



Board of Public Works

Regular Meeting

335 South Broadway
De Pere, WI 54115
<http://www.de-pere.org>

Agenda

Monday, March 9, 2020

7:30 PM

De Pere City Hall Council Chambers

Pursuant to Wisconsin Statutes 19.84, Notice is hereby given to the public that a meeting of the **Board of Public Works** of the City of De Pere will be held on **March 9, 2020 at 7:30 PM** in the **De Pere City Hall Council Chambers, 335 S. Broadway Street, De Pere, WI 54115.**

This meeting can be viewed LIVE at www.depere.tv. This meeting is also rebroadcast on Spectrum Cable Channel 4 and AT&T U-verse Channel 99 throughout the week and available on demand at www.depere.tv.

I. Call to Order

1. Roll Call
2. Approval of Board of Public Works February 10, 2020 Meeting Minutes

II. Public Comment

III. Items

1. Consideration and possible action on Preliminary Resolution for Special Assessments for Storm Sewer Main and/or Laterals
2. Consider Ald. Hansen's Request for Establishing a Plan to Curtail Phragmites
3. Consideration and possible action for Driveway Request along Lawrence Drive for the proposed Krist Convenience Store-1218 Grant Street
4. Consider Feasibility Study for Joint Compost Facility With The Village of Allouez*
5. Consider Purchasing Fleet Maintenance Truck*
6. Consideration and possible action on the prohibition of coal-tar and PAH containing pavement sealants*
7. Consideration and Possible Action to Approve Lizer Lawn Care as Weed Control Contractor
8. Consideration and possible action on the Draft 2019 Annual Report for the Wisconsin Department of Natural Resources MS4 General Permit*
9. Consider Ald. Hansen's Request for Volunteer Sidewalk Shoveling Program
10. Discussion of Fox-Wolf Watershed Alliance letter of support for GRLI Trash Free Waters Grant Proposal*
11. Consideration and possible action on award of Contract 20-01B East Sewer and Water Relay and Street Resurfacing*
12. Consideration and possible action on award of Contract 20-02 Street Reconstruction and Utility Relay*
13. Consideration and possible action on award of Contract 20-04 Honeysuckle Acres Fourth Addition Subdivision Construction*

14. Consideration and possible action on approval of the State Municipal Finance Agreement with WisDOT for the Main Avenue and Fourth Street Signal Retrofit*
15. Consideration and possible action on Applying for Wisconsin Department of Natural Resources Urban Nonpoint Source and Storm Water Management Grant Program*

IV. Future Agenda Items

V. Adjournment

***Items with an asterisk require City Council approval.**

Any person wishing to attend this meeting who, because of disability, requires special accommodations should contact the Clerk-Treasurer's office at 339-4050 by Noon, Monday, March 9, 2020 so that arrangements can be made.

Agenda Sent To:

MAYOR

ALDERPERSONS
DEPARTMENT HEADS
JAMES R & KATHRYN L
WOCHINSKE
RUSSELL & LISA GRAY
ROELS BERNARD U &
MARGARET B REVOCABLE
TRUST
LIV N CURTIS, ETAL
JAMES M & CATHY A JORDAN
NEUFELD ROBERT A & JEAN E
REVOCABLE TRUST
RONALD W WAISE

DAVID E LEPP
PATRICK THEIN
PAUL S & BARBARA J
STECKART
TIMOTHY W & JULIE L SOWERS
MAKAYLA R FALKOWSKI &
ETHAN MERCER
BRANDIN T & SARAH R
COLLINS
NATHAN K & ABBY M GREEN
ANDERS T & KIMBERLY A
LOFDAHL
JOHN & ELISABETH CODY
ZEHMS DOROTHY D
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HEATHER L BAKER
VL REAL ESTATE LLC
HOWARD & LEONA KLUG
BARBARA J GALLAGHER
ROBERT P & STACY L BUTTER
DAVID J QUIGLEY
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RANDALL J GERBERS

SMITS JOHN M & GEORGIANA J
REVOCABLE TRUST
DANIEL W & JOY A KRUEGER
TOWNSEND PROPERTIES, LLC
BAETEN THOMAS D REVOCABLE
TRUST OF 1997
PATRICK J & KELLEY L FRITSCH
MICHAEL T & JESSICA L
KRANZUSH
BRETT D CHRISTENSEN

ARTHUR C & KARLA A ALBERS
RICKY J CHRISTENS
TRINKNER PATRICIA M
REVOCABLE LIVING TRUST

ROY T & LUANN M WOODLAND
NICHOLAS G EVENSON

ALEX R & ASHLEE ANN EVERSON
PETER M & CAROL L VANDEVEN
RENIER GERALD G & ADA L
REVOCABLE TRUST
JOAN M ORDE
JEFFREY C & TINA M HENSLEE
DEAN R & JULIE A WATZKA
SAMUEL J & JANE M HILGEMANN
SAINT NORBERT COLLEGE INC
UNION HOTEL CORP
SCOTT A & LAURA L VANRYZIN

GERALD & LAURA N
KACZMAREK
RICHARD T & MICKY J WILDE
DAVID J & JUDITH M
LANDWEHR

HELEN E OSEN
BERNARD S PETERSON
MATTHEW T & COURTNEY L
STOEHR
STEVEN B DESTACHE
SHARI L LINSKENS

BRIAN J & RACHEL L MILLER
LARRY W GOEBEN
ERIC J & JODIE BLUMREICH
JULIE A WENDLENDT
PAMELA J LEPEL
DANIEL J & BARBARA J DANEN
GERALD P & SUSAN M
GILLESPIE
ROBERT C & CATHERINE A
MCGINN
JAMES M & MARY J SILHA

ANTHONY R & BETH A TROFKA

KELLY S BAETEN
MARK A & KATELYN J
GARRIGAN
RICHARD E KIEFERT
JOHN S VANLANEN, ETAL
SCOTT M LASEE
GARY J, JR & REGINA L
KITTELL
ERIC H BOULANGER
FEAKER & SONS CO., INC.
LIZER LAWN CARE
ASPHALT SEAL & REPAIR

VHC INC

DONALD THYES

JOSEPH R LINNANE
DONALD J & KATHLEEN M
SLIWKA
GERALD G LALUZERNE

ROBERT A & MCKENZIE L CLEEK
HENDRICKS D TRUST
RANDALL F HENRIGILLIS
CHRISTOPHER L & KAREN K
VANLANEN
PA LEE & BEE THAO MOUA
ROGERS SURVIVORS TRUST
EMILY A DERCKS, ETAL
ELSA A REINHART
JOHN R & LISA J ROOSA

CHRISTOPHER W DENEYS

THOMAS M & TRACEY S BERCEAU
JEFFRY J & JULIE A GEURTS
MARTIN JOINT REVOCABLE
TRUST
JONATHAN J & JENNIFER J
SANDERS

PAUL A & SANDRA A KUROWSKI
ROSS A & CAROLINE M MATLOCK
WILLIAM & DAWN M PICARD
JERRY D & LINDA L LACKEY

AMIE S FRUZEN
JOSSART BROTHERS, INC.
GEI CONSULTANTS
CLEAN WISCONSIN

Notice is hereby given that a majority of the members of the Common Council of the City of De Pere may attend this meeting to gather information about a subject (s) over which they have decision-making responsibility.



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Betty Sellenheim

SUBJECT: Approval of Board of Public Works February 10, 2020 Meeting Minutes

ATTACHMENTS:

- 2020 0210 Draft Minutes (PDF)



Board of Public Works

Regular Meeting

335 South Broadway
De Pere, WI 54115
<http://www.de-pere.org>

Draft Minutes

Monday, February 10, 2020

7:30 PM

De Pere City Hall Council Chambers

I. Call to Order

The meeting was called to order at 7:30 PM by Mayor Michael J. Walsh

Attendee Name	Title	Status	Arrived
James Boyd	Aldersperson	Present	
Dan Carpenter	Aldersperson	Present	
Jonathon Hansen	Aldersperson	Present	
Dean Raasch	Aldersperson	Present	
Michael J. Walsh	Mayor	Present	

Others present:

Scott Thoresen, Director of Public Works

Eric Rakers, City Engineer

Tony Fietzer, Street Superintendent

Betty Sellenheim, Recording Secretary

2. Approval of Board of Public Works January 13, 2020 Meeting Minutes

Aldersperson Carpenter moved to approve the January 13, 2020 meeting minutes, seconded by Aldersperson Raasch.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dan Carpenter, Aldersperson
SECONDER:	Dean Raasch, Aldersperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

II. Public Comment

None

III. Items

1. Discussion of Residential Snow Plow Policy

Scott Thoresen, Director of Public Works, introduced a memo written by the Street Superintendent regarding the snow removal policy for the City of De Pere. Mr. Thoresen stated it was requested to be discussed at the Board of Public Works to determine the current policy and if any changes were to be made. Mr. Thoresen stated the current policy of plowing at 3" accumulation has been in place for over 20 years. Mr. Thoresen did a survey of surrounding communities and stated they range from 1.5" to 4" of accumulation and the adjacent communities are currently plowing at 2" of accumulation. Mr. Thoresen mentioned if De Pere changed their policy to match at 2", approximately \$250,000 would need to be added to the budget.

Aldersperson Raasch and Mayor Walsh stated their support of the current snow removal policy. Aldersperson Carpenter stated his appreciation for the explanations in the memo prepared by the Street Superintendent. Aldersperson Hansen requested the Street Superintendent provide examples of times that lesser snow falls may require a full plow. Tony Fietzer, Street Superintendent, explained the weather (winds, long term forecast,

sun amount, temperature) following the snow fall event help determine the level of plowing to be completed. Mr. Thoresen added that multiple days of lesser amounts, that accumulate to 3"+, could also warrant a full plow. Mr. Fietzer explained how the number of snow fall events changes the cost of operations. Mr. Thoresen verified the intent of the Board to not make any changes to the policy.

Discussion item only.

No action necessary.

2. Discussion of Main Avenue & Reid Street Pavement Conditions*

Scott Thoresen, Director of Public Works, explained the request to discuss at the Board of Public Works the pavement conditions and past discussions with DOT. Mr. Thoresen stated that Main Avenue is probably one of the worst rated streets in the City but as a state highway it is technically a DOT road for performing major repairs. Staff first reached out to DOT in 2008/2009 to begin discussions getting Main Ave on their 6 year program for rehab/reconstruction. Main Ave was originally slated for 2015, then was bumped to 2019, then 2023, and ultimately to 2030 and beyond. Mr. Thoresen stated staff has been in contact with DOT for repairs over the last few years. DOT has stated the City should use connecting highway funds to resurface Main Avenue. Mr. Thoresen outlined the connecting highway funding the City receives and the approximate cost for the repairs. Mr. Thoresen stated that staff feels the current needs meet the definition of a major repair and should be covered by DOT. Staff feels they should maintain the level of service currently being provided (pothole patching, crackfilling, etc.) but not perform any major work. Mr. Thoresen stated that Alderperson Hansen has reached out to legislators in Madison and DOT. Staff is looking for direction on the level of service to provide on this section of roadway.

Mayor Walsh stated it seems like the City is being penalized for performing maintenance and rehabilitation work on Main Avenue and keeping the streets in decent condition.

Mayor Walsh mentioned from the memo that based on the life expectancy of the work that has been previously done, the road should be reconstructed. Alderperson Carpenter questioned if the Southern Bridge could become the connecting highway instead of Main Avenue and force the city to do the work in the future. Mr. Thoresen and Mayor Walsh outlined a little history of Highway 32 in the City. Alderperson Raasch stated concerns regarding funding at the state level. Alderperson Hansen mentioned that the City Administrator reached out to the League of Municipalities and was told that the directive from DOT to use connecting highway funds for an overlay was unprecedented.

Alderperson Hansen questioned if the City could work through the League of Municipalities to reach the DOT regarding repairs. Mr. Thoresen questioned if it should be a priority to push Madison to get the street repaired, as he doesn't feel it is going to happen at a regional level. Alderperson Boyd questioned approaching the legislature.

Mayor Walsh stated the City should reach out to the League but staff should continue only doing the repairs to keep Main Ave/Reid St operational. Mr. Thoresen added that a mid-block bump-out will be added but otherwise bare minimum repairs going forward.

Eric Rakers, City Engineer, added that the signals along Main Ave and Reid Street are old and deteriorating and this year the signals at Main and Eighth will be replaced using DOT grant. Alderperson Carpenter asked how the connecting highway funds are calculated. Mr. Thoresen stated it is a rate set by the state per mile within corporate limits. Alderperson Raasch asked if car counts are including. Mr. Thoresen stated it was not based on traffic, but miles only. Mr. Thoresen stated the city receives funds from State Highway Aid as well.

Mayor Walsh moved to perform minimal repairs on Main Avenue/Reid Street, seconded by Alderperson Raasch.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Michael J. Walsh, Mayor
SECONDER:	Dean Raasch, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

3. Consideration and possible action on a request from Ald. Hansen's regarding Volunteer Sidewalk Shoveling Program

Scott Thoresen, Director of Public Works, stated he prepared this item for the agenda after reaching out to the Village of Bellevue regarding a similar program they started. Mr. Thoresen stated that Bellevue isn't having much luck with their program with 2 location requests and 1 volunteer.

Alderperson Hansen stated he brought this to staff's attention after seeing it on the Village's Facebook page and agreed that it doesn't appear to have gotten much traction. Alderperson Hansen believes it would be different in the city, with a much more robust social presence. Alderperson Raasch stated the merits of the program and also his communications with Alderperson Crevier regarding similar services offered through churches. Alderperson Boyd questioned the level of work involved with offering this type of service. Alderperson Raasch asked about the screening of volunteers. Alderperson Carpenter requested someone reach out to Alderperson Crevier to get further insight into the programs offered by churches.

Alderperson Carpenter moved to refer this item back to staff to discuss church programs with Alderperson Crevier and the City Attorney regarding liability and screening of volunteers, seconded by Alderperson Raasch.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dan Carpenter, Alderperson
SECONDER:	Dean Raasch, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

4. Consideration and possible action on a request from Ald. Hansen regarding Tree Preservation at 307 Grandeur Oaks Ct

Alderperson Hansen outlined the request received from Mr. Fullerton at 307 Grandeur Oaks Court regarding drainage on the backside of his property causing erosion problems and tree loss. Alderperson Hansen believes the City has an interest in the preservation of trees in the Old Plank neighborhood and for the Rustic Road. Alderperson Hansen stated that staff would add that the drainage in that area is coming from private property, which leads to questions of responsibility. This area was looked at for repairs a few years ago and at that time one resident expressed opposition. Eric Rakers, City Engineer, walked through the history and erosion along the area. Mr. Rakers stated in 2016, staff corrected the erosion problem off Cornelius Martin Court, which was being caused by city storm sewer discharge. In order to correct the problem and perform future maintenance, each adjacent property owner was required to provide a permanent easement. Mr. Rakers stated in 2016, a resident had expressed disinterest in the project that would include 307 Grandeur Oaks Ct and staff had noted the drainage was primarily from the private farm field to the south of Rockland Road. Mr. Rakers questioned when it becomes a city

responsibility and explained the conservancy located behind 307 Grandeur Oaks Ct. Internal discussions with staff have resulted in this being a private issue and has not been further addressed.

Alderson Carpenter stated it is difficult to discuss in depth since the affected residents were not in attendance at the meeting. Mayor Walsh stated it would cost a lot of money to properly fix the issues that are not being caused by city facilities and are not on city property and agreed with staff. Alderson Raasch agreed with Mayor Walsh and added that it is not necessarily the City's responsibility to fix naturally caused damage (wind damage, erosion control, etc.). Alderson Hansen asked what the process would be if the resident's wished to get this repaired privately. Scott Thoresen, Director of Public Works, stated there would be permits needed through the DNR to initiate any work, site plans, and full cooperation between all involved properties to do the work correctly.

Alderson Raasch moved to deny the request from Alderson Hansen regarding tree preservation at 307 Grandeur Oaks Ct, seconded by Alderson Carpenter.

Upon vote, the motion passed 4-0 with Alderson Hansen voting no.

RESULT:	ADOPTED [4 TO 1]
MOVER:	Dean Raasch, Alderson
SECONDER:	Dan Carpenter, Alderson
AYES:	James Boyd, Dan Carpenter, Dean Raasch, Michael J. Walsh
NAYS:	Jonathon Hansen

5. Consideration and possible action on Sidewalk Installation for Honeysuckle Acres Fourth Addition*

Scott Thoresen, Director of Public Works, explained the Board of Public Works must approve all plats/CSMs, including for new subdivisions, for street purposes and sidewalk construction determinations. Staff recommends including sidewalks on all streets for Honeysuckle Acres Fourth Addition, including cul de sacs.

Alderson Raasch questioned the installation of sidewalks along Southbridge. Mr. Thoresen stated those properties back up to the new subdivision and would not have sidewalks installed adjacent to Southbridge Rd. Alderson Hansen stated his support of sidewalks on cul de sacs.

Mayor Walsh moved to approve the staff recommendation to include sidewalks on all streets in Honeysuckle Acres Fourth Addition, seconded by Alderson Boyd.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Michael J. Walsh, Mayor
SECONDER:	Dean Raasch, Alderson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

6. Consideration and possible action on Constructing Lost Dauphin Sidewalk

Eric Rakers, City Engineer, explained a request that was received to consider installation of sidewalk on Lost Dauphin. Lost Dauphin is a rural road and collector, meaning it has ditches and higher volumes of traffic. It serves as the primary connection between Red Tail Glen/Hopf Ln and Terry Ln and there is not a good pedestrian connection between the two subdivisions. Staff conducted a preliminary survey and cost estimate. Staff noted a few challenges including: a large culvert that would require a retaining wall to install sidewalk, a large culvert that would require the sidewalk being installed right next to the

roadway, the roadway is higher than house/sidewalk level creating drainage issues, and a portion is along farm fields that would be difficult to maintain. Mr. Rakers also displayed the proposed southern bridge which would make installation of sidewalk in this location for naught. Mr. Rakers also stated during the 2020 construction season, bike lanes will be added in this region to help with pedestrian access. Staff believes this is not a good time for installation based on the challenges and future bridge development.

Mayor Walsh questioned if the bike lane would go under the railroad bridge. Mr. Rakers stated staff was still in preliminary design stage and would have to look at the road width. Mayor Walsh outlined some history of this item from approximately 20 years ago and questioned sidewalk installation after the southern bridge installation. Mr. Rakers stated that would be the time to construct sidewalk and/or a proposed shared-use path. Scott Thoresen, Director of Public Works, verified the Board's intentions regarding no sidewalk installation.

7. Consideration and possible action on Supplying Sandbags to Residents for Flooding Purposes

Scott Thoresen, Director of Public Works, stated that Brown County purchased a sandbagger for the purposes of Brown County and municipalities that lie within. Brown County is offering sandbags to municipalities at a cost of \$0.60 per bag. Mr. Thoresen stated it is relatively rare to receive a request from a resident for sandbags. Staff discussed the potential of having sandbags for City purposes as well as offering some to residents. Staff brought up a few questions regarding offering to residents including: how many should be on hand, are they first come-first served, how many can each resident take, where to store them, and how to dispose of them after use.

Alderson Carpenter asked if staff received many contacts from residents for sandbags in 2019. Mr. Thoresen stated only in one location that he knew of. Eric Rakers, City Engineer, added one other location requested off of Brule. Alderson Carpenter outlined a few additional concerns regarding storage of sandbags. Mr. Thoresen agreed with Alderson Carpenter's concerns and stated his thoughts on not getting any more than a couple pallets. The county has stated they will not supply to residents, only to the municipalities. The municipality would need to make a policy/determination on how they are distributed. Alderson Carpenter questioned charging residents for the sandbags. Mr. Thoresen stated he didn't think staff would charge but would have them available on a first come-first served basis until they were gone. Mayor Walsh stated his thoughts on offering sandbags since not many residents inquire during flooding times. Alderson Raasch stated his thoughts about the worthwhileness of offering sandbags with such little interest by residents. Alderson Boyd questioned if sandbags could be obtained when a flooding event is imminent. Mr. Thoresen stated due to staffing needs, both the City and County would be working to save their infrastructure rather than trying to gather sandbags. The County is offering this service now for pre-planning purposes.

Alderson Carpenter moved to approve the purchase of two pallets of sandbags, seconded by Alderson Hansen.

Upon vote, the motion passed with a 4-0 vote with Alderson Raasch voting no.

RESULT:	ADOPTED [4 TO 1]
MOVER:	Dan Carpenter, Alderperson
SECONDER:	Jonathon Hansen, Alderperson
AYES:	James Boyd, Dan Carpenter, Jonathon Hansen, Michael J. Walsh
NAYS:	Dean Raasch

8. Consideration and possible action on award of Contract 20-01A West Sewer and Water Relay and Street Resurfacing*

Mayor Walsh moved to approve award of Contract 20-01A to Superior Sewer and Water in the amount of \$1,836,027.00, seconded by Alderperson Raasch.

Alderperson Hansen questioned if the City has previously worked with Superior Sewer and Water. Eric Rakers, City Engineer, stated the City has not worked with them previously but they did have to prequalify which looks into the size of projects completed and financial stability. Mr. Rakers stated there are chances taken any time you use a new contractor and the owner of this company comes from a construction family.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Michael J. Walsh, Mayor
SECONDER:	Dean Raasch, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

9. Consideration and possible action on award of Contract 20-03 CIPP Sewer Lining*

Alderperson Hansen moved to approve the award of Contract 20-03 to Hydro-Klean, LLC in the amount of \$256,533.00, seconded by Alderperson Carpenter.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Jonathon Hansen, Alderperson
SECONDER:	Dan Carpenter, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

10. Consideration and possible action on award of Contract 20-05 Sidewalk and Curb Repairs*

Alderperson Raasch moved to approve the award of Contract 20-05 to RJM Construction, LLC in the amount of \$230,020.00, seconded by Alderperson Boyd.

Alderperson Hansen questioned the deadline for 2019 private sidewalk repairs. Eric Rakers, City Engineer, stated the deadline has passed for 2019 repairs unless an extension was granted. The 2020 repairs will have a deadline of July 1, 2020. Alderperson Hansen questioned if the 2020 contract covered both years work. Mr. Rakers stated 19-05 was awarded but the completion date was extended into 2020 to receive more bids when contractor's workload was full last year at bidding time.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dean Raasch, Alderperson
SECONDER:	James Boyd, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

11. Consideration and possible action on award of Contract 20-06 Concrete Street Repairs*

Alderson Raasch moved to approve the award of Contract 20-06 to Vinton Construction Co. in the amount of \$401,885.00, seconded by Alderson Hansen.

Alderson Carpenter asked about resident notice regarding the bump-out installation. Eric Rakers, City Engineer, stated the residents had not been notified yet but will be done prior to construction. The school district did a traffic impact analysis that recommended the installation of the bump-out mid-block with RRFs (Rapid Rectangular Flashing Beacons) with push buttons to cross. Mayor Walsh questioned if the school district had a meeting regarding traffic. Mr. Rakers was unsure where the school district was internally on discussions.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dean Raasch, Alderson
SECONDER:	Jonathon Hansen, Alderson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

12. Consideration and possible action on award of Contract 20-11 Fire Station #1 Boiler Replacement*

Alderson Hansen moved to approve the award of Contract 20-11 to Automated Comfort Controls in the amount of \$116,700.00, seconded by Alderson Raasch.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Jonathon Hansen, Alderson
SECONDER:	Dean Raasch, Alderson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

13. Consideration and possible action on award of Contract 20-15 Sewer Cleaning and Televising*

Mayor Walsh moved to approve the award of Contract 20-15 to Green Bay Pipe & TV, LLC in the amount of \$39,049.06, seconded by Alderson Carpenter.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Michael J. Walsh, Mayor
SECONDER:	Dan Carpenter, Alderson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

14. Consideration and possible action on the 2020 Storm Lateral Assessment Charge-Residential

Mayor Walsh moved to approve the 2020 storm sewer lateral assessment charges for residential properties, seconded by Alderson Boyd.

Alderson Hansen questioned how this amount compares to 2019. Eric Rakers, City Engineer, explained it is calculated over a three year average and is less than 2019.

Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Michael J. Walsh, Mayor
SECONDER:	James Boyd, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

15. Consideration and possible action on the 2020 Storm Lateral Assessment Charge- Existing Non-Residential Properties

Alderperson Carpenter moved to approve the 2020 storm later assessment charge for existing non-residential properties, seconded by Alderperson Raasch.
Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dan Carpenter, Alderperson
SECONDER:	Dean Raasch, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

16. Consideration and possible action on quotes for 2020 Materials Testing and Soil Borings*

Alderperson Hansen moved to approve the award of quote for 2020 Material Testing to BATC and 2020 Soil Borings to PSI, seconded by Alderperson Boyd.
Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Jonathon Hansen, Alderperson
SECONDER:	James Boyd, Alderperson
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

17. Consideration and possible action on City Engineer Parking & Traffic Recommendations*

Eric Rakers, City Engineer, stated he would go through each item individually and answer questions on each one as they are discussed. Item one was to change 2 to 3 hour in the city ordinances where it was missed during previous updates. Item two was to add parking restrictions on Fox Point Court in the new Honeysuckle Acres Fourth Addition Subdivision. Item three was to restrict parking by creating a “loading zone” in front of the northern carriage walk of 108 S. Michigan Street. Item four was to discuss and remove the use of the terms “When Children Are Present” in ordinance and signs. Item five was to change the speed limit from 35 to 25 at the corporate limits on Lawrence Drive when entering from the south.

Alderperson Carpenter questioned if item four would affect speed limit signs with that verbiage. Mr. Rakers stated those signs and ordinances would not be affected due to the differences of the attended versus unattended vehicle and abilities to react to a child’s presence. Alderperson Raasch questioned how item five would be affected with Lawrence and De Pere overlapping for a portion. Mr. Rakers stated he would check with Lawrence on their willingness to change the location of the speed change for southbound traffic to correspond with this change for northbound traffic.

Alderperson Raasch moved to approve the City Engineer parking and traffic recommendations, seconded by Mayor Walsh.
Upon vote, the motion passed unanimously.

RESULT:	ADOPTED [UNANIMOUS]
MOVER:	Dean Raasch, Alderperson
SECONDER:	Michael J. Walsh, Mayor
AYES:	Boyd, Carpenter, Hansen, Raasch, Walsh

18. Discuss City Engineer Recommendation for No-Action Parking & Traffic Discussion Items

Eric Rakers, City Engineer, discussed the Parking and Traffic Team discussion-only items. Item one was to review parking modifications required on Superior Street near Notre Dame School. Item two was a request to restrict parking in front of 815 Prosper Street. Alderperson Hansen questioned if the owner of 815 Prosper was notified of P&T recommendation. Mr. Rakers stated they were but were unable to attend the meeting tonight. Item three was to consider changing 3 hour parking to long term parking in front of 340 Wisconsin Street. Item four was a request to restrict parking on the curve near 2234 Red Tail Glen. Item five was to consider changing the signage for parking on College Avenue. Mayor Walsh stated his approval of changing the parking from the north to the south side of the street. Item six was to modify parking signage in Nicolet Square parking lot near Third Street. Item seven was RRFB installation on Broadway and Bomier. Item eight was to add "No Engine Braking" sign on STH 32/57 at roundabout. Item nine was a request to change the traffic signals on Broadway and William to flashing yellow on Broadway and flashing red on William. Item ten was to review driveway and signage/stripping at 1202 Red Maple Road. In the future, Parking and Traffic Team will be evaluating crosswalks at Chicago and Crestview, crossing guard policy evaluation, and amendments to the crosswalk policy considering changes by schools.

Discussion item only.
No action necessary.

IV. Future Agenda Items

None

V. Adjournment

Mayor Walsh moved to adjourn at 8:57 PM, seconded by Alderperson Hansen. Upon vote, the motion passed unanimously.

*Items with an asterisk require City Council approval.

Any person wishing to attend this meeting who, because of disability, requires special accommodations should contact the Clerk-Treasurer's office at 339-4050 by Noon, Monday, February 10, 2020 so that arrangements can be made.

Agenda Sent To:

Mayor
Alderpersons
Department Heads
Superior Sewer & Water, Inc.
RJM Construction, LLC
Automated Comfort Controls
Bay Area Testing and Consulting, LLC

De Pere Chamber of Commerce
TV, Newspapers & Radio Stations
Kress Family Library
Hydro-Klean, LLC
Vinton Construction Co.
Green Bay Pipe & TV, LLC

Notice is hereby given that a majority of the members of the Common Council of the City of De Pere may attend this meeting to gather information about a subject (s) over which they have decision-making responsibility.

Respectfully submitted,
Betty Sellenheim



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on Preliminary Resolution for Special Assessments for Storm Sewer Main and/or Laterals

ATTACHMENTS:

- 2020 0309 CI_BOPW_Storm_Lateral_Preliminary_Assessment (PDF)
- BPW Resolution 20-1 (PDF)
- Schedule B (Non-Residential) (PDF)
- Schedule B (Residential) (PDF)
- Schedule C (Non-Residential) (PDF)
- Schedule C (Residential) (PDF)
- Schedule D (PDF)
- College Avenue Assessment Map (PDF)
- James Street Assessment Map (PDF)
- Merrill Street and Quinnette Lane Assessment Map (PDF)
- Outward Avenue Assessment Map (PDF)
- Voelker Street Assessment Map (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: **Consideration and Possible Action on Preliminary Resolution for Special Assessments for Storm Sewer Main and/or Laterals**

The purpose for this item is to approve a preliminary resolution for special assessments for storm sewer and/or storm lateral construction associated with street resurfacing and reconstruction in 2020.

Background

The City is performing the following construction in 2020 that includes the installation of new storm sewer and/or storm laterals:

- College Avenue Reconstruction from Fourth Street to the western cul-de-sac.
- James Street Reconstruction from N. Broadway to N. Wisconsin Street.
- Merrill Street Utility Relay and Street Resurfacing from S. Erie Street to Knoll Terrace.
- Outward Avenue Utility Relay and Street Resurfacing from Helena Street to Amhart Drive.
- Quinnette Lane Utility Relay and Street Resurfacing from Jordan Road to Knoll Terrace.
- Voelker Street Utility Relay and Street Resurfacing from Ridgeway Drive to Lebrun Street.

Storm sewer lateral installation on College Avenue and James Street conforms to the City Municipal Code Section 26-5-5(b) which states:

“(1) Installation. Storm sewer main and lateral installation to each lot of record shall be constructed at the time of street reconstruction in those streets which do not have storm sewer. The location of the lateral installation shall be as determined by the City Engineer or designee.”

The City has received drainage complaints in the areas of Merrill Street, Outward Avenue, Quinnette Lane, and Voelker Street over the last few years. Because of this, storm sewer laterals are being installed to properties within these blocks. The installation of storm laterals conforms to the City Municipal Code Section 26-5-5(c) which states:

“(1) Installation. Storm sewer main and lateral installation to each lot of record shall be constructed at during street resurfacing improvements when:

- a. Requested by a property owner along the street to be resurfaced; or*
- b. When ordered by the Director of Public Works to address drainage issues.*

The location of the lateral installation shall be as determined by the City Engineer or designee.”

Assessments for these services were calculated per City Municipal Code Section 13-7. As calculated per Municipal Code Section 13-7 and approved by the Board of Public Works, the costs for the 2020 storm sewer special assessments are as follows:

- Residential Properties
 - Storm Lateral Assessment - \$1,571.14
 - Storm Main Assessment - \$397.30
- Non-Residential Properties
 - Storm Main Assessment - \$7.42
 - 6-inch Storm Lateral Assessment - \$1,805.31
 - 8-inch Storm Lateral Assessment - \$2,018.85
 - 12-inch Storm Lateral Assessment - \$2,199.87

The locations impacted by storm sewer assessments include:

- College Avenue Reconstruction from Fourth Street to the western cul-de-sac.
- James Street Reconstruction from N. Broadway to N. Wisconsin Street.
- Merrill Street Utility Relay and Street Resurfacing from S. Erie Street to Knoll Terrace.
- Outward Avenue Utility Relay and Street Resurfacing from Helena Street to Amhart Drive.
- Quinnette Lane Utility Relay and Street Resurfacing from Jordan Road to Knoll Terrace.
- Voelker Street Utility Relay and Street Resurfacing from Ridgeway Drive to Lebrun Street.

Property owners have been notified several times of this project including:

- September 9, 2019: Letters sent to residents on Quinnette Lane, Merrill Street and Voelker Street of upcoming project and storm sewer assessment.
- January 9, 2020: Letters sent notifying property owners of storm sewer assessments and public information meeting.
- February 28, 2020: Letter sent notifying property owners of preliminary assessment amount and invitation to Board of Public Works meetings on March 9, 2020 and April 13, 2020.
- Property owners on College Avenue and James Street were notified in 2019.

Code Section 13-7(d)(1)(d) further identifies procedures and pay options for the storm sewer and special assessments as follows:

- “d. Public hearing. The board shall hold a public hearing on the assessments and after the hearing may by resolution approve, disapprove, modify or refer the report with such directions as it deems necessary. The board shall provide for the following payment alternatives if it determines to assess for any of the improvements:*
- i. No interest imputed if payment of assessment made in full within 30 days of invoice;*
 - ii. Payment in such number of yearly installments as deemed reasonable by the board, together with interest thereon at the rate of one percent over the interest rate paid by the city on its latest bonding issue, with payment in full due upon transfer of the property;*
 - iii. Deferred payment of assessment with interest to accrue at the rate of one percent over the interest rate paid by the city on its last bond issue, with the total becoming due on the earliest of the following:*
 - A. Transfer of the benefited property to any other person or entity;*
 - B. Subdivision of the benefited property;*
 - C. Connection to the storm sewer;*

- D. The expiration of 25 years from the date of adoption of the final assessment resolution, at which time the assessment plus accrued interest shall be made in full against the benefited property.*
- iv. Interest on alternatives ii. and iii. Above shall stop accruing after a period of ten years.”*

Note under item ii. the Board of Public Works can establish a number of yearly establishments for payback. Also, under iii., property owners are not required to pay until they connect to the storm lateral, sell or subdivide the property, or 25 years, whichever occurs first.

Recommendation

Staff recommends that the Board of Public Works adopt the preliminary resolution and schedule a public hearing at the Board of Public Works on April 13, 2020. The Board of Public Works can establish a number of yearly establishments for payback. In the past, the Board established a 5-year payback period.

Attachments

Schedule B (PDF)
 Schedule C (PDF)
 Schedule D (PDF)
 BPW Resolution 20-1 (PDF)
 College Avenue Assessment Map (PDF)
 James Street Assessment Map (PDF)
 Merrill Street and Quinnette Lane Assessment Map (PDF)
 Outward Avenue Assessment Map (PDF)
 Voelker Street Assessment Map (PDF)

RESOLUTION #20-1

PRELIMINARY RESOLUTION DECLARING INTENTION TO EXERCISE
SPECIAL ASSESSMENT POWERS UNDER SECTION 13-7 DE PERE MUNICIPAL CODE and
Wis. Stats. §66.0703

STORM SEWER MAIN AND/OR LATERALS ON COLLEGE AVENUE FROM FOURTH
STREET TO THE WESTER CUL-DE-SAC, JAMES STREET FROM N. BROADWAY TO N.
WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE,
OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE
FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY
DRIVE TO LEBRUN STREET

BE IT HEREBY RESOLVED, by the Board of Public Works of the City of De
Pere, Wisconsin, as follows:

1. That the Board of Public Works hereby declares its intention to exercise its
police powers and levy special assessments pursuant to Section 13-7, De Pere Municipal
Code and Wis. Stats. §66.0703, for improvements constructed within the area described
below and special assessments to be levied on a reasonable basis upon the properties
benefited thereby. Said improvements to include storm sewer main and/or laterals.
Said improvements shall be constructed and the properties benefiting there from are
contained in the following described areas or abutting streets:

STORM SEWER MAIN AND/OR LATERALS

Both Sides of College Avenue from Fourth Street to the western cul-de-sac
Both Sides of James Street from N. Broadway Street to N. Wisconsin Street
Both Sides of Merrill Street from S. Erie Street to Knoll Terrace
Both Sides of Outward Avenue from Helena Street to Amhart Drive
Both Sides of Quinnette Lane from Jordan Road to Knoll Terrace
Both Sides of Voelker Street from Ridgeway Drive to Lebrun Street

2. The total assessed against such districts shall not exceed the total cost of
the improvements. The Board of Public Works determines that such improvements
shall be installed and assessed therefore levied under the police power and that the
amount assessed against each benefited parcel shall be based on each unit for Storm
Sewer and/or Laterals.

3. The assessments against any parcel shall be paid as follows:

- (a) No interest imputed if payment of assessment made in full within 30 days of invoice;
- (b) Payment shall be in (To be determined by the Board) yearly installments once the assessment is due, together with interest on the unpaid balance thereon at the rate of one percent over the interest rate paid by the city on its latest bonding issue, with payment in full due upon transfer of the property;
- (c) Deferred payment of assessment with interest to accrue at the rate of one percent over the interest rate paid by city on its last bond issue, with the total becoming due on the earliest of the following:
 - i. Transfer of the benefited property to any other person or entity;
 - ii. Subdivision of the benefited property;
 - iii. Connection to the storm sewer;
 - iv. The expiration of 25 years from the date of the adoption of the final assessment resolution, at which time the assessment plus accrued interest shall be made in full against the benefited property.
- (d) Interest on alternatives (b) and (c) above shall stop accruing after a period of ten years

4. The Director of Public Works is directed to prepare a report incorporating the recommendation of the Board of Public Works consisting of:

- (a) Preliminary plans and specifications for said improvements;
- (b) An estimate of the entire cost of the proposed improvements;
- (c) A schedule of the proposed assessments;
- (d) A statement that the property against which the assessments are proposed is benefited.

After compiling such report, the Director of Public Works is directed to file a copy thereof in the City Clerk-Treasurer's office for public inspection.

5. Upon receiving the report of the Board of Public Works, the Clerk-Treasurer is directed to give a Class I notice of public hearing on such report as specified in Section 66.60, Wis. Stats. The hearing shall be held in the Common Council Chambers of the City Hall at a time set by the Clerk-Treasurer in accordance with the aforementioned statutory provision.

Adopted by the Board of Public Works of the City of De Pere, Wisconsin, this
 _____ day of _____, 2020.

APPROVED:

 Michael J. Walsh, Mayor and Chair of the Board
 of Public Works

Ayes: _____ Nays: _____

Attachment: BPW Resolution 20-1 (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule B
2020 Storm Sewer Cost Evaluation - Existing Development Other Than Residential up to Two Units per Building
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.

City of De Pere
Date: 1/17/2020

Mainline Cost

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-02	ST-01	Provide 18" PVC or RCP Class III Storm Sewer	LF	389.0	\$55.00	\$21,395.00	
18-02	ST-04	Provide 18" PVC , RCP Class III, or PP Storm Sewer	LF	260.0	\$52.74	\$13,712.40	
19-01	ST-01	Remove and Relay 18" PVC or RCP (Class III) Storm Sewer	LF	25.0	\$65.00	\$1,625.00	
Total				674.0		\$36,732.40	
Average Cost Per Foot						\$54.50	

Attachment: Schedule B (Non-Residential) (9339 : Consider prelim resolution for special assessments for

Schedule B
2020 Storm Sewer Cost Evaluation - Existing Development Other Than Residential up to Two Units per Building
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.

City of De Pere
Date: 1/17/2020

Storm Sewer Manhole

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-10	Remove and Replace 4' Diameter Storm Manhole	VF	26.80	\$365.00	\$9,782.00	
17-01	ST-12	Provide 4' Diameter Storm Manhole	VF	31.40	\$350.00	\$10,990.00	
17-02	ST-12	Provide 4' Diameter Storm Manhole	VF	96.20	\$310.00	\$29,822.00	
17-07	ST-06	Remove and Replace 4' Diameter Storm Manhole	VF	4.10	\$600.00	\$2,460.00	
18-01	ST-13	Provide 4' Diameter Storm Manhole	VF	32.48	\$507.00	\$16,467.36	
18-01	ST-16	Remove and Replace 4' Diameter Storm Manhole	VF	5.20	\$450.00	\$2,340.00	
18-02	ST-18	Provide 4' Diameter Storm Manhole	VF	91.23	\$401.41	\$36,620.63	
18-11	ST-09	Remove and Replace 4' Diameter Storm Manhole	VF	3.80	\$435.00	\$1,653.00	
18-11	ST-10	Provide 4' Diameter Storm Manhole	VF	11.90	\$365.00	\$4,343.50	
19-01	ST-08	Provide 4' Diameter Storm Manhole	VF	68.30	\$690.00	\$47,127.00	
19-01	ST-09	Remove and Replace 4' Diameter Storm Manhole	VF	9.27	\$600.00	\$5,562.00	
19-18	ST-02	Remove and Replace 4' Diameter Storm Manhole	VF	7.50	\$450.00	\$3,375.00	
Total				388.18		\$170,542.49	
Cost Per Vertical Foot						\$439.34	
Cost for a 5 foot Deep Manhole						\$2,196.70	
Average Per Foot Cost with a 300 Foot Spacing						\$7.32	

Schedule B
2020 Storm Sewer Cost Evaluation - Existing Development Other Than Residential up to Two Units per Building
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Lateral Cost

Lateral 6"

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-06	Provide 6" PVC Storm Sewer Lateral	LF	2,463.3	\$38.00	\$93,605.40	
17-02	ST-05	Provide 6" Storm Sewer Lateral	LF	1,564.2	\$39.50	\$61,785.90	
18-01	ST-08	Provide 6" Storm Sewer Lateral	LF	1,049.0	\$34.00	\$35,666.00	
18-02	ST-09	Provide 6" PVC Storm Sewer Lateral	LF	529.0	\$33.10	\$17,509.90	
18-07	ST-01	Provide 6" PVC Storm Sewer Lateral	LF	108.0	\$35.00	\$3,780.00	
18-11	ST-07	Provide 6" PVC Storm Sewer Lateral	LF	3.0	\$51.00	\$153.00	
19-01	ST-05	Provide 6" PVC Storm Sewer Lateral	LF	2,139.3	\$44.00	\$94,129.20	
Total				7,855.8		\$306,629.40	Average length of lateral is based on a 70 foot right of way.
Average Cost Per Foot						\$39.03	
Average Cost per Lot at 35 Feet of Lateral (100% to Owner)						\$1,366.05	

Lateral 8"

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-05	Provide 8" PVC Storm Sewer	LF	1,040.5	\$40.00	\$41,620.00	
17-02	ST-04	Provide 8" PVC Storm Sewer	LF	190.0	\$34.00	\$6,460.00	
18-02	ST-07	Provide 8" PVC Storm Sewer	LF	53.0	\$36.85	\$1,953.05	
18-02	ST-08	Provide 8" PVC Storm Sewer Lateral	LF	48.0	\$40.40	\$1,939.20	
19-01	ST-04	Provide 8" PVC Storm Sewer	LF	2,455.0	\$46.00	\$112,930.00	
Total				3,786.5		\$164,902.25	Average length of lateral is based on a 70 foot right of way.
Average Cost Per Foot						\$43.55	
Average Cost per Lot at 35 Feet of Lateral (100% to Owner)						\$1,524.25	

Attachment: Schedule B (Non-Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule B
2020 Storm Sewer Cost Evaluation - Existing Development Other Than Residential up to Two Units per Building
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Lateral Cost

Lateral 12"

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-02	Remove and Replace 12" PVC or RCP (Class III) Storm Sewer	LF	478.5	\$47.00	\$22,489.50	
17-02	ST-03	Provide 12" PVC or RCP Class III Storm Sewer	LF	1,554.5	\$38.00	\$59,071.00	
17-07	ST-02	Remove and Replace 12" PVC or RCP CL III Storm Sewer	LF	91.0	\$36.00	\$3,276.00	
18-01	ST-03	Provide 12" PVC or RCP (Class III) Storm Sewer	LF	1,248.0	\$50.00	\$62,400.00	
18-01	ST-06	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	59.3	\$51.00	\$3,024.30	
18-02	ST-06	Provide 12" PVC or RCP Class III Storm Sewer	LF	936.0	\$52.76	\$49,383.36	
18-11	ST-04	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer	LF	117.5	\$58.00	\$6,815.00	
18-11	ST-05	Provide 12" PVC or RCP (Class III) Storm Sewer (Natural Backfill)	LF	86.0	\$48.00	\$4,128.00	
18-11	ST-06	Provide 12" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	24.0	\$58.00	\$1,392.00	
19-01	ST-02	Provide 12" PVC or RCP (Class III) Storm Sewer	LF	342.7	\$51.00	\$17,477.70	
19-01	ST-03	Remove and Relay 12" PVC, RCP (Class III), or PP Storm Sewer	LF	120.6	\$53.00	\$6,391.80	
19-18	ST-01	Remove and Replace 12" PVC or RCP (Class III) Storm Sewer	LF	207.0	\$78.00	\$16,146.00	
Total				5,265.1		\$251,994.66	
Average Cost Per Foot						\$47.86	
Average Cost per Lot at 35 Feet of Lateral (100% to Owner)						\$1,675.10	Average length of lateral is based on a 70 foot right of way.

Attachment: Schedule B (Non-Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule B
2020 Storm Sewer Cost Evaluation - Existing Development Other Than Residential up to Two Units per Building
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Connection Cost**Storm Wye Cost (6")**

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-07	Provide 12"x6" Storm Tee	EA	7	\$75.00	\$525.00	
17-01	ST-08	Provide 8"x6" Storm Tee	EA	20	\$50.00	\$1,000.00	
17-02	ST-06	Provide Storm Branch 18"x6"	EA	7	\$350.00	\$2,450.00	
17-02	ST-07	Provide Storm Branch 15"x6"	EA	22	\$190.00	\$4,180.00	
17-02	ST-08	Provide Storm Branch 12"x6"	EA	17	\$110.00	\$1,870.00	
17-02	ST-09	Provide Storm Branch 8"x6"	EA	3	\$55.00	\$165.00	
18-01	ST-10	Provide 12"x6" Storm Branch or Inserta Tee	EA	28	\$165.00	\$4,620.00	
18-02	ST-11	Provide 30"x6" Storm Sewer Branch or Inserta Tee	EA	5	\$279.27	\$1,396.35	
18-02	ST-12	Provide 24"x6" Storm Sewer Branch or Inserta Tee	EA	5	\$306.03	\$1,530.15	
18-02	ST-13	Provide 21"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$291.89	\$583.78	
18-02	ST-14	Provide 18"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$291.89	\$583.78	
18-02	ST-15	Provide 15"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$291.89	\$583.78	
18-02	ST-16	Provide 12"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$309.06	\$618.12	
18-11	ST-08	Provide 12"x6" Storm Branch or Inserta Tee	EA	1	\$300.00	\$300.00	
19-01	ST-07	Provide 8"x6" Storm Branch or Inserta Tee	EA	58	\$80.00	\$4,640.00	
Total				181		\$25,045.96	
Average Cost Per Wye						\$138.38	

Core Storm Tee Cost (8" & 12")

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-09	Core Drill Existing Main with NPC Kor-N-Tee	EA	20	\$125.00	\$2,500.00	
18-02	ST-10	Provide 30"x8" Storm Sewer Branch or Inserta Tee	EA	2	\$489.35	\$978.70	
Total				22		\$3,478.70	
Average Cost Per Connection/Core						\$158.12	

Attachment: Schedule B (Non-Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule B
Storm Sewer Cost Evaluation - Residential
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Mainline Cost

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-02	Remove and Replace 12" PVC or RCP (Class III) Storm Sewer	LF	478.5	\$47.00	\$22,489.50	
17-02	ST-03	Provide 12" PVC or RCP Class III Storm Sewer	LF	1554.5	\$38.00	\$59,071.00	
17-07	ST-02	Remove and Replace 12" PVC or RCP CL III Storm Sewer	LF	91.0	\$36.00	\$3,276.00	
18-01	ST-03	Provide 12" PVC or RCP (Class III) Storm Sewer	LF	1248.0	\$50.00	\$62,400.00	
18-01	ST-06	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	59.3	\$51.00	\$3,024.30	
18-02	ST-06	Provide 12" PVC or RCP Class III	LF	936.0	\$52.76	\$49,383.36	
18-11	ST-04	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer	LF	117.5	\$58.00	\$6,815.00	
18-11	ST-05	Provide 12" PVC or RCP (Class III) Storm Sewer (Natural Backfill)	LF	86.0	\$48.00	\$4,128.00	
18-11	ST-06	Provide 12" PVC or RCP (Class III) Storm Sewer (Granular Backfill)	LF	24.0	\$58.00	\$1,392.00	
19-01	ST-02	Provide 12" PVC or RCP (Class III) Storm Sewer	LF	342.7	\$51.00	\$17,477.70	
19-01	ST-03	Remove and Relay 12" PVC or RCP (Class III), or PP Storm Sewer	LF	120.6	\$53.00	\$6,391.80	
19-18	ST-01	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer	LF	207.0	\$78.00	\$16,146.00	
Total				5265.1		\$251,994.66	
Average Cost Per Foot						\$47.86	

Attachment: Schedule B (Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule B
Storm Sewer Cost Evaluation - Residential
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Storm Sewer Manhole

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-10	Remove and Replace 4' Diameter Storm Manhole	VF	26.80	\$365.00	\$9,782.00	
17-01	ST-12	Provide 4' Diameter Storm Manhole	VF	31.40	\$350.00	\$10,990.00	
17-02	ST-12	Provide 4' Diameter Storm Manhole	VF	96.20	\$310.00	\$29,822.00	
17-07	ST-06	Remove and Replace 4' Diameter Storm Manhole	VF	4.10	\$600.00	\$2,460.00	
18-01	ST-13	Provide 4' Diameter Storm Manhole	VF	32.48	\$507.00	\$16,467.36	
18-01	ST-16	Remove and Replace 4' Diameter Storm Manhole	VF	5.20	\$450.00	\$2,340.00	
18-02	ST-18	Provide 4' Diameter Storm Manhole	VF	91.23	\$401.41	\$36,620.63	
18-11	ST-09	Remove and Replace 4' Diameter Storm Manhole	VF	3.80	\$435.00	\$1,653.00	
18-11	ST-10	Provide 4' Diameter Storm Manhole	VF	11.90	\$365.00	\$4,343.50	
19-01	ST-08	Provide 4' Diameter Storm Manhole	VF	68.30	\$690.00	\$47,127.00	
19-01	ST-09	Remove and Replace 4' Diameter Storm Manhole	VF	9.27	\$600.00	\$5,562.00	
19-18	ST-02	Remove and Replace 4' Diameter Storm Manhole	VF	7.50	\$450.00	\$3,375.00	
Total				388.18		\$170,542.49	
Cost Per Foot						\$439.34	
Cost for a 5 foot Deep Manhole						\$2,196.70	
Average Per Foot Cost with a 300 Foot Spacing						\$7.32	

Attachment: Schedule B (Residential) (9339 : Consider prelim resolution for special assessments for

Schedule B
Storm Sewer Cost Evaluation - Residential
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Lateral Cost

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-06	Provide 6" PVC Storm Sewer Lateral	LF	2463.3	\$38.00	\$93,605.40	
17-02	ST-05	Provide 6" Storm Sewer Lateral	LF	1564.2	\$39.50	\$61,785.90	
18-01	ST-08	Provide 6" PVC Storm Sewer Lateral	LF	1049.0	\$34.00	\$35,666.00	
18-02	ST-09	Provide 6" PVC Storm Sewer Lateral	LF	529.0	\$33.10	\$17,509.90	
18-07	ST-01	Provide 6" PVC Storm Lateral	LF	108.0	\$35.00	\$3,780.00	
18-11	ST-07	Provide 6" PVC Storm Sewer Lateral	LF	3	\$51.00	\$153.00	
19-01	ST-05	Provide 6" PVC Storm Lateral	LF	2139	\$44.00	\$94,129.20	
Total				7855.8		\$306,629.40	
Average Cost Per Foot						\$39.03	
Average Cost per Lot at 30 Feet of Lateral (100% to Resident)						\$1,170.90	Average length of lateral is based on a 60 foot right of way and several laterals being connected to inlets.

