

# Water Diversion Supplemental **REPORT**



## **2019 Supplemental Report on Water Diversion**

*June 30, 2020*

**PREPARED FOR:**

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## 2019 REPORT ON WATER DIVERSION

### PURPOSE

In its letter dated June 4, 2020 to Mayor Mason of the City of Racine, the Wisconsin Department of Natural Resources (DNR) requested additional information in response to the City’s 2019 report on its water diversion. The DNR asked for the following:

- 1) The purpose of diverted water sold to customers and the handling of wastewater generated from the water sold
- 2) Clarification on the water reported as consumptive use based on the definition of consumptive use
- 3) A description of the expected water customers in the diversion area in 2020
- 4) The anticipated wastewater volumes and plans to collect this wastewater and return it to the City’s wastewater treatment plant.

This supplemental report provides the requested information. The City of Racine is eager to provide the most accurate, detailed information possible to satisfy the DNR’s request. The City is committed to working hard to ensure it fulfills the requirements of the diversion approval.

### PURPOSE OF WATER SOLD TO CUSTOMERS, HANDLING OF WASTEWATER GENERATED FROM WATER SOLD, AND CLARIFICATION OF WATER REPORTED AS CONSUMPTIVE USE

Appendix A, 2019 Diversion Area Water Usage & Discharge, shows how much was used near the subcontinental divide in 2019 and for what purpose. Water used east of the subcontinental divide remained in the Great Lakes Basin and was thus not diverted. Water used west of the divide was diverted. The tables below exclude water listed on the map that was east of the divide.

The total water diverted in 2019 is presented in the table below, along with the wastewater generated and consumptive use for each instance of diversion.

Table One

ID from Appendix A	Water Diverted (gallons)	Wastewater Generated (gallons)	Consumptive Use Coefficient	Consumptive Use
1	15,000	15,000	100%	15,000
2	5,000	5,000	100%	5,000
3	30,000	30,000	100%	30,000
4	144,300	144,300	100%	144,300
5	30,000	30,000	100%	30,000
6	60,000	60,000	100%	60,000
15	485,450	-	100%	485,450
18	170,000	170,000	100%	170,000
20	350,000	350,000	100%	350,000
22	1,220,000	1,220,000	100%	1,220,000
23	513,000	513,000	100%	513,000
24	1,335,359	-	100%	1,335,359
25	404,722	-	100%	404,722
<b>Total</b>	<b>4,762,831</b>	<b>2,537,300</b>		<b>4,762,831</b>
<b>Average Daily Water Diverted</b>	<b>13,049</b>			

The total above differs from the previously reported total due to a conversion error between units. Water was also misclassified between sales and water not sold but diverted. These errors have been corrected and will not be an issue in the future.

The water sold to customers served various functions, as did the water that was diverted but not sold. The water sold was incorporated into various products and was used for dust suppression. The water diverted but not sold was used predominantly for flushing and testing mains and hydrants to ensure that the infrastructure worked properly and that the water was safe. None of the diverted was returned to the City's wastewater treatment facility for the reasons listed in Table Two below. The table shows the water use, including whether it was sold, how the wastewater generated was handled, and the water's consumptive use. Wisconsin Statutes 281.346(1)(e) define consumptive use as "a use of water that results in the loss of or failure to return some or all of the water to the basin from which the water is withdrawn due to evaporation, incorporation into products, or other processes." Each instance of water use is explained as evaporation, incorporation into products, or other processes such as hydrant flushing or gas main testing.

Table Two

ID from Appendix A	Water Use	Wastewater Handling	Consumptive Use Explanation
1	Hydrant flushing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
2	Hydrant flushing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
3	Hydrant flushing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
4	Gas main testing (sold to KS Energies)	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
5	Hydrant flushing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
6	Hydrant flushing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
15	Dust control (sold to Hoffman/Edgerton)	Evaporation	Not returned to basin -- evaporated
18	Main flushing and testing	N/A	Not returned to basin -- discharge to ditch
20	Main flushing and testing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
22	Main flushing and testing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
23	Main flushing and testing	Discharge to ditch in Mississippi River Basin	Not returned to basin -- discharge to ditch
24	Incorporated into concrete (sold to Cornerstone Batch Plant)	N/A	Not returned to basin -- incorporated into product
25	Incorporated into mortar and drywall compound (sold to CD Smith)	N/A	Not returned to basin -- incorporated into product

### DESCRIPTION OF EXPECTED CUSTOMERS IN THE DIVERSION AREA IN 2020

Racine will have one permanent customer, Foxconn Technology Group, in the diversion area in 2020. Known for manufacturing electronics, this customer is classified as industrial and has three eight-inch water meters installed. The customer has not drawn water from the utility and cannot until the meter heads are installed. These meters have been placed below ground level, and the space around them is subject to flooding and high groundwater. Once electricity is run to the sump pumps near the meters, Racine Water Utility will install the meter heads, which will enable the utility to measure how much water the customer draws. The utility anticipates the heads will be installed by the end of July. No other permanent customers are expected in 2020.

