

Revised July 13, 2022

Cost of Service Study  
**North Main and Goold Storage Facility**  
for  
**Racine Wastewater Utility**

**DRAFT**



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## Project: North Main and Goold Storage and Conveyance Facility

### Problem/Issue

Excessive surcharging in the zoo interceptor sewer creates upstream backups in the collection system upstream during large rain events, producing bypassing at Safety Sites 01 and 02. Figure 1 shows the 10,300-acre sewer service area that contributes flow to the North Main and Goold project area, which is broken out by flow contribution from the Village of Caledonia, Village of Mount Pleasant, and the City of Racine. Flow contribution from approximately 7,800 acres in Caledonia is measured at Lift Station 31 / River Bend. Flow contribution from 738 acres in Mount Pleasant is measured at metering location MP11 (an unmeasured area of approximately 50 acres also discharges to RWWU’s interceptor sewer just downstream of MP11). The remaining flow contribution is from the City of Racine and is unmeasured.

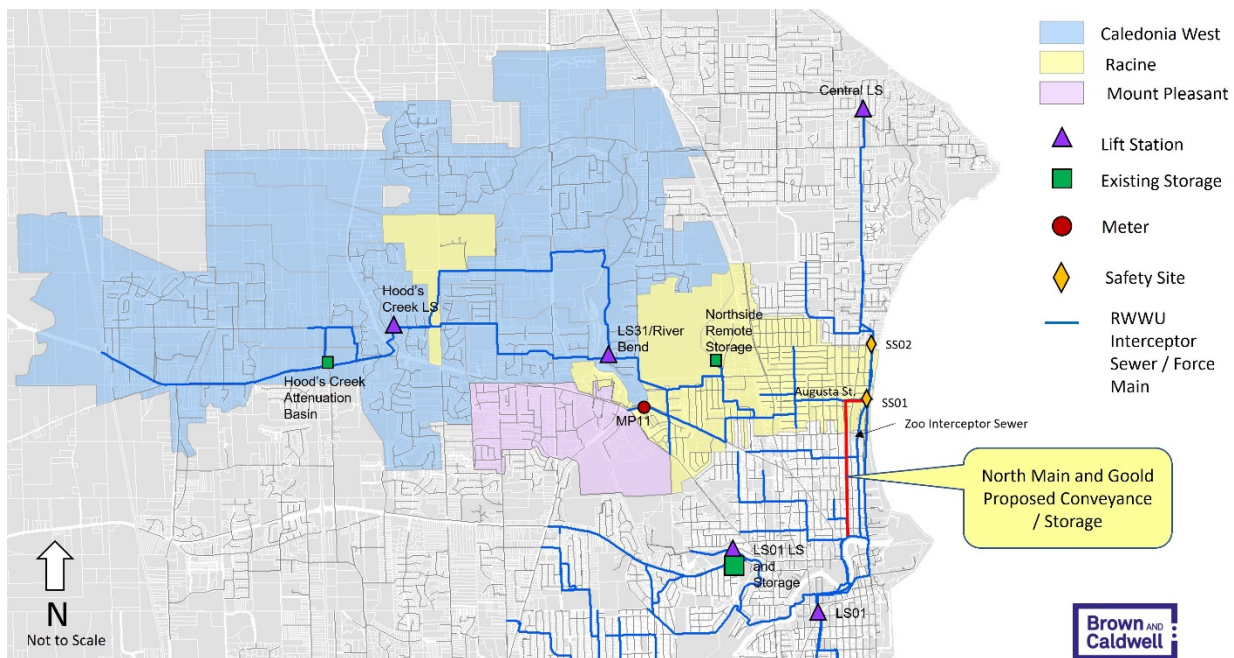


Figure 1. North Main and Goold Tributary Area

In 2021 an alternatives evaluation was conducted to develop bypass mitigation solutions that address bypassing at Safety Sites 01 (SS01) and 02 (SS02), up to the 5-year, 6-hour design storm event. Findings from the alternatives evaluation are documented in the final Preliminary Engineering Report (PER) dated March 16, 2022.