Storm Wye Cost

Project	Bid Item	Bid Item Description	Unit	Quantity	Cost	Total	Comment
17-01	ST-07	Provide 12"x6" Storm Tee	EA	7	\$75.00	\$525.00	
17-01	ST-08	Provide 8"x6" Storm Tee	EA	20	\$50.00	\$1,000.00	
17-02	ST-06	Provide Storm Branch 18"x6"	EA	7	\$350.00	\$2,450.00	
17-02	ST-07	Provide Storm Branch 15"x6"	EA	22	\$190.00	\$4,180.00	
17-02	ST-08	Provide Storm Branch 12"x6"	EA	17	\$110.00	\$1,870.00	
17-02	ST-09	Provide Storm Branch 8"x6"	EA	3	\$55.00	\$165.00	
18-01	ST-10	Provide 12"x6" Storm Branch or Inserta Tee	EA	28	\$165.00	\$4,620.00	
18-02	ST-11	Provide 30"x6" Storm Sewer Branch or Inserta Tee	EA	5	\$279.27	\$1,396.35	
18-02	ST-12	Provide 24"x6" Storm Sewer Branch or Inserta Tee	EA	5	\$306.03	\$1,530.15	
18-02	ST-13	Provide 21"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$291.89	\$583.78	
18-02	ST-14	Provide 18"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$291.89	\$583.78	
18-02	ST-15	Provide 15"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$291.89	\$583.78	
18-02	ST-16	Provide 12"x6" Storm Sewer Branch or Inserta Tee	EA	2	\$309.06	\$618.12	
18-11	ST-08	Provide 12"x6" Storm Branch or Inserta Tee	EA	1	\$300.00	\$300.00	
19-01	ST-07	Provide 8"x6" Storm Branch or Inserta Tee	EA	58	\$80.00	\$4,640.00	
Total				181		\$25,045.96	
Average Cost Per Wye						\$138.38	

Attachment: Schedule B (Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule C
2020 Storm Sewer Cost Evaluation - Existing Development Other Than Residential up to
Two Units per Building
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Storm Mainline Cost

Item Description	Cost Per LF	Comment
18" Storm Sewer Main	\$54.50	300 foot spacing with a 5' depth
4' Diameter Storm Manhole	\$7.32	
Mainline Cost Per Street Foot	\$61.82	Remaining 80% funded by Storm Water Utility
Cost Per Side of Street	\$30.91	
Assessable Amount (20%)	\$6.18	
Engineering and Administration (20%)	\$1.24	
Total Mainline Cost Per Front Lot Foot	\$7.42	

Storm Lateral Cost

Item Description	Cost Per EA	Comment
6" Storm Lateral	\$1,366.05	35 foot average length.
Storm Wye Cost	\$138.38	
Assessable Amount (100%)	\$1,504.43	
Engineering and Administration (20%)	\$300.89	
Total Lateral Costs	\$1,805.31	

Storm Lateral Cost

Item Description	Cost Per EA	Comment
8" Storm Lateral	\$1,524.25	35 foot average length.
Storm Wye Cost (Core)	\$158.12	Average of cost to core pipe
Assessable Amount (100%)	\$1,682.37	
Engineering and Administration (20%)	\$336.47	
Total Lateral Costs	\$2,018.85	

Storm Lateral Cost

Item Description	Cost Per EA	Comment
12" Storm Lateral	\$1,675.10	35 foot average length.
Storm Wye Cost (Core)	\$158.12	Average of cost to core pipe
Assessable Amount (100%)	\$1,833.22	
Engineering and Administration (20%)	\$366.64	
Total Lateral Costs	\$2,199.87	

Attachment: Schedule C (Non-Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

Schedule C
2020 Storm Sewer Cost Evaluation - Residential
Summary Based on 2017-2019 Asphalt Reconstruction and Resurfacing Projects.
City of De Pere
Date: 1/17/2020

Storm Mainline Cost

Item Description	Cost Per LF	Comment
12" Storm Sewer Main	\$47.86	
4' Diameter Storm Manhole	\$7.32	300 foot spacing with a 5' depth
Mainline Cost Per Street Foot	\$55.18	
Cost Per Side of Street	\$27.59	
Cost Per Lot	\$1,655.40	60 foot wide lot
Assessable Amount (20%)	\$331.08	Remaining 80% funded by Storm Water Utility
Engineering and Administration (20%)	\$66.22	
Total Mainline Costs	\$397.30	

Storm Lateral Cost

Item Description	Cost Per EA	Comment
6" Storm Lateral	\$1,170.90	30 foot average length. Some laterals will be connected to inlets.
Storm Wye Cost	\$138.38	
Assessable Amount (100%)	\$1,309.28	
Engineering and Administration (20%)	\$261.86	
Total Lateral Costs	\$1,571.14	

Total Cost

Mainline	\$397.30
Storm Lateral	\$1,571.14
Total Cost	\$1,968.44

Attachment: Schedule C (Residential) (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
 COST PER UNIT - 8-INCH STORM LATERAL: **\$2,018.85**
 COST PER UNIT - 12-INCH STORM LATERAL: **\$2,199.87**

NOTE: OTHER IS DEFINED AS PROPERTIES ZONED COMMERCIAL, INDUSTRIAL, OR HAVE A RESIDENTIAL USE GREATER THAN A DUPLEX

PROPERTY OWNER	LOT NO. PROPERTY ADDRESS PARCEL NUMBER	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
		UNIT	COST	UNIT	COST		
James Street							
Union Hotel Corp. 200 N. Broadway Street De Pere, WI 54115-2508	200 N. Broadway Street ED-857	0	\$0.00	1	\$2,018.85	\$2,018.85	Requires 8-Inch Storm lateral.
College Avenue							
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	0 College Avenue WD-767	0	\$0.00	0	\$0.00	\$0.00	Storm Sewer in parking connects to manhole on College Avenue.
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	404 College Avenue WD-648	0	\$0.00	0	\$0.00	\$0.00	Storm connected to alley
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	413 College Avenue WD-766	0	\$0.00	1	\$1,571.14	\$1,571.14	Has storm sewer on College Avenue.
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	417 College Avenue WD-766-1	0	\$0.00	1	\$1,571.14	\$1,571.14	Has storm sewer on College Avenue.
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	420 College Avenue WD-657	0	\$0.00	0	\$0.00	\$0.00	Storm service to private storm management syste
VHC, Inc. 3090 Holmgren Way Green Bay, WI 54304	450 College Avenue WD-657-2	0	\$0.00	0	\$0.00	\$0.00	Storm service to private storm management syste
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	318 Fourth Street WD-647	0	\$0.00	0	\$0.00	\$0.00	Storm connected to alley
Scott A & Laura L VanRyzin 402 Fourth Street De Pere, WI 54115-2113	402 Fourth Street WD-765	0	\$0.00	1	\$1,571.14	\$1,571.14	Has storm sewer on College Avenue.
St. Norbert College, Inc. 100 Grant Street De Pere, WI 54115-2002	405 Grant Street WD-646	0	\$0.00	0	\$0.00	\$0.00	Storm connected to alley
Merrill Street							
Mark A Garrigan & Katelyn J Garrigan 523 S. Erie Street De Pere, WI 54115-2945	523 S. Erie Street ED-225	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Richard E Kiefert 601 S. Erie Street De Pere, WI 54115-3230	601 S. Erie Street ED-1203-Q-1	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
John S VanLanen, ETAL 607 Jordan Road De Pere, WI 54115-3205	607 Jordan Road ED-1129-Q-14	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Jordan Road.

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
 COST PER UNIT - 8-INCH STORM LATERAL: **\$2,018.85**
 COST PER UNIT - 12-INCH STORM LATERAL: **\$2,199.87**

NOTE: OTHER IS DEFINED AS PROPERTIES ZONED COMMERCIAL, INDUSTRIAL, OR HAVE A RESIDENTIAL USE GREATER THAN A DUPLEX

PROPERTY OWNER	LOT NO. PROPERTY ADDRESS PARCEL NUMBER	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
	UNIT	COST	UNIT	COST			
Merrill Street (Continued...)							
James R Wochinske & Kathryn L Wochinske 1981 Hawthorne Heights De Pere, WI 54115-9244	0 Merrill Street ED-1129-Q-41	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street
Gerald G Laluzerne 908 Merrill Street De Pere, WI 54115-3244	908 Merrill Street ED-1203-Q-2	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Robert A Cleek & McKenzie L Cleek 914 Merrill Street De Pere, WI 54115-3244	914 Merrill Street ED-1203-Q-3	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Henricks D Trust 1614 Patton Green Bay, WI 54301	917 Merrill Street ED-223	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Randall F Henrigillis 918 Merrill Street De Pere, WI 54115-3244	918 Merrill Street ED-1203-Q-4	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
VL Real Estate LLC 2124 Pheasant Run Trail De Pere, WI 54115	1324 Merrill Street ED-1129-Q-19	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Liv N Curtis, ETAL 1330 Merrill Street De Pere, WI, 54115	1330 Merrill Street ED-1129-Q-20	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
James M Jordan & Cathy A Jordan 390 Waters Edge Drive Hebron, OH 43025	1340 Merrill Street ED-1129-Q-23-A	0	\$0.00	0	\$0.00	\$0.00	Lateral out of Inlet
Ronald W Waise 1402 Merrill Street De Pere, WI 54115-3332	1402 Merrill Street ED-1129-Q-23	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Patrick Thein 1408 Merrill Street De Pere, WI 54115-3332	1408 Merrill Street ED-1129-Q-24	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Makayla R Falkowski 1414 Merrill Street De Pere, WI 54115	1414 Merrill Street ED-1129-Q-25	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Anders T Lofdahl & Kimberly A Lofdahl 1420 Merrill Street De Pere, WI 54115-3332	1420 Merrill Street ED-1129-Q-26	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Heather L Baker 1502 Merrill Street De Pere, WI 54115	1502 Merrill Street ED-1129-Q-27	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Barbara J Gallagher 1508 Merrill Street De Pere, WI 54115-3333	1508 Merrill Street ED-1129-Q-28	0	\$0.00	0	\$0.00	\$0.00	Storm Sewer Lateral goes to Manhole in front of property. Clay lateral.

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
 COST PER UNIT - 8-INCH STORM LATERAL: **\$2,018.85**
 COST PER UNIT - 12-INCH STORM LATERAL: **\$2,199.87**

NOTE: OTHER IS DEFINED AS PROPERTIES ZONED COMMERCIAL, INDUSTRIAL, OR HAVE A RESIDENTIAL USE GREATER THAN A DUPLEX

PROPERTY OWNER	LOT NO. PROPERTY ADDRESS PARCEL NUMBER	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
	UNIT	COST	UNIT	COST			
Merrill Street (Continued...)							
Kao Ong Lor, ETAL 1514 Merrill Street De Pere, WI 54115	1514 Merrill Street ED-1129-Q-29	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
David J Landwehr & Judith M Landwehr 1520 Merrill Street De Pere, WI 54115-3333	1520 Merrill Street ED-1129-Q-30	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street.
Matthew T Stoehr & Courtney L Stoehr 1526 Merrill Street De Pere, WI 54115-3333	1526 Merrill Street ED-1129-Q-31	0	\$0.00	0	\$0.00	\$0.00	Storm Lateral Connected to Storm Sewer in Easement Abutting property.
Eric J Blumreich & Jodie Johnson Blumreich 1608 Merrill Street De Pere, WI 54115	1608 Merrill Street ED-1129-Q-42	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street
Christopher L Vanlanen & Karen K Vanlanen 1614 Merrill Street De Pere, WI 54115-3334	1614 Merrill Street ED-1129-Q-43	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Merrill Street
Anthony R Trofka & Beth A Trofka 1620 Merrill Street De Pere, WI 54115-3334	1620 Merrill Street ED-1129-Q-44	0	\$0.00	0	\$0.00	\$0.00	Storm Sewer lateral present at inlet at intersection of Merrill and Knoll.
Outward Avenue							
Alex R Everson & Ashlee Ann Everson 802 Amhart Drive De Pere, WI 54115-1123	802 Amhart Drive WD-758-L-187	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Amhart Drive
Roy T Woodland & Luann M Woodland 803 Helena Street De Pere, WI 54115-1155	803 Helena Street WD-758-L-198	0	\$0.00	0	\$0.00	\$0.00	6-inch storm lateral tapped into Helena Street storm sewer.
Nicholas G Evenson 905 Outward Avenue De Pere, WI 54115-1134	905 Outward Avenue WD-708-J-3	0	\$0.00	0	\$0.00	\$0.00	6-inch lateral at inlet abutting this property.
Trinkner Patricia M Revocable Living Trust 920 Outward Avenue De Pere, WI 54115-1135	920 Outward Avenue WD-758-L-197	1	\$397.30	1	\$1,571.14	\$1,968.44	
Peter M Vandeven & Carol L Vandeven 921 Outward Avenue De Pere, WI 5411-1134	921 Outward Avenue WD-708-J-4	1	\$397.30	1	\$1,571.14	\$1,968.44	
Brian J Miller & Rachel L Miller 2895 Lepak Lane Green Bay, WI 54313-9265	938 Outward Avenue WD-758-L-196	1	\$397.30	1	\$1,571.14	\$1,968.44	
Joan M Orde 939 Outward Avenue De Pere, WI 5411-1134	939 Outward Avenue WD-708-J-5	1	\$397.30	1	\$1,571.14	\$1,968.44	

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
 COST PER UNIT - 8-INCH STORM LATERAL: **\$2,018.85**
 COST PER UNIT - 12-INCH STORM LATERAL: **\$2,199.87**

NOTE: OTHER IS DEFINED AS PROPERTIES ZONED COMMERCIAL, INDUSTRIAL, OR HAVE A RESIDENTIAL USE GREATER THAN A DUPLEX

PROPERTY OWNER	LOT NO.	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
	PROPERTY ADDRESS PARCEL NUMBER	UNIT	COST	UNIT	COST		
Outward Avenue (Continued...)							
Jeffrey C Henslee & Tina M Henslee 956 Outward Avenue De Pere, WI 54115	956 Outward Avenue WD-758-L-195	1	\$397.30	1	\$1,571.14	\$1,968.44	
Gary L Beyer & Bonnie L Beyer 957 Outward Avenue De Pere, WI 5411-1134	957 Outward Avenue WD-708-J-6	1	\$397.30	1	\$1,571.14	\$1,968.44	
Gary L Beyer & Bonnie L Beyer 957 Outward Avenue De Pere, WI 5411-1134	WD-708-J-7	1	\$397.30	1	\$1,571.14	\$1,968.44	
Dean R Watzka & Julie A Watzka 974 Outward Avenue De Pere, WI 54115-1135	974 Outward Avenue WD-758-L-194	1	\$397.30	1	\$1,571.14	\$1,968.44	
Samuel J Hilgemann & Jane M Hilgemann 992 Outward Avenue De Pere, WI 54115-1135	992 Outward Avenue WD-758-L-193	1	\$397.30	1	\$1,571.14	\$1,968.44	
Randall J Gerbers 1002 Outward Avenue De Pere, WI 54115-1137	1002 Outward Avenue WD-758-L-192	1	\$397.30	1	\$1,571.14	\$1,968.44	
Smits John M & Georgiana J Revocable Trust 1003 Outward Avenue De Pere, WI 54115-1136	1003 Outward Avenue WD-708-J-8	1	\$397.30	1	\$1,571.14	\$1,968.44	
Daniel W Krueger & Joy A Krueger 1016 Outward Avenue De Pere, WI 54115-1137	1016 Outward Avenue WD-758-L-191	1	\$397.30	1	\$1,571.14	\$1,968.44	
Baeten Thomas D Revocable Trust of 1997 1017 Outward Avenue De Pere, WI 54115-1136	1017 Outward Avenue WD-708-J-9	1	\$397.30	1	\$1,571.14	\$1,968.44	
Ross W Townsend & Leigh A Townsend 1807 Skeet Avenue Brussels, WI 54204	1029-1031 Outward Avenue WD-123-3	1	\$397.30	1	\$1,571.14	\$1,968.44	
Patrick J Fritsch & Kelley L Fritsch 1030 Outward Avenue De Pere, WI 54115-1137	1030 Outward Avenue WD-758-L-190	1	\$397.30	1	\$1,571.14	\$1,968.44	
Michael T Kranzush & Jessica L Kranzush 1044 Outward Avenue De Pere, WI 54115-1137	1044 Outward Avenue WD-758-L-189	1	\$397.30	1	\$1,571.14	\$1,968.44	
Brett D Christensen 819 Windsong Way De Pere, WI 54115-9076	1055-1057 Outward Avenue WD-123-2	1	\$397.30	1	\$1,571.14	\$1,968.44	

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
 COST PER UNIT - 8-INCH STORM LATERAL: **\$2,018.85**
 COST PER UNIT - 12-INCH STORM LATERAL: **\$2,199.87**

NOTE: OTHER IS DEFINED AS PROPERTIES ZONED COMMERCIAL, INDUSTRIAL, OR HAVE A RESIDENTIAL USE GREATER THAN A DUPLEX

PROPERTY OWNER	LOT NO. PROPERTY ADDRESS PARCEL NUMBER	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
		UNIT	COST	UNIT	COST		
Outward Avenue (Continued...)							
Arthur C Albers & Karla A Albers 1058 Outward Avenue De Pere, WI 54115-1137	1058 Outward Avenue WD-758-L-188	1	\$397.30	1	\$1,571.14	\$1,968.44	6-inch storm lateral tapp into Amhart Drive storm sewer.
Ricky J Christens 1235 N Franco Court De Pere, WI 54115	1071-1073 Outward Avenue WD-883-G-1	0	\$0.00	0	\$0.00	\$0.00	
Quinnette Lane							
Scott M Lasee 624 Knoll Terrace De Pere, WI 54115-3322	624 Knoll Terrace ED-1129-Q-45	1	\$397.30	1	\$1,571.14	\$1,968.44	Storm Sewer on Jordan Road.
Gary J Kittell, Jr & Regina L Kittell 801 Jordan Road De Pere, WI 54115-3206	801 Jordan Road ED-1129-Q-1	0	\$0.00	1	\$1,571.14	\$1,571.14	
Russell Gray & Lisa Gray 1309 Quinnette Lane De Pere, WI 54115-3367	1309 Quinnette Lane ED-1129-Q-18	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Jordan Road.
Neufeld Robert A & Jean E Revocable Trust 702 N. Ontario Street De Pere, WI 54115	1401 Quinnette Lane ED-1129-Q-51	1	\$397.30	1	\$1,571.14	\$1,968.44	
David E Lepp 1403 Quinnette Lane De Pere, WI 54115-3336	1403 Quinnette Lane ED-1129-Q-40	1	\$397.30	1	\$1,571.14	\$1,968.44	
Paul S Steckart & Barbara J Steckart 1408 Quinnette Lane De Pere, WI 54115-3337	1408 Quinnette Lane ED-1129-Q-2	1	\$397.30	1	\$1,571.14	\$1,968.44	
Timothy W Sowers & Julie L Sowers 1409 Quinnette Lane De Pere, WI 54115-3336	1409 Quinnette Lane ED-1129-Q-39	1	\$397.30	1	\$1,571.14	\$1,968.44	
Brandin T Collins & Sarah R Collins 1414 Quinnette Lane De Pere, WI 54115-3337	1414 Quinnette Lane ED-1129-Q-3	1	\$397.30	1	\$1,571.14	\$1,968.44	
Nathan K Green & Abby M Green 1415 Quinnette Lane De Pere, WI 54115-3336	1415 Quinnette Lane ED-1129-Q-38	1	\$397.30	1	\$1,571.14	\$1,968.44	
John Cody & Elisabeth Cody 1420 Quinnette Lane De Pere, WI 54115	1420 Quinnette Lane ED-1129-Q-4	1	\$397.30	1	\$1,571.14	\$1,968.44	
Zehms Dorothy D Revocable Trust 1421 Quinnette Lane De Pere, WI 54115-3336	1421 Quinnette Lane ED-1129-Q-37	1	\$397.30	1	\$1,571.14	\$1,968.44	
Roels Bernard U & Margaret B Revocable Trust 1502 Quinnette Lane De Pere, WI 54115-3339	1502 Quinnette Lane ED-1129-Q-5	1	\$397.30	1	\$1,571.14	\$1,968.44	

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS
PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT	
COST PER UNIT - STORM MAIN:	\$397.30
COST PER UNIT - STORM LATERAL:	\$1,571.14

OTHER ASSESSMENT	
COST PER LF - STORM MAIN:	\$7.42
COST PER UNIT - 6-INCH STORM LATERAL:	\$1,805.31
COST PER UNIT - 8-INCH STORM LATERAL:	\$2,018.85
COST PER UNIT - 12-INCH STORM LATERAL:	\$2,199.87

NOTE: OTHER IS DEFINED AS PROPERTIES ZONED COMMERCIAL, INDUSTRIAL, OR HAVE A RESIDENTIAL USE GREATER THAN A DUPLEX

PROPERTY OWNER	LOT NO.	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
	PROPERTY ADDRESS PARCEL NUMBER	UNIT	COST	UNIT	COST		

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
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PROPERTY OWNER	LOT NO.	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
	PROPERTY ADDRESS PARCEL NUMBER	UNIT	COST	UNIT	COST		
Quinnette Lane (Continued...)							
Robert P Butter & Stacy L Butter 1508 Quinnette Lane De Pere, WI 54115	1508 Quinnette Lane ED-1129-Q-6	1	\$397.30	1	\$1,571.14	\$1,968.44	
Gerald Kaczmarek & Laura N Kaczmarek 1514 Quinnette Lane De Pere, WI 54115-3339	1514 Quinnette Lane ED-1129-Q-7	0	\$0.00	0	\$0.00	\$0.00	Storm Sewer Lateral at inlet in front of property
Richard T Wilde & Micky J Wilde E2326 Collegiate Road Denmark, WI 54208	1515 Quinnette Lane ED-1129-Q-34	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Quinnet Lane
Helen E Osen 1520 Quinnette Lane De Pere, WI 54115-3339	1520 Quinnette Lane ED-1129-Q-8	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Quinnet Lane.
Bernard S Peterson 1521 Quinnette Lane De Pere, WI 54115-3338	1521 Quinnette Lane ED-1129-Q-33	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Quinnet Lane.
Steven B Destache 1526 Quinnette Lane De Pere, WI 54115-3339	1526 Quinnette Lane ED-1129-Q-9	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Quinnet Lane.
Shari L Linskens 1527 Quinnette Lane De Pere, WI 54115-3338	1527 Quinnette Lane ED-1129-Q-32	0	\$0.00	0	\$0.00	\$0.00	Storm Lateral connected Storm Sewer in easement abutting this property.
David J Quigley 1509 Quinnette Lane De Pere, WI 54115-3338	1509 Quinnette Lane ED-1129-Q-35	1	\$397.30	1	\$1,571.14	\$1,968.44	
Howard Klug & Leona Klug 1503 Quinnette Lane De Pere, WI 54115-3338	1503 Quinnette Lane ED-1129-Q-36	1	\$397.30	1	\$1,571.14	\$1,968.44	
Renier Gerald G & Ada L Revocable Trust 1602 Quinnette Lane De Pere, WI 54115-3341	1602 Quinnette Lane ED-1129-Q-10	1	\$397.30	1	\$1,571.14	\$1,968.44	
Larry W Goeben 1603 Quinnette Lane De Pere, WI 54115-3340	1603 Quinnette Lane ED-1129-Q-48	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer in Easement Abutting Property.
Julie A Wendlendt 1608 Quinnette Lane De Pere, WI 54115-3341	1608 Quinnette Lane ED-1129-Q-11	1	\$397.30	1	\$1,571.14	\$1,968.44	
Pamela J Lepel 1609 Quinnette Lane De Pere, WI 54115-3340	1609 Quinnette Lane ED-1129-Q-47	1	\$397.30	1	\$1,571.14	\$1,968.44	
Robert C McGinn & Catherine A McGinn 1614 Quinnette Lane De Pere, WI 54115-3341	1614 Quinnette Lane ED-1129-Q-12	1	\$397.30	1	\$1,571.14	\$1,968.44	

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

PRELIMINARY ASSESSMENTS

TYPE OF IMPROVEMENT: STORM SEWER MAIN AND LATERALS

LOCATIONS - COLLEGE AVENUE FROM FOURTH STREET TO THE WESTERN CUL-DE-SAC, JAMES STREET FROM N. BROADWAY STREET TO N. WISCONSIN STREET, MERRILL STREET FROM S. ERIE STREET TO KNOLL TERRACE, OUTWARD AVENUE FROM HELENA STREET TO AMHART DRIVE, QUINNETTE LANE FROM JORDAN ROAD TO KNOLL TERRACE, AND VOELKER STREET FROM RIDGEWAY DRIVE TO LEBRUN STREET

RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
 COST PER UNIT - STORM LATERAL: **\$1,571.14**

OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
 COST PER UNIT - 6-INCH STORM LATERAL: **\$1,805.31**
 COST PER UNIT - 8-INCH STORM LATERAL: **\$2,018.85**
 COST PER UNIT - 12-INCH STORM LATERAL: **\$2,199.87**

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PROPERTY OWNER	LOT NO.	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
	PROPERTY ADDRESS PARCEL NUMBER	UNIT	COST	UNIT	COST		
Quinnette Lane (Continued...)							
James M Silha & Mary J Silha 1615 Quinnette Lane De Pere, WI 54115-3340	1615 Quinnette Lane ED-1129-Q-46	1	\$397.30	1	\$1,571.14	\$1,968.44	
Kelly S Baeten 1620 Quinnette Lane De Pere, WI 54115-3341	1620 Quinnette Lane ED-1129-Q-13	1	\$397.30	1	\$1,571.14	\$1,968.44	
Voelker Street							
Daniel J Danen & Barbara J Danen 349 Kenney Street Green Bay, WI 54301-1017	1610 LeBrun Street ED-582-62	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Lebrun Street.
VL Real Estate LLC 2124 Pheasant Run Trail De Pere, WI 54115	1605 Ridgeway Drive ED-714-N-2	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Ridgeway Drive.
Eric H Boulanger 805 Voelker Street De Pere, WI 54115-3617	803 Voelker Street ED-37-3	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Ridgeway Drive.
Martin Joint Revocable Trust 808 Voelker Street De Pere, WI 54115-3618	808 Voelker Street ED-714-N-1	1	\$397.30	1	\$1,571.14	\$1,968.44	
Jonathan J Sanders & Jennifer J Sanders 809 Voelker Street De Pere, WI 54115-3617	809 Voelker Street ED-37-4	1	\$397.30	1	\$1,571.14	\$1,968.44	
Paul A Kurowski & Sandra A Kurowski 812 Voelker Street De Pere, WI 54115-3618	812 Voelker Street ED-38-1	1	\$397.30	1	\$1,571.14	\$1,968.44	
Ross A Matlock & Caroline M Matlock 813 Voelker Street De Pere, WI 54115-3617	813 Voelker Street 0	1	\$397.30	1	\$1,571.14	\$1,968.44	
William Picard & Dawn M Picard 816 Voelker Street De Pere, WI 54115-3618	816 Voelker Street ED-582-73	1	\$397.30	1	\$1,571.14	\$1,968.44	
Jerry D Lackey & Linda L Lackey PO Box 153 Abrams, WI 54101	817 Voelker Street ED-582-50	1	\$397.30	1	\$1,571.14	\$1,968.44	
Amie S Fruzen 824 Voelker Street De Pere, WI 54115-3618	824 Voelker Street ED-582-71	1	\$397.30	1	\$1,571.14	\$1,968.44	
Gerald P Gillespie & Susan M Gillespie 252 S Clay Street De Pere, WI 54115	825 Voelker Street ED-582-52	1	\$397.30	1	\$1,571.14	\$1,968.44	
Pa Lee Moua & Bee Thao Moua 828 Voelker Street De Pere, WI 54115-3618	828 Voelker Street ED-582-70	1	\$397.30	1	\$1,571.14	\$1,968.44	

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

SCHEDULE D - SCHEDULE OF PRELIMINARY ASSESSMENTS

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RESIDENTIAL ASSESSMENT

COST PER UNIT - STORM MAIN: **\$397.30**
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OTHER ASSESSMENT

COST PER LF - STORM MAIN: **\$7.42**
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PROPERTY OWNER		LOT NO.	STORM MAIN ASSESSMENT		STORM LATERAL ASSESSMENT		TOTAL ASSESSMENT	COMMENT
		PROPERTY ADDRESS PARCEL NUMBER	UNIT	COST	UNIT	COST		
Voelker Street (Continued...)								
Roger Survivors Trust 123 E Whitney Street Green Bay, WI 54301		829 Voelker Street ED-582-53	1	\$397.30	1	\$1,571.14	\$1,968.44	
Emily A Derecks, ETAL 832 Voelker Street De Pere, WI 54115-3618		832 Voelker Street ED-582-68	1	\$397.30	1	\$1,571.14	\$1,968.44	
Elsa A Reinhart 837 Voelker Street De Pere, WI 54115-3617		837 Voelker Street ED-582-55	1	\$397.30	1	\$1,571.14	\$1,968.44	
John R Roosa & Lisa J Roosa 840 Voelker Street De Pere, WI 54115-3818		840 Voelker Street ED-582-66	1	\$397.30	1	\$1,571.14	\$1,968.44	
Christopher W Deneys 841 Voelker Street De Pere, WI 54115-3617		841 Voelker Street ED-582-56	1	\$397.30	1	\$1,571.14	\$1,968.44	
Thomas M Berceau & Tracey S Berceau 802 Windchime Way De Pere, WI 54115-7858		847 Voelker Street ED-582-58	1	\$397.30	1	\$1,571.14	\$1,968.44	
Jeffry J Geurts & Julie A Geurts 848 Voelker Street De Pere, WI 54115-3618		848 Voelker Street ED-582-65	1	\$397.30	1	\$1,571.14	\$1,968.44	
Donald Thyes 852 Voelker Street De Pere, WI 54115-3618		852 Voelker Street ED-582-64	1	\$397.30	1	\$1,571.14	\$1,968.44	
Joseph R Linnane 853 Voelker Street De Pere, WI 54115-3617		853 Voelker Street ED-582-59	1	\$397.30	1	\$1,571.14	\$1,968.44	
Donald J Sliwka & Kathleen M Sliwka 510 Acreview Drive De Pere, WI 54115-3654		859 Voelker Street ED-582-60	0	\$0.00	1	\$1,571.14	\$1,571.14	Storm Sewer on Lebrun Street.
		TOTAL RESIDENTIAL	55	\$21,851.50	89	\$139,831.46	\$161,682.96	
		TOTAL OTHER	0	\$0.00	1	\$2,018.85	\$2,018.85	

Attachment: Schedule D (9339 : Consider prelim resolution for special assessments for storm sewer main/lateral)

PROJECT 20-02 STORM SEWER ASSESSMENT MAP COLLEGE AVENUE

ASSESSMENT
AREA

COLLEGE AVE

ASSESSMENT
AREA

FOURTH ST

Legend

-  Joined Parcel
-  Storm Manhole
-  Storm Catch Basin
-  Collectors
-  Culvert
-  Open Channel

1 inch = 150 feet



Engineering Division
925 S. 6th St.
De Pere, WI 54115
Office: 920-339-4061
Fax: 920-339-4071

Utility and
Street
Reconstruction

Project:
20-02

March 2020
By: KAD

Packet Pg. 41

PROJECT 20-02 STORM SEWER ASSESSMENT MAP JAMES STREET

ASSESSMENT
AREA

JAMES ST

N. BROADWAY ST

N. WISCONSIN ST

Legend

-  Joined Parcel
-  Storm Manhole
-  Storm Catch Basin
-  Collectors
-  Culvert
-  Open Channel

1 inch = 150 feet



Utility and
Street
Reconstructio

Project:
20-02

March 2020
By: KAD

Engineering Division
925 S. 6TH ST.
De Pere, WI 54115
Office: 920-339-4061
Fax: 920-339-4071

PROJECT 20-01B STORM SEWER ASSESSMENT MAP MERRILL STREET AND QUINNETTE LANE

ASSESSMENT AREA

S. ERIE STREET

MERRILL STREET

QUINNETTE LANE

JORDAN ROAD

KNOLL TERRACE

Legend

- Storm Manhole
- ⊙ Storm End Wall
- ⊕ Storm Catch Basin
- > Collectors
- Culvert
- - - Open Channel



1 inch = 300 feet



Engineering Division
925 S. 6th St.
De Pere, WI 54115
Office: 920-339-4061
Fax: 920-339-4071

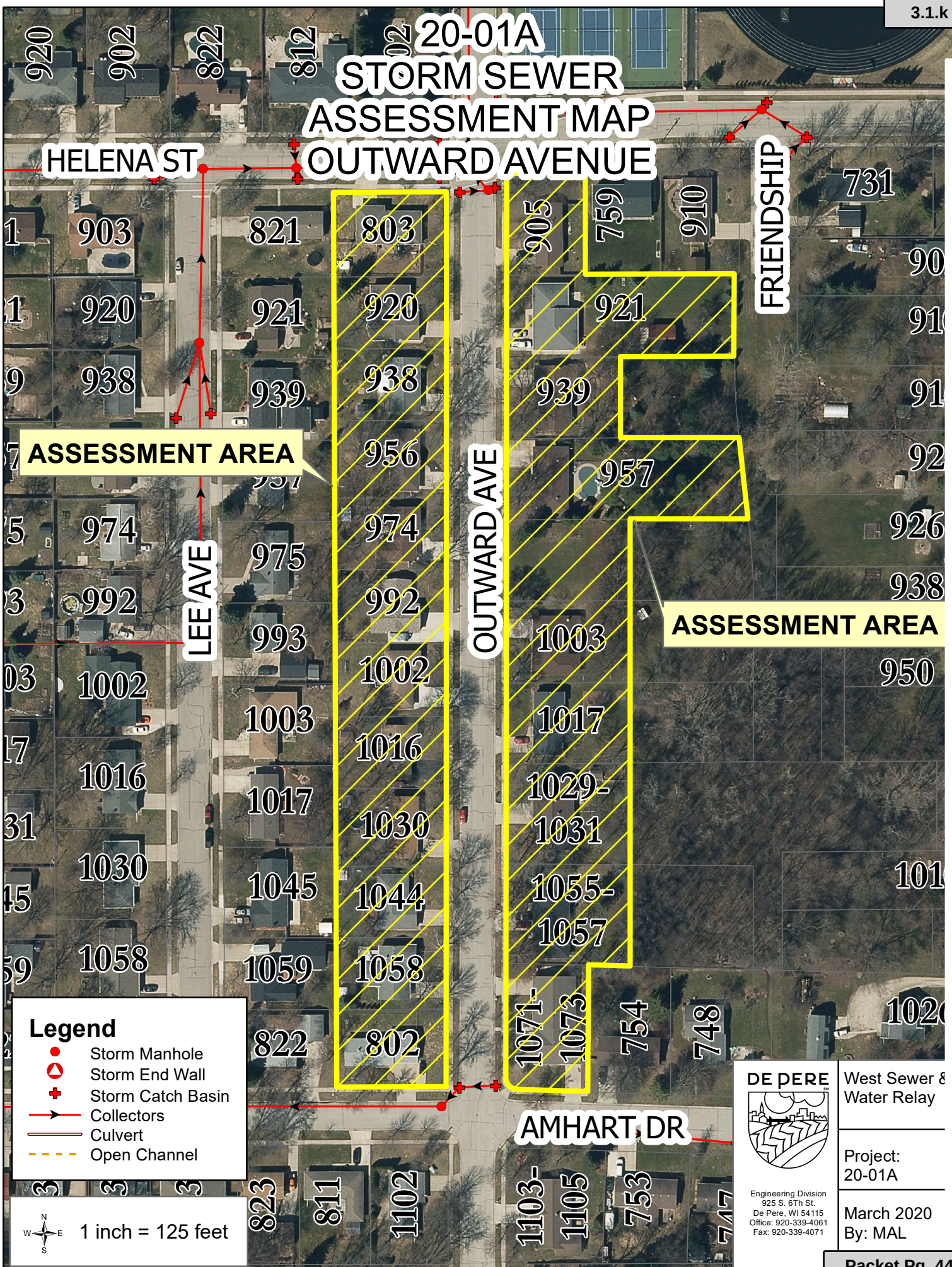
East Sewer & Water Relay

Project:
20-01B

March 2020
By: SRL

Packet Pg. 43

20-01A STORM SEWER ASSESSMENT MAP OUTWARD AVENUE



PROJECT 20-01B STORM SEWER ASSESSMENT MAP VOELKER STREET

ASSESSMENT AREA

N. CLAY STREET

LE BRUN STREET

SMITS STREET

RIDGEWAY DRIVE

Legend

-  Storm Manhole
-  Storm End Wall
-  Storm Catch Basin
-  Collectors
-  Culvert
-  Open Channel



1 inch = 150 feet



Engineering Division
925 S. 6th St.
De Pere, WI 54115
Office: 920-339-4061
Fax: 920-339-4071

East Sewer &
Water Relay

Project:
20-01B

March 2020
By: SRL

Packet Pg. 45



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Public Works

FROM: Scott Thoresen

SUBJECT: Consider Ald. Hansen's Request for Establishing a Plan to Curtail Phragmites

ATTACHMENTS:

- Memo - Trailside Condos Phragmites (PDF)



Alderman Jonathon Hansen – District 2

(920) 425-4265 jhansen@mail.de-pere.org

Memo Re: Phragmites Encroaching on Trailside Place Condos

Date: March 9, 2020, Board of Public Works Meeting

On February 8, I received an email from Ms. Karen A. Kabacinski regarding the spread of phragmites from the City-owned retention pond (Parcel #: ED-2807) onto private property at the Trailside Place condos. Here was her email:

Hi Jonathon,

I reside at 923 Trailside Ct in PePere. I am a resident of 1 of two condo associations that border a retention pond owned by the City of DePere.

As you may know Phragmites is an invasive species. It is currently expanding outside the pond into private property owned by Trailside 1 and Trailside 2 Condo Associations.

I am currently a Board member on Trailside 2 and am inquiring on their behalf as to what can be done by the City of DePere to remove the Phragmites. There may already be a plan in place that I am not aware of.

We have our annual meeting this coming Tuesday, Feb. 11. This is short notice but I am hoping to have at least an acknowledgment of the email with a commitment to bring it forward to the appropriate department.

Thank you in advance for your time,

Karen A. Kabacinski

I was subsequently informed by City staff that there is currently no policy in place to combat phragmites. Therefore, I respectfully request that the Board of Public Works consider establishing a City policy that attempts to eradicate phragmites in situations, such as this one, when phragmites are encroaching upon private property from a City-owned parcel.

Thank you for your time and consideration.

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City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action for Driveway Request along
Lawrence Drive for the proposed Krist Convenience Store-1218
Grant Street

ATTACHMENTS:

- 2020 0309 CI_BOPW_Krist_Driveway (PDF)
- Krist Convenience Store Site Plan (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: February 10, 2020

RE: **Consideration and possible action for Driveway Request along Lawrence Drive for the proposed Krist Convenience Store – 1218 Grant Street**

The property owner at 1218 Grant Street is requesting a new driveway approach (curb cut) along Lawrence Drive as part of the proposed Krist Convenience Store development at 1218 Grant Street. The installation of curb cuts along higher volume roads such as Lawrence Drive is governed by City Municipal Code Section 22-15(a) which states the following:

(a) The location of all driveway opening or approaches, otherwise known as curb cuts, on all driveways servicing any property in the city which abuts a state or county highway or abuts a city street having a traffic count of 3,500 or more vehicles per a 24-hour period, other than property used for single-family or two-family residence purposes, shall be first approved by the board of public works, upon the presentation of a complete plot plan by the owner or applicant to such board prior to issuance of a permit by the Director of Public Works.

The proposed curb cut and driveway approach meets all other standards set forth by City Municipal Code Section 22-15 on Construction of Driveway Approaches; Curb Cuts and 14-55 on Off-Street Parking.

Recommendation

Staff recommends approval of the driveway approach request along Lawrence Drive for the proposed Krist Convenience Store at 1218 Grant Street.

Attachments

Krist Convenience Store Site Plan (PDF)

1. STREET CLOSURE PERMITS WILL BE REQUIRED FOR ANY CONSTRUCTION STAGING ON GRANT STREET OR LAWRENCE DRIVE. CALL THE CITY OF DE PERE PUBLIC WORKS AS 920.339.4061 TO OBTAIN ANY STREET CLOSURE PERMITS.
2. CURB CUTS FOR NEW DRIVE ENTRANCES SHALL BE MADE USING A HYDRAULIC, MOUNTED PROFILE CUTTING MACHINE. BREAKING OFF THE CURB HEAD AT THE FLOW LINE WILL NOT BE PERMITTED.
3. COORDINATE CURB AND GUTTER REPLACEMENT AND DRIVEWAY CUT ON GRANT STREET WITH BROWN COUNTY.
4. BROWN COUNTY PERMITS WILL BE REQUIRED FOR HARD SURFACE DISTURBANCE AND LAND CLOSURES ON GRANT STREET.

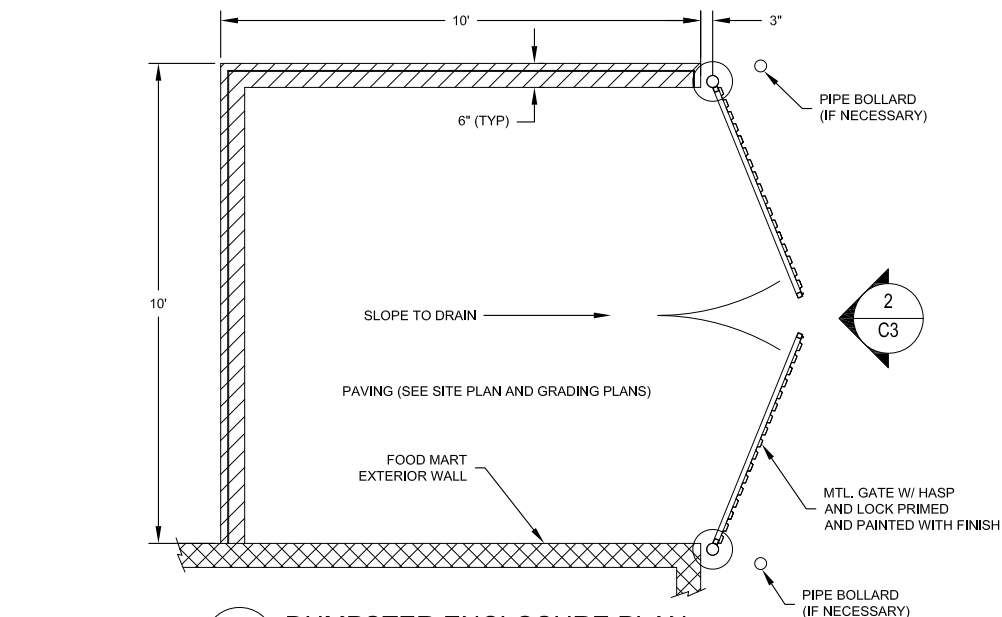
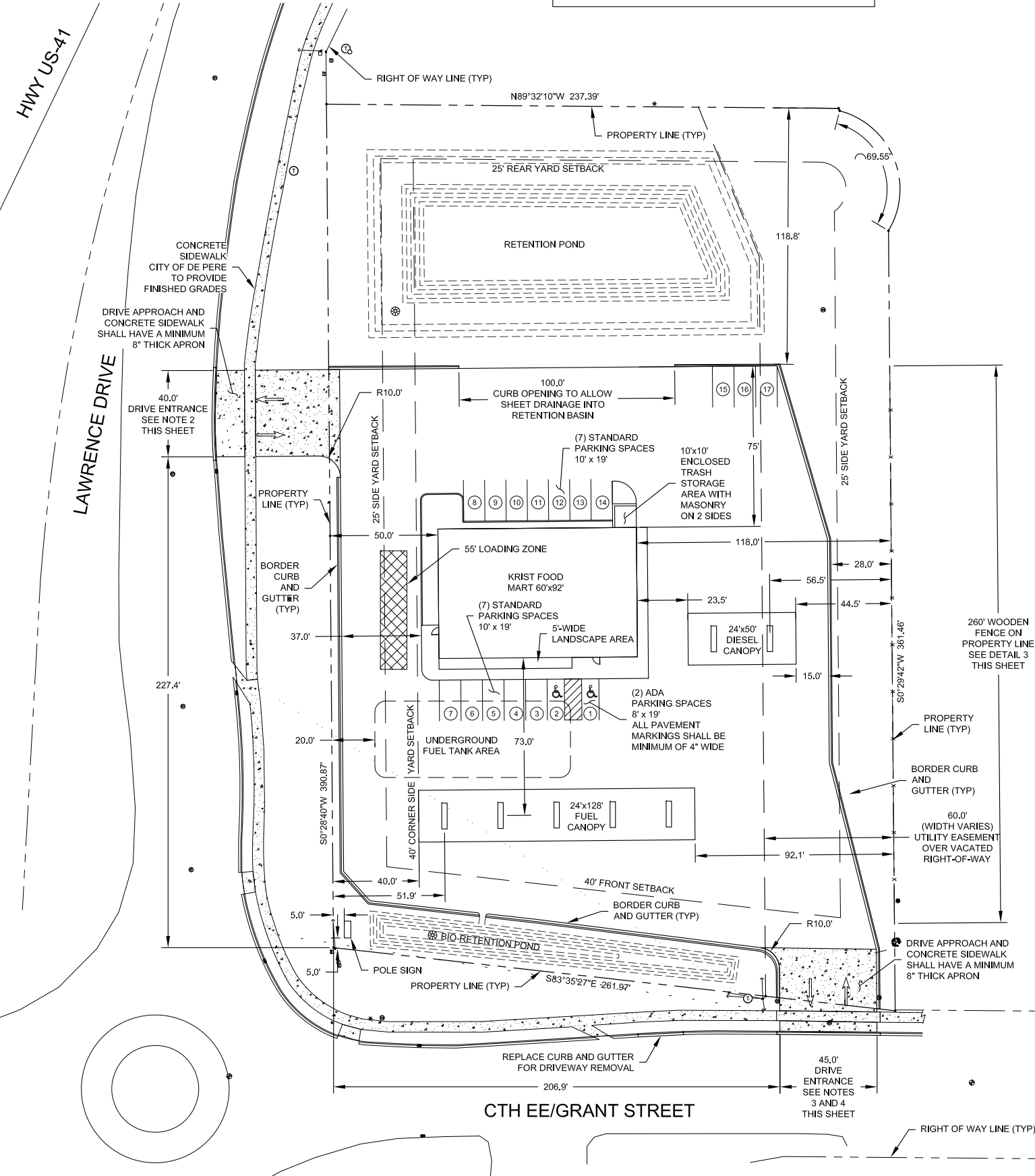
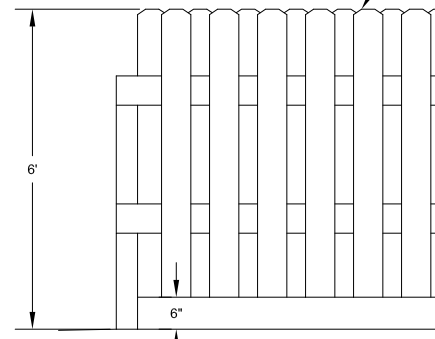


Diagram illustrating the top view of a fence section. The diagram shows a cross-section of the fence structure with dimensions and components labeled:

- TREATED 4" x 4" POSTS @ 10' O.C.:** Indicated by arrows pointing to the vertical posts.
- 2" x 6" STRINGER:** Indicated by an arrow pointing to the horizontal stringer.
- Dimensions:**
 - 6'-3/4" (Total width of the section shown)
 - 9" (Spacing between posts)
 - 11'-1/4" (Total length of the section shown)
 - 9" (Spacing between stringers)
- TOP VIEW:** Labeled below the diagram.
- 1" x 6" FENCE SLATS STAGGERED:** Indicated by an arrow pointing to the horizontal slats.

[illegible]

GEI  **3.3.b**
Consultants
990 Lalley Road
Iron River, MI 49935
906-214-4140

New Convenience Store
1218 Grant Street, DePere, WI
Krist Oil Company
303 Selden Road
Iron River, MI 49935

PROPOSED SITE PLAN

Attention:



this scale bar does not measure 1" then drawing is not original scale.

RELEASE #	DATE	DESCRIPTION
1	02/04/2020	Revised City Site Plan Review
2	02/06/2020	Revised City Site Plan Review No. 2
3	02/19/2020	Revised City Site Plan Review No. 3
4	02/26/2020	Final City Site Plan Review

Designed By: CAR
Checked By: CAR
Drawn By: CAR
Approved By: CAR

DWG. NO.
C3

Packet Pg. 50

Attachment: Krist Convenience Store Site Plan (9338 : Consider driveway request for Krist Convenience Store-1218 Grant Street)



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Public Works

FROM: Scott Thoresen

SUBJECT: Consider Feasibility Study for Joint Compost Facility With The Village of Allouez*

The City currently has a compost facility off of Rockland Road (See attached). This facility primarily accepts yard waste and brush from residents of the City as well as the Town of Ledgeview. The Town of Ledgeview shares in the operational costs of this facility.

In the near future, this facility will be relocated to another site as this area develops. It is the intent of the City to collaborate with our neighboring communities in the future when the compost facility is relocated so there are more regional compost facilities. As part of the collaboration effort, staff has been discussing with the Village of Allouez having a joint compost facility at Allouez's existing compost facility located adjacent to LeBrun Street. (See attached). In order to determine if Allouez's existing compost facility can accommodate an expansion to allow for the composting operational needs of the three (3) communities a feasibility study of Allouez's existing compost facility needs to be done. Allouez has requested a proposal from Robert E. Lee & Associates to evaluate the existing site. The costs to perform the site evaluation would be the responsibility of the City and would be shared with the Town of Ledgeview as well. It is estimated the costs of the study would be approximately \$10,000. The funding of this site evaluation would be covered by TID #10. The Village of Allouez's Board approved the study as long as the City reimburses the Village. Staff would work with the City Attorney as far as what type of agreement is needed for reimbursement the City to reimburse the Village of Allouez for the study.

Staff recommends moving forward with the feasibility study of Allouez's compost facility.