Like 2019, Racine Water Utility is supplying seasonal commercial customers with water. These three customers are using water for similar reasons as those who used it in 2019. One is using water for testing gas mains for leaks. The other two are using water for site dust control and for making construction products such as drywall and concrete.

## WASTEWATER VOLUMES AND PLANS TO COLLECT AND RETURN WASTEWATER TO THE CITY'S TREATMENT FACILITY

Racine expects to see wastewater from its one major industrial customer after this customer is connected by the end of July. Based on the average demand over the last two years from other customers with 8-inch meters, this customer is forecast to demand 66 million gallons from August through December of 2020. Racine anticipates that much of the water will be returned, but some of it will be consumptively used. To determine how much would be consumptively used, a consumptive use coefficient was applied. The coefficient of 10 percent for industrial customers comes from a report in a series produced by the U.S. Geological Survey National Assessment of Water Availability and Use Program for the Great Lakes Basin.<sup>1</sup> If 10 percent of the water, or 6.6 million gallons, is consumptively used, then Racine would anticipate approximately 59.4 million gallons will be returned to the City's wastewater treatment facility. However, the customer has plans to fill a cooling system for its computers (see next section for more information). Racine estimates that approximately 500,000 gallons will be placed in the cooling system, meaning approximately 58.9 million gallons will be returned to the City's wastewater treatment facility.

The Village of Mount Pleasant (Mount Pleasant) has already installed the sanitary sewer infrastructure in the diversion area needed to return wastewater from this customer to Racine's collection system, which will then convey the wastewater to the City's treatment facility. Appendix B, Village of Mt. Pleasant – TID #5 Sanitary Sewer Project Locations, shows the locations and timing of the major sanitary sewer projects in and near the diversion area. Please note that construction has moved ahead of schedule and that Phases 3 and 5 will have been completed by the end of July so that wastewater from the light blue area where the industrial customer is can be conveyed to Racine's treatment facility. The work indicated by the purple line labeled "Future Forcemain To Racine WWTP" has also been completed. Although the Pike River lift station has not been completed yet, there is an interim lift station that is serving the diversion area until the Pike River station is finished. There is an interim laser meter in place to measure wastewater return from the diversion area that will be replaced by a permanent laser meter by the end of 2020. Phase 6 will be completed by the end of 2020, which will make sanitary sewer service available to future customers in the western reaches of the diversion area.

Most of the water for the 3 seasonal commercial customers is expected to be consumed as it will be incorporated into products. Racine expects that the water used to test gas mains will be collected and transported back to the Great Lakes Basin, although the water may be transported to a ditch in the Great Lakes Basin and not back to the City's wastewater treatment facility. The wastewater generated in 2020 from gas main flushing is expected to be similar to the amount generated from 2019, approximately 144,000 gallons.

As more permanent customers emerge in the diversion area, they will connect to the sanitary sewer system and return wastewater to the City's wastewater treatment facility. Racine does not anticipate having seasonal customers in 2021 in the diversion area.

## WATER DISTRIBUTION AND RETURN ON THE FOXCONN CAMPUS

According to point four of the DNR's diversion approval, the City is to consult with the DNR to determine which basin to assign a customer whose parcel straddles the subcontinental divide. Given the following explanation, the City is requesting that the DNR agrees with assigning the Foxconn Technology Group to the Mississippi River Basin.

In 2020, the three 8-inch water meters that feed the Foxconn campus will become active. Two of the meters are east of the divide while one is west of the divide. However, the Foxconn campus straddles the

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<sup>1</sup> Schaffer, Kimberly, and Runkle, Donna. 2007. "Consumptive Water-Use Coefficients for the Great Lakes Basin and Climatically Similar Areas" U.S. Geological Survey Scientific Investigations Report 2007-5197.  
[https://pubs.usgs.gov/sir/2007/5197/pdf/SIR2007-5197\\_body\\_pt1.pdf](https://pubs.usgs.gov/sir/2007/5197/pdf/SIR2007-5197_body_pt1.pdf).

subcontinental divide (see Appendix C), and the water supplied from the three meters will be on an interconnected loop. During early discussions with Foxconn and confronting the entire diversion issue with a large building straddling the divide, Foxconn decided that rather than placing many internal water meters to measure water going over the divide on their private property, they would agree to consider that all water fed to the property would be considered diverted, even though the eastern one third of their property is in the Lake Michigan Basin. Thousands of acres were joined as one parcel that straddles the divide. As the Racine Water Utility will not have the right to enter onto this private property for the sake of measuring independent meters, this was the only way that this issue could be addressed.

