIELD BY THE OWNER, OWNER'S REPRESENTATIVE OR WDNR REPRESENTATIVES.
3. CONTRACTOR IS REQUIRED TO CONDUCT AND RECORD A MINIMUM OF WEEKLY EROSION CONTROL INSPECTIONS AND WITHIN 24 HOURS OF RAINFALLS OVER 0.5 INCHES. ALL MAINTENANCE SHALL BE CONDUCTED WITHIN 24 HOURS. RECORDS OF INSPECTIONS AND MAINTENANCE SHALL BE KEPT ON SITE AND MADE AVAILABLE UPON REQUEST.
4. EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL FINAL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES SHOWN ARE THE MINIMUM PRECAUTIONS REQUIRED. ADDITIONAL MEASURES, AS REQUESTED BY OWNER, OWNER'S REPRESENTATIVE AND/OR WDNR REPRESENTATIVES SHALL BE INSTALLED/REPAIRED WITHIN 24 HOURS.
5. INSTALL TRACKOUT CONTROL PER WDNR TRACKOUT CONTROL PRACTICES #1057 AND PERIMETER CONTROLS PRIOR TO ANY LAND–DISTURBING ACTIVITIES. CONTRACTOR SHALL REMOVE ANY SEDIMENT TRACKED ONTO ADJACENT ROADS BY MEANS OF CONTAINED STREET SWEEPING (NOT BROOMING OR FLUSHING) AT A MINIMUM OF THE END OF EACH WORK DAY OR MORE AS NEEDED.
6. LOCATION(S) OF SOIL STOCKPILES, INCLUDING TOPSOIL, STORED ON SITE SHALL BE SUBJECT TO APPROVAL OF OWNER. SILT FENCE SHALL BE PLACED ON THE DOWNSTREAM SIDES OF THE STOCKPILE. SOIL STOCKPILES STORED FOR MORE THAN 7 CONSECUTIVE DAYS SHALL BE TEMPORARILY STABILIZED (E.G. TEMPORARY SEEDING, MULCHING, TARPING, EROSION MATTING, ETC).
7. DEWATERING – FOLLOW WDNR TECHNICAL STANDARD DEWATERING #1061 AND THE CITY OF PEWAUKEE TECHNICAL STANDARDS. NOTIFY WDNR IF DEWATERING IS SCHEDULED TO OCCUR IN AREAS OF SOIL AND/OR GROUNDWATER CONTAMINATION, OR IF DEWATERING WILL OCCUR FROM A HIGH CAPACITY WELL (70 GPM OR MORE). DEWATER ONLY AFTER THE APPROPRIATE WDNR DEWATERING DISCHARGE PERMIT HAS BEEN APPROVED. PROVIDE ANTI–SCOUR PROTECTION AND MAINTAIN NON–EROSIVE FLOW DURING DEWATERING. ALL PUMPED EFFLUENT FROM DEWATERING OPERATIONS (TRENCH DEWATERING OR OTHERWISE) SHALL BE DISCHARGED TO A GEOTEXTILE FILTER BAG. THE GEOTEXTILE BAG SHALL BE PLACED ON VEGETATED/STABILIZED GROUND AND DISCHARGE TO A SEDIMENT BASIN OR TRAP. SHOULD NO BASIN EXIST, THE GEOTEXTILE BAG SHALL BE PLACED ON TYPE R GEOTEXTILE FABRIC AND SURROUNDED BY A SEDIMENT BALE BARRIER CONFORMING TO WDNR TECHNICAL STANDARD SEDIMENT BALE BARRIER #1055. THE TYPE R GEOTEXTILE FABRIC SHALL BE BROUGHT UP THE SIDES AND OVER THE TOP OF THE SEDIMENT BALES AND SECURED. DISCHARGE SHALL NOT BE ALLOWED TO FLOW OVER UNPROTECTED GROUND. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS PRIOR TO SEDIMENT REMOVAL.
8. SEED, FERTILIZER, AND EROSION MAT SHALL BE APPLIED WITHIN 7 DAYS AFTER FINAL GRADE HAS BEEN ESTABLISHED. IF DISTURBED AREAS LEFT INACTIVE FOR 14 DAYS SHALL BE STABILIZED WITH TEMPORARY SEED AND MULCH.
9. NON–CHANNELIZED DISTURBED LAND AREAS: PROVIDE CLASS I, URBAN, TYPE B EROSION CONTROL MATTING AND INSTALL AND MAINTAIN PER WDNR TECHNICAL STANDARD NON–CHANNEL EROSION MAT #1052 IMMEDIATELY FOLLOWING FINAL GRADING, PREPARATION, AND SEEDING.
10. CHANNELIZED DISTURBED LAND AREAS: PROVIDE CLASS I, URBAN, TYPE B OR CLASS II, TYPE C EROSION CONTROL MATTING AS SHOWN ON THE PLANS OR DIRECTED IN THE FIELD AND INSTALL AND MAINTAIN PER WDNR TECHNICAL STANDARD CHANNEL EROSION MAT #1053 IMMEDIATELY FOLLOWING FINAL GRADING, PREPARATION, AND SEEDING.
11. DUST CONTROL: FOLLOW WDNR TECHNICAL STANDARD DUST CONTROL #1068 TO MINIMIZE EXCESSIVE DUST BY SPRINKLING WATER, APPLYING TACKIFIERS, OR APPLYING SOIL STABILIZERS AS NECESSARY.

DRAFT



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AECOM

PROJECT
SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

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REGISTRATION

ISSUE/REVISION

| I/R | DATE | DESCRIPTION |
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| | | |
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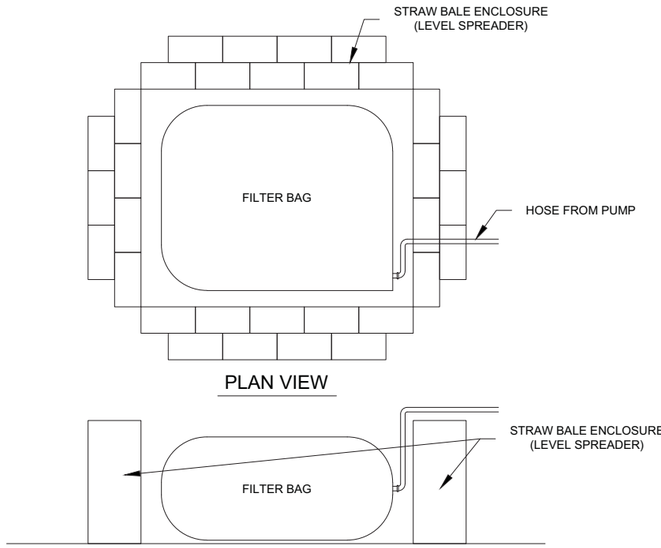
| | | |
| | | |
| | 12/01/22 | 50% DRAFT |

KEY PLAN

PROJECT NUMBER
60339891

SHEET TITLE
DETAILS SHEET

SHEET NUMBER
15




ELEVATION PLAN

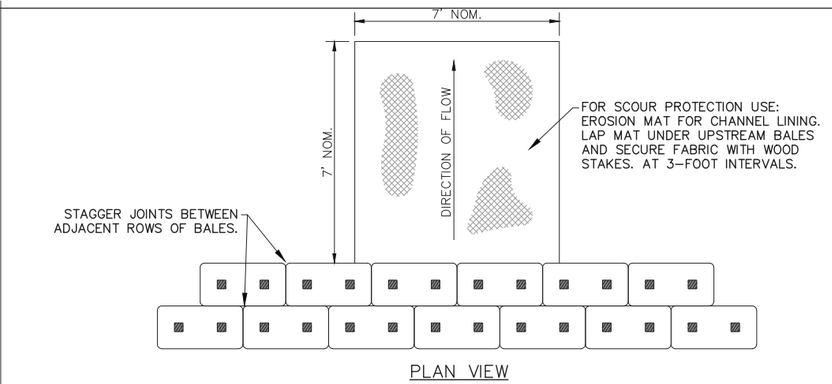
TABLE 1: PROPERTIES FOR GEOTEXTILE BAGS

| PROPERTY | TEST METHOD | TYPE I VALUE | TYPE II VALUE |
|---|---|---|---|
| MAXIMUM APPARENT OPENING SIZE | ASTM D-4751 | 0.212 MM | 0.212 MM |
| GRID TENSILE STRENGTH | ASTMD-4632 | 300 LBS. | 300 LBS. |
| MULLEN BURNT | ASTM D-3766 | 350 PSI | 350 PSI |
| PERMEABILITY | ASTM D-4481 | 0.28 CM/SEC | 0.2 CM/SEC |
| FABRIC | NOMINAL REPRESENTATIVE WEIGHT | 8 OZ. | 12 OZ. |

NOTES:

1. ALL PUMPED EFFLUENT FROM DEWATERING OPERATIONS (TRENCH OR OTHERWISE) SHALL BE DISCHARGED TO A GEOTEXTILE FILTER BAG CONFORMING TO WDNR CONSERVATION PRACTICE STANDARD 1061.
2. THE GEOTEXTILE FILTER BAG SHALL BE PLACED ON VEGETATED/STABILIZED GROUND AND DISCHARGED TO A SEDIMENT BASIN OR TRAP. SHOULD NO BASIN EXIST, THE GEOTEXTILE BAG SHALL BE PLACED ON FILTER FABRIC AND SURROUNDED BY A SEDIMENT BALE BARRIER CONFORMING TO CONSERVATION PRACTICE STANDARD 1055. THE FILTER FABRIC SHALL BE BROUGHT UP THE SIDES AND OVER THE TOP OF THE HAY BALES AND SECURED.
3. DISCHARGE SHALL NOT BE ALLOWED TO FLOW OVER UNPROTECTED GROUND.
4. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS PRIOR TO SEDIMENT REMOVAL.
5. CLAMP PUMP DISCHARGE HOSE SECURELY INTO FILTER BAG
6. LIMIT PUMPING RATE TO ½ THE MANUFACTURES MAXIMUM PUMPING RATE.
7. WHEN SEDIMENTS FILL ½ THE VOLUME OF THE FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE, PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS.

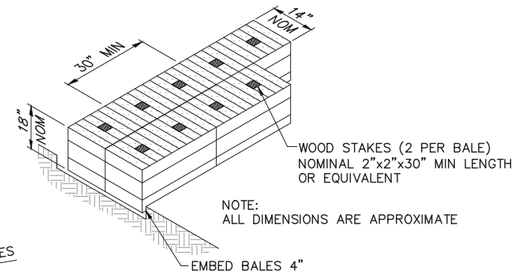
A 17 DEWATERING USING SEDIMENT FILTER BAG
NOT TO SCALE




NOTES:

1. BALES SHALL BE PLACED END TO END OR OVERLAPPING AT RIGHT ANGLES TO THE DIRECTION OF FLOW AND FAR ENOUGH UP THE SIDES OF THE DITCH TO PREVENT ERODING AROUND ENDS
2. EROSION BALES SHALL BE PROVIDED IN ACCORDANCE WITH WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARD No. 1062

B 17 EROSION BALES ACROSS SWALE BOTTOM DETAIL
NOT TO SCALE




NOTES:

1. BALES SHALL BE PLACED WITH TWINE OR TIE WIRES PARALLEL TO THE GROUND.
2. STAKES TO BE BATTERED IN OPPOSITE DIRECTIONS.

C 17 EROSION BALE INSTALLATION DETAIL
NOT TO SCALE

## GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARD NO. 1053 (CHANNEL EROSION MAT).

VARIATIONS IN THE DIMENSIONS OR MATERIALS SHOWN HEREON SHALL BE PERMITTED IF THEY PROVIDE EQUIVALENT PROTECTION AND MATERIAL STRENGTH AND IF PRIOR APPROVAL OF THE ENGINEER IS OBTAINED.

LAP JOINTS SHALL NOT BE PLACED IN THE BOTTOM OF V–SHAPED DITCHES.

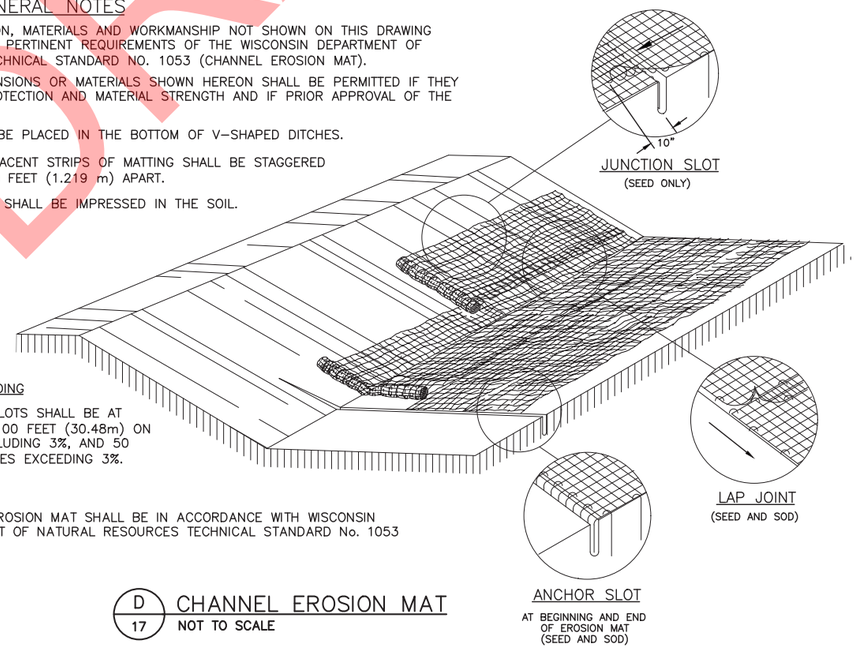
JUNCTION SLOTS ON ADJACENT STRIPS OF MATTING SHALL BE STAGGERED A MINIMUM OF 4 (FOUR) FEET (1.219 m) APART.

EDGES OF EROSION MAT SHALL BE IMPRESSED IN THE SOIL.

EROSION MAT OVER SEEDING

JUNCTION OR ANCHOR SLOTS SHALL BE AT MINIMUM INTERVALS OF 100 FEET (30.48m) ON GRADES UP TO AND INCLUDING 3%, AND 50 FEET (15.24m) ON GRADES EXCEEDING 3%.

NOTE:
CHANNEL EROSION MAT SHALL BE IN ACCORDANCE WITH WISCONSIN DEPARTMENT OF NATURAL RESOURCES TECHNICAL STANDARD No. 1053




D 17 CHANNEL EROSION MAT
NOT TO SCALE

DRAFT



AECOM

PROJECT
SPRINGDALE ESTATES DRAINAGE IMPROVEMENTS

CLIENT
CITY OF PEWAUKEE

W240 N3065 PEWAUKEE ROAD
PEWAUKEE, WI 53072
TELE: 262-691-0770

CONSULTANT
AECOM
1555 NORTH RIVERCENTER DRIVE
SUITE 214
MILWAUKEE, WI 53212
414.944.6080 tel 414.944.6081 fax
www.aecom.com

REGISTRATION

ISSUE/REVISION

| I/R | DATE | DESCRIPTION |
|---|---|---|
| | | |
| | | |
| | | |
| | 12/01/22 | 50% DRAFT |

KEY PLAN

PROJECT NUMBER
60339891

SHEET TITLE
DETAILS SHEET

SHEET NUMBER
16

Filename: C:\ONEDRIVE\AECOM\SWM REVIEWS - PEWAUKEE\22-01 SPRINGDALE ESTATES\900_CAD_GIS\910_CAD\913_SHEETS\SPRINGDALE ESTATES_CT_DETAILS.DWG Last saved by: LAWTONS1 Last Plotted: 2023-11-30

Ms. Wagner pointed out that signs were replaced by the highway department over the last 4-5 years for the whole community. She did not include any funds for signs in the 2023 budget. She also did not include a cost estimate for the decorative signs that Ald. Wamser requested, as the cost would depend on the design of the sign and that the city might look for donations for decorative signage.

Mayor Bierce asked if there was a recommended life span for this type of street sign? Ms. Wagner stated the signs were replaced because regulations changed. The style of letters on the signs changed to make them easier to read, and for reflectivity. She said there is a 20-year life cycle on the signs, though many signs that were replaced were much older.

The committee agreed to replace the street signs with the new city logo signs as needed.

Regarding the city entrance signs, Mayor Bierce stated that it is a less expensive and much smaller project. The committee discussed where entrance signs are currently located. The committee was in favor of forwarding the entrance sign project to the Council. Council will decide funding for this project.

**A motion was made and seconded (J. Wamser, J. Tormey) to recommend to Council the Welcome to Pewaukee entrance sign project, and put the city logo/street sign replacement project into a running change mode by replacing signs as necessary. Motion Passed: 5-For, 0-Against**

5.2. Update on the Lindsay Road and Redford Boulevard (CTH F) intersection.

Ms. Wagner stated an update on this intersection was requested by a committee member. The Council cancelled the R-Cut intersection project last year that was funded by the Highway Safety Improvement Grant. The city notified the county of its decision, the county notified the state, and the state withdrew the funding for the project. The city has not yet received the final bill from the county, estimated at $150,000, for the work the county on the project. In discussions with the county and staff, Ms. Wagner stated there are no further plans to do any improvements at that intersection.

Mayor Bierce reported that at Council level, the only discussions since they decided to pull the project were regarding potential development there. As part of the development, the city would see how to tie in and put a light there, but it is a county road and all we can do is ask. Mr. Farrow from the county stated there is no appetite for a light there. The mayor stated the study/project was well discussed at Council level and they felt it was only making a bad situation slightly better and that it was worthwhile to pull out and hope something better comes along in the future.

6. Storm Water Management Division

None

6.1. Discussion and possible action regarding the Springdale Estates Drainage Easement Public Information Summary and direction of the project.

Mayor Bierce acknowledged a group of people in the audience.

Ms. Wagner reported that the city surveyed drainage issues Springdale Estates to determine the problem areas. Preliminary plans are in your committee packets that show what would correct the drainage issues within the easement. Wachtel Tree Service walked the site with staff to provide input on the trees that are located within the easement to determine high-value trees and how those trees would respond to the work that would be done around them, and to ultimately

save as many trees as possible if we move forward with the drainage project.

A public information (PI) meeting was held on December 13, 2022, at City Hall and had very good attendance from residents of Springdale Estates.

Ms. Wagner provided the committee with a summary of the PI meeting. She reported that many of the residents on the west end and the east end of the project stated they do not have any flooding issues and did not see a need for the project. Many expressed concerns about the damage the cleaning out of the drainage easements might do to the aesthetics of the properties. The residents with properties located in the middle of the project who are having flooding issues in their yards and around the electrical/cable boxes supported the project.

Ms. Wagner asked the committee if they want to move forward with the project plan as originally laid out, or if there are other design issues they would like staff to consider. There is $150,000 in the 2023 budget to finalize the design and obtain any access easements that may be necessary for the project. This would be a construction project in 2024.

Mr. Swan asked Ms. Wagner how sure she was that this plan would take care of the problem? She replied that she is certain that there will be positive drainage from the west to the east once the impediments within the drainage swale are cleaned out. The committee discussed the drainage area and what would be corrected with the current plan. She also noted that they would be installing a culvert for a couple of high-value trees. She said that they meandered the swale to minimize a number of trees that could potentially have damage to the root system when cleaning out the drainage swale.

Mayor Bierce asked if there would be grass or concrete in the swale. Mr. Wirtz responded that there would be no concrete; it would be seeded. Mayor Bierce then asked how long would the project take, and how disruptive would it be for people? Mr. Wirtz stated it would be difficult due to the length of the project and additional access points are needed, and some of the trees to be removed are very large. The mayor asked if the goal would be to have all the water run from Aspenwood to Stonewood? Mr. Wirtz replied yes, that was the initial intention when they built it.

Ald. Wamser stated he spoke with most neighbors and doesn't feel that a third of the project needs to be done on the western edge. He said the problem is from the drainage from the roads, and from neighbors throwing brush and debris in the area, and from residents putting retaining walls in the easement area. He noted that Ald. Dziwulski noticed the electrical box and wires exposed. Ald. Wamser feels that most people on the west end are opposed to this project, especially because the houses are closer together and they may lose the buffer of the trees for privacy.

Mayor Bierce asked if consideration was given to the idea of starting the project in the middle where the problem begins? Mr. Wirtz explained that the project is designed to provide positive drainage through the whole area. He prefers to do the full project so the city does not have to go back in and disrupt everything again in the future.

Ms. Wagner stated it was the long-term lack of maintenance on the drainage easements that caused the problem. She said we were instructed to clean out the corridor to achieve positive drainage which this project accomplishes. If the Council wants us to just look at the section where there are drainage issues from the middle to the east, we could truncate the project, but it wouldn't help with the issues on the west end of the project.

Mayor Bierce opened the meeting up for public comments.

Don (Diane) Koss, N26W22616 Oakwood Ln: Located three houses down from the western end of the project, they have lived there over 16 years and are closest to the ditch than any others. He can attest to only three times after a major rainstorm where he saw a stream going down the ditch. The flowage drains east and after a couple hours the water is gone. They do not have a problem with water or their sump pump. He asked the committee to address the problem fiscally. He is opposed to the project.

Ken (Leah) Oliver, N26W22620 Oakwood Ln: They have lived there 33 years. He thanked Ald. Wamser for walking with them. He said that even with the pipe broken there is no ponding, and when the water comes up, it drains in a couple of hours and is gone. The ponding starts at the 30" drainpipe coming off Burningwood. From that point east is where the ponding starts, and from the 14" and 18" drainage pipes coming from the Ridgewood side.

Mayor Bierce asked Ms. Wagner to explain about the drainage pipe they are mentioning. Ms. Wagner said that is the storm sewer in the roadways and has outletted to the drainage swales, which ultimately runs down to Springdale Road and to the wetlands south of Springdale. There is no way to reroute this drainage away from the swale; it was planned and designed that way.

Lee (Valerie) Penton, N27W22653 Burningwood Ln: Thanked Ald. Wamser. He has lived there about 30 years and said he has no drainage issues; he saw water flowing down there but it is gone in a few hours. He stated that the west end is a foot higher than the east end so there is a natural flow of water. He asked Ms. Wagner about 30" pipe; he heard that a scope was put in and they found where the pipe was broken. Did they determine how high the pipe needs to be raised up? She replied, approximately a foot.

Vickie Dedolph, N26W22326 Ridgewood Ln: They have lived there 29 years. She said they are located on the very edge of the far east end. A few times after a large storm they may get water in there, but within a day it is gone. They have never had water in their basement and don't have any issues with flooding.

Tom Farley, N27W22431 Burningwood Ln: Lives right next to where the road drainage comes out into the ditch. He said the ponding behind his home (and the neighbor behind him) does last for weeks. He did not realize when he moved there in 1991 that he had given the city the right to come in and maintain the flowage capacity of the drainage. He feels the city has more than just the right, they have the duty, and there could be push back because there are many residents who are negatively impacted. It's been a long time and there has been a need to spend money to fix the issue. He doesn't want the city to feel that simply because many who have given the city the drainage easement aren't impacted, that there is no impact, because there is negative impact.

Joe Zanella, N26W22598 Oakwood Ln: Lives on the western half of the easement for over 30 years and has never had a water or drainage issue. He stated that it is clear the four laterals that start at the mid-point is where all the water is coming in and it goes east. There is no water coming from the western end adding to the eastern problem. He said it needs attention but spend the money and fix the problem only where it needs the attention.

Tom Boelter, N26W22482 Oakwood Ln: He lives in the problem area and has lived there for 44 years. The city, going back to the late 70's, would sand instead of salt the roads and all the sand went right into the ditch. He has four or five trees from 50-100 feet tall that are rotted or dead. There are two trees down there now with 1-1/2 foot diameter trunks. In June, when this

started, a tree ended up on the electrical junction box. We Energies came out, sawed it, and just left it. The water was a foot high in the middle of the electrical box, and the electric company wouldn't even open it. This is the second box in 12 years, and we were without power for a week. Our kids play down there. The city had no clue that this was there.

Peg Zanella, N26W22598 Oakwood Ln: Thanked Ald. Wamser and Ald. Dziwulski for the walk. She suggested that the neighbors clean out the easements before the city spends any money. She said it's the homeowner's responsibility to get rid of the trees from the easements. It's the people that don't remove the trees that fall that create this problem. We keep our easements clean because our yards are smaller and easier to clean than the problem areas, but this might be the first step before any money spent. She suggested that maybe the city could ask the residents to clean out their easements.

Kelly Barnes, N26W22366 Ridgewood Ln: Has lived there 11.5 years and keeps the area very clean. She doesn't have water issues but said there is a ton of water that goes through there from the pipes that come down and creates a lot of standing water. It doesn't cause a problem with them because they are higher and set back. It is too muddy for their kids to play down there. She is not 100% opposed to this plan, but she is not in agreement with it either. She said they have a couple of trees that are slated to come down that are not dead, and some that are dead that are not slated to come down. She thinks the tree company should come back out and take another look when there are leaves again. If this goes through, she would like some sort of voucher to a local nursery to plant trees on the outside of the easement to bring back some nature. She doesn't think planting grass will work down there and there is no sun. She thinks the natural erosion will just be a band-aid and the city will eventually come back again saying the same thing.

Bernd Bruhnke, N27W22633 Burningwood Ln: Has lived there since 1988 when they built their home. He is on the western end, and even with significant rains they have never had any issues at all. Based on the proposals, going from east to west, he doesn't feel there was a decent root cause analysis done. There has been talk of ongoing maintenance; he is not aware of what culvert maintenance would be other than going down there and occasionally doing regular clean up. He would like the project to be reconsidered as proposed so that 1) there isn't any more damage done to property than needs to be; 2) we don't incur any costs other than what is necessary; and 3) we address only the areas where the problems are. He looks forward to a practical and efficient solution.

Brian Dziwulski, N24W22637 Meadowood Ln: He is an alderman in this area. He stated that when he was contacted by Tom there was water around a live electrical box. He has seen and walked the area. He is not of the opinion that if it's not broke let's fix it anyway. If the west end doesn't have a problem other than that one pipe coming down, let's fix the pipe and leave the west end alone – and same on the east end if there isn't a problem. It does appear that there is a problem in the center where it hasn't been maintained and people are blocking it. Let's clean it up and fix that center section. If we haven't had a problem on the east or west end in 40 years, we shouldn't have a problem in five years if we fix the center so it works like it's supposed to.

Ed Dedolph, N26W22326 Ridgewood Ln on Ridgewood Ln: He stated that too many people blow their leaves towards the easement, and he spends all summer cleaning them up so there isn't anything backing up from his property. He keeps it raked out. His neighbor piles up leaves and they end up down there. His opinion is the city is dumping way too much water in there and we should be putting it in a storm sewer like the rest of the subdivision.

Mayor Bierce thanked all who provided input and participated. He said there is an issue and

asked the committee for their recommendations. A discussion took place regarding altering the project. He said the city has developed and has a responsibility to make it safe for the community. He agrees that the full-scale project may not be what is needed there.

The committee agreed to send this project back to staff for revision to attempt to scale the project down to the problem area in the center and go from there east.

7. Water and Sewer Division

7.1. Discussion and possible action regarding the Comprehensive Financial Plan for the Sewer and Water Utilities.

Ms. Mueller reported this as a cursory conversation, indicating that it will be presented by our consultants at an upcoming council meeting. The utility is working with Ruekert-Mielke on submitting a water rate increase package for the Public Service Commission (PSC) in the next month or two with large funding issues to pay for borrowing from last fall. The consultant is reviewing the overall financial situation as it currently stands and is indicating a potential rate increase of 147% over three years. One of the decisions we will need to discuss in detail is what to do with the water debt to the sewer utility. We currently owe $7 million to the sewer utility that has accumulated over the years. In 2014, the PSC said we cannot co-mingle the water and sewer debt. At that time, they found the water utility owed the sewer utility $5 million. Since that time, we have borrowed another $2 million on top of that. One of the options is a partial forgiveness of the debt, which would help with the rate issues. We need to look at more options than just the repayment of the full $7 million.

Mr. Swan asked Ms. Mueller if she felt the first $5 million was accurate. Ms. Mueller said it is her understanding based on previous conversations that the original debt had both water and sewer projects in it, so our previous financial consultants put both utilities into one account. In retrospect, it was very damaging to the water utility. The sewer utility does have some items that they need coming up, but they are in a much better position financially than the water utility.

Also, costs for the Well 5 radium remediation project to loop the water main connection to the Bluemound Industrial Park are currently up to $4.2 million. The utility will be incurring more water debt to come into compliance with that consent order. That is on top of the debts we are working through. Baker Tilly will provide a presentation to Council at the second meeting in February. After that, we will bring the pieces back to you for recommendations on how to proceed. This information was provided today because there are some hard decisions to make between the utilities. We want to make sure you have the information and time to digest it before we come back and start making decisions on how to move forward to make/keep the utility financially sustainable.

Mr. Swan asked if Baker Tilly will provide recommendations on how they feel we should do this, or is it strictly up to the committee to decide? Ms. Wagner replied that this is outside of Baker Tilly's scope. This is where we need to have discussions with Baker-Tilly in conjunction with this committee. Does the sewer utility forgive 100% the debt to the water utility with no repayment at all? We have to look out for the health of the sewer utility as well. We need to take this information and work with our accountant to run some scenarios to see what the best decision would be, while being cognizant of what is going on now and how we will fix this moving forward, and then remain on track. We have not had a lot of support from our current accountants. We are cautiously optimistic that with Baker Tilly we will be able to iron out these

# CITY OF PEWAUKEE
# PUBLIC WORKS COMMITTEE AGENDA ITEM 5.1.

**DATE:** December 7, 2023

**DEPARTMENT:** PW - Water/Sewer

**PROVIDED BY:** Magdelene Wagner/Jane Mueller

***SUBJECT:***

Discussion and Possible Action Regarding the Final Sanitary Sewer Facility Plan

***BACKGROUND:***

The Water Utility and Sewer Utility have completed a Facility Plan Study. Our consultant, Strand & Associates, presented the highlights of these facility plans.

Attached is an executive summary and their draft slides of their presentation in case you were not able to make the Common Council meeting.

***FINANCIAL IMPACT:***

***RECOMMENDED MOTION:***

**ATTACHMENTS:**

Description

Executive Summary

Presentation

STRAND ASSOCIATES®
Excellence in Engineering
Since 1946

Strand Associates, Inc.®
910 West Wingra Drive
Madison, WI 53715
(P) 608.251.4843
www.strand.com

November 29, 2023

Ms. Magdelene Wagner, P.E., Director of Public Works
City of Pewaukee
W240N3065 Pewaukee Road
Pewaukee, WI 53072

Re: Executive Summary
Water and Wastewater Master Plan–Phase 1 (Project)
City of Pewaukee, Wisconsin (City)

Dear Maggie,

This letter provides an executive summary of the objectives and findings of the Project efforts that were undertaken over the course of 2022 to 2023. Strand Associates, Inc.® (Strand) will be present at the December 4, 2023, City Council Meeting to make a presentation regarding the Project.

The Project started with the sanitary sewer and water portions on parallel tracks that jointly considered planned growth and the anticipated phasing of that growth (based on the City's Comprehensive Land Use Plan). The efforts then split off by specialty to consider the unique analysis and needs of both the sanitary sewer system and the water system. This resulted in two separate master plan documents, one specific to the sanitary sewer system and the other specific to the water system.

**Overall Objectives**

The purpose of the Project was to develop an overall plan for the management of the City's sanitary sewer and water infrastructure through the year 2050 and beyond, including the maintenance of existing infrastructure, improvements needed to address current deficiencies, and ways to serve anticipated growth.

The project deliverables prepare the City to address needs proactively and identify opportunities for efficient use of funds. They also provide confidence in system abilities and needs relative to growth and provide tools that staff can use moving forward.

**Sanitary Sewer Master Plan (SSMP)**

Projected future population growth and development in the City will result in an increase in flows within the sanitary service area, prompting the City to consider studying the capacity of the existing wastewater infrastructure, review allocated capacity in shared conveyance infrastructure with neighboring communities, and review allocations for treatment capacity at the Fox River Water Pollution Control Center (FRWPCC).

The City's sanitary sewer system was evaluated for three planning periods: present year, future development through 2035, and future development through 2050 (ultimate development). Specific plans for upgrades to the City's sanitary sewer infrastructure are recommended and supported by an evaluation of monetary costs, environmental impacts, and other nonmonetary factors.

1. Sanitary Sewer System Review

The City's existing sanitary sewer assets include 12 pumping stations, approximately 4 miles of force main, and approximately 77 miles of gravity sewer. The City owns its local collection system infrastructure, but works in conjunction with neighboring communities for wastewater treatment, and it relies on shared infrastructure to convey flows from most parts of the City to the FRWPCC. Intergovernmental agreements (IGAs) between the City and neighboring municipalities govern the requirements and flow allocations for interconnections between each municipality's sanitary sewer system. A summary of the IGAs in effect at the time of this report, a review of the connection points and IGAs between the City's system and neighboring communities, and a schematic of the City's wastewater system and service areas is included in Section 2 of the SSMP.

2. Lift Station Capacity Assessment

Lift station drawdown tests were conducted, and testing data was compared to City-provided historical flow metering data. This data was used to develop recommendations for site-specific calibration of existing metering equipment. Testing methodologies and results are presented in Section 3 of the SSMP.

3. Flow Monitoring Study

A total of nine flow monitors and two rain gauges were installed in nine locations throughout the City's sanitary sewer system for 12 weeks. The purpose of this monitoring was to evaluate flows throughout the City's sanitary sewer system to estimate existing dry and wet weather flows. In general, the results showed low to moderate inflow and infiltration entering the sewer system during wet weather events. A summary of the flow monitoring program is presented in Section 4 of the SSMP.

4. Future Flow Projections

Future flow projections within the City were developed for the specified planning periods in accordance with City-provided planning data and flow factors from the Southeast Wisconsin Regional Planning Committee (SEWRPC). For the 2050 planning period, flows generated within the City could increase by 100 percent compared to current levels. A summary of the existing and future flow projections and methodologies used in the development of these flows is presented in Section 5 of the SSMP.

5. Sanitary Sewer Hydraulic Modeling

An XP-SWMM hydraulic model of the City's wastewater system was developed as part of the SSMP efforts and used to analyze the system under dry weather, wet weather, and future development conditions, including septic system relief. Potential system improvements to address capacity deficiencies were evaluated. The existing system appears to have sufficient capacity to convey current flows during wet and dry weather. Select segments of the system will need to be upgraded to convey the projected 2035 and 2050 flows. A summary of the sanitary sewer model development and its findings are presented in Section 6 of the SSMP.

6. Focused Study Areas

Three focused study areas were identified by the City for detailed review. These areas included future sanitary sewer service for the Swan View and Broken Hill area development, the downstream sewers that could serve a future development at the Pewaukee Golf Course, and the existing Gun Club,

Jericho Lift Station, and associated force mains. Findings and recommendations for each study are presented in Section 7 of the SSMP and summarized below.

7. Capital Improvement Plan (CIP)

The projects identified as part of the efforts described above were used to prepare a list of potential CIP projects, prepare an opinion of probable construction cost (OPCC) for City-selected projects, and create the final SSMP.

8. Key Findings and Recommendations

   a. Drawdown testing showed that existing flow meter measurements at five of the 12 lift stations measured varied by greater than 25 percent when compared to the drawdown testing results. It is recommended that the City recalibrate all permanent flow meters (especially those used for billing purposes) on an annual basis. It is also recommended that the City install flow meters at all unmetered lift stations (Glacier Ridge, Spice Creek, and Trinity/Green).

   b. Modeling indicated that capacity exceedances are expected under the future wet weather scenarios at the Gun Club Lift Station. Design for the replacement of the Gun Club Lift Station is currently complete, with construction completion scheduled for November 2025.

   c. It is recommended that the Swan View and Broken Hill Lift Stations be abandoned and a new lift station with a deep wet well be constructed to convey flows generated in those subbasins in conjunction with continued development in the Swan View and Broken Hill neighborhoods.

   d. Overall, temporary flow monitoring indicated minimal inflow and infiltration in the City's sanitary sewer system. However, no large wet weather events with greater than a 2-year recurrence interval were observed during the study. The City may elect to conduct another temporary flow monitoring program in the following years to attempt to capture the system's response to a larger recurrence interval storm and to validate that increases in wastewater flows are in accordance with the assumptions made in the future flow projections developed for this report.

   e. The City should continue to monitor flows in shared infrastructure with neighboring municipalities. When flows exceed 75 percent of the City's allocated capacity, the City should begin to identify means to obtain additional capacity.

   f. The City may elect to continue with wastewater planning efforts to support ongoing preventative maintenance consisting of wastewater infrastructure condition assessments, an asset management program, and integrated planning services.

**Water System Master Plan (WSMP)**

The WSMP evaluated the water infrastructure from multiple perspectives to identify current deficiencies and to recommend improvements to address the water utility's needs.

1. Inventory and Condition Review of Above-Ground Assets

The City owns and operates 12 wells (eight facilities), six ground storage tanks, two elevated storage tanks, and approximately 530,000 feet of water mains, not including hydrants, water services, valves, and more. The replacement value of these assets is approximately $170 million to $200 million. A summary of the existing facilities is presented in Section 2 of the WSMP. A site visit and review of each of the above-ground water facilities was conducted by engineers with expertise in water supply, structural, electrical, and mechanical engineering. These findings are summarized in Section 3 of the WSMP and include an opinion on the remaining useful life of major components, deficiencies, and recommendations.

The primary recommendations of this effort are that control equipment should be updated regularly and that backup power setups at multiple facilities should be improved. These items help to keep the critical facilities operational and available to support system demands.

2. Supply and Storage Capacity Evaluation

The capacity of well supply and storage facilities was evaluated against the ability to satisfy the following demand conditions for the present year, 2035, and 2050 design years: average day, maximum day, and maximum day plus fire. This evaluation is presented in Sections 4 and 5 of the WSMP.

Existing storage capacity appears to be adequate for all design year demands. Elevated storage facilities maintain pressure in the system, as pressure at a particular location is determined by the ground elevation relative to the water surface elevation in the elevated storage facility. The City keeps the elevated storage facilities nearly full most of the time to support pressures, which can have a consequence of high water age if the stored water is not adequately mixed or turned over (not evaluated as part of the WSMP).

Existing supply capacity is adequate for present year demands if the Well No. 8 facility and the Well Nos. 11 and 12 facilities remain in operation. The availability of these facilities was called into question when the City received notice from the Wisconsin Department of Natural Resources (WDNR) that water quality in Well Nos. 8 and 12 exceeded the State's Hazard Index for perfluoroalkyl and polyfluoroalkyl substances (PFAS). The capacity of these facilities is needed to satisfy demands. The City has already authorized a preliminary engineering report to evaluate options to keep each of these facilities in service. Additional well supply capacity may be needed to meet projected 2035 and 2050 demands. Plans for growth should be coordinated with the water utility so that the utility can prepare for increased demands.

3. Future Service Area Analysis

Future service areas that consider extending municipal water service to areas in the northwest and southwest portions of the City were evaluated in Section 6 of the WSMP. Ground elevations in these areas are able to be served by existing infrastructure. This should be revisited as these areas grow.

4. Distribution System Hydraulic Model

The City's existing distribution system hydraulic model was updated and used to evaluate system performance under the aforementioned design year demand scenarios relative to target pressures and fire

flow availability defined by City staff. The water model is a dynamic tool that the City should use to evaluate planned capital improvements, operational changes, and new growth.

The only area with an existing pressure concern is Stoneridge Drive, which is an industrial area subject to higher instantaneous demands. The ground elevation in this area is high, which results in lower normal pressures (40 to 45 pounds per square inch [psi]) than the rest of the system (50 to 100 psi). Any changes in water use, such as a change in occupancy or a planned private fire suppression system, should be coordinated with the water utility in order to consider if the expected flow and pressure available to the customers is acceptable.

The target fire flow availability was categorized by land use with input from the Fire Chief. The modeled flow available at each hydrant in the system is information that staff can use when planning projects and operations.

5. CIP

The various recommendations were consolidated into a CIP spreadsheet that categorizes proposed improvements in 5-year increments over a planning period of 20 or more years. This is a dynamic tool that staff can use each year to plan, prioritize, and track progress.

6. Next Steps

   a. Complete the Well No. 8 and Well Nos. 11 and 12 preliminary engineering reports and expect one or two major treatment projects, pending WDNR finalization of PFAS regulations.

   b. Monitor growth, and revisit system capacity as growth occurs.

   c. Prioritize controls and backup power projects at existing facilities.

   d. Use the water model as a tool to prepare for future growth and operational changes.

   e. Establish an annual water main replacement budget to pace ahead system needs over time.

Strand has sincerely enjoyed the working relationship with the City and its staff, and Strand appreciates the trust placed in it to conduct this project. Do not hesitate to reach out with any questions at 414-271-0771.