In addition to eliminating bypassing at SS01 and SS02, additional objectives were developed for the evaluation:

1. Reduce peak hour flows to the extent practical, which will be credited to the City's overall reduction goal, so that contracted capacity limits can be met.
2. Provide redundancy to the zoo interceptor should there ever be a failure, or during times when the interceptor is taken offline for maintenance and repairs. The zoo interceptor is a critical asset given that it services approximately a quarter of the Utility's service area including the Village of Caledonia (west), north and west portions of the City of Racine, and a portion of the Village of Mount Pleasant. The consequence of failure with this interceptor is high.
3. Minimize disruption to the community during and after construction.
4. Improve downstream hydraulic conditions relative to overflows and downstream infrastructure upgrades (costs).
5. Enhance or maintain the aesthetics of the area so that adjacent property values are not negatively impacted by this work.
6. Maximize benefit for the lowest cost.

The PER evaluated six alternatives that included both conveyance and storage options, and combinations thereof. Based on the evaluation criteria, approximately 6,400 linear feet of 126-inch storage pipe along North Wisconsin Street was recommended, identified in the PER as Alternative T1. This pipe stores 4.0 million gallons (MG) of excess wet weather flow and holds it until after the storm event when the downstream sewer system has capacity to accept it. The storage alignment and other project components including a diversion structure, a drop structure, and an outlet control structure are all shown on Figure 2.