ATTACHMENTS:

- Compost Facility (PDF)
- Allouez Compost Facility Site (PDF)

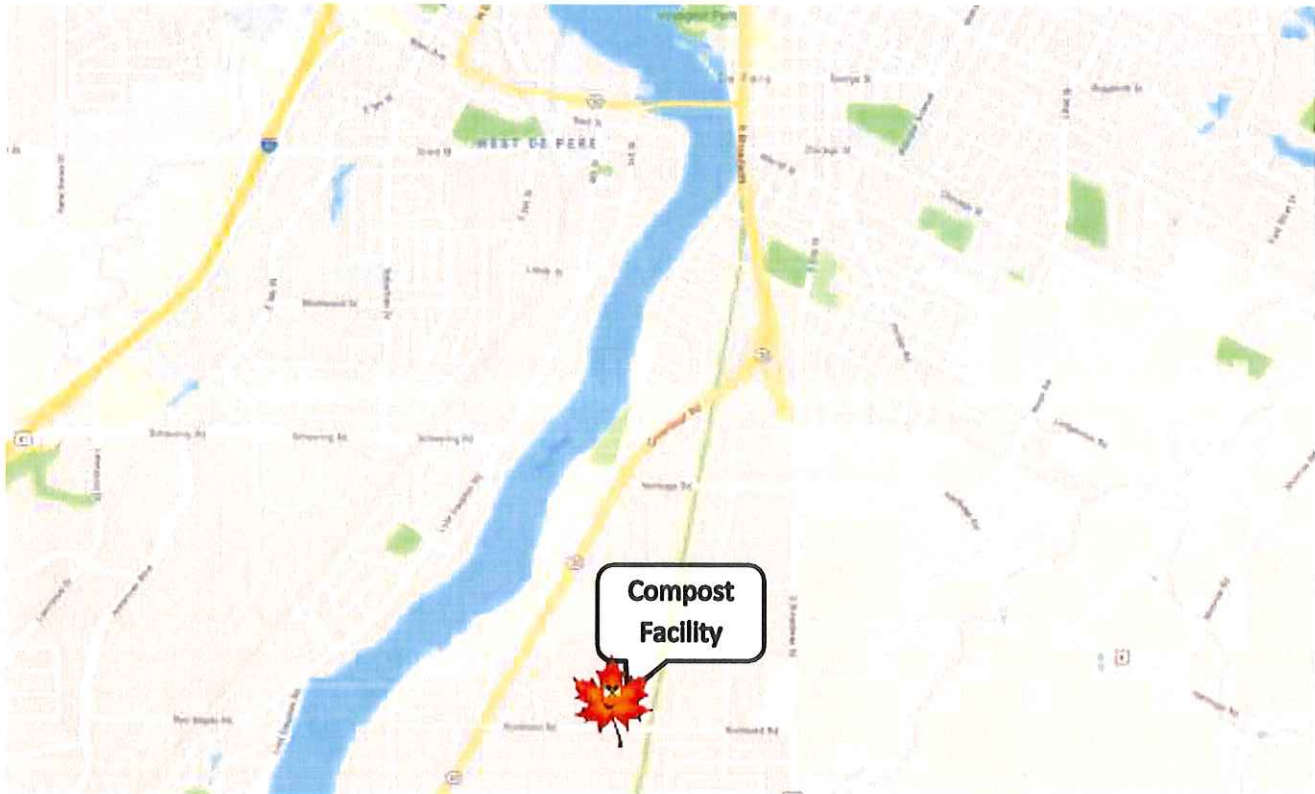


Compost Facility

Residents may bring their loose leaves, grass clippings, garden waste, and brush to the City's Compost Facility. Residents are also able to pick up wood chips, mulch, and logs at no charge when available.

LOCATION

**655 Rockland Rd
De Pere, WI 54115**



The City of De Pere Compost Facility is open to City of De Pere and Town of Ledgeview residents only.
CONTRACTOR USE PROHIBITED

ACCEPTABLE ITEMS	UNACCEPTABLE ITEMS
LEAVES	ROCKS, STONES, CONCRETE
GRASS CLIPPINGS	TRASH
GARDEN DEBRIS	CONTAINERS/BAGS
BRUSH, BRANCHES, TREE & SHRUB TRIMMINGS	CONTRACTOR GENERATED DEBRIS
SOD	LANDSCAPE TIMBERS
ROOT BALLS	LUMBER

TIMES OF OPERATION

The City of De Pere Compost Facility is open to residents 7 days a week from dawn until dusk.

This site is under surveillance. Please report illegal activity at 920-339-4060.

We appreciate your help and cooperation.

<Title>



DE PERE



This map was produced utilizing a variety of sources the City of De Pere reasonably believes are reliable, including GIS data, some of which was under development at the time this map was produced. The City of De Pere makes no warranty, either expressed or implied, including no warranty as to fitness for a particular use, of the information contained in or comprising this map.

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Map of De Pere, WI Provided By The De Pere Planning/GIS Department 2010

Attachment: Allouez Compost Facility Site (9349 : Consider Feasibility Study for Joint Compost Facility With The Village of Allouez)

03/02/2020

Packet Pg. 53



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Public Works

FROM: Scott Thoresen

SUBJECT: Consider Purchasing Fleet Maintenance Truck*

The City Council approved replacing the 2004 fleet maintenance truck as part of the 2020 budget (See attached capital worksheet).

Staff opened bids on replacing the fleet maintenance department truck. (See attached). The approved budget is \$45,000. The low bid is \$50,115. There is a shortfall of \$5,115. The funding of this truck is split four ways: 50% storm utility, 20% general fund, 15% water utility, and 15% sewer utility. The shortfall would cost each the following:

Storm Utility = \$2,557.50

General Fund = \$1,023

Water Utility = \$767.25

Sewer Utility = \$767.25

In order to fund the shortfall the options are: 1) delay truck replacement until 2021; 2) fund the shortfall from undesignated reserves; 3) delay replacing the welding exhaust fan until 2021 in the amount of \$8,000. Staff believes we can delay this one year.

Staff recommendation at this time is to not replace the welding table exhaust fan for \$8,000.

ATTACHMENTS:

- Fleet Maintenance - Replacement Truck #67 (DOCX)
- Fleet Maintenance Truck Bid Summary (PDF)

CITY OF DE PERE SEVEN YEAR CAPITAL IMPROVEMENTS PLAN 2020 - 2026

CAPITAL PROJECTS WORKSHEET

PROPOSED BY: Public Works Department

DATE PREPARED: July 29, 2019

DESCRIPTION OF PROJECT:

Replace #67 - 2004 Pickup Truck with lift gate

NEW: **or** **REPLACEMENT: X**

PROJECTED COST: \$ 45,000

PROPOSED METHOD OF FINANCING:

GENERAL FUND

= \$9,000

CAPITAL IMPROVEMENTS FUND

GENERAL OBLIGATION DEBT

SPECIAL ASSESSMENT

GRANTS

OTHER

Storm Water Utility = \$22,500

Water Utility = \$ 6,750

Sewer Utility = \$ 6,750

ADDITIONAL ANNUAL OPERATING AND MAINTENANCE COSTS (Identify)

PROJECT JUSTIFICATION

The MSC fleet team reviewed the vehicle and equipment replacement ratings for all City vehicles and equipment. The replacement ratings are based on the American Public Works Association's guidelines for vehicle and equipment replacement. These guidelines rate vehicles and equipment based on condition, maintenance & repair costs, reliability, type of service, miles / hours, and age. Points are given for each criteria. Total point ranges rate the equipment as:

Under 18 points –	Excellent condition
18 to 22 points -	Good condition
23 to 27 points -	Qualifies for replacement
28 points and above -	Needs immediate consideration for replacement

The existing pickup truck is currently rated at 31 in 2019 qualifies for consideration for replacement. The truck is used all year round.

The MSC fleet team reviewed the required repairs that are currently needed for this truck which are:

Both left and right wheel well fenders rusted through.

Driver's side floor board rusted through

Quote to complete all the body work = \$6,749.88

Rebuild lift gate pump	= \$500
------------------------	---------

Total = \$7,249.88

The MSC fleet team recommends replacing the existing truck.

PROJECT RANKINGS 1

CITY COUNCIL

STAFF RECOMMENDATION

Goal No.

[illegible]



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on the prohibition of coal-tar and PAH containing pavement sealants*

ATTACHMENTS:

- 2020 0309 PAH Memo (PDF)
- Coal Tar-Based Model Ordinance (PDF)
- FAQ Memo_FWWA_NEWSC (PDF)
- Enforcement Memo_FWWA_NEWSC(PDF)
- Clean Wisconsin FACT SHEET - Tar-Based Sealants (revised_1-10-2018) (PDF)
- LakeLinePAHSealcoatSummary (PDF)
- Mahler et al. 2012_ summary of PAHs and CTS (PDF)
- Local PAH Levels (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: **Consideration and Possible Action on the Prohibition of Coal-Tar and other PAH Containing Pavement Sealants***

Pavement sealants which are also known as sealcoats or sealers are the jet-black coatings homeowners and contractors apply to residential, commercial, and industrial driveways or parking lots. A variety of pavement sealants contain polycyclic aromatic hydrocarbons (PAHs), which are toxic compounds that can cause cancer and developmental problems in children. The coal tar-based sealants contain the highest levels of PAHs, while others contain lower amounts or zero PAHs. Clean Wisconsin and other agencies are partnering to provide Clean Wisconsin with a platform to further grassroots effort on banning the use of sealants containing 0.1% PAH or greater in Northeast Wisconsin. The goal of these efforts is to create enough public support to regulate the use of these products. The way municipalities can regulate this is to create an ordinance to prohibit the use of these types of sealants. PAH's impact the City in many indirect ways, but one direct way is with our storm water ponds. If sediment in the ponds have high PAH levels, the sediment cost for disposal will increase as this material will need to be hauled to a landfill. Information has been attached as follows:

- Clean Wisconsin Memo to NEWSC – Public Health Danger and Local Solutions to Coal Tar-Based Pavement Sealant Toxicity.
- Clean Wisconsin Memo to NEWSC – Summary of Sealant Ban Elsewhere
- Clean Wisconsin Article
- Lake Line Publication – PAHs in Lakes
- Environmental Science & Technology – Coal-Tar-Based Pavement Sealcoat and PAHs
- City of De Pere – Online Retailer Sealant Review

A draft ordinance was presented to the Sustainability Commission in June 2019 and approved. The ordinance was mistakenly described as a prohibition of only coal tar-based sealants. Upon further inspection of the banning efforts by Clean Wisconsin, it was discovered to include all sealants containing 0.1% PAH or greater. Staff reached out to Asphalt Seal & Repair, a local company that performs work in the City of De Pere, for information on their product and the proposed PAH ban limit. According to Asphalt Seal & Repair, the product they use contains 0.2% PAH but has a longer life. Staff reached out to Clean Wisconsin for justification of the 0.1% limit and also to Asphalt Seal & Repair for the longevity of their product. Staff did not receive sufficient evidence to justify 0.1% or a longer life at 0.2% PAH. Staff checked with local retailers and found most only provide products under the 0.1% threshold.

A draft ordinance has been attached. A few items on the ordinance:

- The City Attorney needs to review the draft which may require modifications.

Attachment: 2020 0309 PAH Memo (9336 : Prohibition of coal-tar and PAH containing pavement sealants)

- The ordinance includes a penalty. Staff approach will be to treat this as an educational opportunity. Fines would only be issued to repeat offenders.

Staff recommends passing the ordinance, pending City Attorney review, but does not have a definite recommendation on whether to set the threshold at 0.1% or 0.2% PAH content. Staff is leaning towards restricting at a 0.1% level and requesting direction from the Board in creating an ordinance to prohibit coal tar-based and other PAH containing sealants.

MODEL ORDINANCE NO. XXX**AMENDING CHAPTER XX OF THE CITY OF DE PERE CODE OF ORDINANCES
REGULATING THE APPLICATION AND SALE OF
COAL TAR AND OTHER HIGH-PAH SEALANT PRODUCTS**

WHEREAS, the City of De Pere, finds that City of De Pere's water resources are a natural asset, which enhance the environmental, recreational, cultural and economic resources of the area and contribute to the general health and welfare of the public; and

WHEREAS, the City of De Pere, finds that polycyclic aromatic hydrocarbons (PAHs), which are contained in coal tar sealants and other high-PAH sealants, volatilize off sealed pavement and can be inhaled by humans and animals; sealed surfaces are eroded by weathering, foot and vehicle traffic, and snow plowing, creating PAH-contaminated particles that are transported into homes and onto nearby soils and can be carried by storm water and other run off into the water resources of City of De Pere; and

WHEREAS, PAHs are an environmental concern because they are toxic to aquatic life, causing deformities and other reproductive and developmental problems, cancer, and death that results in a loss of species and fewer organisms; and

WHEREAS, PAH compounds have been proven to cause cancer, mutations, and birth defects in humans according to the International Agency for Research on Cancer; individuals with lifelong exposure to coal-tar sealed surfaces have a 38-fold higher risk of cancer; and the American Medical Association therefore advocates for legislation to ban the use of pavement sealants that contain PAHS or require use of sealant products that contain minimal PAHs; and

WHEREAS, environmental impacts and human health risks can be minimized and pavements can be maintained by utilizing alternative products or methods, absent PAHs; and

WHEREAS, the City of De Pere finds that regulating the amount of contaminants, including PAHs contained in coal tar sealant products and other high-PAH sealant products, entering the water resources of the City of De Pere will improve and protect public health and the water quality of City of De Pere and neighboring water resources;

NOW, THEREFORE, BE IT ORDAINED by the City of De Pere Common Council, as follows:

SECTION 1: [XXX] of the City of De Pere Code is amended to add a new Chapter [XXX] to read:

CHAPTER [XXX]. COAL TAR SEALANT PRODUCTS

[XXX]-1: DEFINITIONS.

- (1) COAL TAR is a byproduct of the process used to refine coal. Coal tar contains high levels of polycyclic aromatic hydrocarbons (PAHs).
- (2) COAL TAR SEALANT PRODUCT means a pavement sealant product that contains coal tar, coal tar pitch, coal tar pitch volatiles, RT-12, Refined Tar or any variation assigned the Chemical Abstracts Service (CAS) numbers 65996-92-1, 65996-93-2, 65996-89-6, or 8007-45-2 or related substances.
- (3) HIGH-PAH SEALANT PRODUCT means any pavement sealant product that contains greater than 0.1% polycyclic aromatic hydrocarbons (PAHs) by weight, including, but not limited to, coal tar sealant products and sealant products containing steam-cracked petroleum residues, steam-cracked asphalt, pyrolysis fuel oil, heavy fuel oil, ethylene tar, or any variation of those substances assigned the chemical abstracts service number 64742-90-1, 69013-21-4 or related substances.
- (4) PAVEMENT SEALANT PRODUCT, or sealcoat, is any substance that is typically applied on paved surfaces to protect the surfaces. This may include but is not limited to sealant products that are coal tar or asphalt based.
- (5) POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) are a group of organic chemicals that are formed during the incomplete combustion of coal, oil, gas, or other organic substances, are present at high levels in coal tar, and are known to be harmful to humans, fish, and other aquatic life.
- (6) DIRECTOR means the Director of Public Works.

[XXX]-2: ENFORCEMENT.

Violations of this ordinance will be enforced by the City of De Pere.

[XXX]-3: REGULATION OF THE APPLICATION AND SALE OF COAL TAR OR OTHER HIGH PAH SEALANT PRODUCTS.

- (1) Except as provided in Section XXX-4 (*Exemptions*), No person shall apply any coal tar sealant product or high PAH sealant product within City of De Pere.
- (2) No person shall sell, offer to sell, or display for sale any coal tar sealant product or high PAH sealant product within City of De Pere.
- (3) Any person who sells pavement sealant products shall prominently display, in the area

where such pavement sealant products are sold, a notice that contains the following language: “The application of coal tar sealant products or other high PAH sealant products on driveways, parking lots and all other paved surfaces in City of De Pere is prohibited by Chapter XXX of the City of De Pere Code of Ordinances. Polycyclic Aromatic Hydrocarbons (PAHs), are a group of organic chemicals that are known to cause cancer and are toxic to aquatic life. Coal tar and other high-PAH sealant products are a major source of PAHs that can travel into homes, buildings, and soils, or be carried by stormwater and other run off into the water resources of City of De Pere.”

- (4) No person shall allow a coal tar sealant product or other high-PAH sealant product to be applied upon property that is under that person’s ownership or control.
- (5) No person shall contract with any commercial applicator, residential or commercial developer, or any other person for the application of any coal tar sealant product or high PAH sealant product to any driveway, parking lot, or other surface within (County or Municipality).
- (6) No commercial applicator, residential or commercial developer, or other similar individual or organization shall direct any employee, independent contractor, volunteer, or other person to apply any coal tar sealant product or high PAH sealant product to any driveway, parking lot, or other surface within (County or Municipality).

[XXX]-4: EXEMPTIONS.

The DIRECTOR may exempt a person from a requirement of this chapter if the DIRECTOR determines that:

- (1) The Director of Public Works may exempt a person from the requirements of section XXX-3 if the person is conducting bona fide research concerning the effects of a coal tar sealant product or high PAH sealant product on the environment; the use of the coal tar product or high PAH sealant product is required for said research; and the DIRECTOR determines that said research will not cause significant contamination of the surrounding environment, including soils and aquatic ecosystems, and will not unduly endanger human health.
- (2) The Director of Public Works may exempt a person from the requirements of section XXX-3 if the person does not intend to apply the sealant within municipal boundaries.

[XXX]-5: PENALTY.

- (1) Any person who violates XXX-3 by applying a coal tar sealant product or high PAH sealant product at his or her residence may be subjected to a fine not to exceed \$500.

- (2) Each day that a violation occurs or continues is a separate offense and subject to an additional fine.
- (3) Any commercial sealant product applicator, residential or commercial developer, industrial or commercial owner, or any other person, other than a person identified under sub. (1) above, who violates XXX-3, may be subject to a fine of not less than \$1,000 nor more than \$2,000. Each incidence of a violation shall constitute a separate offense. Upon default of payment, the violator shall be subject to imprisonment for not less than 30 days nor more than 100 days.

SECTION 2: If any section, paragraph, subdivision, clause, sentence or provision of this Ordinance shall be adjudged by any Court of competent jurisdiction to be invalid, such judgment shall not affect, impair, invalidate or nullify the remainder thereof, which remainder shall remain and continue in full force and effect.

SECTION 3: All ordinances or parts of ordinances in conflict herewith are hereby repealed to the extent of such conflict.

SECTION 4: This ordinance shall be in full force and effect ten (10) days after its passage, approval, and publication in pamphlet form, as provided by law.

Ayes:

Nays:

Absent:

Abstain:

APPROVED:

(SEAL)

ATTEST: _____

Passed: _____

Approved: _____

Published: _____



To: NEWSC Member Communities

From: Clean Wisconsin, Fox-Wolf Watershed Alliance, and Jon Richards

Re: Public Health Danger and Local Solutions to Coal Tar-Based Pavement Sealant Toxicity

New evidence shows that coal tar-based pavement sealants are toxic to humans, contaminate the environment, and lead to costly clean-up

- PAHs (polycyclic aromatic hydrocarbons) are found in coal tar-based sealants. PAHs are carcinogenic and cause birth defects in humans and are toxic to aquatic life.¹
- PAHs are considered persistent organic pollutants like PCBs and DDT.²
- PAHs from coal tar-based sealants pose a human health risk, especially to children. Living near a sealed driveway increases excess cancer risk by 14 times for children.³
- A 2017 study by the United States Geological Survey in the Milwaukee area found that 78% of river sediment contained high levels of toxic PAH pollution and that coal tar-based sealants are the source of 77% of PAH contamination.⁴
- PAHs get into our waterways when the sealants break down and sealant particles enter run-off into lakes and streams, they get into our homes when people track the material inside, and children are exposed to PAHs when playing near driveways and on playgrounds.⁵
- Clean-up can be incredibly costly to communities, as sediment known to be contaminated with PAHs must be removed from stormwater detention ponds and riverbeds and placed in landfills to avoid harmful exposure.⁶

Banning Coal Tar Sealants is a simple, affordable, local solution to the serious public health threat of PAH contamination

- Communities in Wisconsin and across the country are banning the use and sale of tar-based sealants containing PAHs to protect public health and the environment.⁷
- Most direct PAH contamination stays in a waterway within less than a mile of where it enters the waterway.⁸
- Communities like Austin, Texas have successfully banned PAH containing products leading to a 50% reduction in PAHs in the environment.⁹ They have developed inexpensive and easy to use screening tests that allow residents and contractors to determine if prohibited sealers have been used.¹⁰
- Alternative sealcoats are widely available and contain 1,000 times fewer PAHs.¹¹ The cost of low-PAH alternatives is about the same as tar-based sealants, and in some cases, they are even more affordable.¹²

- Starting in 2020, the EPA will no longer allow industrial facilities that use coal tar-based sealants to be eligible for general stormwater permits.¹³ According to the agency, banning coal tar sealants may be the most cost-effective approach to reducing local toxic exposure to PAHs.¹⁴
- Many retailers and contractors have discontinued use of PAH containing sealants, however these products are still available at some retailers.¹⁵ In addition, commercial applicators and contractors who get supplies through wholesalers or directly from manufacturers may still be using high-PAH products.
- For market forces to be effective, a critical mass of municipalities with bans in place is needed to reduce toxic PAH exposure in our environment.¹⁶
- In Wisconsin the following communities have passed local tar-based sealant bans:
 - City of Glendale
 - Village of Shorewood
 - City of Milwaukee
 - Village of Elm Grove
 - City of Franklin
 - Village of Whitefish Bay
 - City of Port Washington
 - Village of Brown Deer
 - City of Greenfield
 - City of Wauwatosa
 - City of West Allis
 - Village of Bayside
 - Village of Hales Corners
 - Dane County

We Can Help

- We are ready to help your community reduce toxic exposure to high-PAH sealants.
- We can provide:
 - Presentations to community decision makers
 - Technical, policy, and legal assistance
 - Model ordinances
 - Background scientific research
 - Community educational materials for residents, property owners, and contractors

Contact Our Team

- Ezra Meyer, Water Resources Specialist, Clean Wisconsin, emeyer@cleanwisconsin.org, 608-251-7020 x20
- Chad VandenLangenberg, Project Coordinator/NEWSC Coordinator, Fox-Wolf Watershed Alliance, chad@fwwa.org, 920-915-5767
- Jon Richards, Consultant to Clean Wisconsin, jonr@zgkc-law.com, 414-272-2295

References and Additional Information

[1] The US Environmental Protection Agency (USEPA) and the International Agency for Research on Cancer have identified 7 different PAHs as being probable human carcinogens, and 16 PAHs are classified as priority pollutants by the USEPA due to their toxicity. Exposure has also been linked to birth defects and developmental problems in children. PAH contamination has numerous adverse effects on aquatic invertebrates, fish, and amphibians including increased mortality, reproductive effects, organ defects, tumors, and immune system impairments. Selected references: *Lupo et al. 2012. Maternal occupational exposure to polycyclic aromatic hydrocarbons: effects on gastroschisis among offspring in the National Birth Defects Prevention study. Environmental Health Perspectives 120: 910-915; Perrera et al. 2009. Prenatal Airborne Polycyclic Aromatic Hydrocarbon Exposure and Child IQ at Age 5 Years. Pediatrics 124: 195-202; Neff et al. 2005. Ecological risk assessment of polycyclic aromatic hydrocarbons in sediments: Identifying sources and ecological hazard. Integrated Environmental Assessment and Management 1:22-33; Myers et al. 2008. Improved flatfish health following remediation of a PAH-contaminated site in Eagle Harbor, Washington. Aquatic Toxicology 88: 277-288.*

[2] Persistent organic pollutants are carbon-based chemicals that are highly toxic and persistent in the environment. Due to their chemical properties, PAHs are resistant to degradation and remain in the environment for long periods of time, leading to accumulation in local soils and sediments. *National Institutes of Health. 2017. Tox Town: Persistent Organic Pollutants (POPs). Available at: <https://toxtown.nlm.nih.gov/text_version/chemicals.php?id=86>* Last accessed January 9, 2018.

[3] House dust in homes adjacent to parking lots sealed with coal-tar sealants was found to have 25 times greater PAH concentrations than house dust adjacent to unsealed lots or lots sealed with low-PAH alternatives. It was then calculated that lifetime excess cancer risk would increase 14 times for people who lived adjacent to sealed parking lots from birth to age six due to accidental ingestion of contaminated soil and house dust. *Mahler et al. 2010. Coal-tar-based parking lot sealcoat: an unrecognized source of PAH to settled house dust. Environmental Science and Technology 44:894-900; Williams et al. 2013. Cancer risk from incidental ingestion exposures to PAHs associated with coal-tar-sealed pavement. Environmental Science and Technology 47: 1101-1109.*

[4] A 2017 United States Geological Survey study found that 78% riverbottom samples in the study area (west to Brookfield, north to Germantown, south to Greenfield) exceeded PAH thresholds indicating probable adverse effects on aquatic life. Contamination was found throughout the study area rather than being concentrated in one area. Multiple diagnostic analyses all indicated that coal tar sealants were the primary source of PAHs, contributing 77% of the PAH contamination in the area. Coal-tar-based sealants have been repeatedly identified as major contributors to PAH contamination in cities throughout the country. *Baldwin et al. 2017. Primary sources and toxicity of PAHs in Milwaukee-area streambed sediment. Environmental Toxicology and Chemistry 36: 1622-1635; Van Metre & Mahler.*

2010. *Contribution of PAHs from coal–tar pavement sealcoat and other sources to 40 U.S. lakes. Science of the Total Environment* 409: 334–344

[5] Coal tar-based sealants, which are applied to pavement to beautify and protect the asphalt surfaces of residential driveways, playgrounds, and parking lots, contain high concentrations of PAHs. As the sealcoat weathers or is worn off by vehicle traffic, loose particles are washed off into nearby soils and waterbodies. PAH-contaminated dust from the sealed surface is also transported into homes by wind and on shoes and clothing. Since sealants need to be reapplied every few years, they create a steady source of PAHs to the environment.

[6] Many municipalities use detention ponds as a stormwater pollution control measure. To maintain performance, accumulated sediment will need to be periodically removed. However, sediment containing high levels of pollutants such as PAHs may need to be landfilled at significant expense to the municipality. Inver Grove Heights, MN, (population 34,000) is estimating that removing PAH contaminated sediment from its 140 stormwater detention ponds with PAH contamination will cost between \$1.5 and \$4 million. Estimates for disposal costs in the Minneapolis-St. Paul metropolitan area are up to \$1 billion if 10% of stormwater detention ponds have PAH concentrations above Minnesota's human-health risk-based Soil Reference Value. A study found that 2/3 of the PAHs in the stormwater ponds came from coal-tar-based sealants. *University of Wisconsin Extension. 2013. Avoiding high costs from stormwater sediments contaminated by coal tar-based asphalt sealcoats. Solid & Hazardous Waste Education Center Factsheet. Available at: < <http://shwec.engr.wisc.edu/wp-uploads/2015/08/Stormwater-Utilities-6-7-13.pdf>> Last accessed January 9, 2018; Crane. 2014. Source apportionment and distribution of polycyclic aromatic hydrocarbons, risk considerations, and management implications for urban stormwater pond sediments in Minnesota, USA. *Archive of Environmental Contamination and Toxicology* 66: 176-200.*

[7] We are aware of 37 municipalities or counties, 3 states, and the District of Columbia that have banned or restricted the use of coal tar-based sealants as of November 2017. For a full list see Clean Wisconsin factsheet entitled "Example Actions Taken on Tar-Based Sealants."

[8] Studies suggest that, while there is some transport downstream of PAHs that enter rivers and streams, PAH contamination from localized sources (e.g., sealed parking lots) remains close to the source. One study from found that the influence of industrial and commercial land use on river sediment PAH concentrations dropped off after 500-1000 meters downstream. At greater distances those land uses were not found to be increasing PAH concentrations in the river. This indicates that PAHs are settling to the bottom within ~2/3 of a mile. Similarly, two other studies, while not measuring specific distances, found localized "hot spots" of PAH contamination adjacent to suspected sources or urban centers compared to downstream concentrations. *Augusto et al. 2011. Evaluating sources of PAHs in urban streams based on land use and biomonitors. Environmental Science and Technology* 45: 3731-3738; *Sanders & Scott. 2002. Origin and distribution of polycyclic aromatic hydrocarbons in surficial sediments from the Savannah River. Archives of Environmental Contamination and Toxicology* 43: 438-448; *Liu et al. 2013. Comparison of sedimentary PAHs in the rivers of Ammer (Germany) and Liangtan*

(China): Differences between early- and newly-industrialized countries. *Environmental Science and Technology* 47: 701-709.

[9] Researchers in Austin, TX, found that PAH concentrations in local lakes decreased by 58% in the eight years following the city's coal tar sealant ban. As far as we know this is the only place to study the effect of a ban, but other places such as Minnesota are planning to follow up after an appropriate amount of time has passed since their ban. *Van Metre & Mahler. 2014. PAH concentrations in lake sediment decline following ban on coal-tar-based pavement sealants in Austin, Texas. Environmental Science and Technology* 48: 7222-7228.

[10] A description and step-by-step instructions are available at:
<<http://www.austintexas.gov/sites/default/files/files/Watershed/coaltar/SR-12-08-sealant-solvent-screening-method.pdf>> Last accessed January 9, 2018.

[11] Asphalt emulsion sealers are a widely-available, low-PAH alternative. They appear to have similar performance, although they do require slightly warmer temperatures for application cutting shortening the application season by a week or two on each end. Coal-tar-based sealants are typically 5-10% PAHs by weight, while asphalt-based sealants are 0.005% PAHs by weight. *Mahler et al. 2012. Coal-tar-based pavement sealcoat and PAHs: implications for the environment, human health, and stormwater management. Environmental Science and Technology* 46: 3039-3045.

[12] Based on prices advertised online in December 2017, coal tar-based sealants cost \$5-10 per gallon while asphalt-based sealants cost \$5-10 per gallon. PAH-free alternatives, such as acrylic or latex sealers, are also becoming increasingly available.

[13] Under the terms of a settlement agreement in *Waterkeeper Alliance v. EPA* (2d Cir. 15-02091), the EPA will propose that industrial facilities that use coal-tar sealants “and thereby discharge polycyclic aromatic hydrocarbons (‘PAHs’) in stormwater are not eligible for coverage under the [multisector general permit] and must either eliminate such discharges or apply for an individual permit.” The full settlement agreement is available at: <[http://waterkeeper.org/wp-content/uploads/2016/08/Waterkeeper Alliance Settlement Agreement 08162016-EPA-MSGP.pdf](http://waterkeeper.org/wp-content/uploads/2016/08/Waterkeeper_Alliance_Settlement_Agreement_08162016-EPA-MSGP.pdf)> Last accessed January 9, 2018.

[14] EPA's own research found that surfaces sealed with coal-tar based sealcoat released 100-1,000 times more PAHs than other surfaces. Based on this, the agency has said that the most cost-effective approach for communities to address the toxic effects of PAH contamination may be to ban the products. *US Environmental Protection Agency. 2011. An assessment of water quality runoff from sealed asphalt surfaces. EPA/600/R-10/178.*

[15] Based on online searches in December 2017, Lowes, Home Depot, Ace Hardware, Menards, and Mills Fleet Farm do not offer coal-tar based sealants for sale. Coal-tar sealants are available from True Value and Blain's Farm and Fleet.

[16] The majority of sealcoating is done by professional applicators or contractors, who get their sealcoat in larger quantities directly from manufacturers or distributors rather than from retail stores. Furthermore, many applicators appear serve a wide area encompassing many Southeast Wisconsin municipalities. Thus, retailers in a given municipality not carrying high-PAH sealants does not address the largest use of these products. It will take prohibitions across the majority of applicators' service areas for the market to start assisting local bans in phasing out the use of the product in the region.



To: NEWSC Member Communities
From: Clean Wisconsin, Fox-Wolf Watershed Alliance, and Jon Richards
Re: Summary of sealant ban enforcement elsewhere
Date: November 15, 2018

We have asked municipalities in Wisconsin and elsewhere that have already passed ordinances banning high-PAH sealants to share their experience with enforcement. Such municipalities report that enforcement relies heavily on voluntary compliance, with the specter of substantial fines for failing to comply, and does not place a strain on municipal resources. Although ordinances passed carry fines, they are rarely if ever issued.

The model ordinance we are recommending for communities to adopt relies heavily on voluntary compliance. It does not require permitting, testing or remediation.

The municipalities we surveyed report a temporary upfront workload for initial outreach to property owners, contractors, and applicators upon passage of the ordinance, followed by periodic reminders (e.g., in newsletters or utility bills in the spring, when people are starting to think about property maintenance). A common theme is that the outreach and education about the ordinance was the most important part of the “enforcement” process.

All communities we are aware of have a fine structure (e.g., higher amounts for repeat offenders) in place for violations. However, municipalities commonly do not strictly enforce the ban against a party on the first violation. The first violation is used, instead, as an educational opportunity. As long as the fine is stiff enough to act as a deterrent to the small percentage of intentional bad actors, the high-PAH sealants will stop being used, as evidenced by the communities we’ve talked to saying they don’t see violations after the first few years.

The word quickly gets out to the limited universe of applicators and the municipalities see no, or very few, violations after the first couple of years meaning that there is minimal enforcement workload in the long term.

Dane County, Wisconsin, which has had an ordinance banning high-PAH sealants in place for nearly 10 years, provides an instructive example about how to effectively enforce such an ordinance. There, potential applicators are identified each spring via an internet search. Letters informing those applicators of the County ordinance are mailed out. The County then relies on tips, mainly from other contractors, about the use of coal-tar sealants, with some opportunistic project checks when they are encountered during normal duties. The County uses the field screening test linked below to identify potential violations that would need follow-up.

There are a variety of enforcement methods we heard about and are happy to discuss further, but in brief they are as follows:

- 1) The most common approach, and the one most commonly used in Wisconsin, is to simply have municipal staff ask for sealant product information when they encounter a sealing project while out and about on normal duties. This direct interaction has proven effective in increasing awareness about the ordinance within the affected community.
- 2) A more aggressive approach, employed by several communities in Illinois and Michigan, is to have a permit or registration system for commercial applicators. There's a small annual fee (\$100-\$200) to cover some administrative costs, and applicators must state that they will only use approved sealants. When municipal staff encounter a project, they ask to see their permit or registration. The model ordinance we are recommending to the City of Wauwatosa does not require a permitting system.
- 3) At the extreme end of the enforcement spectrum are statutorily-required quotas for parking lot tests. This was only used by Washington, DC, where they are required to test 60 parking lots a year. Their ban included funding specific to covering this enforcement. The model ordinance we are recommending to the City of Wauwatosa does not require a testing system.

To the extent a community desires to take steps beyond recommending compliance, we can assist staff on knowing how to identify high-PAH sealants based on the product name or the product's MSDS information. A list of products is attached and can be provided in a more detailed format if that would be helpful.

For parking lots that have been recently sealed but staff missed the actual application, there is also an inexpensive and easy-to-use field screening test that staff can use to screen a recently-sealed parking lot for use of a coal-tar sealant:

<http://www.austintexas.gov/sites/default/files/files/Watershed/coal-tar/SR-12-08-sealant-solvent-screening-method.pdf>. A follow-up lab test would be needed to confirm the presence of coal tar to pursue enforcement.

To the extent a community desires to engage in requiring parties to remediate a surface covered with high-PAH coal tar sealant, please note that some municipalities require removal via shotblasting for egregious violations. It is very expensive to do this, and in Wisconsin it is difficult to find people who can do the work. Other places require the high-PAH sealant be covered over by a low-PAH sealant.

In summary, municipalities enforcing ordinances that ban high-PAH sealants rely on educational outreach as the main mechanism to promote compliance rather than trying to catch, punish and remediate every application.

A final note is that counties and municipalities in the Maryland/Washington, D.C. area mentioned how their work got easier as more and more places around them passed bans. Thus, as (hopefully) other nearby municipalities work together in passing bans, regional market forces kick in, further reducing enforcement workloads.



DANGEROUS DRIVEWAYS TOXIC PAH POLLUTION FROM TAR-BASED SEALANTS

Tar-based pavement sealants are the primary source of toxic PAH pollution in urban landscapes. Those PAHs are harmful to human health and hurt fish and other aquatic life in our lakes and rivers.

What are pavement sealants?

Pavement sealants, also known as “sealcoats” or “sealers,” are the jet-black coatings homeowners and contractors apply to residential, commercial, and industrial driveways and parking lots. There are two main types of pavement sealants on the market today: tar-based sealants (also called “coal tar-based”), and asphalt-based sealants.

The problem with tar-based pavement sealants

Pavement sealants contain **polycyclic aromatic hydrocarbons** (PAHs), which are toxic compounds that can **cause cancer and developmental problems in children**. The American Medical Association and other public health groups have urged local and state governments to ban tar-based sealants due to their harmful health effects.

How are people exposed to PAHs from tar-based sealants?

PAHs accumulate in soils, household dust, and carpets when particles of tar-based sealants are blown or tracked into homes, schools, and other buildings. The particles come from those sealants being worn down over time by weather, tire abrasion, and foot traffic. The toxic sealant particles are also washed off by rain and spring meltwater, ending up in our local water bodies.

A recent study found that 77% of PAH pollution in Milwaukee streambeds came from tar-based sealants.

How significant is the health risk?

The coal tar pitch used in tar-based sealants is classified as a **hazardous waste**. Children living in homes where parking lots are coated with tar-based pavement sealants face a **14-fold increase in cancer risk** compared to those living next to unsealed lots, according to researchers at Baylor University and the U.S. Geological Survey. ***A lifetime of exposure can lead to cancer rates 38 times higher.***

CHILDREN LIVING FROM BIRTH TO
AGE 6 NEAR PARKING LOTS WITH
TAR-BASED SEALANTS HAVE A
**14x HIGHER LIFETIME
CANCER RISK**

Current Tar-Based Sealant Bans:

Ann Arbor, Michigan
Annapolis/Anne Arundel County, Maryland
Austin, Texas
Boone, North Carolina (use restriction)
Cwlth. of Massachusetts (use restriction)
Dane County, Wisconsin
Dexter, Michigan
Edwards Aquifer Authority, Texas
Elm Grove, Wisconsin
Glendale, Wisconsin
Greenville, South Carolina
Hamburg Township, Michigan
Milwaukee, Wisconsin
Montgomery County, Maryland
North Barrington, Illinois
Prince George's County, Maryland
San Antonio, Texas
San Marcos, Texas
Scio Township, Michigan
Shorewood, Wisconsin
South Barrington, Illinois
Spring Lake Township, Michigan
State of Minnesota
State of Washington
Suffolk County, New York
Van Buren Township, Michigan
Washington, D.C.
Westwood, Massachusetts
Winfield, Kansas
Winnetka, Illinois
Ypsilanti, Michigan
... plus 13 others (and counting)





“Whether sending their children to a playground or repairing a driveway,

Americans are potentially being exposed to harmful carcinogens in coal-tar-based sealcoats.”

– American Medical Assoc.

How to be PAH-safe:

Don't use tar-based pavement sealants

If you feel you must seal your driveway or parking lot, then use asphalt-based sealants, which have 1,000-times lower PAH levels.

Remove your shoes

If you don't have control over your parking lot or driveway, try to keep sealant dust and soil out of your home by taking off shoes before entering.

Look for hidden PAHs

Tar can have a lot of different names, and some other byproducts can have very high levels of PAHs. To be safe, check the “Material Safety Data Sheet” of the product (try searching online) and avoid anything including CAS #'s **64742-90-1, 65996-92-1, 65996-93-2, 65996-89-6, 69013-21-4, or 8007-45-2.**

Speak up

Become an advocate in your community against the use of tar-based pavement sealants. More at cleanwisconsin.org/our-work/pah.

Environmental impacts

PAHs **kill small organisms** living on the bottoms of rivers and streams and can **cause tumors in fish and other large aquatic animals**. This could result in costly impacts on the ecological balance of aquatic environments. Even three months or more after sealants are applied, the tar-sealed pavement runoff can kill fathead minnows and water fleas, two indicator species used to assess chemical toxicity to aquatic life.

Economic Impacts

PAH pollution from tar-based sealants can be a significant burden to taxpayers when municipalities are on the hook for cleaning up stormwater sediment ponds contaminated with PAH-laden sediment. In the Minneapolis metro area, the PAH cleanup from tar-based sealants is estimated to cost taxpayers hundreds of millions of dollars.

Are there alternatives?

Yes. Asphalt-based pavement sealants have up to 1,000-times lower PAH levels and are no more expensive than tar-based sealants. Alternatives such as acrylic sealants or gravel parking lots and driveways have minimal PAH levels. Studies of an early PAH ban in Austin, Texas, show significant PAH reductions in local waterbodies.

How do tar-based sealants compare to other PAH sources?

Other sources of environmental PAH pollution have significantly lower concentrations than tar-based sealants. Fresh asphalt, for example is about 1.5 parts per million (ppm) PAHs. Smoke from wood fires can range from 2 to 114 ppm, engine exhaust 102-370 ppm, and used motor oil around 440 ppm. **Tar-based sealants are hundreds to thousands of times worse**, at 70,000 – 100,000 ppm.

WE IN WISCONSIN NEED TO FOLLOW THE LEAD OF OTHERS AND END THE SALE AND USE OF HIGH-PAH SEALANTS TO PROTECT OUR HEALTH AND ENVIRONMENT.

Visit cleanwisconsin.org/our-work/pah for more information.

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LAKELINE

Volume 37, No. 1 • Spring 2017



PAHs in Lakes

Attachment: LakeLinePAHSealcoatSummary (9336 : Prohibition of coal-tar and PAH containing pavement sealants)

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James A. Brown, Water production manager, Newton County, Georgia

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Call for Abstracts

November 6–9, 2017

The Westin Westminster • Westminster, Colorado

Conference Theme

Colorado's water is used for fishing, drinking, farming, rafting, camping, mining, ranching, boating, snowmaking, brewing, and much more. All of these uses are supported with a statewide annual average of just 17 inches of rainfall. The lakes and reservoirs throughout the West and the Rockies do so much and finding balance in how we manage them is vital to meeting the ever-increasing demand for water.



Finding Balance is the key to managing our lakes, reservoirs, watersheds, and even day-to-day relationships with people. Come to Colorado in 2017 to hear some fascinating lake talks, see the mountains, and to hopefully find balance.

After 26 years, the Colorado Lake and Reservoir Management Association welcomes NALMS back to the headwaters state. Colorado is home to thousands of both natural alpine lakes and reservoirs across the state. We are proud of our mountains and appreciate the importance of our lakes and reservoirs. The conference will be held at the Westin Westminster, located between Denver and Boulder.

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General Conference, Exhibitor & Sponsorship Information

NALMS Office

608-233-2836 • www.nalms.org

Preliminary Session Topics

We encourage the submission of abstracts for papers or posters on any of the topics listed below, or abstracts that address topics of broad interest to the lake and reservoir management community.

- Reservoir Management
- Case Studies – both successful and less than successful
- Mixing and Aeration Systems
- National Lakes Assessment
- Alum treatment
- Harmful Algal Blooms
- Drinking Water Treatment
- Arid West Issues
- Invasive Species
- Inter-basin Water Transfers
- Western Water Law
- Watershed Management, including Wildfire Impacts and Acid Mine Drainage
- Water Quality Monitoring
- Climate Change Impacts
- Citizen Science
- Storm Water Impacts
- Agricultural Uses
- National Park Lakes and Reservoirs
- Data Analysis and Innovative Visualization Techniques
- Model Applications
- Regulatory Framework
- Communicating Lake Issues to Users and Other Stakeholders
- African Lakes
- Central and South American Lakes
- Beersheds and Brewing

Important Dates

May 31, 2017

Abstracts due.

Late Spring

Registration opens.

August 25, 2017

Registration and payment from presenters of accepted abstracts due.

September 15, 2017

Early-bird registration deadline.

October 27, 2017

Regular registration deadline.

Visit www.nalms.org/nalms2017 for more information and to submit your abstract.

LAKE LINE

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On the cover:

2016 NALMS Photography Contest
Editor's Choice Award winner – "Peaceful
Foggy Morning" by Mark Howarth.
Wildlife and aquatic organisms like this
magnificent Great Blue Heron can be
harmed by PAHs in the environment.

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From the Editor

Bill Jones

Spring is upon us and the longer days and warmer temperatures signal the time when many homeowners, businesses, agencies, and other organizations begin the annual task of working on priority outdoor maintenance projects around the home and community. Sometimes, however, projects that address an issue in one area can have unintended consequences that can be harmful in another area. The theme of our spring 2017 issue of *LakeLine* focuses on one

LakeLine encourages letters to the editor. Do you have a lake-related question? Or, have you read something in *LakeLine* that stimulates your interest? We'd love to hear from you via e-mail, telephone, or postal letter.

such issue. It is devoted to communicating what we've recently learned about a class of potentially toxic organic contaminants – **polycyclic aromatic hydrocarbons (PAHs)** – in urban lakes and streams.

Q) What are polycyclic aromatic hydrocarbons (PAHs)?

A) PAHs are a large group of organic compounds created by heating or burning materials that contain carbon. They are an environmental concern because many have been shown to cause cancer, birth defects, or death in fish, invertebrates, and other wildlife. The U.S. Environmental Protection Agency (EPA) has classified seven PAHs as probable human carcinogens (Class B2) and 16 PAHs as Priority Pollutants. Environmental and health effects depend on which PAHs are present and their concentrations. Exposure to sunlight greatly intensifies the adverse effects of several PAHs. In the urban environment, PAHs almost always occur as mixtures, reflecting their many different sources. Most PAHs are insoluble in water. Thus, in the environment, they tend to accumulate in soils and sediments (Figure 1).



Figure 1. Several common PAH compounds showing different arrangement of benzene rings. (Peter Van Metre, U.S. Geological Survey).

Monitoring and research during the past 20 years by the U.S. Geological Survey has shown unexpected and alarming increases in concentrations of PAHs – in sediments of urban lakes across the United States while concentrations of other contaminants of concern, such as DDT and PCBs, were flat or decreasing (Figure 2).

Additional work done by state and federal agencies and universities has found that coal-tar sealcoat, applied to restore and protect asphalt driveways, parking lots, playgrounds, and hiking trails, is one of the largest sources of PAHs to urban streams and lakes. Over time, sealcoat wears off asphalt due to the abrasive action of vehicle tires and foot traffic. Small particles of sealcoat attach and mix with the dust on the pavement and wash off with stormwater where it may be transported directly to streams and lakes or may accumulate in the sediment of stormwater detention ponds. The accumulation in sediment ponds can result in considerable expense to communities that are responsible for the disposal of the contaminated sediment.

Spring is the season most commonly recommended for repairing and restoring asphalt surfaces through the application of sealcoat. So, in addition to describing the science that has been done on the trends, sources of these contaminants in urban watersheds, and their potential effects to humans and aquatic ecosystems, information about what local and State agencies are doing to successfully address some of the concerns related to coal-tar sealcoat and key best practices for use by homeowners in repairing and restoring asphalt pavement surfaces is provided.

We begin this issue with an article by **Peter Van Metre** and **Barbara Mahler** of the U.S. Geological Survey,

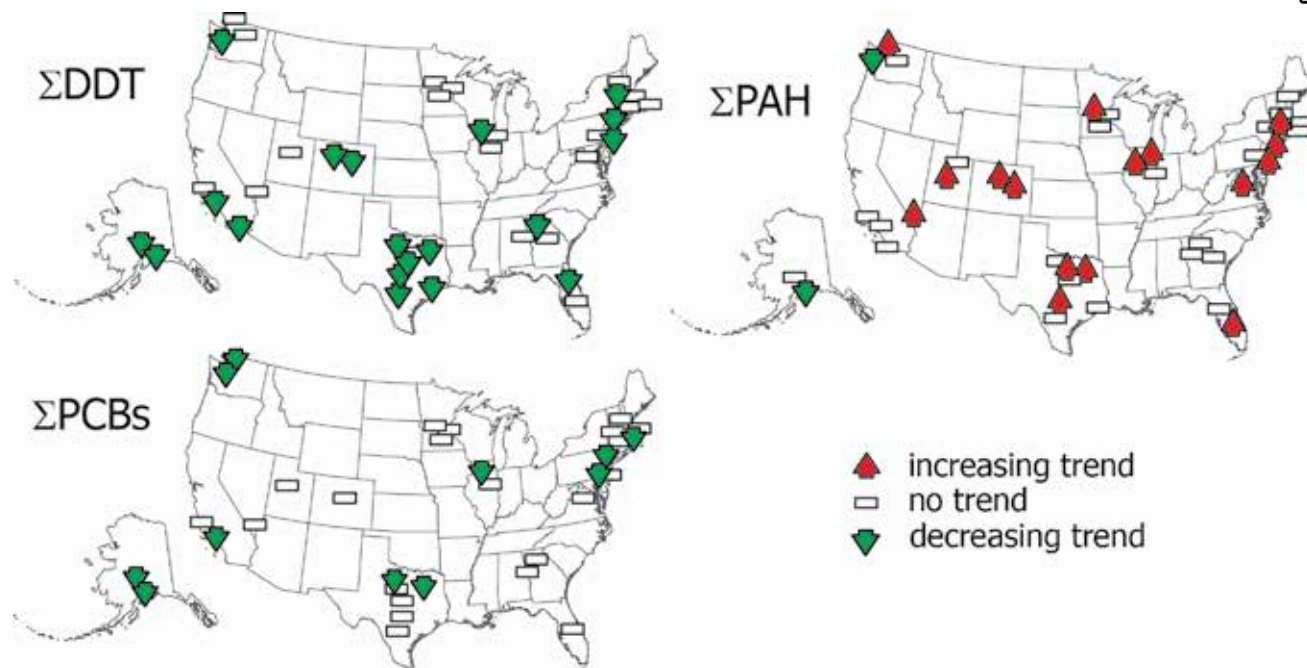


Figure 2. Map of U.S. showing trends in concentrations of PCBs, DDT, and PAHs in urban and reference lakes from 1970 to 2001.

Q) What is coal tar?

A) Coal tar is a thick, black or brown liquid that is a byproduct of the coking of coal for the steel industry or the gasification of coal to make coal gas. Coal-tar pitch is the residue that remains after various light oils are distilled from crude coal tar for commercial use. Coal-tar pitch is separated (refined) into 12 different viscosities, RT-1 (the most fluid) through RT-12 (the most viscous, and the viscosity used in coal-tar-based pavement sealcoat). Coal-tar emulsion pavement sealants contain either crude coal tar (Chemical Abstracts Service [CAS] Registry Number 8007-45-2) or coal-tar pitch (CAS Registry Number 65996-93-2). Coal tar and coal-tar pitch are known human carcinogens.

that presents findings from studies of 38 urban and reference lakes from across the nation that were sampled to determine how concentrations of contaminants in the environment were changing with time. The results of these studies showed improvements in water quality for some contaminants that have historically been of concern; but, unexpectedly, also showed that concentrations of PAHs were increasing in and around urban areas raising concerns that PAHs were becoming a threat to aquatic biota in urban streams and lakes. Research findings from work done to determine the relative contributions of PAHs from different sources in the urban environment is also presented.

In the second article, **Barbara Mahler** and **Peter Van Metre** summarize findings from field studies comparing PAH levels in soils, dust, runoff, and air on or near sealcoated pavement and

pavement without sealcoat that provides additional lines of evidence about the potency of coal-tar-based sealcoat as a major source of PAH contamination in urban and suburban areas.

In the third article, **Spencer Williams**, formerly a research assistant professor at Baylor University's Environmental Health Science Program, summarizes findings from several studies that provide insights about the potential human health effects from exposures to PAHs associated with coal-tar-sealed pavement.

Jenifer K. McIntyre, authored the fourth article that summarizes what has been learned from studies examining the potential health effects to aquatic life from PAHs in stormwater runoff associated with sealcoat. Jenifer is currently an assistant professor for the School of the Environment at the Research and Extension Center for Washington State

University (WSU). She is also the lead on collaborative research projects between NOAA-Fisheries, the U.S. Fish and Wildlife Service, and the WSU Puyallup Research and Extension Center on the biological effectiveness of green stormwater infrastructure (GSI) for pollution reduction.

The fifth article in this issue is authored by **Al Innes**, an environmental planner and pollution prevention and green chemistry specialist with the Minnesota Pollution Control Agency. Al's article shares the history and lessons learned from applying Minnesota's Toxic Pollution Prevention Program to the release of PAHs from coal-tar-based sealcoats in Minnesota and elsewhere around the Great Lakes. Minnesota's approach – addressing environmental issues where they originate and before there is an impact has helped improve the net profits of the business community, while helping to improve the health, environment, and sustainability of the State's natural resources.