Sincerely,

STRAND ASSOCIATES, INC.®

Sam Hocevar, P.E., Sanitary System Lead Engineer  Ben Wood, P.E., Water System Lead Engineer

c: Jane Mueller, Utility Manager, City of Pewaukee

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*Excellence in Engineering*[SM]

Strand Associates, Inc.®

# Sanitary Sewer and Water System Master Planning

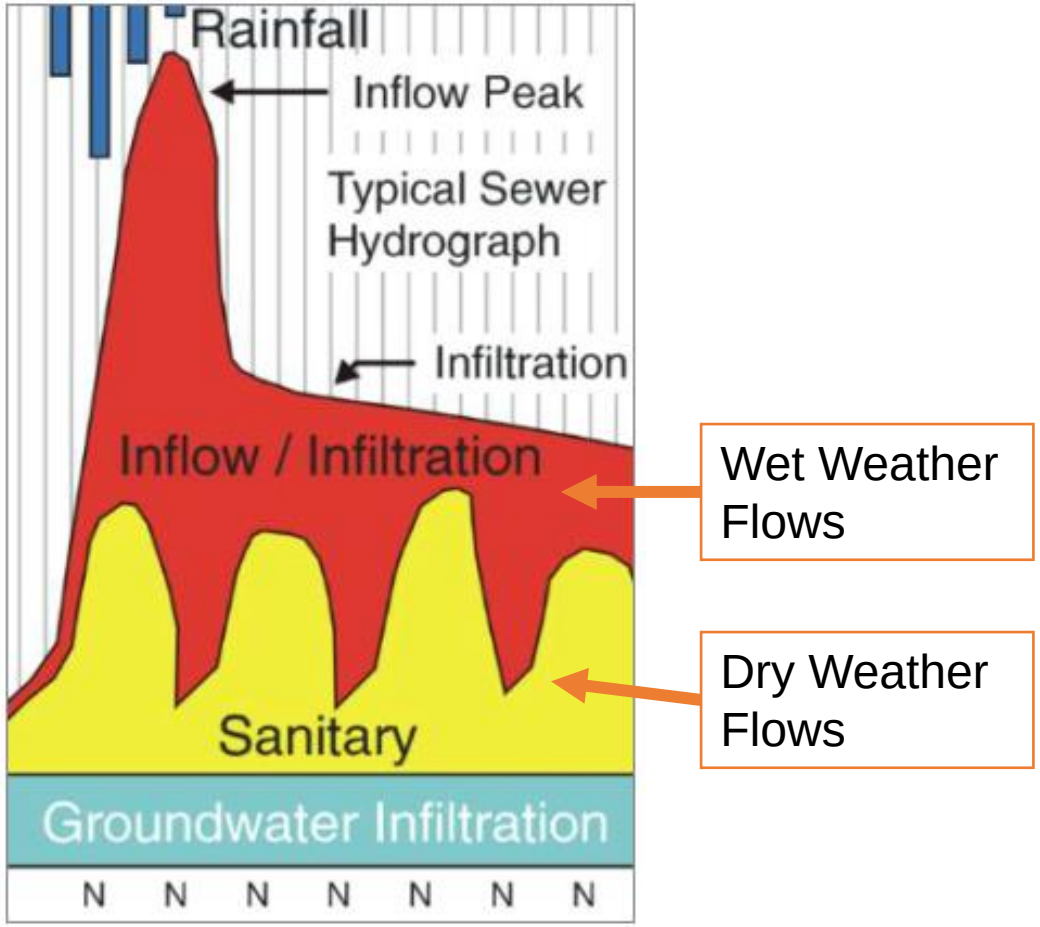
City of Pewaukee, WI

December 4, 2023

CITY OF PEWAUKEE WISCONSIN

# Sanitary Sewer Master Planning Provides Answers to Critical Questions

- Is there available capacity…
  - During dry weather?
  - During wet weather?
  - In City infrastructure?
  - In shared infrastructure?
  - To convey existing flows?
  - To support future demands?
- How do we promote smart system growth?
- What aging facilities may need to be addressed?



# Comprehensive Approach to Evaluate Sanitary Sewer System Produces Robust Results

1. Provide a **summary of the existing sanitary sewer system**, including the documentation of connection points and IGAs between the City's system and neighboring communities.
2. Analyze the **Focused Study Areas** provided by the City.
3. Conduct **lift station drawdown tests**.
4. Install **temporary flow monitors** and rain gauges to identify existing dry- and wet-weather flows.
5. Develop **future flow projections** within the City for the specified planning periods and **identify areas with potential future capacity concerns**.
6. Prepare a **dynamic hydraulic model** of the City's wastewater system and **evaluate potential system improvements** to address capacity deficiencies.
7. Combine the results of the preceding services to prepare a list of potential sanitary sewer **Capital Improvement Plan (CIP)** projects.

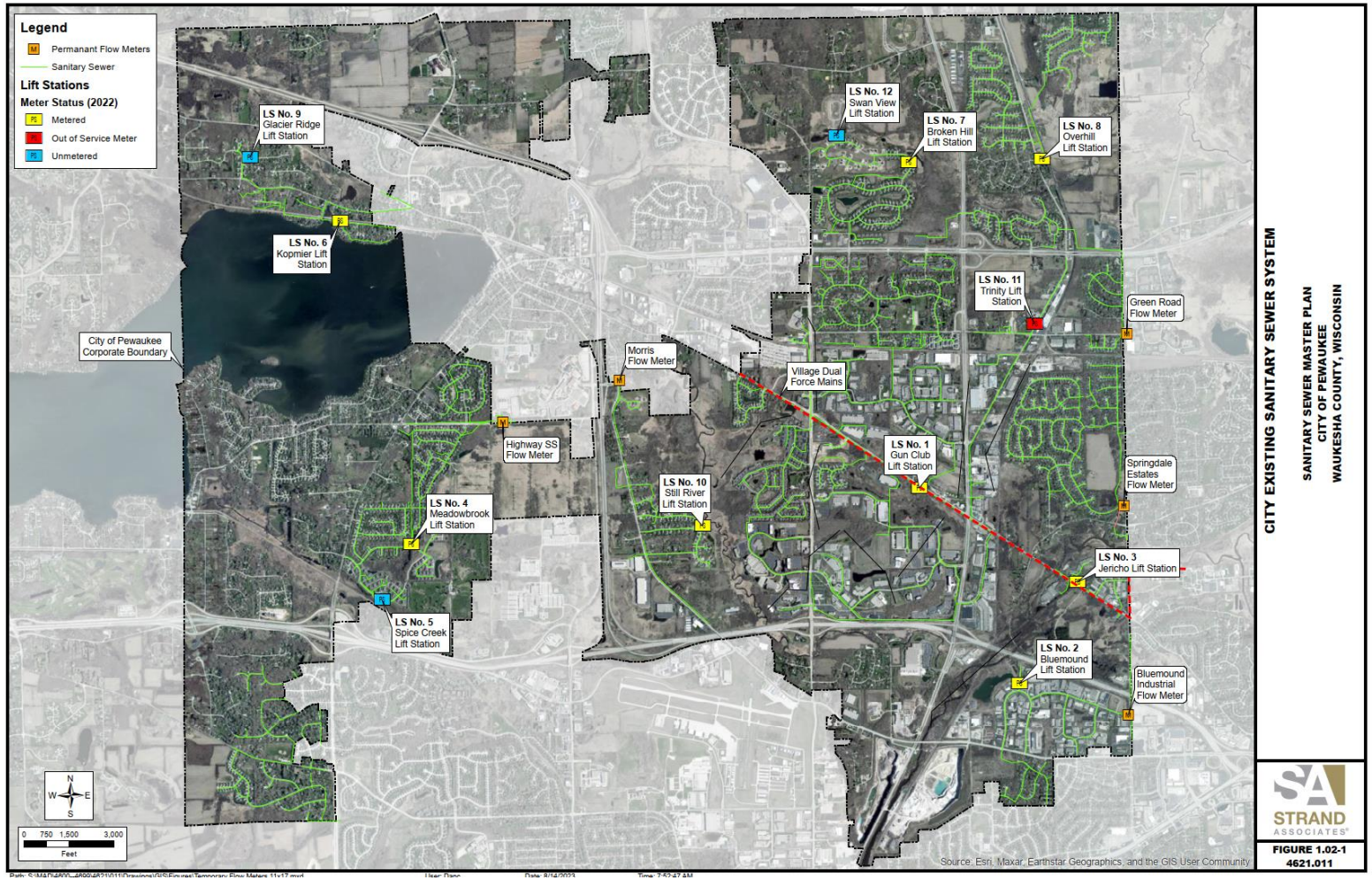
# Existing Sanitary Sewer System Is a Combination of Local Infrastructure and Shared Assets

## Local Infrastructure:

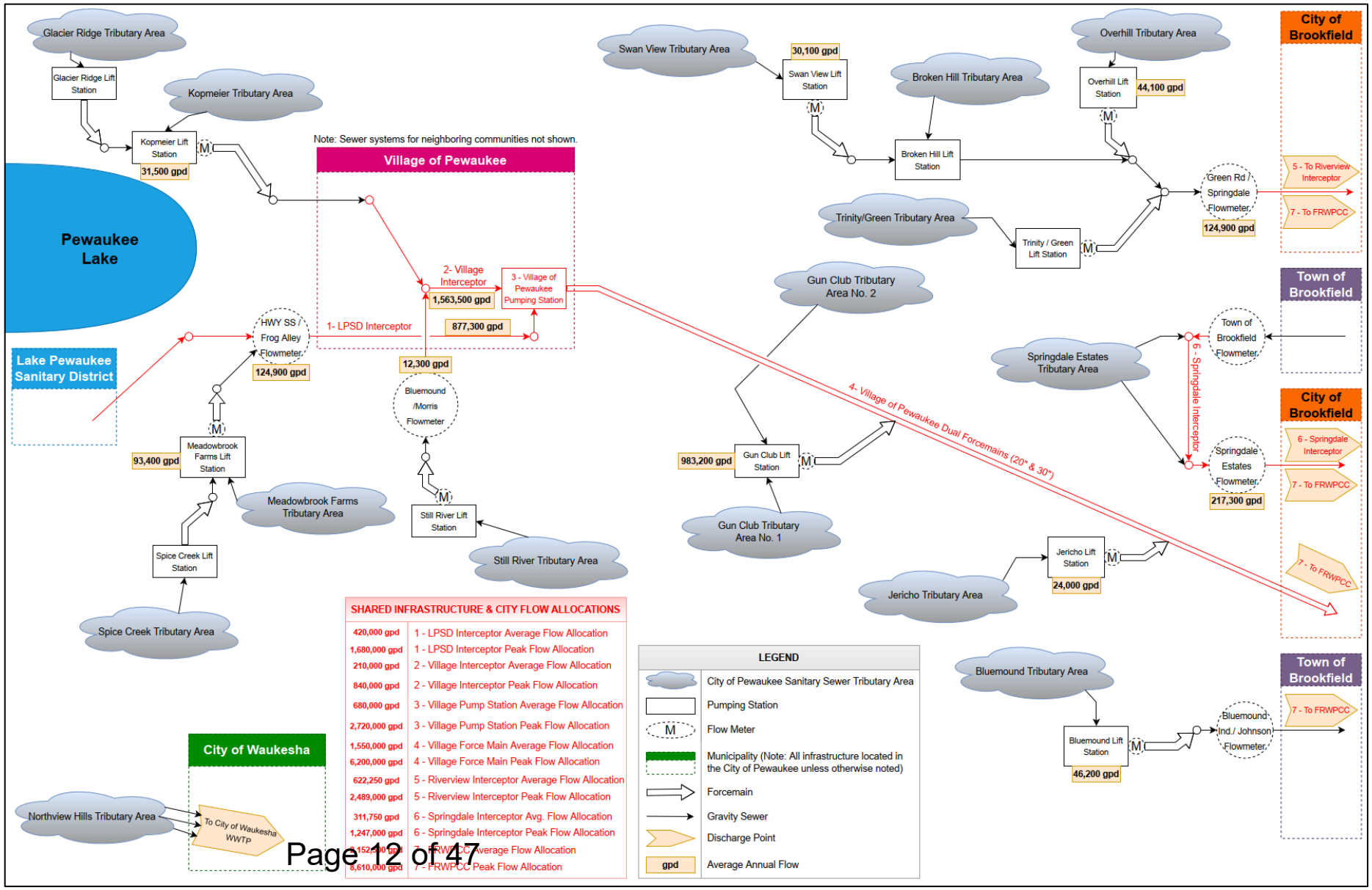
- 77 miles of sewer
- 12 pumping stations
- 4 miles of force main

## Partners with Shared infrastructure:

- Lake Pewaukee Sanitary District
- Village of Pewaukee
- Town of Brookfield
- City of Waukesha
- FRWPCC



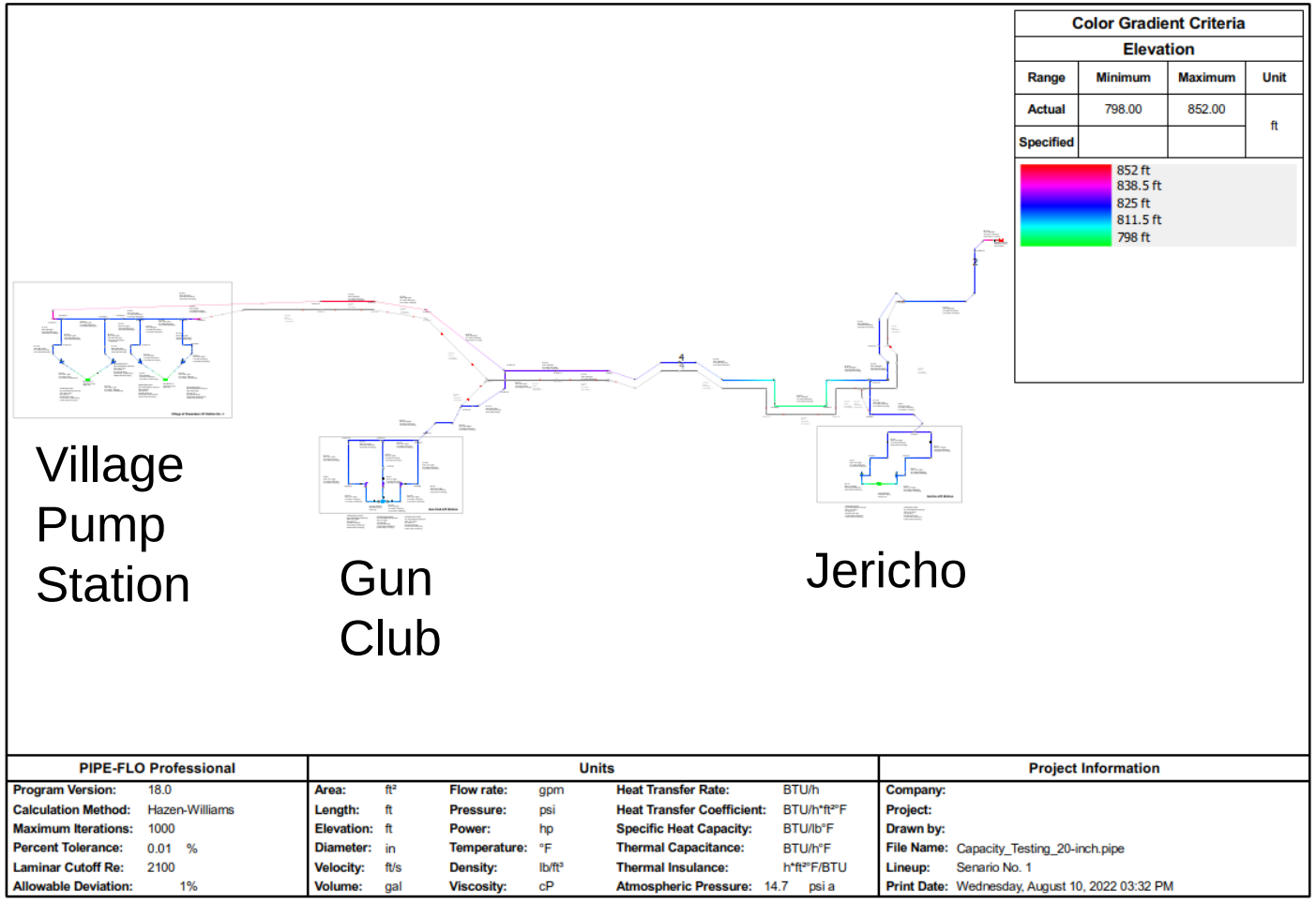
# Schematic Summarizes Key Sanitary Sewer Asset Data in One Location



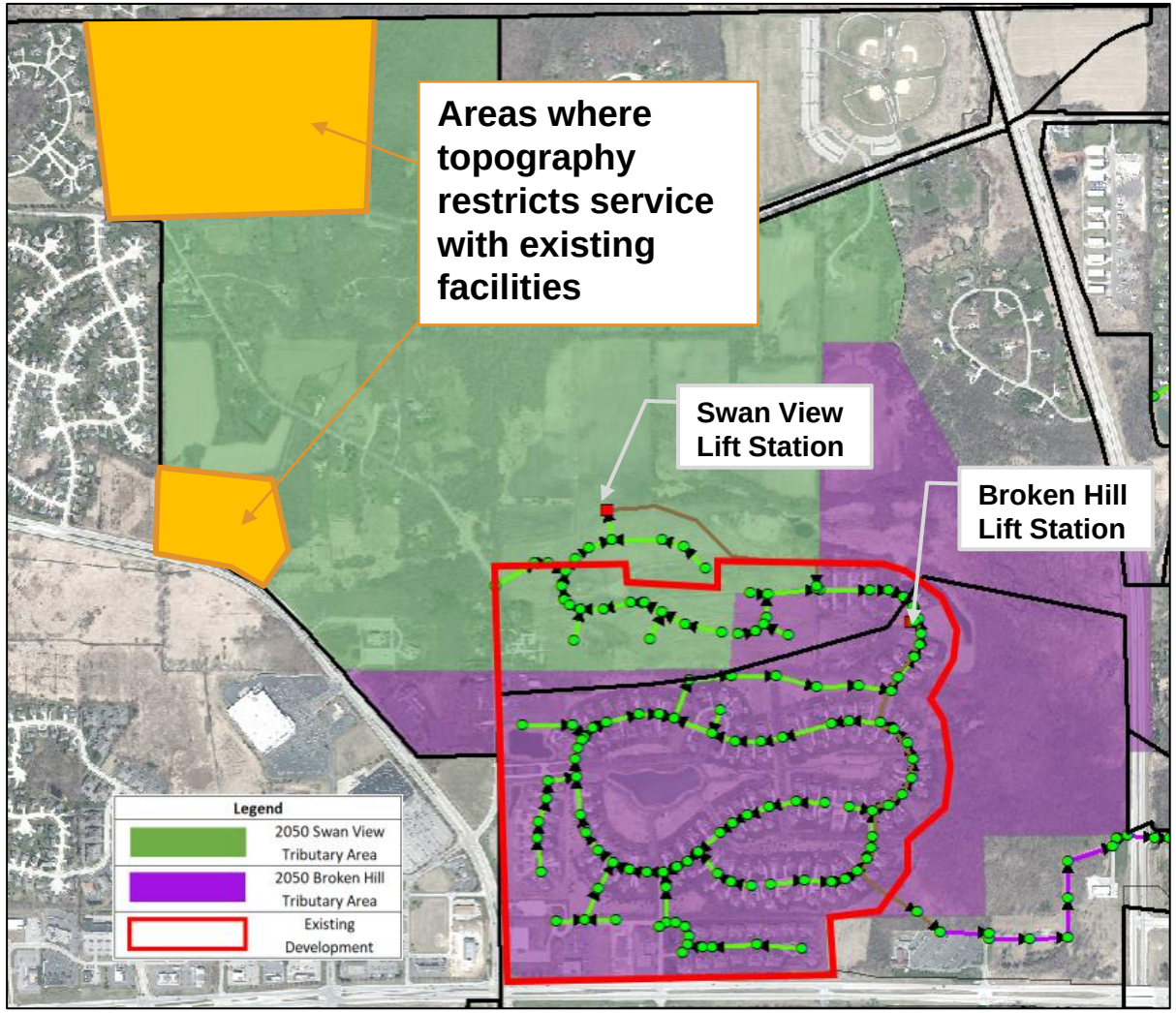
# Focused Study Areas Address High-Priority Needs Expected In Near-Term

- Gun Club pumping station and Pipe-Flo model
- Swan View and Broken Hill Neighborhoods
- Pewaukee Golf Club property redevelopment

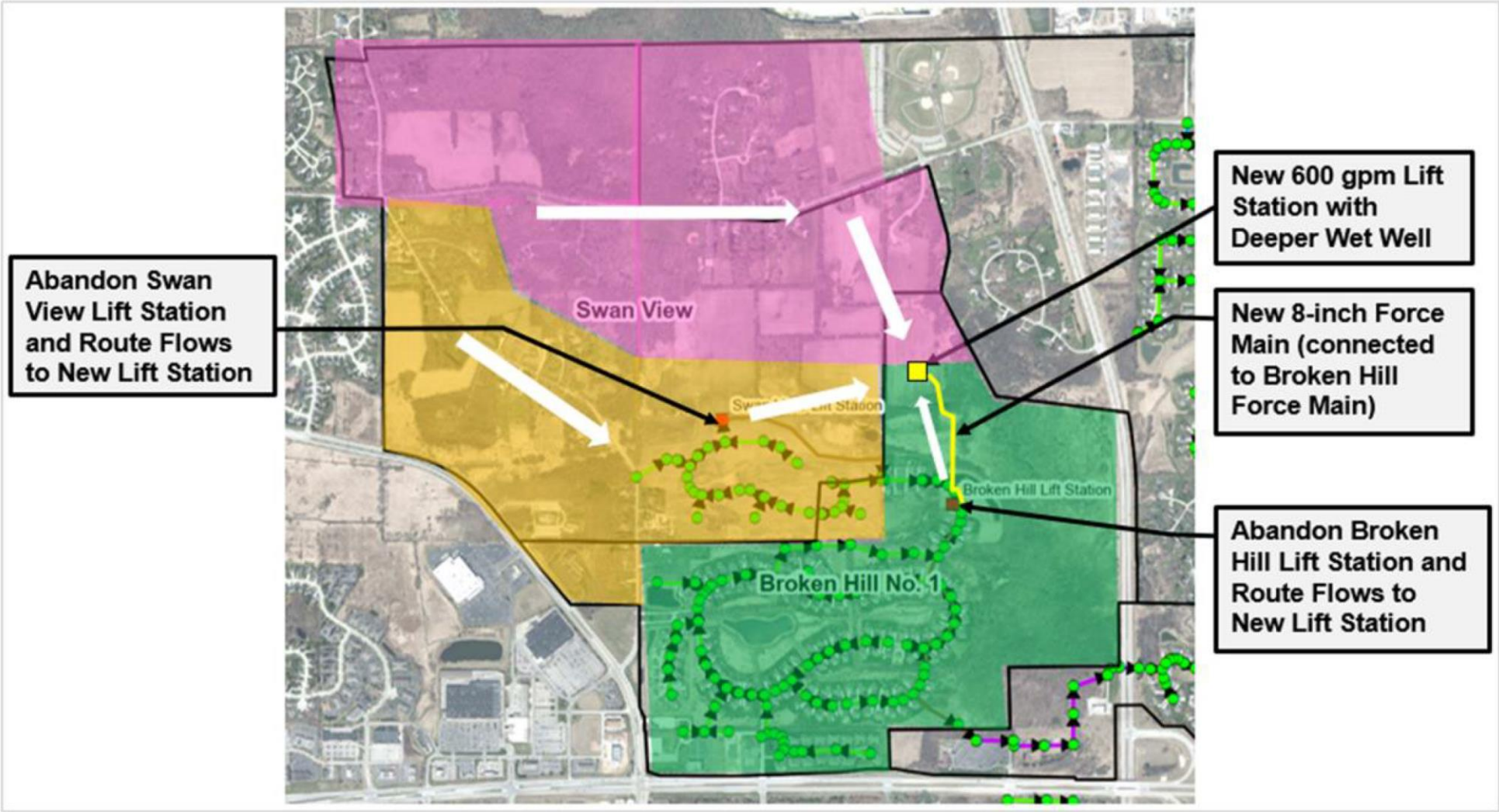
# Pipe-Flo Hydraulic Modeling Show Gun Club Upgrades Needed to Convey Peak Flows



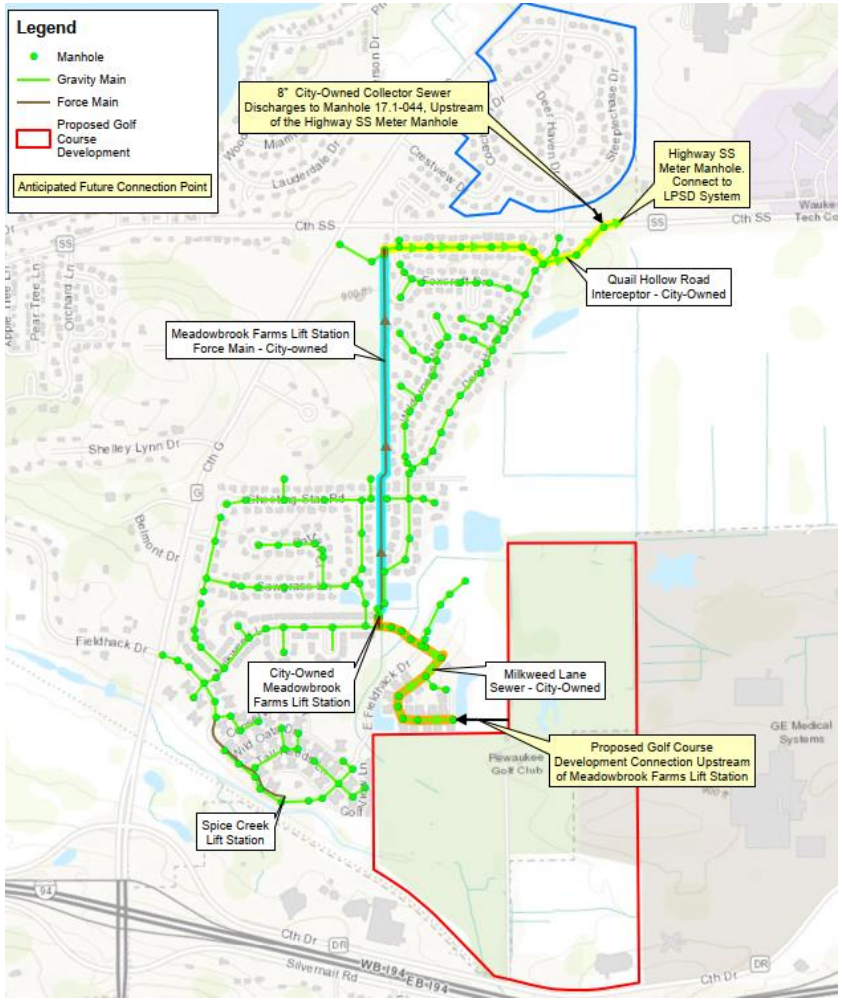
# Swan View Pump Station Service Area Limited By Wet Well Depth



# Proposed Alternative Consolidates Pumping Into New Station



# Downstream Sewer Infrastructure Constrains Potential Golf Course Development




| Component | Total Capacity (gpm) | Available Capacity (gpm) | Percent Available[1] |
|---|---|---|---|
| Milkweed Lane Interceptor – Segment 1 | 380 | 327 | 86% |
| Milkweed Lane Interceptor – Segment 2 | 580 | 528 | 91% |
| Lift Station | 735 | 478 | 65% |
| Force Main[2] | 940 | 686 | 73% |
| Quail Hollow Road Interceptor – Segment 1 | 1,350 | 1,080 | 80% |
| Quail Hollow Road Interceptor – Segment 2 | 440 | 281 | 64% |
| Quail Hollow Road Interceptor – Segment 3 | 2,500 | 2,225 | 89% |
| LPSD Interceptor (Peak) | 1,167 | 875 | 75% |

[1]Capacity at 2050 ultimate buildout planning period
[2] Assuming a maximum force main velocity of 6 fps.



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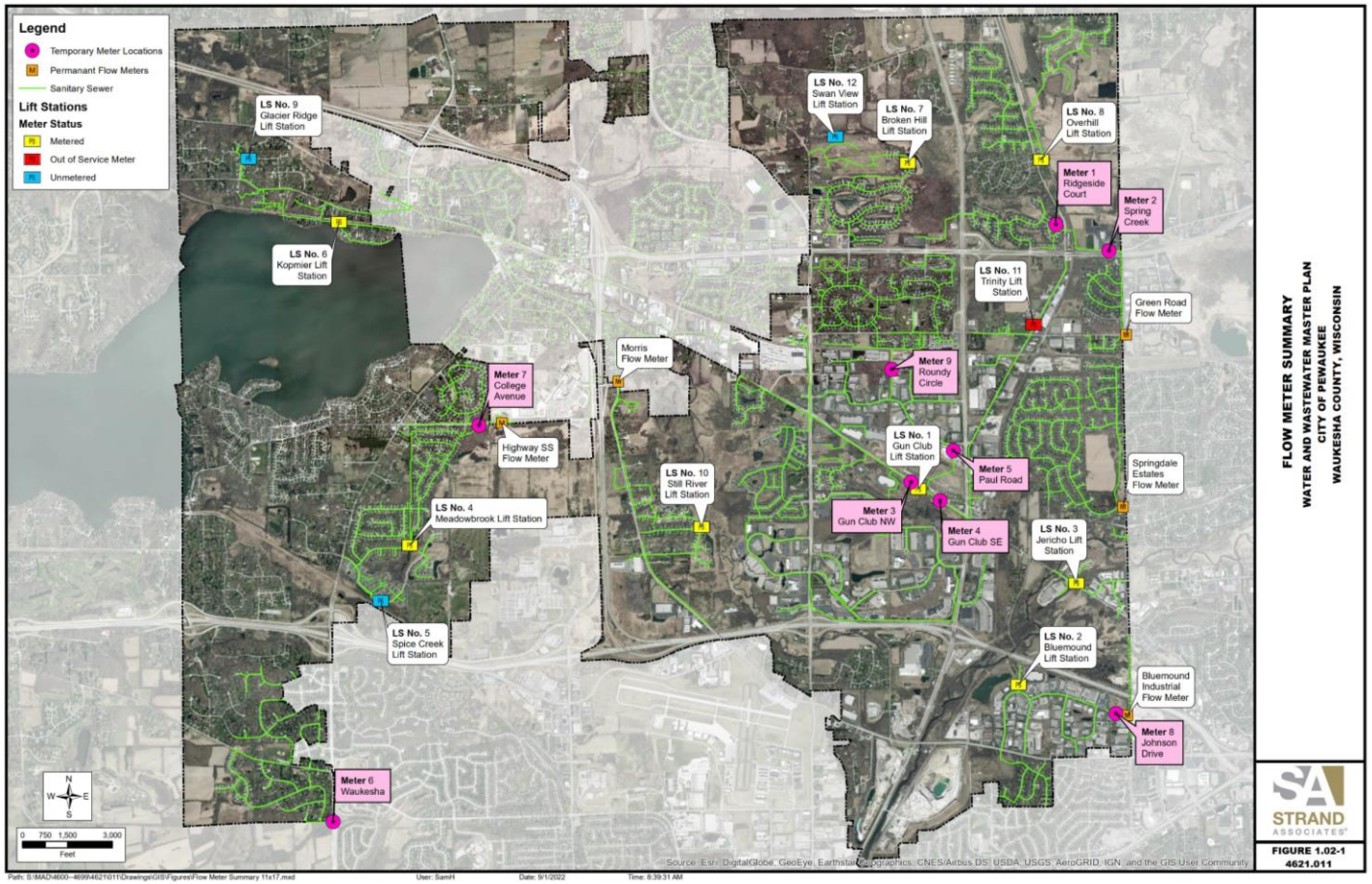
# Golf Course – Alternatives Analysis – OPCC Summary

| Alternative | OPCC | Allowable Development |
|---|---|---|
| Alternative 1 – Existing system | NA | 74% |
| Alternative 2 – Increase pipe capacities | $361,000 | 100% |
| Alternative 3 – New Lift Station construction | $1,985,000 | 100%<br>*(or more if needed) |

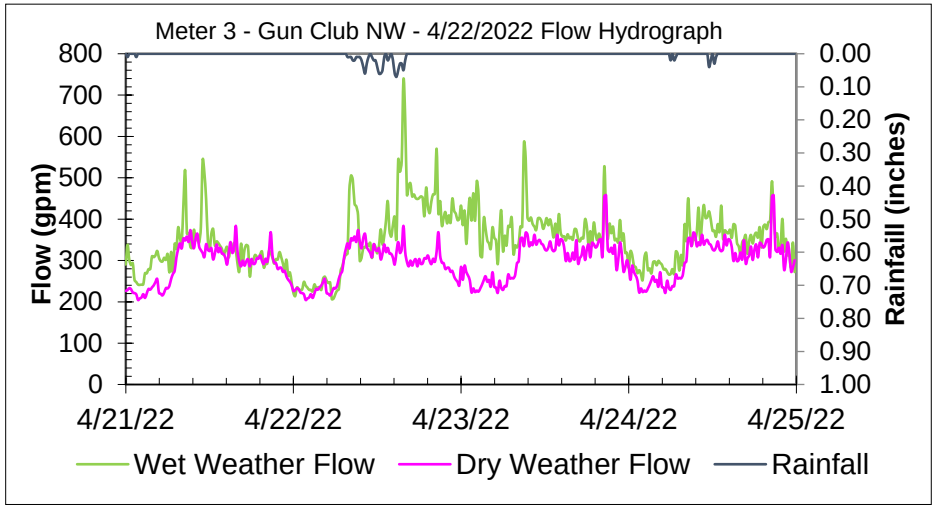
*Up to 200% of proposed development based on LPSD Interceptor Allocation (assuming no other future development in LPSD tributary area)

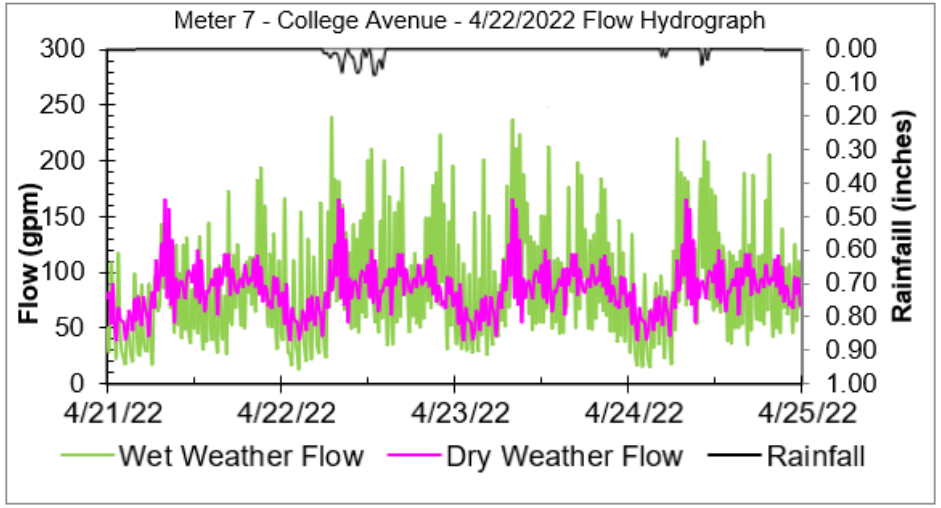
# Sanitary Sewer Master Planning Process and Tools

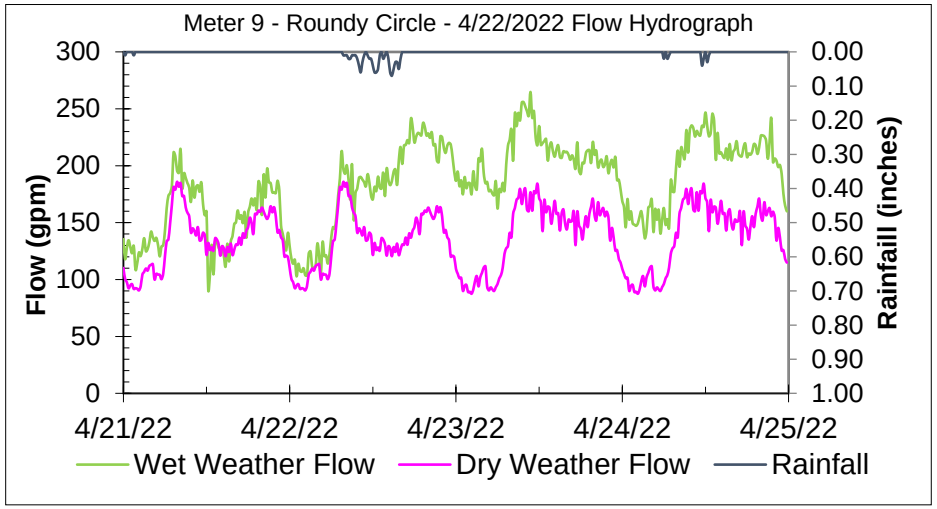
- Drawdown Testing at Pump Stations
- Temporary Flow Monitoring
  - Nine flow monitors and two rain gauges for a 12-week period
- Future flow projections
- Hydraulic modeling

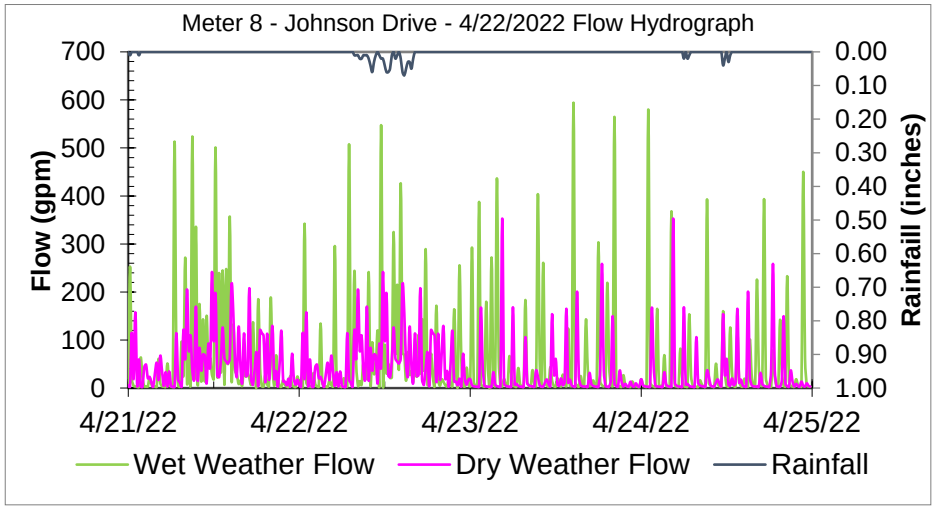


# Wet Weather Data Show Low I/I Flows for Regular Storm Events



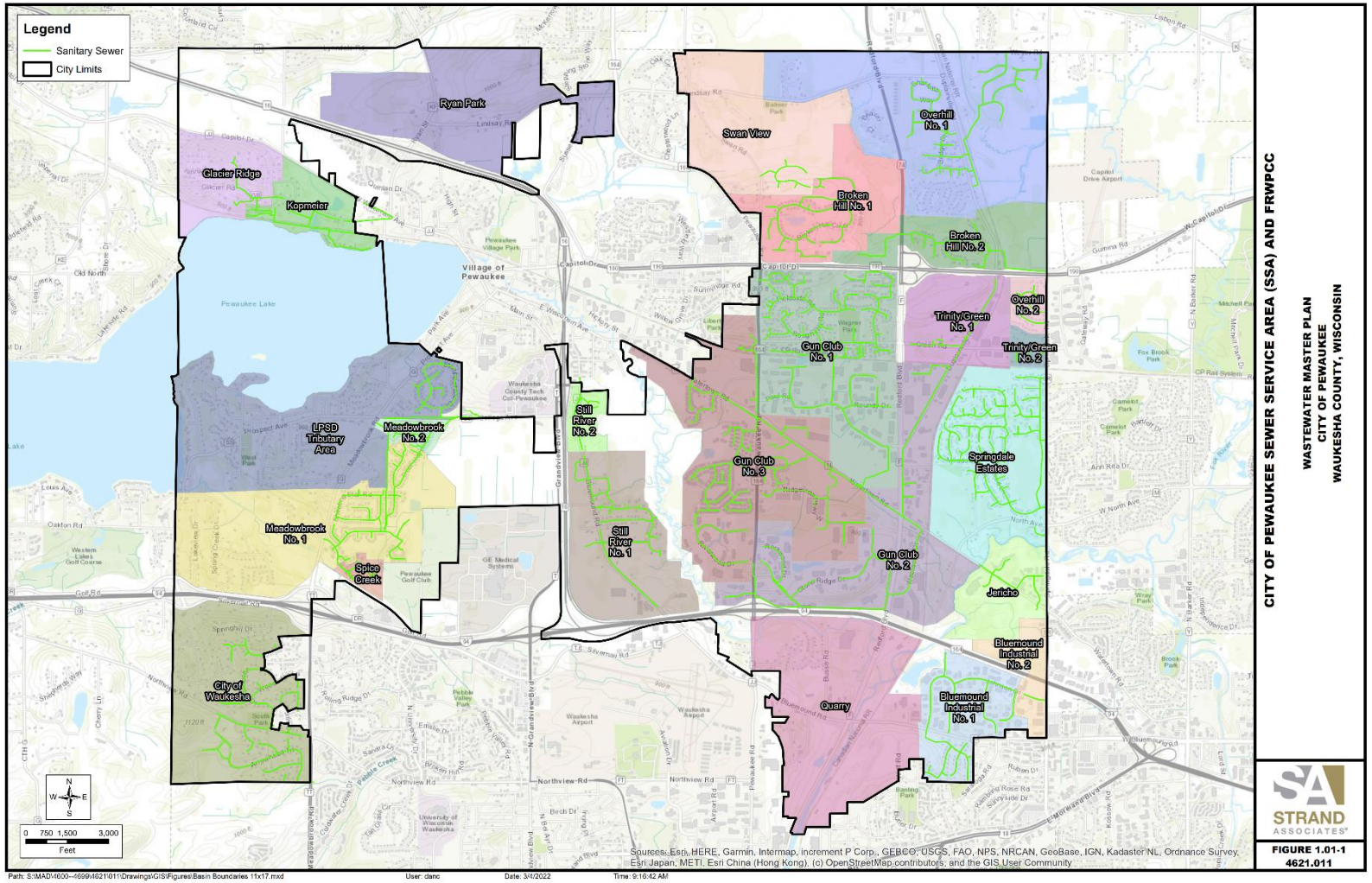
# Valuable Data from City Planning Documents Used to Project Future Growth

- Planning Periods
  - Existing
  - 2035
  - 2050

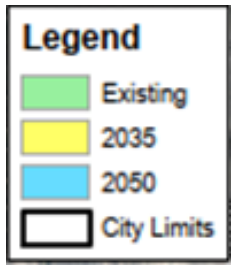
- Data Utilized
  - Sanitary Sewer Basins
  - Neighborhood Plan
  - Future Land Use Mapping
  - Southeast Wisconsin Regional Planning Commission Flow Factors