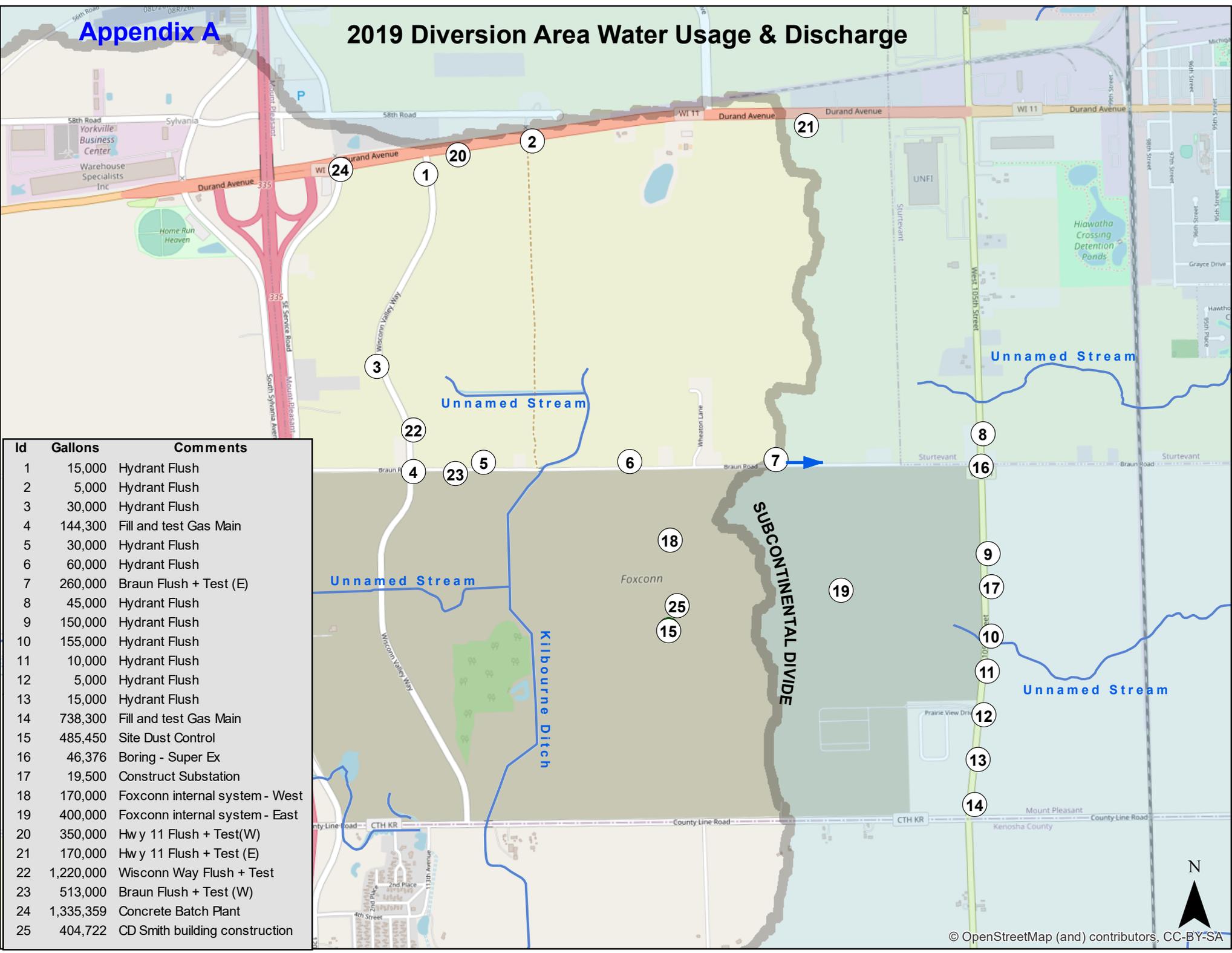
Tracking water use inside the Foxconn campus will prove challenging. Once the water enters the compound, no one outside of Foxconn will know how the water is used. As water used on the campus is considered a trade secret, the City and Utility may not know where and how it was used. The City will formally request information on water use, but it cannot predict a reply from this conglomerate. The City anticipates that Foxconn will flush its private mains periodically to ensure water quality. Foxconn is currently constructing a large computer data center on its campus that will likely be water cooled, so the initial filling of the water recirculating system will not be discharged to wastewater.