The final section of the PAH-themed articles includes a few additional Frequently Asked Questions that are intended to be helpful to those that may be considering a project that involves the application of sealcoat or know of others

(From the Editor, continued on p. 7 . . .)

From Frank Wilhelm the President

Welcome to the spring issue of *LakeLine*. By the time you read this, hopefully there are signs of spring and renewal where you live, because as I write the column a new four inches of snow has accumulated overnight after we were teased with green grass and warm temperatures across the Pacific Northwest (PNW). It looks like winter will hang on for a bit more, and it's not quite time to hang up the shovel just yet. While I, and I'm sure many others, don't particularly like heaving snow around to get out of the house and driveway, I realize that precipitation in flake form as opposed to rain these days builds the mountain snow pack, a vital source of water for later in the year here in the west. Not only does a healthy mountain snowpack bode well for a good summer white water rafting season, it also maintains abundant and cold stream and river flows for our fish, not to mention a steady summer supply to lakes and reservoirs, the latter of which serve a variety of purposes – one of them being for irrigated agriculture in areas where this would not be possible otherwise. Here in the West, a healthy snow pack is vital to make the world go around as usual or “normal” given the systems and culture that have come to rely on it. However, we best start thinking about a “new” normal.

Having just poked around some long-term climate data for the PNW with a graduate student to examine the frequency of rain-on-snow (ROS) events – as these relate to flooding and the movement of heavy metal laden sediments from legacy mining in the Coeur D'Alene area, it was alarming to see the general trends across the West reported in the peer-reviewed scientific literature: (1) less precipitation overall, (2) warming winter air temperatures, and thus a rise in

elevation at which precipitation falls and accumulates as snow, and (3) declines in the ratio of snow/rain precipitation – meaning less precipitation as snow and more as rain. A disappearing snow pack across the West does not bode well for reliance on water from a “normal” snow pack. We know that life depends on access to water, as do farms that grow food, so if the normal life-giving flow from mountain snow packs will diminish in the future, we had best come together collectively to figure out the “new” normal. This will not be easy by any means, and we'll need to decide on trade-offs as we establish a new norm for our water supplies.

Similarly, we live in a world that relies extensively on hydrocarbons and their byproducts. While there are obvious conveniences such as the freedoms afforded by individual automobiles and the availability of new materials, these conveniences come with trade-offs that significantly affect our natural and aquatic environment as you'll read in this issue. Again, it is through collective dialog that

we will establish what is, and what is not acceptable – don't expect everyone to be happy at the end of the process.

It is the norming of what is and what is not acceptable that has me very concerned at the moment as we learn what is “normal” or to be expected of the new administration in D.C. Regulations for our environment via the Environmental Protection Agency (EPA) were born out of a collective will by U.S. citizens for a healthy environment capable of supporting us, and recovering what has been polluted. You read the editor's column last month about the re-authorized but unfunded section 314 Clean Lakes Program of the Clean Water Act and what is and what is not happening around the nation with regards to our lakes. I am disappointed to see that H.R. 681 “To terminate the Environmental Protection Agency” (<https://www.congress.gov/bill/115th-congress/house-bill/861>) aimed to terminate the EPA by December 2018, was introduced by Rep. Matt Gaetz, [R-FL-1] on Feb 3rd, 2017. In addition,

Next Issue – Summer 2017 *LakeLine*

As we have done every other summer for the past six years, our next issue focuses on Harmful Algal Blooms (HABs).

The NALMS Inland HAB Program leaders, Angela Shambaugh and Shane Bradt, have contacted leading HAB researchers in the field to present the latest findings and information for this issue.



H.R. 637, “Stopping EPA overreach Act of 2017” (<https://www.congress.gov/bill/115th-congress/house-bill/637>), aimed to stop the EPA from taking actions not originally intended by Congress, “incorrectly” labeling greenhouse gasses as air pollutants, and identifying no regulation of climate change, etc., was introduced by Rep. Gary, J. Palmer, [R-AL-6] on Jan 24th, 2017 with 121 co-sponsors. The ramifications of these bills should give collective pause for thought – who will mind the proverbial store? In the face of an expanding human population that relies on water and its environment for survival now is not the time to abandon the EPA, or we might as well be drinking with a straw from our own diaper. As a citizen, it is your responsibility to inform yourself and participate in our democratic process.

To end on a positive note, check out the current George Barley Water Prize competition hosted by the Everglades Foundation (<http://www.barleyprize.com/>), a four-year, stepped competition with a \$10-million prize to the team who develops the most cost-effective, scalable technology that thoroughly removes and recovers phosphorus from freshwater bodies. The final phase will be a fully functioning operations plant. Now that’s exciting for renewal and a new norm – think of the possibilities for our waters!

Frank Wilhelm is an associate professor of limnology at the University of Idaho in Moscow, Idaho, where he teaches courses in limnology and in the introductory sequence of natural resources course. He has an active research program focused broadly on limnology including cyanobacteria, invasive species, nutrient cycling, and foodweb dynamics. He has been an active member of NALMS, having served on various committees and as Region 10 director previously. 🐼



(...from the Editor, continued from p. 5)

planning such a project. Information is provided on: How to determine whether a particular sealant product contains coal tar; How to determine whether the existing sealant on your driveway contains coal tar; Alternative products to coal-tar sealcoat; and Best practices for maintaining and applying sealcoat.

In our “Student Corner,” **Andrew Labaj** and **Branaavan Sivarajah**, students in the Paleoeological Environmental Assessment and Research Laboratory (PEARL) at Queen’s University in Ontario describe their research into using lake sediments to assess the long-term ecological consequences of mining in Canada.

In his column, NALMS President **Frank Wilhelm** shares his concerns for the future of water resources and some hope. Although the successful Banff Symposium is still on our minds, it is time to make plans for the NALMS Denver Symposium, November 6-9, 2017. We include the Call for Papers in this issue. We also include announcements for the annual Lakes Appreciation Month and NALMS Photo Contest.

We conclude this issue with “Literature Search.” Enjoy!

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Trends and Sources of PAHs to Urban Lakes & Streams

Peter Van Metre and Barbara Mahler

Over the past few decades, concentrations of polycyclic aromatic hydrocarbons (PAHs) have been increasing in the sediments of many U.S. urban lakes and streams. These upward trends contrast those of legacy pollutants, such as lead, PCBs, and DDT, which were restricted or banned in the 1970s. Trends of these legacy pollutants have been downward since they were banned (Figures 1 and 2).

Understanding the causes of trends in PAHs is complicated by their many natural and anthropogenic sources. PAHs are contained in fossil fuels and also are produced when materials that contain carbon, including oil, coal, gasoline, and diesel fuel, are heated or burned. Although many studies have considered vehicle emissions as a potential source of urban PAHs, estimated emissions of PAHs from vehicles in the United States declined almost ten-fold from 1971 (32,000 metric tons, or Mg) to 2000 (3,500 Mg), and this decline continues. Vehicle emissions therefore cannot account for the upward trend found in urban lake sediments – there must be some other primary source or sources of the upward trend in PAHs.

Discovery of Sealcoat as a PAH Source

A breakthrough in identifying urban PAH sources occurred in 2003, when scientists with the City of Austin (COA), TX, measured PAHs in sediment samples from very small streams in Austin. The PAH concentrations in some samples were extremely elevated – in the 1000s of milligrams per kilogram (mg/kg), on par with concentrations measured in some Superfund site soils. A COA scientist noted that the sites with the elevated PAH concentrations were immediately downstream from parking lots that had a black sealer on the surface. The sealer was

coal-tar-based pavement sealcoat. Coal tar and coal-tar pitch, which are used in coal-tar sealcoat, consist of about 50 percent or more PAHs and are known human carcinogens (Figure 3).

In collaboration with the COA, U.S. Geological Survey (USGS) researchers carried out a series of tests to measure concentrations and yields (the amount leaving the pavement per unit area) of PAHs in runoff from sealed and unsealed pavement. The study was the first to document coal-tar sealcoat as a potentially major source of PAHs in urban runoff (Mahler et al. 2005).

An East-West Divide

One straightforward line of evidence is to compare PAH concentrations in areas where coal-tar sealcoat is used to concentrations in areas where it is not used. In the United States, there is a general east-west difference in the type of pavement sealant product used: high-PAH coal-tar-based sealants are predominantly used east of the Continental Divide, and low-PAH asphalt-based sealants are predominantly used in the West. This difference in use is reflected in PAH concentrations in urban lakes (Mahler et al. 2012). Lakes in the central and eastern U.S. tend to have higher PAH concentrations in sediment than lakes in the western U.S. for a similar level of urban development. A comparison of

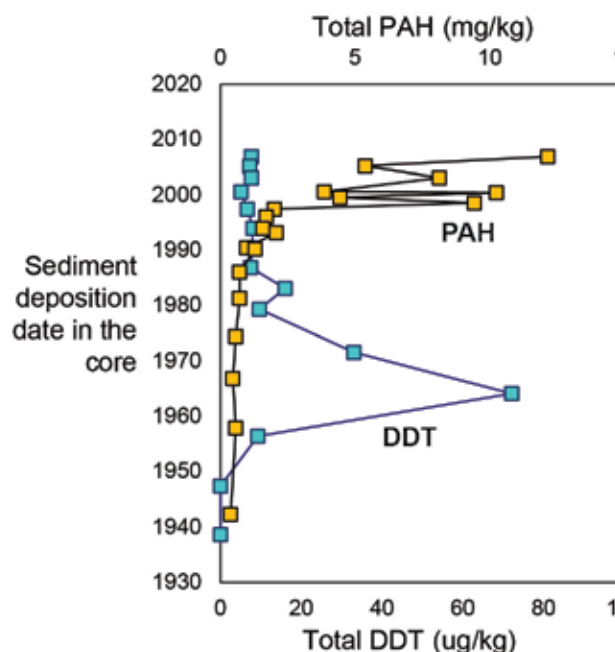


Figure 1. Contaminant profiles from Lake in the Hills, suburban Chicago, IL, indicate contrasting trends for (total) DDT and (total) PAHs.

Lake Anne in Reston, VA, and Decker Lake in Salt Lake City, UT, illustrates this east-west difference. Both are small lakes with fully developed watersheds, and both have a population of about 2,100 people per square kilometer. Yet PAH levels in Lake Anne sediment are about 20 times higher than in Decker Lake sediment, with mean concentrations of PAH of 17 and 0.76 mg/kg, respectively, for sediment deposited in the 1990s (Van Metre and Mahler 2010). PAH concentrations in dust samples collected from sealed pavement in the two watersheds point to a likely explanation: 3,200 mg/kg for pavement dust in the Lake Anne watershed and 2.1 mg/kg in the Decker Lake watershed. This thousand-fold difference is consistent with the difference in PAH concentrations between the coal tar and asphalt products



Figure 2. A break during sediment core sampling at Lake in the Hills, IL.



Figure 3. Freshly applied coal-tar sealcoat gives this parking lot a new look.

(Mahler et al. 2012). The fact that PAH concentrations in western urban lakes are relatively low indicates that commercial and residential development – and even interstate highways – do not necessarily lead to high “urban background” levels of PAHs.

Quantifying the PAH Contribution of Coal-Tar Sealcoat

Just how important is coal-tar sealcoat as a source of PAHs to urban waterbodies? In other words, what percentage of the PAHs in urban lakes

and streams is coming from coal-tar-sealed pavement compared with other PAH sources? Several research groups have used multiple lines of evidence to address this question. The consensus that has emerged is that coal-tar sealcoat use accounts for roughly 50 percent to as much as 90 percent of the PAHs in urban streams, lakes, and stormwater ponds studied in the central and eastern United States (Mahler et al. 2012; Pavlowsky 2013; Crane 2014; Baldwin et al. 2016).

Coal-tar-sealed pavement was demonstrated to be the dominant source

of PAHs to urban streams and ponds in Springfield, MO, contributing more than 80 percent of the PAHs (Pavlowsky 2013). This study found a strong relation between PAH concentrations in stream sediments and the area of the watershed upstream from the sampling point that was sealed pavement. PAH concentrations increased as the amount of sealed pavement in the watershed increased, but did not show a relation to total impervious cover, thus indicating sealcoat as the source. Samples of dust from coal-tar-sealed parking lots and the sediment from stream sites draining those lots were enriched in PAHs at concentrations considered toxic to aquatic life based on comparison to widely used sediment quality guidelines.

In the environment, PAHs always occur in complex mixtures of many compounds. PAH sources tend to have a characteristic mixtures of PAHs, which can be thought of as PAH “fingerprints.” This is useful, because the fingerprints provide a “forensic” approach for determining the PAH sources to stream or lake sediment. Statistical “source-receptor” models have been developed that use chemical fingerprints to estimate the contribution of each PAH potential source (such as tire particles, used motor oil, and wood burning) to a receptor (such as stream or lake sediment). We applied a source-receptor model (the U.S. Environmental Protection Agency’s Contaminant Mass Balance (CMB) model) to PAH concentrations in the upper layer of sediment collected from 40 lakes from across the United States (35 medium and small urban lakes and 5 large lakes with a mixture of land uses). The results of the model indicated that, overall, coal-tar sealcoat was the largest source of PAHs to the lakes, accounting for, on average, about one-half of the PAHs in recent sediments (Figure 4) (Van Metre and Mahler 2010). Many of the lakes in the central and eastern U.S. had PAH concentrations that exceeded the probable effect concentration (PEC), indicating PAH concentrations that are expected to be toxic to some types of aquatic life.

More recent studies that have used the CMB model and other forensic techniques separately or in combination also have concluded that coal-tar sealcoat is a major PAH source to urban

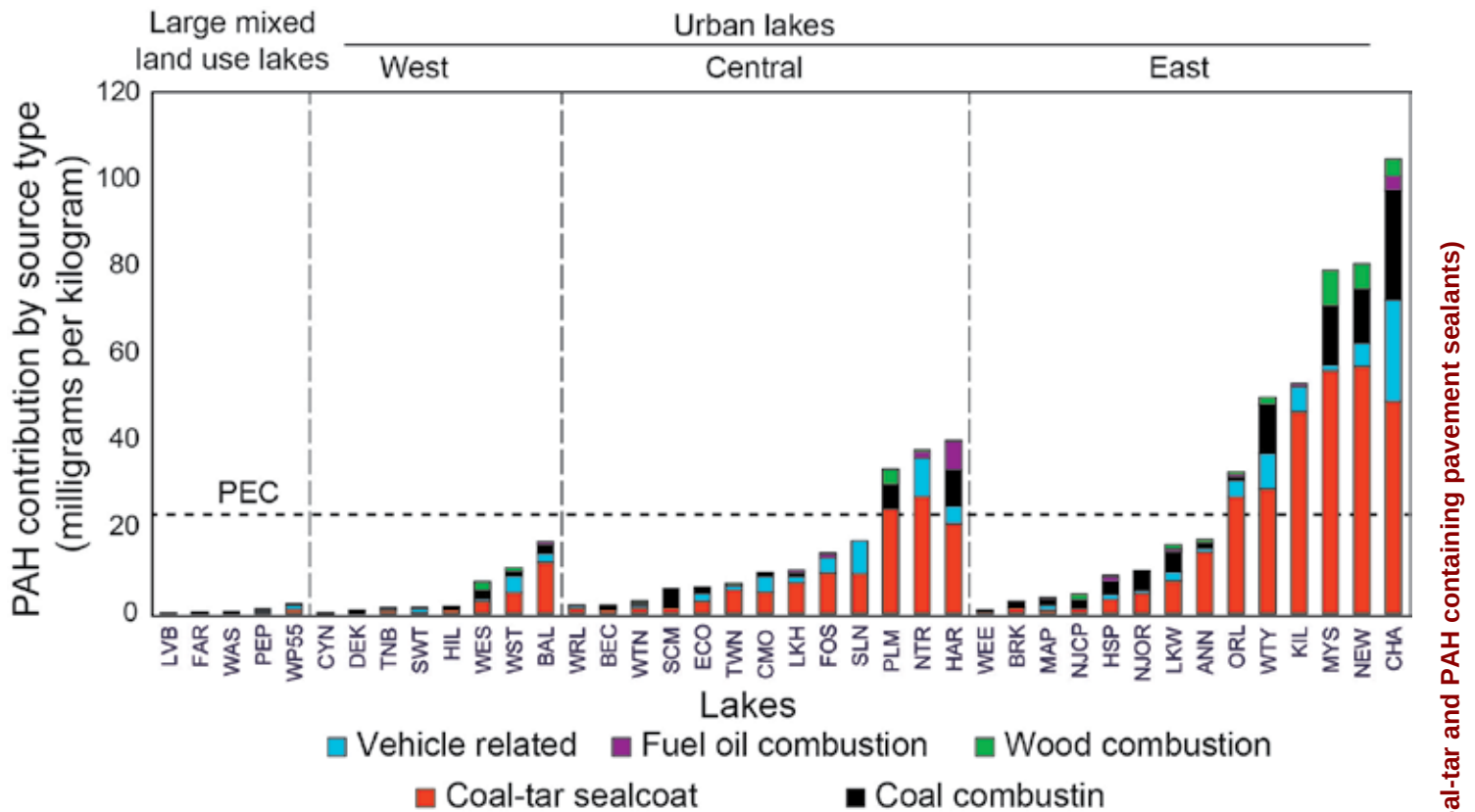


Figure 4. Coal-tar sealcoat was the largest source of PAHs to 40 lakes studied by the USGS (Van Metre and Mahler 2010).

waterbodies (Crane 2014; Witter et al. 2014; Baldwin et al. 2016). In one of the most comprehensive studies of PAH sources to date, researchers from the USGS and the City of Milwaukee, WI, applied six different forensic approaches to assess sources of PAHs in Milwaukee stream sediment (Baldwin et al. 2016). On the basis of this multiple-lines-of-evidence approach, the researchers concluded that coal-tar sealcoat was the primary source of PAHs to the streams, contributing an estimated 77 percent of total PAHs to stream sediment sampled. They also reported that 75 percent of the samples were toxic to standard toxicity test organisms, and that PAHs were the cause of the toxicity.

Other studies have taken different tactics to evaluate the importance of coal-tar sealcoat as a source of PAHs to urban waterbodies. In one study, a research team from the University of Illinois used microscopic analysis to identify the different types of carbonaceous material (CM) present in samples of pavement dust, soils, streambed sediment, and lake (reservoir) sediment collected in Fort Worth, TX (Yang et al. 2010).

Carbonaceous materials, such as soot, coal tar, and asphalt, are of interest because they are the primary vectors (carriers) that transport PAHs into urban waters. The researchers characterized PAH concentrations associated with the CM and concluded that coal-tar pitch (used in coal-tar sealcoat) contributed as much as 99 percent of the PAHs in sealed parking lot dust, 92 percent in unsealed parking lot dust, 88 percent in a composite soil sample from a commercial area with some sealed parking lots, 71 percent in streambed sediment, and 84 percent in lake sediment. The identification of coal-tar sealcoat as the main source of PAHs in unsealed parking lot dust and commercial soils demonstrates the potential for these contaminants to move to neighboring areas by wind and tracking on tires.

PAH Trends in Lakes Linked to Coal-Tar Sealcoat Use

Returning to our original question, is coal-tar sealcoat responsible for the upward trends in PAHs measured in some urban lakes? To address this question, we applied the CMB model to the whole sediment-core record for eight urban lakes

from across the United States. In the six lakes that had statistically significant upward trends in PAHs since 1970, coal-tar sealcoat was identified by the CMB model as the primary source of the increase in concentrations (Figure 5).

Given the importance of coal-tar sealcoat as a source of PAHs to urban lakes, what happens when its use is curtailed? In January 2006, Austin, TX, became the first jurisdiction in the United States to ban use of coal-tar sealcoat, providing a unique opportunity to address this question. Much of the runoff from the City of Austin flows into Lady Bird Lake, a 9-km-long impoundment on the Colorado River. PAH concentrations in Lady Bird Lake sediment increased for the four decades prior to the ban. We collected sediment cores and surficial bottom sediment samples from the lake in 2012 and 2014, which were six and eight years after implementation of the coal-tar-sealcoat ban (Van Metre and Mahler 2014). PAH concentrations in that period after the ban was imposed had decreased by about 58 percent relative to the 1998–2005 mean (Figure 6). This rate of decrease is consistent with those measured

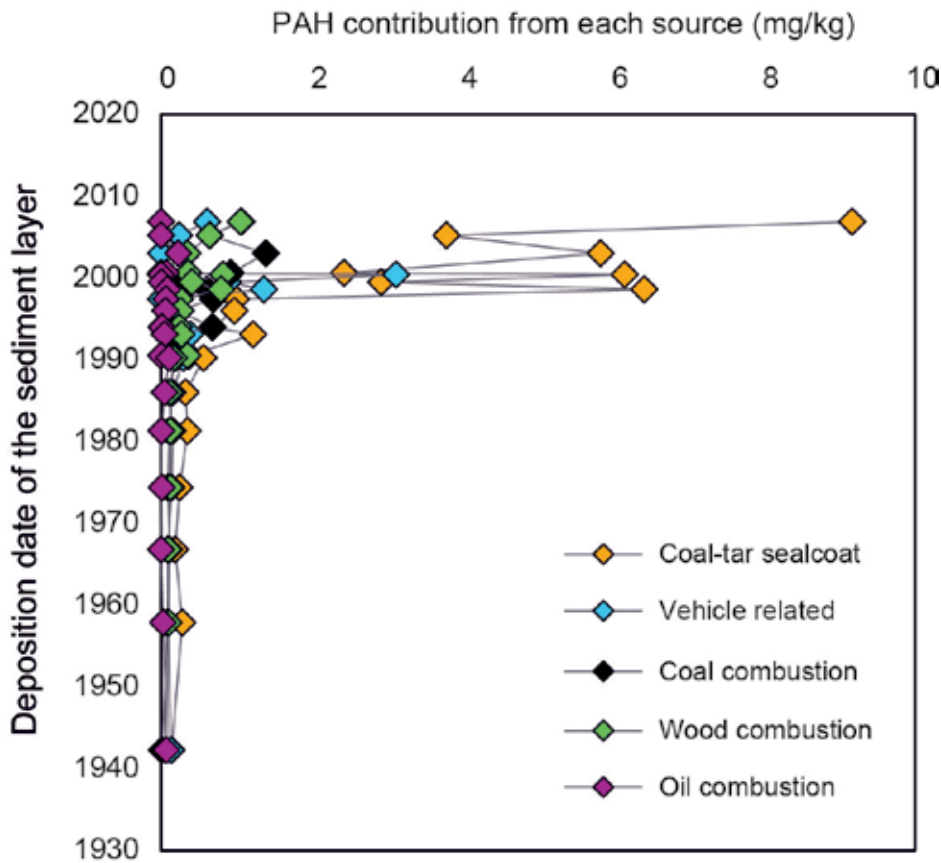


Figure 5. The rapid increase in PAH concentrations in recent years at Lake in the Hills, IL, was primarily from coal-tar sealcoat, which contributed ~70 percent of the PAHs in post-2000 sediment (Van Metre and Mahler 2010).

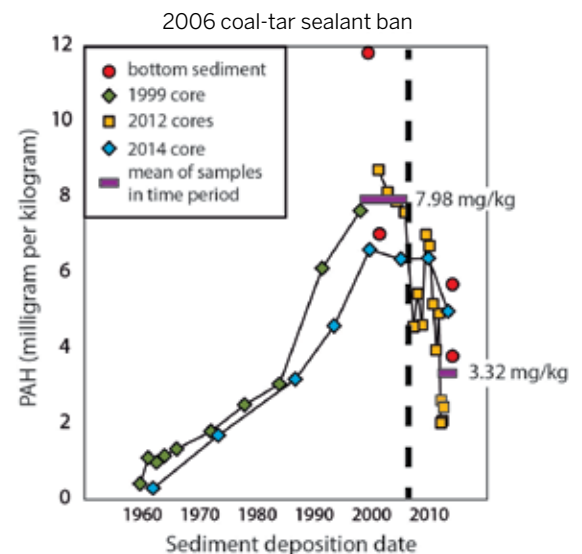


Figure 6. PAH concentrations increased for about 40 years in Lady Bird Lake in Austin, TX, until a ban on coal-tar sealcoat was instituted in 2006. In the eight years following the ban, average concentrations have decreased about 58 percent (Van Metre and Mahler 2014).

for other banned chemicals, such as DDT and PCBs. Recently deposited sediment in Lady Bird Lake continues to contain PAHs that, despite their lower concentration, still have a coal-tar signature. This finding implies that PAH concentrations likely will continue to decline as stocks of previously applied sealant gradually become depleted.

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Coal-tar-based Pavement Sealants – A Potent Source of PAHs

Barbara J. Mahler and Peter C. Van Metre

Pavement sealants are applied to the asphalt pavement of many parking lots, driveways, and even playgrounds in North America (Figure 1), where, when first applied, they render the pavement glossy black and looking like new. Sealant products used commercially in the central, eastern, and northern United States typically are coal-tar-based, whereas those used in the western United States typically are asphalt-based. Although the products look similar, they are chemically different. Coal-tar-based pavement sealants typically are 25-35 percent (by weight) coal tar or coal-tar pitch, materials that are known human carcinogens and that contain high concentrations of polycyclic aromatic hydrocarbons (PAHs) and related chemicals (unless otherwise noted, all

data in this article are from Mahler et al. 2012 and references therein).

PAHs are a large group of organic chemicals created by heating or burning material that contains carbon; 16 PAHs are classified as U.S. Environmental Protection Agency Priority Pollutants, six are classified as probable human carcinogens, and one (benzo[a]pyrene) is classified as a known human carcinogen. The many sources of PAHs to the urban environment span a wide range of PAH concentrations and include tire particles, used motor oil, and diesel and gasoline engine exhaust (Figure 2). Of known urban PAH sources, coal tar and the related compound creosote have the highest PAH concentrations. Coal-tar-based pavement sealant products contain, on average, about 70,000 mg/

kg polycyclic aromatic hydrocarbons (PAHs), on the order of 1,000 times higher than asphalt-based products, which typically contain about 50 mg/kg PAHs.

Pavement sealant is not permanent – the sealant must be reapplied every few years, because it is removed from the pavement by wear and tear from traffic, weathering, and chemical processes. There are at least three ways that pavement sealant (and the PAHs and other chemicals it contains) can leave the pavement surface and enter the surrounding environment: by eroding into small, mobile particles; by dissolving into water; and by volatilizing into air. Where do PAHs derived from sealant go? The answer depends on the process involved. Pavement sealant is worn by vehicle tires into a fine powder that



Figure 1. Pavement sealant is commonly used to seal parking lots, playgrounds, and driveways throughout the United States. Sealants used in the central, northern, eastern, and southern United States typically contain coal tar or coal-tar pitch, both of which are known human carcinogens. Photos by the U.S. Geological Survey.

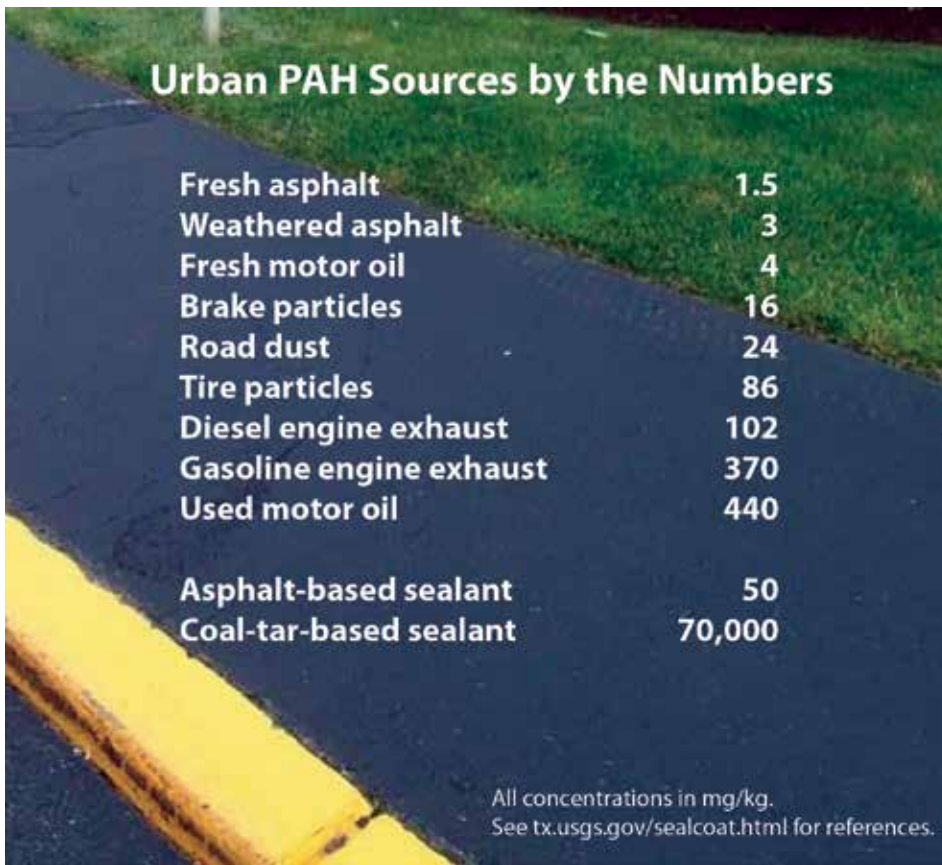


Figure 2. PAH concentrations in typical urban sources. The concentrations shown are a mean or median from as many as six studies.

is transported by stormwater runoff to streams or lakes, or by wind to adjacent soils or other impervious surfaces. Eroded sealant particles can also stick to shoes and be transported indoors. Some PAHs can dissolve into stormwater, especially just after application, and be transported, along with eroded sealcoat particles, to nearby streams and lakes. PAHs also can be released directly into the atmosphere (volatilization). The high PAH concentrations in coal-tar-based sealant can result in high concentrations of PAHs in a number of environmental settings, with potential adverse effects for human and ecosystem health (see other articles on health and ecosystem effects in this issue).

How can we evaluate whether coal-tar-based sealants are an important source of PAH contamination to the environment? One straightforward way is to compare PAH concentrations in pavement dust, runoff, soil, sediment, house dust, and air on or near coal-tar-sealed pavement with PAH concentrations in those same media on or near unsealed

asphalt pavement or asphalt-sealed asphalt-based sealant (Figure 3).

Pavement Dust and Runoff

The abrasive action of vehicle tires and snowplows grinds dried sealant on the pavement surface into small particles that mix with other dust on the pavement. In southern, central, and eastern U.S. cities, where coal-tar-based sealant use dominates, dust on sealed pavement has about 1,000 times higher concentrations of PAHs than dust on sealed pavement in western U.S. cities, where asphalt-based sealant use dominates (Figure 4). Concentrations of PAHs on pavement with coal-tar-based sealant generally are in the thousands of mg/kg, comparable to concentrations in soils at some Superfund sites. Further, PAH levels in dust on sealed parking lots in the eastern U.S. can be hundreds of times higher than concentrations in dust on unsealed parking lots in the same watersheds. All of these parking lots, sealed and unsealed, share other sources of urban PAHs – vehicle exhaust, leaking motor oil, tire

particles, atmospheric deposition – the only difference is the presence or absence of coal-tar-based sealant.

Pavement dust is mobile – it collects on the pavement surface and at curbs and is readily transported by runoff down storm sewers (Figure 4). When researchers measured PAH concentrations in particles transported by simulated runoff from six coal-tar-sealed parking lots, the mean concentration was 3,500 mg/kg, whereas the mean PAH concentration of particles in runoff from unsealed parking lots (asphalt or concrete) was 54 mg/kg (Mahler et al. 2005). For context, the concentration at which PAH concentrations are expected to harm bottom-dwelling aquatic life is 23 mg/kg.

PAH concentrations in stormwater runoff are highest in the months following sealant application and decrease with time, but even years after application PAH concentrations remain much higher than those in runoff from unsealed pavement, as demonstrated by studies in Wisconsin and New Hampshire. In Madison, WI, the median PAH concentration in unfiltered runoff six years after application of coal-tar sealcoat to a commercial parking lot was 52 $\mu\text{g/L}$, about 20-1000 times higher than concentrations in runoff collected from a minor arterial street, a commercial rooftop, and a residential street (0.05-2.4 $\mu\text{g/L}$). During the three months following application of coal-tar-based sealant to a parking lot at the University of New Hampshire, the mean PAH concentration in unfiltered runoff measured by the University of New Hampshire Stormwater Center (UNHSC) was 1,357 $\mu\text{g/L}$, and decreased over the next two years to a three-month mean of 17-116 $\mu\text{g/L}$ (Figure 5). PAH-contaminated runoff can be acutely and chronically toxic to fish and other aquatic biota, as described in “Toxicity of Coal Tar Pavement Sealant to Aquatic Animals,” page 23 this issue.

In some cases, runoff is collected in a stormwater management device, such as a retention pond, to improve water quality by retaining suspended particles. A study by the UNHSC demonstrated that sediment collected in a stormwater management device draining a coal-tar-sealed parking lot contained 393-1,180 mg/kg PAHs, and sediment collected in a device draining an adjacent unsealed lot contained about 2 mg/kg PAHs. The

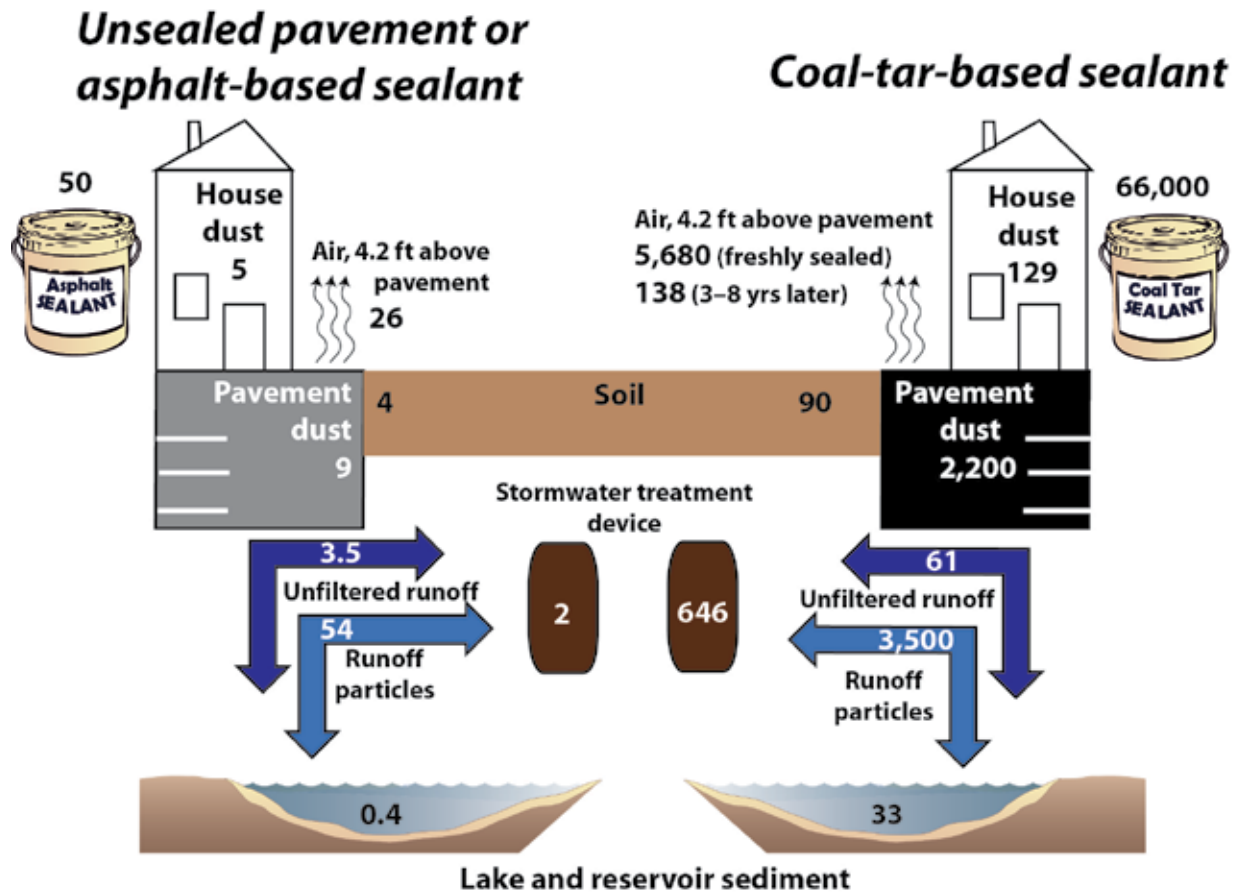


Figure 3. Concentrations of PAHs associated with unsealed or asphalt-sealed pavement (left) are many times lower than those associated with coal-tar-sealed pavement (right). PAHs from sealed pavement are transported to the environment by a variety of pathways, including stormwater runoff to stormwater treatment devices, lakes, and streams; windblown transport to soils; tracking of dried particles indoors; and release by volatilization into air. Humans are exposed to PAHs in pavement dust, soil, house dust, and air; aquatic biota are exposed to PAHs in aquatic sediment, such as in lakes and reservoirs. Concentrations shown are in units of milligrams per kilogram (mg/kg), with the exception of unfiltered runoff ($\mu\text{g/L}$) and air (ng/m^3). Concentration data are from Mahler et al. (2012) (and references therein) or studies cited in this article, and in many cases are the median of multiple studies.

efficient collection of PAH-contaminated sediment in stormwater retention ponds or other devices can have unintended consequences for a municipality because elevated concentrations of PAHs and other contaminants can greatly increase the cost for sediment disposal. Costs for disposing of PAH-contaminated sediment in stormwater ponds in the Minneapolis-St. Paul area are estimated to be \$40–50 per cubic yard, or about \$125,000 per pond, depending on pond size (Judy Crane, Minnesota Pollution Control Agency, written communication, 2015). That translates to an estimated cost of as much as \$1 billion if just ten percent of the ponds in Minnesota contain PAH concentrations that exceed the state's Level 2 human-health risk-based value (Donald Berger, Minnesota Pollution Control Agency, written communication, 2011).

Soil

Contaminated pavement dust can be washed by runoff or blown by wind onto nearby soils. PAH concentrations in soil adjacent to sealcoated pavement in a Chicago, IL, suburb were 23 and 140 mg/kg, 2.3 to 14 times higher than in soil adjacent to unsealed pavement (10 mg/kg) (Van Metre et al. 2009). Composite soil samples from two commercial districts in Fort Worth, TX, where coal-tar sealants were present on some parking lots, had a mean total PAH concentration of about 90 mg/kg, whereas composite soil samples from nearby residential areas, where sealants were not observed, had a mean concentration of about 4 mg/kg (Wilson et al. 2006). Similarly, PAH concentrations in soil adjacent to a coal-tar-sealed parking lot studied by the UNHSC were as high as 411 mg/kg, and decreased with distance from the parking

lot to less than 10 mg/kg. The highest PAH concentrations were measured in soil in areas where snowplows had piled snow containing pavement dust and sealant particles scraped off with the snow during the winter.

Lake and Stream Sediment

PAH-contaminated sediment that is not trapped by stormwater ponds can be transported to streams and lakes. The contribution of coal-tar-based sealant to PAHs in lake sediment can be evaluated by a variety of approaches, including “environmental forensics” (the application of statistical methods to evaluate the chemical content of the source and the sediment), microscopic identification of particles, and land-use analysis. An example of environmental forensics is a comparison of the relative proportions of different PAHs – the “fingerprint”

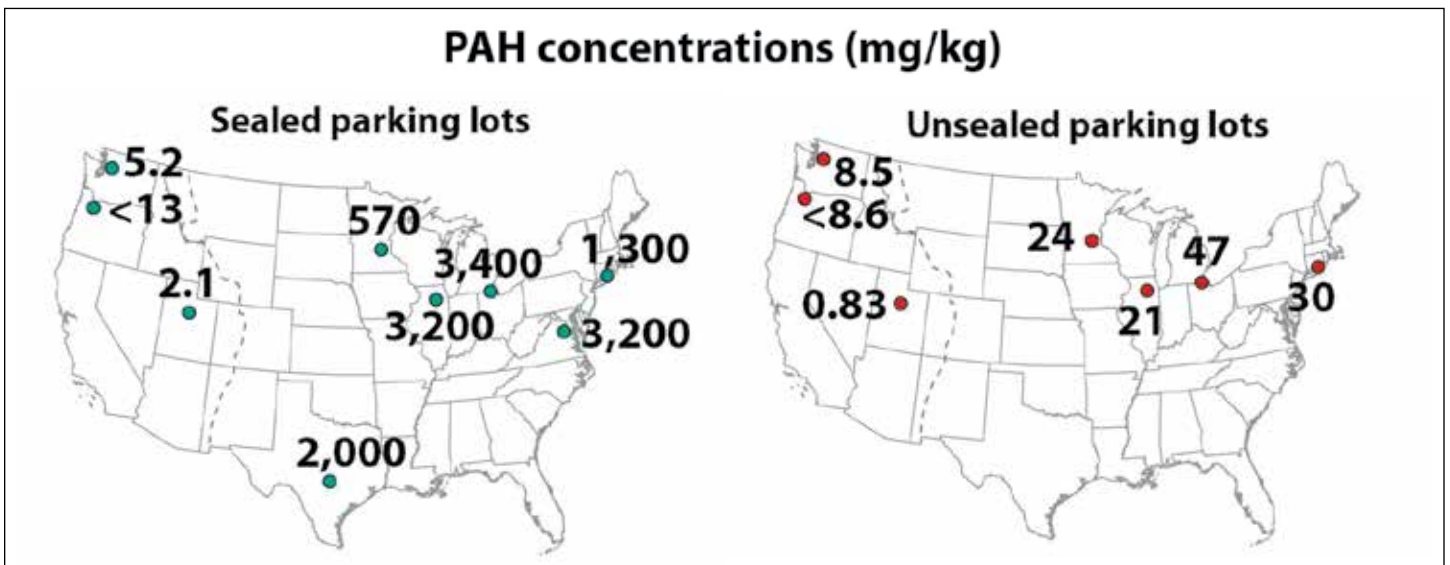


Figure 4. Parking lot “dust” contains abraded sealant (black particles, top). The dust collects on the parking lot surface and along curbs, where it can be carried by runoff down storm drains. PAH concentrations in dust swept from sealed parking lots in the eastern United States, where coal-tar-based sealant is predominantly used, were about 1,000 times higher than in dust from sealed parking lots in the west, where asphalt-based sealant is predominantly used. PAH concentrations in dust on sealed lots in the eastern U.S. also were as much as 100s of times higher than concentrations in dust on unsealed lots in the same watersheds, indicating that the sealant is the principal source of the elevated PAH concentrations (Van Metre et al. 2009). Photo by the U.S. Geological Survey.



Figure 5. Researchers at the University of New Hampshire Stormwater Center simulate runoff on coal-tar-sealed pavement for measurement of polycyclic aromatic hydrocarbons (PAHs). Photo by the University of New Hampshire Stormwater Center.

– in dust collected from parking lots in U.S. cities to fingerprints in sediments from lakes in the same watersheds. For central and eastern U.S. watersheds, the fingerprints of sealed pavement dust and lake sediment were similar, and were different from those in western U.S. watersheds, where the asphalt-based product is used. A more quantitative approach – a statistical method known as source-apportionment modeling – estimated that coal-tar-based sealant contributed about one-half of the PAHs to 40 U.S. urban lakes studied by the U.S. Geological Survey; the other major contributors were vehicles and coal combustion. The topic of PAH sources to lakes and streams is further discussed in “Trends and Sources of PAHs to Urban Lakes & Streams,” page 8 this issue.

House Dust

Coal-tar-based sealant can cause indoor as well as outdoor contamination. Abraded sealant particles can stick to the bottoms of shoes and be tracked indoors, where they become incorporated into

house dust. In a study of 23 ground-floor apartments in Austin, TX, apartments with coal-tar-sealed parking lots had house dust with PAH concentrations that were 25 times higher on average than apartments with parking lots that were unsealed or that were sealed with an asphalt-based product (Figure 3). The study found no relation between PAH concentrations in house dust and other factors such as tobacco smoking, barbecue and fireplace use, and candle and incense-burning.

These results are of concern because ingestion of house dust is well recognized as a pathway for human exposure to chemicals, especially for toddlers, who play on the floor and put their hands and objects into their mouths. This topic is discussed in more detail in “Human Health Concerns Associated with Exposure to PAHs & Coal-Tar-Sealed Pavement,” page 19 this issue.

Air

Some of the PAHs in coal-tar-based sealant are released into air during and after application (Figure 3) through a

process called volatilization. Many PAHs, including the seven classified as probable or known human carcinogens, are volatile to some degree. Airborne PAHs are of concern because inhalation is another important pathway for human exposure. Although unseen, airborne releases of PAHs from freshly applied coal-tar-based sealant are on the order of 45,000 $\mu\text{g}/\text{m}^2/\text{hr}$, which is tens of thousands of times higher than releases from unsealed asphalt. Taken across the entire United States, emissions of PAHs to air from newly applied coal-tar-based sealant are estimated to exceed those from motor vehicles.

The concentrations of PAHs in air above freshly coal-tar-sealcoated pavement decrease rapidly during the weeks following application, but even years later remain several times higher than in air over unsealed pavement (Figure 3). Air at approximate breathing height above coal-tar-sealed pavement (4.2 feet, or 1.28 meters) even in suburban areas contains PAH concentrations that rival or exceed those in highly

industrialized areas. For example, in a study that measured volatilization of PAHs from parking lots that had been treated with coal-tar-based sealant years previously, the mean concentration of the PAH pyrene was about 2-19 times higher than pyrene concentrations measured in air samples from urban industrial sites from New Jersey and Chicago, USA (Van Metre et al. 2012).

A Scientific Consensus

Independent research by scientists and engineers from academic institutions and government agencies demonstrates that coal-tar-based sealant is a potent source of PAHs to water, dust, soil, stream and lake sediment, and air. The comparison of PAH concentrations in settings where coal-tar-based sealant is or is not applied provides an unambiguous picture of the importance of coal-tar-based sealants as a source of PAHs to our urban and suburban environments.

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Additional information is available at USGS Research: PAHs and Coal-Tar-Based Pavement Sealcoat, <http://tx.usgs.gov/sealcoat.html>.

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Human Health Concerns Associated with Exposure to PAHs & Coal-Tar-Sealed Pavement

Spencer Williams and William G. Wilber

Whether polycyclic aromatic hydrocarbons (PAHs) and other chemicals in the environment pose a risk to human health depends on the extent to which people are exposed to them. Paracelsus, the 16th century Swiss scientist and founder of modern toxicology was the first to expound on the concept of dose response and its importance in determining whether chemicals pose a risk to human health: “Poison is in everything and no thing is without poison. The dosage makes it either a poison or a remedy.”

Assessing the Risks of Cancer

Exposure to PAHs has been linked to increased risk for lung, bladder, and skin cancers. Coal-tar-based pavement sealants are 15-35 percent coal-tar pitch. Coal tar and coal-tar pitch are listed as Group 1 carcinogens (carcinogenic to humans). PAHs are the major constituents of coal-tar pitch, and commercially available coal-tar-based sealants contain on the order of 50,000-100,000 mg/kg PAHs (sum of the 16 U. S. Environmental Protection Agency [USEPA] priority pollutant PAHs). The USEPA currently classifies the following seven PAH compounds as probable human carcinogens (Group B2): benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene. Coal tar itself is a powerful mutagen; having a mutagenicity index that is about 1,000 times that of asphalt cements.

The way the risk of cancer is assessed for these PAHs is still evolving. While confirming that benzo[a]pyrene is carcinogenic to humans, the USEPA recently revised a number that describes the relationship between exposure and the risk of developing cancer (i.e., the

cancer slope factor). Scientists are also re-evaluating the potency of numerous PAHs. The proposed Relative Potency Factor (RPF) for dibenz[a,h]anthracene is 10, whereas its previous value was 1. Also, several more PAHs may be added to the list of substances that are considered carcinogenic; two of these have proposed RPFs of 20 and 60. Without a doubt, these efforts will change our assessment of the risk posed by people living in environments contaminated with coal-tar-based pavement sealants. Considering the number of sites and situations in which people come into contact with PAHs, our understanding of risk and potency of various PAHs will continue to evolve.

Potential Avenues of Exposure

There are numerous potential avenues for exposure to the PAHs in coal-tar-based sealants. These pathways include direct skin contact with the sealant; incidental ingestion of abraded particles from driveways, parking lots, and playgrounds where coal tar sealcoat has been used; from nearby soils; household dust inside homes adjacent to sealed pavement; and inhalation of PAHs that emanate from asphalt surfaces after sealcoat has been applied (Figure 1).

Although coal-tar-based sealcoat has been on the market since at least 1960, there are few published studies about the contribution of sealcoat to PAH exposures



Figure 1. Incidental ingestion of abraded particles and skin contact are two ways humans can be exposed to PAHs. Parking lots and driveways with coal-tar-based sealcoat have concentrations of PAHs hundreds to thousands of times higher than those with asphalt based sealcoat or no sealcoat. Photo: ©HalfPoint; used under license from Shutterstock®.

and the associated potential for adverse human-health outcomes. Most of the information that is available to evaluate the potential for human health effects consists of data on the concentrations of specific PAH compounds and laboratory toxicity studies.

Exposure to PAHs in Soils and House Dust

In 2008, a study of 23 apartments in Austin, Texas, found that house dust adjacent to coal-tar-sealed parking lots contain concentrations of PAHs 25 times higher on average than house dust collected from apartments near unsealed or asphalt-sealed parking lots. The presence or absence of coal-tar-based sealcoat on the parking lot of the apartment complex was strongly correlated with PAH concentrations in house dust. Although tobacco smoking, candle burning, and barbecue and fireplace use are also potential sources of PAHs in house dust, the research scientists could not attribute the PAH concentrations in the house dust to any of these other sources. The potential for exposure to high concentrations of PAHs in soils and house dust is particularly important for young children who typically spend more time crawling and playing on floors and are prone to hand-to-mouth behaviors that make them more likely to be exposed than older children and adults. This is a similar pathway that makes children susceptible to contact with lead in their environments, either from deteriorating lead-based paint or contaminated soil (Figure 2).

There are no U.S. health-based guidelines for exposure to PAHs in house dust. The only existing guideline is for a single PAH – benzo[a]pyrene – issued by the German Federal Environment Agency Indoor Air Hygiene Commission. The guideline advises minimizing exposure to concentrations of benzo[a]pyrene greater than 10 milligrams per kilogram in dust to avoid adverse health effects. In the Austin, TX study, that guideline was exceeded for 4 of the 11 apartments adjacent to parking lots covered with coal-tar sealcoat and for one of the 12 apartments with a parking lot with a different surface type. Also possibly of concern is contact with sealcoated pavement surfaces themselves through play activities. Dust on some of the parking lots covered with coal-tar sealcoat



Figure 2. The potential for exposure to high concentrations of PAHs in soils and house dust is particularly important for young children, who spend more time crawling and playing on floors and are prone to hand-to-mouth behaviors that make them more likely to be exposed than older children and adults. Photo: ©Marko Poplasen; used under license from Shutterstock®.

had a concentration of benzo[a]pyrene that was more than 50 times higher than the German guideline.

Building on the findings from the 2008 household dust study in Austin, Texas, researchers examined the potential human health effects from incidental ingestion of the PAHs from household dust and soil under several scenarios. One scenario estimated the risks of exposure over the first six years of a child's life, and another examined risks associated with a lifetime of exposure to that environment. In 2012, the authors reported that children living in homes adjacent to pavement with coal-tar-based sealcoat are likely to be exposed to doses of PAHs that are about 14-fold higher than children living in residences adjacent to unsealed pavement, through ingestion of house dust. The scientists concluded that the presence of coal-tar-based pavement sealants is associated with an increase in estimated excess lifetime cancer risk for nearby residents and that much of this calculated excess risk was attributed to exposures to PAHs in early childhood, up to six years of age.