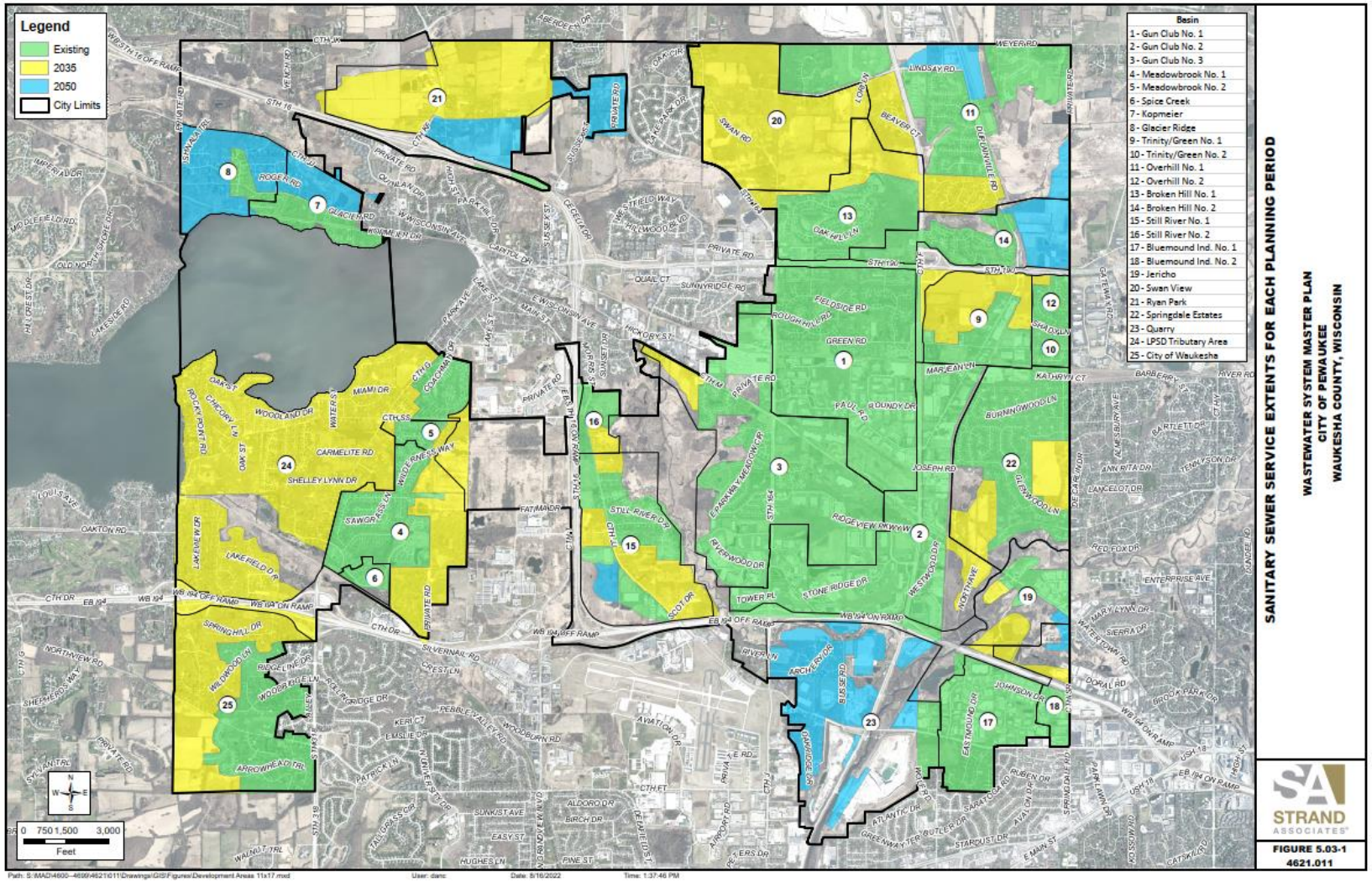
| Land Use Type | Flow Factor | Units |
|---|---|---|
| Low Density Residential | 158 | gpd/acre |
| Low to Medium Density Residential | 252 | gpd/acre |
| Medium Density Residential | 955 | gpd/acre |
| High Density Residential | 2,100 | gpd/acre |
| Industrial | 1,000 | gpd/acre |
| Commercial | 1,200 | gpd/acre |
| Governmental/Institutional | 1,200 | gpd/acre |

# Future Flow Projections Methodology – Delineation of Sewer Basins

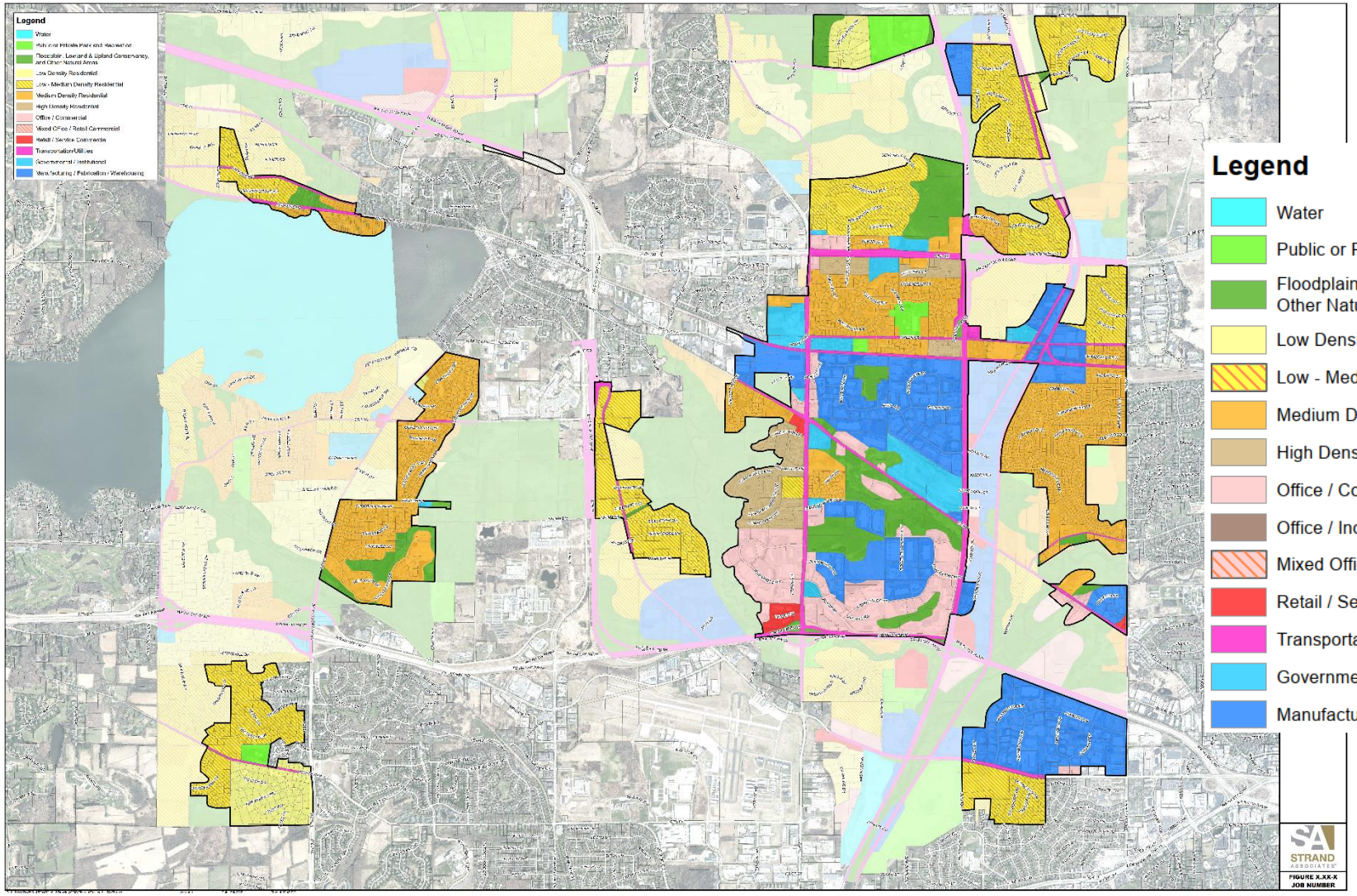


# Timing of Development Extracted from Neighborhood Plan

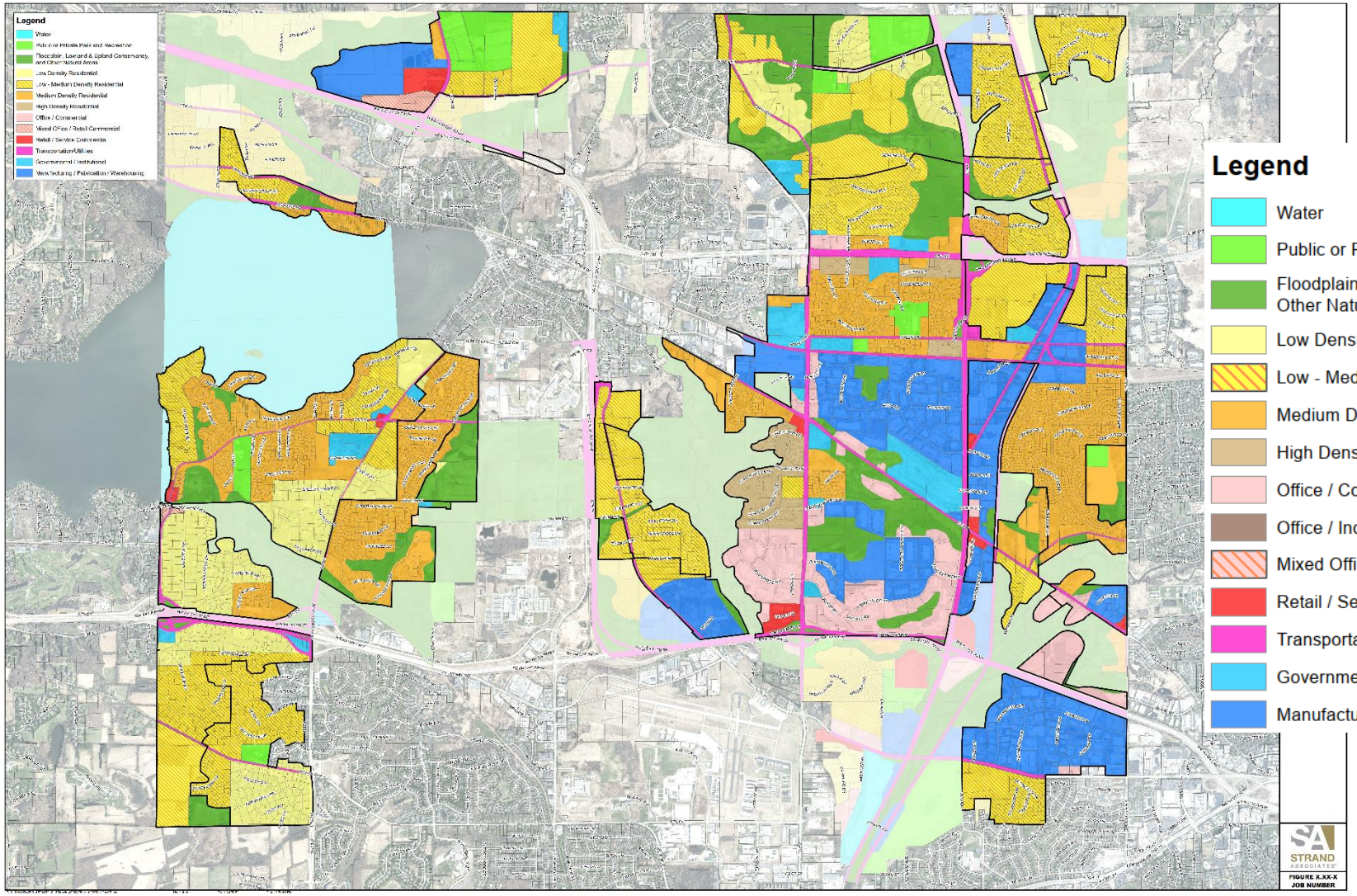


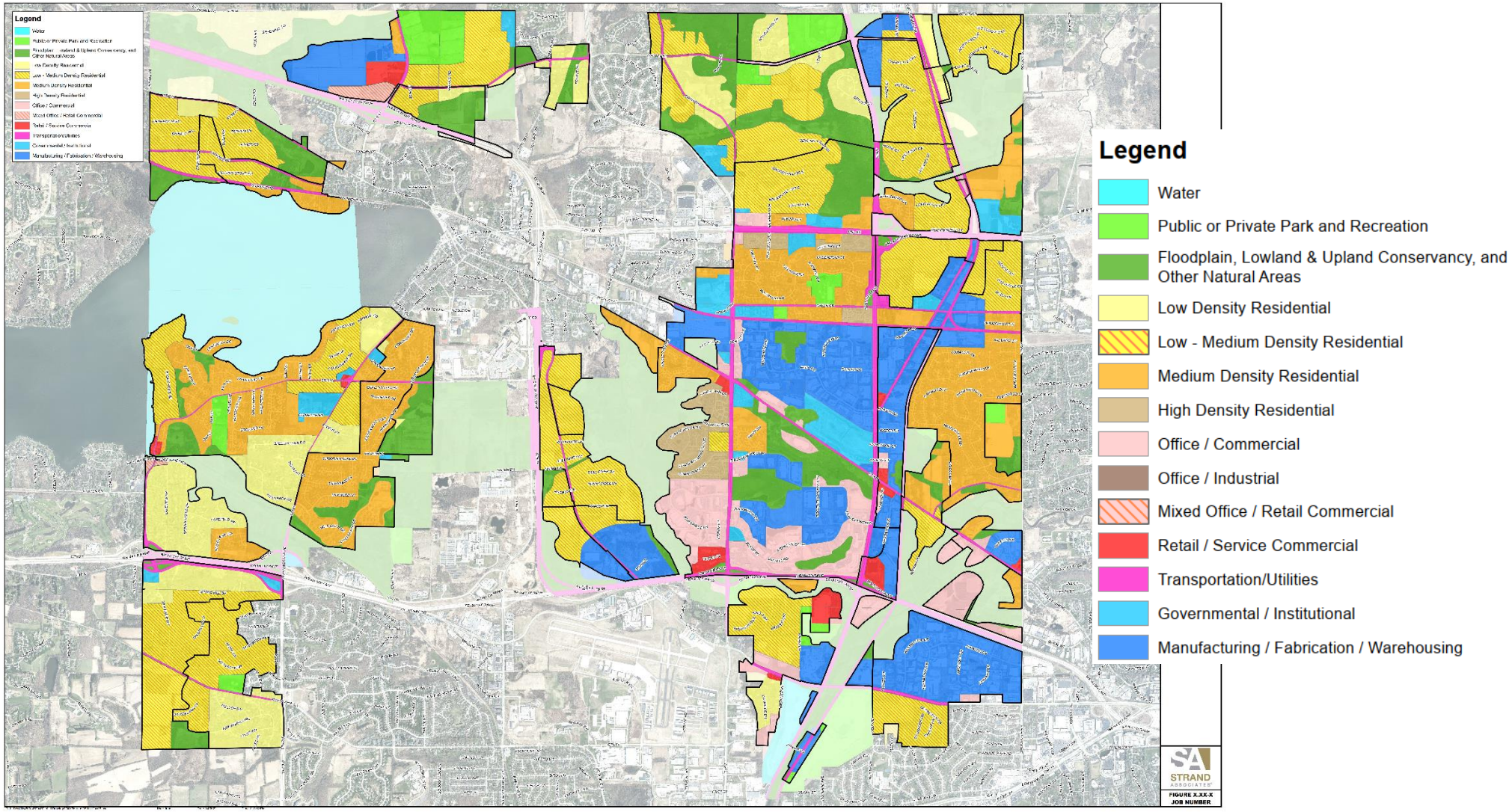
# City Land Use and Information from Staff Used to Project Future Flows



# 2035 Planning Period Sanitary Sewer Service Boundaries and Land Use



# 2050 Planning Period Sanitary Sewer Service Boundaries and Land Use

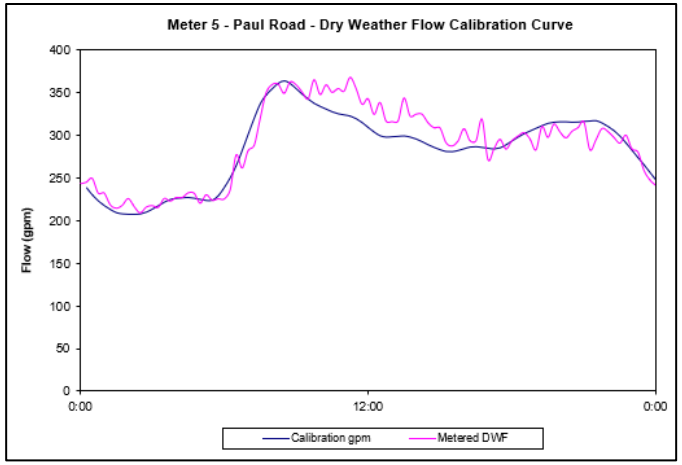


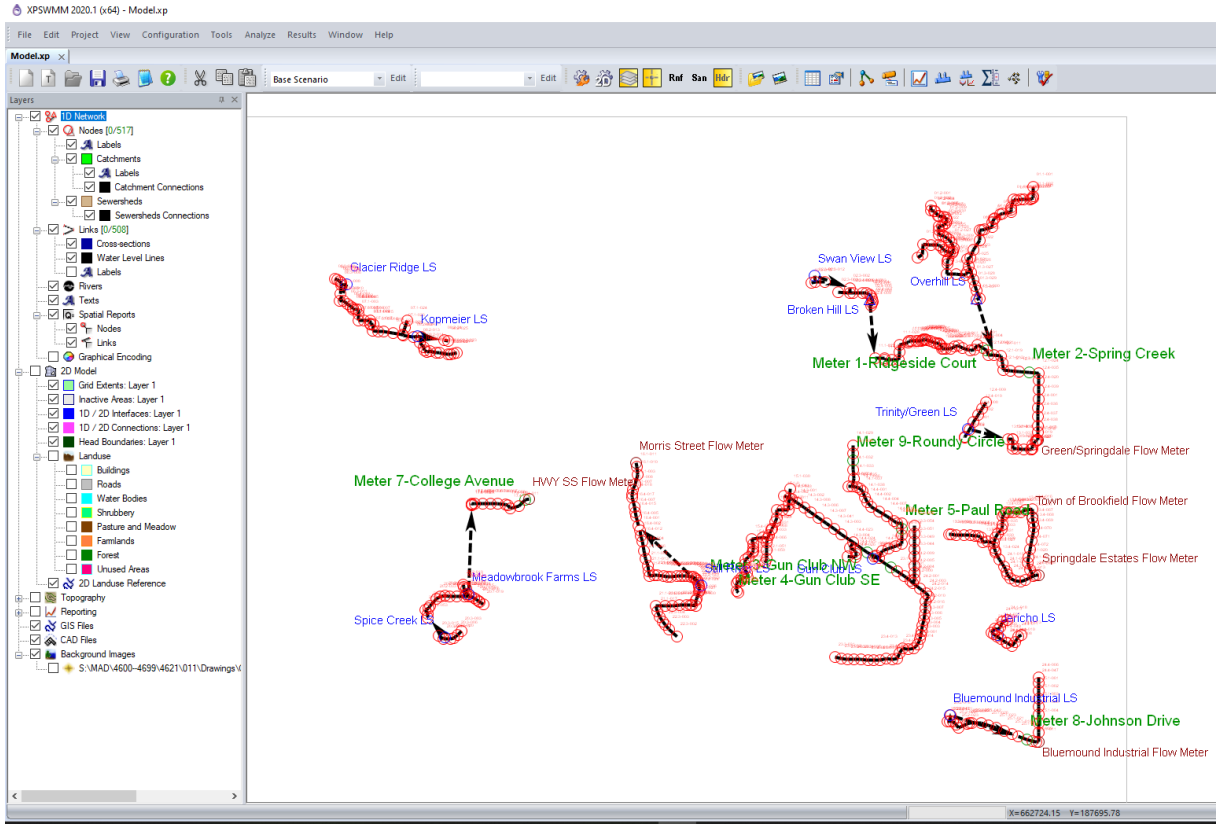
# Future Flow Projections Show Strong Continued Growth in the Community

| Planning Period | Projected City Flow to FRWPPC | | | | |
|---|---|---|---|---|---|
| | Additional Flow (gal) | | Total Flow (gal) | | % Increase (to existing) |
| | Average | Peak | Average | Peak | |
| Existing | - | - | 2,000,000 | 9,400,000 | - |
| 2035 | 1,100,000 | 4,280,000 | 3,100,000 | 13,680,000 | 54% |
| 2050 | 230,000 | 1,250,000 | 3,330,000 | 14,930,000 | 66% |

# Sanitary Sewer Hydraulic Model Leveraged As Powerful Evaluation Tool

- Dynamic model accounts for time-varying nature of system flows:
  - Diurnal pattern during dry weather
  - Wet weather response
  - Pump station operation
  - Attenuation of peak flows




**SWMM = Storm Water Management Model**

# Tabular Design Storm Simulation Summary Identifies Sanitary Sewer Infrastructure with Potential Capacity Concerns

| Segment ID | Basin | Upstream Manhole ID | Downstream Manhole ID | Diameter (in) | Full Pipe Capacity (gpm) | 2050 Peak Flow (gpm) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1-Hour Design Storm | | | 24-Hour Design Storm | | |
| | | | | | | Dry Weather | 2-Year RI | 5-Year RI | 10-Year RI | 2-Year RI | 5-Year RI | 10-Year RI |
| 1 | Overhill No. 1 | 01.1-001 | 01.3-026 | 12 | 890 | 301 | 516 | 587 | 648 | 465 | 509 | 550 |
| 2 | Overhill No. 1 | 01.2-001 | 01.3-006 | 12 | 950 | 71 | 137 | 158 | 176 | 118 | 130 | 142 |
| 3 | Overhill No. 1 | 01.3-001 | 01.3-006 | 12 | 950 | 71 | 137 | 158 | 176 | 118 | 130 | 142 |
| 4 | Overhill No. 1 | 01.3-006 | 01.3-026 | 12 | 1,180 | 301 | 516 | 587 | 648 | 465 | 509 | 550 |
| 5 | Overhill No. 1 | 01.3-026 | Overhill LS | 15 | 1,350 | 511 | 796 | 897 | 981 | 745 | 808 | 870 |
| 6 | Swan View | 02.3-012 | Swan View LS | 8 | 370 | 118 | 118 | 118 | 119 | 118 | 119 | 121 |
| 7 | Broken Hill No. 1 | 02.3-002 | Broken Hill LS | 8 | 420 | 649 | 649 | 649 | 940 | 653 | 655 | 667 |
| 8 | Broken Hill No. 1 | 02.4-009 | 02.4-006 | 8 | 1,560 | 483 | 483 | 483 | 489 | 486 | 487 | 496 |
| 9 | Broken Hill No. 2 | 11.1-022 | 11.1-031 | 15 | 4,760 | 643 | 643 | 644 | 926 | 648 | 657 | 667 |
| 10 | Broken Hill No. 2 | 11.1-031 | 12.1-021 | 15 | 1,430 | 989 | 987 | 984 | 985 | 1,021 | 1,025 | 1,013 |
| 11 | Overhill No. 2 | 12.1-021 | Green Road Flow Meter | 21 | 2,910 | 1,552 | 1,574 | 1,571 | 1,573 | 1,599 | 1,613 | 1,639 |
| 12 | Trinity/Green No. 1 | 12.4-009 | Trinity/Green LS | 10 | 970 | 395 | 482 | 525 | 580 | 477 | 502 | 529 |
| 13 | Trinity/Green No. 1 | 13.2-004 | 12.3-001 | 10 | 660 | 236 | 284 | 307 | 341 | 281 | 296 | 312 |
| 14 | Trinity/Green No. 2 | 13.1-014 | Green Road Flow Meter | 12 | 1,830 | 402 | 483 | 526 | 579 | 480 | 504 | 531 |
| 15 | Glacier Ridge | 06.3-002 | Glacier Ridge LS | 8 | 720 | 283 | 283 | 283 | 283 | 284 | 284 | 284 |
| 16 | Kopmeier | 06.3-009 | Kopmeier LS | 8 | 1,000 | 29 | 30 | 32 | 34 | 33 | 34 | 36 |
| 17 | Kopmeier | 08.2-023 | Kopmeier LS | 8 | 400 | 29 | 30 | 32 | 34 | 33 | 34 | 36 |
| 18 | Kopmeier | 08.2-024 | 08.2-025 | 8 | 1,660 | 353 | 355 | 426 | 351 | 347 | 346 | 355 |
| 19 | Spice Creek | 20.3-015 | Spice Creek LS | 8 | 780 | 79 | 105 | 117 | 127 | 116 | 124 | 133 |
| 20 | Spice Creek | 20.3-003 | 20.3-016 | 8 | 430 | 41 | 45 | 50 | 54 | 55 | 58 | 61 |
| 21 | Meadowbrook No. 1 | 20.2-053 | Meadowbrook Farms LS | 10 | 570 | 462 | 685 | 754 | 813 | 688 | 738 | 786 |
| 22 | Meadowbrook No. 1 | 20.2-010 | 20.2-041 | 10 | 640 | 211 | 301 | 348 | 385 | 314 | 344 | 368 |
| 23 | Meadowbrook No. 1 | 20.2-045 | Meadowbrook Farms LS | 10 | 850 | 462 | 685 | 754 | 813 | 688 | 738 | 786 |
| 24 | Meadowbrook No. 1 | 20.1-019 | 20.2-042 | 8 | 320 | 388 | 567 | 623 | 669 | 571 | 614 | 653 |

Capacity

Projected Flows

# City Shared Infrastructure Capacity – Dry Weather

| Shared Infrastructure | City Peak Capacity Allocation (MGD) | Existing Dry Flow (MGD) | Existing Dry (% Capacity) | 2035 Dry Flow (MGD) | 2035 Dry (% Capacity) | 2050 Dry Flow (MGD) | 2050 Dry (% Capacity) |
|---|---|---|---|---|---|---|---|
| LPSD Interceptor | 1.68 | 0.21 | 12% | 1.12 | 67% | 1.12 | 67% |
| Village Interceptor | 0.84 | 0.35 | 42% | **0.97** | **115%** | **1.07** | **128%** |
| Village Pumping Station | 2.72 | 0.56 | 21% | 2.09 | 77% | 2.19 | 80% |
| Village Force Mains | 6.20 | 2.09 | 34% | 4.09 | 66% | 4.23 | 68% |
| Riverview Interceptor | 2.489 | 0.24 | 9% | 1.45 | 58% | 2.24 | 90% |
| Springdale Interceptor | 1.247 | 0.32 | 26% | 1.24 | 99% | 1.24 | 99% |
| FRWPCC | 8.61 | 2.81 | 33% | 7.00 | 81% | 7.98 | 93% |

Note: **Bold** values indicates a peak flow greater than 100 percent of the City's current peak flow allocation.

# City Shared Infrastructure Capacity – Wet Weather

| Shared Infrastructure | City Peak Capacity Allocation (MGD) | Existing 10Y1H Design Storm Flow (MGD) | Existing 10Y1H Design Storm (% Capacity) | 2035 10Y1H Design Storm Flow (MGD) | 2035 10Y1H Design Storm (% Capacity) | 2050 10Y1H Design Storm Flow (MGD) | 2050 10Y1H Design Storm (% Capacity) |
|---|---|---|---|---|---|---|---|
| LPSD Interceptor | 1.68 | 1.19 | 71% | **2.01** | **119%** | **2.01** | **119%** |
| Village Interceptor | 0.84 | 0.55 | 65% | **0.98** | **116%** | **1.09** | **130%** |
| Village Pumping Station | 2.72 | 1.74 | 64% | 2.98 | 110% | **3.10** | **114%** |
| Village Force Mains | 6.20 | 5.27 | 85% | **6.96** | **112%** | **7.11** | **115%** |
| Riverview Interceptor | 2.489 | 0.86 | 34% | 1.87 | 75% | 2.27 | 91% |
| Springdale Interceptor | 1.247 | 1.24 | 99% | **1.92** | **154%** | **1.92** | **154%** |
| FRWPCC | 8.61 | 8.60 | 100% | **12.04** | **140%** | **12.65** | **147%** |

Note: **Bold** values indicates a peak flow greater than 100 percent of the City's current peak flow allocation.

# Summary of Sanitary Sewer Master Plan Recommended Improvements

- **Phase 1 improvements and recommendations:**
  - Calibrate all permanent flow meters
  - Install flow meters at all unmetered lift stations
  - Gun Club Pumping Station replacement
- **Phase II improvements and recommendations:**
  - New lift station to replace Swan View and Broken Hill Lift Stations
  - Golf course development – Monitor flows and proposed developments
  - Continue to monitor flow in critical local sewers and infrastructure governed by IGA's
  - Phase II Master Planning - condition assessments, an asset management program, and integrated planning services

# Questions?

# Water System Master Plan Objectives Chart a Course for System Vitality

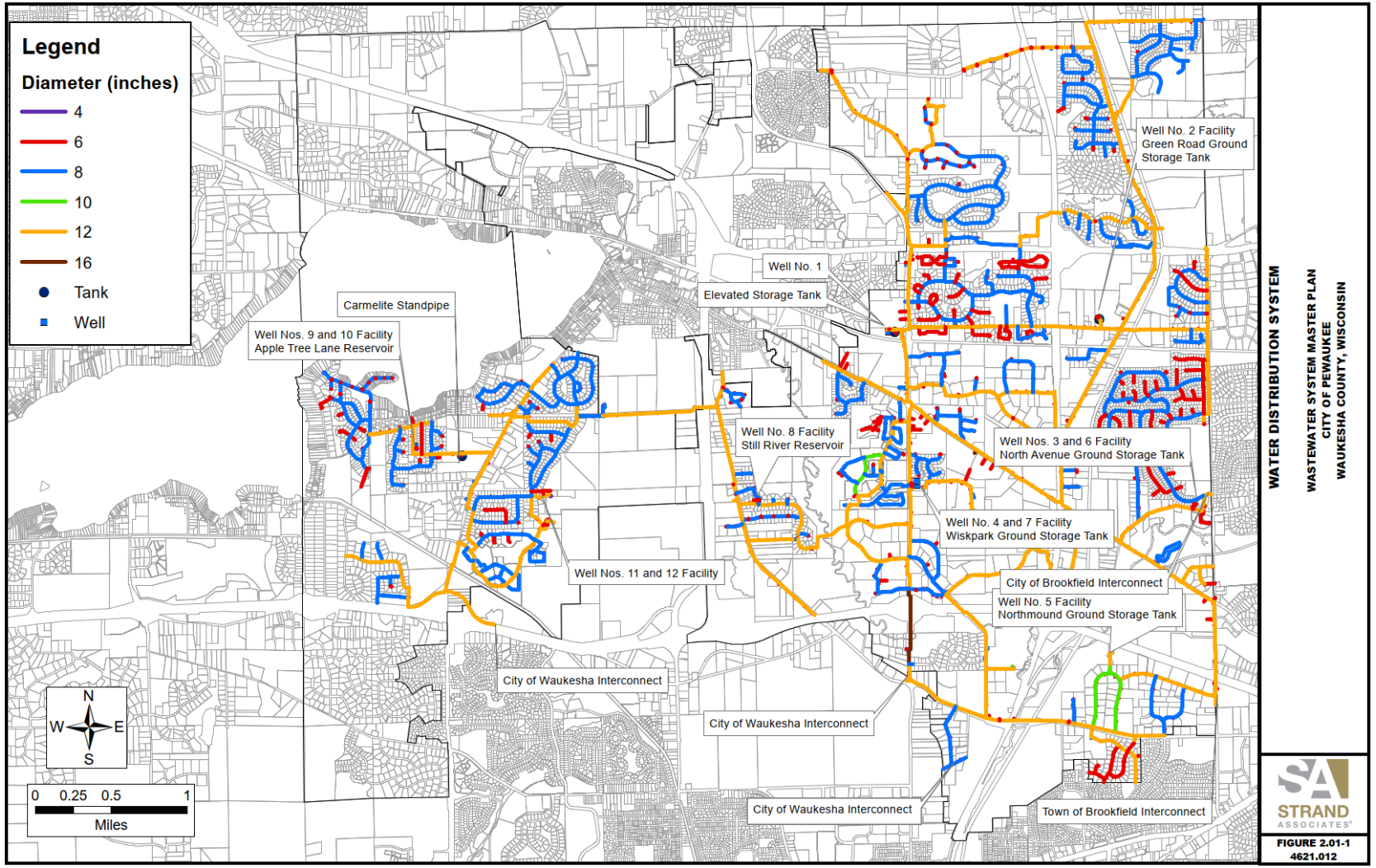
- Prepares the City to address needs proactively
- Identifies opportunities for efficient use of funds
- Provides confidence in system abilities and needs relative to growth
- Yields a tool staff can use moving forward

# Today's Agenda will Summarize Key Findings from the Water System Study

- Supply Capacity
- Storage Capacity
- Distribution System Performance (Model)
- Condition of Above Ground Assets
- Capital Improvement Plan
- Summary and Next Steps

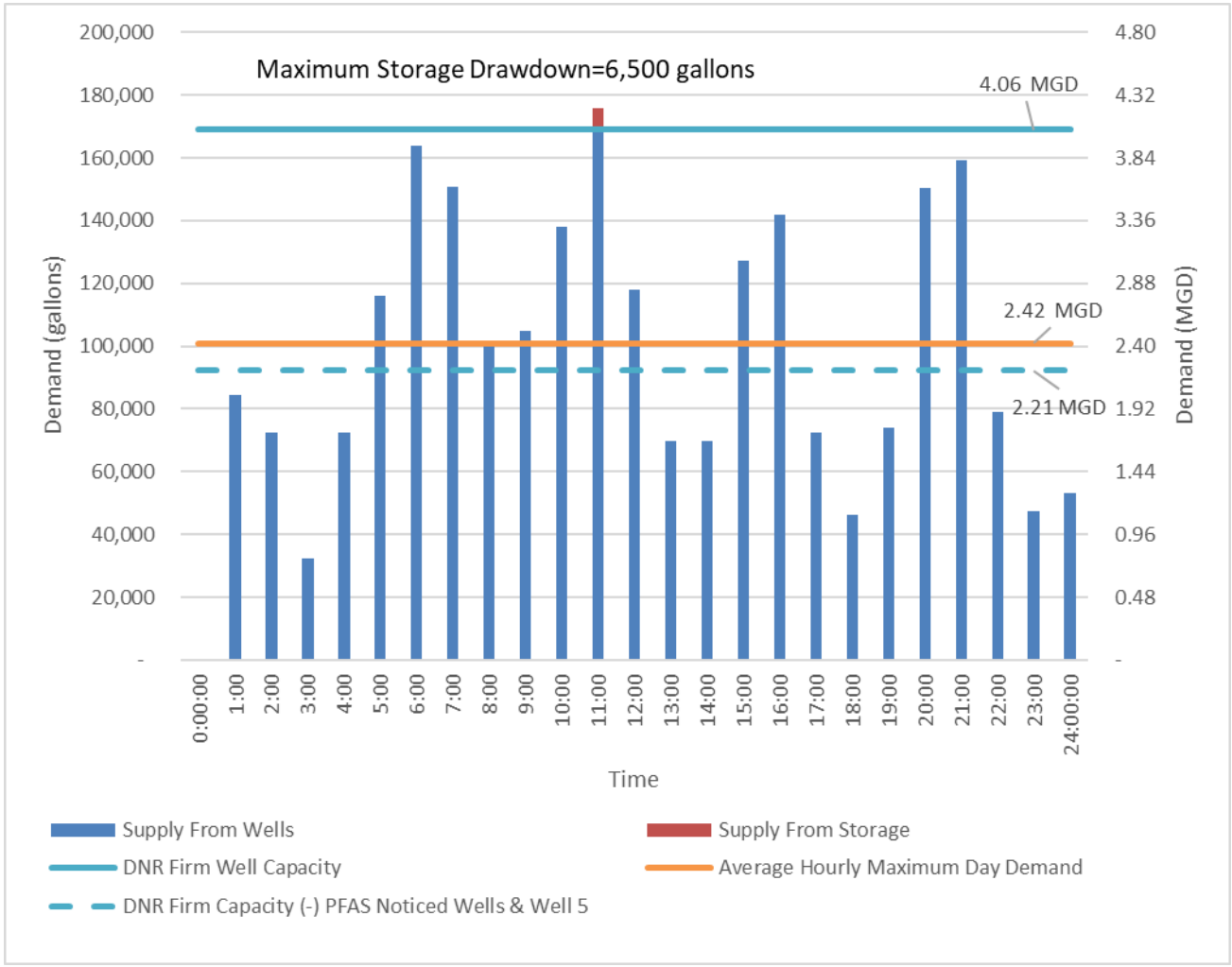
# Planning Period and Current System Establish the Baseline

- 12 Wells (8 Facilities)
- 6 ground storage tanks
- 2 elevated storage facilities
- 530,000 feet of pipe
- ~$170-200M Replacement Value
- Design Years:
  - Present Year
  - 2035
  - 2050



# Supply Capacity Evaluation – Present Day

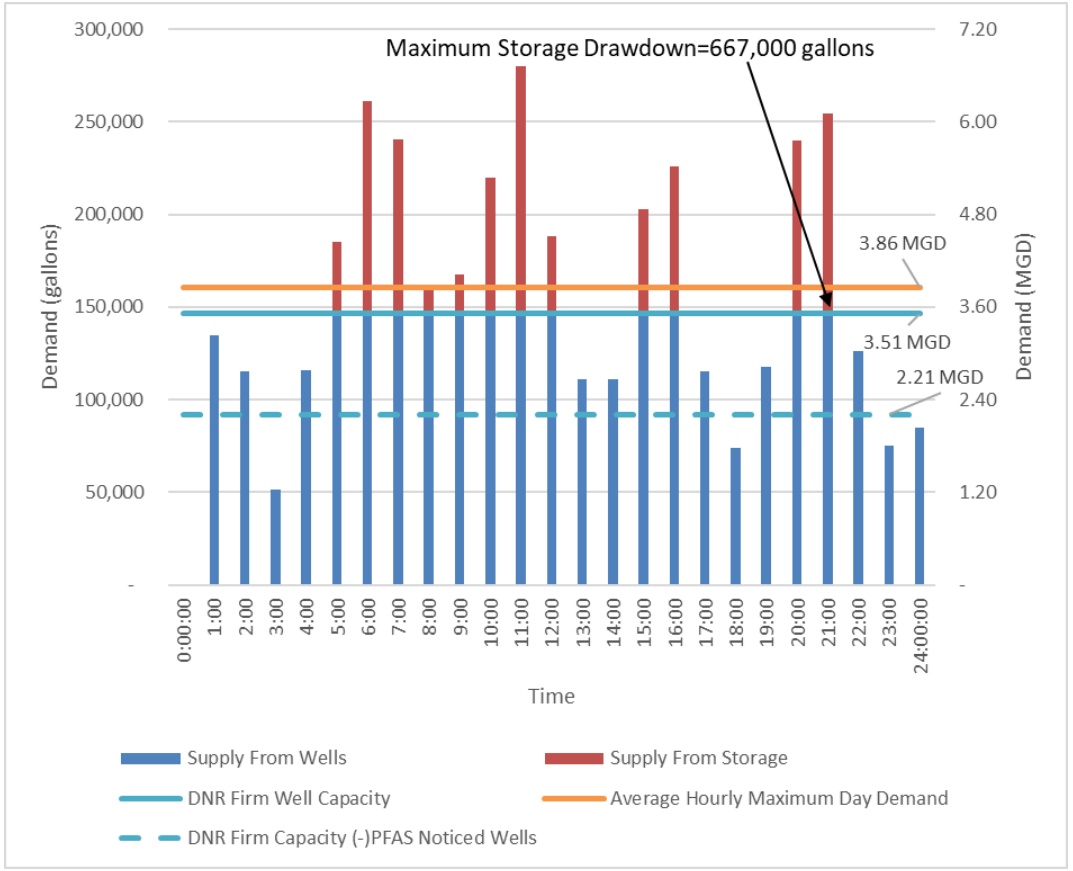
- Criteria:
  - Maximum Day Demand
  - Largest well facility out of service
  - Wells operating 18 hours per day
- Capacity from Wells 8 & 11/12 is meaningful and needed