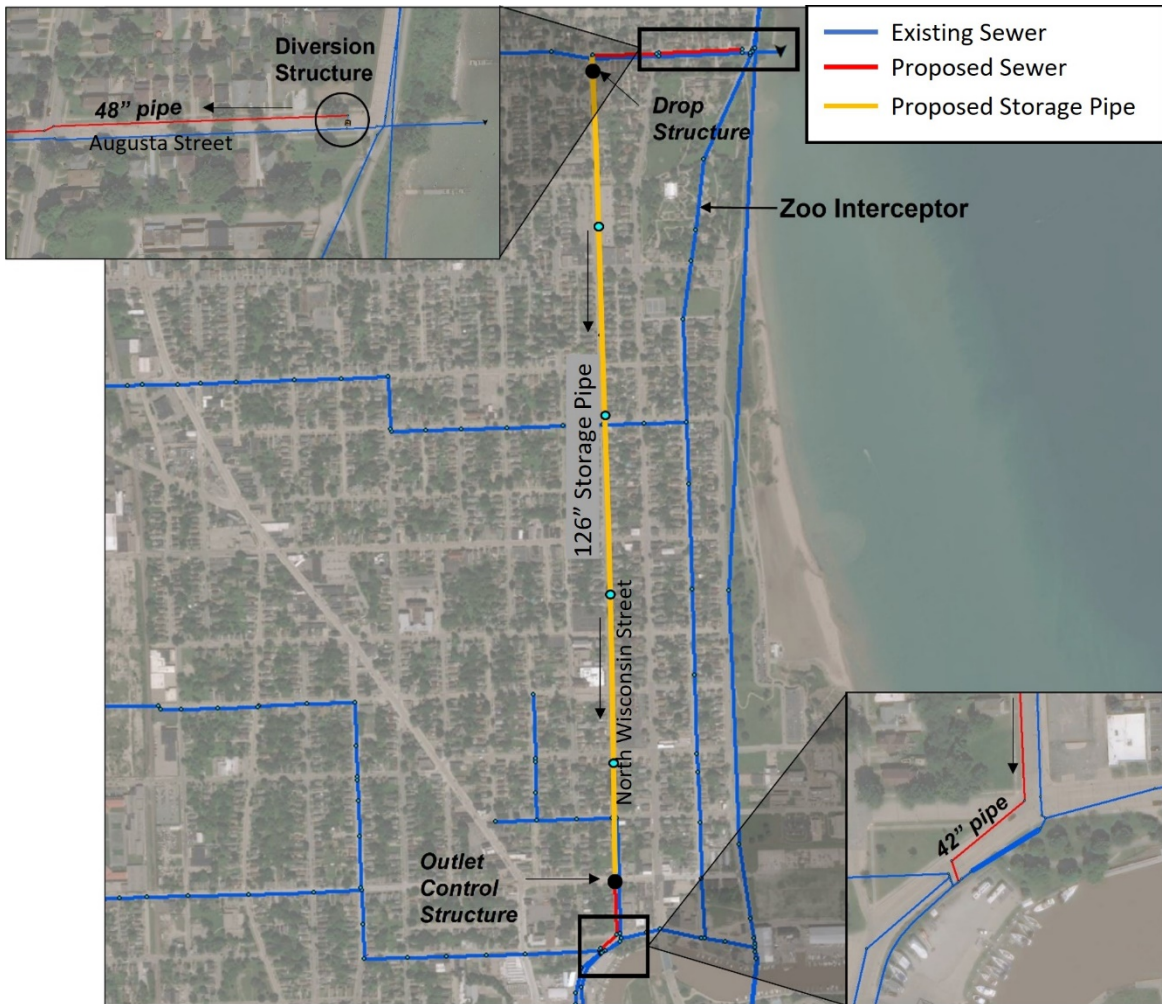


Figure 2. North Main and Gold Storage and Conveyance Facility

Racine Wastewater Utility  
Cost Allocation Study  
North Main and Goold Storage Facility

I. Introduction

Based on the recommendations of the Preliminary Engineering Report dated March 16, 2022, the Racine Wastewater Commission is proposing to install a 126-inch diameter storage pipe under Main Street that will run parallel to the zoo interceptor. This improvement will provide additional conveyance and storage capacity, mitigate bypassing at Safety Site numbers 01 and 02 (SS01 and SS02), reduce surcharging upstream, and provide redundancy to the zoo interceptor.

According to the terms of the 2002 Sewer Service Agreement, a cost-of-service allocation is required for any new facilities that expand the capacity of the Commission's wastewater treatment or conveyance system. This report summarizes the cost-of-service allocation for the proposed North Main and Goold Storage facility.

II. General Framework of the Agreement

The Sewer Service Agreement defines different types of capital costs and specifies different approval processes and methods of funding for each.

“Existing Capital Costs” are defined in Section 1.32 as all capital costs expended by the Racine Utility prior to the date of the Agreement. The Utility retains sole ownership of “existing capital costs” and is allowed under Section 6.4 of the Agreement to charge a rate of return on them through the sewer rates.

“Minor Unplanned Upgraded Facilities” are paid for by the Utility and are recovered through the sewer rates as if they were Existing Capital Costs. These facilities must meet the following criteria:

1. They are unplanned—that is, not contemplated in the 1998 facility plan.
2. They are upgrades to the sewer service facilities—they do not provide an increase in treatment capacity or conveyance capacity.
3. Their costs must total less than \$2,000,000 per year (adjusted for inflation).

As outlined in Section 3.5, there is no cost-of-service allocation for these facilities. However, the Commission must notify all the parties following its decision to treat capital costs as existing capital costs under this provision.



“Unplanned Upgraded Facilities” that are not treated as existing capital are paid for directly by each party in proportion to their current percentage share of total Allocated Treatment Capacity. As defined in Sections 1.114 and 1.115, these facilities must meet criteria 1 and 2 above. Under Section 3.4, these facilities require the preparation of a cost-of-service allocation and 40 days prior written notice to all the parties.

“Unplanned Expanded Facilities”, which are defined in Sections 1.33 and 1.114, are facilities not contemplated in the 1998 facility plan that create additional treatment or conveyance capacity. Under Section 3.6 these facilities do not have to be provided unless one or more parties agree to accept and pay for the additional capacity. A cost-of-service allocation must be prepared, 40 days prior written notice to all parties must be provided, and each of the parties pays for the capital cost in proportion to the amount of the expanded capacity purchased.

### III. Cost of Service Allocation

Since this project expands capacity, the project is considered an Unplanned Expanded Facility. Therefore, the cost is allocated according to the additional conveyance capacity allocated to each of the parties.

Table 1 shows the existing allocated capacity for each of the areas (metered and unmetered) contributing to the proposed facility. These allocations are the conveyance capacity allocations shown in the Sewer Service Agreement in the updated Exhibits F1(a) and F1(b), with the most recent revision approved by the Commission on December 17, 2019. The table also shows the projected future capacity needs for each of these areas that would be relieved by the proposed facility. These figures are based on the modeled 2040 conveyance system flows for a 5-year, 6-hour storm event.

The cost is then allocated between the parties based on the percentage of additional conveyance capacity needed by each party. The additional capacity was determined based on the amount by which each party is projected to exceed its existing allocated capacity by 2040. This was computed by subtracting the party’s existing capacity from its projected 2040 flows. The total capacity exceedance is projected to be 15.501 million gallons per day (MGD), of which Mount Pleasant accounts for 15.1 percent and Racine accounts for 84.9 percent. Therefore, the Expansion Costs are proposed to be allocated 84.9 percent to Racine and 15.1 percent to Mount Pleasant.