The wastewater discharge from Foxconn will be metered by the Mount Pleasant Sewer Utility at its discharge metering point. The sanitary sewer system on the campus is also connected via loops, so the City will not be able to determine whether the discharge is coming from facilities east of the divide or west of the divide. That information will not be available or quantifiable on their campus. However, since the three water meters are assumed to be west of the divide as stated earlier for unique reasons, all of the water is considered to be diverted, so all the wastewater coming back from the campus will be considered return flow by the City unless otherwise determined by the DNR.

For the reasons mentioned above, the water used and the discharge generated will vary seasonally, monthly, weekly, and daily. The amount of water sold to the campus and the amount of water measured as wastewater discharge may have a large delta, especially if private water main flushing on its campus occurs for water quality purposes at irregular intervals.

# Appendix A

## 2019 Diversion Area Water Usage & Discharge



Id	Gallons	Comments
1	15,000	Hydrant Flush
2	5,000	Hydrant Flush
3	30,000	Hydrant Flush
4	144,300	Fill and test Gas Main
5	30,000	Hydrant Flush
6	60,000	Hydrant Flush
7	260,000	Braun Flush + Test (E)
8	45,000	Hydrant Flush
9	150,000	Hydrant Flush
10	155,000	Hydrant Flush
11	10,000	Hydrant Flush
12	5,000	Hydrant Flush
13	15,000	Hydrant Flush
14	738,300	Fill and test Gas Main
15	485,450	Site Dust Control
16	46,376	Boring - Super Ex
17	19,500	Construct Substation
18	170,000	Foxconn internal system - West
19	400,000	Foxconn internal system - East
20	350,000	Hwy 11 Flush + Test(W)
21	170,000	Hwy 11 Flush + Test (E)
22	1,220,000	Wisconn Way Flush + Test
23	513,000	Braun Flush + Test (W)
24	1,335,359	Concrete Batch Plant
25	404,722	CD Smith building construction

# Village of Mt. Pleasant - TID #5 Sanitary Sewer Project Locations

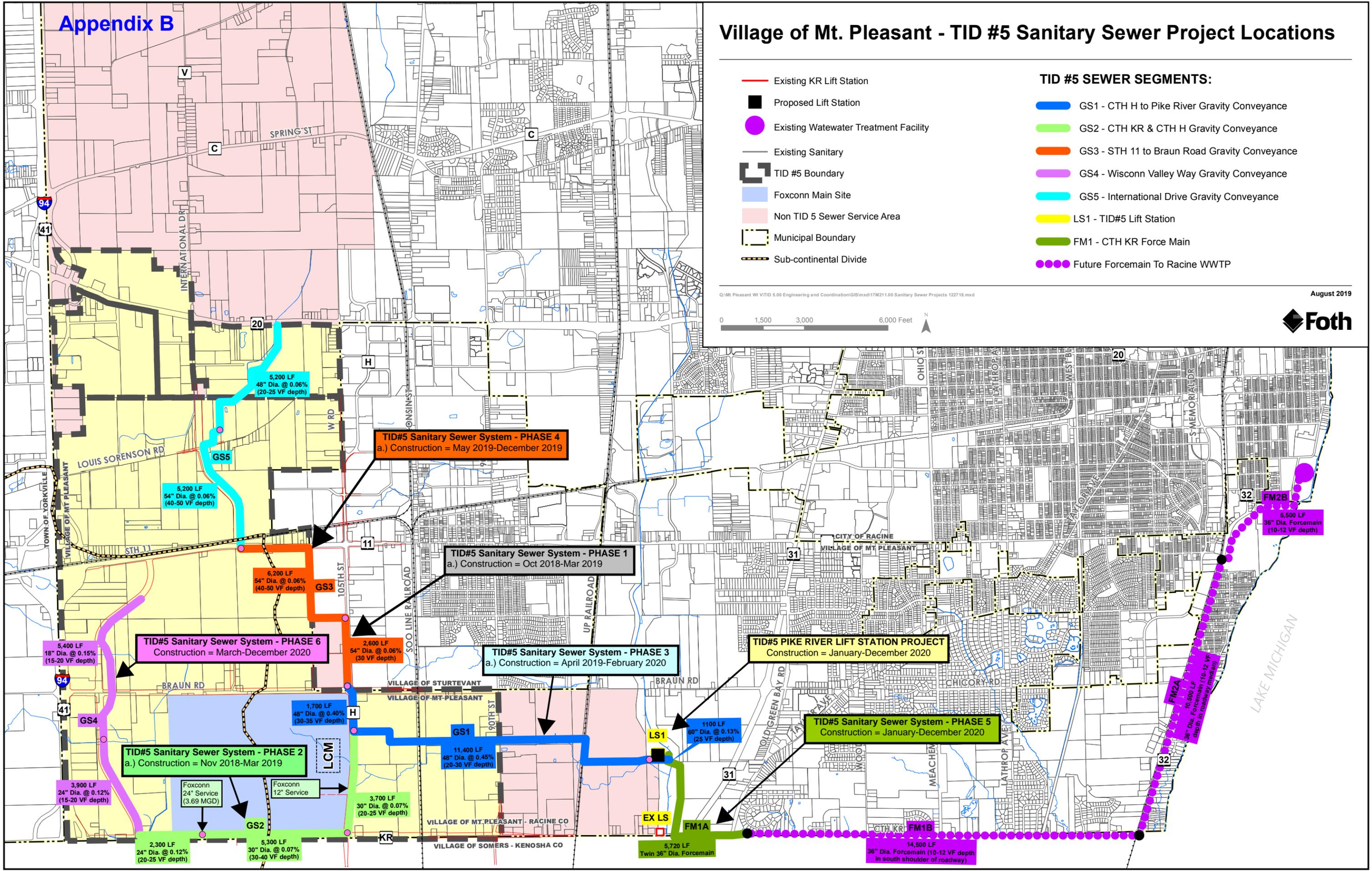
- Existing KR Lift Station
- Proposed Lift Station
- Existing Wastewater Treatment Facility
- Existing Sanitary
- TID #5 Boundary
- Foxconn Main Site
- Non TID 5 Sewer Service Area
- Municipal Boundary
- Sub-continental Divide