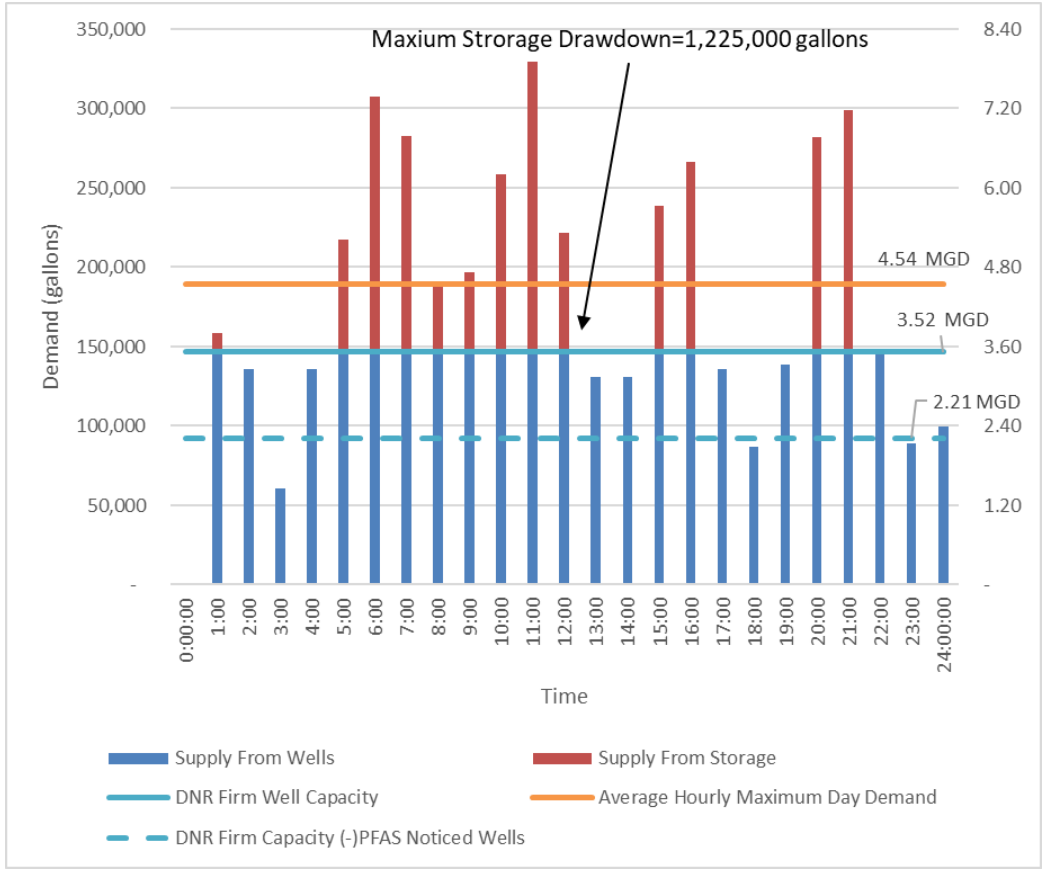

**Present Day Demands**

# Supply Capacity Evaluation – Future Design Years

- Additional well supply may be needed by 2035 pending actual demand growth



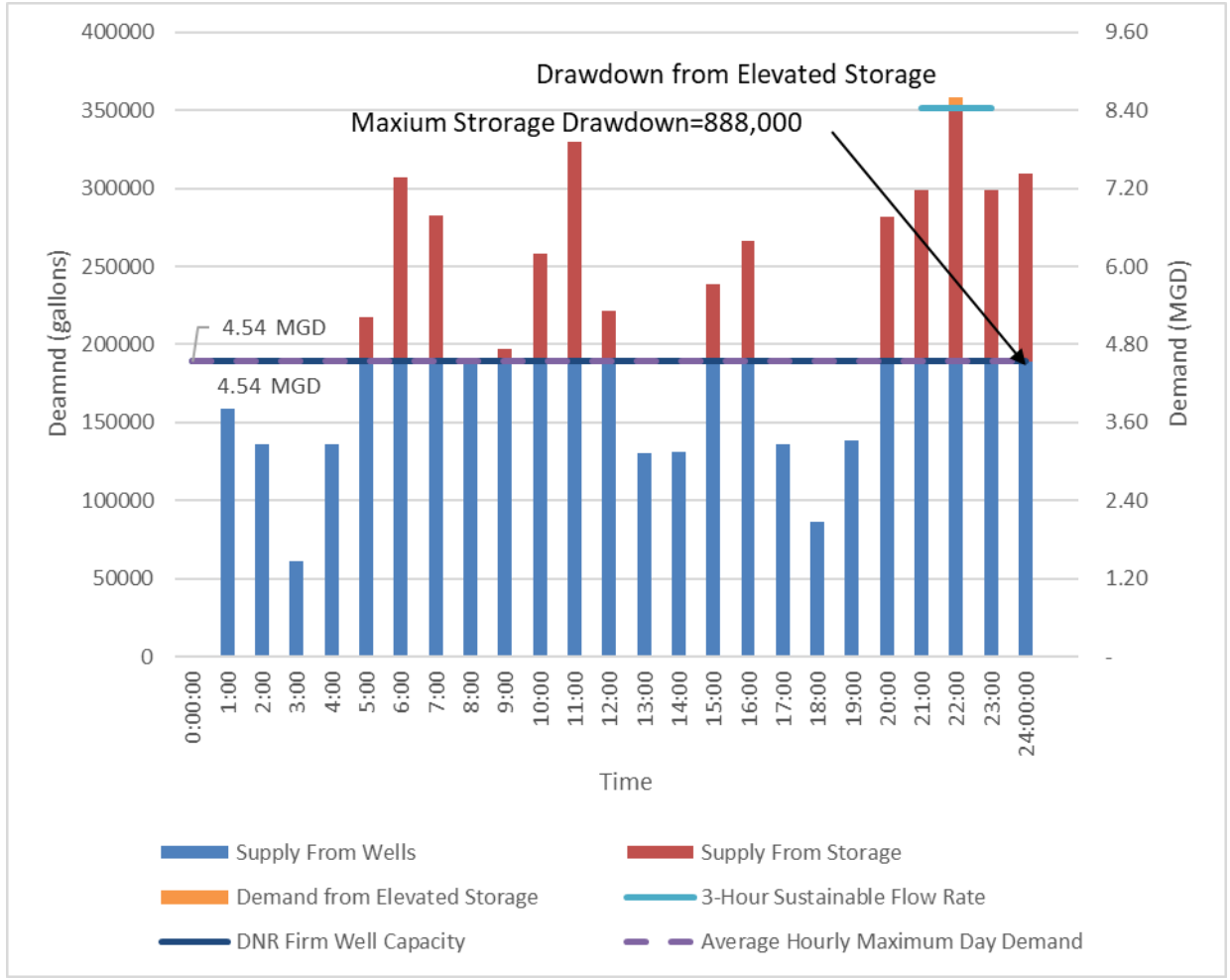

**2035 Demands**




**2050 Demands**

# Storage Capacity Evaluation

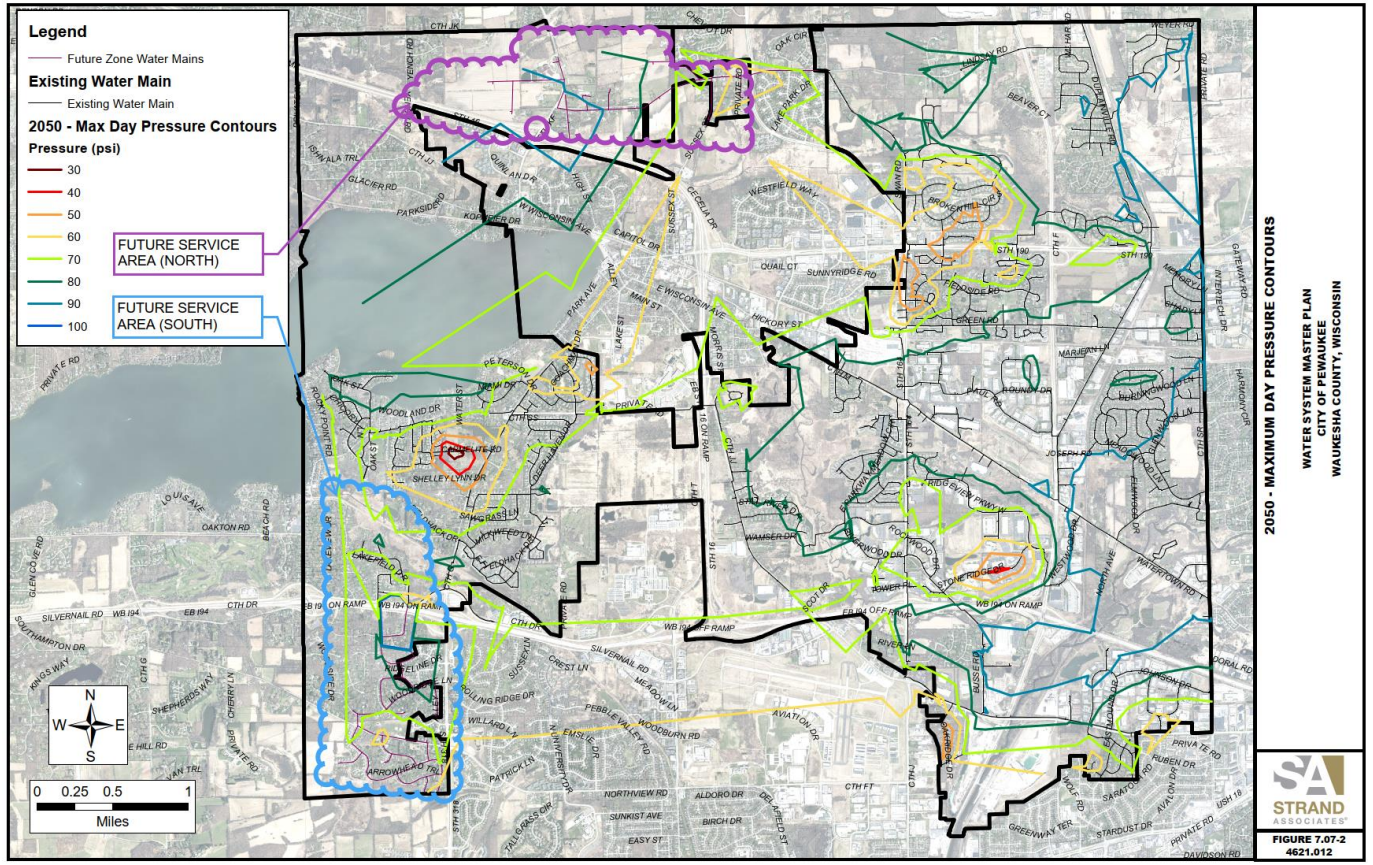
- Criteria:
  - Buffer hourly peaks
  - Emergency demands (3,500 gpm for 3 hours)
  - Water level maintains pressure in the system
    - 35 psi minimum (normal operations)
    - 20 psi minimum (emergencies)
- Existing storage volume is adequate
  - 1.04 MG for normal operations
  - 1.82 MG for emergency operations




**2050 Demands with Future Added Supply**

# Distribution System Performance – Pressures

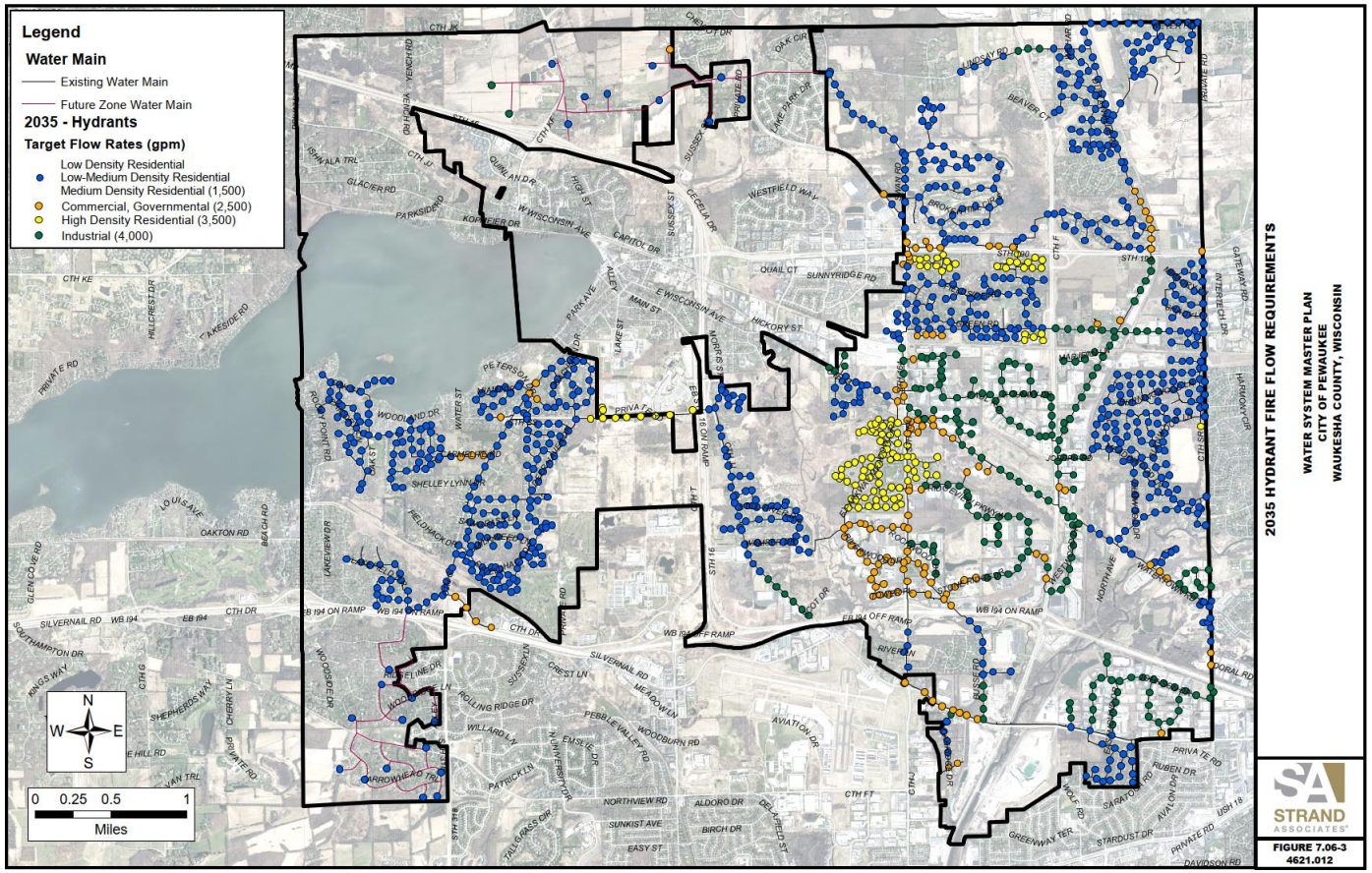
- Carmelite – not a customer yet; will need to be boosted
- Stoneridge – experiences low pressures depending on operations
  - *Sensitive to instantaneous demands*
  - *Growth and uses should be coordinated with the Utility*
- Future North/South service areas can be served at same hydraulic gradient as the current system
- Ground elevations restrict storage operation and may lead to water age issues




**2050 Pressure Contours**

# Distribution System Performance – Fire Flow Criteria

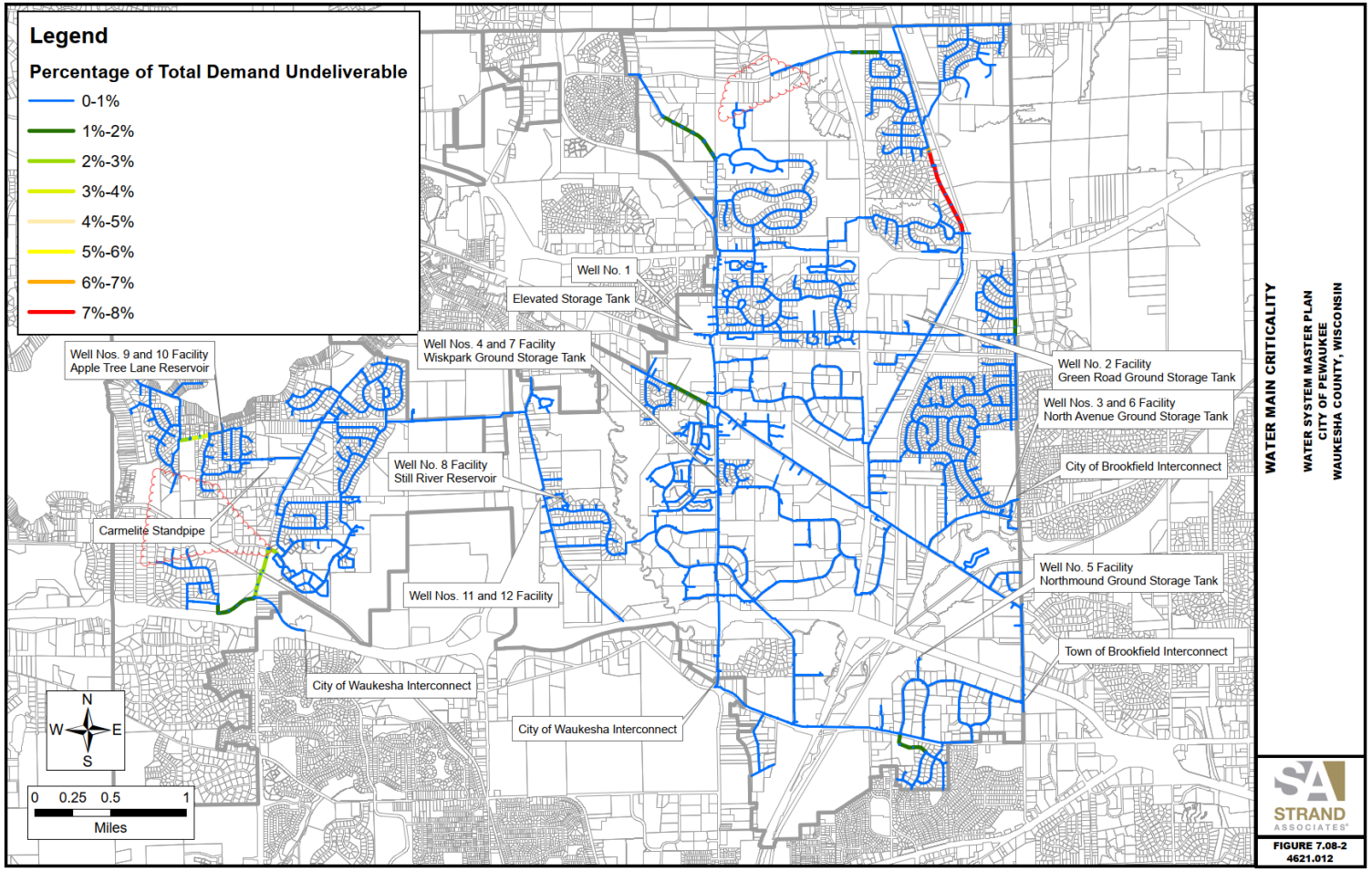
- DNR Minimum: 500 gpm
- Targets established with the Fire Chief
- Compare modeled fire flow availability to target flow
- Use as a tool for staff when reviewing potential improvements




**Fire Flow Availability Target Criteria**

# Distribution System Performance – Pipeline Criticality

- % of customers out of service during water main break
- Staff normally restore service within ~3 hours
- Looping through new service areas will address western portions
- A loop on Lindsay Rd. through Balmer Park is recommended
- These improvements also improve fire flow




**Future Loops can Address Most Critical Pipes**

# Above Ground Facilities – Condition Review

- “Boots on the ground” review
  - Water Supply engineer
  - Structural engineer
  - Electrical engineer
  - Mechanical engineer
- Typical remaining life of major components
- Deficiencies and recommendations developed for each facility
- Controls (SCADA) and backup power projects will be vital to maintaining system capacity

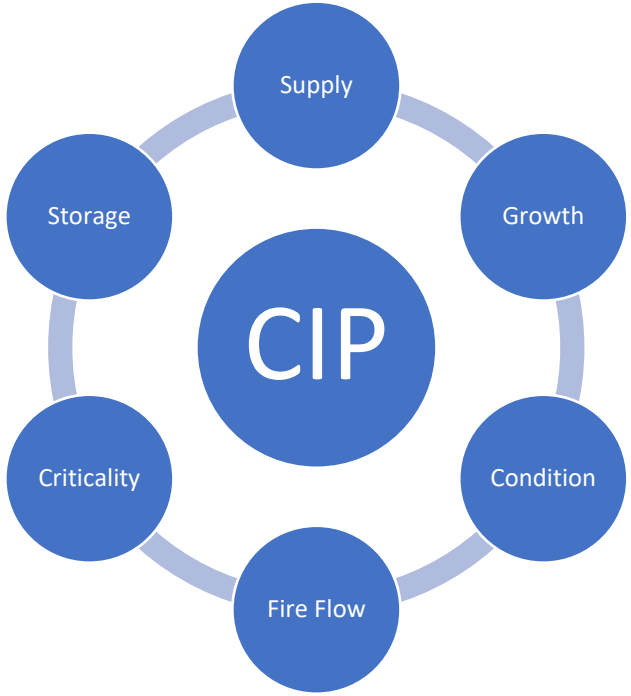
**Well No. 11 Facility**

| Item | Deficiency | Recommendation |
|---|---|---|
| **Process Piping and Equipment** | | |
| Well No. 12 Process Piping Coatings | Poor | Surface prepare to SSPC-SC10 and recoat corroded areas. |
| **Electrical Systems** | | |
| Well No. 11 Control Panel PLC | Allen Bradley MicroLogix 1500 PLC Discontinued and past typical life expectancy | Replace in the near future. |
| Well No. 11 Control Panel 3-Phase Monitor | Shows signs of arc flash/fault on 3-Phase Monitor Upstream Fuses | Investigate for damage and repair. Find source of arc flash and repair. |
| Well 11 Lighting | Fluorescent T8 lamps installed | Replace with LED lighting to improve efficiency during next building upgrade. |
| Well No. 11 Chemical Area Electrical Devices | Corroded by chemical in room | Replace corroded electrical devices with new NEMA 4X devices. |
| Well No. 11 Pump RVSS Starter | Nearing end of typical life expectancy | Monitor and replace when failure occurs. |
| Well No. 11 Power Meter | Does not function correctly | Owner to repair during maintenance activities. |
| Well No .12 Electrical Panels | Panel exteriors are corroded | Panel interior components appear okay. Eliminate source of corrosion and monitor enclosures for additional corrosion; close enclosures tightly at all times to avoid interior panel corrosion. |
| **Mechanical Systems** | | |
| Dehumidifier | Freezes in winter, and metal components within building are corroding | Replace with model with more efficient drainage. |
| Unit Heater | Fails in the winter | Replace with larger model. |
| **Building and Site** | | |
| Well No. 11 Interior Slab | Concrete slab on grade is displaying significant cracking especially around filter vest. | Monitor for additional degradation and settling of the filter vessel. Replace affected slab areas. |
| Doors, Windows, and Hardware | Corrosion observed on overhead door, sealant at windows deteriorating | Repaint/repair. |

**Table 3.09-3 General Deficiencies and Recommendations–Well Nos. 11 and 12**

# Water System Master Plan Capital Improvement Plan

- Recommendations consolidated into a Master CIP table for staff use
  - 20-year plan in 5-year increments
  - Project justification, study reference, cost opinion, budget

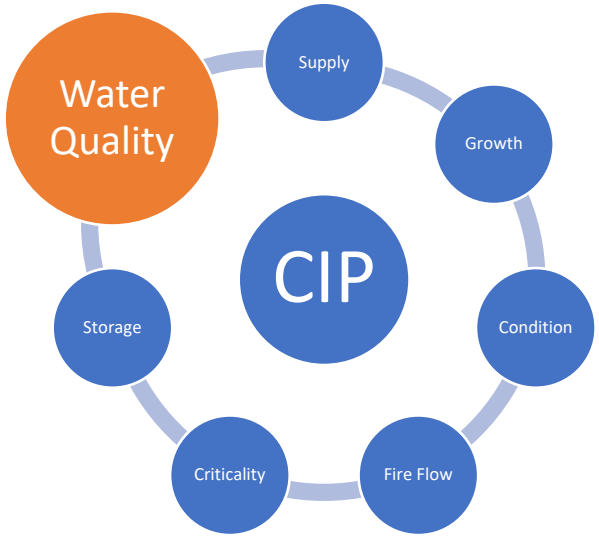



| Project Number | Term | Facility Name | Project Name/Description | Justification | Water System Master Plan Reference (2023) | Opinion of Probable Construction Cost | Construction Contingency | Professional Services (Admin, Engineering, Legal) | Capital Budget |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0-5 | Well No. 8 | Preliminary Engineering Evaluation and PFAS Treatment and Building Addition | Shallow well water quality exceeds hazard index for PFAS. Conduct preliminary engineering analysis and potentially add treatment subject to WDNR and EPA rulemaking. | Table 3.07-3 | $2,500,000 | $750,000 | $820,000 | $4,100,000 |
| 2 | 0-5 | Well No. 11 & 12 | Preliminary Engineering Evaluation and Treatment Addition | Shallow well water quality exceeds hazard index for PFAS. Conduct preliminary engineering analysis and potentially add treatment subject to WDNR and EPA rulemaking. | Section 3.09 | $2,500,000 | $750,000 | $820,000 | $4,100,000 |
| 3 | 0-5 | Well No. 11 & 12 | Electrical & Backup Popwer Upgrades - Replace Well 11 RVSS starter, electrical devices and wiring, and upgrade lighting. Replace MCC and generator. Replace Well 11 unit heater and dehumidifier. | Well pump RVSS starter is nearing expected useful life. Electrical devices in chemical room are corroded. Electrical wiring and devices and MCC in rest of facility are nearing the expected useful life. Dehumidifier freezes in winter leading to corrossion. Unit heater fails in winter and should be upsized. Upgrade Well 11 lighting to LED. Diesel generator is nearing the | Table 3.09-1<br>Table 3.09-2<br>Table 3.09-3 | $400,000 | $120,000 | $130,000 | $650,000 |

**CIP Intended to be a Dynamic Tool**

# Waster System Master Plan Summary and Next Steps

- **Most Pressing Needs**
  - Short term capacity – dependent on water quality, preliminary engineering is in progress
    - Potentially 1 or 2 major treatment projects pending EPA rule finalization
  - Long term capacity – revisit as growth occurs
  - SCADA & Backup Power – Keep crucial operating equipment current
- **Strategies Moving Forward**
  - Use the model for regular review of proposed growth
  - Evaluate interim operations in a future modeling phase
  - Recognize that growth offers opportunities to accomplish multiple objectives (i.e., looping)
  - Budget an annual amount to address water main projects over time



# Questions?

*Excellence in Engineering*[SM]

# CITY OF PEWAUKEE
# PUBLIC WORKS COMMITTEE AGENDA ITEM 5.2.

**DATE:** December 7, 2023

**DEPARTMENT:** PW - Water/Sewer

**PROVIDED BY:** Magdelene Wagner/Jane Mueller

***SUBJECT:***

Discussion and Possible Action Regarding Potential Water Rate Increase and Notice of Public Service Commission Public Hearing [Wagner / Mueller]

***BACKGROUND:***

See attached.

***FINANCIAL IMPACT:***

***RECOMMENDED MOTION:***

No motion needed at this time. We will bring the official rate increase once it has been fully approved by the PSC.

**ATTACHMENTS:**

Description

Proposed Water Rate Increase Memo

PSC Report

**Department of Public Works**
**Water & Sewer Utility**
W240N3065 Pewaukee Road • Pewaukee, WI 53072
Phone: (262) 691-0804 • Fax: (262) 691-5729
Email: publicworks@pewaukee.wi.us

MEMORANDUM

Date: November 15, 2023
To Common Council
From Jane E. Mueller, Utility Manager
Re: Proposed Water Rate Increase. Public Service Commission Public Hearing

The Utility was notified by the Public Service Commission (PSC) that they have completed the analysis of the City of Pewaukee water rate increase application. The Commission staff conducted a cost-of-service analysis which determined their proposed rates.
The Commission staff has proposed a 2-step rate increase for the City of Pewaukee. Step I propose rates that would increase revenues by an estimated $429,422 which include a reduction in the Public Fire Protection (PFP) rate.
Below is a summary of the most common changes in Utility rates:

| | Current Rate | Proposed change Implemented first quarter 2024 |
|---|---|---|
| **Per/1000 gallons** | $3.62 | $4.75 |
| **Quarterly Meter charge** | | |
| (Typical Residential) ¾" | $ 25.20 | $ 30.00 |
| 1" | $ 36.00 | $ 42.00 |
| 1 ½" | $ 60.00 | $ 69.00 |
| 2" | $ 84.00 | $ 96.00 |
| 3" | $147.00 | $154.00 |
| 4" | $216.00 | $228.00 |
| **Public Fire Protection (AKA Fire Hydrant Fee)** | | |
| Per $1000 of assessed Property value | | |
| Quarterly | $0.05444 | $0.04785 |
| Annual | $0.21774 | $0.19138 |

(Will generate approximately $616,511 down from approximately $701,409.)

Under the Step I rate proposed; a typical single-family residential customer's bill would increase 27.36%. An average residential water bill per quarter would be the following:

| | |
|---|---|
| Water Meter charge | $ 30.00 |
| Average water use 15,000 per quarter at $ 4.75/1000 | $ 71.25 |
| Quarterly sewer Charge | $141.00 |
| Average quarterly water & sewer bill without Public Fire Protection charges. | $242.25 |

Step II of the rate proposal would take place upon completion of the installation of the Bluemound Road water main loop expected in late 2024 and early 2025. Step II increase is proposed to generate an additional $361,286. The additional funds will assist the Utility in paying off debt that will be incurred with financing this large project.

The PSC and the Utility will be holding a joint public hearing on November 30, 2023, at 3:00pm, to allow for citizen comments on the proposed rates. The Public Notice of the rate increase and Public Hearing have been posted in the Waukesha Freeman on November 17, 2023. The information has also been posted at our public posting location at Wagner Park, City Hall, and the City website.

# Public Service Commission of Wisconsin

Rebecca Cameron Valcq, Chairperson
Tyler Huebner, Commissioner
Summer Strand, Commissioner

4822 Madison Yards Way
P.O. Box 7854
Madison, WI 53707-7854

Public Service Commission of Wisconsin
RECEIVED: 10/19/2023 4:15:02 PM

October 19, 2023

Ms. Jane Mueller, Utility Manager
City of Pewaukee Water Utility
W240N3065 Pewaukee Road
Pewaukee, WI 53072

Re: Application of the City of Pewaukee, Waukesha County, Wisconsin, as a Water Public Utility, for Authority to Adjust Water Rates — 4625-WR-104

Dear Ms. Mueller:

Public Service Commission (Commission) staff has analyzed the City of Pewaukee Water Utility (applicant) application for a water rate increase. The Commission received the application on March 23, 2023. The attached proposed exhibit (Exhibit) contains schedules showing Commission staff's proposed cost-of-service analysis and proposed rates. Commission staff intends to submit the Exhibit at the public hearing, which will be scheduled at a later date.

The Commission staff Exhibit provides for an overall increase of $790,708 over the applicant's present revenues, which would be implemented in two steps. The proposed Step I increase of $429,422 would take effect following the issuance of the Final Decision. The overall Step II increase of $790,708 is compared to the current rates and is an additional increase of $361,286 over Step I rates. The applicant would implement the remaining Step II increase when the project the Commission authorized in docket 4625-CW-121 is completed and placed into service.

The Step I revenue requirement for the 2023 test year is comprised of the following:

| | | |
|---|---|---|
| Operation and Maintenance Expenses | $ | 1,703,582 |
| Depreciation Expense | $ | 360,753 |
| Property Tax Equivalent and Other Taxes | $ | 597,914 |
| Return on Rate Base | $ | 545,736 |
| Total | $ | 3,207,985 |

For Step I, Commission staff used a 6.40 percent rate of return on the estimated water utility net investment rate base for the 2023 test year, as recommended by our staff auditor. (PSC REF#: 481143.)

For Step I, Schedule 13 of the Exhibit shows the proposed rates that would increase annual revenues from water public utility service by an estimated $429,422. Commission staff

estimates $541,211 would be from general service customers, and a decrease of $111,789 would be from the public fire protection (PFP) charge. The overall increase in customer rates is 16.05 percent and is comprised of a 27.80 percent increase in general service charges and a 15.35 percent decrease in PFP charges.

Under the Step I rates proposed in the Exhibit, a typical single-family residential customer's bill would increase 27.36 percent. Schedule 14 of the Exhibit shows Commission staff's analysis of customer bills for comparison of proposed and present rates.

The Step II revenue requirement for the 2023 test year is comprised of the following:

| | | |
|---|---|---|
| Operation and Maintenance Expenses | $ | 1,703,582 |
| Depreciation Expense | $ | 410,042 |
| Property Tax Equivalent and Other Taxes | $ | 640,862 |
| Return on Rate Base | $ | 814,785 |
| Total | $ | 3,569,271 |

For Step II, Commission staff used a 6.40 percent rate of return on the estimated water utility net investment rate base for the 2023 test year, as recommended by our staff auditor. (PSC REF#: 481143.)

For Step II, Schedule 13 of the Exhibit shows the proposed rates that would increase annual revenues for water public utility service by an estimated $790,708, of which $828,945 would be from general service customers, and a decrease of $38,237 would be from the PFP charge. The overall increase in customer rates is 29.56 percent and is comprised of a 42.58 percent increase in general service charges and a 5.25 percent decrease in PFP charges. The increase in water utility revenues results from a 16.34 percent increase in gross plant investment and a 22.83 percent increase in operating expenses since the applicant's last water conventional rate case (CRC) filed in 2019.

The Step II rates include the Step I increase. Under the Step II rates proposed in the Exhibit, a typical single-family residential customer's overall bill will increase 40.57 percent after Step II has been implemented. That same customer will see an increase of 10.37 percent from Step I to Step II. Schedule 14 of the Exhibit shows Commission staff's analysis of customer bills for comparison of proposed Step II and present rates and proposed Step II and proposed Step I rates.

At the request of the applicant, Commission staff proposes to eliminate Schedule Am-1, Additional Meter Rental Charge, as it is no longer used.

Schedule X-1, Water Utility Operating Rules, of Schedule 13 includes changes to the applicant's filed rules that reflect the latest requirements in Wis. Admin. Code ch. PSC 185. Commission staff will recommend these changes to the Commission.

The proposed Commission staff Exhibit is intended to provide the Commission with Commission staff's analysis and is not a final decision. After review of the attached Exhibit, the applicant may, within five business days of the date of this letter, present its own case and may submit any additional information it believes to be pertinent to support its position. If Commission staff does not receive a response within that time, it will assume the applicant is in agreement with the staff proposal, and Commission staff will contact the applicant to schedule the public hearing. Please note that this is the applicant's primary opportunity to address any concerns or changes to Commission staff's proposed Cost of Service and Rate Design Exhibit.

The applicant should also be aware that the Commission will base its decision on the merits of the case and that the general service and PFP rates are typically effective within 90 days of the Final Decision.

In order to receive notification of official correspondence (i.e. data requests, notices, final decisions, etc.), individuals must subscribe to the Utility ID or PSC Docket. To subscribe, go to the Commission's Electronic Records Filing (ERF) system. For help subscribing, go to Subscribing to Dockets.

If you have any questions, please contact me.

Sincerely,

Alex Hanna
Public Utility Rate Analyst
Public Service Commission of Wisconsin
Division of Water Utility Regulation and Analysis
(608) 267–2336 | Alex.Hanna@wisconsin.gov

AJH:alf:krl DL:01968445

Attachment

cc: Bridgot Gysbers, Ruekert & Mielke, Inc.

Docket 4625-WR-104

**Ex.-PSC-COSS and Rate Design**

**City of Pewaukee Water Utility - Step I**


| | Schedule |
|---|---|
| Comparative Income Statement | 1 |
| Net Investment Rate Base | 2 |
| Utility Financed Plant in Service and Depreciation Expense | 3 |
| System Demand Ratios | 4 |
| Allocation of Utility Financed Plant to Service Cost Functions | 5 |
| Allocation of Total Plant to Service Cost Functions | 5A |
| Allocation of Depreciation Expense to Service Cost Functions | 6 |
| Allocation of Operation and Maintenance Expenses to Service Cost Functions | 7 |
| Summary of Allocation of Operating Costs to Service Cost Functions | 8 |
| Customer Class Demand Ratios | 9 |
| Customer Class Allocation Factors | 10 |
| Allocation of Service Cost Functions to Customer Classes | 11 |
| Comparison of Revenue at Present Rates, Cost of Service and Proposed Rates | 12 |
| Proposed Water Rates and Rules | 13 |
| Customer Water Bill Comparison at Present and Proposed Rates | 14 |

## COMPARATIVE INCOME STATEMENT

| ACCT NO. | OPERATING REVENUES | 2019 | 2020 | 2021 | 2022 | TEST YEAR 2023 |
|---|---|---|---|---|---|---|
| 460 | Unmetered Sales to General Customers | | | | | |
| | Residential | $ 123,060 | $ 1,058 | $ 1,764 | $ 1,411 | $ 1,588 |
| | Multi-Family Residential | 0 | 0 | 0 | 0 | 0 |
| | Commercial | 59,231 | 0 | 60 | 0 | 0 |
| | Industrial | 0 | 0 | 60 | 0 | 0 |
| | Public Authority | 0 | 0 | 0 | 0 | 0 |
| | Irrigation | 0 | 0 | 0 | 0 | 0 |
| 461 | Metered Sales to General Customers | | | | | |
| | Residential | 776,215 | 1,039,272 | 1,188,039 | 1,153,765 | 1,159,680 |
| | Multi-Family Residential | 163,974 | 179,663 | 205,120 | 214,158 | 209,940 |
| | Commercial | 352,507 | 396,688 | 460,817 | 432,538 | 451,088 |
| | Industrial | 87,436 | 85,532 | 121,618 | 203,100 | 116,575 |
| | Public Authority | 3,755 | 5,080 | 10,366 | 11,173 | 9,446 |
| | Irrigation | 0 | 0 | 0 | 0 | 0 |
| | **TOTAL GENERAL SALES** | $ 1,566,178 | $ 1,707,293 | $ 1,987,844 | $ 2,016,145 | $ 1,948,317 |
| 462 | Private fire protection service | 74,871 | 75,229 | 75,739 | 77,593 | 79,446 |
| 463 | Public fire protection service | 442,024 | 471,542 | 559,053 | 701,409 | 728,300 |
| 465 | Other water sales | 0 | 0 | 0 | 0 | 0 |
| 466 | Sales for resale | 0 | 0 | 0 | 0 | 0 |
| 467 | Interdepartmental sales | 0 | 0 | 0 | 0 | 0 |
| 470 | Forfeited discounts | 7,797 | 4,056 | 9,465 | 8,000 | 8,500 |
| 472 | Rents from water property | 0 | 0 | 0 | 0 | 0 |
| 473 | Interdepartmental rents | 0 | 0 | 0 | 0 | 0 |
| 474 | Other water revenues | 13,790 | 21,762 | 22,806 | 14,000 | 14,000 |
| | **TOTAL OPERATING REVENUES** | $ 2,104,660 | $ 2,279,882 | $ 2,654,907 | $ 2,817,147 | $ 2,778,563 |
| | **OPERATING EXPENSES** | | | | | |
| | **SOURCE OF SUPPLY** | | | | | |
| 600 | Operation labor | $ 18,067 | $ 19,201 | $ 20,760 | $ 23,500 | $ 23,700 |
| 601 | Purchased water | 0 | 0 | 0 | 300 | 300 |
| 602 | Operation supplies and expenses | 12,465 | 29,765 | 21,212 | 30,850 | 20,500 |
| 605 | Maintenance of water source plant | 136,966 | 1,744 | 40,019 | 75,000 | 63,700 |
| | **PUMPING EXPENSES** | | | | | |
| 620 | Operation labor | 52,639 | 42,268 | 47,954 | 51,700 | 63,957 |
| 621 | Fuel for power production | 0 | 0 | 0 | 0 | 0 |
| 622 | Fuel or power purchased for pumping | 226,160 | 235,433 | 236,574 | 248,000 | 260,000 |
| 623 | Operation supplies and expenses | 16,197 | 11,162 | 9,776 | 16,750 | 14,900 |
| 625 | Maintenance of pumping plant | 9,275 | 43,604 | 13,262 | 85,000 | 25,000 |

## COMPARATIVE INCOME STATEMENT
## (continued)

| ACCT NO. | OPERATING EXPENSES | 2019 | 2020 | 2021 | 2022 | TEST YEAR 2023 |
|---|---|---|---|---|---|---|
| | **WATER TREATMENT EXPENSES** | | | | | |
| 630 | Operation labor | $ 16,318 | $ 12,909 | $ 9,712 | $ 15,780 | $ 12,953 |
| 631 | Chemicals | 119,700 | 129,541 | 127,668 | 136,000 | 144,000 |
| 632 | Operation supplies and expenses | 11,706 | 11,083 | 9,572 | 16,000 | 82,000 |
| 635 | Maintenance of water treatment plant | 12,427 | 14,983 | 24,013 | $ 16,500 | 26,300 |
| | **TRANSMISSION & DISTRIBUTION EXPENSES** | | | | | |
| 640 | Operation labor | 24,054 | 21,181 | 19,720 | 26,000 | 26,301 |
| 641 | Operation supplies and expenses | 13,913 | 14,393 | 14,668 | 19,300 | 20,900 |
| 650 | Maintenance of distr. reservoirs | 12,124 | 11,504 | 6,874 | 40,000 | 95,200 |
| 651 | Maintenance of mains | 24,192 | 68,882 | 52,527 | 80,000 | 45,600 |
| 652 | Maintenance of services | 16,521 | 41,913 | 20,422 | 35,000 | 40,000 |
| 653 | Maintenance of meters | 16,253 | 13,497 | 21,642 | 20,000 | 17,800 |
| 654 | Maintenance of hydrants | 29,111 | 44,179 | 32,589 | 85,000 | 44,000 |
| 655 | Maintenance of other plant | 6,190 | 1,843 | 0 | 2,500 | 3,000 |
| | **CUSTOMER ACCOUNTS EXPENSES** | | | | | |
| 901 | Meter reading labor | 4,743 | 4,622 | 4,289 | 4,000 | 4,250 |
| 902 | Accounting and collecting labor | 1,016 | 17,845 | 0 | 5,650 | 5,722 |
| 903 | Supplies and expenses | 19,467 | 30,526 | 28,374 | 20,000 | 20,000 |
| 904 | Uncollectible accounts | 0 | 0 | 0 | 25 | 100 |
| 906 | Customer service and informational expense | 2,055 | 0 | 0 | 1,000 | 0 |
| | **SALES EXPENSES** | | | | | |
| 910 | Sales Expenses | 0 | 0 | 0 | 0 | 0 |
| | **ADMINISTRATIVE & GENERAL EXPENSES** | | | | | |
| 920 | Administrative and general salaries | 104,246 | 107,099 | 122,401 | 118,443 | 198,539 |
| 921 | Office supplies and expenses | 5,014 | 7,269 | 7,139 | 18,075 | 15,600 |
| 922 | Administrative expenses transferred -- credit | 0 | 0 | 0 | 0 | 0 |
| 923 | Outside services employed | 61,080 | 74,930 | 111,772 | 84,250 | 84,250 |
| 924 | Property insurance | 16,447 | 16,598 | 17,417 | 22,960 | 25,639 |
| 925 | Injuries and damages | 0 | 0 | 0 | 0 | 0 |
| 926 | Employee pensions and benefits | 156,300 | 138,939 | 126,160 | 219,732 | 200,000 |
| 928 | Regulatory commission expenses | 39,229 | 17,631 | 992 | 25,000 | 35,000 |
| 930 | Miscellaneous general expenses | 20,572 | 22,540 | 22,468 | 24,900 | 24,871 |
| 933 | Transportation expenses | 14,546 | 12,468 | 16,920 | 14,365 | 21,000 |
| 935 | Maintenance of general plant | 30,700 | 37,226 | 34,023 | 35,600 | 38,500 |
| | **TOTAL OPER. & MAINT. EXPENSES** | $ 1,249,693 | $ 1,256,778 | $ 1,220,919 | $ 1,617,180 | $ 1,703,582 |
| 403 | **DEPRECIATION EXPENSE** | 343,335 | 505,500 | 464,335 | 440,015 | 360,753 |
| 404-407 | **AMORTIZATION EXPENSE** | 138,880 | 78,112 | 78,112 | 0 | 0 |
| 408 | **TAXES AND TAX EQUIVALENT** | 609,974 | 598,062 | 580,459 | 586,671 | 597,914 |
| | **TOTAL OPERATING EXPENSES** | $ 2,341,882 | $ 2,438,452 | $ 2,343,825 | $ 2,643,866 | $ 2,662,249 |
| | **NET OPERATING INCOME** | **$ (237,222)** | **$ (158,570)** | **$ 311,082** | **$ 173,281** | **$ 116,314** |

## NET INVESTMENT RATE BASE

| | | |
|---|---|---|
| **UTILITY FINANCED PLANT IN SERVICE** | $ | 13,033,376 |
| **Less: ACCUMULATED PROVISION FOR DEPRECIATION** | | 4,447,512 |
| **NET PLANT IN SERVICE** | $ | 8,585,864 |
| **Plus: MATERIALS AND SUPPLIES** | | 9,824 |
| **Less: REGULATORY LIABILITY** | | 68,565 |
| **NET INVESTMENT RATE BASE** | $ | 8,527,123 |
| **RATE OF RETURN ON RATE BASE** | | 6.40% |