Table 2 is included to show the cost allocation for Alternative C2, which would provide the same expansion of conveyance capacity but would not provide any additional storage.

If any of the parties were to request capacity different from what is projected by the system modeling, the change in requested capacity would result in variation from this proposed cost-of-service allocation.

**Table 1  
 Racine Wastewater Utility  
 North Main and Goold Storage and Conveyance Facility -- Alternative T1  
 Cost Allocation for Unplanned Expanded Facility**

	<u>Mount Pleasant</u>	<u>Caledonia</u>	<u>Racine</u>	<u>Total</u>
<b>Community Flow Allocations</b>				
<b>Original 2020 Design Capacity (Peak Flow MGD) <sup>(1)</sup></b>				
MP 11	3.128			
MP 11 Downstream	0.259			
LS31		10.542 <sup>(1)</sup>		
Racine			16.157	
<b>Total</b>	<b>3.387</b>	<b>10.542</b>	<b>16.157</b>	<b>30.086</b>
<b>2040 Mike Urban Model Flows (Peak Flow MGD) <sup>(1)</sup></b>				
MP 11	5.083			
MP 11 Downstream	0.652			
LS31		10.542 <sup>(1)</sup>		
Racine			29.310	
<b>Total</b>	<b>5.735</b>	<b>10.542</b>	<b>29.310</b>	<b>45.587</b>
<b>Compute Exceedance of Capacity</b>				
Revised Capacity Allocation	5.735	10.542	29.310	45.587
less: Original Facility Capacity Allocation	3.387	10.542	16.157	30.086
<b>Exceedance</b>	<b>2.348</b>	<b>0.000</b>	<b>13.153</b>	<b>15.501</b>
Exceedance Share (maximum 100% , Minimum 0% )	15.1%	0%	84.9%	100%
<b>Compute Community Cost Shares</b>				
Total Project Cost	\$52,810,700			
Less Regional Benefit Share	\$0			
Net for Cost Allocation	\$52,810,700			
Mount Pleasant Share	\$7,999,453			
Caledonia Share	\$0			
Racine Share	\$44,811,247			
<b>Total</b>	<b>\$52,810,700</b>			

Notes

1. Represents greater of current capacity allocation as shown in Exhibit F1(a) or modeled non-coincidental peak flow

**Table 2  
Racine Wastewater Utility  
North Main and Gould Conveyance Facility -- Alternative C2  
Cost Allocation for Unplanned Expanded Facility**

	<u>Mount Pleasant</u>	<u>Caledonia</u>	<u>Racine</u>	<u>Total</u>
<b>Community Flow Allocations</b>				
<b>Original 2020 Design Capacity (Peak Flow MGD) <sup>(1)</sup></b>				
MP 11	3.128			
MP 11 Downstream	0.259			
LS31		10.542 <sup>(1)</sup>		
Racine			16.157	
<b>Total</b>	<b>3.387</b>	<b>10.542</b>	<b>16.157</b>	<b>30.086</b>
<b>2040 Mike Urban Model Flows (Peak Flow MGD) <sup>(1)</sup></b>				
MP 11	5.083			
MP 11 Downstream	0.652			
LS31		10.542 <sup>(1)</sup>		
Racine			29.310	
<b>Total</b>	<b>5.735</b>	<b>10.542</b>	<b>29.310</b>	<b>45.587</b>
<b>Compute Exceedance of Capacity</b>				
Revised Capacity Allocation	5.735	10.542	29.310	45.587
less: Original Facility Capacity Allocation	3.387	10.542	16.157	30.086
<b>Exceedance</b>	<b>2.348</b>	<b>0.000</b>	<b>13.153</b>	<b>15.501</b>
Exceedance Share (maximum 100% , Minimum 0% )	15.1%	0%	84.9%	100%
<b>Compute Community Cost Shares</b>				
Total Project Cost	\$26,160,000			
Less Regional Benefit Share	\$0			
Net for Cost Allocation	\$26,160,000			
Mount Pleasant Share	\$3,962,562			
Caledonia Share	\$0			
Racine Share	\$22,197,438			
<b>Total</b>	<b>\$26,160,000</b>			

Notes

1. Represents greater of current capacity allocation as shown in Exhibit F1(a) or modeled non-coincidental peak flow