## TID #5 SEWER SEGMENTS:

- GS1 - CTH H to Pike River Gravity Conveyance
- GS2 - CTH KR & CTH H Gravity Conveyance
- GS3 - STH 11 to Braun Road Gravity Conveyance
- GS4 - Wisconn Valley Way Gravity Conveyance
- GS5 - International Drive Gravity Conveyance
- LS1 - TID#5 Lift Station
- FM1 - CTH KR Force Main
- Future Forcemain To Racine WWTP

Q:\Mt Pleasant WI VITID 5.00 Engineering and Coordination\GIS\mxd\17M211.00 Sanitary Sewer Projects 122718.mxd

August 2019



**TID#5 Sanitary Sewer System - PHASE 4**  
a.) Construction = May 2019-December 2019

**TID#5 Sanitary Sewer System - PHASE 1**  
a.) Construction = Oct 2018-Mar 2019

**TID#5 Sanitary Sewer System - PHASE 3**  
a.) Construction = April 2019-February 2020

**TID#5 PIKE RIVER LIFT STATION PROJECT**  
Construction = January-December 2020

**TID#5 Sanitary Sewer System - PHASE 6**  
Construction = March-December 2020

**TID#5 Sanitary Sewer System - PHASE 5**  
Construction = January-December 2020

**TID#5 Sanitary Sewer System - PHASE 2**  
a.) Construction = Nov 2018-Mar 2019

Foxconn 24" Service (3.69 MGD)  
Foxconn 12" Service

2,300 LF  
24" Dia. @ 0.12%  
(20-25 VF depth)

5,300 LF  
30" Dia. @ 0.07%  
(30-40 VF depth)

3,700 LF  
30" Dia. @ 0.07%  
(20-25 VF depth)

1,700 LF  
48" Dia. @ 0.40%  
(30-35 VF depth)

11,400 LF  
48" Dia. @ 0.45%  
(20-30 VF depth)

5,720 LF  
Twin 36" Dia. Forcemain

1,100 LF  
60" Dia. @ 0.13%  
(25 VF depth)

14,500 LF  
36" Dia. Forcemain (10-12 VF depth  
in south shoulder of roadway)

10,500 LF  
36" Dia. Forcemain (10-12 VF  
depth in roadway median)

5,500 LF  
36" Dia. Forcemain  
(10-12 VF depth)

5,200 LF  
48" Dia. @ 0.06%  
(20-25 VF depth)

5,200 LF  
54" Dia. @ 0.06%  
(40-50 VF depth)

5,200 LF  
48" Dia. @ 0.06%  
(20-25 VF depth)

# SUBCONTINENTAL DIVIDE SITE PLAN EXHIBIT