While many of the choices made by the authors in the risk assessment result in conservative (lower) estimates of risk;

given the inherent uncertainty associated with doing risk analysis with relatively small data sets, the authors point to a need for biomonitoring and/or other additional research to better characterize exposure patterns to children and adults.

In 2016, researchers at Oregon State University (OSU) published results from new laboratory analytical procedures that enabled them to analyze for a larger number of PAH compounds in sealcoat. The authors detected several substances in coal-tar sealants that have not previously been analyzed in this product, one of which is projected to be 30 times more potentially carcinogenic than benzo[a]pyrene. The OSU study also showed that including new PAH compounds found in coal-tar sealcoats increased the equivalent dose of carcinogenic PAHs by 4 percent to 40 percent, using the proposed RPFs. By contrast, the study showed that compounds from asphalt-based sealcoat (more commonly used in the Western U.S.) were far less hazardous than coal-tar-based sealcoat.

Exposure to PAHs in Urban Streams and Lakes

Research has shown that coal-tar sealcoat use accounts for as much as one-

half to 90 percent of the PAHs in urban streams, lakes, and stormwater ponds. Exposure to PAHs from swimming and other contact recreation in streams and lakes is generally not considered to pose a human health risk because most of the compounds of concern usually associate with sediment where the exposure is typically low and infrequent. Potential risks associated with other forms of dermal contact, for example, when children are playing on sealed surfaces or in soil has not been investigated.

Exposure to Volatile PAHs from Asphalt Surfaces

In addition to exposure of PAHs from particles and dust that abrades from pavement coated with sealcoat, individuals can be exposed to several lower molecular weight PAHs in coal-tar-based sealcoat that are volatile and emanate from asphalt surfaces after sealcoat is applied. The volatile characteristics of these compounds, including naphthalene (the key ingredient in mothballs) is why freshly sealed

parking lots and driveways frequently give off a strong smell (Figures 3). A recent study that compared measured concentrations of PAHs in the air above parking lots with and without coal-tar based sealcoat found that concentrations of eight PAHs were, on average, 60 times higher than concentrations above unsealed pavement, even though the sealants were applied 3 to >8 years before the study. A second study found that the total amount of eight PAH compounds in air just after sealcoat application was about 5,000 times higher than the amount above unsealed parking lots and that one quarter to one half of the PAHs in the applied sealcoat volatilized during the first 16 days following application. The amounts suggest that PAH emissions from new applications of coal-tar based sealant each year are larger than vehicle emissions of PAHs for the United States. Risks associated with exposures to these compounds has yet to be studied, though any such contact would be expected to be greatest for professional applicators of sealcoat products and relatively low for others).



Figure 3. Individuals can be exposed to several lower molecular weight PAHs in coal-tar-based sealcoat that are volatile and emanate from asphalt surfaces after sealcoat is applied. Risks associated with exposures to these compounds has yet to be studied, though any such contact would be expected to be greatest for professional applicators of sealcoat products and relatively low for others. Photo: Peter Van Metre.

Restrictions on Use of Coal-Tar Sealants

Based on the numerous scientific publications that detail environmental contamination and the potential for adverse health effects, two states and several counties and cities have banned the use of coal-tar based sealants in their jurisdictions. These jurisdictions are listed in the frequently asked questions later in this issue. In summer 2016, EPA proposed a rule that industrial facilities that use coal-tar-based pavement sealants will not be able to register for a stormwater permit. In November 2016, the American Medical Association adopted a new policy aimed at reducing or ending the use of common coal-tar-based sealcoats that are used and applied on pavement and playgrounds across the country. The new policy advocates for legislation either to ban the use of pavement sealcoats containing polycyclic aromatic hydrocarbons (PAH) or to mandate the use of sealcoat products with minimal PAH concentrations.

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Toxicity of Coal-Tar Pavement Sealant to Aquatic Animals

Jenifer McIntyre

In 2010, residents of Boone, North Carolina, called their fire department to report the unusual smell of mothballs in the air. Nearby, officials found that dead crayfish and trout littered Hodges Creek. Naphthalene is the volatile chemical that gives mothballs their particular smell; it belongs to a group of chemicals called polycyclic aromatic hydrocarbons (PAH). What was the sudden source of the naphthalene and was it tied to the fish kill? It turns out that a parking lot with a storm drain to Hodges Creek had been treated with coal-tar sealant just prior to a large rainstorm, which had flushed much of the sealant into Hodges Creek. This creek is located in a highly urbanized area with multiple potential sources of toxic chemical inputs. However, the sudden and complete die-off of resident fish and invertebrates for 1.5 miles downstream of the parking lot following the rain event does not leave much doubt as to the cause. Applicators avoid applying sealcoat prior to rain, but this unfortunate event highlights the toxic potential of coal-tar sealcoats to aquatic animals.

What is Coal Tar?

As described in earlier articles of this volume, coal tar is a byproduct from processing coal, mainly for the steel industry. Coal-tar pitch is the sludge left over after further refinement of coal tar by distillation. These coal products have many uses in industry and manufacturing. Coal tar is sometimes used topically to treat skin conditions such as psoriasis and dandruff, and was the original source of the analgesic drug acetaminophen! Coal tar or coal-tar pitch is the main ingredient in most coal-tar-based pavement sealants. Chemically, coal tar and coal-tar pitches are a complex mixture of hydrocarbons

– many of which are PAHs and related compounds. Coal-tar-based sealants are predominantly used in the central, eastern, northern, and southern U.S. Asphalt-based pavement sealants – used predominantly in the western U.S. – contain many of the same chemicals, but at much lower concentrations (approximately 1,000 times less). Coal tar and its distillates are known human carcinogens.

Toxicity of PAHs

Many of the aromatic hydrocarbons in coal tar and coal-tar pitch are carcinogenic, and can cause mutations, birth defects, and even death. Additionally, many PAHs are phototoxic – that is, toxicity is substantially increased when exposed to the ultraviolet radiation (UV) in sunlight. In humans, this is relevant to topical applications such as treatment for skin conditions, and unintentional skin exposure – for example, workers at foundries and coal tar or tar roofing applicators.

In addition to being toxic to humans, many of the PAHs and related compounds that leach from coal-tar sealcoat are also toxic to aquatic animals, including fish and aquatic invertebrates. Scientists describe toxicity in a number of different ways. One way is to determine whether the toxic effect occurs after a brief exposure (hours to days = acute) or after a longer exposure (weeks/months/years = chronic). The 2010 fish kill in Hodges Creek after the accidental wash-off of coal-tar sealant is an example of an acute effect because the mortality occurred after just a few hours. Cancer is an example of a toxic effect resulting from chronic exposure. This is because the cellular injuries that ultimately cause cancer take time to build up.

Another way to assess toxicity is whether the effects are lethal or sublethal. Lethal effects are those that result in mortality (death) of the organism. Sublethal effects impair or harm the organism in some measurable way, but do not directly kill it. For example, fish embryos exposed to low levels of the PAH phenanthrene develop eyes with shorter retinas and smaller lenses, which impairs their vision. Importantly, sublethal effects can indirectly cause mortality. For example, impaired vision is a sublethal effect, but it can hinder important behaviors like feeding and predator avoidance – indirectly leading to the death of the fish in the wild.

PAHs also include many chemicals that are “cardiotoxic” – affecting heart development and/or function. For example, fish embryos exposed to PAH mixtures develop subtly misshaped hearts that cannot pump as much blood as normal hearts. This in turn results in poorer swimming performance that affects the ability of fish to survive and thrive in the wild. Further, through all developmental stages, some PAHs can directly impair heart function by blocking potassium channels in heart muscle cells, which causes arrhythmia. A final important concept of toxicology is that “the dose makes the poison.” Typically, stronger effects occur at higher concentrations and/or longer exposure durations. Therefore, a compound that causes sublethal effects at one concentration may be lethal at a higher concentration and/or longer exposure time. For example, if the PAH exposure continues for hours, the cardiac arrhythmias from blocked potassium channels in cardiac muscle cells can be fatal.

PAHs in Coal-Tar Sealcoat

The PAHs and similar contaminants in coal-tar sealant can come into contact with aquatic animals through a number of exposure routes. They can be dissolved directly from the sealant surface or from tiny eroded particles of sealant. This means that water simply passing over a coal-tar-sealed surface will pick up toxic contaminants. Larger particles – often “flakes” – of sealcoat that are worn from the sealcoated surface wash into streams and lakes where they are incorporated into the sediment. Aquatic animals can ingest those particles, in which case the contaminants are released and become ‘bio-available’ inside the animal’s gut. The larger particles also provide a long-term source of contaminants that can be leached off of the particle. Coal-tar-sealed pavements are the largest source of PAHs to streams in areas that commonly use this type of sealant. Several studies, using a variety of methods, have demonstrated the link between use of coal-tar-based pavement sealants and PAHs in aquatic sediments. This topic is further discussed in “Trends and Sources of PAHs to Urban Lake & Streams,” page 8 in this issue.

Environmental scientists have documented toxicity to aquatic animals from different types of exposure to coal-tar sealant. In some studies, water is applied to a sealcoated surface to simulate stormwater runoff (Figure 1) and the runoff is tested immediately for toxicity to aquatic animals. In these studies, the test organisms (fish or aquatic invertebrates) typically are exposed to the water for a short duration (days). These exposures measure “acute” impacts. Many of the studies have investigated how the toxicity of runoff changes as the sealant ages, or “weathers,” over months to years. In other studies, flakes of dried sealcoat are added to water or to clean stream sediment prior to adding aquatic animals. In these studies, the test organisms are typically exposed to the water or sediment for a longer duration (weeks), measuring impacts from “chronic” exposure.

Toxicity to Aquatic Animals from Acute Exposure

Runoff water collected within hours of coal-tar sealcoat drying is consistently lethal to fish and aquatic invertebrates (Table 1). This is because of the high



Figure 1. Coal-tar sealant application (A) and a sprinkler system to simulate rain on coal-tar-sealed pavement at Washington State University (B).

concentrations of contaminants that dissolve into runoff water after the sealcoat is first applied. Concentrations of some contaminants (e.g., the PAH phenanthrene; Figure 2) decrease rapidly over the first few days following application, but runoff waters continue to be toxic for a surprisingly long time. A study in Texas collected water from parking spaces with coal-tar sealcoat

applied. Runoff water was generated at intervals between 5 hours and 111 days after sealant application. Daphnia – tiny hard-shelled aquatic invertebrates – and juvenile fathead minnows were placed in these waters and their survival monitored for 48 hours. The researchers saw 100 percent mortality even 36 days after the sealant was applied. For coal-tar-sealed plots 36 to 111 days old, the daphnia

Table 1. Studies of the Toxicity of Coal-Tar Sealant to Aquatic Animals.

Organisms	Tissue	Exposure Duration	Time since sealcoat application	Coal-tar sealant source	Sediment ΣPAH (mg/kg) ^a	Water ΣPAH (µg/L)	Toxic Effect	UV ^b or other treatment
<i>Daphnia magna</i> and fathead minnow (<i>Pimephales promelas</i>)	Whole	48 h	5 h – 36 d	Runoff water	n.a.	167-367	100% dead	UV: 100% dead
<i>Daphnia magna</i> and fathead minnow (<i>Pimephales promelas</i>)	Whole	48 h	68 - 111 d	Runoff water	n.a.	167-367	<20% dead	UV: 100% dead
Zebrafish embryos (<i>Danio rerio</i>)	Whole	48 h	2 h	Runoff water	n.a.	1040	100% dead	
Zebrafish embryos (<i>D. rerio</i>)	Whole	48 h	7 - 207 d	Runoff water	n.a.	137-164	>60% hearts abnormal	Unsealed: no effect
Rainbow trout (<i>Oncorhynchus mykiss</i>)	Liver cells	48 h	5 h – 36 d	Runoff water	n.a.	1.7-36	1%, 10% runoff: no DNA damage	UV: 1%, 10% runoff: DNA damage
Juvenile salmon (<i>Oncorhynchus kistutch</i>)	Whole	96 h	2 h	Runoff water	n.a.	1040	100% dead	
Juvenile salmon (<i>O. kistutch</i>)	Whole	96 h	7 - 207 d	Runoff water	n.a.	137-164	10-55% dead	^c Unsealed: no effect
Medaka embryos (<i>Oryzias latipes</i>)	Whole	9 d	1-2.5 years	Runoff water ^d	n.a.	n.m.	23% dead, DNA damage	UV: No additional DNA damage
Frog embryo (<i>Xenopus laevis</i>)	Whole	10 d	n.a.	Dried flakes in water	n.a.	1310 mg flake/L	100% dead	Not tested
Midge (<i>Chironomus dilutes</i>)	Whole	10 d	unknown	Parking lots	0.6-208 ^e median: 33	n.m.	Reduced mass	
Newt (<i>Nothophthalmus viridescens</i>)	Whole	28 d	n.a.	Dried flakes in sediment	8-1149 median: 57	160-1464	Liver damage, impaired righting behavior	Asphalt sealcoat flakes: no effect
Salamander (<i>Ambystoma maculatus</i>)	Whole	28 d	n.a.	Dried flakes in sediment	48-1360	66-263	Impaired swimming	UV: blood cell changes
Amphipod (<i>Hyalella Azteca</i>)	Whole	28 d	unknown	Parking lots	0.6-208 ^e median: 33	n.m.	Reduced mass	UV: 31% sites increased death; 69% sites immobility
Benthic macroinvertebrates	Community	24 d	n.a.	Dried flakes in sediment	5.8-324 median: 11		Altered	
Benthic macroinvertebrates	Community	Field	unknown	Parking lots	0.7-32 ^f median: 7	n.m.	Less richness and density as sediment PAHs increased	
Frog embryo (<i>Xenopus laevis</i>)	Whole	52 d	n.a.	Dried flakes in water	n.a.	15,131 mg flake/L	Developmental delay	

^a dried sediment weight^b UV following water exposure^c exposure to runoff from u sealed pavement^d runoff in retention pond at least 7 days old^e sediments from 33 streams^f downstream of input from parking lots at 5 sites

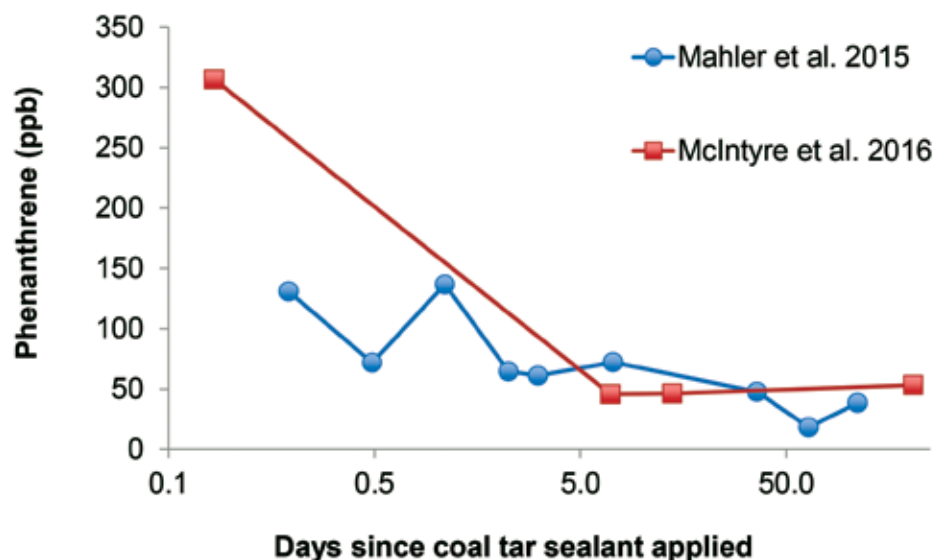


Figure 2. Decrease in the PAH phenanthrene in runoff water over time after coal-tar sealcoat application. Data from Mahler et al. 2015 and McIntyre et al. 2016.

and minnows placed in runoff water survived – unless they were exposed briefly to UV radiation at the end of the 48-hour monitoring period, in which case they all died. This was true even for runoff water diluted 1:10. In contrast, runoff from a mixed coal-tar and asphalt-based sealcoat was toxic to the animals only if they also got a dose of UV. In daphnia, runoff from the asphalt-based sealant was phototoxic for 36 days after sealant application, but for minnows the phototoxicity of the coal tar + asphalt sealant lasted less than one week after sealcoat application.

A study in Washington tested runoff water from pavement sealed with coal tar on juvenile salmon (*Oncorhynchus kisutch*) and the developing embryos of zebrafish (*Danio rerio*). Toxicity remained high enough seven months after sealant application for runoff to kill 55 percent of juvenile salmon within 96 hours. The bile of surviving salmon was black instead of a healthy pale green (Figure 3), indicating that the fish were actively metabolizing the coal-tar chemicals. Runoff from the seven-month-old sealcoat also caused cardiovascular abnormalities in more than 60 percent of developing zebrafish embryos within 48 h (Figure 4). In contrast, unsealed pavement from an adjacent plot did not cause any mortality or sublethal toxicity in either species over the exposure time. Acute toxic effects were also seen in frog embryos (*Xenopus laevis*) reared in water containing coal-tar sealant flakes. All of the embryos exposed to the highest dose of flakes (1,301 mg/L) died within ten days (Table 1), even though the contaminated water was replaced with fresh water daily.

Finally, a study with Japanese killifish embryos (*Oryzias latipes*) tested water sampled from a detention pond receiving runoff from a parking lot sealed with coal tar. Approximately one year after the sealcoat was applied, the pond water killed 17 percent of killifish embryos within 9 d of exposure. Approximately 2.5 years after the sealcoat was applied, embryos exposed to the pond water showed significant damage to their

DNA. It is important to note that many of the contaminants in coal-tar sealant, including PAHs, are “organic” chemicals. This refers to the fact that they are made up of carbon and hydrogen and as such can be degraded by bacteria. The result is that, typically, these chemicals will lose potency over time once they are dissolved in natural waters. This is an important study not only because the sealcoat itself was older, but also because the water used in these experiments was collected from the retention pond more than one week after the most recent rainfall. As such, there would have been significant degradation of the chemicals carried from the parking lot into the pond.

Toxicity to Aquatic Animals from Longer Exposures

Several studies have added flakes of coal-tar sealant into clean water or

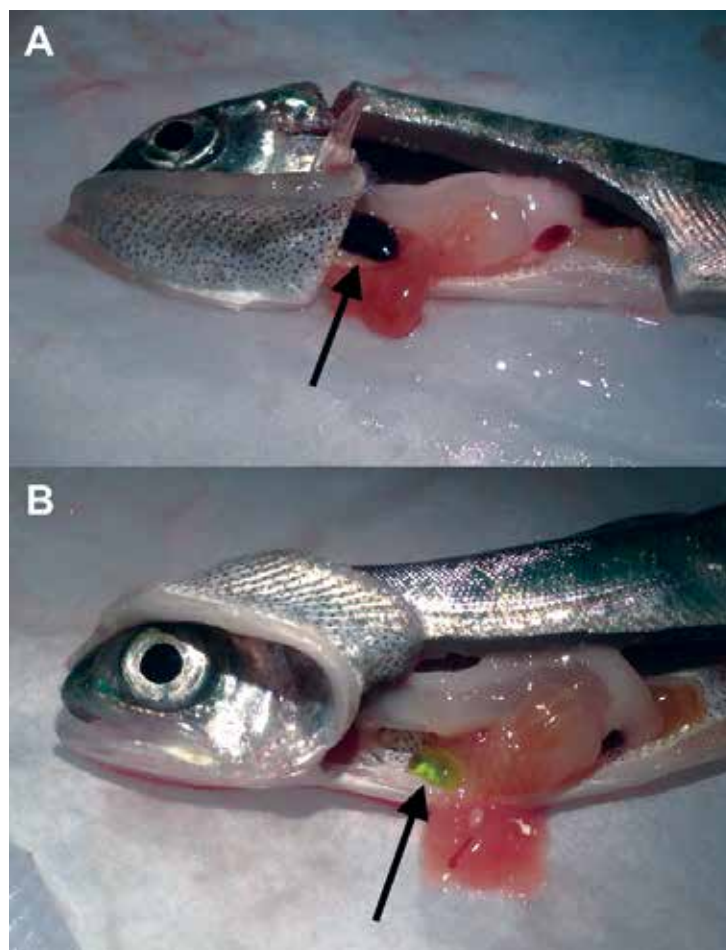


Figure 3. Bile from the liver is excreted into the intestines for removal from the body. Gallbladder containing bile is indicated by a black arrow. (A) The bile of salmon surviving exposure to runoff from coal-tar sealcoat was black. (B) The bile of control salmon and salmon exposed to runoff from unsealed pavement was a healthy pale green.

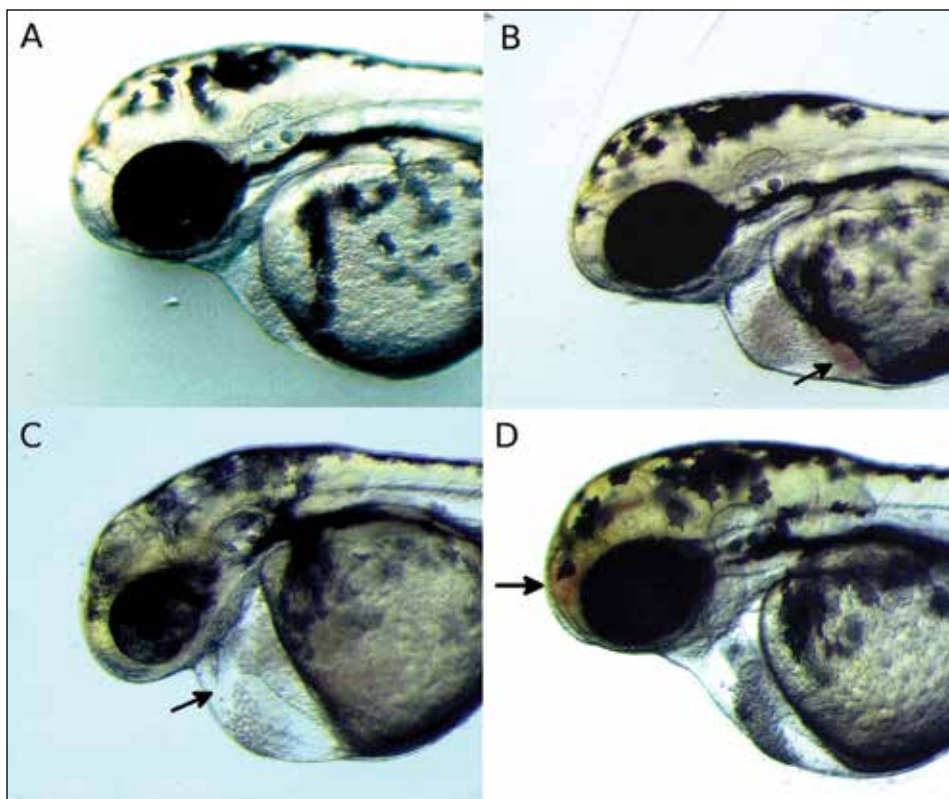


Figure 4. Zebrafish embryos following exposure to (A) control water or (B-D) runoff from coal tar sealcoated pavement showing various cardiovascular abnormalities. (A) Normally developed embryo. (B) Blood pooling in the common cardinal vein. (C) Pericardial edema – fluid accumulation around the heart. (D) Cranial hemorrhaging from broken blood vessels in the head.

sediments and studied the chronic (weeks) toxicity to aquatic vertebrates including frogs, newts, and salamanders (Table 1). Frog embryos exposed to dried coal-tar sealant flakes in water at medium (131 mg/L) and low (15 mg/L) doses survived the full exposure of 52 days, but by 14 days, the embryos had significant developmental delay. By 52 days, 66 percent of the control tadpoles had metamorphosed into frogs, but none of those exposed to either the low or medium doses reached metamorphosis. Eastern newts (*Notophthalmus viridescens*) showed evidence of liver damage after 28 days associated with sediments containing coal-tar sealant flakes. The amount of liver damage was related to the amount of PAHs that dissolved in the water. Similarly, salamanders (*Ambystoma maculatum*) exposed to sediment with coal-tar sealant flakes had impaired swimming ability. However, exposure to flakes of asphalt-based sealcoat produced much lower levels of dissolved PAHs and did not cause measurable impairment.

Many aquatic invertebrates are closely associated with sediments. These “benthic” invertebrates include families like amphipods that spend their whole lives in or near the sediments, while others like midges or mayflies eventually emerge from water and metamorphose into flying insects. During their benthic phase, these invertebrates are especially vulnerable to particles from coal-tar sealant. Changes in entire benthic invertebrate community composition have been observed when exposed to clean sediments with added flakes of coal-tar sealcoat. Furthermore, in streams receiving runoff from parking lots with coal-tar sealant scientists have observed a clear negative relationship between concentration of PAHs in sediments and the number and diversity of aquatic invertebrates. The most recent study on the toxicity of coal-tar sealant to aquatic invertebrates used sediment collected from streambeds at 33 sites around Milwaukee, WI. A midge species (*Chironomus dilutus*) was reared with the Milwaukee sediments for 10 days and an amphipod (*Hyalella azteca*) for 28

days. There was no significant mortality for either species, but the animals lost weight when exposed to sediments from 19 percent of the sites. Following a four-hour UV exposure, *H. azteca* survival was reduced at 1/3 (31 percent) of sites, and mobility was impaired at 2/3 (69 percent) of sites. PAH concentrations at nearly all of these sites (91 percent) had PAH concentrations above the sediment quality guideline (probable effect concentration) of 22.8 mg PAH/kg sediment, the concentration at which negative effects to benthic animals are likely.

Is Phototoxicity Relevant to Aquatic Animals?

Some have argued that UV-induced phototoxicity of PAHs is not relevant to animals living underwater, because UV radiation dissipates with depth. However, many of the streams where animals are exposed to sediments with elevated PAHs are shallow and the water is typically clear – making the laboratory exposures similar to actual conditions in the wild. Additionally, many aquatic animals and/or their embryos are translucent or clear, which increases their vulnerability to phototoxic PAHs.

Summary

Healthy ecosystems provide economic and health benefits to humans. Ecosystems made unhealthy by chemical pollution do more than deny us these benefits – they are mirrors that link our welfare to that of other animals. Numerous research studies show that toxic chemicals from coal-tar sealcoats can cause a suite of toxic injuries in a variety of invertebrates, amphibians, and fish. These injuries include mortality as well as sublethal effects such as DNA damage, cardiotoxicity, developmental delay, and alterations of critical behaviors. In contrast there appears to be relatively little toxicity associated with unsealed pavements or pavements sealed with asphalt-based products. Finally, sunlight can exacerbate the toxic effects of exposure to PAHs, particularly for animals living in shallow water. In response to the 2010 fish kill on Hodges Creek mentioned in the introduction to this article, council members of Boone, North Carolina, passed strict regulations to discourage the use of coal-tar-based products as

pavement sealers. Similar and even more stringent regulations have been enacted elsewhere in the U.S. in recognition of the risks that these sealants pose to human and non-human health.

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Dr. Jenifer McIntyre is an assistant professor of aquatic toxicology at Washington State University in Puyallup, WA. Her major research goals include understanding the impacts to aquatic animals of contaminants present in urban stormwater runoff, and the biological effectiveness of green stormwater infrastructure to prevent those impacts.



(Student Corner, continued from p. 39 . . .)

Andrew Labaj, M.Sc., is currently pursuing a Ph.D. in biology at Queen's University, Ontario, Canada in the Paleocological Environmental Assessment and Research Laboratory (PEARL). His M.Sc. work used paleolimnology to assess the biological recovery of lakes surrounding Sudbury, Ontario. Andrew's current research uses paleolimnology to examine the impacts of climate change in the high-elevation lakes of the South American Andes.



Branaavan Sivarajah, M.Sc., is currently pursuing his doctoral research with PEARL at Queen's University, Ontario, Canada. For his M.Sc. project, Branaavan used paleolimnological techniques to examine the cumulative effects of multiple stressors on aquatic ecosystems around Georgian Bay, Lake Huron, including acidified lakes in Killarney Provincial Park near Sudbury, Ontario. Branaavan's current research focuses on assessing the long-term biological consequences of arsenic contamination in subarctic lakes from Yellowknife, Northwest Territories.



The Host Committee is busy working on the details for the 37th annual Symposium. Potential highlights include nature photography workshop, new aeration/oxygenation workshop, field trip to Lake Dillon, factory tours for local probe manufactures, and a visit to the USGS ice core laboratory.

Protecting Urban Waters & Sediments in Minnesota & the Great Lakes Region

Al Innes*

Recent action to reduce PAHs from coal-tar sealcoats to protect urban waters and sediments in Minnesota and the Great Lakes region

Background

Since its establishment in 1990, Minnesota's Toxic Pollution Prevention Program approach has been applied broadly to an array of existing and emerging environmental issues in addition to toxic waste including inefficiencies in energy and water use. Addressing environmental issues where they originate, before there is an impact, has helped improve companies' net profits, while helping to improve health, environment, and sustainability of natural resources.

In recent years, environmental monitoring and research has detected the presence of existing as well as new and emerging contaminants in people and the environment that are released during or after the use of a product, including plastics monomers, plasticizers, surfactants, flame retardants, fragrances, corrosion inhibitors, pigments, pharmaceuticals, and polycyclic aromatic hydrocarbons (PAHs). In response, the Minnesota Pollution Control Agency (MPCA) has used the prevention approach to promote green and safer chemistry and engineering of products.

This article reviews the application of this approach to the release of polycyclic aromatic hydrocarbon compounds (PAHs) from coal-tar-based sealcoats in Minnesota and elsewhere around the Great Lakes.

Why Coal-Tar Sealcoat Became a Priority in Minnesota

As described in other articles in this issue, research findings reported in the early 2000s revealed increasing PAH contamination in sediments collected from urban lakes, linking a significant proportion of that contamination to stormwater runoff from asphalt surfaces covered with coal-tar sealcoat. These findings were of immediate interest in Minnesota, where lakes and rivers have high social, cultural, recreational, and commercial value, and therefore have a strong history of protection through policies and programs.

Local governments have long provided the foundation of the state's stormwater management infrastructure. However, after 20 or more years of service, the stormwater catchments in many Minnesota cities are filling with sediment, particularly near stormwater entry points, reducing their ability to capture both runoff volume and pollutants. At the same time, the state has developed its municipal separate storm sewer system (MS4) program, which requires cities to monitor and clean out stormwater ponds.

Finally, Minnesota applies standards for cleaning up and managing contaminated sediments that can be quite stringent for high levels of individual and/or total PAHs in sediments due to their carcinogenic potential and persistence. Sediments that have high concentrations of PAHs must be transported to and disposed of at a permitted landfill with a liner sufficient to prevent the escape of contaminants.

The transport and disposal of sediment with high concentrations of PAHs can cost cities as much as \$50 per cubic yard, up to three times the cost of on-site management such as berming. With 5,000 yards³ or more of highly contaminated sediment built up in some areas in ponds, the costs for cleaning out such ponds mount quickly. In 2010, MPCA estimated that if 10 percent of sediments in 20,000 Minnesota ponds exceeded the most stringent PAH standard, the total cost of clean up to Minnesota cities could exceed \$1 billion (Figure 1).

Minnesota promotes reductions of other active sources of PAH contamination such as wood fires and vehicle emissions. However, by 2009 the weight of evidence from research identified coal-tar sealcoat as a substantial source, and one of the more readily preventable ones. The specter of the enormous cost for sediment clean up therefore led cities to approach the Minnesota Legislature for remedies. In 2009, a statewide ban on coal-tar sealcoat use was proposed. However, instead of a statewide ban, the Legislature:

1. enacted a ban on state agency use;
2. required that cities inventory and assess their stormwater ponds;
3. directed the development of a model ordinance for local bans of coal tar;
4. provided grants to underwrite the cities' costs of sediment clean-up if they enacted a local ban.

Local bans would not solve current contamination issues. However, they would slow the rate of future contamination, reducing the future costs of clean up. Minnesota cities began enacting local bans in 2010 and within

*with contributions from Cheryl Kallio, *Freshwater Future*



Figure 1: Excavation of sediment from Varney Pond, White Bear Lake, Minnesota; left, before; right, in process.

three years, 29 were in place, primarily in the Twin Cities suburbs but with others sprinkled around the state.

Genesis of a Pollution Prevention Project

Because of these developments, by 2011 an environment of heightened awareness existed, accompanied by pressure on municipalities and the sealcoat supply chain. However, with most state waters not yet protected by bans, the MPCA decided to promote a voluntary phase-out of coal-tar sealcoat on a statewide basis. Since research around the Great Lakes Basin was finding coal-tar-sealcoat-based PAHs at significant levels at all study sites, MPCA teamed with the University of Wisconsin-Extension Solid & Hazardous Waste Education Center and the Michigan Department of Environmental Quality to propose a more far-reaching project.

MPCA was awarded a grant from U.S. EPA's Great Lakes Restoration Initiative (GLRI) program to support a coal-tar sealcoat pollution prevention project first in Minnesota, and then spreading education and effective prevention tools across the Great Lakes region (Figure 2).

Based on 21 years of experience in pollution prevention programs, MPCA had concluded that many conditions necessary for success were in place in Minnesota:

- Heightened awareness and concern over the cost of coal-tar PAH impacts – strengthened by sediment research in Minnesota showing local occurrences of high PAH levels with more than 50 percent contributed by coal tar;
- Pressure on retailers, distributors, and contractors from the accelerating pace of local bans;
- Availability of safer and affordable sealcoat alternatives. Pollution prevention outreach is more effective when the promoter is able to make referrals to feasible alternatives;
- Endorsement of the performance of asphalt based alternatives by the Minnesota DOT and other pavement experts. This was important because pavement preservation is a shared goal, for both economic and environmental reasons.

Implementation in Minnesota and Wisconsin

In the early stages of the project, MPCA and the University of Wisconsin-Extension worked with others to develop:

- Educational materials including guidance to assist pavement owners transition away from the use of coal-tar sealcoat. Guidance was prepared considering all alternative technologies (asphalt-based, acrylic, gilsonite, plant oil) but featured asphalt-based as the most proven and price-competitive.

- An inventory of providers (retailers, suppliers, contractors) of safer alternatives. Preparing the inventory was a significant effort that involved mining multiple data sets to locate the names and addresses of providers; crafting messages that would be compelling to busy owners of (mostly) small businesses; and following up with them by mail or e-mail. In response, and spurred by awareness of local concerns, 77 contractors and suppliers, or about 25 percent of those thought to be active in Minnesota at the time, signed a pledge not to apply coal-tar sealcoat.

Telephone surveys conducted later in the project resulted in ten completed interviews with contractors and suppliers in this pledged group. That group of ten reported eliminating 93,500 gallons of coal-tar sealcoat use per year. The PAH reduction associated with that amount is difficult to pinpoint, since sealcoat PAH concentrations may vary by batch, by company, or by varying methods of estimating concentrations found in the literature or in product data sheets. MPCA therefore presents reductions estimates for the group of ten respondents as a range, anywhere from 28 to 50 tons per year. Minus outliers, the average coal tar volume per contractor per year for this group was about 5,000 gallons.



Figure 2: Great Lakes Basin research.

In Wisconsin, 311 applicators were contacted: 26 (8 percent) signed a commitment not to apply coal-tar sealcoat. MPCA attributes this response to the fact that many western Wisconsin providers serve the Twin Cities, Duluth, or other border markets; the presence of a ban in Dane County (Madison), Wisconsin; and published findings from sediment PAH research conducted in the Milwaukee area.

As a resource to support pavement owners seeking providers of safer alternatives, MPCA staff produced an on-line map and listing of the applicators and suppliers in the Great Lakes area who signed a certification that they would not to apply coal-tar sealcoat (<https://www.pca.state.mn.us/water/find-contractors-applying-safer-sealcoat>). The map was later enhanced to include points where restrictions are in place.

- With supporting conditions and resources in place, project partners focused on educating owners and managers of properties that typically

require the maintenance of asphalt pavement. The target audience included school districts, shopping center and other commercial property owners and managers, hospital associations, industrial stormwater permittees, and faith-based organizations. Assistance in multiplying the message was accomplished by working with business assistance providers involved with environmental compliance and pollution prevention; the League of Minnesota Cities and city networks and other organizations in the Great Lakes area involved with resource sustainability or environmental protection; stormwater professionals, extension service networks; Parent Teacher Associations, and pavement engineers and associations. Information distribution was accomplished using web pages, e-mail blasts, targeted mail, phone calls, webinars, and press releases and interviews.

In all, MPCA estimates the project partners contacted over 31,000 organizations and individuals with

indirect messaging (through facilitators), 7,550 of these with messages generated directly by the partners.

Implementation in Michigan and Eastward

While outreach efforts in Minnesota and Wisconsin progressed well and produced reasonable results, the Michigan Department of Environmental Quality (DEQ) did not have the resources necessary to replicate the same level of outreach. Instead, Michigan focused its efforts on educating their pollution prevention and sustainability networks and on assessing the possibility of developing contaminated sediment clean-up standards and municipal separate storm sewer system (MS4) permits, which were already present in Minnesota and provide the necessary foundation for regulation.

Because some of the lack of response in Michigan and other Great Lakes states and provinces may have been due to the fact that the outreach was coming from an unfamiliar source, MPCA decided in fall 2013 to package the remainder of its

GLRI funds as a grant to an organization outside Minnesota or Wisconsin that could undertake a coordinated outreach effort to pavement owners and sealcoat providers in their geographic area. Freshwater Future, the Michigan water protection network and service provider, was awarded the grant and developed the outreach effort through the rest of 2014.

Freshwater Future is a very different originating organization than MPCA or Wisconsin-Extension: nongovernmental, activist, grassroots, and locally oriented, with a readymade network of Michigan municipalities and community-based watershed and public health protection organizations. In addition to organizations located in Michigan, Freshwater Future's membership also includes networks of organizations outside the state, across the Great Lakes Basin. The core of their work plan was to educate these networks on coal tar PAH issues, recruit partners from among those networks, and with those partners, implement local pollution prevention and regulatory initiatives that would protect community members and their waters.

At MPCA's direction, and with its technical assistance, Freshwater Future first carried out statewide contractor outreach, generating a list of 740 companies and contacts (many of which turned out not to be active), and seeking a pledge to reduce or eliminate coal-tar sealcoat applications. However, there was little response to this effort from Michigan suppliers and contractors. Michigan has nine pledged companies now, and most of those responded to independent local efforts in the Grand Rapids area in western Michigan and the Huron River watershed area in the southeast. Only two in Michigan and four in Ontario responded to Freshwater Future. This led Freshwater Future and MPCA to conclude that additional local awareness and impetus from the user/owner/community end of the supply chain was necessary – and might lead eventually to greater response by providers.

Freshwater Future ramped up outreach to local organizations and municipalities to build awareness of coal-tar PAH impacts. Ten organizations around the Great Lakes signed on to assist, and 11 others agreed to educate their stakeholders. Freshwater Future

found that whenever they approached a new audience with information on coal-tar PAH hazards, there were questions as to why the purpose of the outreach was not aimed primarily at regulatory bans. It took nuanced explanation to show that bans were difficult to accomplish politically, may not be a tool available in charter to all municipalities, and might only be applicable to public property (not private) or to use (not sales).

Nevertheless, some 40 of the 77 Michigan cities and townships Freshwater Future approached considered ordinances or resolutions banning coal tar use on publicly owned property, sometimes on private property (citywide), or if not bans, then education and promotion of safer alternatives with their citizens. Thirteen municipalities adopted resolutions during the project.

In conjunction with these efforts focused on local government, Freshwater Future approached two types of entities not previously targeted in Minnesota and Wisconsin: one on the user/owner end of the supply chain (168 universities and colleges), and the other on the supply end (205 distributors and local hardware stores in the targeted geographic jurisdictions). Five U.S. and two Canadian universities committed to eliminate or reduce coal tar use, while among retailers, 36 stores considered not selling coal-tar sealcoat; ultimately, nine made that commitment.

In the course of the project, Freshwater Future's outreach energized the Huron River Watershed Council (HRWC) in southeast Michigan on the coal tar issue. HRWC's subsequent education of local governments in the watershed led to four new restrictions on coal tar use, and in a couple of those cases, to limits on the concentrations (either 0.1 percent or 1 percent by weight) of total PAHs present in sealcoat. A group of governments west of Chicago also adopted this approach of limiting total PAH content.

MPCA estimates that 62 organizations outside Minnesota and Wisconsin and on the user or purchaser end of the supply chain made decisions to eliminate or reduce coal-tar sealcoat in response to the project's outreach.

Imposing limits to total PAH content as a different approach to regulation was

spurred by the industry's introduction in 2015 of a non-coal-tar sealcoat based on steam-cracked petroleum residues (CAS 64742-90-1). While not as high as coal tar in total PAHs or the heavier molecular weight PAHs that end up in sediments, this material can contain up to 3 percent (30,000 parts per million) total PAHs. In addition, it has high levels of lighter, more volatile PAHs that are an inhalation concern (such as naphthalene, which was clearly connected to carcinogenic activity in animals by the National Toxicology Program in 2001), or medium-weight PAH molecules which can be an aquatic toxicity concern. By comparison, asphalt-based sealcoats contain 0.005 - 0.1 percent total PAHs.

Back in Minnesota, cities renewed their call for a statewide sales and use ban at the 2013 legislative session. That proposal was enacted in May 2013 and has been in effect since January 2014. The numerous local bans, looming sediment clean-up costs, and the 77 contractor commitments indicating willingness within the industry to use alternative sealcoat products – all played a role in the passage of the statewide ban.

Conclusion

While reductions in Minnesota documented by and attributable to the project are relatively small (93,500 gallons per year), one should remember that they are only those reported voluntarily by ten responding contractors, resulting in anywhere from 28 to 50 tons of PAH reductions in those ten contractors' service areas. This may suggest that investing in developing local conditions to drive supply chain change has good potential for significant local PAH reductions.

MPCA concludes that, given conducive supporting conditions, voluntary pollution prevention initiatives can produce real pollutant reductions and build the case for wider-scale (e.g., statewide) restrictions on sales and use. If there is little local awareness, education can spur local government and retailer action to eliminate use, particularly where stakeholders are motivated to protect a local natural resource perceived to hold high value.

MPCA's Pollution Prevention Program has committed to maintaining

the dynamic page at <https://www.pca.state.mn.us/water/find-contractors-applying-safer-sealcoat>. This will involve continuing to post forms for contractors, suppliers, retailers, municipalities, and universities to use to make commitments to eliminate coal-tar sealcoat use, to accept completed forms and to post their commitments on the map and list on that page. The other pages linked there are more static, so their maintenance should also be feasible.

MPCA will also monitor research to assess sediment coal tar PAH levels in areas where prevention projects or bans have been implemented. One such study suggests that reductions may begin to show up in sediment in as little as eight years. Planning and securing resources for a 2024 follow-up at Minnesota sites studied 15 years earlier might demonstrate the value of reduction efforts.

Possible Future Efforts

1. *Expand partnerships with hospitals, other care facilities, medical organizations and schools.* A number of those that MPCA and partners contacted suggested that health care and educational institutions would be interested in acting on coal-tar sealcoat use – the medical facilities for public health purposes, and the schools to protect their students. MPCA conducted some outreach to hospital and health care associations, but did not invest resources in a full partnership and direct outreach. This could be a productive approach, and yield subsequent support from health facilities and associations as a public health improvement opportunity.

2. *Consider developing and offering applicator trainings.* MPCA worked with a local provider to develop training for winter maintenance (road salt reduction) providers to address increasing chloride contamination in urban lakes and streams. Much of the early resistance by sealcoat contractors to the use of coal tar alternatives was due to early formulations that did not perform well and have since been improved, and to the use of application methods suited to coal tar but not for the alternatives. Training would help to alleviate contractors' concerns, elevate professionalism, and improve the performance of alternatives.

3. *Support the development and acceptance of cost-competitive, zero-PAH sealcoats.* As suggested earlier, one response from the sealcoat industry to pressure on coal tar was to introduce another high-PAH alternative in 2015. Technically legal in areas with a coal tar ban, this option nevertheless releases carcinogenic and toxic PAHs that can be harmful to people and animals. In addition, this alternative product smells and reacts to other screening tests exactly like coal tar when applied, making compliance with sealcoat restrictions more difficult and costly to assess.

The MPCA and its partners would prefer an eventual option that is cost competitive and contains zero PAHs. MPCA has encouraged makers of newer, zero-PAH sealants or rejuvenators to work with transportation departments and other experts to test the pavement preservation performance of their products to standards, and to submit their formulations to EPA's Safer Choice program, Green Seal, or other confidential, third-party certifiers to establish them as clearly safer alternatives.

4. *Leverage sustainability efforts.* There is a growing number of sustainability initiatives within cities, companies, colleges, and community and regional organizations. Developing and acting on information on the use of fertilizers, coal tar sealcoats, or other potentially toxic chemicals in products used by organizations in their business or on their properties would broaden the scope of many organizations' sustainability programs,

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United States Geological Survey Research: PAHs and Coal-Tar-Based Pavement Sealcoat (USGS web site) <https://tx.usgs.gov/sealcoat.html>.

University of Wisconsin-Extension Solid & Hazardous Waste Education Center (fact sheets) <http://shwec.engr.wisc.edu/publications>

- Coal Tar-Based Asphalt Sealcoats – A Health and Environmental Hazard
- Non-Coal Tar applicators
- Avoiding High Costs from Stormwater Sediment Contaminated by Coal Tar-Based Asphalt Sealcoats

For the past 7 of his 22 years at the Minnesota Pollution Control Agency, **Al Innes** has been leading the agency's initiatives to support safer product chemistries that reduce environmental loadings of hazards. Prior to this work, Al led several MPCA initiatives using pollution prevention and environmental management systems approaches in permitting, inspections, self- and third-party auditing, and performance-based incentive programs. He has delivered pollution prevention assistance through grants, outreach, and training, both at MPCA and in the non-profit sector previously. You may contact Al Innes (alister.innes@state.mn.us) for further details and lessons learned from the project. 



Frequently Asked Questions:

Polycyclic Aromatic Hydrocarbons (PAHs)

Q) Aren't polycyclic aromatic hydrocarbons (PAHs) also in some foods, medicines, and shampoos? Are the risks to human health comparable?

A) PAHs are present in some foods, medicines, and shampoos. However, the risks from food-derived sources of PAHs and medicinal uses of coal tar are not comparable since these exposures are a matter of consumer choice and the concentrations of those PAH compounds of concern to human health are not the same. The choice to use a product containing coal tar as a treatment for a medical condition is weighed against the potential benefits of the exposure. Generally, medical treatments are limited to those suffering a disease. Consumption of food containing PAHs (such as charcoal-grilled meat) is also a matter of choice. While food exposures may be the greatest exposure to PAHs for most people, typically carcinogenic PAH concentrations in contaminated sediment and soil are two or more orders of magnitude greater than carcinogenic PAH concentrations in food. Because environmental exposures to PAHs can be significant for some people, homeowners and businesses alike are encouraged to ask retailers and commercial applicators for products that are not coal-tar based.

Q) How can I tell if a sealcoat product contains coal tar?

A) To determine if the product has a coal-tar base, look for the Chemical Abstracts Service (CAS) number 65996-93-2, 65996-89-6 or 8007-45-2 on the product Material Safety Data Sheet (MSDS). The words "coal tar," "refined coal tar," "refined tar," "refined coal-tar pitch," "RT-12," "tar" or other similar terms may be listed on the MSDS or on the product container.

Q) How can I tell if the existing sealant on my driveway contains coal tar?

A) The most accurate way to determine whether sealant contains coal tar is to request analysis of the sealant by a laboratory experienced in testing for PAHs. Two inexpensive field tests may be used to help screen for the presence of coal tar. First, coal-tar-based sealcoats typically have a strong mothball-like odor indicative of the presence of naphthalene, whereas, asphalt and acrylic sealcoats do not. Second, the City of Austin, Texas, developed a qualitative screening test to check for the presence of coal tar. The screening test involves collection of pea-sized samples of the top layer of sealcoat, which are combined in a small glass container with a small amount of a paint thinner containing mineral spirits, or aliphatic petroleum distillates. The sample-solvent mixture is gently agitated for up to 30 minutes and evaluated for color change. A translucent amber/yellow color with no significant degradation of the particles is usually indicative of coal-tar sealants. A translucent red/brown color with no significant degradation to the sample is indicative of blended coal tar and asphalt materials. An opaque brown/black color and degradation of the sample material is indicative of asphalt sealant. Steam-cracked petroleum residue sealcoat, a recently introduced product, has been found to have high concentrations of naphthalene. So, new applications of this product will smell similar to coal-tar sealcoat. Steam-cracked petroleum residue

sealcoat will also produce the same result in the solvent test as coal-tar sealcoat. So, the aforementioned screening tests will not discriminate this new product from coal tar sealcoat.

Q) Is the use of coal-tar-based sealant regulated?

A) Coal-tar sealant is banned in several jurisdictions, including the states of Washington and Minnesota; the counties of Dane, Wisconsin; Montgomery, Prince George's, and Anne Arundel, Maryland and Suffolk, New York; the Cities of Austin and San Antonio, Texas, and Washington, D.C.

Q) What "best practices" should be followed in the application of sealcoat?

A) The following best practices should be considered for maintaining asphalt and applying sealcoat.

- **Monitor your pavement's condition and invest in treatments before significant deterioration occurs.** When fully cured, sealcoat covered pavement should have uniform coverage and appearance. All aggregate (small stones) should be covered without spaces, gaps or pinholes. Watch for the formation of cracks, gaps in the aggregate, and loss of the aggregate itself. While a sealcoat is a less-expensive, short-term treatment option, it may not be the most protective and cost-effective in the long run for your pavement's condition. If your pavement is older or has already deteriorated, a different treatment or total replacement with asphalt or other materials may be the best option. Consult with paving engineers or contractors about the history of damage and what future threats you need to protect against. Consider also whether your primary concern is the visual appearance versus preservation.
- **Avoid the use of products containing coal tar.** If sealcoat treatment is determined to be the best option, speak with two or more sealcoat or pavement contractors with experience using safer alternatives to coal tar like petroleum asphalt-based products.
 - **Review Product Data Sheets.** Work only with providers who can show you complete product data sheets to avoid those that contain coal tar. It is the buyer's responsibility to review the data sheets and speak with providers about key ingredients for pavement protection and manufacturer's recommendations for optimal application.
 - **Avoid the use of products that have labels containing the words "coal tar," "refined coal tar," "refined tar," "refined coal tar pitch," "coal tar pitch volatiles," "RT-12," "tar" or similar terms or have safety data sheets, container labels, or technical bulletins listing Chemical Abstracts Service (CAS) numbers 65996-93-2, 65996-89-6, or 8007-45-2.** Coal tar/asphalt blends with as low as 10 percent coal tar content may be offered. But even at this reduced level, PAH content is about 100 times higher than other alternative products such as asphalt-based sealcoat.

- **Consider alternatives to coal tar sealants.**

- Petroleum asphalt-emulsion (CAS number 8052-42-4) is the most common non-coal-tar sealcoat on existing asphalt pavement. Asphalt sealcoats contain PAHs, but at as little as 1/1000th the PAH level of coal-tar sealcoat products. Good asphalt sealcoat emulsions are affordable, provide a black appearance, can provide protection for two to four years if properly applied, and can be used in locations that ban coal tar.
- Gilsonite® and acrylic and agricultural oil-based sealants contain few or no PAHs, but they tend to be higher-priced and do not have as much of a performance track record as asphalt sealants. Even so, these products should be considered as research and market conditions evolve.