## ESTIMATED INCOME STATEMENT FOR THE 2023 TEST YEAR AND REVENUE REQUIREMENT TO YIELD A 6.40% RETURN ON NET INVESTMENT RATE BASE

| | | Present Rates | | Increase | | After Rate Increase |
|---|---|---|---|---|---|---|
| **TOTAL OPERATING REVENUES** | $ | 2,778,563 | $ | 429,422 | $ | 3,207,985 |
| **OPERATING EXPENSES:** | | | | | | |
| **OPERATION & MAINTENANCE EXPENSES** | $ | 1,703,582 | | | $ | 1,703,582 |
| **DEPRECIATION EXPENSE** | | 360,753 | | | | 360,753 |
| **AMORTIZATION EXPENSE** | | 0 | | | | 0 |
| **TAXES AND TAX EQUIVALENT** | | 597,914 | | | | 597,914 |
| **TOTAL OPERATING EXPENSES** | $ | 2,662,249 | | | $ | 2,662,249 |
| **NET OPERATING INCOME (LOSS)** | $ | 116,314 | | | $ | 545,736 |
| **RATE OF RETURN ON RATE BASE** | | 1.36% | | | | 6.40% |

**UTILITY FINANCED PLANT IN SERVICE AND DEPRECIATION EXPENSE**
**TEST YEAR 2023**

| ACCT NO. | ACCOUNT DESCRIPTION | Balance 12/31/2022 ($) | Major Additions Less Retirements ($) | Normal Additions ($) | Retirements ($) | Balance 12/31/2023 ($) | Test Year Rate Base Balance ($) | Depreciation Rate (%) | Depreciation Expense ($) |
|---|---|---|---|---|---|---|---|---|---|
| | **INTANGIBLE PLANT** | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 311 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 313 | Lake, River, and Other Intakes | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 314 | Wells and Springs | 339,776 | 0 | 0 | 0 | 339,776 | 339,776 | 2.90% | 9,854 |
| 316 | Supply Mains | 176,607 | 0 | 0 | 0 | 176,607 | 176,607 | 1.80% | 3,179 |
| 317 | Other Water Source Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| | **PUMPING PLANT** | | | | | | | | |
| 320 | Land and Land Rights | 211,052 | (37,956) | 0 | 0 | 173,096 | 173,096 | N/A | 0 |
| 321 | Structures and Improvements | 2,177,871 | 0 | 18,000 | 0 | 2,195,871 | 2,186,871 | 3.20% | 69,980 |
| 323 | Other Power Production Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 325 | Electric Pumping Equipment | 1,503,571 | 0 | 420,662 | 6,000 | 1,918,233 | 1,710,902 | 4.40% | 75,280 |
| 326 | Diesel Pumping Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 328 | Other Pumping Equipment | 149,569 | 0 | 0 | 0 | 149,569 | 149,569 | Fully Depr. | 0 |
| | **WATER TREATMENT PLANT** | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 331 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 333 | Membrane Filtration Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 334 | Other Water Treatment Equipment | 783,909 | 0 | 28,000 | 0 | 811,909 | 797,909 | 6.00% | 47,875 |

**UTILITY FINANCED PLANT IN SERVICE AND DEPRECIATION EXPENSE**
**TEST YEAR 2023**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | Balance 12/31/2022 ($) | Major Additions ($) | Normal Additions ($) | Retirements ($) | Balance 12/31/2023 ($) | TEST YEAR RATE BASE BALANCE ($) | DEPRECIATION RATE (%) | DEPRECIATION EXPENSE ($) |
|---|---|---|---|---|---|---|---|---|---|
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 342 | Distribution Reservoirs and Standpipes | 1,760,075 | 0 | 0 | 0 | 1,760,075 | 1,760,075 | 1.90% | 33,441 |
| 343 | Transmission and Distribution Mains | 2,206,932 | 0 | 557,623 | 12,800 | 2,751,755 | 2,479,344 | 1.30% | 32,231 |
| 345 | Services | 706,630 | 0 | 193,354 | 0 | 899,984 | 803,307 | 2.90% | 23,296 |
| 346 | Meters | 728,208 | 0 | 78,000 | 0 | 806,208 | 767,208 | 5.50% | 42,196 |
| 348 | Hydrants | 557,022 | 0 | 165,378 | 4,500 | 717,900 | 637,461 | 2.20% | 14,024 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| | **GENERAL PLANT** | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 391 | Office Furniture and Equipment | 59,947 | 0 | 0 | 0 | 59,947 | 59,947 | Fully Depr. | 0 |
| 391 | Computer Equipment | 165,310 | 0 | 0 | 0 | 165,310 | 165,310 | Fully Depr. | 0 |
| 392 | Transportation Equipment | 334,234 | 0 | 102,000 | 0 | 436,234 | 385,234 | Fully Depr. | 0 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 396 | Power Operated Equipment | 175 | 0 | 0 | 0 | 175 | 175 | 7.50% | 13 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 397 | SCADA Equipment | 260,911 | 0 | 35,750 | 0 | 296,661 | 278,786 | Fully Depr. | 0 |
| 398 | Miscellaneous Equipment | 161,799 | 0 | 0 | 0 | 161,799 | 161,799 | 5.80% | 9,384 |
| | **TOTAL UTILITY FINANCED PLANT IN SERVICE** | **12,283,598** | **(37,956)** | **1,598,767** | **23,300** | **13,821,109** | **13,033,376** | | **360,753** |

**City of Pewaukee Water Utility - Step I**

**SYSTEM DEMAND RATIOS**

**MAXIMUM DAY SYSTEM DEMAND**

| | | |
|---|---|---|
| **TOTAL ANNUAL PUMPAGE** | 455,154,061 | Gallons |
| **AVERAGE DAILY PUMPAGE** | 1,246,997 | Gallons |
| **MAXIMUM DAY PUMPAGE** | 2,618,695 | Gallons |
| **FIRE FLOW:** | | |
| **GAL/MIN** | 4,000 | |
| **DURATION (HOURS)** | 4.00 | |
| **TOTAL FLOW** | 960,000 | Gallons |
| **AVERAGE DAY PLUS FIRE FLOW** | 2,206,997 | Gallons |

**RATIO:** BASE = $\frac{1,246,997}{2,618,695}$ = 47.62%

MAX DAY = 100-BASE = 52.38%

**MAXIMUM HOUR SYSTEM DEMAND**

| | | |
|---|---|---|
| **AVERAGE HOUR ON MAX DAY** | 109,112 | Gallons |
| **MAXIMUM HOUR PUMPAGE** | 155,875 | Gallons |
| **AVERAGE HOUR PLUS ONE HOUR FIRE FLOW** | 291,958 | Gallons |

**RATIO:** BASE = $\frac{1,246,997}{7,006,997}$ = 17.80% Use 17.80%

MAX HOUR = 100-BASE = 82.20% Use 82.20%

**ALLOCATION OF UTILITY FINANCED PLANT**
**TO SERVICE COST FUNCTIONS**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **INTANGIBLE PLANT** | | | | | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 311 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | | 0 | | | | | | | | |
| 313 | Lake, River, and Other Intakes | 0 | 0 | | 0 | | | | | | | | |
| 314 | Wells and Springs | 339,776 | 161,798 | | 177,978 | | | | | | | | |
| 316 | Supply Mains | 176,607 | 84,099 | | 92,508 | | | | | | | | |
| 317 | Other Water Source Plant | 0 | 0 | | 0 | | | | | | | | |
| | **PUMPING PLANT** | | | | | | | | | | | | |
| 320 | Land and Land Rights | 173,096 | 82,427 | | 90,669 | | | | | | | | |
| 321 | Structures and Improvements | 2,186,871 | 1,041,367 | | 1,145,504 | | | | | | | | |
| 323 | Other Power Production Equipment | 0 | 0 | | 0 | | | | | | | | |
| 325 | Electric Pumping Equipment | 1,710,902 | 814,715 | | 896,187 | | | | | | | | |
| 326 | Diesel Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| 328 | Other Pumping Equipment | 149,569 | 71,223 | | 78,346 | | | | | | | | |
| | **WATER TREATMENT PLANT** | | | | | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 331 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 333 | Membrane Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 334 | Other Water Treatment Equipment | 797,909 | 379,957 | | 417,952 | | | | | | | | |

**ALLOCATION OF UTILITY FINANCED PLANT**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 342 | Distribution Reservoirs and Standpipes | 1,760,075 | 313,231 | | | | | | 1,446,844 | | | | |
| 343 | Transmission mains | 2,479,344 | 1,180,640 | | 1,298,704 | | | | | | | | |
| 343 | Distribution mains | 0 | | 0 | | | | 0 | | | | | |
| 345 | Services | 803,307 | | | | | | | | | | 803,307 | |
| 346 | Meters | 767,208 | | | | | | | | | 767,208 | | |
| 348 | Hydrants | 637,461 | | | | | | | | | | | 637,461 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **GENERAL PLANT** | | | | | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Office Furniture and Equipment | 59,947 | 20,660 | 0 | 21,002 | 0 | 0 | 0 | 7,239 | 0 | 3,838 | 4,019 | 3,189 |
| 391 | Computer Equipment | 165,310 | 56,972 | 0 | 57,915 | 0 | 0 | 0 | 19,961 | 0 | 10,585 | 11,083 | 8,795 |
| 392 | Transportation Equipment | 385,234 | 132,765 | 0 | 134,964 | 0 | 0 | 0 | 46,517 | 0 | 24,666 | 25,827 | 20,495 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 396 | Power Operated Equipment | 175 | 60 | 0 | 61 | 0 | 0 | 0 | 21 | 0 | 11 | 12 | 9 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 397 | SCADA Equipment | 278,786 | 96,079 | 0 | 97,671 | 0 | 0 | 0 | 33,663 | 0 | 17,850 | 18,690 | 14,832 |
| 398 | Miscellaneous Equipment | 161,799 | 55,762 | 0 | 56,685 | 0 | 0 | 0 | 19,537 | 0 | 10,360 | 10,847 | 8,608 |
| | **TOTAL** | **13,033,376** | **4,491,754** | **0** | **4,566,146** | **0** | **0** | **0** | **1,573,783** | **0** | **834,519** | **873,785** | **693,389** |

## ALLOCATION OF TOTAL PLANT
## TO SERVICE COST FUNCTIONS

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | EXTRA-CAPACITY: BASE COSTS System ($) | EXTRA-CAPACITY: BASE COSTS Distribution ($) | EXTRA-CAPACITY: MAX DAY System ($) | EXTRA-CAPACITY: MAX DAY Distribution ($) | EXTRA-CAPACITY: MAX HOUR System ($) | EXTRA-CAPACITY: MAX HOUR Distribution ($) | EXTRA-CAPACITY: MAX HOUR Storage ($) | CUSTOMER COSTS Billing ($) | CUSTOMER COSTS Equivalent Meter ($) | CUSTOMER COSTS Equivalent Service ($) | Fire Protection ($) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **INTANGIBLE PLANT** | | | | | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 311 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | | 0 | | | | | | | | |
| 313 | Lake, River, and Other Intakes | 0 | 0 | | 0 | | | | | | | | |
| 314 | Wells and Springs | 2,160,593 | 1,028,854 | | 1,131,739 | | | | | | | | |
| 316 | Supply Mains | 217,091 | 103,377 | | 113,714 | | | | | | | | |
| 317 | Other Water Source Plant | 0 | 0 | | 0 | | | | | | | | |
| | **PUMPING PLANT** | | | | | | | | | | | | |
| 320 | Land and Land Rights | 370,387 | 176,375 | | 194,012 | | | | | | | | |
| 321 | Structures and Improvements | 6,634,719 | 3,159,390 | | 3,475,329 | | | | | | | | |
| 323 | Other Power Production Equipment | 0 | 0 | | 0 | | | | | | | | |
| 325 | Electric Pumping Equipment | 2,299,017 | 1,094,770 | | 1,204,247 | | | | | | | | |
| 326 | Diesel Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| 328 | Other Pumping Equipment | 201,872 | 96,130 | | 105,742 | | | | | | | | |
| | **WATER TREATMENT PLANT** | | | | | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 331 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 333 | Membrane Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 334 | Other Water Treatment Equipment | 887,443 | 422,592 | | 464,851 | | | | | | | | |

**ALLOCATION OF TOTAL PLANT**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 342 | Distribution Reservoirs and Standpipes | 4,242,092 | 754,942 | | | | | | 3,487,150 | | | | |
| 343 | Transmission mains | 15,958,758 | 7,599,409 | | 8,359,349 | | | | | | | | |
| 343 | Distribution mains | 13,021,934 | | 2,317,443 | | | | 10,704,491 | | | | | |
| 345 | Services | 5,196,488 | | | | | | | | | | 5,196,488 | |
| 346 | Meters | 767,208 | | | | | | | | | 767,208 | | |
| 348 | Hydrants | 3,841,899 | | | | | | | | | | | 3,841,899 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **GENERAL PLANT** | | | | | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Office Furniture and Equipment | 59,947 | 15,509 | 2,490 | 16,168 | 0 | 0 | 11,500 | 3,746 | 0 | 824 | 5,583 | 4,127 |
| 391 | Computer Equipment | 165,310 | 42,767 | 6,866 | 44,584 | 0 | 0 | 31,713 | 10,331 | 0 | 2,273 | 15,395 | 11,382 |
| 392 | Transportation Equipment | 385,234 | 99,664 | 15,999 | 103,897 | 0 | 0 | 73,903 | 24,075 | 0 | 5,297 | 35,876 | 26,524 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 396 | Power Operated Equipment | 175 | 45 | 7 | 47 | 0 | 0 | 34 | 11 | 0 | 2 | 16 | 12 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 397 | SCADA Equipment | 278,786 | 72,124 | 11,578 | 75,188 | 0 | 0 | 53,482 | 17,423 | 0 | 3,833 | 25,963 | 19,195 |
| 398 | Miscellaneous Equipment | 172,429 | 44,609 | 7,161 | 46,504 | 0 | 0 | 33,079 | 10,776 | 0 | 2,371 | 16,058 | 11,872 |
| | **TOTAL** | **56,861,382** | **14,710,556** | **2,361,545** | **15,335,371** | **0** | **0** | **10,908,200** | **3,553,511** | **0** | **781,808** | **5,295,379** | **3,915,011** |

**ALLOCATION OF DEPRECIATION EXPENSE**
**TO SERVICE COST FUNCTIONS**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **INTANGIBLE PLANT** | | | | | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 311 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | | 0 | | | | | | | | |
| 313 | Lake, River, and Other Intakes | 0 | 0 | | 0 | | | | | | | | |
| 314 | Wells and Springs | 9,854 | 4,692 | | 5,162 | | | | | | | | |
| 316 | Supply Mains | 3,179 | 1,514 | | 1,665 | | | | | | | | |
| 317 | Other Water Source Plant | 0 | 0 | | 0 | | | | | | | | |
| | **PUMPING PLANT** | | | | | | | | | | | | |
| 320 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 321 | Structures and Improvements | 69,980 | 33,324 | | 36,656 | | | | | | | | |
| 323 | Other Power Production Equipment | 0 | 0 | | 0 | | | | | | | | |
| 325 | Electric Pumping Equipment | 75,280 | 35,848 | | 39,432 | | | | | | | | |
| 326 | Diesel Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| 328 | Other Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| | **WATER TREATMENT PLANT** | | | | | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 331 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 333 | Membrane Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 334 | Other Water Treatment Equipment | 47,875 | 22,798 | | 25,077 | | | | | | | | |

**ALLOCATION OF DEPRECIATION EXPENSE**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 342 | Distribution Reservoirs and Standpipes | 33,441 | 5,951 | | | | | | 27,490 | | | | |
| 343 | Transmission mains | 32,231 | 15,348 | | 16,883 | | | | | | | | |
| 343 | Distribution mains | 0 | | 0 | | | | 0 | | | | | |
| 345 | Services | 23,296 | | | | | | | | | | 23,296 | |
| 346 | Meters | 42,196 | | | | | | | | | 42,196 | | |
| 348 | Hydrants | 14,024 | | | | | | | | | | | 14,024 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **GENERAL PLANT** | | | | | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Office Furniture and Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Computer Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 392 | Transportation Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 396 | Power Operated Equipment | 13 | 4 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 2 | 1 | 1 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 397 | SCADA Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 398 | Miscellaneous Equipment | 9,384 | 3,191 | 0 | 3,335 | 0 | 0 | 0 | 734 | 0 | 1,127 | 622 | 375 |
| | **TOTAL** | **360,753** | **122,670** | **0** | **128,215** | **0** | **0** | **0** | **28,225** | **0** | **43,325** | **23,919** | **14,399** |

## ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES
## TO SERVICE COST FUNCTIONS

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 600 | Operation labor | 23,700 | 11,286 | | 12,414 | | | | | | | | |
| 601 | Purchased water | 300 | 300 | | | | | | | | | | 0 |
| 602 | Operation supplies and expenses | 20,500 | 9,762 | | 10,738 | | | | | | | | |
| 605 | Maintenance of water source plant | 63,700 | 30,333 | | 33,367 | | | | | | | | |
| | **PUMPING EXPENSES** | | | | | | | | | | | | |
| 620 | Operation labor | 63,957 | 30,456 | | 33,501 | | | | | | | | |
| 621 | Fuel for power production | 0 | 0 | | | | | | | | | | |
| 622 | Fuel or power purchased for pumping | 260,000 | 260,000 | | | | | | | | | | |
| 623 | Operation supplies and expenses | 14,900 | 7,095 | | 7,805 | | | | | | | | |
| 625 | Maintenance of pumping plant | 25,000 | 11,905 | | 13,095 | | | | | | | | |
| | **WATER TREATMENT EXPENSES** | | | | | | | | | | | | |
| 630 | Operation labor | 12,953 | 6,168 | | 6,785 | | | | | | | | |
| 631 | Chemicals | 144,000 | 144,000 | | | | | | | | | | |
| 632 | Operation supplies and expenses | 82,000 | 39,048 | | 42,952 | | | | | | | | |
| 635 | Maintenance of water treatment plant | 26,300 | 12,524 | | 13,776 | | | | | | | | |
| | **TRANSMISSION & DISTRIBUTION EXPENSES** | | | | | | | | | | | | |
| 640 | Operation labor | 26,301 | 2,869 | 494 | 1,136 | 0 | 0 | 2,282 | 8,484 | 0 | 1,930 | 4,337 | 4,770 |
| 641 | Operation supplies and expenses | 20,900 | 2,280 | 393 | 902 | 0 | 0 | 1,813 | 6,742 | 0 | 1,533 | 3,446 | 3,791 |
| 650 | Maintenance of distr. reservoirs | 95,200 | 16,942 | | | | | | 78,258 | | | | |
| 651 | Maintenance of transmission mains | 19,999 | 9,523 | | 10,476 | | | | | | | | |
| 651 | Maintenance of distribution mains | 25,601 | | 4,556 | | | | 21,045 | | | | | |
| 652 | Maintenance of services | 40,000 | | | | | | | | | | 40,000 | |
| 653 | Maintenance of meters | 17,800 | | | | | | | | | 17,800 | | |
| 654 | Maintenance of hydrants | 44,000 | | | | | | | | | | | 44,000 |
| 655 | Maintenance of other plant | 3,000 | 327 | 56 | 130 | 0 | 0 | 260 | 968 | 0 | 220 | 495 | 544 |

**ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **CUSTOMER ACCOUNTS EXPENSES** | | | | | | | | | | | | |
| 901 | Meter reading labor | 4,250 | | | | | | | | 4,250 | | | |
| 902 | Accounting and collecting labor | 5,722 | | | | | | | | 5,722 | | | |
| 903 | Supplies and expenses | 20,000 | | | | | | | | 20,000 | | | |
| 904 | Uncollectible accounts | 100 | | | | | | | | 100 | | | |
| 906 | Customer service and informational expense | 0 | | | | | | | | 0 | | | |
| | **SALES EXPENSES** | | | | | | | | | | | | |
| 910 | Sales Expenses | 0 | | | | | | | | 0 | | | |
| | **ADMINISTRATIVE & GENERAL EXPENSES** | | | | | | | | | | | | |
| 920 | Administrative and general salaries | 198,539 | 59,302 | 1,712 | 58,231 | 0 | 0 | 7,906 | 29,400 | 3,744 | 6,687 | 15,027 | 16,530 |
| 921 | Office supplies and expenses | 15,600 | 4,660 | 134 | 4,575 | 0 | 0 | 621 | 2,310 | 294 | 525 | 1,181 | 1,299 |
| 922 | Administrative expenses transferred -- credit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 923 | Outside services employed | 84,250 | 25,165 | 726 | 24,710 | 0 | 0 | 3,355 | 12,476 | 1,589 | 2,838 | 6,377 | 7,014 |
| 924 | Property insurance | 25,639 | 6,633 | 1,065 | 6,915 | 0 | 0 | 4,919 | 1,602 | 0 | 353 | 2,388 | 1,765 |
| 925 | Injuries and damages | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 926 | Employee pensions and benefits | 200,000 | 59,739 | 1,724 | 58,660 | 0 | 0 | 7,964 | 29,616 | 3,772 | 6,736 | 15,138 | 16,651 |
| 928 | Regulatory commission expenses | 35,000 | 10,454 | 302 | 10,265 | 0 | 0 | 1,394 | 5,183 | 660 | 1,179 | 2,649 | 2,914 |
| 930 | Miscellaneous general expenses | 24,871 | 7,429 | 214 | 7,295 | 0 | 0 | 990 | 3,683 | 469 | 838 | 1,882 | 2,071 |
| 933 | Transportation expenses | 21,000 | 6,273 | 181 | 6,159 | 0 | 0 | 836 | 3,110 | 396 | 707 | 1,589 | 1,748 |
| 935 | Maintenance of general plant | 38,500 | 11,500 | 332 | 11,292 | 0 | 0 | 1,533 | 5,701 | 726 | 1,297 | 2,914 | 3,205 |
| | **TOTAL OPERATION & MAINTENANCE EXPENSES** | **1,703,582** | **785,972** | **11,889** | **375,180** | **0** | **0** | **54,918** | **187,532** | **41,722** | **42,643** | **97,422** | **106,303** |

## SUMMARY OF ALLOCATION OF OPERATING COSTS TO SERVICE COST FUNCTIONS

| | | | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | BASE COSTS | | MAX DAY | | MAX HOUR | | | | | | |
| OPERATING COST | TOTAL ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| OPERATION AND MAINTENANCE | 1,703,582 | 785,972 | 11,889 | 375,180 | 0 | 0 | 54,918 | 187,532 | 41,722 | 42,643 | 97,422 | 106,303 |
| DEPRECIATION EXPENSE | 360,753 | 122,670 | 0 | 128,215 | 0 | 0 | 0 | 28,225 | 0 | 43,325 | 23,919 | 14,399 |
| AMORTIZATION EXPENSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TAXES AND TAX EQUIVALENT | 597,914 | 154,686 | 24,832 | 161,256 | 0 | 0 | 114,703 | 37,366 | 0 | 8,221 | 55,682 | 41,167 |
| RETURN ON NET INVESTMENT RATE BASE | 545,736 | 188,080 | 0 | 191,194 | 0 | 0 | 0 | 65,898 | 0 | 34,943 | 36,587 | 29,034 |
| **TOTAL** | **3,207,985** | **1,251,407** | **36,722** | **855,846** | **0** | **0** | **169,621** | **319,021** | **41,722** | **129,131** | **213,611** | **190,904** |

## CUSTOMER CLASS DEMAND RATIOS

| CUSTOMER CLASS | Annual Volume 1,000 Mgal | BASE COSTS: Average Day Volume Gal | BASE COSTS: Percent (%) | BASE COSTS: System Adjusted Percent (%) | BASE COSTS: Distribution Adjusted Percent (%) | BASE COSTS: Extra Capacity Ratio | EXTRA-CAPACITY MAX DAY DEMAND: Volume Rate Gal Per Day | EXTRA-CAPACITY MAX DAY DEMAND: Percent (%) | EXTRA-CAPACITY MAX DAY DEMAND: System Adjusted Percent (%) | EXTRA-CAPACITY MAX DAY DEMAND: Distribution Adjusted Percent (%) | EXTRA-CAPACITY MAX DAY DEMAND: Extra Capacity Ratio | EXTRA-CAPACITY MAX HOUR DEMAND: Volume Rate Gal Per Hour | EXTRA-CAPACITY MAX HOUR DEMAND: Percent (%) | EXTRA-CAPACITY MAX HOUR DEMAND: System Adjusted Percent (%) | EXTRA-CAPACITY MAX HOUR DEMAND: Distribution Adjusted Percent (%) | EXTRA-CAPACITY MAX HOUR DEMAND: Storage Adjusted Percent (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 216,877 | 594,182 | 52.89% | 52.89% | 52.89% | 2.44 | 1,449,805 | 42.67% | 42.67% | 42.67% | 5.50 | 136,167 | 29.44% | 30.60% | 30.60% | 29.44% |
| **Multifamily Residential** | 51,097 | 139,991 | 12.46% | 12.46% | 12.46% | 2.13 | 298,181 | 8.78% | 8.78% | 8.78% | 4.80 | 27,998 | 6.05% | 6.29% | 6.29% | 6.05% |
| **Commercial** | 107,280 | 293,916 | 26.16% | 26.16% | 26.16% | 1.82 | 534,928 | 15.74% | 15.74% | 15.74% | 4.10 | 50,211 | 10.86% | 11.28% | 11.28% | 10.86% |
| **Industrial** | 28,900 | 79,178 | 7.05% | 7.05% | 7.05% | 1.88 | 148,855 | 4.38% | 4.38% | 4.38% | 2.20 | 7,258 | 1.57% | 1.63% | 1.63% | 1.57% |
| **Public Authority** | 1,833 | 5,022 | 0.45% | 0.45% | 0.45% | 1.20 | 6,026 | 0.18% | 0.18% | 0.18% | 4.03 | 843 | 0.18% | 0.19% | 0.19% | 0.18% |
| **Public Fire Protection** | 4,101 | 11,235 | 1.00% | 1.00% | 1.00% | | 960,000 | 28.25% | 28.25% | 28.25% | | 240,000 | 51.89% | 50.00% | 50.00% | 51.89% |
| **TOTALS** | **410,087** | **1,123,525** | **100%** | **100%** | **100%** | | **3,397,795** | **100%** | **100%** | **100%** | | **462,477** | **100%** | **100%** | **100%** | **100%** |
| | | | | | | | | | 50% | 50% | <-- Public Fire % Limits --> | | | 50% | 50% | 80% |

Maximum Day Demand = 3,550,085 (GAL/DAY) SUM OF GENERAL SERVICE AVERAGE AND MAXIMUM DAY EXTRA CAPACITY DEMAND

Maximum Hour Demand = 268,822 (GAL/HR) SUM OF GENERAL SERVICE AVERAGE AND MAXIMUM HOUR EXTRA CAPACITY DEMAND

1.36 = NON-COINCIDENT / COINCIDENT RATIO FOR MAX DAY

1.72 = NON-COINCIDENT / COINCIDENT RATIO FOR MAX HOUR

## CUSTOMER CLASS ALLOCATION FACTORS

### NUMBER OF METERS

| Meter size (inches): | 5/8 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | TOTAL METERS | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 0 | 3,679 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,705 | 88.1% |
| **Multifamily Residential** | 0 | 12 | 92 | 0 | 20 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 3.4% |
| **Commercial** | 0 | 65 | 97 | 0 | 72 | 49 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 296 | 7.0% |
| **Industrial** | 0 | 11 | 17 | 0 | 9 | 9 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 51 | 1.2% |
| **Public Authority** | 0 | 3 | 2 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12 | 0.3% |
| **TOTALS** | **0** | **3,770** | **234** | **0** | **105** | **77** | **0** | **15** | **4** | **0** | **0** | **0** | **0** | **4,205** | **100.0%** |

### EQUIVALENT METERS

| ALLOCATION FACTOR: Meter size (inches): / Equiv. meters ratio: | 5/8 1.0 | 3/4 1.0 | 1 2.5 | 1-1/4 3.7 | 1-1/2 5.0 | 2 8.0 | 2-1/2 12.5 | 3 15.0 | 4 25.0 | 6 50.0 | 8 80.0 | 10 120.0 | 12 160.0 | TOTAL EQUIV. METERS | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 0 | 3,679 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,744 | 64.3% |
| **Multifamily Residential** | 0 | 12 | 230 | 0 | 100 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 478 | 8.2% |
| **Commercial** | 0 | 65 | 243 | 0 | 360 | 392 | 0 | 150 | 75 | 0 | 0 | 0 | 0 | 1,285 | 22.1% |
| **Industrial** | 0 | 11 | 43 | 0 | 45 | 72 | 0 | 60 | 25 | 0 | 0 | 0 | 0 | 256 | 4.4% |
| **Public Authority** | 0 | 3 | 5 | 0 | 20 | 16 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 59 | 1.0% |
| **TOTALS** | **0** | **3,770** | **585** | **0** | **525** | **616** | **0** | **225** | **100** | **0** | **0** | **0** | **0** | **5,821** | **100.0%** |

### EQUIVALENT SERVICES

| ALLOCATION FACTOR: Meter size (inches): / Equiv. services ratio: | 5/8 1.0 | 3/4 1.0 | 1 1.3 | 1-1/4 1.7 | 1-1/2 2.0 | 2 3.0 | 2-1/2 3.5 | 3 4.0 | 4 5.0 | 6 6.0 | 8 7.0 | 10 8.0 | 12 9.0 | TOTAL EQUIV. SERVICES | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 0 | 3,679 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,713 | 80.8% |
| **Multifamily Residential** | 0 | 12 | 120 | 0 | 40 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 223 | 4.8% |
| **Commercial** | 0 | 65 | 126 | 0 | 144 | 147 | 0 | 40 | 15 | 0 | 0 | 0 | 0 | 537 | 11.7% |
| **Industrial** | 0 | 11 | 22 | 0 | 18 | 27 | 0 | 16 | 5 | 0 | 0 | 0 | 0 | 99 | 2.2% |
| **Public Authority** | 0 | 3 | 3 | 0 | 8 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 24 | 0.5% |
| **TOTALS** | **0** | **3,770** | **304** | **0** | **210** | **231** | **0** | **60** | **20** | **0** | **0** | **0** | **0** | **4,595** | **100.0%** |

## ALLOCATION OF SERVICE COST FUNCTIONS TO CUSTOMER CLASSES

| | TOTAL ($) | Residential ($) | Multifamily Residential ($) | Commercial ($) | Industrial ($) | Public Authority ($) | Public Fire Protection ($) |
|---|---|---|---|---|---|---|---|
| **BASE COSTS:** | | | | | | | |
| **SYSTEM** | 1,251,407 | 661,814 | 155,925 | 327,371 | 88,190 | 5,594 | 12,514 |
| **DISTRIBUTION** | 36,722 | 19,420 | 4,576 | 9,606 | 2,588 | 164 | 367 |
| **EXTRA-CAPACITY COSTS:** | | | | | | | |
| **MAXIMUM-DAY SYSTEM** | 855,846 | 365,181 | 75,107 | 134,739 | 37,494 | 1,518 | 241,807 |
| **MAXIMUM-DAY DISTRIBUTION** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **MAXIMUM-HOUR SYSTEM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **MAXIMUM-HOUR DISTRIBUTION** | 169,621 | 51,908 | 10,673 | 19,141 | 2,767 | 321 | 84,810 |
| **MAXIMUM-HOUR STORAGE** | 319,021 | 93,929 | 19,313 | 34,636 | 5,007 | 582 | 165,554 |
| **CUSTOMER COSTS:** | | | | | | | |
| **BILLING** | 41,722 | 36,761 | 1,399 | 2,937 | 506 | 119 | |
| **EQUIVALENT METERS** | 129,131 | 83,056 | 10,604 | 28,495 | 5,668 | 1,309 | |
| **EQUIVALENT SERVICES** | 213,611 | 172,592 | 10,348 | 24,967 | 4,607 | 1,097 | |
| **FIRE PROTECTION** | 190,904 | | | | | | 190,904 |
| **TOTAL COST** | 3,207,985 | 1,484,661 | 287,944 | 581,892 | 146,826 | 10,704 | 695,957 |
| **LESS OTHER REVENUE** | 103,534 | 14,886 | 2,579 | 5,212 | 1,315 | 96 | 79,446 |
| **COST OF SERVICE** | 3,104,451 | 1,469,775 | 285,365 | 576,680 | 145,511 | 10,608 | 616,511 |
| **REVENUE AT PRESENT RATES** | 2,675,029 | 1,159,680 | 209,940 | 451,088 | 116,575 | 9,446 | 728,300 |
| **DIFFERENCE** | 429,422 | 310,095 | 75,425 | 125,592 | 28,936 | 1,162 | (111,789) |
| **PERCENT INCREASE/DECREASE** | **16.05%** | **26.74%** | **35.93%** | **27.84%** | **24.82%** | **12.30%** | **-15.35%** |

# City of Pewaukee Water Utility - Step I
## Comparison of Revenue at
## Present Rates, Cost of Service, and Proposed Rates

| | | Cost of Service | | Proposed Rates | | |
|---|---|---|---|---|---|---|
| **Customer Class** | **Revenue at Present Rates** | **Revenue Required** | **Increase over Present Rates** | **Revenue** | **Increase over Present Rates** | **Percent of Cost of Service** |
| Residential | $1,159,680 | $1,469,775 | 26.74% | $1,476,012 | 27.28% | 100.42% |
| Multifamily Residential | $209,940 | $285,365 | 35.93% | $271,653 | 29.40% | 95.19% |
| Commercial | $451,088 | $576,680 | 27.84% | $581,218 | 28.85% | 100.79% |
| Industrial | $116,575 | $145,511 | 24.82% | $150,751 | 29.32% | 103.60% |
| Public Authority | $9,446 | $10,608 | 12.30% | $11,887 | 25.84% | 112.06% |
| Public Fire Protection | $728,300 | $616,511 | -15.35% | $616,511 | -15.35% | 100.00% |
| **Total** | $2,675,029 | $3,104,451 | 16.05% | $3,108,031 | 16.19% | 100.12% |

**City of Pewaukee Water Utility – Step I**

**Proposed Water Rates and Rules**

Docket 4625-WR-104

**City of Pewaukee Water Utility – Step I**

**Water Rate File Changes**

**Amended**

F-1
Upf-1
Mg-1
NSM-1
OC-1
Mpa-1
Ug-1
Sg-1
BW-1
R-1
Cz-1
X-1
X-2
X-3

**Deleted**

Am-1

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Public Fire Protection Service

Public fire protection service includes the use of hydrants for fire protection service only and such quantities of water as may be demanded for the purpose of extinguishing fires within the service area. This service shall also include water used for testing equipment and training personnel. For all other purposes, the metered or other rates set forth, or as may be filed with the Public Service Commission, shall apply.

Under Wis. Stat. § 196.03(3)(b), the municipality has chosen to have the utility bill the retail general service customers for public fire protection service. The municipality has also elected to make the charges in this schedule applicable to non-general service customer with private wells who own property that is located both within the municipal limits and in an area where the utility has an obligation to provide water for public fire protection.

Public Fire Protection Service Charges:

Quarterly: $0.04785 per thousand dollars of assessed valuation
Annually: $0.19138 per thousand dollars of assessed valuation

This rate is based on total assessed valuation of $3,221,315,000 and a total annual public fire protection charge of $616,511. The total assessed valuation included taxable parcels, tax exempt parcels, and non-general service customers with private wells.

Customers who are provided service under Schedules Mg-1, Ug-1, or Sg-1 shall also be subject to the charges in this schedule according to the size of their primary meter.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Private Fire Protection Service - Unmetered

This service shall consist of permanent or continuous unmetered connections to the main for the purpose of supplying water to private fire protection systems such as automatic sprinkler systems, standpipes, and private hydrants. This service shall also include reasonable quantities of water used for testing check valves and other backflow prevention devices.

Quarterly Private Fire Protection Service Demand Charges:

| | | |
|---|---|---|
| 2 - inch or smaller connection: | $ | 12.00 |
| 3 - inch connection: | $ | 22.50 |
| 4 - inch connection: | $ | 37.50 |
| 6 - inch connection: | $ | 75.00 |
| 8 - inch connection: | $ | 120.00 |
| 10 - inch connection: | $ | 180.00 |
| 12 - inch connection: | $ | 240.00 |
| 14 - inch connection: | $ | 300.00 |
| 16 - inch connection: | $ | 360.00 |

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## General Service - Metered

Quarterly Service Charges:

| | | | | | |
|---|---|---|---|---|---|
| ⅝ - inch meter: | $ | 30.00 | 3 - inch meter: | $ | 153.00 |
| ¾ - inch meter: | $ | 30.00 | 4 - inch meter: | $ | 228.00 |
| 1 - inch meter: | $ | 42.00 | 6 - inch meter: | $ | 381.00 |
| 1¼ - inch meter: | $ | 54.00 | 8 - inch meter: | $ | 570.00 |
| 1½ - inch meter: | $ | 69.00 | 10 - inch meter: | $ | 840.00 |
| 2 - inch meter: | $ | 96.00 | 12 - inch meter: | $ | 1,095.00 |

Plus Volume Charges:

All water used quarterly: $4.75 per 1,000 gallons

Billing: Bills for water service are rendered quarterly and become due and payable upon issuance following the period for which service is rendered. A late payment charge of 1 percent per month will be added to bills not paid within 20 days of issuance. This late payment charge will be applied to the total unpaid balance for utility service, including unpaid late payment charges. The late payment charge is applicable to all customers. The utility customer may be given a written notice that the bill is overdue no sooner than 20 days after the bill is issued. Unless payment or satisfactory arrangement for payment is made within the next 10 days, service may be disconnected pursuant to Wis. Adm. Code ch. PSC 185.

Combined Metering: Volumetric meter readings will be combined for billing if the utility for its own convenience places more than one meter on a single water service lateral. Multiple meters placed for the purpose of identifying water not discharged into the sanitary sewer are not considered for utility convenience and shall not be combined for billing. This requirement does not preclude the utility from combining readings when metering configurations support such an approach. Meter readings from individually metered separate service laterals shall not be combined for billing purposes.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Non-Standard Meter Service

The utility shall assess a charge of $15.00 per quarter to a customer who is provided service under Schedule Mg-1 and who requests a non-standard meter. The utility may only charge a customer one NSM charge for customers with both water and electric services.

If a customer establishes service at a new location on which a standard meter is installed, and the customer requests non-standard meter service, the utility shall assess the customer a one-time charge, based on actual utility costs, for the installation of a non-standard meter.

If a customer requests initial service at a location where a non-standard meter is installed, the utility may not assess a charge for installing a standard meter. The utility may not charge an existing customer who chooses to convert from a non-standard meter to a standard meter.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Other Charges

Payment Not Honored by Financial Institution Charge: The utility shall assess a $29.00 charge when a payment rendered for utility service is not honored by the customer's financial institution. This charge may not be in addition to, but may be inclusive of, other such charges when the payment was for multiple services.

Billing: Same as Schedule Mg-1.

## Public Service

Metered Service
Water used by the City of Pewaukee on an intermittent basis for flushing sewers, street washing, flooding skating rinks, drinking fountains, etc., shall be metered and billed according to the rates set forth in Schedule Mg-1.

Unmetered Service
Where it is impossible to meter the service, the utility shall estimate the volume of water used based on the pressure, size of opening, and the period of time the water is used. The estimated quantity shall be billed at the volumetric rates set forth in Schedule Mg-1, excluding any service charges.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## General Water Service - Unmetered

Service may be supplied temporarily on an unmetered basis where the utility cannot immediately install a water meter, including water used for construction. Unmetered service shall be billed the amount that would be charged to a metered residential customer using 15,000 gallons of water quarterly under Schedule Mg-1, including the service charge for a ⅝-inch meter. If the utility determines that actual usage exceeds 15,000 gallons of water quarterly, an additional charge for the estimated excess usage shall be made according to the rates under Schedule Mg-1.

This schedule applies only to customers with a 1-inch or smaller service connection. For customers with a larger service connection, the utility shall install a temporary meter and charges shall be based on the rates set forth under Schedule Mg-1.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Seasonal Service

Seasonal customers are general service customers who voluntarily request disconnection of water service and who resume service at the same location within 12 months of the disconnection, unless service has been provided to another customer at that location in the intervening period. The utility shall bill seasonal customers the applicable service charges under Schedule Mg-1 year-round, including the period of temporary disconnection.

Seasonal service shall include customers taking service under Schedule Mg-1, Schedule Ug-1, or Schedule Am-1.

Upon reconnection, the utility shall apply a charge under Schedule R-1 and require payment of any unpaid charges under this schedule.

Billing: Same as Schedule Mg-1, unless the utility and customer agree to an alternative payment schedule for the period of voluntary disconnection.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

# Bulk Water

All bulk water supplied from the water system through hydrants or other connections shall be metered or estimated by the utility. Utility personnel or a party approved by the utility shall supervise the delivery of water.

Bulk water sales are:

A. Water supplied by tank trucks or from hydrants for the purpose of extinguishing fires outside the utility's service area;

B. Water supplied by tank trucks or from hydrants for purposes other than extinguishing fires, such as water used for irrigation or filling swimming pools; or,

C. Water supplied from hydrants or other temporary connections for general service type applications, except that Schedule Ug-1 applies for water supplied for construction purposes.

A service charge of $30.00 and a charge for the volume of water used shall be billed to the party using the water. The volumetric charge shall be calculated using the highest volumetric rate for residential customers under Schedule Mg-1. In addition, for meters that are assigned to bulk water customers for more than 7 days, the applicable service charge in Schedule Mg-1 will apply after the first 7 days.

The water utility may require a reasonable deposit for the temporary use of its equipment under this and other rate schedules. The deposit(s) collected shall be refunded upon return of the utility's equipment. Damaged or lost equipment shall be repaired or replaced at the customer's expense.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Reconnection Charges

The utility shall assess a charge to reconnect a customer, which includes reinstalling a meter and turning on the valve at the curb stop, if necessary. A utility may not assess a charge for disconnecting a customer.

| | |
|---|---|
| During normal business hours: | $30.00 |
| After normal business hours: | $60.00 |

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Water Lateral Installation Charge

The utility shall charge a customer for the actual cost of installing a water service lateral from the main through curb stop and box if these costs are not contributed as part of a subdivision development or otherwise recovered under Wis. Stats. Chapter 66.

Billing: Same as Schedule Mg-1.

# Water Utility Operating Rules

Compliance with Rules

All persons now receiving water service from this water utility, or who may request service in the future, shall be considered as having agreed to be bound by the rules and regulations as filed with the Public Service Commission of Wisconsin.

Establishment of Service

Application for water service may be made in writing on a form furnished by the water utility. The application will contain the legal description of the property to be served, the name of the owner, the exact use to be made of the service, and the size of the service lateral and meter desired. Note particularly any special refrigeration, fire protection, or water-consuming air-conditioning equipment.