- **Repair and prepare the asphalt surface prior to applying sealcoat**

- Cracks in the asphalt one inch wide or less should be cleaned thoroughly and filled with a durable and flexible rubberized sealant that will adhere tightly to the asphalt. Cracks wider than one inch wide should be filled with new asphalt pavement.
- Clean the asphalt surface of any loose material to ensure effective bonding of the sealcoat

- **Follow the manufacturer's recommendations for mixing, application rate, and number of coats of sealant**

- **Apply sealcoat only under the right weather and temperature conditions**

- Application of asphalt sealcoat should take place only if the air temperature is at least 55° F and rising (typically May through September).
- Asphalt and other sealcoats should not be applied at night or when rain is expected in less than three hours, in foggy conditions, or when the pavement surface has standing water. Turn off or cover all sprinkler irrigation systems.

Q) Can coal-tar sealcoat be removed from pavement?

A) Safe removal of sealcoats and top layers from asphalt pavement is typically done by grinding or shot blasting. Removal is not

recommended for asphalt in poor condition or with significant cracking, since the blasting or grinding process may break the pavement into pieces. Safe removal of sealants or top layers of asphalt should include enclosing the grinding or blasting process, vacuum-collection of the debris (with HEPA filtration of the exhaust), and containing it for disposal. This includes providing the employees doing the removal with proper hearing, respiratory, and skin protection. Even with high-efficiency containment and collection, these protective measures are a necessary precaution given the health risks of working with coal tar and asphalt dust.

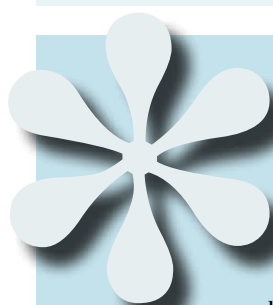
Property owners should ensure that their contractor is properly licensed and bonded and will use proper removal and disposal methods. Contacting neighboring property owners in advance is also encouraged so they may close windows and air intakes and take additional precautions to reduce exposure.

Coal-tar sealcoat and other removal debris should be disposed of properly. No matter the location, pavement owners and contractors must be aware of, and comply with, applicable local, state, or provincial requirements for management and disposal. For example, in Minnesota, coal-tar sealcoat removal debris should be disposed of in a solid waste landfill, with the approval of the landfill operator.

Removal costs around the U.S. have ranged from \$0.60 per square foot for larger surfaces to \$1.25 per square foot for small areas. However, experience is limited so there may be significant variation.

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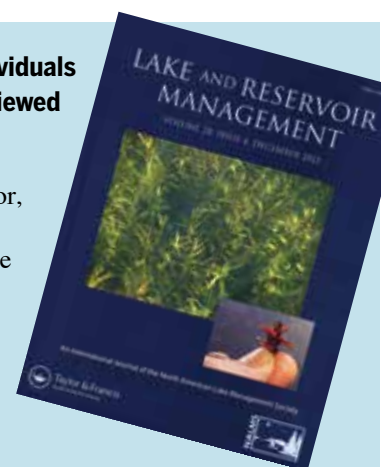


The NALMS Board of Directors is soliciting letters of interest from individuals who would be interested in serving as Editor for the society's peer-reviewed publication, *Lake and Reservoir Management*.

Interested individuals should have experience with the journal as an author, reviewer or associate editor, and have familiarity with the ScholarOne manuscript management system and with the wide range of topics that come under the umbrella of lake and reservoir management. Candidates for this position should have:

- Tact and diplomacy
- Excellent project management skills, attention to detail and demanding review timelines
- Excellent English writing and editing skills
- Lake or reservoir management experience

Interested individuals should send a letter of interest to Frank Wilhelm, NALMS President, expressing their interest in the position and briefly outlining their qualifications. Letters will be reviewed by the Publications Committee and further information will be requested if necessary. Materials will then be advanced to the *Lake and Reservoir Management* Editorial Board and the NALMS Board of Directors for further review and approval.



North American Lake Management Society Achievement Awards Call for Nominations

"You may delay, but time will not." –Benjamin Franklin

Start preparing your North American Lake Management Society Award nominations! Do not delay to put into words the actions and outcomes of an individual, organization, program, or corporation having notable impact in lake and reservoir management.



Award nominations are due August 15, 2017

NALMS AWARDS AND NOMINATION INFORMATION

Leadership and Service Awards

Nominations should detail how individuals or teams demonstrate leadership, service, and practice of lake and reservoir management. Selection criteria for Leadership and Service Awards include level of involvement, measurable impact, sustainability of action(s), and innovation in lake and reservoir management.

Volunteer

Nomination should address the significance of an individual or team's volunteer efforts devoted to lake and reservoir management. Professionals (i.e., anyone paid to work on the project) are ineligible.

Community Education and Outreach

Nomination should address an individual or team's design, facilitation, or performance of exceptional education and outreach activity facilitating community understanding and appreciation for lake and reservoir management.

Appreciation Awards

Nominations should address how individuals or teams contribute among a variety of lake and reservoir management areas. Selection criteria for Appreciation Awards include level of involvement, measurable impact, sustainability of action(s), and innovation in lake and reservoir management.

- *Secchi Disk Award* – Nomination should articulate how an individual member is considered to have contributed the most to the achievement of NALMS' goals. Award recipient must be a NALMS member.
- *Jim Flynn Award* – Nomination should recognize how an organizational member is considered to have contributed the most to NALMS' goal. Recipient must be a NALMS corporate member.
- *Friends of NALMS Award* – Nomination should detail major contributions of an individual or team to NALMS. Contributions extend beyond monetary donations.
- *Lake Management Success Stories* – Nomination should demonstrate an individual or team improvement in lake/reservoir condition or watershed management in a cost-effective manner.
- *Advancements in Lake Management Technologies* – Nomination should emphasize process of discovering, developing, or refining innovative methods, technologies, or processes targeting safer, cost-effective, and more effective lake/reservoir/watershed management. Individuals or teams completing research projects within the category that contribute to the science of lake management are eligible. Nominations should include supportive documentation (e.g., journal articles).

Nomination Eligibility

Secchi Disk Award and Jim Flynn Award nominations must be NALMS members. Current NALMS board members and members of the NALMS Awards Committee are not eligible for nomination.

Nominations

Any individual or entity may submit nominations. Nominations must include the following items:

1. Nominator contact information (name, title, mailing address, telephone number, and email)
2. Nominee contact information (name, title, organization/affiliation, mailing address, telephone number, and email)
3. NALMS Award for nomination
4. Brief and complete description of achievement(s) to be recognized and statement of how nominee's efforts meet specific award criteria.
5. Submit nomination by email to Dana Stephens, NALMS Award Liaison.
6. Please contact Dana with any questions or concerns.

NALMS Award Liaison : Dana Stephens • 100 College Blvd. • Niceville, FL 32578 • Phone: 850-729-6469 • Email: stephed@nwfsc.edu

Thank you for your nomination!

Andrew L. Labaj
and Branaavan
Sivarajah

Student Corner

**Looking back to manage the present and predict the future:
Using lake sediments to assess the long-term ecological
consequences of mining in Canada**

Paleolimnology: A Powerful Tool to Understand the Past

Natural resource extraction is an integral part of the Canadian economy, adding billions of dollars in revenue annually. Large-scale mining operations for metals began as early as the 19th century in Canada. However, environmental monitoring programs intended to assess the long-term ecological consequences of mining activities were only implemented well into the 20th century, often long after environmental impacts – such as acidification and metal pollution – had already occurred. In order to understand the long-term impacts of these industries on the environment, it is necessary to “look back” through time, and understand the environmental conditions that existed before industrial activities began, and the types of changes that occurred as a result of industrialization. A powerful method to accomplish this is through the use of paleolimnology, a discipline of limnology that reconstructs past environmental conditions using the information contained in lake sediments.

Lake sediments act as natural archives for their surrounding environment, preserving material from both inside and outside the lake. Information contained within the sediment record can be used to answer questions about environmental change – both natural and anthropogenic – through time (Smol 2008). Paleolimnological studies have been used to answer a number of applied environmental questions, however, some of the most striking examples of its usefulness relate to the assessment of mining impacts. Here, we highlight two examples where paleolimnology was successfully used to track the long-term impacts of

regional mining industries on aquatic environments.

A History of Acidification and Metal Contamination in Sudbury, Ontario

Sudbury, Ontario, has a long history of nickel and copper mining, with the discovery of the nickel deposits occurring in the 1880s. The initial ore roasting beds as well as early smelters released huge quantities of acid rain-causing sulfur dioxide (SO₂) into the atmosphere, which reached an area of 17,000 km² (equivalent to nearly 90 percent of the size of Lake Ontario) around the city (Keller et al. 2007). The large amount of acid rain in the region caused widespread damage to the landscape, killing off vegetation (resulting in a desolate landscape colloquially known as the “moonscape”) and acidifying thousands of surrounding lakes. The lakes closest to Sudbury also experienced contamination with nickel and copper particles, which are heavy and do not travel as far as SO₂ in the atmosphere. The combination of these stressors resulted in the loss of many fish species and radically altered food webs in lakes, which had been valued for their recreational use. Although the initial reports of lake acidification were released in the 1960s, the long-term history of damage to the lakes remained unknown – the roasters and smelters had been operating for more than 30 years before the pH scale had even been invented!

Paleolimnology provided a way to determine background conditions and to track the damage that had been done over time. The initial research examined diatoms and chrysophytes – two groups of algae that are sensitive to changes in lake water pH and metal concentrations and leave identifiable fossils in the sediments. Using statistical transfer functions, the

species composition and abundance of diatom and chrysophyte remains was used to reconstruct past pH levels. These methods work by establishing the optimal growth conditions of the species found in the sediments, and using their abundance to calculate the likely pH. A combination of sediment geochemistry and diatom- and chrysophyte-based transfer functions were also used to establish past metal concentrations. The early studies provided the much-needed pre-industrial environmental data and tracked the dramatic shifts in aquatic organisms in response to acidification and metal contamination through time. These studies found that many of the lakes surrounding Sudbury began acidifying and accumulating metals soon after the initial smelting operations commenced in the late 19th century. Furthermore, the pH at the most impacted lakes declined by as much as 2 pH units. Once the extent of the problem had been established, a number of emission reduction methods were put in place, including the installation of exhaust scrubbers to remove SO₂ from the smelter exhaust, as well as government-legislated emission controls that became progressively more stringent. Ongoing water quality monitoring programs indicate that these measures were effective, and many lakes in the Sudbury region have returned or are returning to their pre-industrial pH (Keller et al. 2007).

Although the pH of many Sudbury lakes has returned to pre-industrial levels, the biological recovery in these lakes continues to lag behind the chemical recovery (Keller et al. 2007). Just as it was useful for tracking the onset and extent of contamination, paleolimnology is equally well-suited for tracking chemical and biological recovery of the acidified and metal-contaminated

lakes. Recent paleolimnological analysis of several acidified Sudbury lakes has revealed that the Cladocera (a widespread mid-trophic level zooplankton group) and diatoms continue to remain altered from pre-acidification assemblages (Labaj et al. 2015; Sivarajah et al., *accepted*). The sedimentary cladoceran assemblages in lakes closest to the smelters (Daisy, Middle, and Clearwater) experienced the greatest species shifts as these lakes were exposed to the added stress of nickel and copper contamination (Figure 1). The most recent cladoceran assemblages in these lakes continue to differ from their pre-impact assemblages, likely due to ongoing copper and nickel contamination in sediments and the water column (Labaj et al. 2014; Labaj et al. 2015).

An experimental neutralization and fertilization was conducted in Middle Lake at the peak of acidification, resulting in the significant increase of algal primary production, however similar to the other Sudbury lakes, complete recovery has not occurred in the cladoceran species (Labaj et al. 2014). Copper and nickel contamination are likely inhibiting recovery in many of the lakes surrounding Sudbury (Labaj et al. 2015). Not surprisingly, George and Lumsden lakes (Figure 2) in Killarney Provincial Park – located ~60 km southwest of Sudbury – acidified, but experienced reduced metal contamination compared to the lakes located closer to the smelters in Sudbury. The acidification in these lakes was faithfully tracked by the sedimentary diatom assemblage changes (Sivarajah et al., *accepted*). Nonetheless, despite pH improvements in the most recent decades, the cladoceran and diatom assemblages of these lakes differ substantially from their pre-acidification states.

In the region as a whole, the recent paleolimnological studies have revealed a new stressor now impacting the lakes: climate warming. Although new industrial contamination has largely been reduced in the Sudbury area, regional air temperatures have increased in recent decades (Figure 3), and the impacts of regional warming are altering the lakes and their biological communities (Labaj et al. 2015; Sivarajah et al. 2016; Sivarajah et al., *accepted*). As climate change continues to impact these lakes, their biological communities will likely never again resemble those of the past.

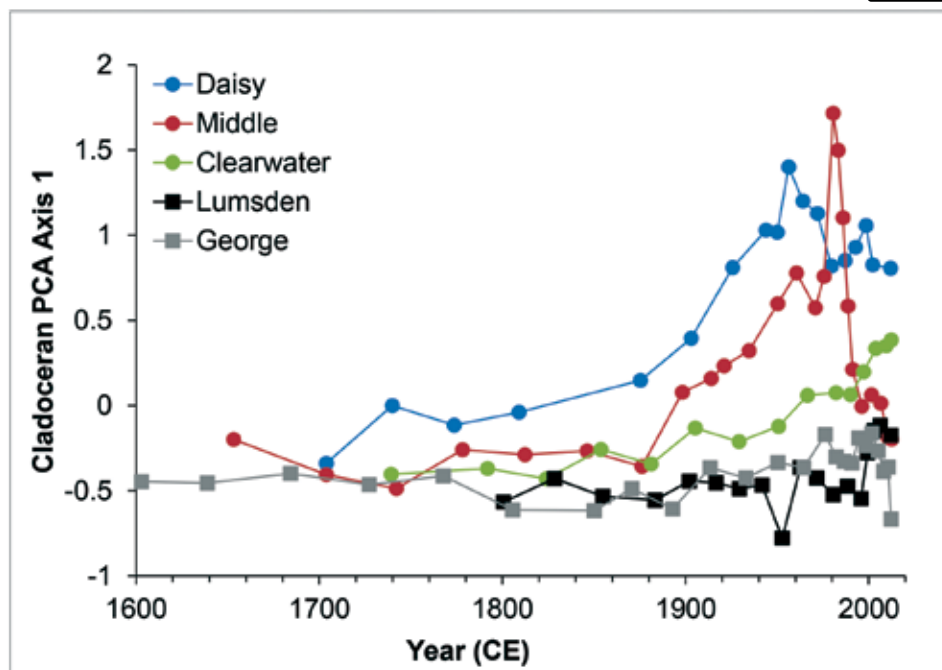


Figure 1. Cladoceran data for each lake (summarized using principal components analysis (PCA)) over time. PCA axis 1, displayed here, accounts for 48.7 percent of the variation in cladoceran assemblages. Circular markers represent the three lakes located closest to Sudbury, while square markers represent the two lakes located approximately 60 km from the city.



Figure 2. View of Lumsden Lake and surrounding landscape, Killarney Provincial Park.

Gold Mining and Arsenic Contamination in Yellowknife, Northwest Territories

Recently, paleolimnology has been applied in Yellowknife, Northwest Territories, to assess the legacy effects of gold mining on subarctic lakes. During

the early 20th century, gold deposits were discovered within the ore bodies of arsenopyrite in the Yellowknife greenstone belt. This discovery resulted in the establishment of gold mining operations in the area, and spurred major

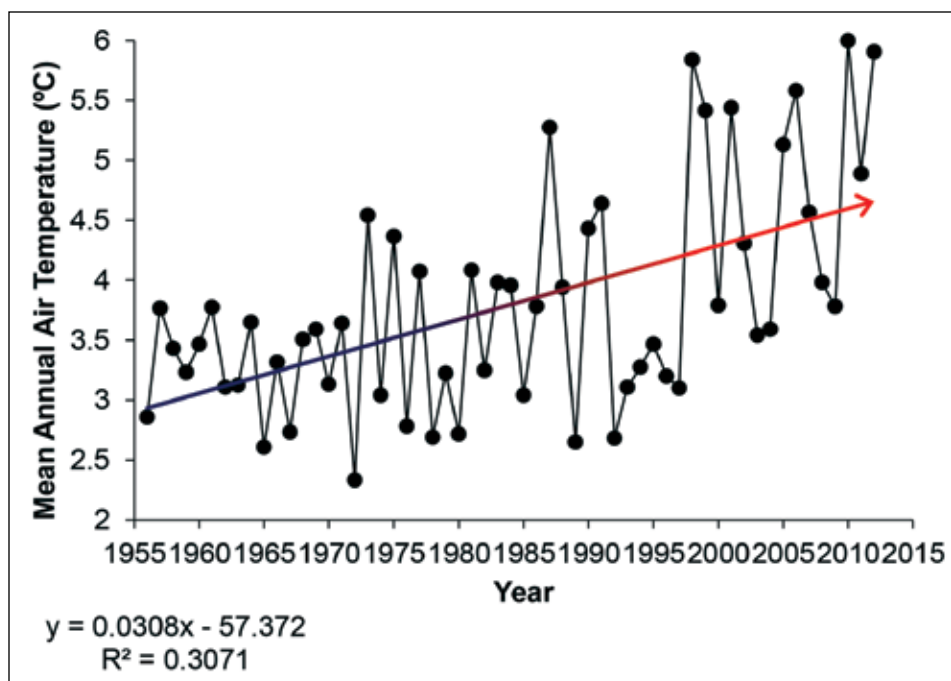


Figure 3. Mean annual air temperature recorded at Sudbury Airport (climate station ID: 71730). Data from Environment Canada. Trend is indicated by colored linear regression line ($r^2 = 0.31$).

growth of the City of Yellowknife. Giant Mine operated between 1948 and 2004, producing ~220 tons of gold along with ~20,000 tons of toxic arsenic trioxide dust as a by-product, that was released to the environment. The half-century of mining activity at Giant Mine led to the arsenic contamination of many surrounding lakes in Yellowknife. Presently, arsenic levels in many lakes within a 15-km radius of Giant Mine are well above the maximum allowable concentrations for the protection of aquatic life and drinking water (5 and 10 µg/L, respectively) (Houben et al. 2016), posing a potential threat to human health, as many of the lakes around the City of Yellowknife are used for recreational purposes. As with the lakes in Sudbury, the lack of long-term monitoring data required the use of indirect methods such as paleolimnology to assess the long-term ecological consequences of arsenic contamination of lakes around Yellowknife.

In one highly impacted lake within the lease boundary of Giant Mine, paleolimnological analyses revealed increases in several pollutants linked to arsenopyrite processing, including arsenic, mercury, antimony, lead, and iron, as operations at Giant Mine progressed. At the same time as these pollutants were increasing, the biological communities

of the lake were also changing, including shifts in the diatom species, and a complete elimination of the Cladocera (Thienpont et al. 2016). The striking similarity in the timing of chemical and biological changes clearly indicates that lake sediments are faithfully recording the increases in aquatic contaminant concentrations and the biological shifts occurring as a result of increased pollutants in the lake from Giant Mine operations. The present results have shown that paleolimnology can reliably track the onset and effects of regional gold mining, and have led to ongoing studies in other lakes surrounding Yellowknife, tracking the long-term ecological consequences of arsenic contamination in the region as a whole. The work in this region has provided an important opportunity to combine paleolimnology and ecotoxicology to better understand the impacts of mining, arsenic contamination, climate warming and local land use changes in subarctic lakes.

Conclusions

Paleolimnology provides the much needed long-term perspective on environmental change that is often not available otherwise. It provides powerful tools to qualitatively and quantitatively gauge the human “footprint” on the

environment, a vital first step in providing appropriate context to our past and present environmental issues. In many cases, paleolimnological studies have provided the “smoking gun” necessary to introduce environmental policy and lead to positive change.

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(Student Corner, continued on p. 28 . . .)

Bill Jones

Literature Search

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Lakes Appreciation Month 2017

Enjoy and help your favorite lake in July!

July 1st - July 31st



From fishing to your daily coffee,

lakes and reservoirs play a vital role in our daily lives. For over 20 years, **July** has been officially **Lakes Appreciation Month**. It is a time when many folks are vacationing and enjoying lakes, and NALMS wants people to give something back. Just think, what would your life be like without lakes?

July is a great time to set aside some time to celebrate and help your favorite waterbody. Here are some ideas for a lake event in July: organize a shoreline clean up, hand out free fishing poles, arrange for free boat rides and canoe lessons, hand out free t-shirts with the new Lakes Appreciation Month design, find volunteers to participate in the **Secchi Dip-In**, and free food is always a hit. There are many other ideas that can be found at www.nalms.org or www.epa.gov/lakes.



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37th Annual Symposium of the North American Lake Management Society

Finding Balance

November 6 – 9, 2017 - The Westin Westminster



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After 26 years, Colorado welcomes NALMS back to the headwaters state. Colorado is home to thousands of both natural alpine lakes and reservoirs. We are proud of our mountains and appreciate the importance of our lakes and reservoirs.

Water in Colorado is used for fishing, drinking, farming, rafting, camping, mining, ranching, boating, brewing, and much more. All of these uses are supported with a stateside annual average rainfall of just 17 inches. The lakes and reservoirs throughout the West and the Rockies provide the resources to meet these diverse needs. Finding balance in how we manage them is important.

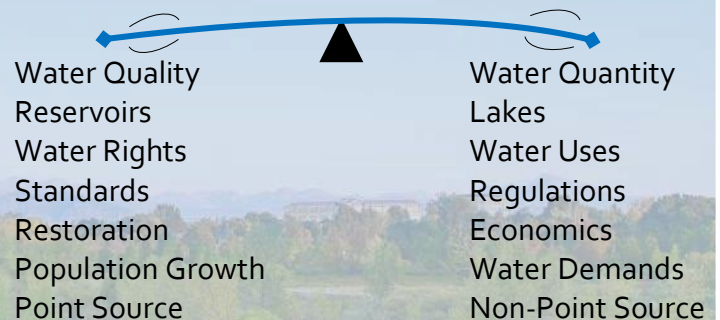
Finding Balance is key to managing our lakes, watersheds, and even day-to-day relationships with people. Come to Colorado in 2017 to, hear fascinating lake talks, drink great beer, see the Rocky Mountains, and to achieve balance in managing your lakes and reservoirs.

Potential Topics

Reservoir Management
Drinking Water Treatment
Arid West Issues
Inter-basin Water Transfers
Watershed Management
Climate Change Impacts
Storm Water Impacts
Wildfire Impacts

Harmful Algal Blooms
Beer-sheds & Brewing
Invasive Species
Western Water Law
WQ Monitoring
Citizen Science
Agricultural Uses
Case Studies

Finding Balance



Propose a session or topic that interests you! Call for papers will be available at nalms.org January 2017



For sponsorship or general information, contact NALMS: nalms.org, 1-608-233-2836
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Packet Pg. 118

Coal-Tar-Based Pavement Sealcoat and PAHs: Implications for the Environment, Human Health, and Stormwater Management

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■ INTRODUCTION

Driveways and parking lots are common features of cities, suburbs, and small towns. Most single-family residences in the U.S. have paved driveways, and we encounter parking lots at multifamily residences, schools, offices, and commercial businesses. Most people in developed countries, when outdoors, probably spend as much time walking on pavement as on any other type of surface.

There are differences among paved surfaces, however. Most pavement is concrete or asphalt. The asphalt pavement of many parking lots, driveways, and even some playgrounds in North America is sprayed or painted with a black, shiny coating referred to as “sealcoat,” “pavement sealant,” or “driveway sealer” (Figure 1A). Sealcoat is marketed as improving pavement appearance and increasing pavement longevity.¹ In addition to making pavement black, however, one type of commonly used pavement sealcoat contains refined coal tar and is a potent source of polycyclic aromatic hydrocarbons (PAHs).^{2–8} The contribution of pavement sealcoat to PAH contamination of soils, lakes, and homes has only recently been recognized.^{4–6}

Coal-Tar-Based Sealcoat: A Newly Identified Source of PAHs. The two primary sealcoat product types on the market are refined coal-tar-pitch emulsion and asphalt emulsion. Coal-tar pitch, a known (Group 1) human carcinogen,⁹ is the residue remaining after the distillation of crude coal tar (a byproduct of the coking of coal), and contains about 200 PAH compounds.¹⁰ Most coal-tar-based sealcoat products consist of 20–35% coal-tar pitch as the binder. Asphalt is the residue remaining after the distillation of crude oil and is the binder in asphalt-based sealcoat products. Although the two sealcoat product types are

similar in appearance, PAH concentrations in coal-tar-based sealcoat are about 1000 times higher than those in asphalt-based sealcoat¹¹ (Table 1).

In the U.S., coal-tar-based sealcoat is used primarily east of the Continental Divide, and asphalt-based sealcoat is used primarily west of the Continental Divide.³ Coal-tar-based sealcoat also is used in Canada.¹² Geographic differences in use in North America likely are a historical and economic artifact of the location of most coal-tar-distillation plants near steel mills, which historically were (and are) in the central and eastern United States. An estimated 85 million gallons (320 million liters) of coal-tar-based sealcoat are used annually in the United States.¹¹

The pavement sealcoat issue has been evolving since 2000, when PAH concentrations were discovered to be increasing in many urban lakes across the United States,¹⁵ even as concentrations of other contaminants like lead, polychlorinated biphenyls (PCBs), and DDT were decreasing.^{16,17} This was an apparent reversal from earlier reports that PAH concentrations in the U.S. were decreasing in response to reduced emissions from power plants and industries.^{18,19} The earlier studies, however, had focused on lakes in undeveloped watersheds, whereas the upward trends in PAHs were in lakes in urban and suburban watersheds. This meant, first, that reductions in PAH emissions caused by changes in home-heating and power-generation technology had been eclipsed in urban areas by some other urban source of PAHs,¹⁵ and second, that this other source was specific to urban and suburban areas.

A breakthrough in understanding urban sources of PAHs came in 2003, when staff with the City of Austin, TX, noted elevated PAH concentrations ($\Sigma\text{PAH}_{16} > 1000 \text{ mg/kg}$) in some sediment samples collected from small tributaries and drainages in largely residential areas.²⁰ Concentrations of PAHs this high are typical of contaminated soils at some manufactured gas plant Superfund sites,²¹ but cannot be accounted for by common urban sources (e.g., tire wear, vehicle emissions, asphalt).² City of Austin staff connected the dots and hypothesized that the source of the elevated PAHs was particles eroded from parking lots that were coated with coal-tar-based sealcoat.²² Since that time, an understanding has emerged of relations between coal-tar-based pavement sealcoat and PAHs in the environment.

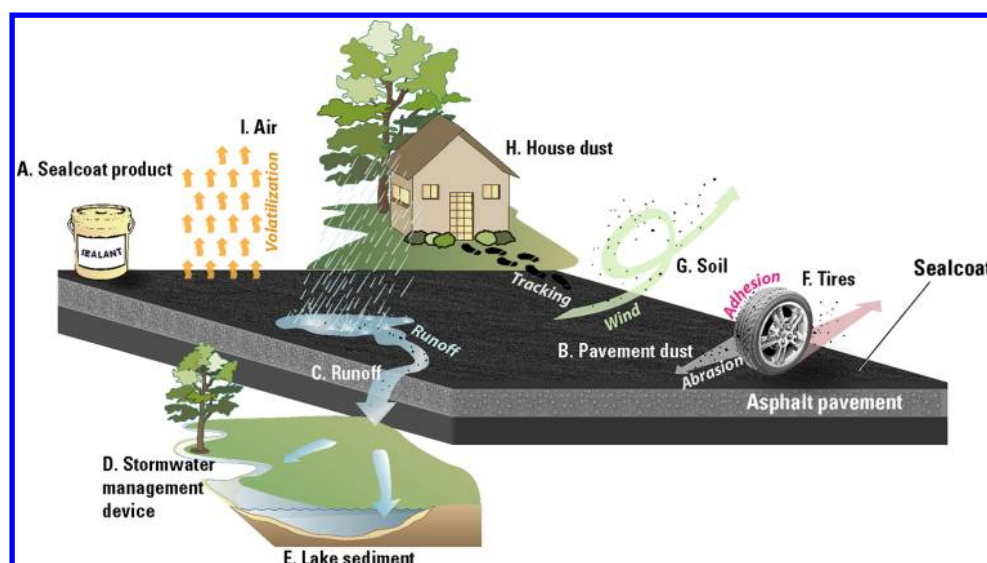


Figure 1. PAHs from coal-tar-based pavement sealcoat are transported by different pathways to various environmental compartments. Once dry, the sealcoat product (A), which contains high concentrations of PAHs, is abraded into a powder and becomes part of the dust on the pavement (B). That dust is transported by storm runoff (C) to stormwater management devices (D) or to receiving streams and lakes (E). Parking lot dust also adheres to tires (F) that track it onto unsealed pavement, and wind and runoff transport the dust to nearby soils (G). Dust particles are tracked on shoes into residences, where they become incorporated into house dust (H). Volatile PAHs in coal-tar-based sealcoat are released into the air (I). PAH concentrations associated with each compartment and literature sources are provided in Table 1.

WHAT ARE POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)?

PAHs are a large group of organic compounds composed of two or more fused benzene rings arranged in various configurations. Those with a low molecular weight (two or three benzene rings) tend to be more volatile, soluble, and biodegradable than those with a higher molecular weight (four or more benzene rings). PAHs occur naturally in coal and petroleum products and are formed by the incomplete combustion of organic matter, from fossil fuels to wood to cigarettes. PAHs have many urban sources, including used motor oil, automobile exhaust, industrial atmospheric emissions, tire particles, and asphalt.^{13,14} PAHs always occur as a mixture of different PAH compounds, and are ubiquitous in the urban environment. Of all known PAH sources, the highest concentrations are in coal tar and the related compound creosote. Most laboratories analyze only a subset of PAHs, and concentrations of total PAHs are reported as the sum of the subset analyzed as described in Table 1.

Migration of PAHs from Sealcoated Surfaces into the Environment. Sealcoat doesn't remain on the pavement surface indefinitely, and different applicators recommend reapplication from every 1 to 2 years (e.g., ref 23) to every 3 to 5 years (e.g., ref 24). Tires and snowplows, in particular, abrade the friable sealcoat surface into fine particles.^{5,11} The overall annual loss of sealcoat from parking lots in a warm climate is about 2.4% of total sealcoat applied, with wear being most rapid (about 5% per year) in driving areas.¹¹ Higher wear rates have been noted in a cold-weather climate.⁷ The mobilized sealcoat particles and associated PAHs are transported to various environmental compartments (Figure 1, Table 1).

The first compartment is the dust on the pavement surface itself, generated as the sealcoat is abraded from the surface

(Figure 1B). Concentrations of PAHs in fine particles (dust) on pavement with coal-tar-based sealcoat are hundreds of times higher than those in dust on concrete pavement or on asphalt pavement that is unsealed or that has asphalt-based sealcoat^{3–5} (Table 1). PAHs in dust on sealcoated pavement in the central and eastern U.S. are about 1000 times higher than in dust on sealcoated pavement in the western U.S., supporting anecdotal reports of geographic differences in product use³ (Figure 2).

Stormwater runoff transports abraded sealcoat particles off sealed pavement (Figure 1C, Table 1). The PAH concentration measured in particles in runoff from parking lots with coal-tar-based sealcoat (3500 mg/kg) was 65 times higher on average than the concentration in particles in runoff from unsealed asphalt and cement lots.² Concentrations in unfiltered stormwater runoff from coal-tar-sealcoated pavement are particularly elevated during the months following sealcoat application. The mean ΣPAH_{16} in stormwater runoff from a coal-tar-sealcoated parking lot during the 3 months following sealcoat application was 1357 $\mu\text{g/L}$ and the 3-month mean during the following two years ranged from 17 to 116 $\mu\text{g/L}$.⁷ This relatively elevated concentration persists for years—the median ΣPAH_{18} in stormwater runoff from a parking lot in Madison, WI, 5 years after the last application of coal-tar-based sealcoat, was 52 $\mu\text{g/L}$.²⁵ That concentration is about 10 times higher than that in runoff from a mixed-use strip mall, arterial street, and unsealed parking lot (4.8–5.7 $\mu\text{g/L}$), more than 20 times higher than in runoff from a minor arterial street and a commercial rooftop (1.8–2.4 $\mu\text{g/L}$), and about 1000 times higher than in runoff from a residential feeder street (0.05 $\mu\text{g/L}$).²⁵

In many communities, the first stop for stormwater runoff is a stormwater-retention pond or other stormwater-management device (Figure 1D), where suspended sediment and associated contaminants settle out. Stormwater ponds are designed to efficiently collect sediment-associated contaminants, which creates an unintended problem for many municipalities because PAHs accumulate in pond sediment. In 5 of 10 ponds sampled in the Minneapolis-St. Paul, MN, metropolitan area, concentrations

Table 1. Concentrations of PAHs as Reported in the Literature for Environmental Compartments Shown in Figure 1, and Definitions of PAH Summations Used

environmental compartment (Figure 1)	medium	PAH concentration (median or mean) in coal-tar-based sealcoat or affected medium	PAH concentration (median or mean) in asphalt sealcoat, affected medium, or associated with unsealed pavement	summation ^a	units	reference
A	sealcoat products	66 000	50	ΣPAH_{16}	mg/kg	11,22
B	pavement dust	2200	11	ΣPAH_{12}	mg/kg	3
		4760	9	ΣPAH_{16}	mg/kg	4
		685	<1	ΣPAH_{16}	mg/kg	5
C	runoff, particles	3500	54	ΣPAH_{12}	mg/kg	2
	runoff, unfiltered water ^b	71	2	ΣPAH_{16}	$\mu\text{g/L}$	7
		52	5	ΣPAH_{18}	$\mu\text{g/L}$	25
D	stormwater-management-device sediment	646	2	ΣPAH_{16}	mg/kg	5
E	lake sediment ^c	33	0.4	$\Sigma\text{PAH}_{\text{CMB}}$	mg/kg	6
F	tires	1380	3	ΣPAH_{16}	mg/kg	5
G	soil ^d	105	2	ΣPAH_{16}	mg/kg	5
H	settled house dust	129	5	ΣPAH_{16}	mg/kg	4
I	air (0.03 m from pavement), 3–8 years after sealing	1320	66	ΣPAH_8	ng/m^3	28
	air (1.28 m from pavement), 3–8 years after sealing	138	26	ΣPAH_8	ng/m^3	28
	air (0.03 m from pavement), 1.6 h after sealing	297 000	66	ΣPAH_8	ng/m^3	29
	air (1.28 m from pavement), 1.6 h after sealing	5680	26	ΣPAH_8	ng/m^3	29

^a ΣPAH_{12} is the sum of concentrations of the 12 parent PAH (naphthalene, acenaphthylene, acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[a]pyrene, and dibenz[a,h]anthracene), which are those PAHs used in computation of the probable effects concentration (PEC) sediment-quality guideline,⁴¹ less 2-methylnaphthalene. ΣPAH_{16} is the sum of the concentrations of the 16 priority pollutants identified by the U.S. Environmental Protection Agency,⁴² equal to the sum of ΣPAH_{12} and concentrations of benzo[b]fluoranthene, benzo[ghi]perylene, benzo[k]fluoranthene, and indeno[1,2,3-cd]pyrene. ΣPAH_{18} is equal to ΣPAH_{16} plus concentrations of 1-methylnaphthalene and 2-methylnaphthalene. $\Sigma\text{PAH}_{\text{CMB}}$ is the sum of concentrations of phenanthrene, anthracene, fluoranthene, pyrene, benzo[a]anthracene, chrysene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[ghi]perylene, benzo[k]fluoranthene, indeno[1,2,3-cd]pyrene, and benzo[e]pyrene. ΣPAH_8 is the sum of concentrations of phenanthrene, anthracene, 4,5-methylphenanthrene, 1-methylphenanthrene, fluoranthene, pyrene, chrysene, and benzo[b]fluoranthene. On the basis of PAH data from primarily combustion sources presented in Mahler et al.,⁴ ΣPAH_{12} is about 70–75% of ΣPAH_{16} . ΣPAH_{18} is similar to ΣPAH_{16} , as the additional compounds in the summation either are not detected or are detected at very low concentrations.^{2,25} ^bCollected >3 months after sealcoat application. ^cMeans for urban lakes with >70% PAH from sealcoat and 0–20% from sealcoat. ^dConcentration in soil adjacent to a sealed parking lot.

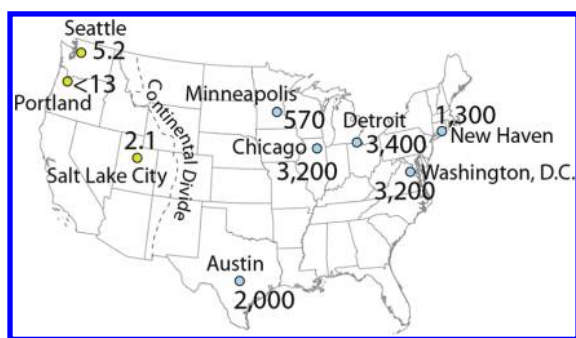


Figure 2. PAHs in dust swept from sealcoated parking lots show a striking geographic difference. PAH concentrations in dust from parking lots in central and eastern U.S. cities, where coal-tar-based sealcoat is commonly used, are about 1000 times higher than in the western U.S., where asphalt-based sealcoat is more commonly used. Concentrations are the sum of 12 PAHs (ΣPAH_{12}), in mg/kg. (Figure adapted from ref 3, Figures 1 and 2).

of PAHs in sediment exceeded Minnesota's Level 2 Soil Reference Value of 3 mg/kg benzo[a]pyrene equivalents (BaPeq), greatly increasing the cost for disposal.²⁶ Even a small amount of sealcoated pavement can be the dominant source of PAHs to sediment that collects in stormwater-management

devices, as demonstrated at the University of New Hampshire Stormwater Center.⁵ Sediment collected from a stormwater-management device receiving runoff from a parking lot with coal-tar-based sealcoat contained ΣPAH_{16} of 393–1180 mg/kg; sediment in devices receiving mixed runoff (4% sealed pavement and 96% unsealed pavement) contained 61–638 mg/kg ΣPAH_{16} ; and sediment in a device in the center of an adjacent unsealed lot contained less than 4 mg/kg ΣPAH_{16} .⁵

Some sealcoat particles that are not trapped by stormwater ponds or other collection devices are transported down streams and rivers to lakes, where they are deposited in lake sediment (Figure 1E). Do the PAHs associated with the particles constitute a majority of PAHs in urban lake sediments, and might coal-tar-based sealcoat account for many of the upward trends in PAHs reported by Van Metre et al.¹⁵ An initial indication comes from a comparison of PAH ratios, or “fingerprints”, of the dust collected from parking lots in nine U.S. cities to that of PAHs in sediment from lakes in the same watersheds.³ In the central and eastern U.S., PAH fingerprints of lake sediment and dust from sealcoated parking lots were similar, and were different from fingerprints of lake sediment and dust in the western U.S., reflecting regional differences in sealcoat product type used. A more sophisticated source-apportionment method—a statistical approach that quantifies

the contribution of sources with known PAH profiles to an environmental receptor—was used to quantify the contribution of identified urban PAH sources to PAHs in bed sediment in 40 U.S. urban lakes.⁶ Coal-tar-based sealcoat was estimated to contribute about one-half of the PAHs in the lake sediment, when averaged across the 40 lakes; vehicle-related sources and coal combustion also were important contributors. PAH concentrations in lake sediment and the proportion contributed from coal-tar-based sealcoat were greater in the central and eastern U.S. than in the western U.S. Using sediment cores, trends in PAHs were investigated for eight urban lakes; of the six with significant upward trends, source apportionment indicated that coal-tar-based sealcoat was the cause of the trend in all six of them.

Turning our attention back to sealed pavement, dust from pavement with coal-tar-based sealcoat contaminates nearby unsealed pavement, with concentrations decreasing with distance from the sealed pavement.⁵ A petrographic analysis of dust from unsealed pavement in Fort Worth, TX, found that coal-tar pitch was the dominant (92%) source of PAHs in the dust.⁸ Particles are transported by adhesion to vehicle tires and by wind from sealed to unsealed surfaces— ΣPAH_{16} in particles swept from tires driven over sealed lots were 400 times higher than in particles swept from tires driven over unsealed lots⁵ (Table 1, Figure 1F). Transport of abraded coal-tar-based sealcoat particles by wind and tires might be one reason why PAH concentrations in dust from unsealed parking lots in the central and eastern U.S. (median ΣPAH_{12} 27 mg/kg), where coal-tar-based sealcoat is predominantly used, are significantly higher than those in dust from unsealed parking lots in the western U.S. (median ΣPAH_{12} 0.8 mg/kg), where the asphalt-based product is predominantly used.³

PAHs in particles abraded from coal-tar-based sealcoat also are transported by wind, runoff, and snow removal to nearby soils (Table 1, Figure 1G). ΣPAH_{16} in surface soil adjacent to coal-tar-sealed lots at the University of New Hampshire was as high as 411 mg/kg, and concentrations decreased with distance from the sealed lot to less than 10 mg/kg.⁵ The highest concentrations were measured in areas where snow was piled adjacent to the lots during the winter months—snowplows were scraping the sealcoat off with the snow. PAHs in surface soils from commercial areas in Fort Worth, TX, were dominantly (88%) from coal-tar pitch.⁸

PAHs from pavement sealed with coal-tar-based sealcoat can contaminate the indoor environment (Figure 1H) as well as the outdoor environment. In a study in Austin, TX, apartments with parking lots with coal-tar-based sealcoat had ΣPAH_{16} in house dust that was 25 times higher, on average, than ΣPAH_{16} in house dust from apartments with parking lots with other surface types (concrete, unsealed asphalt, or asphalt-based sealcoat)⁴ (Table 1). The presence or absence of coal-tar-based sealcoat on the apartment complex parking lot was strongly correlated with PAH concentrations in house dust. Although tobacco smoking, candle and incense burning, and barbecue and fireplace use have been suggested to affect PAH concentrations in house dust, Mahler et al.⁴ found no relation between any of these and PAH concentrations in the house dust. Concentrations of individual PAHs in house dust collected from apartments in Austin adjacent to pavement with coal-tar-sealcoated parking lots were about 140 times higher than those measured in a study of house dust in California.²⁷ Lower concentrations of PAHs in house dust in California are consistent with the very low concentrations of

PAHs measured in pavement dust in the western U.S. (Figure 2), where coal-tar-based sealcoat is not commonly used.

In addition to contaminating stormwater, sediment, soil, and house dust, PAHs from coal-tar-based sealcoat contaminate air (Figure 1I). Several of the lower molecular weight PAHs in coal-tar-based sealcoat are volatile, which is why sealed parking lots and driveways frequently give off a strong smell. A recent study²⁸ reported that the flux of ΣPAH_8 from in-use parking lots with coal-tar-based sealcoat of various ages (mostly more than 3 years old) was 60 times higher than that from unsealed pavement on average. A second study²⁹ reported that ΣPAH_8 in air just after sealcoat application was hundreds to thousands of times higher than that above unsealed parking lots (Table 1), and that one-quarter to one-half of the PAHs in the applied sealcoat were lost to the atmosphere during the first 16 days following application. A mass balance indicated that ΣPAH_8 emissions from new applications of coal-tar-based sealant each year are larger than annual vehicle emissions of PAHs for the U.S.²⁹

Biological Concerns. The detrimental effects of PAHs on terrestrial and aquatic ecosystems are well documented.³⁰ For example, when fish are exposed to PAHs, they exhibit chronic effects, including fin erosion, liver abnormalities, cataracts, skin tumors, and immune system impairments leading to increased susceptibility to disease.³¹ When benthic macroinvertebrates—insects and other organisms that live at the bottom of rivers and lakes and that make up the base of the aquatic food chain—are exposed to PAHs, they are susceptible to a number of detrimental effects, including inhibited reproduction, delayed emergence, sediment avoidance, and mortality.³¹ The most important mechanism by which acute effects occur in benthic invertebrates is a nonspecific narcosis-like mode of action that results in the degradation of cell membranes.³² Ultraviolet (UV) radiation greatly increases the toxicity of PAHs in a wide variety of aquatic organisms.^{33–36}

As the importance of coal-tar-based sealcoat as a source of PAHs has emerged, several studies have looked at potential biological effects of this particular source of PAHs. When sediment was spiked with coal-tar-based sealcoat to provide a range of environmentally relevant PAH concentrations, frogs (*Xenopus laevis*) had stunted growth or delayed development at 30 mg/kg ΣPAH_{16} , and complete mortality occurred at the highest treatment of 300 mg/kg ΣPAH_{16} .³⁷ Salamanders (*Ambystoma maculatum*) and newts (*Notophthalmus viridescens*) exposed to sediment contaminated with coal-tar-based sealcoat at PAH concentrations similar to the highest treatment in the frog study had stunted growth, difficulty swimming or righting themselves, and liver problems.^{38,39} These effects were magnified by the addition of UV light.³⁸ At the community level, macroinvertebrate communities exposed to sediment spiked with coal-tar-based sealcoat had significant decreases in species abundance and richness at ΣPAH_{16} concentrations exceeding 300 mg/kg.⁴⁰ Similarly, in a study of urban streams, aquatic invertebrate communities downstream from parking lots with coal-tar-based sealcoat suffered losses of abundance and diversity along a gradient of increasing total PAH concentration, starting near the ΣPAH_{12} probable effects concentration (PEC) value of 22.8 mg/kg.^{20,41} These studies demonstrate that PAHs in sediment contaminated by coal-tar-based sealcoat are bioavailable and that environmentally relevant concentrations adversely affect amphibians and benthic communities, two robust indicators of aquatic ecosystem health. The finding of adverse biological effects to biota when exposed to

sediment with PAH concentrations near the PEC has widespread relevance: Of the 40 U.S. urban lakes investigated by Van Metre and Mahler,⁶ sediment in the nine lakes with the greatest mass loading of PAHs from coal-tar-based sealcoat had concentrations of PAHs that exceeded the PEC.

Human-Health Concerns. Coal tar and coal-tar pitch are listed as Group 1 (carcinogenic to humans) carcinogens,⁹ and the U.S. EPA currently classifies seven PAH compounds as probable human carcinogens (Group B2): benz[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]-pyrene.⁴² Coal tar itself is a powerful mutagen: The mutagenicity index for coal tar is about 1000 times that of asphalt cements.⁴³ However, although coal-tar-based sealcoat has been on the market since at least 1960,⁶ little has been published to date about the contribution of the sealcoat to PAH exposures and the associated potential for adverse human-health outcomes.

The elevated concentrations of PAHs in house dust, soil, air, water, and sediment associated with coal-tar-based sealcoat raise the possibility of several complete exposure pathways for humans. Incidental ingestion of house dust and soil is particularly relevant for small children, who put their hands and objects into their mouths. A recent study⁴⁴ reported that children living in homes adjacent to pavement with coal-tar-based sealcoat likely are exposed to about 14-fold higher doses of PAHs through ingestion of house dust than are children living in residences adjacent to unsealed pavement, and that exposure from ingestion of PAH-contaminated house dust is estimated to be more than double that from diet, even under conservative assumptions. Ingestion of contaminated soil is another way that children might be exposed to PAHs from coal-tar-based sealcoat, particularly given that ingestion rates of soil typically exceed those of house dust.⁴⁵ Incidental ingestion of dust directly from sealed pavement also might be important, because the extremely high concentrations of PAHs measured in these materials (Table 1) could translate to substantial doses from miniscule exposures. On a long-term basis, nondietary ingestion of PAH-contaminated house dust and soil likely are the most important routes of exposure, but a complete human-health risk analysis is required before the cancer risk associated with ingestion of these media can be quantified.

Other routes of exposure to coal-tar-based sealcoat, in addition to ingestion, might have implications for human health. Relatively high acute exposures might occur from inhalation of wind-blown particles or fumes that volatilize from sealed parking lots, especially during sealcoat application. Sealcoat applicators, in particular, might be subject to substantial inhalation exposures, but such exposures have not yet been characterized. Other potential routes include skin contact with sealcoat and abraded sealcoat particles and contaminated soil, sediment, dust, and water. Such exposures likely would be relatively infrequent and short-term. However, PAHs are readily absorbed through the skin,⁴⁶ and circumstances that increase the frequency or magnitude of exposure events, such as daily activity on pavement treated with coal-tar-based sealcoat, might be associated with increased cancer risk.

Regulatory and Retail Actions. Research to date, as documented here, provides a compelling weight-of-evidence that coal-tar-based sealcoat products are an important source of PAHs to our environment. A patchwork of actions has been taken to either ban or restrict the use of coal-tar-based sealcoat in the United States. The first ban was implemented by the City

of Austin, TX, in 2006.⁴⁷ As of January 2012, 15 municipalities and two counties in four states (Minnesota, New York, Texas, and Wisconsin), the District of Columbia, and the State of Washington had enacted some type of ban, affecting nearly 10.4 million people.⁴⁸ Other local and state jurisdictions have used voluntary or limited-use restrictions for certain groups (e.g., city government) to discourage the use of coal-tar-based sealcoat.⁴⁸

Minnesota, in particular, has been actively engaged in this issue after municipalities contacted state agencies and the Minnesota Legislature for assistance addressing PAH-contaminated stormwater pond sediment.⁴⁹ Costs for disposing of this sediment could reach \$1 billion if PAHs in sediment in just 10% of the estimated 20 000 municipal stormwater ponds in the Minneapolis-St. Paul, MN, metropolitan area exceed Minnesota's Level 2 human-health risk-based Soil Reference Value of 3 mg/kg BaPeq⁵⁰ (Donald Berger, Minnesota Pollution Control Agency, written communication, 2011). The Minnesota Legislature passed a bill in 2009 that provides small grants to local governments for use in treating or disposing of contaminated sediment in stormwater ponds, provided that the governments restrict the use of undiluted coal-tar-based sealcoat.⁴⁹ As of January 2012, 13 municipalities had passed ordinances and three municipalities have received grants for remediation of stormwater ponds.

Several national and regional hardware and home-improvement retailers have voluntarily ceased selling coal-tar-based driveway-sealer products.⁴⁸ Some private applicators have chosen to use only asphalt-based sealcoat (e.g., refs 51,52). Many professional sealcoating companies in areas unaffected by bans or restrictions use coal-tar-based sealcoat, however, and coal-tar-based sealcoat products are readily available online for purchase by homeowners.

No action has been taken at a federal level to restrict the use of coal-tar-based sealcoat. Coke product residues, such as coal tar, are not classified as hazardous waste under the Resource Conservation and Recovery Act if the product is recycled.⁵³ This exemption allows coal-tar pitch to be used in the production of aluminum (~95% of use), commercial carbon, built-up roofing, and pavement sealcoat.⁵⁴

Because PAHs are a ubiquitous and persistent class of urban contaminants, a decade or more might be required to assess the effectiveness of bans, restrictions, and/or changes in the retail availability of coal-tar-based sealcoat on reducing PAH concentrations in urban water bodies. Research on trends in the occurrence of PCBs and DDTs supports this concern. Following national bans on use of PCBs and DDT in the 1970s, it was 10–15 years before concentrations in lakes and reservoirs decreased by one-half.^{17,55} Unlike these chemicals, all sources of PAHs in urban watersheds will not be eliminated by banning coal-tar-based sealcoat. However, reductions in PAH loads over time might be sufficient to provide more options for disposal of dredged material from stormwater ponds and navigation channels and reduce risk to terrestrial and aquatic ecosystems and human health.

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Notes

The authors declare no competing financial interest.

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City of De Pere

Online Retailer Sealant Review

3.6.h

Location	Product	Type	PAH <0.1%
True Value online	Black Jack Drive Maxx 1000	Asphalt Emulsion	Yes
Ace Hardware	Black Jack Drive Maxx 1000	Asphalt Emulsion	Yes
True Value online	Black Jack Drive Maxx 200	Asphalt Emulsion	Yes
Ace Hardware	Black Jack Drive Maxx 200	Asphalt Emulsion	Yes
True Value online	Black Jack Drive Maxx 500	Asphalt Emulsion	Yes
Ace Hardware	Black Jack Drive Maxx 500	Asphalt Emulsion	Yes
True Value online	Black Jack Drive Maxx 700	Asphalt Emulsion	Yes
Ace Hardware	Black Jack Drive Maxx 700	Asphalt Emulsion	Yes
True Value online	Black Jack pourable driveway crack sealer	Asphalt Emulsion	Yes
True Value online	Driveaseal Driveway Filler Sealer	Asphalt Emulsion	Yes
True Value online	Driveseal Blacktop sealer	Asphalt Emulsion	Yes
Home Depot-GB	Gardner Drive 5	Asphalt Emulsion	Yes
Home Depot-GB	Gardner Pro7	Asphalt Emulsion	Yes
True Value online	Henry Sealer & Dampproofers	Asphalt Emulsion	Yes
Fleet Farm	Jetcoat 1 yr Driveway Sealer	Asphalt Emulsion	Yes
Fleet Farm	Jetcoat 3 yr Driveway Sealer	Asphalt Emulsion	Yes
Fleet Farm	Jetcoat 5 yr Driveway Sealer	Asphalt Emulsion	Yes
Home Depot-GB	Latex-ite Acrylic Plus	Acrylic	Yes
Home Depot-GB	Latex-ite Airport Grade	Asphalt Emulsion	Yes
Home Depot-GB	Latex-ite Optimum	Asphalt Emulsion	Yes
Home Depot-GB	Latex-ite Ultra Shield	Asphalt Emulsion	Yes
Home Depot-GB	Lift Driveway Overlay Sealer	Acrylic	Yes
Home Depot-GB	Plushtex Asphalt Resurfacer	Asphalt Emulsion	Yes
Menards De Pere	Rustoleum Epoxyshield	Acrylic	Yes
Home Depot-GB	Rustoleum Epoxyshield	Acrylic	Yes
Home Depot-GB	Latex-ite Color Grade Blacktop Sealer	Petroleum Emulsion	No
Home Depot-GB	Latex-ite Drive-Top Sealer	Petroleum Emulsion	No
Home Depot-GB	Latex-ite Therma Seal	Petroleum Emulsion	No
True Value online	Sakrete Blacktop Sealer	Tar emulsion	No

Attachment: Local PAH Levels (9336 : Prohibition of coal-tar and PAH containing pavement sealants)



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Parks, Recreation & Forestry

FROM: Don Melichar

SUBJECT: Consideration and Possible Action to Approve Lizer Lawn Care as Weed Control Contractor

ATTACHMENTS:

- Memo to Board of BOPW for noxious weed cutting 2-27-20 (DOC)
- Lizer proposal 3-4-20 (PDF)



Memorandum

To: Board of Public Works

From: Don Melichar
De Pere Park Superintendent/City Forester

Re: Contracting weed cutting services for 2020-2023

Date: March 4, 2020

Issue: Approval/award contract to a landscaping company for cutting weeds on properties in violation of the City's Noxious Weed Ordinance.

Summary: We have solicited quotes to conduct weed cutting on properties in violation of the City's Weed Ordinance. After soliciting multiple contractors and running a proposal for quotes in the Green Bay Press Gazette, we received 1 quote. Quotes include having a minimum insurance of not less than \$2 million general liability and not less than \$4 million umbrella liability; response time of two working days; line trimming when needed; and baling or collecting of weeds/grass if needed. I have summarized the quotes below for your review.

Company	Fee/hour	Notes	
Lizer Lawn Care	\$60.00/hour – 2020 \$60.00/hour – 2021 \$60.00/hour - 2022 \$60.00/hour - 2023	¾ hour minimum. Insured.	

Staff Recommendation:

As the lone responder to our request Lizer Landscape is not able to make the Umbrella insurance requirements of \$4 million, instead coming in at \$2 million. After careful consideration and review of the charge for the service and certificate of insurance for the requested limits it is staff's recommendation, though, to approve **Lizer Landscape** for 2020-2023. In addition, Lizer has served as the City's contractor under the same requirements since 2015 and have performed the job to our department's satisfaction.

If you have any questions, please contact me at 920-339-8362.

CITY OF DE PERE

Parks, Recreation & Forestry

925. S. Sixth Street, De Pere, WI 54115 | 920-339-4065 | www.de-pere.org



Service Agreement for Noxious Weed/Long Grass cutting for City of De Pere to include the following:

1. Cost of service will be on a per hour basis.
2. Contractor to respond to City request within two (2) working days of notice.
3. Services will include noxious weed/long grass cutting, line trimming and, when necessary, baling or collection of cut weeds/grass of property in violation.
4. Services will be conducted during the spring, summer, and fall seasons.
5. City will contact contractor by email and/or phone to inform them of services needed.
6. Agreement term: 2020 - 2022 with City option to extend contract through 2023.
7. Price proposal: Please provide rates for 2020, 2021, 2022, and 2023.
8. Contractor shall maintain for the life of this Agreement comprehensive general liability insurance of not less than \$2,000,000; with additional umbrella liability insurance not less than \$4,000,000; automobile bodily injury and property damage liability not less than \$600,000; and statutory workers compensation and employers' liability insurance as required by the State of Wisconsin.
9. Contractor shall not subcontract any of the work agreed upon with the City.

Price proposal

2020 \$60.00 per hr.
 2021 \$60.00 per hr.
 2022 \$60.00 per hr.
 2023 \$60.00 per hr.

Lizer Lawn Care
 3/4/2020



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on the Draft 2019 Annual Report for the Wisconsin Department of Natural Resources MS4 General Permit*

ATTACHMENTS:

- 2020 0309 CI_BOPW-WDNR MS4 Annual Permit (PDF)
- MS2444-2019_MS4_Annual_Report-DRAFT (PDF)
- MS4 Annual Report_Activity Summary (PDF)
- INSPECTION CHECKLIST POND (PDF)
- Storm Water Facility Inventory (PDF)
- 2019 MS4 De Pere Outfall Locations (PDF)
- MAJOR AND MINOR OUTFALLS (PDF)
- CE-2019 MS4 De Pere Map Updates (PDF)
- 2019 MS4 BASIN UPDATES (PDF)
- CI-CALC-TSS-Treatment_Reductions-AC (PDF)
- CI-CALC-TSS-Treatment_Reductions-ER (PDF)
- CI-CALC-TSS-Treatment_Reductions-Fox (PDF)
- 09-2019 SWPPP Update MSC Complete (PDF)
- 2019 NEWSC Annual Report (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: **Consider Draft 2019 Annual Report for the Wisconsin Department of Natural Resources MS4 General Permit***

The City has been issued a Wisconsin Pollutant Discharge Elimination System Number WE-S050075-03 permit to discharge storm water from the Wisconsin Department of Natural Resources (WDNR). The City is required to complete an annual report as part of the permit. There are five different components to the permit that the City is responsible to complete during the permit five year cycle. These items include:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Pollutant Control
- Post-Construction Storm Water Management
- Pollution Prevention

The Engineering Department has attached the draft Annual Report under MS4 General Permit for the 2019 calendar year and it is attached for your review. The Report identifies activities that the City has completed in 2019 to meet our MS4 General Permit for storm water discharge. Highlights from the 2019 Report include:

- Membership in the Northeast Wisconsin Stormwater Consortium (NEWSWC) which helps the City meet the requirements for Public Outreach and Education and Public Involvement and Participation.
- Expanded an existing pond off of Ryan Road for the Pine Trail Crossing subdivision
- Cleaned and televised 50,000 linear feet of storm sewer.
- Spring and fall leaf collection.
- Spring and fall brush collection.
- Street sweeping.
- Inspected all storm water management ponds in the City.
- Updated the City's Storm Water Pollution Prevention Plan for the Municipal Service Center.

Staff recommends the Board of Public Works approve the draft Report for submittal to the WDNR.

Submittal of Annual Reports and other Compliance Documents for Municipal Separate Storm Sewer System (MS4) Permits

NOTE: Missing or incomplete fields are highlighted at the bottom of each page. You may save, close and return to your draft permit as often as necessary to complete your application. After 120 days your draft is **deleted**.

Reporting Information

Will you be completing the Annual Report or other submittal type? ☒ Annual Report ☐ Other

Project Name: 2019 MS4 Annual Report

County: Brown

Municipality: De Pere City

Permit Number: S050075

Facility Number: 31088

Reporting Year: 2019

Is this submittal also satisfying an Urban Nonpoint Source Grant funded deliverable? ☒ Yes ☐ No

Please submit grant funded deliverables separately from the annual report.

Required Attachments and Supplemental Information

Please complete the contents of each tab to submit your MS4 permit compliance document. The information included in this checklist is necessary for a complete submittal. A complete and detailed submittal will help us review about your MS4 permit document. To help us make a decision in the shortest amount of time possible, the following information must be submitted:

Annual Report

- Review related web site and instructions for [Municipal storm water permit eReporting](#) [Exit Form]
- Complete all required fields on the annual report form and upload required attachments
- Attach the following other supporting documents as appropriate using the attachments tab above
 - Public Education and Outreach Annual Report Summary
 - Public Involvement and Participation Annual Report Summary
 - Illicit Discharge Detection and Elimination Annual Report Summary
 - Construction Site Pollution Control Annual Report Summary
 - Post-Construction Storm Water Management Annual Report Summary
 - Pollution Prevention Annual Report Summary
 - Leaf and Yard Waste Management
 - Municipal Facility (BMP) Inspection Report
 - Municipal Property SWPPP
 - Municipally Property Inspection Report
 - Winter Road Maintenance
 - Storm Sewer Map Annual Report Attachment

- Storm Water Quality Management Annual Report Attachment
 - TMDL Attachment
 - Storm Water Consortium/Group Report
 - Municipal Cooperation Attachment
 - Other Annual Report Attachment
- Attach the following permit compliance documents as appropriate using the attachments tab above
 - Storm Water Management Program (*S050075-03 general permittees shall have a written storm water management program that describes in detail how the permittee intends to comply with the permit requirements for each minimum control measure. Updated programs are due to the department by March 31, 2021.*)
 - Public Education and Outreach Program
 - Public Involvement and Participation Program
 - Illicit Discharge Detection and Elimination Program
 - Construction Site Pollutant Control Program
 - Post-Construction Storm Water Management Program
 - Pollution Prevention Program
 - Municipal Storm Water Management Facility (BMP) Inventory (*S050075-03 general permittees 2.6.1 - inventory due to the department by March 31, 2021.*)
 - Municipal Storm Water Management Facility (BMP) Inspection and Maintenance Plan (*S050075-03 general permittees 2.6.2 – document due to the department by March 31, 2021.*)
 - Sign and Submit form

Do not close your work until you SAVE.

Form 3400-224 (08/19)

Municipal Contact Information- Complete

Notice: Pursuant to s. NR 216.07(8), Wis. Adm. Code, an owner or operator of a Municipal Separate Storm Sewer System (MS4) is required to submit an annual report to the Department of Natural Resources (Department) by March 31 of each year to report on activities for the previous calendar year ("reporting year"). This form is being provided by the Department for the user's convenience for reporting on activities undertaken in each reporting year of the permit term. Personal information collected will be used for administrative purposes and may be provided to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Note: Compliance items must be submitted using the Attachments tab.

Municipality Information

Name of Municipality De Pere City

Facility ID # or (FIN): 31088

Updated Information: ☐ Check to update mailing address information

Mailing Address: 925 S. Sixth Street

Mailing Address 2:

City: De Pere

State: Wisconsin

Zip Code: 54115 xxxxx or xxxxx-xxxx

Primary Municipal Contact Person (Authorized Representative for MS4 Permit)

The "Authorized Representative" or "Authorized Municipal Contact" includes the municipal official that was charged with compliance and oversight of the permit conditions, and has signature authority for submitting permit documents to the Department (i.e., Mayor, Municipal Administrator, Director of Public Works, City Engineer).

☐ Select to **create new** primary contact

First Name: Eric

Last Name: Rakers

☐ Select to **update** current contact information

Title: City Engineer

Mailing Address: 925 S. Sixth St

Mailing Address 2:

City: De Pere

State: WI

Zip Code: 54115 xxxxx or xxxxx-xxxx

Phone Number: 920-339-8304 Ext: xxx-xxx-xxxx

Email: erakers@mail.de-pere.org

Additional Contacts Information (Optional)

- ☐ I&E Program
☐ IDDE Program

**Individual with responsibility for:
(Check all that apply)**

- ☐ IDDE Response Procedure Manual
☐ Municipal-wide Water Quality Plan
☐ Ordinances
☐ Pollution Prevention Program
☐ Post-Construction Program
☐ Winter roadway maintenance

First Name:

Last Name:

Title:

Mailing Address:

Mailing Address 2:

City:

State:

Zip Code:

xxxxx or xxxxx-xxxx

Phone Number:

Ext:

xxx-xxx-xxxx

Email:

1. Does the municipality rely on another entity to satisfy some of the permit requirements? If yes, enter entity name (government, consultant, group/organization).

☒ Yes ☐ No

☒ Public Education and Outreach: Northeast Wisconsin Stormwater Consortium

☒ Public Involvement and Participation: Northeast Wisconsin Stormwater Consortium

☐ Illicit Discharge Detection and Elimination: _____

☐ Construction Site Pollutant Control: _____

☐ Post-Construction Storm Water Management: _____

☐ Pollution Prevention

2. Has there been any changes to the municipality's participation in group efforts towards permit compliances (i.e., the municipality has added or dropped consortium membership)?

☐ Yes ☒ No

Missing Information

Do not close your work until you SAVE.

Note: For the minimum control measures, you must fill out all questions in sections 1 through 7.

Form 3400-224 (08/19)

Minimum Control Measures- Section 1 : Complete**1. Public Education and Outreach**

a. Complete the following information on Public Education and Outreach Activities related to storm water. Select the Mechanism that best describes how the topic message was conveyed to your population. Use the **Add Activity** to add multiple Mechanisms. For Quantity, choose the range for the number of Mechanisms chosen (i.e., number of workshops, events).

Topic: Detection and elimination of illicit discharges			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
Active distribution of print media (mailings, newsletters, etc)	20 - 49	20 - 49	☐ Yes ☒ No
Other	Select...	Select...	☒ Yes ☐ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors ☒ General Public ☐ Public Employees ☒ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Management of materials that may cause storm water pollution from automobiles, pet waste, household hazardous waste and household practices			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
Educational activities (School presentations, summer camps, etc)	1 - 9	100 +	☐ Yes ☒ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors ☐ General Public ☐ Public Employees ☐ Residential ☒ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Beneficial onsite reuse of leaves and grass clippings/proper use of lawn and garden fertilizers and pesticides			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
Active distribution of print media (mailings, newsletters, etc)	20 - 49	20 - 49	☐ Yes ☒ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors ☒ General Public ☐ Public Employees ☒ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Management of stream banks and shorelines by riparian landowners to minimize erosion and restore and enhance the ecological value of waterways

Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>Direct one-on-one communication</u>	<u>Select...</u>	<u>1 - 9</u>	☐ Yes ☒ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors ☒ General Public ☐ Public Employees ☒ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Infiltration of residential storm water runoff from rooftop downspouts, driveways and sidewalks

Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>Passive print media (brochures at front desk, posters, etc.)</u>	<u>1 - 9</u>	<u>100 +</u>	☐ Yes ☒ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors ☒ General Public ☐ Public Employees ☒ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Inform and where appropriate educate those responsible for the design, installation, and maintenance of construction site erosion control practices and storm water management facilities on how to design, install and maintain the practices

Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>Targeted group training (contractors, consultants, etc.)</u>	<u>1 - 9</u>	<u>10 - 19</u>	☐ Yes ☒ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors ☐ General Public ☒ Public Employees ☐ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Identify businesses and activities that may pose a storm water contamination concern, and where appropriate, educate specific audiences on methods of storm water pollution prevention

Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>Targeted group training (contractors, consultants, etc.)</u>	<u>1 - 9</u>	<u>1 - 9</u>	☒ Yes ☐ No

Select all applicable audiences targeted for this topic.

- ☒ Contractors
 ☐ General Public
 ☒ Public Employees
 ☐ Residential
 ☐ School Groups
☐ Business
 ☒ Developers
 ☐ Industries
 ☐ Other:

Topic: Promote environmentally sensitive land development designs by developers and designers, including green infrastructure and low impact development

Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
Passive print media (brochures at front desk, posters, etc.)	1 - 9	Select...	☐ Yes ☒ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors
 ☒ General Public
 ☐ Public Employees
 ☒ Residential
 ☐ School Groups
☐ Business
 ☐ Developers
 ☐ Industries
 ☐ Other:

Topic: Other (describe):			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
Select...	Select...	Select...	☐ Yes ☐ No

Select all applicable audiences targeted for this topic.

- ☐ Contractors
 ☐ General Public
 ☐ Public Employees
 ☐ Residential
 ☐ School Groups
☐ Business
 ☐ Developers
 ☐ Industries
 ☐ Other:

b. Brief Public Education and Outreach program information for inclusion in the Annual Report. If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

Missing Information

Do not close your work until you **SAVE**.

Note: For the minimum control measures, you must fill out all questions in sections 1 through 7

Form 3400-224 (08/19)

Minimum Control Measures - Section 2 : Complete

2. Public Involvement and Participation

a. Complete the following information on Public Education and Outreach Activities related to storm water. Select the mechanism that best describes how the topic message was conveyed to your population. Use the Add Activity to add multiple mechanisms. For Quantity, choose the range for number Mechanisms chosen (i.e., number of workshops, events).

Topic: Storm Water Management Plan and/or updates			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>None</u>	<u>Select...</u>	<u>Select...</u>	☐ Yes ☒ No

Select all applicable participants targeted for this topic.

- ☐ Contractors ☒ General Public ☒ Public Employees ☒ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Storm water related ordinance and/or updates			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>None</u>	<u>Select...</u>	<u>Select...</u>	☐ Yes ☐ No

Select all applicable participants targeted for this topic.

- ☐ Contractors ☐ General Public ☐ Public Employees ☐ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: MS4 Annual Report			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>Government Event (Public Hearing, Council Meeting, etc)</u>	<u>1 - 9</u>	<u>Select...</u>	☐ Yes ☐ No

Select all applicable participants targeted for this topic.

- ☐ Contractors ☒ General Public ☒ Public Employees ☐ Residential ☐ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Volunteer Opportunities			
Mechanism	Quantity (optional)	Est. People Reached (optional)	Regional Effort? (optional)
<u>Clean-up events</u>	<u>10 - 19</u>	<u>Select...</u>	☐ Yes ☒ No

Select all applicable participants targeted for this topic.

- ☐ Contractors ☒ General Public ☐ Public Employees ☐ Residential ☒ School Groups
☐ Business ☐ Developers ☐ Industries ☐ Other:

Topic: Other (describe) : <u>Discuss Public Education at Sustainability Meeting</u>			
Mechanism	Quantity	Est. People Reached	Regional Effort?

	(optional)	(optional)	(optional)
Government Event (Public Hearing, Council Meeting, etc)	Select...	Select...	☐ Yes ☐ No

Select all applicable participants targeted for this topic .

- ☐ Contractors
 ☒ General Public
 ☒ Public Employees
 ☐ Residential
 ☐ School Groups
☒ Business
 ☒ Developers
 ☐ Industries
 ☐ Other:

b. Brief Public Involvement and Participation program information for inclusion in the Annual Report.
 If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

Missing Information

Do not close your work until you **SAVE**.

Note: For the minimum control measures, you must fill out all questions in sections 1 through 7

Form 3400-224 (09/19)

Minimum Control Measures - Section 3 : Has Missing Items

3. Illicit Discharge Detection and Elimination

- | | | |
|--|----------------------------------|---------------------------------|
| a. How many total outfalls does the municipality have? | <input type="text" value="108"/> | ☐ Unsure |
| b. How many outfalls did the municipality evaluate as part of their routine ongoing field screening program? | <input type="text" value="0"/> | ☐ Unsure |
| c. From the municipality's routine screening, how many were confirmed illicit discharges? | <input type="text" value="0"/> | ☐ Unsure |
| d. How many illicit discharge complaints did the municipality receive? | <input type="text" value="0"/> | ☐ Unsure |
| e. From the complaint received, how many were confirmed illicit discharges? | <input type="text" value="0"/> | ☐ Unsure |
| f. How many of the identified illicit discharges did the municipality eliminate in the reporting year? | <input type="text" value="36"/> | ☐ Unsure |

(If the sum of 3.c. and 3.e. does not equal 3.f., please explain below.)

g. How many of the following enforcement mechanisms did the municipality use to enforce its illicit discharge ordinance? Check all that apply and enter the number of each used in the reporting year. ☐ Unsure

- | | |
|---|---------------------------------|
| ☐ Verbal Warning | <input type="text" value="0"/> |
| ☒ Written Warning (including email) | <input type="text" value="36"/> |
| ☐ Notice of Violation | <input type="text"/> |
| ☐ Civil Penalty/ Citation | <input type="text"/> |

Additional Information:

- h. Brief Illicit Discharge Detection and Elimination program information for inclusion in the Annual Report. If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

36 letters were sent to residents that were dumping grass clippings in storm water easements. Letters directed residents to remove grass clippings or be charged for City staff to remove. None of these were complaints, they were identified by City staff during public/private pond and swale inspections.

Missing Information

Maximum length is 250 characters,

Do not close your work until you **SAVE**.

Note: For the minimum control measures, you must fill out all questions in sections 1 through 7

Form 3400-224 (08/19)

Minimum Control Measures - Section 4 : Complete

4. Construction Site Pollutant Control

- a. How many total construction sites were active at any point in the reporting year? ☐ Unsure
- b. How many construction sites did the municipality issue permits for in the reporting year? ☐ Unsure
- c. Do the above numbers include sites <1 acre? ☒ Yes ☐ No ☐ Unsure
- d. How many erosion control inspections did the municipality complete in the reporting year? ☐ Unsure
- e. What types of enforcement actions does the municipality have available to compel compliance with the regulatory mechanism? Check all that apply and enter the number of each used in the reporting year. ☐ Unsure
- | | |
|---|---------------------------------|
| ☐ No Authority | |
| ☒ Verbal Warning | <input type="text" value="11"/> |
| ☒ Written Warning (including email) | <input type="text" value="37"/> |
| ☒ Notice of Violation | <input type="text" value="4"/> |
| ☐ Civil Penalty/ Citation | <input type="text"/> |
| ☐ Stop Work Order | <input type="text"/> |
| ☐ Forfeiture of Deposit | <input type="text"/> |
| ☐ Other - Describe below | <input type="text"/> |
- f. Brief Construction Site Pollutant Control program information for inclusion in the Annual Report. If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

Missing Information

Do not close your work until you **SAVE**.

Note: For the minimum control measures, you must fill out all questions in sections 1 through 7

Form 3400-224 (08/19)

Minimum Control Measures - Section 5 : Complete

5. Post-Construction Storm Water Management

- a. How many sites with new structural storm water management facilities* have received local approval ? ☐ Unsure

*Engineered and constructed systems that are designed to provide storm water quality control such as wet detention ponds, constructed wetlands, infiltration basins, grassed swales, permeable pavement, catch basin sumps, etc.

- b. How many privately owned storm water management facilities were inspected in the reporting year ? ☐ Unsure

Inspections completed by private land owners should be included in the reported number.

- c. What types of enforcement actions does the municipality have available to compel compliance with the regulatory mechanism? ☐ Unsure
Check all that apply and enter the number of each used in the reporting year.

☐ No Authority☐ Verbal Warning☒ Written Warning (including email)☐ Notice of Violation☐ Civil Penalty/ Citation☐ Forfeiture of Deposit☐ Complete Maintenance☐ Bill Responsible Party☐ Other - Describe below

- d. Brief Post-Construction Storm Water Management program information for inclusion in the Annual Report . If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

Letters to privately owned facilities will be sent in April 2020.

Missing Information

Do not close your work until you **SAVE**.

Minimum Control Measures - Section 6 : Has Missing Items

6. Pollution Prevention

Storm Water Management Facility Inspections (ponds, biofilters, etc.) ☐ Not Applicable

- a. Enter the total number of municipally owned or operated structural storm water management facilities ? ☐ Unsure
- b. How many new municipally owned storm water management facilities were installed in the reporting year ? ☐ Unsure
- c. How many municipally owned storm water management facilities were inspected in the reporting year? ☐ Unsure
- d. What elements are looked at during inspections (250 character limit)?
- e. How many of these facilities required maintenance? ☐ Unsure

Public Works Yards & Other Municipally Owned Properties (SWPPP Plan Review) ☐ Not Applicable

- f. How many inspections of municipal properties have been conducted in the reporting year? ☐ Unsure
- g. Have amendments to the SWPPPs been made? ☒ Yes ☐ No ☐ Unsure
- h. If yes, describe what changes have been made (200 character limit):

Collection Services - *Street Sweeping / Cleaning Program* ☐ Not Applicable

- i. Did the municipality conduct street sweeping/cleaning during the reporting year?
☒ Yes ☐ No ☐ Unsure
- j. If known, how many tons of material was removed? ☐ Unsure
- k. Does the municipality have a low hazard exemption for this material? ☐ Yes ☒ No
- l. If street cleaning is identified as a storm water best management practice in the pollutant loading analysis, was street cleaning completed at the assumed frequency?
☒ Yes
☐ No - Explain _____
☐ Not Applicable

Collection Services - *Catch Basin Sump Cleaning Program* ☐ Not Applicable

- m. Did the municipality conduct catch basin sump cleaning during the reporting year?
☐ Yes ☒ No ☐ Unsure
- n. How many catch basin sumps were cleaned in the reporting year? ☐ Unsure
- o. If known, how many tons of material was collected? ☐ Unsure

- p. Does the municipality have a low hazard exemption for this material? ☐ Yes ☒ No
- q. If catch basin sump cleaning is identified as a storm water best management practice in the pollutant loading analysis, was cleaning completed at the assumed frequency?
☐ Yes
☐ No - Explain _____
☒ Not Applicable

Collection Services - *Leaf Collection Program* ☐ Not Applicable

- r. Does the municipality conduct curbside leaf collection? ☒ Yes ☐ No ☐ Unsure
- s. Does the municipality notify homeowners about pickup? ☒ Yes ☐ No ☐ Unsure
- t. Where are the residents directed to store the leaves for collection?
☒ Pile on terrace ☐ Pile in street ☐ Bags on terrace ☐ Unsure
☐ Other - Describe _____
- u. What is the frequency of collection?
 weekly rotation (6 weeks in fall/4 weeks in spring)
- v. Is collection followed by street sweeping/cleaning? ☒ Yes ☐ No ☐ Unsure

Winter Road Management ☐ Not Applicable

*Note: We are requesting information that goes beyond the reporting year, answer the best you can.

- w. How many lane-miles of roadway is the municipality responsible for doing snow and ice control? ☐ Unsure
- x. Provide amount of de-icing products used by month last winter season?
 Solids (tons) (ex. sand, or salt-sand)

Product	Oct	Nov	Dec	Jan	Feb	Mar
<u>Salt</u>	5	69	202	324	514	0

Liquids (gallons) (ex. brine)

	Oct	Nov	Dec	Jan	Feb	Mar
<u>Brine</u>	1000	6500	12400	12955	10346	0

- y. Was salt applying machinery calibrated in the reporting year? ☒ Yes ☐ No ☐ Unsure
- z. Have municipal personnel attended salt reduction strategy training in the reporting year? ☒ Yes ☐ No ☐ Unsure

If yes, describe what training was provided (250 character limit):

Winter Maintenance Supervisor Workshop

When:

How many attended:

- aa. Has training or education been held for municipal or other personnel involved in implementing each of the pollution prevention program elements? ☒ Yes ☐ No ☐ Unsure

If yes, describe what training was provided (250 character limit):

Grass Clippings on Street and other Illicit Discharges in/near ditches and parks

When: 4/3/19

How many attended: 7

- ab. Describe how the municipality has kept the following local officials and municipal staff aware of the municipal storm water discharge permit programs and its requirements.

Elected Officials

Board of Public Works Meeting and Common Council July 2019

Municipal Officials

MS4 Team Meetings (Quarterly)

Appropriate Staff (such as operators, Department heads, and those that interact with public)

MS4 Team Meetings (Quarterly)

- ac. Brief Pollution Prevention program information for inclusion in the Annual Report . If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

Missing Information

Question 6j is required.,

Do not close your work until you **SAVE**.

Note: For the minimum control measures, you must fill out all questions in sections 1 through 7

Form 3400-224 (08/19)

Minimum Control Measures - Section 7 : Complete

7. Storm Sewer System Map

- a. Did the municipality update their storm sewer map this year? ☒ Yes ☐ No ☐ Unsure

If yes, check the areas the map items that got updated or changed:

- ☒ Storm water treatment facilities
☒ Storm pipes
☐ Vegetated swales
☒ Outfalls
☐ Other - Describe below

- b. Brief Storm Sewer System Map information for inclusion in the Annual Report. If your response exceeds the 250 character limit, attach supplemental information on

the attachments page.

3.8.b

Do not close your work until you SAVE.

Form 3400-224 (08/19)

Final Evaluation - Complete

Fiscal Analysis

Complete the fiscal analysis table provided below. For municipalities that do not break out funding into permit program elements, please enter the monetary amount to your best estimate of what funding may be going towards these programs.

Annual Expenditure Reporting Year	Budget Reporting Year	Budget Upcoming Year	Source of Funds
---	--------------------------	-------------------------	-----------------

Element: Public Education and Outreach

19840	19554	22087	<u>Storm water utility</u>
-------	-------	-------	----------------------------

Element: Public Involvement and Participation

19840	19554	22087	<u>Storm water utility</u>
-------	-------	-------	----------------------------

Element: Illicit Discharge Detection and Elimination

11048	10728	11934	<u>Storm water utility</u>
-------	-------	-------	----------------------------

Element: Construction Site Pollutant Control

65951	64704	71797	<u>Storm water utility</u>
-------	-------	-------	----------------------------

Element: Post-Construction Storm Water Management

113782	104643	170473	<u>Storm water utility</u>
--------	--------	--------	----------------------------

Element: Pollution Prevention

1151795	2156951	2171867	<u>Storm water utility</u>
---------	---------	---------	----------------------------

Element: Storm Water Quality Management

107065	75583	124722	<u>Storm water utility</u>
--------	-------	--------	----------------------------

Element: Storm Sewer System Map

16346	15287	22002	<u>Storm water utility</u>
-------	-------	-------	----------------------------

Other (describe)

Select...

Please provide a justification for a "0" entered in the Fiscal Analysis

Water Quality

a: Were there any known water quality improvements in the receiving waters to which the municipality's storm sewer system directly discharges to?

☐ Yes ☒ No ☐ Unsure If Yes, explain below:

b: Were there any known water quality degradation in the receiving waters to which the municipality's storm sewer system directly discharges to?

☐ Yes ☒ No ☐ Unsure If Yes, explain below:

c: Have any of the receiving waters that the municipality discharges to been added to the impaired waters list during the reporting year?

☐ Yes ☒ No ☐ Unsure

d: Has the municipality evaluated their storm water practices to reduce the pollutants of concern?

☒ Yes ☐ No ☐ Unsure

Total Maximum Daily Loads (TMDLs)

The permittee De Pere City is subject to the following approved TMDLs: Lower Fox River Basin and Lower Green Bay

Select one option below. The permittee intends to comply with the following permit requirement to show progress towards meeting the (Appendix A) TMDL:

- ☐ Request department concurrence that they are currently meeting the TMDL pollutant reductions in all applicable reachsheds (A.2).
- ☐ Demonstrate that they will meet the TMDL pollutant reductions in all applicable reachsheds by October 31, 2023 (A.4).
- ☒ Follow the TMDL Compliance Plan which received Department concurrence prior to April 30, 2019 (A.3.1).
- ☐ Participate in an approved Adaptive Management Project (A.3.2).
- ☐ Submit a TMDL Implementation Plan describing planned progress over current permit term by October 31, 2021 (A.5). Do you intend to select A.5.2 or A.5.3 to meet this permit requirement?
 - ☐ A.5.2 – Additional 20% Total Suspended Solids (TSS), 10% Total Phosphorus (TP) reduction from current ch. NR 151, Wis. Adm. Code, standards
 - ☐ A.5.3 – Optimize measures

Additional Information

Based on the municipality's storm water program evaluation, describe any proposed changes to the

municipality’s storm water program. If your response exceeds the 250 character limit, attach supplemental information on the attachments page.

3.8.b

Do not close your work until you SAVE.

Form 3400-224 (08/19)

Requests for Assistance on Understanding Permit Programs

Would the municipality like the Department to contact them about providing more information on understanding any of the Municipal Separate Storm Sewer Permit programs?

Please select all that apply:

- ☐ Public Education and Outreach
- ☐ Public Involvement and Participation
- ☐ Illicit Discharge Detection and Elimination
- ☐ Construction Site Pollutant Control
- ☐ Post-Construction Storm Water Management
- ☐ Pollution Prevention
- ☐ Storm Water Quality Management
- ☐ Storm Sewer System Map
- ☐ Water Quality Concerns
- ☐ Compliance Schedule Items Due
- ☐ MS4 Program Evaluation

Do not close your work until you **SAVE**.

Required Attachments and Supplemental Information

Any other MS4 program information for inclusion in the Annual Report may be attached on here. Use the Add Additional Attachments to add multiple documents.

Upload Required Attachments (15 MB per file limit) - [Help reduce file size and trouble shoot file uploads](#)

***Required Item**

Note: To replace an existing file, use the 'Click here to attach file ' link or press the to delete an item.

Municipal Facility SWPPP

 File Attachment

[09-2019SWPPPUpdateMSCComplete.pdf](#)

Storm Sewer System Map

 File Attachment

Attach - Other Supporting Documents

AR BMPInspSum

 File Attachment

[StormWaterFacilityInventory.pdf](#)

AR MuniFacInsp

 File Attachment

[INSPECTIONCHECKLISTPOND.docx](#)

AR Other

 File Attachment

[MS4AnnualReport_ActivitySummary.docx](#)

(To remove items, use your cursor to hover over the attachment section. When the drop down arrow appears, select remove item)

Attach - Permit Compliance Documents

(To remove items, use your cursor to hover over the attachment section. When the drop down arrow appears, select remove item)

Missing Information

You must attach a Storm Sewer Map file,

Draft and Share PDF Report with Municipality's Governing Body.

Press the button below to create a PDF. The PDF will be sent to the email address associated with the WAMS ID that is signed in. After the annual report has been approved by the governing body, you will have to come back to the MS4 eReporting system to submit the report to the DNR.

[Draft and Share PDF Report with Municipality's Governing Body](#)

Do not close your work until you **SAVE**.

Complete and Submit Your Application

You have not completed all areas of the application. Please return to the application and complete all missing items.

Contact Information: Complete

Minimum Control Measures Section 1: Complete

Minimum Control Measures Section 2: Complete

Minimum Control Measures Section 3: Has Missing Items

Minimum Control Measures Section 4: Complete

Minimum Control Measures Section 5: Complete

Minimum Control Measures Section 6: Has Missing Items

Minimum Control Measures Section 7: Complete

Attachments: Has Missing Items

Final Evaluation: Complete

CITY OF DE PERE

Public Works - Engineering Department

925 S. Sixth Street, De Pere, WI 54115 | 920-339-4061 | www.de-pere.org



City of De Pere MS4 Annual Permit – Supplemental Information

Below is a summary of activities completed for the various requirements of the MS4 permit.

Public Education and Outreach Summary

- The City includes “The Perfect Lawn” flyers from NEWSC in letters sent to property owners to remove grass clippings from storm water easements.
- The City included an article on rain gardens in its spring newsletter.
- The City included an article on salt use in its spring newsletter.
- Parks Management had a discussion with Parks Staff about limiting grass clippings in the streets and reporting property’s leaving clippings in the streets or in storm water easements.
- The Street Department cleaned up a canoe blocking the outlet pipe in the central connecting ditch at Samantha Park.
- Inspection staff had a discussion with a property owner along the central connecting ditch (American Blvd) about keeping the ditch clean of garbage and other materials that may impede the flow of water through the ditch.
- The City participated in Foxview Intermediate School Storm water Presentations May 23 & 24, 2019. NEWSC staff held presentations May 20-22, 2019 (NEWSC Annual Report).
- Discussed grass clippings on streets and storm easements with Parks Department.
- City Street Department cleaned up the central connecting ditch at Samantha Park, there was a canoe blocking the outlet pipe.
- The City hosted Winter Parking Lot Maintenance Workshop in October 2019. (NEWSC Annual Report)

Public Involvement and Participation

- The City has a MS4 Team that meets several times throughout the year.
- The City’s Beautification Committee cleans up garbage along the Fox River Trail weekly.
- The Fox River Alliance cleaned up the parks and shorelines at Voyageur Park and Bomier April 27, 2019. (NEWSC Annual Report)
- St. Norbert College Into the Streets volunteers cleaned up Voyageur Park and removed invasive plants from native planting area. (NEWSC Annual Report)
- Storm water presentation to Board of Public Works and City Council meetings in July 2019.
- Discussed Public Education for City MS4 Permit at Sustainability Team meeting December 10, 2019.
- Staff attended MS4 Manager Workshop in December 2019.

- Staff attended Building Inspectors Association in April 2019; this included 2 hours of soil erosion control training.

Illicit Discharge Detection and Elimination

- Staff completed reviews of many of the outfalls as part of the pond and swale inspections. No formal field screenings were completed in 2019 per the City plan.
- Modifications were made to the major and minor outfall mapping in 2019. There modifications included listing large outfalls at the location of pond discharge versus the outlet of the pond. Maps have been included.
- Staff sent out 36 letters regarding the illegal dumping of grass clippings and yard debris in swales.

Construction Site Pollutant Control

- Staff completed inspections on private and public construction sites. Engineering assisted the inspection for erosion control practices on private sites. Staff utilized verbal and written warnings for several projects.

Post Construction Storm Water Management

- Staff completed inspections on public and private storm water management systems. Private facilities requiring maintenance will be sent letters in April 2020.
- The City completed maintenance on public storm water facilities at 1420 Fortune, Matthew and Suburban, NW Lawrence and Grant, and 41 and Scheuring.
- The City is continuing maintenance on public storm water facilities in 2020.
- The City is developing a swale maintenance program for 2020.
- The list of storm water maintenance activities is attached.
- The City installed 20 storm laterals to residents with existing storm sewer.

Pollution Prevention

- The City cleaned and televised 50,000 linear feet of storm sewer.
- Staff attended Winter Maintenance Supervisor Workshop in September 2019.
- City staff updated SWPPP for Municipal Service Center in September 2019.
- Staff attended Western U.S. Snow and Ice Conference.
- The City collected 000 tons of material during leaf collection and 000 tons of material from street sweeping and catch basin cleaning. Street sweepings and catch basin materials were not separated for a tonnage calculation.

CITY OF DE PERE

Public Works - Engineering Department

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3.8.d

POND OPERATION & MAINTENANCE INSPECTION CHECKLIST Inspection of all listed items shall take place at least quarterly (unless noted otherwise) and after rainfall events resulting in 2" of rainfall or more. A copy of this document shall be completed during each inspection. The party responsible for performing inspections and maintenance shall keep all completed checklists and make them available to Municipal, County, and State Officials upon request.		BASIN ID:
		SITE NAME:
		PERSON INSPECTING:
		INSPECTION DATE AND TIME:
		RAINFALL WITHIN PAST 2-3 DAYS:
Reason for Inspection (Circle One): Complaint / Storm Event / Scheduled / Other		
Ownership (Circle One) Public Private		
LEGEND: PROBLEM NOTICED N/A = Not Applicable M = Monitor (potential for future problem) NP = Not a Problem WN = Work Needed		
ITEM INSPECTED	PROBLEM NOTICED	COMMENTS
INFLOW ASSESSMENT		
Obstruction: Vegetation/Debris/Sediment		
Erosion/Undercutting		
Displacement of Fabric/ Rip Rap		
Pipe Condition/Exposure		
Other:		
FOREBAY ASSESSMENT		
Sediment/ Debris Accumulation		
Side Slope Erosion		
Invasive Vegetation		
Other:		
VEGETATED SHELF / MAIN TREATMENT AREA ASSESSMENT		
Visible Pollution / Muddiness		
Sediment / Debris Accumulation		
Plants are Dead, Diseased, or Dying		
Bare Soil/Erosive Gullies		
Algae Cover (estimate %)		
Invasive Vegetation (estimate %)		
Other:		

Attachment: INSPECTION CHECKLIST POND (9341 : Consider Draft 2019 Annual Report for the WDNR MS4 General Permit)

CITY OF DE PERE

Public Works - Engineering Department

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3.8.d

EMBANKMENT ASSESSMENT		
Erosion and/or Loss of Dam Material		
Shrubs/Trees Present		
Animal Burrows		
Soft Spots or Boggy Areas		
Slides		
Other:		
OUTLET DEVICE ASSESSMENT		
Obstruction: Vegetation/Debris/Sediment		
Erosion/Undercutting		
Joint Failure/ Loss of Joint Material		
Leaking Device		
Other:		
MISCELLANEOUS		
Trash/Debris		
Access		
Vandalism		
Fence Condition (if applicable)		
Fish/ Wildlife Observations		
Signage (if applicable)		
Other		

Attach color digital photographs of the site and structural BMPs including a caption describing each photo.

COMMENTS:

OVERALL CONDITION OF FACILITY:

In accordance with approved design plans? Y / N

Maintenance required as detailed above? Y / N

Dates by which maintenance should be completed: ____/____/____

Signature of Person Inspecting: _____

UPDATE MASTERSHEET under x:\Storm\Inspections & Calcs by Basin\Stormwater Inspection Mastersheet

STORMWATER OPERATION & MAINTENANCE LISTING						Maintenance Needed
Basin	Name or Location	Type	Date of Last Inspection	Inspector	Ownership	
AC020A	1901 S Ashland Ave	Pond	6/12/2019	CS	Disputed	
AC030A	1629 S Ashland Ave	Pond	7/15/2019	CS	Private	
AC050A	250 S 9th St (Rennes Health)	Pond	7/15/2019	CS	Private	
AC050A	900 Main Ave (Unison Credit Union)	Biofilter	7/15/2019	CS	Private	
AC050A	Elm - Ninth St	Swale/Ravine	5/30/2019	CS	Public	Clear pipe of vegetation/sediment
AC050A	Suburban - Ninth on Grant St	Swale/Ravine	5/29/2019	Inspected as part of the Westwind Ct. Pond (2017)	Public	
AC050B	765 Lawrence Dr (Pool Works Inc)	Pond	7/15/2019	CS	Private	
AC050B	Westwind Ct	Pond	6/12/2019	CS	Disputed	
AC055A	1001 Main Ave (Festival Foods)	Pond	6/13/2019	CS	Private	Erosion
AC055A	1501 Main Ave (Mid-Valley)	Pond	7/15/2019	CS	Private	
AC055A	Exit 163 (Mid-Valley Rd-Hwy 41)	Pond	6/4/2019	CS	Public	Broken pipe
AC060A	505 Lawrence Dr	Pond	6/17/2019	CS	Private	
AC060A	505 Lawrence Dr (Creative Signs Co Inc)	Biofilter	-	Inspected as a pond in 2017	Private	
AC060A	875 Lawrence Dr (Cummins)	Pond	7/5/2019	CS	Private	
AC060A	NW Lawrence - Grant Dry	Dry Detention	6/5/2019	CS	Public	Clear pipe of vegetation/sediment
FW200C	1252 Scheuring Rd (Cadre East Swale	Swale/Ravine			Private	
AC070A	1205 Lawrence Dr (Concrete Contractors)	Pond	7/17/2019	CS	Private	
AC070A	1313 Lawrence Dr (Rear Menards/Walmart)	Pond	7/17/2019	CS	Private	
AC070A	1400 Block Lawrence Dr (Menards Parking)	Pond	7/17/2019	CS	Private	
AC080A	1610-1620 Lawrence Dr (Scheuring)	Pond	6/17/2019	CS	Private	Invasive Vegetation (Phragmites)
AC090A	1420 Fortune Ave (Harper Co.)	Dry Detention	6/10/2019	CS	Disputed	Clear pipe of vegetation/sediment
AC090A	1700 Lawrence Dr (Community First Credit Union)	Pond	6/13/2019	CS	Private	

Attachment: Storm Water Facility Inventory (9341 : Consider Draft 2019 Annual Report for the WDNR MS4 General Permit)

AC090A	1717 Lawrence Dr (Shopko Northeast)	Pond	5/31/2019	CS	Private	Erosion, Inflow obstruction
AC090A	1717 Lawrence Dr (Shopko Northwest)	Pond	6/12/2019	CS	Disputed	
AC090A	1801 Lawrence Dr (Independent Printing)	Pond	7/5/2019	CS	Private	
AC090A	1869 American Blvd (Graybar)	Pond	7/17/2019	CS	Private	
AC090A	1997 American Blvd (Cleaning Systems)	Pond	7/5/2019	CS	Private	
AC090A	2000 American Blvd. (northeast)	Dry Detention	6/17/2019	CS	Private	
AC090A	2000 American Blvd. (southwest)	Pond	6/17/2019	CS	Private	
AC090A	2001 Lawrence (Coin Wrap)	Pond	6/13/2019	CS	Private	
AC090A	2001 Lawrence (Coin Wrap)	Swale/Ravine	7/17/2019	CS	Private	
AC090A	Exit 161 Roundabout (Hwy 41 - Scheuring)	Pond	5/31/2019	CS	Public	
AC090A	Lawrence Dr (Integritys Parking-Preserve Entrance)	Pond	5/31/2019	CS	Public	Clear pipe of vegetation/sediment
AC090A	Scheuring - American Blvd	Pond	5/31/2019	CS	Public	
AC090A	Shopko Southeast (Dry)	Dry Detention	6/17/2019	CS	Private	Invasive Vegetation (Phragmites)
AC100A	1100 Employers Blvd (Humana)	Pond	6/13/2019	CS	Private	
AC100A	1880 Southbridge Rd	Pond	6/17/2019	CS	Private	
AC100A	Ashwaubenon Creek (Preserve behind Humana- Hwy 41)	Pond	6/4/2019	CS	Public	Pipe separation, broken pipe
AC100A	Hemlock Creek (Preserve behind Humana - Hwy 41)	Pond	6/4/2019	CS	Public	pipe separation
FW200D	1997 Venture Ave Drainage Swale	Swale/Ravine	6/10/2019	CS	Private	
AC100B	2077B Lawrence Dr (Honeysuckle)	Pond	5/22/2019	CS	Public	Erosion
XA100A	2066 Lawrence Dr (St Mark Lutheran - Large SW pond)	Pond	6/24/2019	CS	Private	
AC100D	1746-1770 Burgoyne Ct. (Burgoyne Lake Apartments)	Pond	7/5/2019	CS	Private	Erosion
AC100D	2191 American Blvd (Milwood)	Pond	5/21/2019	CS	Private	Erosion
AC100D	American Blvd - Southbridge Rd	Pond	4/22/2019	Jenna L.	Public	

AC100D	American Blvd Central (Samantha St)	Pond	5/21/2019	CS	Public	
AC100D	American Blvd Central 2 (Burgoyne Ct)	Pond	4/22/2019	Jenna L.	Public	Pipe separation, Erosion
AC100D	Central connecting ditch (American Blvd)	Swale/Ravine	4/22/2019	Jenna L.	Public	
AC100D	Northern connecting ditch (American Blvd)	Swale/Ravine	4/22/2019	Jenna L.	Public	
AC100D	Southern connecting ditch (American Blvd)	Swale/Ravine	4/22/2019	Jenna L.	Public	
AC100E	American Blvd South (Tullig)	Pond	5/21/2019	CS	Public	Debris (tires)
AC100E	Adare Ct	Pond	5/22/2019	Jenna L.	Public	
AC110A	Payton Ct	Pond	5/30/2019	CS	Public	
AC130A	1951 Snowy Owl Ct [Organics Inc]	Pond	6/5/2019	CS	Disputed	
AC140A	Cross Creek Cir	Pond	5/13/2019	Jenna L.	Public	Clear pipe of vegetation/sediment
AC140A	Cross Creek Cir	Swale/Ravine	6/5/2019	CS	Public	
AC150A	Daytona Speedway (Pocono Ct)	Pond	5/13/2019	Jenna L.	Public	
AC160A	2221 Innovation Dr (American 3 Fab)	Pond	7/5/2019	CS	Private	Erosion, Animal burrows
AC160A	Southbridge - Innovation (Foth)	Pond	5/28/2019	CS	Public	Erosion
AC170A	Southwest Park West - Daytona Speedway	Dry Detention	5/13/2019	Jenna L.	Public	Erosion
AC180A	Southwest Park South (Diamond)	Pond	5/13/2019	Jenna L.	Public	
ER010A	1820-11A Ridgeway Dr (Eau Claire Pl)	Pond	6/12/2019	CS	Private	Erosion
ER010A	825 E River Dr + 1901 Ridgeway Dr (Charleston Pointe I)	Pond	5/23/2019	CS	Private	
ER010A	Brule Rd. - Ridgeway Dr. Pond Connection	Swale/Ravine	7/17/2019	CS	Private	
ER010A	Pike Ln.	Swale/Ravine	7/17/2019	CS	Private	

Attachment: Storm Water Facility Inventory (9341 : Consider Draft 2019 Annual Report for the WDNR MS4 General Permit)

ER010A	W. Baraboo Cir.	Swale/Ravine	5/30/2019	CS	Disputed	
ER015A	Pecatonica Ct (Charleston Pointe II)	Pond	5/30/2019	CS	Public	
ER015A	W Rock River Cir	Swale/Ravine	5/24/2019	CS	Public	
ER020A	East River Dr - Rock River Ct	Swale/Ravine	5/23/2019	CS	Public	Tree debris
ER020A	East River Trail (Black Earth Dr)	Pond	5/24/2019	CS	Public	
ER020A	Pecatonica Ct drain	Swale/Ravine	5/30/2019	CS	Public	
ER030A	1979 Tyler Ln	Pond	5/30/2019	CS	Disputed	
ER030A	Brule Rd. - Sullivan Ln.	Swale/Ravine	5/24/2019	CS	Public	
ER030A	Desplaine Rd. - East River Dr.	Swale/Ravine	5/29/2019	CS	Public	
ER030A	East River Dr. - Black Earth Dr. (East)	Swale/Ravine	5/24/2019	CS	Public	Vegetation
ER030A	Shelley Ln. - Brule Rd.	Swale/Ravine	5/24/2019	CS	Public	
ER030A	Shelley Ln. (East)	Swale/Ravine	5/24/2019	CS	Public	
ER030A	Sullivan Ln. - Desplaine Rd.	Swale/Ravine	5/24/2019	CS	Public	Vegetation
ER040A	1881 Chicago St. (Aurora)	Dry Detention	7/15/2019	CS	Private	
ER040A	Jim Martin Park	Pond	5/24/2019	CS	Public	Clear pipe of vegetation/sediment
ER040A	Jim Martin Park 1st Easement East	Swale/Ravine	5/24/2019	CS	Public	Vegetation
ER040A	Shelley Ln [POTENTIAL]	FUTURE			Disputed	
ER050A	Shetland Pl - Saddlebrook Ln (Rotary Park)	Pond	5/29/2019	CS	Public	Pipe separation
ER060A	Painthorse Trail	Pond	5/21/2019	Jenna L.	Public	
ER080A	1950 Enterprise Dr (CA Lawton)	Pond	7/5/2019	CS	Private	