Service will be furnished only if (1) the premises have a frontage on a properly platted street or public strip in which a cast iron or other long-life water main has been laid, or where the property owner has agreed to and complied with the provisions of the water utility's filed main extension rule, (2) the property owner has installed or agrees to install a service lateral from the curb stop to the point of use that is not less than 6 feet below the surface of an established or proposed grade and meets the water utility's specifications, and (3) the premises have adequate piping beyond the metering point.

The owner of a multi-unit dwelling has the option of being served by individual metered water service to each unit. The owner, by selecting this option, is required to provide interior plumbing and meter settings to enable individual metered service to each unit and individual disconnection without affecting service to other units. Each meter and meter connection will be treated as a separate water utility account for the purpose of the filed rules and regulations.

No division of the water service lateral to any lot or parcel of land shall be made for the extension and independent metering of the supply to an adjoining lot or parcel of land. Except for duplexes, no division of a water service lateral shall be made at the curb for separate supplies for two or more separate premises having frontage on any street or public service strip, whether owned by the same or different parties. Duplexes may be served by one lateral provided (1) individual metered service and disconnection is provided and (2) it is permitted by local ordinance.

Buildings used in the same business, located on the same parcel, and served by a single lateral may have the customer’s water supply piping installed to a central point so that volume can be metered in one place.

The water utility may withhold approval of any application where full information of the purpose of such supply is not clearly indicated and set forth by the applicant property owner.

## Water Utility Operating Rules

Reconnection of Service

Where the water utility has disconnected service at the customer's request, a reconnection charge shall be made when the customer requests reconnection of service. See Schedule R-1 for the applicable rate.

A reconnection charge shall also be required from customers whose services are disconnected (shut off at curb stop box) because of nonpayment of bills when due. See Schedule R-1 for the applicable rate.

If reconnection is requested for the same location by any member of the same household, or, if a place of business, by any partner of the same business, it shall be considered as the same customer.

Temporary Metered Service, Meter, and Deposits

An applicant for temporary water service on a metered basis shall make and maintain a monetary deposit for each meter installed as security for payment for use of water and for such other charges which may arise from the use of the supply. A charge shall be made for setting the valve and furnishing and setting the meter. See Schedule BW-1 for the applicable rate.

Water for Construction

When water is requested for construction purposes or for filling tanks or other such uses, an application shall be made to the water utility, in writing, giving a statement of the amount of construction work to be done or the size of the tank to be filled, etc. Payment for the water for construction may be required in advance at the scheduled rates. The service lateral must be installed into the building before water can be used. No connection with the service lateral at the curb shall be made without special permission from the water utility. In no case will any employee of the water utility turn on water for construction work unless the contractor has obtained permission from the water utility.

Customers shall not allow contractors, masons, or other persons to take unmetered water from their premises without permission from the water utility. Any customer failing to comply with this provision may have water service discontinued and will be responsible for the cost of the estimated volume of water used.

## Water Utility Operating Rules

Use of Hydrants

In cases where no other supply is available, permission may be granted by the water utility to use a hydrant. No hydrant shall be used until the proper meter and valve are installed. In no case shall any valve be installed or moved except by an employee of the water utility.

Before a valve is set, payment must be made for its setting and for the water to be used at the scheduled rates. Where applicable, see Schedule BW-1 for deposits and charges. Upon completing the use of the hydrant, the customer must notify the water utility to that effect.

Operation of Valves and Hydrants and Unauthorized Use of Water - Penalty

Any person who shall, without authority of the water utility, allow contractors, masons, or other unauthorized persons to take water from their premises, operate any valve connected with the street or supply mains, or open any fire hydrant connected with the distribution system, except for the purpose of extinguishing fire, or who shall wantonly damage or impair the same, shall be subject to a fine as provided by municipal ordinance. Utility permission for the use of hydrants applies only to such hydrants that are designated for the specific use.

Refunds of Monetary Deposits

All money deposited as security for payment of charges arising from the use of temporary water service on a metered basis, or for the return of a hydrant valve and fixtures if the water is used on an unmetered basis, will be refunded to the depositor on the termination of the use of water, the payment of all charges levied against the depositor, and the return of the water utility's equipment.

Service Laterals

No water service lateral shall be laid through any trench having cinders, rubbish, rock or gravel fill, or any other material which may cause injury to or disintegration of the service lateral, unless adequate means of protection are provided by sand filling or such other insulation as may be approved by the water utility. Service laterals passing through curb or retaining walls shall be adequately safeguarded by provision of a channel space or pipe casing not less than twice the diameter of the service connection. The space between the service lateral and the channel or pipe casing shall be filled and lightly caulked with an oakum, mastic cement, or other resilient material and made impervious to moisture.

In backfilling the pipe trench, the service lateral must be protected against injury by carefully hand tamping the ground filling around the pipe. There should be at least 6 inches of ground filling over the pipe, and it should be free from hard lumps, rocks, stones, or other injurious material.

## Water Utility Operating Rules

Service Laterals (continued)

All water service laterals shall be of undiminished size from the street main into the point of meter placement. Beyond the meter outlet valve, the piping shall be sized and proportioned to provide, on all floors, at all times, an equitable distribution of the water supply for the greatest probable number of fixtures or appliances operating simultaneously.

Replacement and Repair of Service Laterals

The service lateral from the main to and through the curb stop will be maintained and kept in repair and, when worn out, replaced at the expense of the water utility. The property owner shall maintain the service lateral from the curb stop to the point of use.

If an owner fails to repair a leaking or broken service lateral from the curb to the point of metering or use within such time as may appear reasonable to the water utility after notification has been served on the owner by the water utility, the water will be shut off and will not be turned on again until the repairs have been completed.

Abandonment of Service

If a property owner changes the use of a property currently receiving water service such that water service will no longer be needed in the future, the water utility may require the abandonment of the water service at the water main. In such case, the property owner may be responsible for all removal and/or repair costs, including the water main and the utility portion of the water service lateral.

Charges for Water Wasted Due to Leaks

See Wis. Admin. Code § PSC 185.35 or Schedule X-4, if applicable.

Thawing Frozen Service Laterals

See Wis. Admin. Code § PSC 185.88 or Schedule X-4, if applicable.

Curb Stop Boxes

The curb stop box is the property of the water utility. The water utility is responsible for its repair and maintenance. This includes maintaining, through adjustment, the curb stop box at an appropriate grade level where no direct action by the property owner or occupant has contributed to an elevation problem. The property owner is responsible for protecting the curb stop box from situations that could obstruct access to it or unduly expose it to harm. The water utility shall not be liable for failure to locate the curb stop box and shut off the water in case of a leak on the owner's premises.

## Water Utility Operating Rules

Installation of Meters

Meters will be owned, furnished, and installed by the water utility or a utility-approved contractor and are not to be disconnected or tampered with by the customer. All meters shall be so located that they shall be protected from obstructions and permit ready access for reading, inspection, and servicing, such location to be designated or approved by the water utility. All piping within the building must be supplied by the owner. Where additional meters are desired by the owner, the owner shall pay for all piping. Where applicable, see Schedule Am-1 for rates.

Repairs to Meters

Meters will be repaired by the water utility, and the cost of such repairs caused by ordinary wear and tear will be borne by the water utility.

Repair of any damage to a meter resulting from the carelessness of the owner of the premises, owner's agent, or tenant, or from the negligence of any one of them to properly secure and protect same, including any damage that may result from allowing a water meter to become frozen or to be damaged from the presence of hot water or steam in the meter, shall be paid for by the customer or the owner of the premises.

Service Piping for Meter Settings

Where the original service piping is installed for a new metered customer, where existing service piping is changed for the customer's convenience, or where a new meter is installed for an existing unmetered customer, the owner of the premises at his/her expense shall provide a suitable location and the proper connections for the meter. The meter setting and associated plumbing shall comply with the water utility's standards. The water utility should be consulted as to the type and size of the meter setting.

Turning on Water

The water may only be turned on for a customer by an authorized employee of the water utility. Plumbers may turn the water on to test their work, but upon completion must leave the water turned off.

Sprinkling Restrictions and Emergency Water Conditions

Where the municipality has a policy regarding sprinkling restrictions and/or emergency water conditions, failure to comply with such may result in disconnection of service.

See Wis. Admin. Code § PSC 185.37.

## Water Utility Operating Rules

Failure to Read Meters

Where the water utility is unable to read a meter, the fact will be plainly indicated on the bill, and either an estimated bill will be computed or the minimum charge applied. The difference shall be adjusted when the meter is again read, that is, the bill for the succeeding billing period will be computed with the gallons or cubic feet in each block of the rate schedule doubled, and credit will be given on that bill for the amount of the bill paid the preceding period. Only in unusual cases shall more than three consecutive estimated or minimum bills be rendered.

If the meter is damaged (see Surreptitious Use of Water) or fails to operate, the bill will be based on the average use during the past year, unless there is some reason why the use is not normal. If the average use cannot be properly determined, the bill will be estimated by some equitable method.

See Wis. Admin. Code § PSC 185.33.

Complaint Meter Tests

See Wis. Admin. Code § PSC 185.77.

Inspection of Premises

During reasonable hours, any officer or authorized employee of the water utility shall have the right of access to the premises supplied with service for the purpose of inspection or for the enforcement of the water utility's rules and regulations. Whenever appropriate, the water utility will make a systematic inspection of all unmetered water taps for the purpose of checking waste and unnecessary use of water.

See Wis. Stat. § 196.171.

Vacation of Premises

When premises are to be vacated, the water utility shall be notified, in writing, at once, so that it may remove the meter and shut off the water supply at the curb stop. The owner of the premises shall be liable for prosecution for any damage to the water utility's property. See "Abandonment of Service" in Schedule X-1 for further information.

Deposits for Residential Service

See Wis. Admin. Code § PSC 185.36.

## Water Utility Operating Rules

Deposits for Nonresidential Service

See Wis. Admin. Code § PSC 185.361.

Deferred Payment Agreement

See Wis. Admin. Code § PSC 185.38 or Schedule X-4, if applicable.

Dispute Procedures

See Wis. Admin. Code § PSC 185.39.

Disconnection and Refusal of Service

See Wis. Admin. Code § PSC 185.37.

The following is an example of a disconnection notice that the utility may use to provide the required notice to customers.

DISCONNECTION NOTICE

Dear Customer:

The bill enclosed with this notice includes your current charge for water utility service and your previous unpaid balance.

You have 10 days to pay the water utility service arrears or your service is subject to disconnection.

If you fail to pay the service arrears or fail to contact us within the 10 days allowed to make reasonable deferred payment arrangement or other suitable arrangement, we will proceed with disconnection action.

To avoid the inconvenience of service interruption and an additional charge of (amount) for reconnection, we urge you to pay the full arrears IMMEDIATELY AT ONE OF OUR OFFICES.

If you have entered into a Deferred Payment Agreement with us and have failed to make the deferred payments you agreed to, your service will be subject to disconnection unless you pay the entire amount due within 10 days.

If you have a reason for delaying the payment, call us and explain the situation.

## Water Utility Operating Rules

Disconnection and Refusal of Service (continued)

DISCONNECTION NOTICE (continued)

PLEASE CALL THIS TELEPHONE NUMBER, (telephone number), IMMEDIATELY IF:

1. You dispute the notice of delinquent account.
2. You have a question about your water utility service arrears.
3. You are unable to pay the full amount of the bill and are willing to enter into a deferred payment agreement with us.
4. There are any circumstances you think should be taken into consideration before service is discontinued.
5. Any resident is seriously ill.

Illness Provision: If there is an existing medical emergency in your home and you furnish the water utility with a statement signed by either a licensed Wisconsin physician or a public health official, we will delay disconnection of service up to 21 days. The statement must identify the medical emergency and specify the period of time during which disconnection will aggravate the existing emergency.

Deferred Payment Agreements: If you are a residential customer and you are unable to pay the full amount of the water utility service arrears on your bill, you may contact the water utility to discuss arrangements to pay the arrears over an extended period of time.

This time payment agreement will require:

1. Payment of a reasonable amount at the time the agreement is made.
2. Payment of the remainder of the outstanding balance in monthly installments over a reasonable length of time.
3. Payment of all future water utility service bills in full by the due date.

In any situation where you are unable to resolve billing disputes or disputes about the grounds for proposed disconnection through contacts with our water utility, you may make an appeal to the Public Service Commission of Wisconsin by calling (800) 225-7729.

(WATER UTILITY NAME)

## Water Utility Operating Rules

Collection of Overdue Bills

An amount owed by the customer may be levied as a tax as provided in Wis. Stat. § 66.0809.

Surreptitious Use of Water

When the water utility has reasonable evidence that a person is obtaining water, in whole or in part, by means of devices or methods used to stop or interfere with the proper metering of the water utility service being delivered, the water utility reserves the right to estimate and present immediately a bill for unmetered service as a result of such interference, and such bill shall be payable subject to a 24-hour disconnection of service. If the water utility disconnects the service for any such reason, the water utility will reconnect the service upon the following conditions:

A. The customer will be required to deposit with the water utility an amount sufficient to guarantee the payment of the bills for water utility service.

B. The customer will be required to pay the water utility for any and all damages to water utility equipment resulting from such interference with the metering.

C. The customer must further agree to comply with reasonable requirements to protect the water utility against further losses.

See Wis. Stat. §§ 98.26 and 943.20.

Repairs to Mains

The water utility reserves the right to shut off the water supply in the mains temporarily to make repairs, alterations, or additions to the plant or system. When the circumstances will permit, the water utility will give notification, by newspaper publication or otherwise, of the discontinuance of the water supply. No credit will be allowed to customers for such temporary suspension of the water supply.

See Wis. Admin. Code § PSC 185.87.

Duty of Water Utility with Respect to Safety of the Public

It shall be the duty of the water utility to see that all open ditches for water mains, hydrants, and service laterals are properly guarded to prevent accident to any person or vehicle, and at night there shall be displayed proper signal lighting to ensure the safety of the public.

## Water Utility Operating Rules

Handling Water Mains and Service Laterals in Excavation Trenches

Contractors must call Digger's Hotline and ensure a location is done to establish the existence and location of all water mains and service laterals as provided in Wis. Stat. § 182.0175. Where water mains or service laterals have been removed, cut, or damaged during trench excavation, the contractors must, at their own expense, cause them to be replaced or repaired at once. Contractors must not shut off the water service laterals to any customer for a period exceeding 6 hours.

Protective Devices

A. Protective Devices in General: The owner or occupant of every premise receiving water supply shall apply and maintain suitable means of protection of the premise supply and all appliances against damage arising in any manner from the use of the water supply, variation of water pressure, or any interruption of water supply. Particularly, such owner or occupant must protect water-cooled compressors for refrigeration systems by means of high and/or low pressure safety cutout devices. There shall likewise be provided means for the prevention of the transmission of water ram or noise of operation of any valve or appliance through the piping of their own or adjacent premises.

B. Relief Valves: On all "closed systems" (i.e., systems having a check valve, pressure regulator, reducing valve, water filter, or softener), an effective pressure relief valve shall be installed at or near the top of the hot water tank or at the hot water distribution pipe connection to the tank. No stop valve shall be placed between the hot water tank and the relief valve or on the drain pipe. See applicable plumbing codes.

C. Air Chambers: An air chamber or approved shock absorber shall be installed at the terminus of each riser, fixture branch, or hydraulic elevator main for the prevention of undue water hammer. The air chamber shall be sized in conformance with local plumbing codes. Where possible, the air chamber should be provided at its base with a valve for water drainage and replenishment of air.

Cross-Connections

Every person owning or occupying a premise receiving municipal water supply shall maintain such municipal water supply free from any connection, either of a direct or of an indirect nature, with a water supply from a foreign source or of any manner of connection with any fixture or appliance whereby water from a foreign supply or the waste from any fixture, appliance, or waste or soil pipe may flow or be siphoned or pumped into the piping of the municipal water system.

See Wis. Admin. Code § NR 811.06.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Water Main Extension Rule

Water mains will be extended for new customers on the following basis:

A. Where the cost of the extension is to immediately be collected through assessment by the municipality against the abutting property, the procedure set forth under Wis. Stat. § 66.0703 will apply, and no additional customer contribution to the utility will be required.

B. Where the municipality is unwilling or unable to make a special assessment, the extension will be made on a customer-financed basis as follows:

1. The applicant(s) will advance as a contribution in aid of construction the total amount equivalent to that which would have been assessed for all property under paragraph A.

2. Part of the contribution required in paragraph B.1. will be refundable. When additional customers are connected to the extended main within 10 years of the date of completion, contributions in aid of construction will be collected equal to the amount which would have been assessed under paragraph A. for the abutting property being served. This amount will be refunded to the original contributor(s). In no case will the contributions received from additional customers exceed the proportionate amount which would have been required under paragraph A., nor will it exceed the total assessable cost of the original extension.

C. When a customer connects to a transmission main or connecting loop installed at utility expense within 10 years of the date of completion, there will be a contribution required of an amount equivalent to that which would have been assessed under paragraph A.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Water Main Installations in Platted Subdivisions

Application for installation of water mains in regularly platted real estate development subdivisions shall be filed with the utility.

If the developer, or a contractor employed by the developer, is to install the water mains (with the approval of the utility), the developer shall be responsible for the total cost of construction.

If the utility or its contractor is to install the water mains, the developer shall be required to advance to the utility, prior to the beginning of the construction, the total estimated cost of the extension. If the final costs exceed estimated costs, an additional billing will be made for the balance of the cost due. This balance is to be paid within 30 days. If final costs are less than estimated, a refund of the overpayment will be made by the water utility.

# City of Pewaukee Water Utility - Step I

## Customer Water Bill Comparison at Present and Proposed Step I Rates

| | | | Quarterly | | |
|---|---|---|---|---|---|
| **Customer Type** | **Meter Size** | **Volume (1000 Gallons)** | **Bills at Current Rates** | **Bills at Step I Rates** | **Percent Change** |
| Small Residential | 3/4" | 8 | $ 54.16 | $ 68.00 | 25.55% |
| Average Residential | 3/4" | 15 | $ 79.50 | $ 101.25 | 27.36% |
| Large Residential | 3/4" | 30 | $ 133.80 | $ 172.50 | 28.92% |
| Large Residential | 3/4" | 60 | $ 242.40 | $ 315.00 | 29.95% |
| Large Residential | 3/4" | 120 | $ 459.60 | $ 600.00 | 30.55% |
| Multifamily Residential | 2" | 330 | $ 1,278.60 | $ 1,663.50 | 30.10% |
| Multifamily Residential | 2" | 530 | $ 2,002.60 | $ 2,613.50 | 30.51% |
| Multifamily Residential | 2" | 730 | $ 2,726.60 | $ 3,563.50 | 30.69% |
| Multifamily Residential | 2" | 930 | $ 3,450.60 | $ 4,513.50 | 30.80% |
| Commercial | 3" | 2,500 | $ 9,197.00 | $ 12,028.00 | 30.78% |
| Commercial | 3" | 3,000 | $ 11,007.00 | $ 14,403.00 | 30.85% |
| Commercial | 4" | 2,100 | $ 7,818.00 | $ 10,203.00 | 30.51% |
| Commercial | 4" | 3,300 | $ 12,162.00 | $ 15,903.00 | 30.76% |
| Industrial | 2" | 1,000 | $ 3,704.00 | $ 4,846.00 | 30.83% |
| Industrial | 2" | 1,400 | $ 5,152.00 | $ 6,746.00 | 30.94% |
| Industrial | 3" | 1,200 | $ 4,491.00 | $ 5,853.00 | 30.33% |
| Industrial | 3" | 3,295 | $ 12,074.90 | $ 15,804.25 | 30.89% |
| Public Authority | 1 1/2" | 140 | $ 566.80 | $ 734.00 | 29.50% |
| Public Authority | 1 1/2" | 210 | $ 820.20 | $ 1,066.50 | 30.03% |
| Public Authority | 1 1/2" | 280 | $ 1,073.60 | $ 1,399.00 | 30.31% |
| Public Authority | 3" | 870 | $ 3,296.40 | $ 4,285.50 | 30.01% |

**Ex.-PSC-COSS and Rate Design**

**City of Pewaukee Water Utility - Step II**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## COMPARATIVE INCOME STATEMENT

| ACCT NO. | OPERATING REVENUES | 2019 | 2020 | 2021 | 2022 | TEST YEAR 2023 |
|---|---|---|---|---|---|---|
| 460 | Unmetered Sales to General Customers | | | | | |
| | Residential | $ 123,060 | $ 1,058 | $ 1,764 | $ 1,411 | $ 1,588 |
| | Multi-Family Residential | 0 | 0 | 0 | 0 | 0 |
| | Commercial | 59,231 | 0 | 60 | 0 | 0 |
| | Industrial | 0 | 0 | 60 | 0 | 0 |
| | Public Authority | 0 | 0 | 0 | 0 | 0 |
| | Irrigation | 0 | 0 | 0 | 0 | 0 |
| 461 | Metered Sales to General Customers | | | | | |
| | Residential | 776,215 | 1,039,272 | 1,188,039 | 1,153,765 | 1,159,680 |
| | Multi-Family Residential | 163,974 | 179,663 | 205,120 | 214,158 | 209,940 |
| | Commercial | 352,507 | 396,688 | 460,817 | 432,538 | 451,088 |
| | Industrial | 87,436 | 85,532 | 121,618 | 203,100 | 116,575 |
| | Public Authority | 3,755 | 5,080 | 10,366 | 11,173 | 9,446 |
| | Irrigation | 0 | 0 | 0 | 0 | 0 |
| | **TOTAL GENERAL SALES** | $ 1,566,178 | $ 1,707,293 | $ 1,987,844 | $ 2,016,145 | $ 1,948,317 |
| 462 | Private fire protection service | 74,871 | 75,229 | 75,739 | 77,593 | 79,446 |
| 463 | Public fire protection service | 442,024 | 471,542 | 559,053 | 701,409 | 728,300 |
| 465 | Other water sales | 0 | 0 | 0 | 0 | 0 |
| 466 | Sales for resale | 0 | 0 | 0 | 0 | 0 |
| 467 | Interdepartmental sales | 0 | 0 | 0 | 0 | 0 |
| 470 | Forfeited discounts | 7,797 | 4,056 | 9,465 | 8,000 | 8,500 |
| 472 | Rents from water property | 0 | 0 | 0 | 0 | 0 |
| 473 | Interdepartmental rents | 0 | 0 | 0 | 0 | 0 |
| 474 | Other water revenues | 13,790 | 21,762 | 22,806 | 14,000 | 14,000 |
| | **TOTAL OPERATING REVENUES** | $ 2,104,660 | $ 2,279,882 | $ 2,654,907 | $ 2,817,147 | $ 2,778,563 |
| | **OPERATING EXPENSES** | | | | | |
| | **SOURCE OF SUPPLY** | | | | | |
| 600 | Operation labor | $ 18,067 | $ 19,201 | $ 20,760 | $ 23,500 | $ 23,700 |
| 601 | Purchased water | 0 | 0 | 0 | 300 | 300 |
| 602 | Operation supplies and expenses | 12,465 | 29,765 | 21,212 | 30,850 | 20,500 |
| 605 | Maintenance of water source plant | 136,966 | 1,744 | 40,019 | 75,000 | 63,700 |
| | **PUMPING EXPENSES** | | | | | |
| 620 | Operation labor | 52,639 | 42,268 | 47,954 | 51,700 | 63,957 |
| 621 | Fuel for power production | 0 | 0 | 0 | 0 | 0 |
| 622 | Fuel or power purchased for pumping | 226,160 | 235,433 | 236,574 | 248,000 | 260,000 |
| 623 | Operation supplies and expenses | 16,197 | 11,162 | 9,776 | 16,750 | 14,900 |
| 625 | Maintenance of pumping plant | 9,275 | 43,604 | 13,262 | 85,000 | 25,000 |

## COMPARATIVE INCOME STATEMENT
## (continued)

| ACCT NO. | OPERATING EXPENSES | 2019 | 2020 | 2021 | 2022 | TEST YEAR 2023 |
|---|---|---|---|---|---|---|
| | **WATER TREATMENT EXPENSES** | | | | | |
| 630 | Operation labor | $ 16,318 | $ 12,909 | $ 9,712 | $ 15,780 | $ 12,953 |
| 631 | Chemicals | 119,700 | 129,541 | 127,668 | 136,000 | 144,000 |
| 632 | Operation supplies and expenses | 11,706 | 11,083 | 9,572 | 16,000 | 82,000 |
| 635 | Maintenance of water treatment plant | 12,427 | 14,983 | 24,013 | $ 16,500 | 26,300 |
| | **TRANSMISSION & DISTRIBUTION EXPENSES** | | | | | |
| 640 | Operation labor | 24,054 | 21,181 | 19,720 | 26,000 | 26,301 |
| 641 | Operation supplies and expenses | 13,913 | 14,393 | 14,668 | 19,300 | 20,900 |
| 650 | Maintenance of distr. reservoirs | 12,124 | 11,504 | 6,874 | 40,000 | 95,200 |
| 651 | Maintenance of mains | 24,192 | 68,882 | 52,527 | 80,000 | 45,600 |
| 652 | Maintenance of services | 16,521 | 41,913 | 20,422 | 35,000 | 40,000 |
| 653 | Maintenance of meters | 16,253 | 13,497 | 21,642 | 20,000 | 17,800 |
| 654 | Maintenance of hydrants | 29,111 | 44,179 | 32,589 | 85,000 | 44,000 |
| 655 | Maintenance of other plant | 6,190 | 1,843 | 0 | 2,500 | 3,000 |
| | **CUSTOMER ACCOUNTS EXPENSES** | | | | | |
| 901 | Meter reading labor | 4,743 | 4,622 | 4,289 | 4,000 | 4,250 |
| 902 | Accounting and collecting labor | 1,016 | 17,845 | 0 | 5,650 | 5,722 |
| 903 | Supplies and expenses | 19,467 | 30,526 | 28,374 | 20,000 | 20,000 |
| 904 | Uncollectible accounts | 0 | 0 | 0 | 25 | 100 |
| 906 | Customer service and informational expense | 2,055 | 0 | 0 | 1,000 | 0 |
| | **SALES EXPENSES** | | | | | |
| 910 | Sales Expenses | 0 | 0 | 0 | 0 | 0 |
| | **ADMINISTRATIVE & GENERAL EXPENSES** | | | | | |
| 920 | Administrative and general salaries | 104,246 | 107,099 | 122,401 | 118,443 | 198,539 |
| 921 | Office supplies and expenses | 5,014 | 7,269 | 7,139 | 18,075 | 15,600 |
| 922 | Administrative expenses transferred -- credit | 0 | 0 | 0 | 0 | 0 |
| 923 | Outside services employed | 61,080 | 74,930 | 111,772 | 84,250 | 84,250 |
| 924 | Property insurance | 16,447 | 16,598 | 17,417 | 22,960 | 25,639 |
| 925 | Injuries and damages | 0 | 0 | 0 | 0 | 0 |
| 926 | Employee pensions and benefits | 156,300 | 138,939 | 126,160 | 219,732 | 200,000 |
| 928 | Regulatory commission expenses | 39,229 | 17,631 | 992 | 25,000 | 35,000 |
| 930 | Miscellaneous general expenses | 20,572 | 22,540 | 22,468 | 24,900 | 24,871 |
| 933 | Transportation expenses | 14,546 | 12,468 | 16,920 | 14,365 | 21,000 |
| 935 | Maintenance of general plant | 30,700 | 37,226 | 34,023 | 35,600 | 38,500 |
| | **TOTAL OPER. & MAINT. EXPENSES** | $ 1,249,693 | $ 1,256,778 | $ 1,220,919 | $ 1,617,180 | $ 1,703,582 |
| 403 | **DEPRECIATION EXPENSE** | 343,335 | 505,500 | 464,335 | 440,015 | 410,042 |
| 404-407 | **AMORTIZATION EXPENSE** | 138,880 | 78,112 | 78,112 | 0 | 0 |
| 408 | **TAXES AND TAX EQUIVALENT** | 609,974 | 598,062 | 580,459 | 586,671 | 640,862 |
| | **TOTAL OPERATING EXPENSES** | $ 2,341,882 | $ 2,438,452 | $ 2,343,825 | $ 2,643,866 | $ 2,754,486 |
| | **NET OPERATING INCOME** | **$ (237,222)** | **$ (158,570)** | **$ 311,082** | **$ 173,281** | **$ 24,077** |

## NET INVESTMENT RATE BASE

| | | |
|---|---|---|
| **UTILITY FINANCED PLANT IN SERVICE** | $ | 17,084,860 |
| **Less: ACCUMULATED PROVISION FOR DEPRECIATION** | | 4,295,103 |
| **NET PLANT IN SERVICE** | $ | 12,789,757 |
| **Plus: MATERIALS AND SUPPLIES** | | 9,824 |
| **Less: REGULATORY LIABILITY** | | 68,565 |
| **NET INVESTMENT RATE BASE** | $ | 12,731,016 |
| **RATE OF RETURN ON RATE BASE** | | 6.40% |

## ESTIMATED INCOME STATEMENT FOR THE 2023 TEST YEAR AND REVENUE REQUIREMENT TO YIELD A 6.40% RETURN ON NET INVESTMENT RATE BASE

| | | Present Rates | | Increase | | After Rate Increase |
|---|---|---|---|---|---|---|
| **TOTAL OPERATING REVENUES** | $ | 2,778,563 | $ | 790,708 | $ | 3,569,271 |
| **OPERATING EXPENSES:** | | | | | | |
| **OPERATION & MAINTENANCE EXPENSES** | $ | 1,703,582 | | | $ | 1,703,582 |
| **DEPRECIATION EXPENSE** | | 410,042 | | | | 410,042 |
| **AMORTIZATION EXPENSE** | | 0 | | | | 0 |
| **TAXES AND TAX EQUIVALENT** | | 640,862 | | | | 640,862 |
| **TOTAL OPERATING EXPENSES** | $ | 2,754,486 | | | $ | 2,754,486 |
| **NET OPERATING INCOME (LOSS)** | $ | 24,077 | | | $ | 814,785 |
| **RATE OF RETURN ON RATE BASE** | | 0.19% | | | | 6.40% |

## UTILITY FINANCED PLANT IN SERVICE AND DEPRECIATION EXPENSE
## TEST YEAR 2023

| ACCT NO. | ACCOUNT DESCRIPTION | Balance 12/31/2022 ($) | Major Additions Less Retirements ($) | Normal Additions ($) | Retirements ($) | Balance 12/31/2023 ($) | Test Year Rate Base Balance ($) | Depreciation Rate (%) | Depreciation Expense ($) |
|---|---|---|---|---|---|---|---|---|---|
| | **INTANGIBLE PLANT** | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 311 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 313 | Lake, River, and Other Intakes | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 314 | Wells and Springs | 339,776 | (114,698) | 0 | 0 | 225,078 | 225,078 | 2.90% | 6,528 |
| 316 | Supply Mains | 176,607 | 0 | 0 | 0 | 176,607 | 176,607 | 1.80% | 3,179 |
| 317 | Other Water Source Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| | **PUMPING PLANT** | | | | | | | | |
| 320 | Land and Land Rights | 211,052 | (37,956) | 0 | 0 | 173,096 | 173,096 | N/A | 0 |
| 321 | Structures and Improvements | 2,177,871 | 0 | 18,000 | 0 | 2,195,871 | 2,186,871 | 3.20% | 69,980 |
| 323 | Other Power Production Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 325 | Electric Pumping Equipment | 1,503,571 | (87,000) | 420,662 | 6,000 | 1,831,233 | 1,623,902 | 4.40% | 71,452 |
| 326 | Diesel Pumping Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 328 | Other Pumping Equipment | 149,569 | 0 | 0 | 0 | 149,569 | 149,569 | Fully Depr. | 0 |
| | **WATER TREATMENT PLANT** | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 331 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 333 | Membrane Filtration Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 334 | Other Water Treatment Equipment | 783,909 | 0 | 28,000 | 0 | 811,909 | 797,909 | 6.00% | 47,875 |

**UTILITY FINANCED PLANT IN SERVICE AND DEPRECIATION EXPENSE**
**TEST YEAR 2023**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | Balance 12/31/2022 ($) | Major Additions ($) | Normal Additions ($) | Retirements ($) | Balance 12/31/2023 ($) | TEST YEAR RATE BASE BALANCE ($) | DEPRECIATION RATE (%) | DEPRECIATION EXPENSE ($) |
|---|---|---|---|---|---|---|---|---|---|
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 342 | Distribution Reservoirs and Standpipes | 1,760,075 | 0 | 0 | 0 | 1,760,075 | 1,760,075 | 1.90% | 33,441 |
| 343 | Transmission and Distribution Mains | 2,206,932 | 4,125,182 | 557,623 | 12,800 | 6,876,937 | 6,604,526 | 1.30% | 85,858 |
| 345 | Services | 706,630 | 0 | 193,354 | 0 | 899,984 | 803,307 | 2.90% | 23,296 |
| 346 | Meters | 728,208 | 0 | 78,000 | 0 | 806,208 | 767,208 | 5.50% | 42,196 |
| 348 | Hydrants | 557,022 | 128,000 | 165,378 | 4,500 | 845,900 | 765,461 | 2.20% | 16,840 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| | **GENERAL PLANT** | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | N/A | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 391 | Office Furniture and Equipment | 59,947 | 0 | 0 | 0 | 59,947 | 59,947 | Fully Depr. | 0 |
| 391 | Computer Equipment | 165,310 | 0 | 0 | 0 | 165,310 | 165,310 | Fully Depr. | 0 |
| 392 | Transportation Equipment | 334,234 | 0 | 102,000 | 0 | 436,234 | 385,234 | Fully Depr. | 0 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 396 | Power Operated Equipment | 175 | 0 | 0 | 0 | 175 | 175 | 7.50% | 13 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0.00% | 0 |
| 397 | SCADA Equipment | 260,911 | 0 | 35,750 | 0 | 296,661 | 278,786 | Fully Depr. | 0 |
| 398 | Miscellaneous Equipment | 161,799 | 0 | 0 | 0 | 161,799 | 161,799 | 5.80% | 9,384 |
| | **TOTAL UTILITY FINANCED PLANT IN SERVICE** | **12,283,598** | **4,013,528** | **1,598,767** | **23,300** | **17,872,593** | **17,084,860** | | **410,042** |

**City of Pewaukee Water Utility - Step II**

**SYSTEM DEMAND RATIOS**

**MAXIMUM DAY SYSTEM DEMAND**

| | | |
|---|---|---|
| **TOTAL ANNUAL PUMPAGE** | 455,154,061 | Gallons |
| **AVERAGE DAILY PUMPAGE** | 1,246,997 | Gallons |
| **MAXIMUM DAY PUMPAGE** | 2,618,695 | Gallons |
| **FIRE FLOW:** | | |
| **GAL/MIN** | 4,000 | |
| **DURATION (HOURS)** | 4.00 | |
| **TOTAL FLOW** | 960,000 | Gallons |
| **AVERAGE DAY PLUS FIRE FLOW** | 2,206,997 | Gallons |

**RATIO:** BASE = $\frac{1,246,997}{2,618,695}$ = 47.62%

MAX DAY = 100-BASE = 52.38%

**MAXIMUM HOUR SYSTEM DEMAND**

| | | |
|---|---|---|
| **AVERAGE HOUR ON MAX DAY** | 109,112 | Gallons |
| **MAXIMUM HOUR PUMPAGE** | 155,875 | Gallons |
| **AVERAGE HOUR PLUS ONE HOUR FIRE FLOW** | 291,958 | Gallons |

**RATIO:** BASE = $\frac{1,246,997}{7,006,997}$ = 17.80% Use 17.80%

MAX HOUR = 100-BASE = 82.20% Use 82.20%

**ALLOCATION OF UTILITY FINANCED PLANT**
**TO SERVICE COST FUNCTIONS**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **INTANGIBLE PLANT** | | | | | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 311 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | | 0 | | | | | | | | |
| 313 | Lake, River, and Other Intakes | 0 | 0 | | 0 | | | | | | | | |
| 314 | Wells and Springs | 225,078 | 107,180 | | 117,898 | | | | | | | | |
| 316 | Supply Mains | 176,607 | 84,099 | | 92,508 | | | | | | | | |
| 317 | Other Water Source Plant | 0 | 0 | | 0 | | | | | | | | |
| | **PUMPING PLANT** | | | | | | | | | | | | |
| 320 | Land and Land Rights | 173,096 | 82,427 | | 90,669 | | | | | | | | |
| 321 | Structures and Improvements | 2,186,871 | 1,041,367 | | 1,145,504 | | | | | | | | |
| 323 | Other Power Production Equipment | 0 | 0 | | 0 | | | | | | | | |
| 325 | Electric Pumping Equipment | 1,623,902 | 773,287 | | 850,615 | | | | | | | | |
| 326 | Diesel Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| 328 | Other Pumping Equipment | 149,569 | 71,223 | | 78,346 | | | | | | | | |
| | **WATER TREATMENT PLANT** | | | | | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 331 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 333 | Membrane Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 334 | Other Water Treatment Equipment | 797,909 | 379,957 | | 417,952 | | | | | | | | |

**ALLOCATION OF UTILITY FINANCED PLANT**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 342 | Distribution Reservoirs and Standpipes | 1,760,075 | 313,231 | | | | | | 1,446,844 | | | | |
| 343 | Transmission mains | 6,604,526 | 3,145,012 | | 3,459,514 | | | | | | | | |
| 343 | Distribution mains | 0 | | 0 | | | | 0 | | | | | |
| 345 | Services | 803,307 | | | | | | | | | | 803,307 | |
| 346 | Meters | 767,208 | | | | | | | | | 767,208 | | |
| 348 | Hydrants | 765,461 | | | | | | | | | | | 765,461 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **GENERAL PLANT** | | | | | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Office Furniture and Equipment | 59,947 | 22,425 | 0 | 23,379 | 0 | 0 | 0 | 5,410 | 0 | 2,868 | 3,003 | 2,862 |
| 391 | Computer Equipment | 165,310 | 61,838 | 0 | 64,470 | 0 | 0 | 0 | 14,917 | 0 | 7,910 | 8,282 | 7,892 |
| 392 | Transportation Equipment | 385,234 | 144,107 | 0 | 150,239 | 0 | 0 | 0 | 34,763 | 0 | 18,433 | 19,301 | 18,391 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 396 | Power Operated Equipment | 175 | 65 | 0 | 68 | 0 | 0 | 0 | 16 | 0 | 8 | 9 | 8 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 397 | SCADA Equipment | 278,786 | 104,287 | 0 | 108,725 | 0 | 0 | 0 | 25,157 | 0 | 13,340 | 13,968 | 13,310 |
| 398 | Miscellaneous Equipment | 161,799 | 60,525 | 0 | 63,101 | 0 | 0 | 0 | 14,600 | 0 | 7,742 | 8,106 | 7,724 |
| | **TOTAL** | **17,084,860** | **6,391,030** | **0** | **6,662,988** | **0** | **0** | **0** | **1,541,707** | **0** | **817,510** | **855,976** | **815,649** |

## ALLOCATION OF TOTAL PLANT
## TO SERVICE COST FUNCTIONS

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | EXTRA-CAPACITY | | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BASE COSTS | | MAX DAY | | MAX HOUR | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **INTANGIBLE PLANT** | | | | | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 311 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | | 0 | | | | | | | | |
| 313 | Lake, River, and Other Intakes | 0 | 0 | | 0 | | | | | | | | |
| 314 | Wells and Springs | 2,045,895 | 974,236 | | 1,071,659 | | | | | | | | |
| 316 | Supply Mains | 217,091 | 103,377 | | 113,714 | | | | | | | | |
| 317 | Other Water Source Plant | 0 | 0 | | 0 | | | | | | | | |
| | **PUMPING PLANT** | | | | | | | | | | | | |
| 320 | Land and Land Rights | 370,387 | 176,375 | | 194,012 | | | | | | | | |
| 321 | Structures and Improvements | 6,634,719 | 3,159,390 | | 3,475,329 | | | | | | | | |
| 323 | Other Power Production Equipment | 0 | 0 | | 0 | | | | | | | | |
| 325 | Electric Pumping Equipment | 2,212,017 | 1,053,341 | | 1,158,676 | | | | | | | | |
| 326 | Diesel Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| 328 | Other Pumping Equipment | 201,872 | 96,130 | | 105,742 | | | | | | | | |
| | **WATER TREATMENT PLANT** | | | | | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 331 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 333 | Membrane Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 334 | Other Water Treatment Equipment | 887,443 | 422,592 | | 464,851 | | | | | | | | |

**ALLOCATION OF TOTAL PLANT**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 342 | Distribution Reservoirs and Standpipes | 4,242,092 | 754,942 | | | | | | 3,487,150 | | | | |
| 343 | Transmission mains | 18,230,366 | 8,681,127 | | 9,549,239 | | | | | | | | |
| 343 | Distribution mains | 14,875,508 | | 2,647,314 | | | | 12,228,194 | | | | | |
| 345 | Services | 5,196,488 | | | | | | | | | | 5,196,488 | |
| 346 | Meters | 767,208 | | | | | | | | | 767,208 | | |
| 348 | Hydrants | 3,969,899 | | | | | | | | | | | 3,969,899 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **GENERAL PLANT** | | | | | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Office Furniture and Equipment | 59,947 | 15,446 | 2,652 | 16,159 | 0 | 0 | 12,248 | 3,493 | 0 | 768 | 5,205 | 3,976 |
| 391 | Computer Equipment | 165,310 | 42,595 | 7,312 | 44,560 | 0 | 0 | 33,775 | 9,632 | 0 | 2,119 | 14,353 | 10,965 |
| 392 | Transportation Equipment | 385,234 | 99,261 | 17,040 | 103,842 | 0 | 0 | 78,707 | 22,445 | 0 | 4,938 | 33,447 | 25,552 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 396 | Power Operated Equipment | 175 | 45 | 8 | 47 | 0 | 0 | 36 | 10 | 0 | 2 | 15 | 12 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 397 | SCADA Equipment | 278,786 | 71,833 | 12,331 | 75,149 | 0 | 0 | 56,959 | 16,243 | 0 | 3,574 | 24,205 | 18,492 |
| 398 | Miscellaneous Equipment | 172,429 | 44,429 | 7,627 | 46,479 | 0 | 0 | 35,229 | 10,046 | 0 | 2,210 | 14,971 | 11,437 |
| | **TOTAL** | **60,912,866** | **15,695,119** | **2,694,282** | **16,419,460** | **0** | **0** | **12,445,148** | **3,549,019** | **0** | **780,820** | **5,288,685** | **4,040,333** |

## ALLOCATION OF DEPRECIATION EXPENSE
## TO SERVICE COST FUNCTIONS

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **INTANGIBLE PLANT** | | | | | | | | | | | | |
| 301 | Organization | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 302 | Franchises and Consents | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 303 | Miscellaneous Intangible Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 310 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 311 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 312 | Collecting and Impounding Reservoirs | 0 | 0 | | 0 | | | | | | | | |
| 313 | Lake, River, and Other Intakes | 0 | 0 | | 0 | | | | | | | | |
| 314 | Wells and Springs | 6,528 | 3,109 | | 3,419 | | | | | | | | |
| 316 | Supply Mains | 3,179 | 1,514 | | 1,665 | | | | | | | | |
| 317 | Other Water Source Plant | 0 | 0 | | 0 | | | | | | | | |
| | **PUMPING PLANT** | | | | | | | | | | | | |
| 320 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 321 | Structures and Improvements | 69,980 | 33,324 | | 36,656 | | | | | | | | |
| 323 | Other Power Production Equipment | 0 | 0 | | 0 | | | | | | | | |
| 325 | Electric Pumping Equipment | 71,452 | 34,025 | | 37,427 | | | | | | | | |
| 326 | Diesel Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| 328 | Other Pumping Equipment | 0 | 0 | | 0 | | | | | | | | |
| | **WATER TREATMENT PLANT** | | | | | | | | | | | | |
| 330 | Land and Land Rights | 0 | 0 | | 0 | | | | | | | | |
| 331 | Structures and Improvements | 0 | 0 | | 0 | | | | | | | | |
| 332 | Sand or Other Media Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 333 | Membrane Filtration Equipment | 0 | 0 | | 0 | | | | | | | | |
| 334 | Other Water Treatment Equipment | 47,875 | 22,798 | | 25,077 | | | | | | | | |

**ALLOCATION OF DEPRECIATION EXPENSE**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **TRANSMISSION & DISTRIBUTION PLANT** | | | | | | | | | | | | |
| 340 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 341 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 342 | Distribution Reservoirs and Standpipes | 33,441 | 5,951 | | | | | | 27,490 | | | | |
| 343 | Transmission mains | 85,858 | 40,885 | | 44,973 | | | | | | | | |
| 343 | Distribution mains | 0 | | 0 | | | | 0 | | | | | |
| 345 | Services | 23,296 | | | | | | | | | | 23,296 | |
| 346 | Meters | 42,196 | | | | | | | | | 42,196 | | |
| 348 | Hydrants | 16,840 | | | | | | | | | | | 16,840 |
| 349 | Other Transmission and Distribution Plant | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **GENERAL PLANT** | | | | | | | | | | | | |
| 389 | Land and Land Rights | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 390 | Structures and Improvements | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Office Furniture and Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 391 | Computer Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 392 | Transportation Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 393 | Stores Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 394 | Tools, Shop and Garage Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 395 | Laboratory Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 396 | Power Operated Equipment | 13 | 5 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 397 | Communication Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 397 | SCADA Equipment | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 398 | Miscellaneous Equipment | 9,384 | 3,317 | 0 | 3,495 | 0 | 0 | 0 | 644 | 0 | 988 | 546 | 394 |
| | **TOTAL** | **410,042** | **144,926** | **0** | **152,719** | **0** | **0** | **0** | **28,134** | **0** | **43,186** | **23,842** | **17,235** |

## ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES
## TO SERVICE COST FUNCTIONS

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | EXTRA-CAPACITY | | | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | BASE COSTS | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **SOURCE OF SUPPLY** | | | | | | | | | | | | |
| 600 | Operation labor | 23,700 | 11,286 | | 12,414 | | | | | | | | |
| 601 | Purchased water | 300 | 300 | | | | | | | | | | 0 |
| 602 | Operation supplies and expenses | 20,500 | 9,762 | | 10,738 | | | | | | | | |
| 605 | Maintenance of water source plant | 63,700 | 30,333 | | 33,367 | | | | | | | | |
| | **PUMPING EXPENSES** | | | | | | | | | | | | |
| 620 | Operation labor | 63,957 | 30,456 | | 33,501 | | | | | | | | |
| 621 | Fuel for power production | 0 | 0 | | | | | | | | | | |
| 622 | Fuel or power purchased for pumping | 260,000 | 260,000 | | | | | | | | | | |
| 623 | Operation supplies and expenses | 14,900 | 7,095 | | 7,805 | | | | | | | | |
| 625 | Maintenance of pumping plant | 25,000 | 11,905 | | 13,095 | | | | | | | | |
| | **WATER TREATMENT EXPENSES** | | | | | | | | | | | | |
| 630 | Operation labor | 12,953 | 6,168 | | 6,785 | | | | | | | | |
| 631 | Chemicals | 144,000 | 144,000 | | | | | | | | | | |
| 632 | Operation supplies and expenses | 82,000 | 39,048 | | 42,952 | | | | | | | | |
| 635 | Maintenance of water treatment plant | 26,300 | 12,524 | | 13,776 | | | | | | | | |
| | **TRANSMISSION & DISTRIBUTION EXPENSES** | | | | | | | | | | | | |
| 640 | Operation labor | 26,301 | 2,869 | 494 | 1,136 | 0 | 0 | 2,282 | 8,484 | 0 | 1,930 | 4,337 | 4,770 |
| 641 | Operation supplies and expenses | 20,900 | 2,280 | 393 | 902 | 0 | 0 | 1,813 | 6,742 | 0 | 1,533 | 3,446 | 3,791 |
| 650 | Maintenance of distr. reservoirs | 95,200 | 16,942 | | | | | | 78,258 | | | | |
| 651 | Maintenance of transmission mains | 19,999 | 9,523 | | 10,476 | | | | | | | | |
| 651 | Maintenance of distribution mains | 25,601 | | 4,556 | | | | 21,045 | | | | | |
| 652 | Maintenance of services | 40,000 | | | | | | | | | | 40,000 | |
| 653 | Maintenance of meters | 17,800 | | | | | | | | | 17,800 | | |
| 654 | Maintenance of hydrants | 44,000 | | | | | | | | | | | 44,000 |
| 655 | Maintenance of other plant | 3,000 | 327 | 56 | 130 | 0 | 0 | 260 | 968 | 0 | 220 | 495 | 544 |

**ALLOCATION OF OPERATION AND MAINTENANCE EXPENSES**
**TO SERVICE COST FUNCTIONS**
**(continued)**

| ACCT NO. | ACCOUNT DESCRIPTION | TOTAL ($) | BASE COSTS | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | MAX DAY | | MAX HOUR | | | | | | |
| | | | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| | **CUSTOMER ACCOUNTS EXPENSES** | | | | | | | | | | | | |
| 901 | Meter reading labor | 4,250 | | | | | | | | 4,250 | | | |
| 902 | Accounting and collecting labor | 5,722 | | | | | | | | 5,722 | | | |
| 903 | Supplies and expenses | 20,000 | | | | | | | | 20,000 | | | |
| 904 | Uncollectible accounts | 100 | | | | | | | | 100 | | | |
| 906 | Customer service and informational expense | 0 | | | | | | | | 0 | | | |
| | **SALES EXPENSES** | | | | | | | | | | | | |
| 910 | Sales Expenses | 0 | | | | | | | | 0 | | | |
| | **ADMINISTRATIVE & GENERAL EXPENSES** | | | | | | | | | | | | |
| 920 | Administrative and general salaries | 198,539 | 59,302 | 1,712 | 58,231 | 0 | 0 | 7,906 | 29,400 | 3,744 | 6,687 | 15,027 | 16,530 |
| 921 | Office supplies and expenses | 15,600 | 4,660 | 134 | 4,575 | 0 | 0 | 621 | 2,310 | 294 | 525 | 1,181 | 1,299 |
| 922 | Administrative expenses transferred -- credit | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 923 | Outside services employed | 84,250 | 25,165 | 726 | 24,710 | 0 | 0 | 3,355 | 12,476 | 1,589 | 2,838 | 6,377 | 7,014 |
| 924 | Property insurance | 25,639 | 6,606 | 1,134 | 6,911 | 0 | 0 | 5,238 | 1,494 | 0 | 329 | 2,226 | 1,701 |
| 925 | Injuries and damages | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 926 | Employee pensions and benefits | 200,000 | 59,739 | 1,724 | 58,660 | 0 | 0 | 7,964 | 29,616 | 3,772 | 6,736 | 15,138 | 16,651 |
| 928 | Regulatory commission expenses | 35,000 | 10,454 | 302 | 10,265 | 0 | 0 | 1,394 | 5,183 | 660 | 1,179 | 2,649 | 2,914 |
| 930 | Miscellaneous general expenses | 24,871 | 7,429 | 214 | 7,295 | 0 | 0 | 990 | 3,683 | 469 | 838 | 1,882 | 2,071 |
| 933 | Transportation expenses | 21,000 | 6,273 | 181 | 6,159 | 0 | 0 | 836 | 3,110 | 396 | 707 | 1,589 | 1,748 |
| 935 | Maintenance of general plant | 38,500 | 11,500 | 332 | 11,292 | 0 | 0 | 1,533 | 5,701 | 726 | 1,297 | 2,914 | 3,205 |
| | **TOTAL OPERATION & MAINTENANCE EXPENSES** | **1,703,582** | **785,945** | **11,959** | **375,176** | **0** | **0** | **55,238** | **187,424** | **41,722** | **42,619** | **97,261** | **106,239** |

## SUMMARY OF ALLOCATION OF OPERATING COSTS TO SERVICE COST FUNCTIONS

| | | | | EXTRA-CAPACITY | | | | | CUSTOMER COSTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | BASE COSTS | | MAX DAY | | MAX HOUR | | | | | | |
| OPERATING COST | TOTAL ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | System ($) | Distribution ($) | Storage ($) | Billing ($) | Equivalent Meter ($) | Equivalent Service ($) | Fire Protection ($) |
| OPERATION AND MAINTENANCE | 1,703,582 | 785,945 | 11,959 | 375,176 | 0 | 0 | 55,238 | 187,424 | 41,722 | 42,619 | 97,261 | 106,239 |
| DEPRECIATION EXPENSE | 410,042 | 144,926 | 0 | 152,719 | 0 | 0 | 0 | 28,134 | 0 | 43,186 | 23,842 | 17,235 |
| AMORTIZATION EXPENSE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TAXES AND TAX EQUIVALENT | 640,862 | 165,128 | 28,346 | 172,749 | 0 | 0 | 130,935 | 37,339 | 0 | 8,215 | 55,642 | 42,508 |
| RETURN ON NET INVESTMENT RATE BASE | 814,785 | 304,791 | 0 | 317,761 | 0 | 0 | 0 | 73,525 | 0 | 38,987 | 40,822 | 38,899 |
| **TOTAL** | **3,569,271** | **1,400,790** | **40,305** | **1,018,405** | **0** | **0** | **186,173** | **326,422** | **41,722** | **133,007** | **217,567** | **204,880** |

## CUSTOMER CLASS DEMAND RATIOS

| CUSTOMER CLASS | Annual Volume 1,000 Mgal | BASE COSTS: Average Day Volume Gal | BASE COSTS: Percent (%) | BASE COSTS: System Adjusted Percent (%) | BASE COSTS: Distribution Adjusted Percent (%) | Extra Capacity Ratio | EXTRA-CAPACITY MAX DAY DEMAND: Volume Rate Gal Per Day | EXTRA-CAPACITY MAX DAY DEMAND: Percent (%) | EXTRA-CAPACITY MAX DAY DEMAND: System Adjusted Percent (%) | EXTRA-CAPACITY MAX DAY DEMAND: Distribution Adjusted Percent (%) | Extra Capacity Ratio | EXTRA-CAPACITY MAX HOUR DEMAND: Volume Rate Gal Per Hour | EXTRA-CAPACITY MAX HOUR DEMAND: Percent (%) | EXTRA-CAPACITY MAX HOUR DEMAND: System Adjusted Percent (%) | EXTRA-CAPACITY MAX HOUR DEMAND: Distribution Adjusted Percent (%) | EXTRA-CAPACITY MAX HOUR DEMAND: Storage Adjusted Percent (%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 216,877 | 594,182 | 52.89% | 52.89% | 52.89% | 2.44 | 1,449,805 | 42.67% | 42.67% | 42.67% | 5.50 | 136,167 | 29.44% | 30.60% | 30.60% | 29.44% |
| **Multifamily Residential** | 51,097 | 139,991 | 12.46% | 12.46% | 12.46% | 2.13 | 298,181 | 8.78% | 8.78% | 8.78% | 4.80 | 27,998 | 6.05% | 6.29% | 6.29% | 6.05% |
| **Commercial** | 107,280 | 293,916 | 26.16% | 26.16% | 26.16% | 1.82 | 534,928 | 15.74% | 15.74% | 15.74% | 4.10 | 50,211 | 10.86% | 11.28% | 11.28% | 10.86% |
| **Industrial** | 28,900 | 79,178 | 7.05% | 7.05% | 7.05% | 1.88 | 148,855 | 4.38% | 4.38% | 4.38% | 2.20 | 7,258 | 1.57% | 1.63% | 1.63% | 1.57% |
| **Public Authority** | 1,833 | 5,022 | 0.45% | 0.45% | 0.45% | 1.20 | 6,026 | 0.18% | 0.18% | 0.18% | 4.03 | 843 | 0.18% | 0.19% | 0.19% | 0.18% |
| **Public Fire Protection** | 4,101 | 11,235 | 1.00% | 1.00% | 1.00% | | 960,000 | 28.25% | 28.25% | 28.25% | | 240,000 | 51.89% | 50.00% | 50.00% | 51.89% |
| **TOTALS** | **410,087** | **1,123,525** | **100%** | **100%** | **100%** | | **3,397,795** | **100%** | **100%** | **100%** | | **462,477** | **100%** | **100%** | **100%** | **100%** |
| | | | | | | | | | 50% | 50% | <-- Public Fire % Limits --> | | | 50% | 50% | 80% |

Maximum Day Demand = 3,550,085 (GAL/DAY) SUM OF GENERAL SERVICE AVERAGE AND MAXIMUM DAY EXTRA CAPACITY DEMAND

Maximum Hour Demand = 268,822 (GAL/HR) SUM OF GENERAL SERVICE AVERAGE AND MAXIMUM HOUR EXTRA CAPACITY DEMAND

1.36 = NON-COINCIDENT / COINCIDENT RATIO FOR MAX DAY

1.72 = NON-COINCIDENT / COINCIDENT RATIO FOR MAX HOUR

## CUSTOMER CLASS ALLOCATION FACTORS

### NUMBER OF METERS

| Meter size (inches): | 5/8 | 3/4 | 1 | 1-1/4 | 1-1/2 | 2 | 2-1/2 | 3 | 4 | 6 | 8 | 10 | 12 | TOTAL METERS | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 0 | 3,679 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,705 | 88% |
| **Multifamily Residential** | 0 | 12 | 92 | 0 | 20 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 | 3% |
| **Commercial** | 0 | 65 | 97 | 0 | 72 | 49 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 296 | 7% |
| **Industrial** | 0 | 11 | 17 | 0 | 9 | 9 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 51 | 1% |
| **Public Authority** | 0 | 3 | 2 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 12 | 0% |
| **TOTALS** | **0** | **3,770** | **234** | **0** | **105** | **77** | **0** | **15** | **4** | **0** | **0** | **0** | **0** | **4,205** | **100%** |

### EQUIVALENT METERS

| ALLOCATION FACTOR: Meter size (inches): / Equiv. meters ratio: | 5/8 1.0 | 3/4 1.0 | 1 2.5 | 1-1/4 3.7 | 1-1/2 5.0 | 2 8.0 | 2-1/2 12.5 | 3 15.0 | 4 25.0 | 6 50.0 | 8 80.0 | 10 120.0 | 12 160.0 | TOTAL EQUIV. METERS | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 0 | 3,679 | 65 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,744 | 64% |
| **Multifamily Residential** | 0 | 12 | 230 | 0 | 100 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 478 | 8% |
| **Commercial** | 0 | 65 | 243 | 0 | 360 | 392 | 0 | 150 | 75 | 0 | 0 | 0 | 0 | 1,285 | 22% |
| **Industrial** | 0 | 11 | 43 | 0 | 45 | 72 | 0 | 60 | 25 | 0 | 0 | 0 | 0 | 256 | 4% |
| **Public Authority** | 0 | 3 | 5 | 0 | 20 | 16 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 59 | 1% |
| **TOTALS** | **0** | **3,770** | **585** | **0** | **525** | **616** | **0** | **225** | **100** | **0** | **0** | **0** | **0** | **5,821** | **100%** |

### EQUIVALENT SERVICES

| ALLOCATION FACTOR: Meter size (inches): / Equiv. services ratio: | 5/8 1.0 | 3/4 1.0 | 1 1.3 | 1-1/4 1.7 | 1-1/2 2.0 | 2 3.0 | 2-1/2 3.5 | 3 4.0 | 4 5.0 | 6 6.0 | 8 7.0 | 10 8.0 | 12 9.0 | TOTAL EQUIV. SERVICES | PERCENT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Residential** | 0 | 3,679 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,713 | 81% |
| **Multifamily Residential** | 0 | 12 | 120 | 0 | 40 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 223 | 5% |
| **Commercial** | 0 | 65 | 126 | 0 | 144 | 147 | 0 | 40 | 15 | 0 | 0 | 0 | 0 | 537 | 12% |
| **Industrial** | 0 | 11 | 22 | 0 | 18 | 27 | 0 | 16 | 5 | 0 | 0 | 0 | 0 | 99 | 2% |
| **Public Authority** | 0 | 3 | 3 | 0 | 8 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 24 | 1% |
| **TOTALS** | **0** | **3,770** | **304** | **0** | **210** | **231** | **0** | **60** | **20** | **0** | **0** | **0** | **0** | **4,595** | **100%** |

## ALLOCATION OF SERVICE COST FUNCTIONS TO CUSTOMER CLASSES

| | TOTAL ($) | Residential ($) | Multifamily Residential ($) | Commercial ($) | Industrial ($) | Public Authority ($) | Public Fire Protection ($) |
|---|---|---|---|---|---|---|---|
| **BASE COSTS:** | | | | | | | |
| **SYSTEM** | 1,400,790 | 740,816 | 174,538 | 366,450 | 98,718 | 6,261 | 14,008 |
| **DISTRIBUTION** | 40,305 | 21,316 | 5,022 | 10,544 | 2,840 | 180 | 403 |
| **EXTRA-CAPACITY COSTS:** | | | | | | | |
| **MAXIMUM-DAY SYSTEM** | 1,018,405 | 434,543 | 89,372 | 160,331 | 44,616 | 1,806 | 287,736 |
| **MAXIMUM-DAY DISTRIBUTION** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **MAXIMUM-HOUR SYSTEM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **MAXIMUM-HOUR DISTRIBUTION** | 186,173 | 56,973 | 11,715 | 21,009 | 3,037 | 353 | 93,086 |
| **MAXIMUM-HOUR STORAGE** | 326,422 | 96,108 | 19,761 | 35,439 | 5,123 | 595 | 169,395 |
| **CUSTOMER COSTS:** | | | | | | | |
| **BILLING** | 41,722 | 36,761 | 1,399 | 2,937 | 506 | 119 | |
| **EQUIVALENT METERS** | 133,007 | 85,549 | 10,922 | 29,350 | 5,838 | 1,348 | |
| **EQUIVALENT SERVICES** | 217,567 | 175,788 | 10,539 | 25,430 | 4,692 | 1,117 | |
| **FIRE PROTECTION** | 204,880 | | | | | | 204,880 |
| **TOTAL COST** | 3,569,271 | 1,647,854 | 323,269 | 651,490 | 165,369 | 11,780 | 769,509 |
| **LESS OTHER REVENUE** | 103,534 | 14,831 | 2,598 | 5,236 | 1,329 | 95 | 79,446 |
| **COST OF SERVICE** | 3,465,737 | 1,633,023 | 320,671 | 646,254 | 164,040 | 11,686 | 690,063 |
| **REVENUE AT PRESENT RATES** | 2,675,029 | 1,159,680 | 209,940 | 451,088 | 116,575 | 9,446 | 728,300 |
| **DIFFERENCE** | 790,708 | 473,343 | 110,731 | 195,166 | 47,465 | 2,240 | (38,237) |
| **PERCENT INCREASE/DECREASE** | **29.56%** | **40.82%** | **52.74%** | **43.27%** | **40.72%** | **23.71%** | **-5.25%** |

**Docket 4625-WR-104** **Schedule 11**

# City of Pewaukee Water Utility - Step II
## Comparison of Revenue at
## Present Rates, Cost of Service, and Proposed Rates

| | | Cost of Service | | Proposed Rates | | |
|---|---|---|---|---|---|---|
| **Customer Class** | **Revenue at Present Rates** | **Revenue Required** | **Increase over Present Rates** | **Revenue** | **Increase over Present Rates** | **Percent of Cost of Service** |
| Residential | $1,159,680 | $1,633,023 | 40.82% | $1,627,825 | 40.37% | 99.68% |
| Multifamily Residential | $209,940 | $320,671 | 52.74% | $307,421 | 46.43% | 95.87% |
| Commercial | $451,088 | $646,254 | 43.27% | $656,313 | 45.50% | 101.56% |
| Industrial | $116,575 | $164,040 | 40.72% | $170,981 | 46.67% | 104.23% |
| Public Authority | $9,446 | $11,686 | 23.71% | $13,170 | 39.42% | 112.70% |
| Public Fire Protection | $728,300 | $690,063 | -5.25% | $690,063 | -5.25% | 100.00% |
| **Total** | $2,675,029 | $3,465,737 | 29.56% | $3,465,773 | 29.56% | 100.00% |

**City of Pewaukee Water Utility – Step II**

**Proposed Water Rates and Rules**

Docket 4625-WR-104

**City of Pewaukee Water Utility – Step II**

**Water Rate File Changes**

**Amended**

F-1
Upf-1
Mg-1
NSM-1
OC-1
Mpa-1
Ug-1
Sg-1
BW-1
R-1
Cz-1
X-1
X-2
X-3

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Public Fire Protection Service

Public fire protection service includes the use of hydrants for fire protection service only and such quantities of water as may be demanded for the purpose of extinguishing fires within the service area. This service shall also include water used for testing equipment and training personnel. For all other purposes, the metered or other rates set forth, or as may be filed with the Public Service Commission, shall apply.

Under Wis. Stat. § 196.03(3)(b), the municipality has chosen to have the utility bill the retail general service customers for public fire protection service. The municipality has also elected to make the charges in this schedule applicable to non-general service customer with private wells who own property that is located both within the municipal limits and in an area where the utility has an obligation to provide water for public fire protection.

Public Fire Protection Service Charges:

Quarterly: $0.05355 per thousand dollars of assessed valuation
Annually: $0.21422 per thousand dollars of assessed valuation

This rate is based on total assessed valuation of $3,221,315,000 and a total annual public fire protection charge of $690,063. The total assessed valuation included taxable parcels, tax exempt parcels, and non-general service customers with private wells.

Customers who are provided service under Schedules Mg-1, Ug-1, or Sg-1 shall also be subject to the charges in this schedule according to the size of their primary meter.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Private Fire Protection Service - Unmetered

This service shall consist of permanent or continuous unmetered connections to the main for the purpose of supplying water to private fire protection systems such as automatic sprinkler systems, standpipes, and private hydrants. This service shall also include reasonable quantities of water used for testing check valves and other backflow prevention devices.

Quarterly Private Fire Protection Service Demand Charges:

| | | |
|---|---|---|
| 2 - inch or smaller connection: | $ | 12.00 |
| 3 - inch connection: | $ | 22.50 |
| 4 - inch connection: | $ | 37.50 |
| 6 - inch connection: | $ | 75.00 |
| 8 - inch connection: | $ | 120.00 |
| 10 - inch connection: | $ | 180.00 |
| 12 - inch connection: | $ | 240.00 |
| 14 - inch connection: | $ | 300.00 |
| 16 - inch connection: | $ | 360.00 |

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## General Service - Metered

Quarterly Service Charges:

| | | | | | |
|---|---|---|---|---|---|
| ⅝ - inch meter: | $ | 30.00 | 3 - inch meter: | $ | 153.00 |
| ¾ - inch meter: | $ | 30.00 | 4 - inch meter: | $ | 228.00 |
| 1 - inch meter: | $ | 42.00 | 6 - inch meter: | $ | 381.00 |
| 1¼ - inch meter: | $ | 54.00 | 8 - inch meter: | $ | 570.00 |
| 1½ - inch meter: | $ | 69.00 | 10 - inch meter: | $ | 840.00 |
| 2 - inch meter: | $ | 96.00 | 12 - inch meter: | $ | 1,095.00 |

Plus Volume Charges:

All water used quarterly: $5.45 per 1,000 gallons

Billing: Bills for water service are rendered quarterly and become due and payable upon issuance following the period for which service is rendered. A late payment charge of 1 percent per month will be added to bills not paid within 20 days of issuance. This late payment charge will be applied to the total unpaid balance for utility service, including unpaid late payment charges. The late payment charge is applicable to all customers. The utility customer may be given a written notice that the bill is overdue no sooner than 20 days after the bill is issued. Unless payment or satisfactory arrangement for payment is made within the next 10 days, service may be disconnected pursuant to Wis. Adm. Code ch. PSC 185.

Combined Metering: Volumetric meter readings will be combined for billing if the utility for its own convenience places more than one meter on a single water service lateral. Multiple meters placed for the purpose of identifying water not discharged into the sanitary sewer are not considered for utility convenience and shall not be combined for billing. This requirement does not preclude the utility from combining readings when metering configurations support such an approach. Meter readings from individually metered separate service laterals shall not be combined for billing purposes.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Non-Standard Meter Service

The utility shall assess a charge of $15.00 per quarter to a customer who is provided service under Schedule Mg-1 and who requests a non-standard meter. The utility may only charge a customer one NSM charge for customers with both water and electric services.

If a customer establishes service at a new location on which a standard meter is installed, and the customer requests non-standard meter service, the utility shall assess the customer a one-time charge, based on actual utility costs, for the installation of a non-standard meter.

If a customer requests initial service at a location where a non-standard meter is installed, the utility may not assess a charge for installing a standard meter. The utility may not charge an existing customer who chooses to convert from a non-standard meter to a standard meter.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Other Charges

Payment Not Honored by Financial Institution Charge: The utility shall assess a $29.00 charge when a payment rendered for utility service is not honored by the customer's financial institution. This charge may not be in addition to, but may be inclusive of, other such charges when the payment was for multiple services.

Billing: Same as Schedule Mg-1.

## Public Service

Metered Service
Water used by the City of Pewaukee on an intermittent basis for flushing sewers, street washing, flooding skating rinks, drinking fountains, etc., shall be metered and billed according to the rates set forth in Schedule Mg-1.

Unmetered Service
Where it is impossible to meter the service, the utility shall estimate the volume of water used based on the pressure, size of opening, and the period of time the water is used. The estimated quantity shall be billed at the volumetric rates set forth in Schedule Mg-1, excluding any service charges.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## General Water Service - Unmetered

Service may be supplied temporarily on an unmetered basis where the utility cannot immediately install a water meter, including water used for construction. Unmetered service shall be billed the amount that would be charged to a metered residential customer using 15,000 gallons of water quarterly under Schedule Mg-1, including the service charge for a ⅝-inch meter. If the utility determines that actual usage exceeds 15,000 gallons of water quarterly, an additional charge for the estimated excess usage shall be made according to the rates under Schedule Mg-1.

This schedule applies only to customers with a 1-inch or smaller service connection. For customers with a larger service connection, the utility shall install a temporary meter and charges shall be based on the rates set forth under Schedule Mg-1.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Seasonal Service

Seasonal customers are general service customers who voluntarily request disconnection of water service and who resume service at the same location within 12 months of the disconnection, unless service has been provided to another customer at that location in the intervening period. The utility shall bill seasonal customers the applicable service charges under Schedule Mg-1 year-round, including the period of temporary disconnection.

Seasonal service shall include customers taking service under Schedule Mg-1, Schedule Ug-1, or Schedule Am-1.

Upon reconnection, the utility shall apply a charge under Schedule R-1 and require payment of any unpaid charges under this schedule.

Billing: Same as Schedule Mg-1, unless the utility and customer agree to an alternative payment schedule for the period of voluntary disconnection.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

# Bulk Water

All bulk water supplied from the water system through hydrants or other connections shall be metered or estimated by the utility. Utility personnel or a party approved by the utility shall supervise the delivery of water.

Bulk water sales are:

A. Water supplied by tank trucks or from hydrants for the purpose of extinguishing fires outside the utility's service area;

B. Water supplied by tank trucks or from hydrants for purposes other than extinguishing fires, such as water used for irrigation or filling swimming pools; or,

C. Water supplied from hydrants or other temporary connections for general service type applications, except that Schedule Ug-1 applies for water supplied for construction purposes.

A service charge of $30.00 and a charge for the volume of water used shall be billed to the party using the water. The volumetric charge shall be calculated using the highest volumetric rate for residential customers under Schedule Mg-1. In addition, for meters that are assigned to bulk water customers for more than 7 days, the applicable service charge in Schedule Mg-1 will apply after the first 7 days.

The water utility may require a reasonable deposit for the temporary use of its equipment under this and other rate schedules. The deposit(s) collected shall be refunded upon return of the utility's equipment. Damaged or lost equipment shall be repaired or replaced at the customer's expense.

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Reconnection Charges

The utility shall assess a charge to reconnect a customer, which includes reinstalling a meter and turning on the valve at the curb stop, if necessary. A utility may not assess a charge for disconnecting a customer.

| | |
|---|---|
| During normal business hours: | $30.00 |
| After normal business hours: | $60.00 |

Billing: Same as Schedule Mg-1.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Water Lateral Installation Charge

The utility shall charge a customer for the actual cost of installing a water service lateral from the main through curb stop and box if these costs are not contributed as part of a subdivision development or otherwise recovered under Wis. Stats. Chapter 66.

Billing: Same as Schedule Mg-1.

# Water Utility Operating Rules

Compliance with Rules

All persons now receiving water service from this water utility, or who may request service in the future, shall be considered as having agreed to be bound by the rules and regulations as filed with the Public Service Commission of Wisconsin.

Establishment of Service

Application for water service may be made in writing on a form furnished by the water utility. The application will contain the legal description of the property to be served, the name of the owner, the exact use to be made of the service, and the size of the service lateral and meter desired. Note particularly any special refrigeration, fire protection, or water-consuming air-conditioning equipment.

Service will be furnished only if (1) the premises have a frontage on a properly platted street or public strip in which a cast iron or other long-life water main has been laid, or where the property owner has agreed to and complied with the provisions of the water utility's filed main extension rule, (2) the property owner has installed or agrees to install a service lateral from the curb stop to the point of use that is not less than 6 feet below the surface of an established or proposed grade and meets the water utility's specifications, and (3) the premises have adequate piping beyond the metering point.

The owner of a multi-unit dwelling has the option of being served by individual metered water service to each unit. The owner, by selecting this option, is required to provide interior plumbing and meter settings to enable individual metered service to each unit and individual disconnection without affecting service to other units. Each meter and meter connection will be treated as a separate water utility account for the purpose of the filed rules and regulations.

No division of the water service lateral to any lot or parcel of land shall be made for the extension and independent metering of the supply to an adjoining lot or parcel of land. Except for duplexes, no division of a water service lateral shall be made at the curb for separate supplies for two or more separate premises having frontage on any street or public service strip, whether owned by the same or different parties. Duplexes may be served by one lateral provided (1) individual metered service and disconnection is provided and (2) it is permitted by local ordinance.

Buildings used in the same business, located on the same parcel, and served by a single lateral may have the customer’s water supply piping installed to a central point so that volume can be metered in one place.

The water utility may withhold approval of any application where full information of the purpose of such supply is not clearly indicated and set forth by the applicant property owner.

## Water Utility Operating Rules

Reconnection of Service

Where the water utility has disconnected service at the customer's request, a reconnection charge shall be made when the customer requests reconnection of service. See Schedule R-1 for the applicable rate.

A reconnection charge shall also be required from customers whose services are disconnected (shut off at curb stop box) because of nonpayment of bills when due. See Schedule R-1 for the applicable rate.

If reconnection is requested for the same location by any member of the same household, or, if a place of business, by any partner of the same business, it shall be considered as the same customer.

Temporary Metered Service, Meter, and Deposits

An applicant for temporary water service on a metered basis shall make and maintain a monetary deposit for each meter installed as security for payment for use of water and for such other charges which may arise from the use of the supply. A charge shall be made for setting the valve and furnishing and setting the meter. See Schedule BW-1 for the applicable rate.

Water for Construction

When water is requested for construction purposes or for filling tanks or other such uses, an application shall be made to the water utility, in writing, giving a statement of the amount of construction work to be done or the size of the tank to be filled, etc. Payment for the water for construction may be required in advance at the scheduled rates. The service lateral must be installed into the building before water can be used. No connection with the service lateral at the curb shall be made without special permission from the water utility. In no case will any employee of the water utility turn on water for construction work unless the contractor has obtained permission from the water utility.

Customers shall not allow contractors, masons, or other persons to take unmetered water from their premises without permission from the water utility. Any customer failing to comply with this provision may have water service discontinued and will be responsible for the cost of the estimated volume of water used.

## Water Utility Operating Rules

Use of Hydrants

In cases where no other supply is available, permission may be granted by the water utility to use a hydrant. No hydrant shall be used until the proper meter and valve are installed. In no case shall any valve be installed or moved except by an employee of the water utility.

Before a valve is set, payment must be made for its setting and for the water to be used at the scheduled rates. Where applicable, see Schedule BW-1 for deposits and charges. Upon completing the use of the hydrant, the customer must notify the water utility to that effect.

Operation of Valves and Hydrants and Unauthorized Use of Water - Penalty

Any person who shall, without authority of the water utility, allow contractors, masons, or other unauthorized persons to take water from their premises, operate any valve connected with the street or supply mains, or open any fire hydrant connected with the distribution system, except for the purpose of extinguishing fire, or who shall wantonly damage or impair the same, shall be subject to a fine as provided by municipal ordinance. Utility permission for the use of hydrants applies only to such hydrants that are designated for the specific use.

Refunds of Monetary Deposits

All money deposited as security for payment of charges arising from the use of temporary water service on a metered basis, or for the return of a hydrant valve and fixtures if the water is used on an unmetered basis, will be refunded to the depositor on the termination of the use of water, the payment of all charges levied against the depositor, and the return of the water utility's equipment.

Service Laterals

No water service lateral shall be laid through any trench having cinders, rubbish, rock or gravel fill, or any other material which may cause injury to or disintegration of the service lateral, unless adequate means of protection are provided by sand filling or such other insulation as may be approved by the water utility. Service laterals passing through curb or retaining walls shall be adequately safeguarded by provision of a channel space or pipe casing not less than twice the diameter of the service connection. The space between the service lateral and the channel or pipe casing shall be filled and lightly caulked with an oakum, mastic cement, or other resilient material and made impervious to moisture.

In backfilling the pipe trench, the service lateral must be protected against injury by carefully hand tamping the ground filling around the pipe. There should be at least 6 inches of ground filling over the pipe, and it should be free from hard lumps, rocks, stones, or other injurious material.

## Water Utility Operating Rules

Service Laterals (continued)

All water service laterals shall be of undiminished size from the street main into the point of meter placement. Beyond the meter outlet valve, the piping shall be sized and proportioned to provide, on all floors, at all times, an equitable distribution of the water supply for the greatest probable number of fixtures or appliances operating simultaneously.

Replacement and Repair of Service Laterals

The service lateral from the main to and through the curb stop will be maintained and kept in repair and, when worn out, replaced at the expense of the water utility. The property owner shall maintain the service lateral from the curb stop to the point of use.

If an owner fails to repair a leaking or broken service lateral from the curb to the point of metering or use within such time as may appear reasonable to the water utility after notification has been served on the owner by the water utility, the water will be shut off and will not be turned on again until the repairs have been completed.

Abandonment of Service

If a property owner changes the use of a property currently receiving water service such that water service will no longer be needed in the future, the water utility may require the abandonment of the water service at the water main. In such case, the property owner may be responsible for all removal and/or repair costs, including the water main and the utility portion of the water service lateral.

Charges for Water Wasted Due to Leaks

See Wis. Admin. Code § PSC 185.35 or Schedule X-4, if applicable.

Thawing Frozen Service Laterals

See Wis. Admin. Code § PSC 185.88 or Schedule X-4, if applicable.

Curb Stop Boxes

The curb stop box is the property of the water utility. The water utility is responsible for its repair and maintenance. This includes maintaining, through adjustment, the curb stop box at an appropriate grade level where no direct action by the property owner or occupant has contributed to an elevation problem. The property owner is responsible for protecting the curb stop box from situations that could obstruct access to it or unduly expose it to harm. The water utility shall not be liable for failure to locate the curb stop box and shut off the water in case of a leak on the owner's premises.

## Water Utility Operating Rules

Installation of Meters

Meters will be owned, furnished, and installed by the water utility or a utility-approved contractor and are not to be disconnected or tampered with by the customer. All meters shall be so located that they shall be protected from obstructions and permit ready access for reading, inspection, and servicing, such location to be designated or approved by the water utility. All piping within the building must be supplied by the owner. Where additional meters are desired by the owner, the owner shall pay for all piping. Where applicable, see Schedule Am-1 for rates.

Repairs to Meters

Meters will be repaired by the water utility, and the cost of such repairs caused by ordinary wear and tear will be borne by the water utility.

Repair of any damage to a meter resulting from the carelessness of the owner of the premises, owner's agent, or tenant, or from the negligence of any one of them to properly secure and protect same, including any damage that may result from allowing a water meter to become frozen or to be damaged from the presence of hot water or steam in the meter, shall be paid for by the customer or the owner of the premises.

Service Piping for Meter Settings

Where the original service piping is installed for a new metered customer, where existing service piping is changed for the customer's convenience, or where a new meter is installed for an existing unmetered customer, the owner of the premises at his/her expense shall provide a suitable location and the proper connections for the meter. The meter setting and associated plumbing shall comply with the water utility's standards. The water utility should be consulted as to the type and size of the meter setting.

Turning on Water

The water may only be turned on for a customer by an authorized employee of the water utility. Plumbers may turn the water on to test their work, but upon completion must leave the water turned off.

Sprinkling Restrictions and Emergency Water Conditions

Where the municipality has a policy regarding sprinkling restrictions and/or emergency water conditions, failure to comply with such may result in disconnection of service.

See Wis. Admin. Code § PSC 185.37.

## Water Utility Operating Rules

Failure to Read Meters

Where the water utility is unable to read a meter, the fact will be plainly indicated on the bill, and either an estimated bill will be computed or the minimum charge applied. The difference shall be adjusted when the meter is again read, that is, the bill for the succeeding billing period will be computed with the gallons or cubic feet in each block of the rate schedule doubled, and credit will be given on that bill for the amount of the bill paid the preceding period. Only in unusual cases shall more than three consecutive estimated or minimum bills be rendered.

If the meter is damaged (see Surreptitious Use of Water) or fails to operate, the bill will be based on the average use during the past year, unless there is some reason why the use is not normal. If the average use cannot be properly determined, the bill will be estimated by some equitable method.

See Wis. Admin. Code § PSC 185.33.

Complaint Meter Tests

See Wis. Admin. Code § PSC 185.77.

Inspection of Premises

During reasonable hours, any officer or authorized employee of the water utility shall have the right of access to the premises supplied with service for the purpose of inspection or for the enforcement of the water utility's rules and regulations. Whenever appropriate, the water utility will make a systematic inspection of all unmetered water taps for the purpose of checking waste and unnecessary use of water.

See Wis. Stat. § 196.171.

Vacation of Premises

When premises are to be vacated, the water utility shall be notified, in writing, at once, so that it may remove the meter and shut off the water supply at the curb stop. The owner of the premises shall be liable for prosecution for any damage to the water utility's property. See "Abandonment of Service" in Schedule X-1 for further information.

Deposits for Residential Service

See Wis. Admin. Code § PSC 185.36.

## Water Utility Operating Rules

Deposits for Nonresidential Service

See Wis. Admin. Code § PSC 185.361.

Deferred Payment Agreement

See Wis. Admin. Code § PSC 185.38 or Schedule X-4, if applicable.

Dispute Procedures

See Wis. Admin. Code § PSC 185.39.

Disconnection and Refusal of Service

See Wis. Admin. Code § PSC 185.37.

The following is an example of a disconnection notice that the utility may use to provide the required notice to customers.

DISCONNECTION NOTICE

Dear Customer:

The bill enclosed with this notice includes your current charge for water utility service and your previous unpaid balance.

You have 10 days to pay the water utility service arrears or your service is subject to disconnection.

If you fail to pay the service arrears or fail to contact us within the 10 days allowed to make reasonable deferred payment arrangement or other suitable arrangement, we will proceed with disconnection action.

To avoid the inconvenience of service interruption and an additional charge of (amount) for reconnection, we urge you to pay the full arrears IMMEDIATELY AT ONE OF OUR OFFICES.

If you have entered into a Deferred Payment Agreement with us and have failed to make the deferred payments you agreed to, your service will be subject to disconnection unless you pay the entire amount due within 10 days.

If you have a reason for delaying the payment, call us and explain the situation.

## Water Utility Operating Rules

Disconnection and Refusal of Service (continued)

DISCONNECTION NOTICE (continued)

PLEASE CALL THIS TELEPHONE NUMBER, (telephone number), IMMEDIATELY IF:

1. You dispute the notice of delinquent account.
2. You have a question about your water utility service arrears.
3. You are unable to pay the full amount of the bill and are willing to enter into a deferred payment agreement with us.
4. There are any circumstances you think should be taken into consideration before service is discontinued.
5. Any resident is seriously ill.

Illness Provision: If there is an existing medical emergency in your home and you furnish the water utility with a statement signed by either a licensed Wisconsin physician or a public health official, we will delay disconnection of service up to 21 days. The statement must identify the medical emergency and specify the period of time during which disconnection will aggravate the existing emergency.

Deferred Payment Agreements: If you are a residential customer and you are unable to pay the full amount of the water utility service arrears on your bill, you may contact the water utility to discuss arrangements to pay the arrears over an extended period of time.

This time payment agreement will require:

1. Payment of a reasonable amount at the time the agreement is made.
2. Payment of the remainder of the outstanding balance in monthly installments over a reasonable length of time.
3. Payment of all future water utility service bills in full by the due date.

In any situation where you are unable to resolve billing disputes or disputes about the grounds for proposed disconnection through contacts with our water utility, you may make an appeal to the Public Service Commission of Wisconsin by calling (800) 225-7729.

(WATER UTILITY NAME)

## Water Utility Operating Rules

Collection of Overdue Bills

An amount owed by the customer may be levied as a tax as provided in Wis. Stat. § 66.0809.

Surreptitious Use of Water

When the water utility has reasonable evidence that a person is obtaining water, in whole or in part, by means of devices or methods used to stop or interfere with the proper metering of the water utility service being delivered, the water utility reserves the right to estimate and present immediately a bill for unmetered service as a result of such interference, and such bill shall be payable subject to a 24-hour disconnection of service. If the water utility disconnects the service for any such reason, the water utility will reconnect the service upon the following conditions:

A. The customer will be required to deposit with the water utility an amount sufficient to guarantee the payment of the bills for water utility service.

B. The customer will be required to pay the water utility for any and all damages to water utility equipment resulting from such interference with the metering.

C. The customer must further agree to comply with reasonable requirements to protect the water utility against further losses.

See Wis. Stat. §§ 98.26 and 943.20.

Repairs to Mains

The water utility reserves the right to shut off the water supply in the mains temporarily to make repairs, alterations, or additions to the plant or system. When the circumstances will permit, the water utility will give notification, by newspaper publication or otherwise, of the discontinuance of the water supply. No credit will be allowed to customers for such temporary suspension of the water supply.

See Wis. Admin. Code § PSC 185.87.

Duty of Water Utility with Respect to Safety of the Public

It shall be the duty of the water utility to see that all open ditches for water mains, hydrants, and service laterals are properly guarded to prevent accident to any person or vehicle, and at night there shall be displayed proper signal lighting to ensure the safety of the public.

## Water Utility Operating Rules

Handling Water Mains and Service Laterals in Excavation Trenches

Contractors must call Digger's Hotline and ensure a location is done to establish the existence and location of all water mains and service laterals as provided in Wis. Stat. § 182.0175. Where water mains or service laterals have been removed, cut, or damaged during trench excavation, the contractors must, at their own expense, cause them to be replaced or repaired at once. Contractors must not shut off the water service laterals to any customer for a period exceeding 6 hours.

Protective Devices

A. Protective Devices in General: The owner or occupant of every premise receiving water supply shall apply and maintain suitable means of protection of the premise supply and all appliances against damage arising in any manner from the use of the water supply, variation of water pressure, or any interruption of water supply. Particularly, such owner or occupant must protect water-cooled compressors for refrigeration systems by means of high and/or low pressure safety cutout devices. There shall likewise be provided means for the prevention of the transmission of water ram or noise of operation of any valve or appliance through the piping of their own or adjacent premises.

B. Relief Valves: On all "closed systems" (i.e., systems having a check valve, pressure regulator, reducing valve, water filter, or softener), an effective pressure relief valve shall be installed at or near the top of the hot water tank or at the hot water distribution pipe connection to the tank. No stop valve shall be placed between the hot water tank and the relief valve or on the drain pipe. See applicable plumbing codes.

C. Air Chambers: An air chamber or approved shock absorber shall be installed at the terminus of each riser, fixture branch, or hydraulic elevator main for the prevention of undue water hammer. The air chamber shall be sized in conformance with local plumbing codes. Where possible, the air chamber should be provided at its base with a valve for water drainage and replenishment of air.

Cross-Connections

Every person owning or occupying a premise receiving municipal water supply shall maintain such municipal water supply free from any connection, either of a direct or of an indirect nature, with a water supply from a foreign source or of any manner of connection with any fixture or appliance whereby water from a foreign supply or the waste from any fixture, appliance, or waste or soil pipe may flow or be siphoned or pumped into the piping of the municipal water system.

See Wis. Admin. Code § NR 811.06.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Water Main Extension Rule

Water mains will be extended for new customers on the following basis:

A. Where the cost of the extension is to immediately be collected through assessment by the municipality against the abutting property, the procedure set forth under Wis. Stat. § 66.0703 will apply, and no additional customer contribution to the utility will be required.

B. Where the municipality is unwilling or unable to make a special assessment, the extension will be made on a customer-financed basis as follows:

1. The applicant(s) will advance as a contribution in aid of construction the total amount equivalent to that which would have been assessed for all property under paragraph A.

2. Part of the contribution required in paragraph B.1. will be refundable. When additional customers are connected to the extended main within 10 years of the date of completion, contributions in aid of construction will be collected equal to the amount which would have been assessed under paragraph A. for the abutting property being served. This amount will be refunded to the original contributor(s). In no case will the contributions received from additional customers exceed the proportionate amount which would have been required under paragraph A., nor will it exceed the total assessable cost of the original extension.

C. When a customer connects to a transmission main or connecting loop installed at utility expense within 10 years of the date of completion, there will be a contribution required of an amount equivalent to that which would have been assessed under paragraph A.

**Public Service Commission of Wisconsin**

**City of Pewaukee Water Utility**

## Water Main Installations in Platted Subdivisions

Application for installation of water mains in regularly platted real estate development subdivisions shall be filed with the utility.

If the developer, or a contractor employed by the developer, is to install the water mains (with the approval of the utility), the developer shall be responsible for the total cost of construction.

If the utility or its contractor is to install the water mains, the developer shall be required to advance to the utility, prior to the beginning of the construction, the total estimated cost of the extension. If the final costs exceed estimated costs, an additional billing will be made for the balance of the cost due. This balance is to be paid within 30 days. If final costs are less than estimated, a refund of the overpayment will be made by the water utility.

# City of Pewaukee Water Utility - Step II

## Customer Water Bill Comparison at Present and Proposed Step II Rates

| | | | Quarterly | | |
|---|---|---|---|---|---|
| **Customer Type** | **Meter Size** | **Volume (1000 Gallons)** | **Bills at Current Rates** | **Bills at Step II Rates** | **Percent Change** |
| Small Residential | 3/4" | 8 | $ 54.16 | $ 73.60 | 35.89% |
| Average Residential | 3/4" | 15 | $ 79.50 | $ 111.75 | 40.57% |
| Large Residential | 3/4" | 30 | $ 133.80 | $ 193.50 | 44.62% |
| Large Residential | 3/4" | 60 | $ 242.40 | $ 357.00 | 47.28% |
| Large Residential | 3/4" | 120 | $ 459.60 | $ 684.00 | 48.83% |
| Multifamily Residential | 2" | 330 | $ 1,278.60 | $ 1,894.50 | 48.17% |
| Multifamily Residential | 2" | 530 | $ 2,022.60 | $ 2,984.50 | 47.56% |
| Multifamily Residential | 2" | 730 | $ 2,726.60 | $ 4,074.50 | 49.44% |
| Multifamily Residential | 2" | 930 | $ 3,450.60 | $ 5,164.50 | 49.67% |
| Commercial | 3" | 2,500 | $ 9,197.00 | $ 13,778.00 | 49.81% |
| Commercial | 3" | 3,000 | $ 11,007.00 | $ 16,503.00 | 49.93% |
| Commercial | 4" | 2,100 | $ 7,818.00 | $ 11,673.00 | 49.31% |
| Commercial | 4" | 3,300 | $ 12,162.00 | $ 18,213.00 | 49.75% |
| Industrial | 2" | 1,000 | $ 3,704.00 | $ 5,546.00 | 49.73% |
| Industrial | 2" | 1,400 | $ 5,152.00 | $ 7,726.00 | 49.96% |
| Industrial | 3" | 1,200 | $ 4,491.00 | $ 6,693.00 | 49.03% |
| Industrial | 3" | 3,295 | $ 12,074.90 | $ 18,110.75 | 49.99% |
| Public Authority | 1 1/2" | 140 | $ 566.80 | $ 832.00 | 46.79% |
| Public Authority | 1 1/2" | 210 | $ 820.20 | $ 1,213.50 | 47.95% |
| Public Authority | 1 1/2" | 280 | $ 1,073.60 | $ 1,595.00 | 48.57% |
| Public Authority | 1 1/2" | 870 | $ 3,296.40 | $ 4,810.50 | 45.93% |

# City of Pewaukee Water Utility - Step II

## Customer Water Bill Comparison at Step I and Step II Rates

| | | | Quarterly | | |
|---|---|---|---|---|---|
| **Customer Type** | **Meter Size** | **Volume (1000 Gallons)** | **Bills at Step I Rates** | **Bills at Step II Rates** | **Percent Change** |
| Small Residential | 3/4" | 8 | $ 68.00 | $ 73.60 | 8.24% |
| Average Residential | 3/4" | 15 | $ 101.25 | $ 111.75 | 10.37% |
| Large Residential | 3/4" | 30 | $ 172.50 | $ 193.50 | 12.17% |
| Large Residential | 3/4" | 60 | $ 315.00 | $ 357.00 | 13.33% |
| Large Residential | 3/4" | 120 | $ 600.00 | $ 684.00 | 14.00% |
| Multifamily Residential | 2" | 330 | $ 1,663.50 | $ 1,894.50 | 13.89% |
| Multifamily Residential | 2" | 530 | $ 2,613.50 | $ 2,984.50 | 14.20% |
| Multifamily Residential | 2" | 730 | $ 3,563.50 | $ 4,074.50 | 14.34% |
| Multifamily Residential | 2" | 930 | $ 4,513.50 | $ 5,164.50 | 14.42% |
| Commercial | 3" | 2,500 | $ 12,028.00 | $ 13,778.00 | 14.55% |
| Commercial | 3" | 3,000 | $ 14,403.00 | $ 16,503.00 | 14.58% |
| Commercial | 4" | 2,100 | $ 10,203.00 | $ 11,673.00 | 14.41% |
| Commercial | 4" | 3,300 | $ 15,903.00 | $ 18,213.00 | 14.53% |
| Industrial | 2" | 1,000 | $ 4,846.00 | $ 5,546.00 | 14.44% |
| Industrial | 2" | 1,400 | $ 6,746.00 | $ 7,726.00 | 14.53% |
| Industrial | 3" | 1,200 | $ 5,853.00 | $ 6,693.00 | 14.35% |
| Industrial | 3" | 3,295 | $ 15,804.25 | $ 18,110.75 | 14.59% |
| Public Authority | 1 1/2" | 140 | $ 734.00 | $ 832.00 | 13.35% |
| Public Authority | 1 1/2" | 210 | $ 1,066.50 | $ 1,213.50 | 13.78% |
| Public Authority | 1 1/2" | 280 | $ 1,399.00 | $ 1,595.00 | 14.01% |
| Public Authority | 1 1/2" | 870 | $ 4,201.50 | $ 4,810.50 | 14.49% |

# CITY OF PEWAUKEE
# PUBLIC WORKS COMMITTEE AGENDA ITEM 6.1.

**DATE:** December 7, 2023

**DEPARTMENT:** PW - Engineering

**PROVIDED BY:** Magdelene Wagner

***SUBJECT:***

Discussion and update regarding the Lindsay Road and Pewaukee Road (STH164) intersection signals.

***BACKGROUND:***

Just an update on this request.

The City notified the State on behalf of the City and Village that we were interested in signals at the intersection of Pewaukee Road (STH 164) and Lindsay Road. The State sent back on email contract with the dollar value for the improvements at $350,000.

Staff and the City Attorney drafted an intergovernmental agreement with the Village for the signal installation. The Village took action to send a letter to Waukesha County requesting they pay for the signal installation. See attached letter. We are currently waiting for a response. Once we get a response, the Village will need to approve the intergovernmental agreement. At which point, we will complete the agreement letter with the State to install the signals as part of their project.

***FINANCIAL IMPACT:***

***RECOMMENDED MOTION:***

No action needed. This was just an update.

**ATTACHMENTS:**

Description

Village letter

November 9, 2023

Mr. Paul Farrow
Waukesha County Executive
515 W. Moreland Blvd.
Room 320
Waukesha, WI 53188

**RE: Request for County Participation for Installation of Traffic Signals at STH 164 and Lindsay Road**

Dear Paul:

On behalf of the Village of Pewaukee Village Board, I am requesting your support of County participation in paying for the installation of traffic signals at the intersection of STH 164 and Lindsay Road as part of the DOT's 2027 planned STH 164 road resurfacing project. The Village was approached by the City of Pewaukee to support the installation of signals after the City reached out to WisDOT and was advised by WisDOT that the intersection did not meet enough warrants for the DOT to undertake this work (please see enclosed letter from City of Pewaukee). WisDOT advised that they would include this work if the local community(ies) would pay 100% of the cost of installation – currently estimated at $300,000.

The Village believes that County participation in this project is appropriate as STH 164 is a major north-south route within Waukesha County serving residents in the norther part of the County, which is rapidly growing, along with communities in Washington County. While this project is several years out with a planned let in 2026 and construction in 2027, the DOT is seeking a decision from the City and Village sooner rather than later. On behalf of the Village Board, I believe it is appropriate for the County to participate in the safety improvement project as the impact on this intersection is from regional traffic and not just Village and City of Pewaukee residents.

Thank you for your attention to this important matter. I look forward to your response to this request. I can be reached at either villagepresident@villageofpewaukeewi.gov or 262-620-6565.

Sincerely,

Jeff Knutson
Village of Pewaukee President

Enclosure

C: Village Board
Christine Howard, County Supervisor
Steve Bierce, Mayor, City of Pewaukee

**Department of Public Works**
W240N3065 Pewaukee Road
Pewaukee, WI 53072
Phone: (262) 691-0804 • Fax: (262) 691-5729
Email: publicworks@pewaukee.wi.us

# MEMORANDUM

**TO:** Village Board
Scott Gosse, Administrator

**FROM:** Magdelene Wagner, Director of Public Works

**DATE:** September 13, 2023

**RE:** Intersection of Lindsay Road and Pewaukee Road (STH 164) Signals

The Wisconsin Department of Transportation (WisDOT) is completing a road resurfacing project on Pewaukee Road (STH 164) planned for 2026 let and likely 2027 construction. The design is being completed currently. As part of the stakeholder's meetings with WisDOT, the City of Pewaukee (City) requested a review of the intersection of Pewaukee Road (STH 164) and Lindsay Road. The WisDOT reviewed the intersection by completing an intersection study. (Please see attached study.) The study was completed in 2021, and indicated the intersection met one warrant for signals but it was not enough to install signals as part of the resurfacing project. A review of traffic accidents over the last 5 years shows 14 property damage only and 2 injury accidents. Further discussion with WisDOT indicated they would install signals at this intersection as part of their project if the municipality would pay 100% of the cost of the installation of the signals. This would require an agreement with WisDOT. WisDOT estimates the cost of the signals to be $300,000.

The City receives numerous complaints regarding this intersection. During peak travel times, traffic backs up on Lindsay Road in both directions waiting for the opportunity to cross Pewaukee Road (STH 164). This coincides with the warrant met in the State's traffic study. Signals at this intersection would address the concerns expressed by the residents and provide a corrective measure to allow safe travel through this intersection by Village of Pewaukee (Village) and City residents. I would also note there are three existing Village subdivisions near this intersection as well as some future developable land in the Village which will increase the vehicles using this intersection.

The intersection of Lindsay Road and Pewaukee Road (STH 164) is within the Village limits. The City would like to work with the Village to provide signals at this intersection, which would benefit both communities and their residents. If you are interested in working with us, the next steps I recommend are:

1) Notify WisDOT of the request for signals at this intersection as part of their project immediately as time is of the essence to include it in the resurfacing project.
2) Request an agreement from WisDOT to facilitate the installation of the signals at the municipalities' expense.
3) The City will concurrently draft an Intermunicipal Agreement between the communities which will outline the terms to support the installation of signals at the intersection for review at a future Board meeting.

## Wagner, Magdelene

**From:** Marshall, Dawn - DOT <Dawn.Marshall@dot.wi.gov>
**Sent:** Wednesday, April 12, 2023 9:11 AM
**To:** Wagner, Magdelene
**Cc:** Wilfert, Mark J - DOT
**Subject:** RE: 2370-00-05/75 - WIS 164
**Attachments:** Signal Warrant Analysis WIS 164 & Lindsay.pdf

Hi Maggie,

Thank you for catching that. It does NOT meet criteria to be included in a resurfacing project. I recently updated the project budget and after talking to the DOT Signals unit I estimated $300,000 for each signalized intersection. The traffic volumes used to reevaluate the intersection were from 2021. I've attached the data they used. The warrants met are shown on the first page. If the City would like to proceed, we would need an agreement in place by summer. The cost would not be billed to the City until construction occurring.

Thank you.

Dawn

***Dawn L. Marshall***
Wisconsin Department of Transportation
PDS Unit 7
Phone: 262-548-6443
Cell: 414-750-1462

**From:** Wagner, Magdelene <wagner@pewaukee.wi.us>
**Sent:** Wednesday, April 12, 2023 8:47 AM
**To:** Marshall, Dawn - DOT <Dawn.Marshall@dot.wi.gov>
**Cc:** Wilfert, Mark J - DOT <Mark.Wilfert@dot.wi.gov>
**Subject:** RE: 2370-00-05/75 - WIS 164

**CAUTION: This email originated from outside the organization.**
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Hi Dawn,

Thanks for the response. I have a couple of follow-up questions and a clarification.

You stated: "Although it does meet one of the MUTCD warrants for signalization, it does meet the criteria to be signalized at part of a resurfacing project." Were one of these "does" supposed to be a doesn't?

What is the year for the traffic counts that were used in the review?
Which warrant did this intersection meet?
Do you have an estimate of the cost of the signals that the City would be responsible for?
If the City did agree to pay 100% for the cost, when do you need to know this to be included in your project?

Thank you,
Maggie Wagner

**Magdelene Wagner, P.E.**
**Director of Public Works/City Engineer**
**City of Pewaukee**
W240N3065 Pewaukee Road
Pewaukee, WI 53072
262-691-0804

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**From:** Marshall, Dawn - DOT <Dawn.Marshall@dot.wi.gov>
**Sent:** Wednesday, April 12, 2023 7:51 AM
**To:** Wagner, Magdelene <wagner@pewaukee.wi.us>
**Cc:** Wilfert, Mark J - DOT <Mark.Wilfert@dot.wi.gov>
**Subject:** 2370-00-05/75 - WIS 164

Good morning Maggie,

I just wanted to get back to you and let you know that the intersection of WIS 164 with Lindsay Road was rereviewed. Although it does meet one of the MUTCD warrants for signalization, it does meet the criteria to be signalized at part of a resurfacing project. This would not preclude it from being signalized as part of the project, but without meeting full warrants the cost of signalization would need to be paid by the City of Pewaukee. Please let me or Mark know if you have any additional questions.

Thank you.

Dawn

***Dawn L. Marshall***
Wisconsin Department of Transportation
PDS Unit 7
Phone: 262-548-6443
Cell: 414-750-1462

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# Wisconsin Department of Transportation Traffic Signal Warrant Summary Worksheet

**70%**

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: STH 164 & Lindsay Rd
County: Waukesha
Village: Pewaukee

Major Street: STH 164
Critical Approach Speed: 45 mph
Lanes: 2 or more lanes

Minor Street: Lindsay Rd
Critical Approach Speed: 25 mph
Lanes: 1 lane

% Right Turns Included
From North (SB) 100%
From East (WB) 0%
From South (NB) 100%
From West (EB) 0%

In built-up area of isolated community of < 10,000 population? No
Total number of approaches at intersection? 3
If it is a "T" intersection, inflate minor threshold to 150%? No
Manually set volume level?

**Analysis based on EXISTING volume data.**

| Date | Day of the Week | Time (HH:MM) | | | |
|---|---|---|---|---|---|
| | | From | AM / PM | To | AM / PM |
| Mar-21 | | 6:00 | AM | 7:00 | PM |

| Warrant Evaluation Summary | Warrant Met: |
|---|---|
| **Warrant 1: Eight - Hour Vehicular Volume** | **Yes** |
| Condition A: Minimum Vehicular Volume | No |
| Condition B: Interruption of Continuous Traffic | Yes |
| Condition C: Combination: 80% of A and B | No |
| **Warrant 2: Four-Hour Volume** | **Yes** |
| **Warrant 3: Peak Hour Volume** | **N/A** |
| **Warrant 4: Pedestrian Volume** | **N/A** |
| Criterion A: Four-Hour | |
| Criterion B: Peak-Hour | |
| **Warrant 5: School Crossing** | **N/A** |
| **Warrant 6: Coordinated Signal System** | **N/A** |
| **Warrant 7: Crash Experience** | **N/A** |
| **Warrant 8: Roadway Network** | **N/A** |
| **Warrant 9: Intersection Near a Grade Crossing** | **N/A** |

**Warrant Analysis Conducted By:**

Name: Revised by Mike Borck
Agency: WisDOT
Date: 5/3/2022

## Warrant 1: Eight - Hour Vehicular Volume 70%

**Warrant Evaluated? Yes** **Warrant Satisfied? Yes** **Manually Set To:**

| Condition A : Min. Veh. Volume | | |
|---|---|---|
| Volume Level | 70% | 56% |
| Major Rd. Req | 420 | 336 |
| Minor Rd. Req | 105 | 84 |
| Number of Hours | 1 | 3 |

**Satisfied? No**

| Condition B: Interruption of Continuous Traffic | | |
|---|---|---|
| Volume Level | 70% | 56% |
| Major Rd. Req | 630 | 504 |
| Minor Rd. Req | 53 | 42 |
| Number of Hours | 12 | 12 |

**Satisfied? Yes**

| Condition C: Combination of A & B at 56% |
|---|

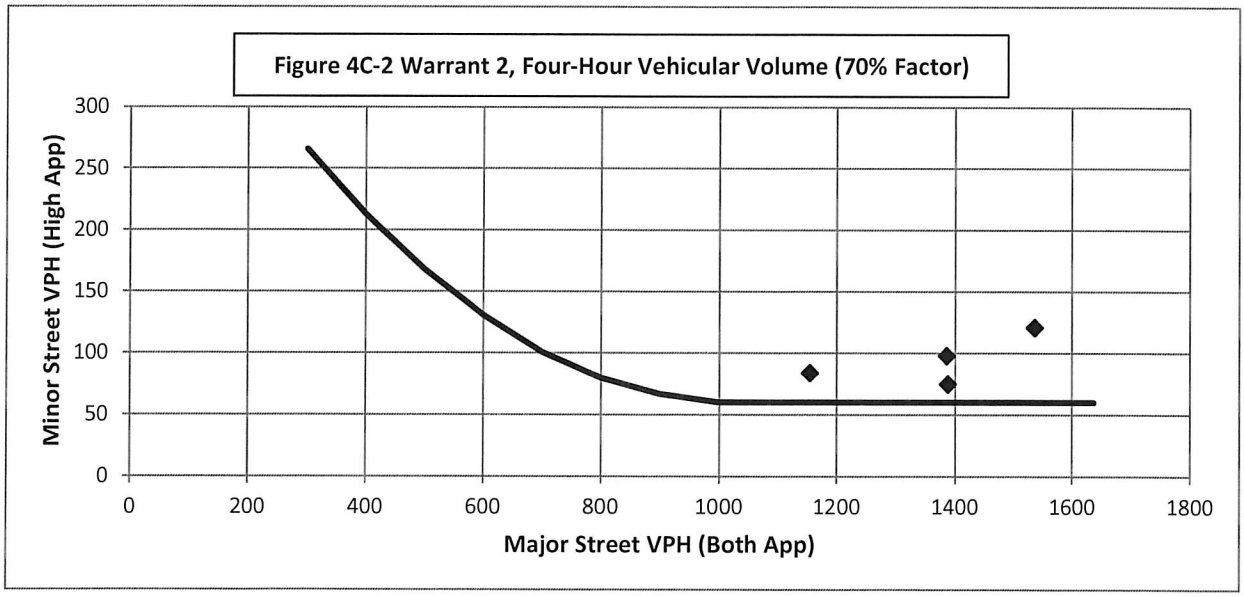
**Satisfied? No**

| 6:00 AM | Enter Start Time (Military Time) (HH:MM) | | | | |
|---|---|---|---|---|---|
| **Time Period** | **From** | **To** | **Major Road: Both App. (VPH)** | **Minor Road: High App. (VPH)** | **Total** |
| 1 | 6:00 | 7:00 | 802 | 55 | 857 |
| 2 | 7:00 | 8:00 | 1155 | 84 | 1239 |
| 3 | 8:00 | 9:00 | 944 | 64 | 1008 |
| 4 | 9:00 | 10:00 | 763 | 40 | 803 |
| 5 | 10:00 | 11:00 | 866 | 57 | 923 |
| 6 | 11:00 | 12:00 | 994 | 75 | 1069 |
| 7 | 12:00 | 13:00 | 1048 | 66 | 1114 |
| 8 | 13:00 | 14:00 | 993 | 63 | 1056 |
| 9 | 14:00 | 15:00 | 1137 | 71 | 1208 |
| 10 | 15:00 | 16:00 | 1386 | 98 | 1484 |
| 11 | 16:00 | 17:00 | 1537 | 121 | 1658 |
| 12 | 17:00 | 18:00 | 1388 | 75 | 1463 |
| 13 | 18:00 | 19:00 | 824 | 59 | 883 |
| 14 | 19:00 | 20:00 | 0 | 0 | 0 |
| 15 | 20:00 | 21:00 | 0 | 0 | 0 |
| 16 | 21:00 | 22:00 | 0 | 0 | 0 |

## Warrant 2: Four-Hour Volume 70%

**Warrant Evaluated? Yes**
**Warrant Satisfied? Yes**
**Manually Set To:**

| Hour Start | 16:00 | 15:00 | 17:00 | 7:00 |
|---|---|---|---|---|
| Major Road Vol. | 1537 | 1386 | 1388 | 1155 |
| Minor Road Vol. | 121 | 98 | 75 | 84 |



## Warrant 3: Peak Hour Volume 70%

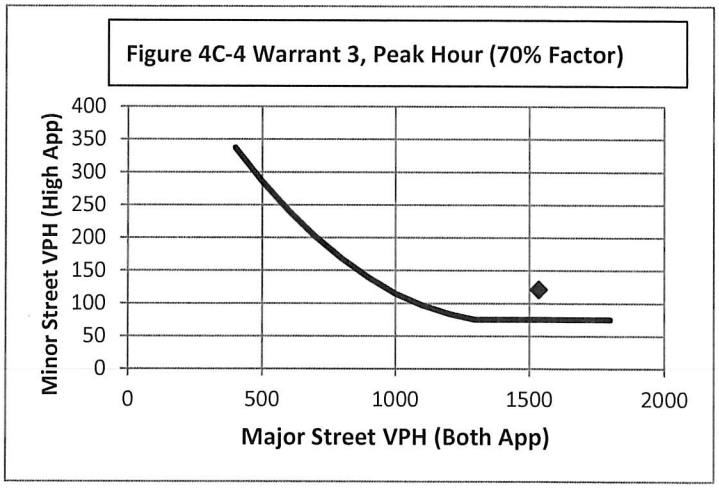
**Warrant Evaluated? No** **Warrant Satisfied? N/A** **Manually Set To:**

Condition justifying use of warrant:

| Criteria | | Met? |
|---|---|---|
| Delay on Minor Approach | 4 | |
| Volume on Minor Approach | 100 | |
| Total Entering Volume (veh/h) | 650 | |

**Manually Set Peak Hour?**

| Peak Hour | Major Road Vol. (Both App.) | Minor Road Vol. (High App.) |
|---|---|---|
| 16:00 | 1537 | 121 |




## Warrant 4: Pedestrian Volume 70%

**Warrant Evaluated?** **Warrant Satisfied? N/A** **Manually Set To:**

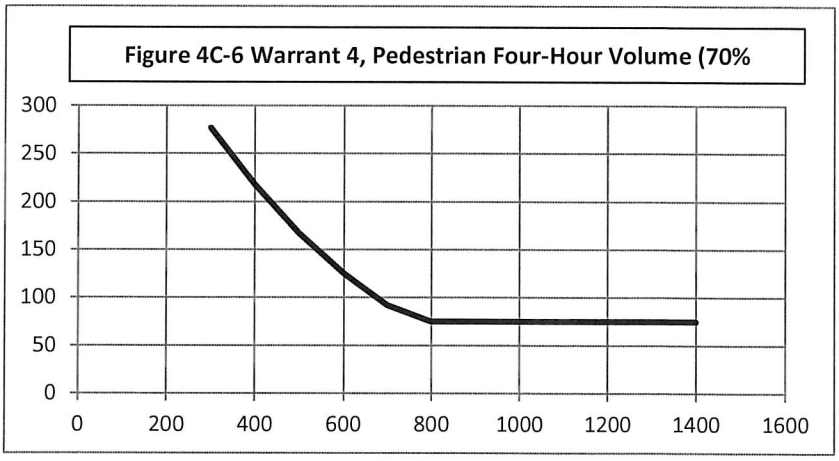
**Criterion A: Four Hour**

| Hour (Start) | Pedestrian Volume | Major Road Vol. |
|---|---|---|
| | | 0 |
| | | 0 |
| | | 0 |
| | | 0 |

**Manually Set Major Rd Vol?**

**Avg. walk speed less than 3.5 ft/s?**

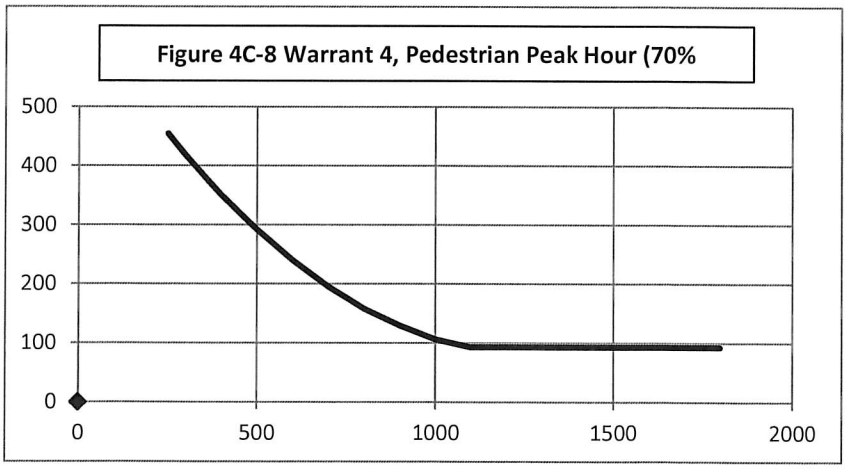
**Criterion A Satisfied?**




**Criterion B: Peak Hour**

| Peak Hour | Pedestrian Vol. | Major Road Vol. |
|---|---|---|
| 0:00 | 0 | 0 |

**Criterion B Satisfied?**



## Warrant 5: School Crossing 70%

**Warrant Evaluated?** **Warrant Satisfied? N/A** **Manually Set To:**

| Criteria | | Fulfilled? |
|---|---|---|
| 1 | There are a MINIMUM of 20 school children during the highest crossing hour. | |
| 2 | There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period. | |
| 3 | The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic. | |

## Warrant 6: Coordinated Signal System 70%

**Warrant Evaluated?** **Warrant Satisfied? N/A** **Manually Set To:**

| Criteria | | Fulfilled? |
|---|---|---|
| 1 | Signal spacing > 1000 ft | |
| 2 | On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning. | |
| 3 | On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation. | |

## Warrant 7: Crash Experience 70%

**Warrant Evaluated?** **Warrant Satisfied? N/A** **Manually Set To:**

| Criteria | | | Met? | Fulfilled? |
|---|---|---|---|---|
| 1 | Adequate trial of other remedial measures has failed to reduce crash frequency. | | | |
| | Measures Tried: | | | |
| 2 | Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period. | # of crashes per 12 months | | |
| 3 | Warrant 1, Condition A (80%) | | No | Yes |
| | Warrant 1, Condition B (80%) | | Yes | |
| | Warrant 4, Criterion A (80%) | | No | |
| | Warrant 4, Criterion B (80%) | | No | |

## Warrant 8: Roadway Network 70%

**Warrant Evaluated?** **Warrant Satisfied? N/A** **Manually Set To:**

| Criteria | | | | | | Met? | Fulfilled? |
|---|---|---|---|---|---|---|---|
| 1 | Total entering volume of at least 1,000 veh/h during typical weekday peak hour | | | | 1658 | Yes | No |
| | Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3. | | | | | No | |
| 2 | Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.) | | | | | | |
| | Hour | | | | | | |
| | Volume | | | | | | |

| Characteristics of Major Routes - Select yes if all intersecting routes have characteristic | | Fulfilled? |
|---|---|---|
| 1 | Part of the road or highway system that serves as the principal roadway network for through traffic flow | |
| 2 | Rural or suburban highway outside of, entering, or traversing a city | |
| 3 | Appears as a major route on an official plan | |

# Warrant 9: Intersection Near a Grade Crossing 70%

**Warrant Evaluated?** **Warrant Satisfied? N/A** **Manually Set To:**

| Adjustment Factors | | | Manually Set Peak Hour? | | | | |
|---|---|---|---|---|---|---|---|
| Rail Traffic per Day | % High Occupancy Buses on Minor Road | % Tractor-Trailer Trucks on Minor Road | D | Peak Hour | Major Road Vol. | Minor Road Vol. | Adjusted Minor Vol. |
| 1 | 0 | 0% to 2.5% | 660 | 16:00 | 1537 | 121 | 40.535 |

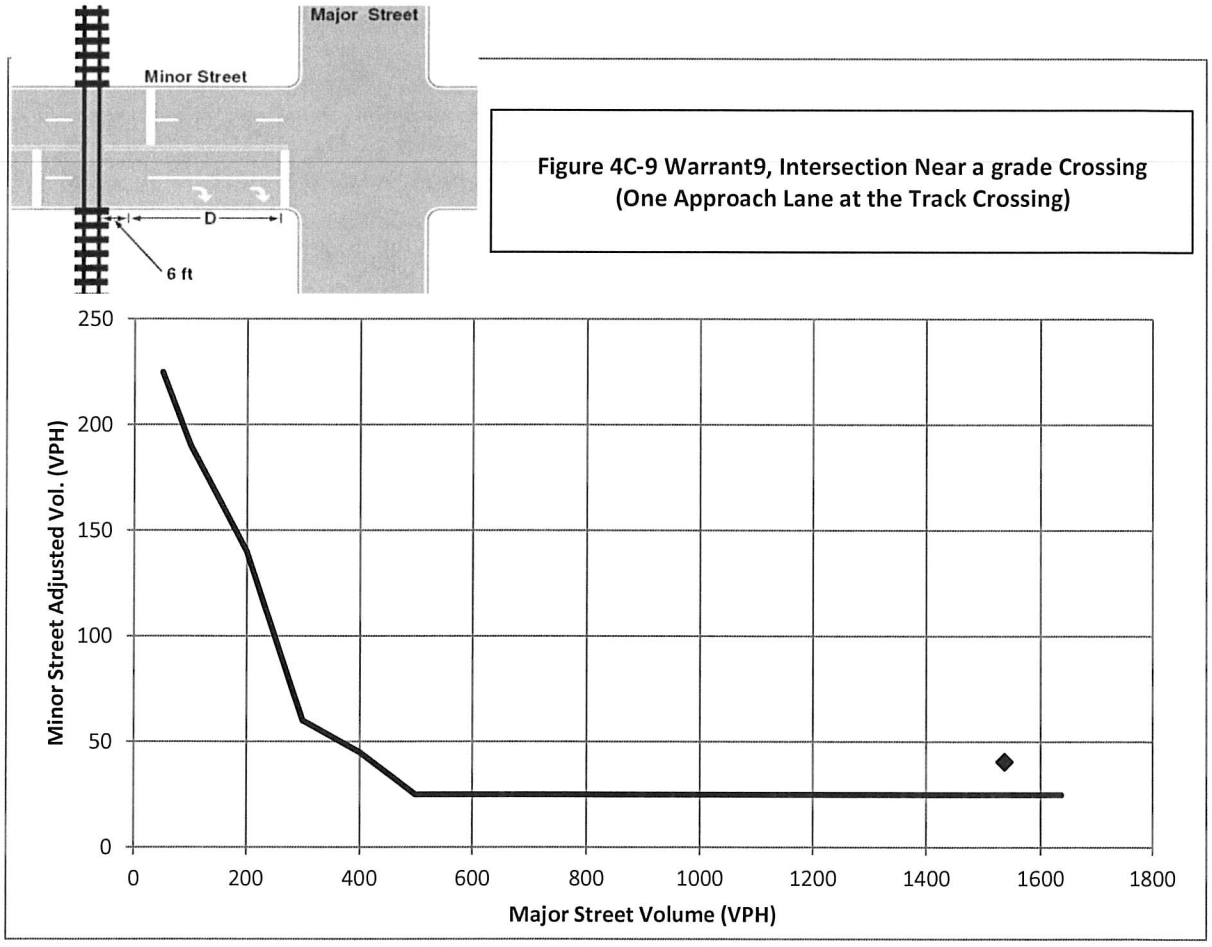



**Figure 4C-9 Warrant9, Intersection Near a grade Crossing (One Approach Lane at the Track Crossing)**

**Conclusions/Comments:**

Updated: 12/6/2017

## Hourly Volume Data

| One Hour Time Period Start Time | | From North (SB) ↓ | | | | | From East (WB) ← | | | | | From South (NB) ↑ | | | | | From West (EB) → | | | | | Total Vehicle Volume |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Right | Thru | Left | U-Tn | Total | Right | Thru | Left | U-Tn | Total | Right | Thru | Left | U-Tn | Total | Right | Thru | Left | U-Tn | Total | |
| AM | 6:00 | 61 | 501 | 4 | 0 | 566 | 12 | 13 | 2 | 0 | 27 | 1 | 229 | 6 | 0 | 236 | 11 | 8 | 47 | 0 | 66 | 895 |
| | 7:00 | 97 | 715 | 7 | 0 | 819 | 12 | 46 | 1 | 0 | 59 | 1 | 311 | 24 | 0 | 336 | 30 | 24 | 59 | 1 | 114 | 1328 |
| | 8:00 | 77 | 540 | 1 | 1 | 619 | 1 | 19 | 7 | 0 | 27 | 2 | 312 | 11 | 0 | 325 | 28 | 14 | 50 | 0 | 92 | 1063 |
| | 9:00 | 45 | 386 | 4 | 0 | 435 | 7 | 16 | 8 | 0 | 31 | 7 | 310 | 11 | 0 | 328 | 15 | 10 | 30 | 0 | 55 | 849 |
| MD | 10:00 | 42 | 459 | 2 | 0 | 503 | 3 | 13 | 12 | 0 | 28 | 7 | 339 | 16 | 1 | 363 | 23 | 11 | 46 | 0 | 80 | 974 |
| | 11:00 | 63 | 462 | 3 | 0 | 528 | 10 | 13 | 4 | 0 | 27 | 5 | 439 | 22 | 0 | 466 | 30 | 17 | 58 | 0 | 105 | 1126 |
| | 12:00 | 52 | 472 | 5 | 0 | 529 | 6 | 15 | 7 | 0 | 28 | 4 | 483 | 32 | 0 | 519 | 23 | 14 | 52 | 0 | 89 | 1165 |
| | 13:00 | 62 | 455 | 2 | 0 | 519 | 6 | 15 | 7 | 0 | 28 | 6 | 447 | 20 | 1 | 474 | 24 | 17 | 46 | 0 | 87 | 1108 |
| PM | 14:00 | 66 | 466 | 5 | 0 | 537 | 5 | 27 | 3 | 0 | 35 | 6 | 559 | 35 | 0 | 600 | 25 | 23 | 48 | 0 | 96 | 1268 |
| | 15:00 | 77 | 534 | 6 | 1 | 618 | 6 | 28 | 9 | 0 | 43 | 10 | 726 | 32 | 0 | 768 | 27 | 26 | 71 | 1 | 125 | 1554 |
| | 16:00 | 110 | 579 | 9 | 0 | 698 | 13 | 22 | 11 | 0 | 46 | 12 | 796 | 31 | 0 | 839 | 23 | 26 | 95 | 0 | 144 | 1727 |
| | 17:00 | 97 | 531 | 6 | 1 | 635 | 7 | 27 | 7 | 0 | 41 | 7 | 706 | 40 | 0 | 753 | 21 | 19 | 56 | 0 | 96 | 1525 |
| | 18:00 | 44 | 318 | 6 | 0 | 368 | 6 | 14 | 8 | 0 | 28 | 10 | 428 | 18 | 0 | 456 | 19 | 16 | 43 | 0 | 78 | 930 |
| | 19:00 | | | | | | | | | | | | | | | | | | | | | 0 |
| | 20:00 | | | | | | | | | | | | | | | | | | | | | 0 |
| | 21:00 | | | | | | | | | | | | | | | | | | | | | 0 |
| Totals | | 893 | 6418 | 60 | 3 | 7374 | 94 | 268 | 86 | 0 | 448 | 78 | 6085 | 298 | 2 | 6463 | 299 | 225 | 701 | 2 | 1227 | 15512 |

**Note: Copy volume data and paste into cells using paste special -> values**

**Note: U-Turns are counted as Left Turns in the Volume Totals**

| Major Road Volume Totals: North/South | | | | |
|---|---|---|---|---|
| Right | Thru | Left | T+LT | Total |
| 62 | 730 | 10 | 740 | 802 |
| 98 | 1026 | 31 | 1057 | 1155 |
| 79 | 852 | 13 | 865 | 944 |
| 52 | 696 | 15 | 711 | 763 |
| 49 | 798 | 19 | 817 | 866 |
| 68 | 901 | 25 | 926 | 994 |
| 56 | 955 | 37 | 992 | 1048 |
| 68 | 902 | 23 | 925 | 993 |
| 72 | 1025 | 40 | 1065 | 1137 |
| 87 | 1260 | 39 | 1299 | 1386 |
| 122 | 1375 | 40 | 1415 | 1537 |
| 104 | 1237 | 47 | 1284 | 1388 |
| 54 | 746 | 24 | 770 | 824 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 971 | 12503 | 363 | 12866 | 13837 |

| Minor Road Highest Volume: East/West | | | | |
|---|---|---|---|---|
| Right | Thru | Left | T+LT | Total |
| 0 | 8 | 47 | 55 | 55 |
| 0 | 24 | 60 | 84 | 84 |
| 0 | 14 | 50 | 64 | 64 |
| 0 | 10 | 30 | 40 | 40 |
| 0 | 11 | 46 | 57 | 57 |
| 0 | 17 | 58 | 75 | 75 |
| 0 | 14 | 52 | 66 | 66 |
| 0 | 17 | 46 | 63 | 63 |
| 0 | 23 | 48 | 71 | 71 |
| 0 | 26 | 72 | 98 | 98 |
| 0 | 26 | 95 | 121 | 121 |
| 0 | 19 | 56 | 75 | 75 |
| 0 | 16 | 43 | 59 | 59 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 |
| 0 | 225 | 703 | 928 | 928 |

**Please Select the Major Road:** N/S

**Major Road Left Turn as Minor Approach?** No

**% Right Turns Included (Default 0%)**

| | |
|---|---|
| From North (SB) | 100% |
| From East (WB) | 0% |
| From South (NB) | 100% |
| From West (EB) | 0% |