FW290C	Dog Park West Swale	Swale/Ravine	5/29/2019	CS	Public	Sediment accumulation in bottom
ER080B	1900 Enterprise Dr.	Pond	7/5/2019	CS	Private	
ER100A	711 Millenium Ct	Biofilter				
ER100A	Millenium Ct	Swale/Ravine	5/22/2019	CS	Public	
ER110A	Enterprise Dr (Sit & Stay Pet Resort)	Pond	5/29/2019	CS	Public	
ER120A	S. Melcorn Cl	Swale/Ravine	5/14/2019	Jenna L.	Public	
ER120A	Trailside Ln	Pond	5/14/2019	Jenna L.	Public	Clear pipe of vegetation/sediment, pipe separation
ER120B	Rockland Rd (North of 2100-2120 S. Broadway St.)	Swale/Ravine	5/14/2019	Jenna L.	Public	
ER130A	Diversity Dr (Susie C Altmayer Elementary)	Pond	Under Construction	-	Disputed	
FE010B	1040 N Broadway (Abbey Pond, SNC)	Pond	6/12/2019	CS	Private	
FE030A	1011 Broadway St. (West of Fox River Trail)	Pond	5/14/2019	Jenna L.	Disputed	
FE150A	1171 S Atrium Ct	Swale/Ravine	6/10/2019	CS	Disputed	Clear pipe of vegetation/sediment
FE190A	Optimist Park (17-09)	Pond	6/3/2019	CS	Public	
FE240B	1200-1281 Pershing Rd (Lake Park Estates)	Pond	5/22/2019	CS	Private	
FE260A	Greenleaf Rd - North of Belmark	Pond	5/29/2019	CS	Public	
FE260B	1300 Enterprise Dr (Behind PAI)	Swale/Ravine	5/29/2019	CS	Public	
FE260B	1850 Enterprise Dr. (Dry)	Dry Detention	7/5/2019	CS	Private	
FE260A	801 O'Keefe Rd	Dry Detention	7/17/2019	CS	Private	
FE260B	Greenleaf Rd - Fox River Trail	Pond	5/29/2019	CS	Public	

FE270A	1891 Commerce Dr (Bedford Paper)	Pond			Private	
FE275A	600 Heritage Rd (Belmark-Briarwood)	Pond	5/23/2019	CS	Disputed	
FE275A	600 Heritage Rd (Belmark-Briarwood)	Swale/Ravine	5/23/2019	CS	Disputed	
FE280A	Oak Water Ct	Swale/Ravine	5/23/2019	CS	Public	Erosion, tree debris
FE280A	Old Plank Ct	Swale/Ravine	5/24/2019	CS	Public	
FE280B	Greenleaf-Rockland Rd	Pond	5/14/2019	JML	Public	Clear pipe of vegetation/sediment, pipe separation, erosion
FE290A	Commerce Pond (16-09 Pond and Drainage Construction)	Pond	5/23/2019	CS	Public	
FW010A	Perkofsky Boat Landing/Brown County Fair Grounds	Pond	5/29/2019	CS	Public	Clear pipe of vegetation/sediment
FW070A	450 College Ave (Joliet Square Apartments)	Swale/Ravine	7/15/2019	CS	Private	
FW070A	West De Pere High School (Dry)	Dry Detention	6/5/2019	CS	Private	
FW140A	601 Third Avenue				Private	
FW180A	1300 Lost Dauphin (SNC Baseball, Mel Nicks Field)	Dry Detention	7/17/2019	CS	Private	
FW200A	1600 Lost Daupin (SNC Track, Schneider Athletic)	Pond	7/15/2019	CS	Private	
FW200B	1745 E Matthew Dr (De Pere Cabinet)	Pond	6/13/2019	CS	Private	Erosion
FW200B	Scheuring Rd - Suburban Dr	Pond	5/31/2019	CS	Public	Clear pipe of vegetation/sediment
FW200C	1251 Scheuring Rd (Front Cadre)	Biofilter			Private	
AC100B	Honeysuckle Swale (Rygar Ct.)	Swale/Ravine	4/22/2019	Jenna L.	Public	
FW200C	1255 Scheuring Rd (Behind Cadre)	Pond			Private	
FW200C	1740 E. Matthew Dr. (1751 W. Matthew Dr.)	Swale/Ravine			Private	
FW200C	Double Dry Matthew - Suburban Dr	Dry Detention	6/5/2019	CS	Public	Clear pipe of vegetation/sediment
FW200D	1997 Venture Ave (WI Lift Truck Co. - West)	Pond	6/10/2019	CS	Disputed	
FW200D	1997 Venture Ave (WI Lift Truck Co. Warehouse (East))	Pond	6/10/2019	CS	Disputed	
AC100A	Humana Swale - Preserve	Swale/Ravine	pictures taken 6/12/19	Under Construction	Public	

FW200D	1998 Venture Ave	Pond	6/10/2019	CS	Disputed	
FW200E	Terry Ln - Mobile Home Park	Swale/Ravine	5/30/2019	CS	Public	
FW280A	Fortune - Venture	Pond	5/22/2019	CS	Public	
FW280A	Red Maple - Lost Daupin	Swale/Ravine	5/30/2019	CS	Public	Erosion, debris
FW280B	500 Fortune Ave (East vertical)	Pond	5/22/2019	CS	Private	Pipe separation, Invasive vegetation (phragmites)
FW280B	500 Fortune Ave (Old Ecofibre)	Swale/Ravine	7/15/2019	CS	Private	
FW290A	1414 Builders Ct.	Pond	5/23/2019	CS	Public	
FW290B	Glen Meadows Cir (Kiwanis Park)	Pond	No longer exists	?	Public	
FW290B	Hopf Ln	Pond	5/28/2019	CS	Public	
FW290B	Red Maple (River Trail Ct)	Pond	5/30/2019	CS	Public	
ER080A	Ledgeview Swan Rd (Jossart Brothers Co.)	Pond	5/23/2019	CS	Public	Clear pipe of vegetation/sediment
FW290C	Dog Park	Pond	5/23/2019	CS	Public	
FW290C	Richco Ct Swale	Swale/Ravine	5/28/2019	CS	Public	
FW290C	Richco Ct.	Pond	5/28/2019	CS	Public	
AC060A	SW Lawrence - Grant	Pond	6/5/2019	CS	Public	
XA100A	2066 Lawrence Dr (St Mark Lutheran - Small N pond)	Pond	6/24/2019	CS	Private	

CITY OF DE PERE OUTFALLS

Outfall # Subbasin # Pipe Size (Inches) Type of Outfall

ASHWAUBENON CREEK BASIN

AC010-1	AC010	18	Major
AC070-1	AC070	36	Major
AC100-1	AC100	18	Major
AC041-2	AC160	21	Major
AC030-1	AC030	36	Major
AC050-3	AC050	66	Major
AC055-1	AC055	42	Major
AC060-1	AC060	36	Major
AC090-1	AC090	54	Major
AC100-4	AC100	36	Major
AC100-3	AC100	48	Major
AC100-2	AC100	36	Major
AC100-5	AC100	36	Major
AC100-6	AC100	36	Major
AC100-7	AC100	36	Major
AC055-1	AC055	42	Major
AC050-1	AC050	18	Minor
AC050-2	AC050	24	Minor
AC050-3	AC050	66	Minor
AC055-2	AC055	24	Minor
AC030-2	AC030	15	Minor
AC055-3	AC055	24	Minor
AC055-4	AC055	24	Minor
AC180-1	AC180	21	Minor
AC041-1	AC41	21	Minor
AC041-2	AC41	21	Minor
AC041-3	AC41	21	Minor
AC041-4	AC41	21	Minor
AC110-1	AC110	8	Minor
AC110-2	AC110	10	Minor
AC120-1	AC120	15	Minor
AC130-1	AC130	12	Minor
AC140-1	AC140	8	Minor
AC140-2	AC140	8	Minor
AC140-3	AC140	12	Minor
AC150-1	AC150	10	Minor
AC170-1	AC170	12	Minor

EAST RIVER BASIN

ER010-1	ER010	42	Major
ER010-2	ER010	42	Major
ER030-1	ER030	60	Major
ER080-1	ER080	24	Major
ER040-1	ER040	34X53	Major
ER050-1	ER050	42	Major
ER110-1	ER110	42	Major
ER120-1	ER120	42	Major
ER120-2	ER120	36	Major
ER130-1	ER130	42	Major
ER130-2	ER130	36	Major
ER130-3	ER130	30	Minor
ER130-3 added in 2019			
ER040-2	ER040	30	Minor
ER030-2	ER030	21	Minor
ER060-1	ER060	21	Minor

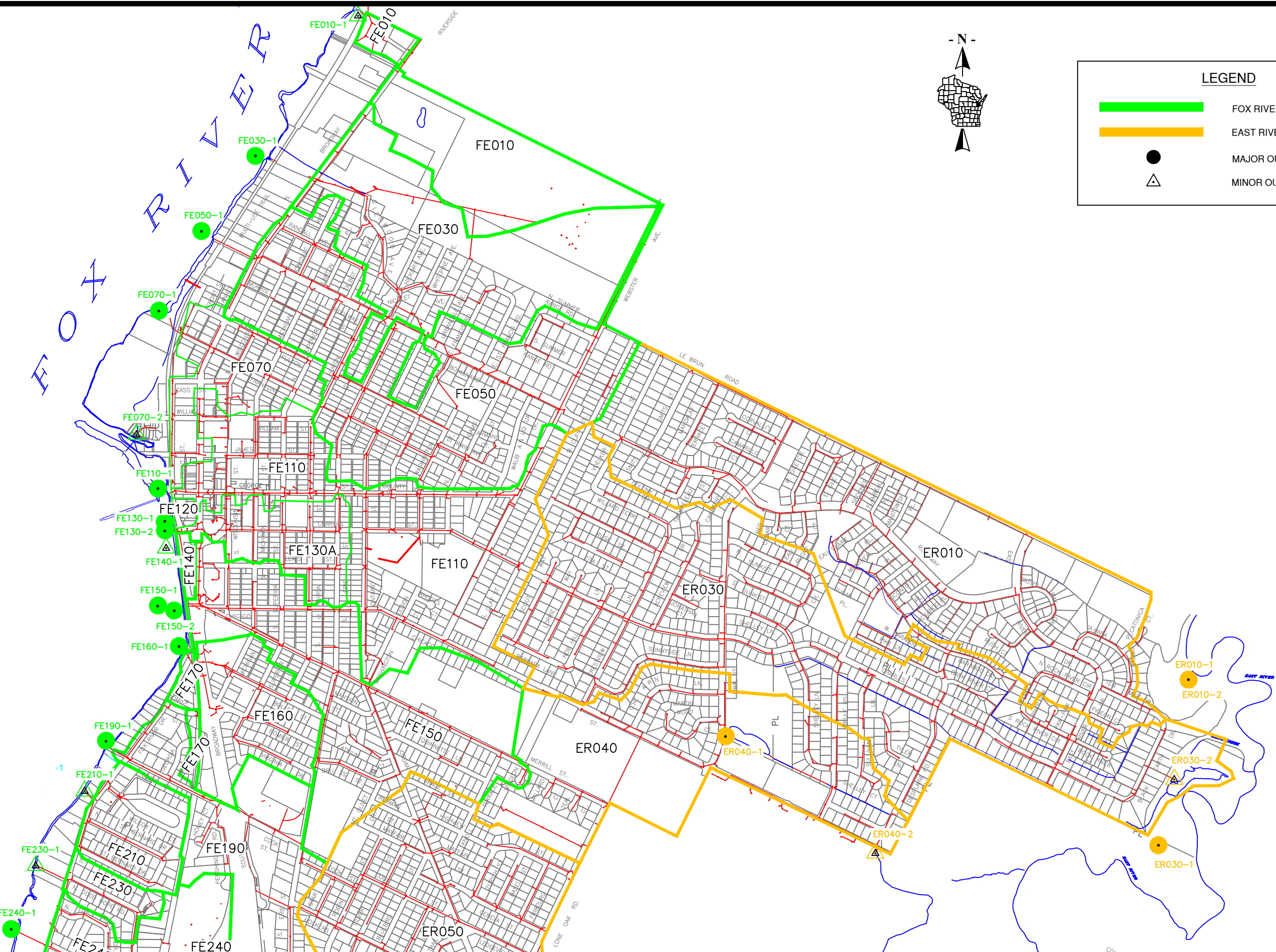
Outfall # Subbasin # Pipe Size (Inches) Type of Outfall

FOX RIVER WEST BASIN

FW060-1	FW060	18	Major
FW070-1	FW070	60X87	Major
FW090-1	FW090	18	Major
FW100-1	FW100	30	Major
FW100-2	FW100	42	Major
FW180-1	FW180	60	Major
FW200-1	FW200	72	Major
FW280-1	FW280	72	Major
FW290A-1	FW290A	72	Major
FW200-2	FW200	42	Major
FW200-3	FW200	36	Major
FW200-4	FW200	30	Major
FW280-2	FW280	42	Major
FW290-1	FW290	52	Major
FW290-2	FW290	54	Major
FW290-3	FW290	42	Major
FW290-4	FW290	42	Major
FW290-5	FW290	36	Major
FW020-1	FW020	12	Minor
FW155-1	FW155	8	Minor
FW160-1	FW160	8	Minor
FW010-1	FW010	24	Minor
FW040A-1	FW040A	15	Minor
FW040A-2	FW040A	18	Minor
FW120-1	FW120	16	Minor
FW130-1	FW130	16	Minor
FW140-1	FW140	12	Minor
FW150-1	FW150	12	Minor
FW170-1	FW170	12	Minor
FW190A-1	FW190A	8	Minor
FW210-1	FW210	12	Minor
FW230-1	FW230	21	Minor
FW270-1	FW270	24	Minor
FW300-1	FW300	18	Minor

FOX RIVER EAST BASIN

FE030-1	FE030	72	Major
FE050-1	FE050	65x40	Major
FE070-1	FE070	36	Major
FE110-1	FE110	38x60	Major
FE130A-1	FE130A	24x38	Major
FE130A-2	FE130A	24x38	Major
FE150-1	FE150	30	Major
FE150-2	FE150	42	Major
FE160-1	FE160	42	Major
FE190-1	FE190	24	Major
FE240-1	FE240	24	Major
FE270-1	FE270	60	Major
FE270-2	FE270	48	Major
FE280-2	FE280	48	Major
FE280-3	FE280	42	Major
FE260-1	FE260	36	Major
FE260-2	FE260	42	Major
FE280-1	FE280	12	Minor
FE010-1	FE010	30	Minor
FE070-2	FE070	24	Minor
FE140-1	FE140	24	Minor
FE210-1	FE210	24	Minor
FE230-1	FE230	21	Minor



CITY OF DE PERE

ENGINEERING DIVISION 925 S. SIXTH ST DE PERE WI 54115
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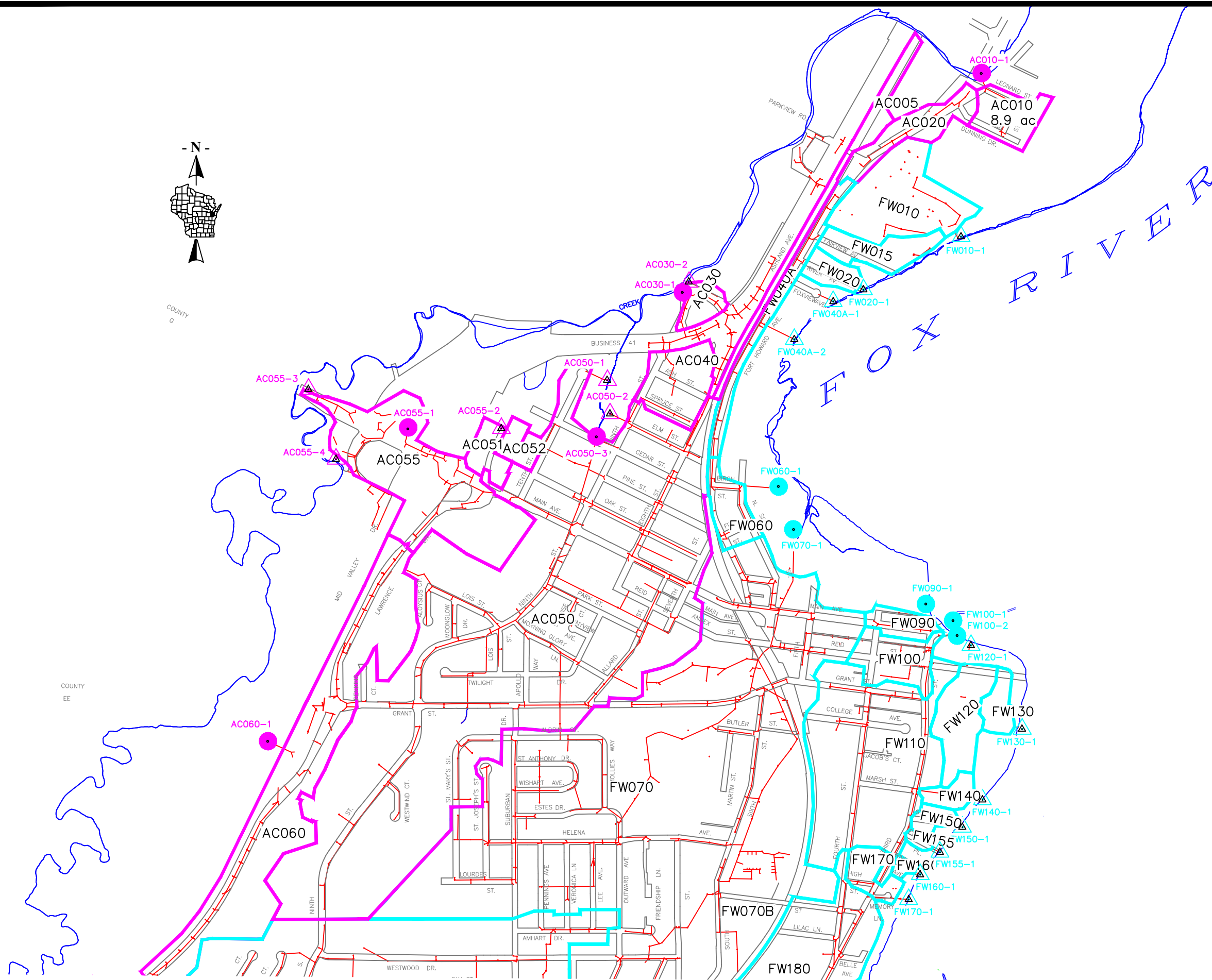
**CITY OF DE PERE
MAJOR & MINOR OUTFALLS NE REGION**

NO.		DATE		BY		REVISIONS / ISSUES	
						REMARKS	
1		03-2020		KAD		MAJOR AND MINOR OUTFALLS UPDATED	



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COUNTY
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FOX RIVER WEST BASIN

ASHWAUBEON CREEK BASIN

MAJOR OUTFALL

MINOR OUTFALL

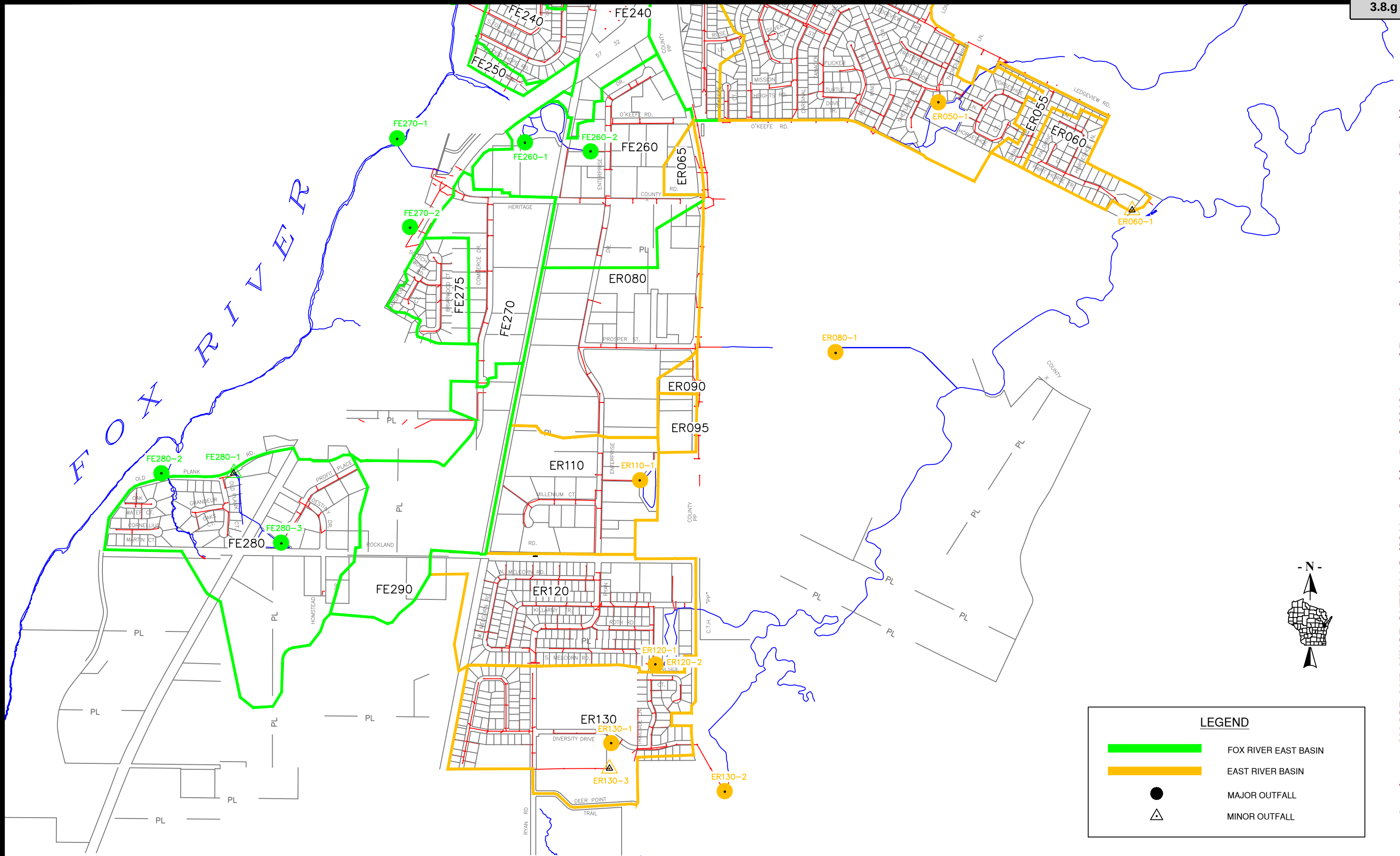


CITY OF DE PERE

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CITY OF DE PERE
MAJOR & MINOR OUTFALLS NW REGION

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS
1	03-2020	KAD	MAJOR AND MINOR OUTFALLS UPDATED



LEGEND

- FOX RIVER EAST BASIN
- EAST RIVER BASIN
- MAJOR OUTFALL
- MINOR OUTFALL

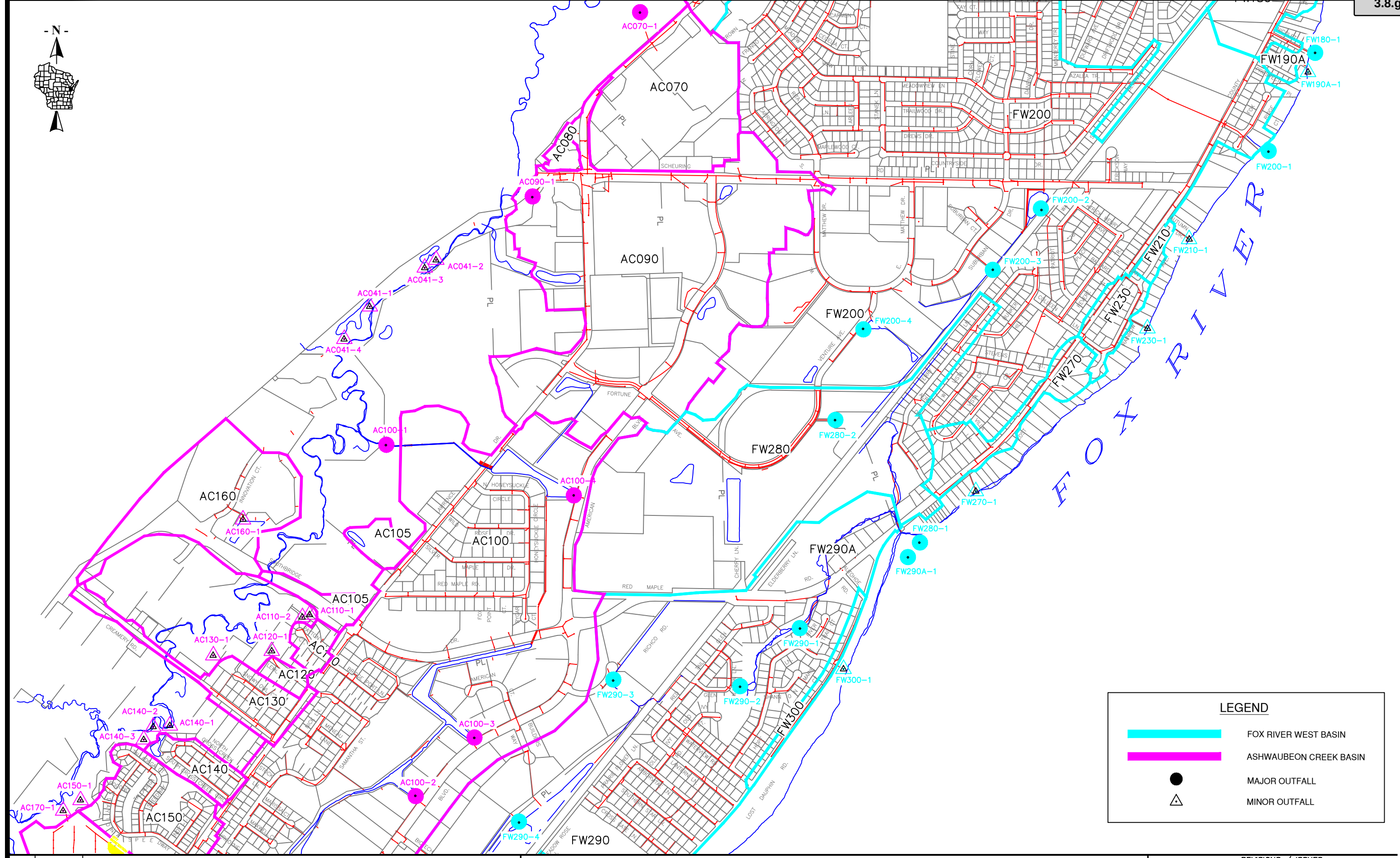
Attachment: MAJOR AND MINOR OUTFALLS (9341 : Consider Draft 2019 Annual Report for the WDNR MS4 General Permit)



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CITY OF DE PERE
MAJOR & MINOR OUTFALLS SE REGION

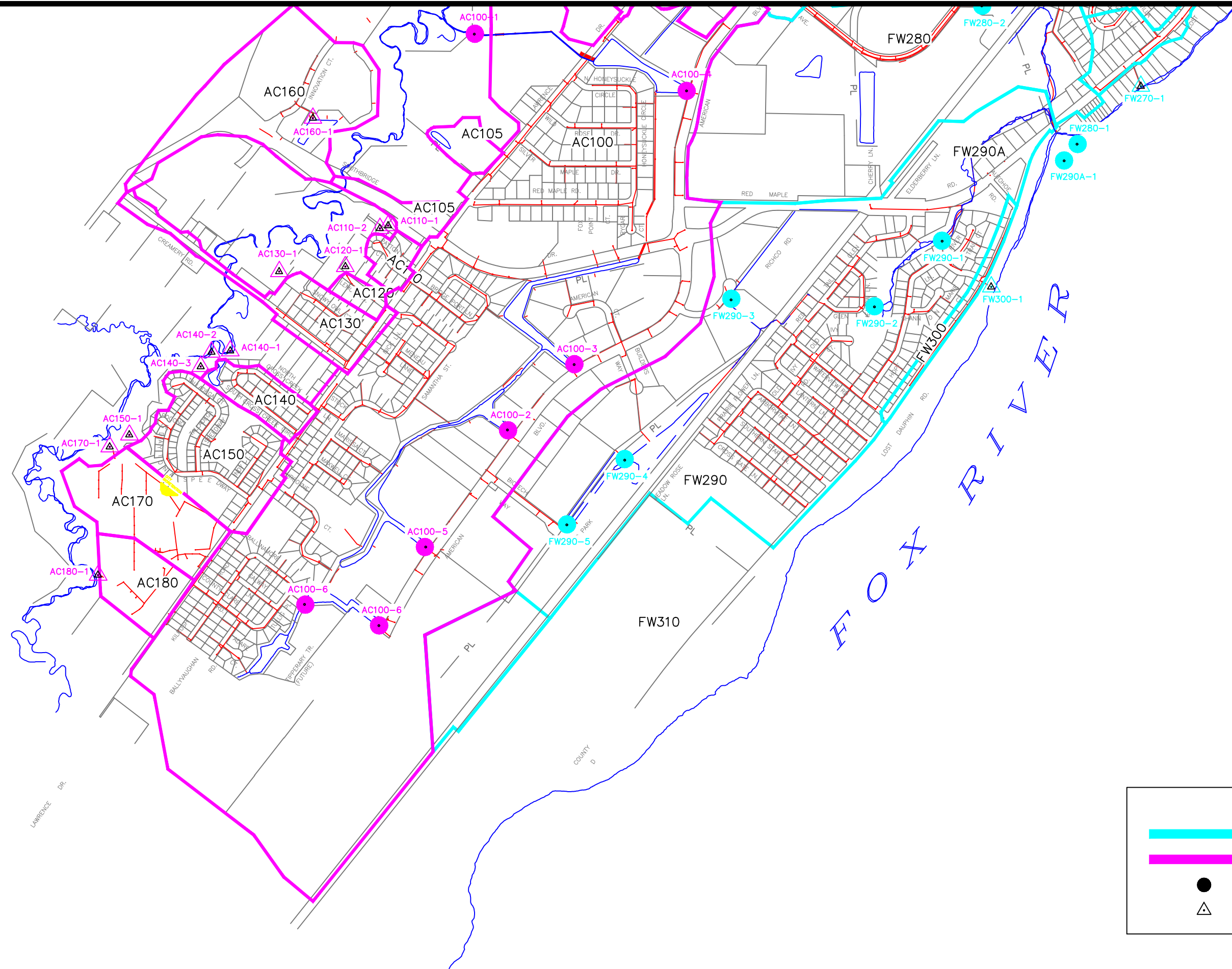
REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS
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CITY OF DE PERE MAJOR & MINOR OUTFALLS SW REGION

REVISIONS / ISSUES			
NO.	DATE	BY	REMARKS
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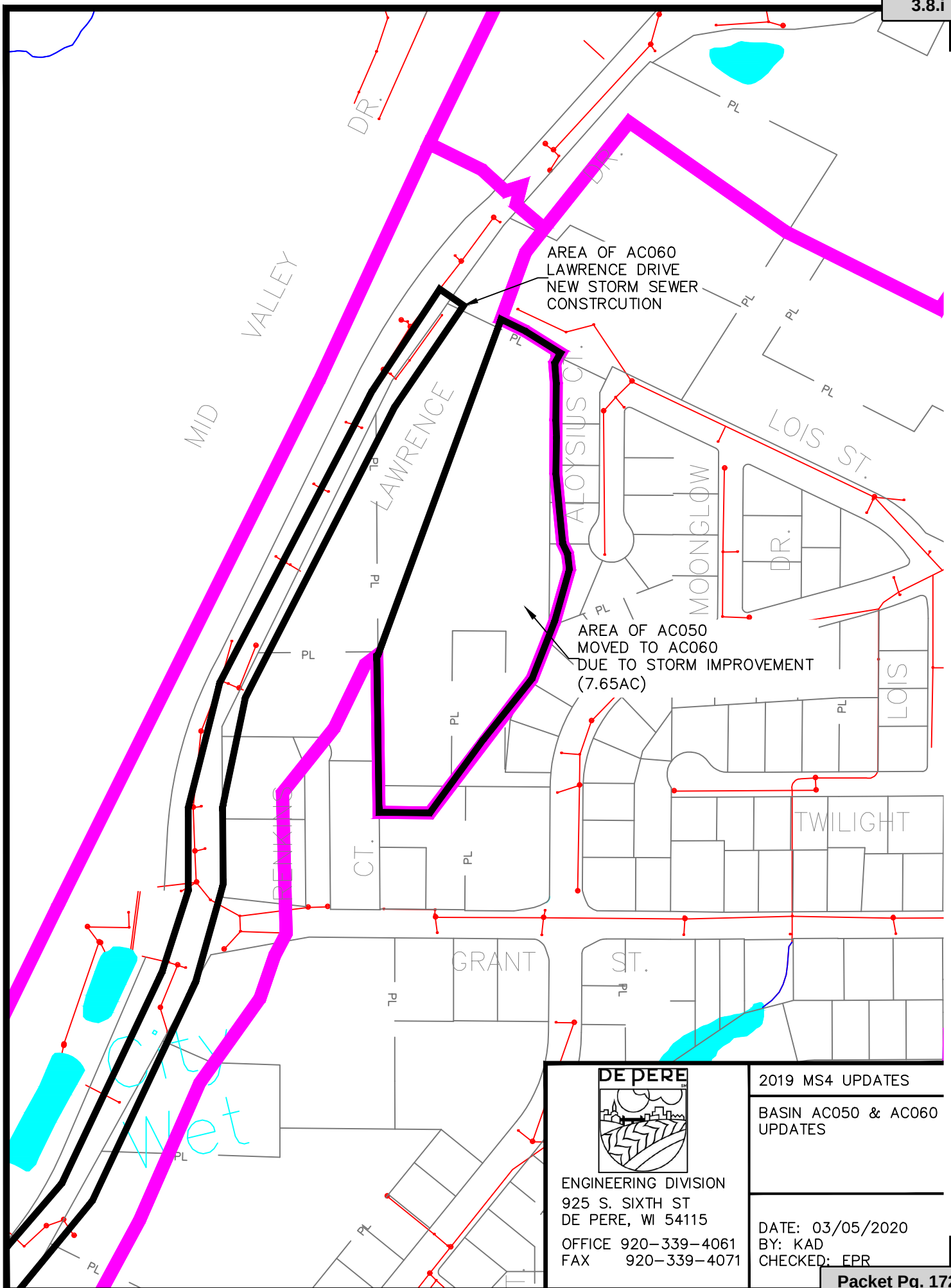
Packet Pg. 1



	FOX RIVER WEST BASIN
	ASHWAUBEON CREEK BASIN
	MAJOR OUTFALL
	MINOR OUTFALL

CITY OF DE PERE
 2019 Map Updates - DRAFT
 2019 MS4 Annual Report
 Last Update - March 5, 2020

Basin	Type of Change	2019 Map Change - City
AC025	Storm Sewer - New Basin	The Wisconsin Department of Transportation added storm sewer to Parkview Road. A new basin has been created to reflect this.
AC050	Basin Change	Storm sewer was added in Basin AC060 due to this and a field investigation, 7.65 acres is going from Basin AC050 to AC060.
AC060	Storm Sewer	Storm sewer was added in various locations in conjunction with sidewalk construction.
	Basin Change	7.65 acres has been moved from Basin AC050 to AC060.
AC100	Storm Sewer	The pond outfalls have been modified with the addition of storm sewer and culverts
ER050	Storm Sewer	Added storm sewer and storm laterals.
ER065	Basin Change	1.43 acres has been moved from Basin ER065 to FE260
ER080	Storm Sewer	Modified inlet leads and inlets.
	Basin Change	1.58 acres has been moved Basin FE260 to ER080.
ER130	Storm Sewer	Added storm sewer for new development.
	Modified Pond	Increased pond size for new development.
	Basin Change	Increased pond basin for new development from 59.58 acres to 97.16 acres.
FE260	Basin Change	1.43 acres has been moved from Basin ER065 to FE260. 1.58 acres has been moved from Basin FE260 to ER080.



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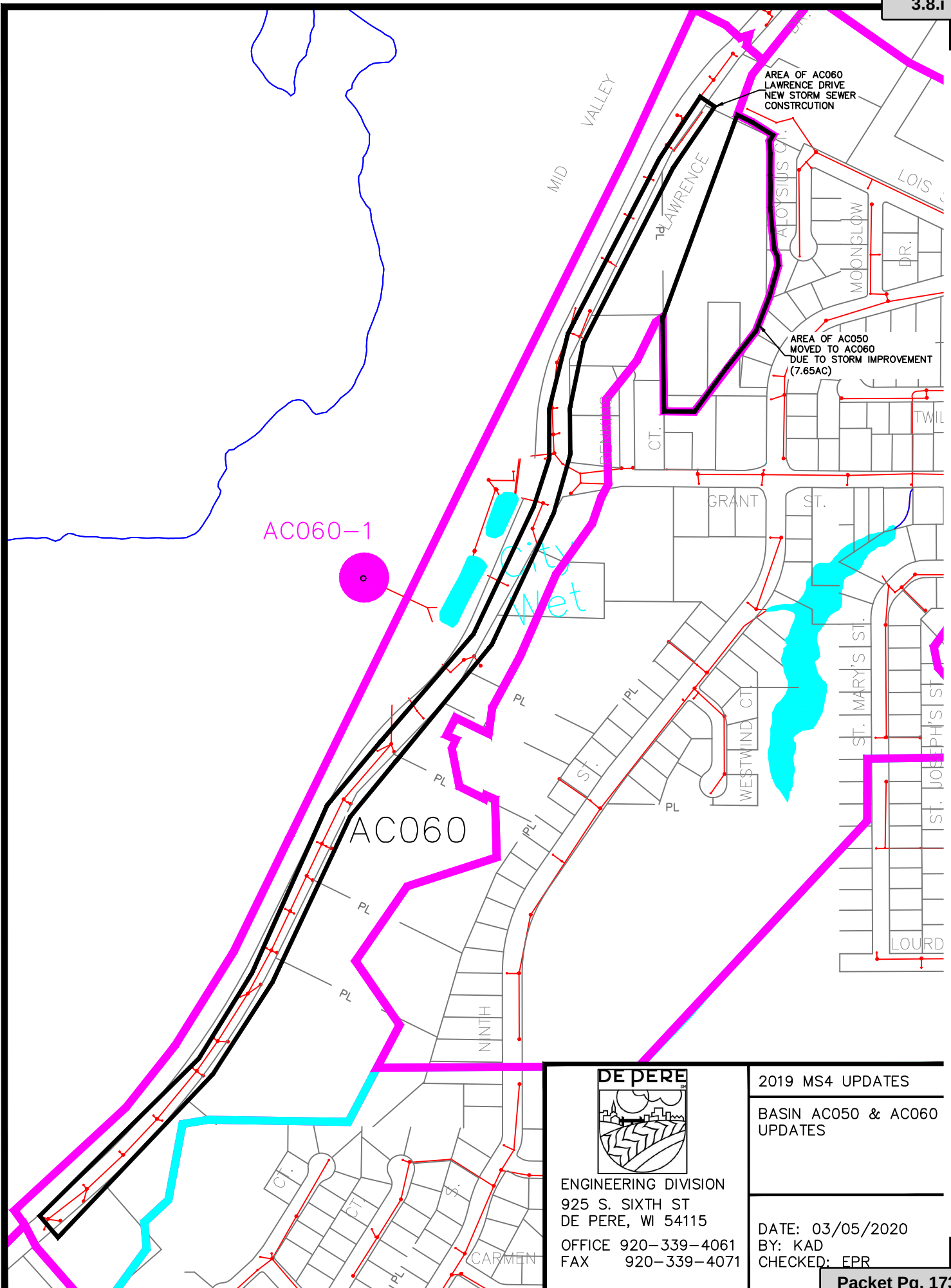
2019 MS4 UPDATES

BASIN AC050 & AC060
UPDATES

DATE: 03/05/2020

BY: KAD

CHECKED: EPR



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2019 MS4 UPDATES

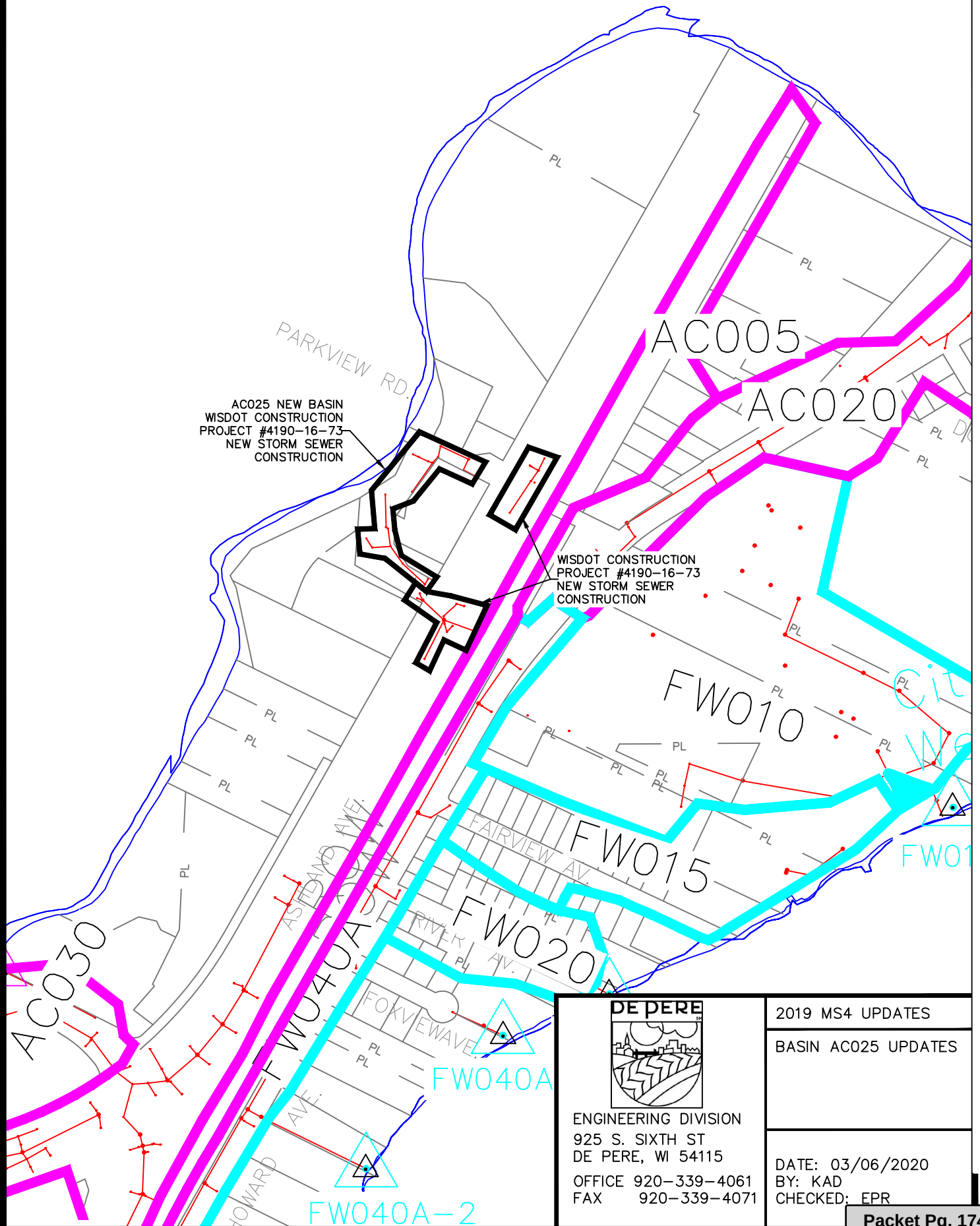
BASIN AC050 & AC060
UPDATES

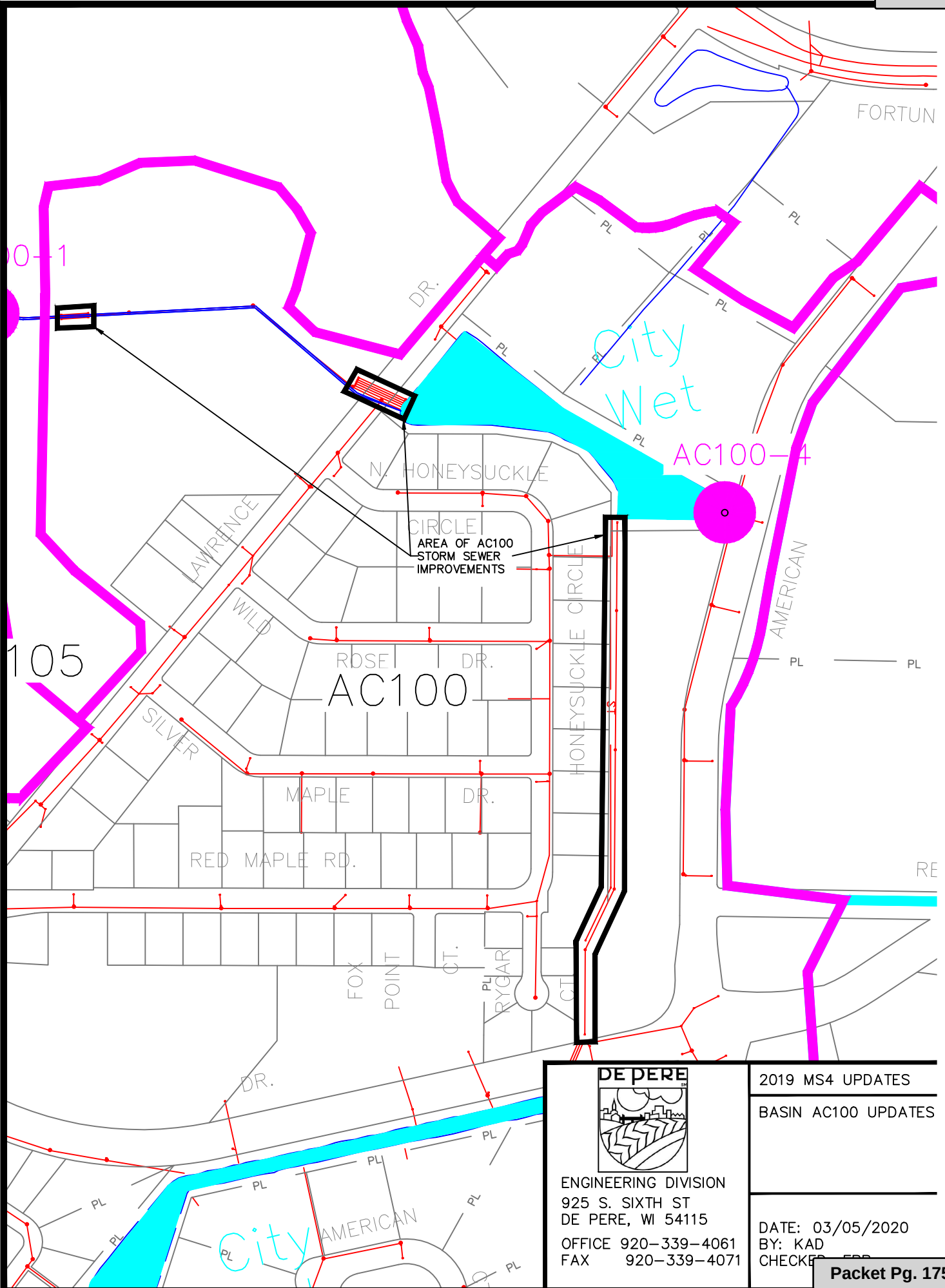
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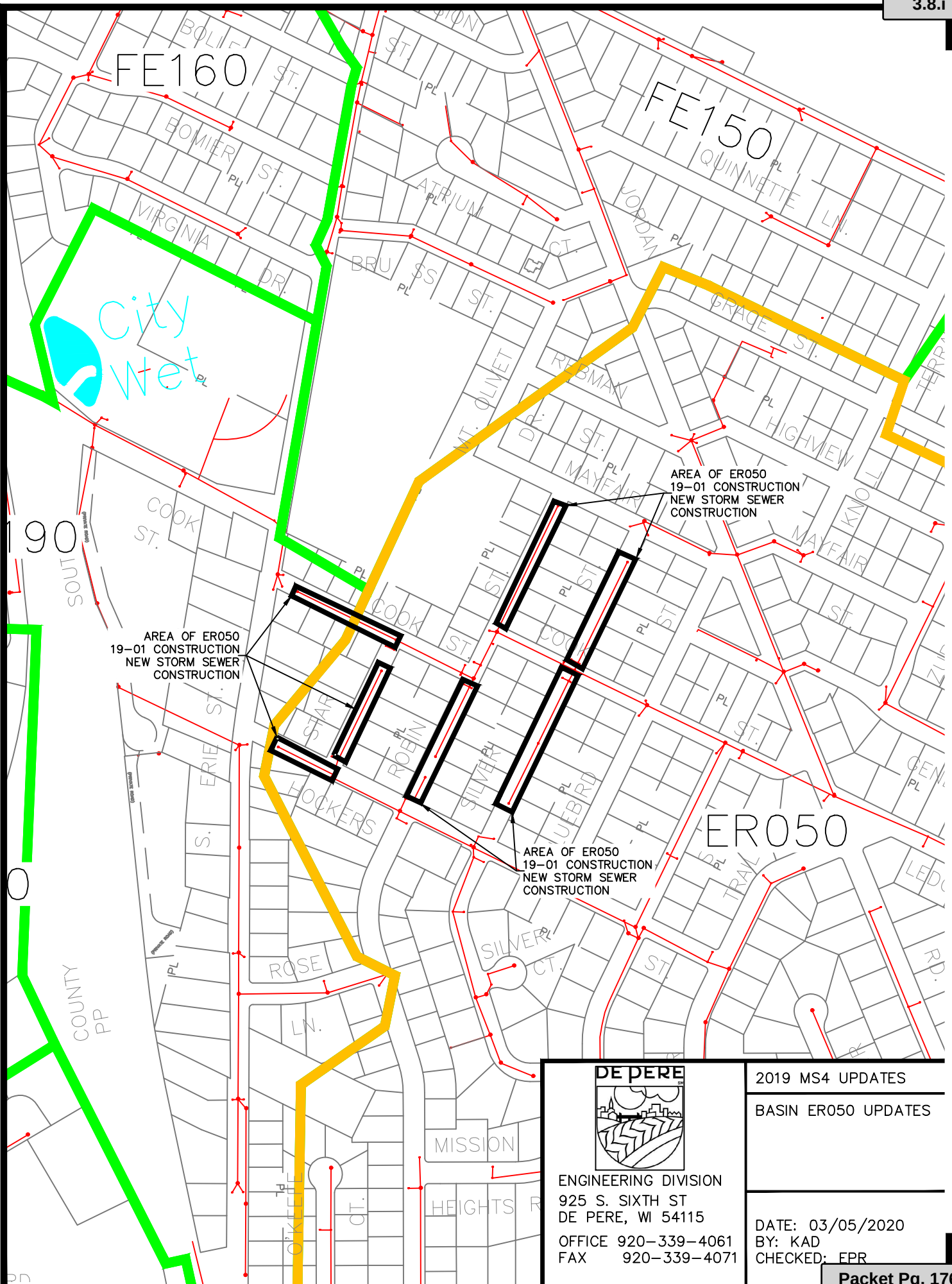
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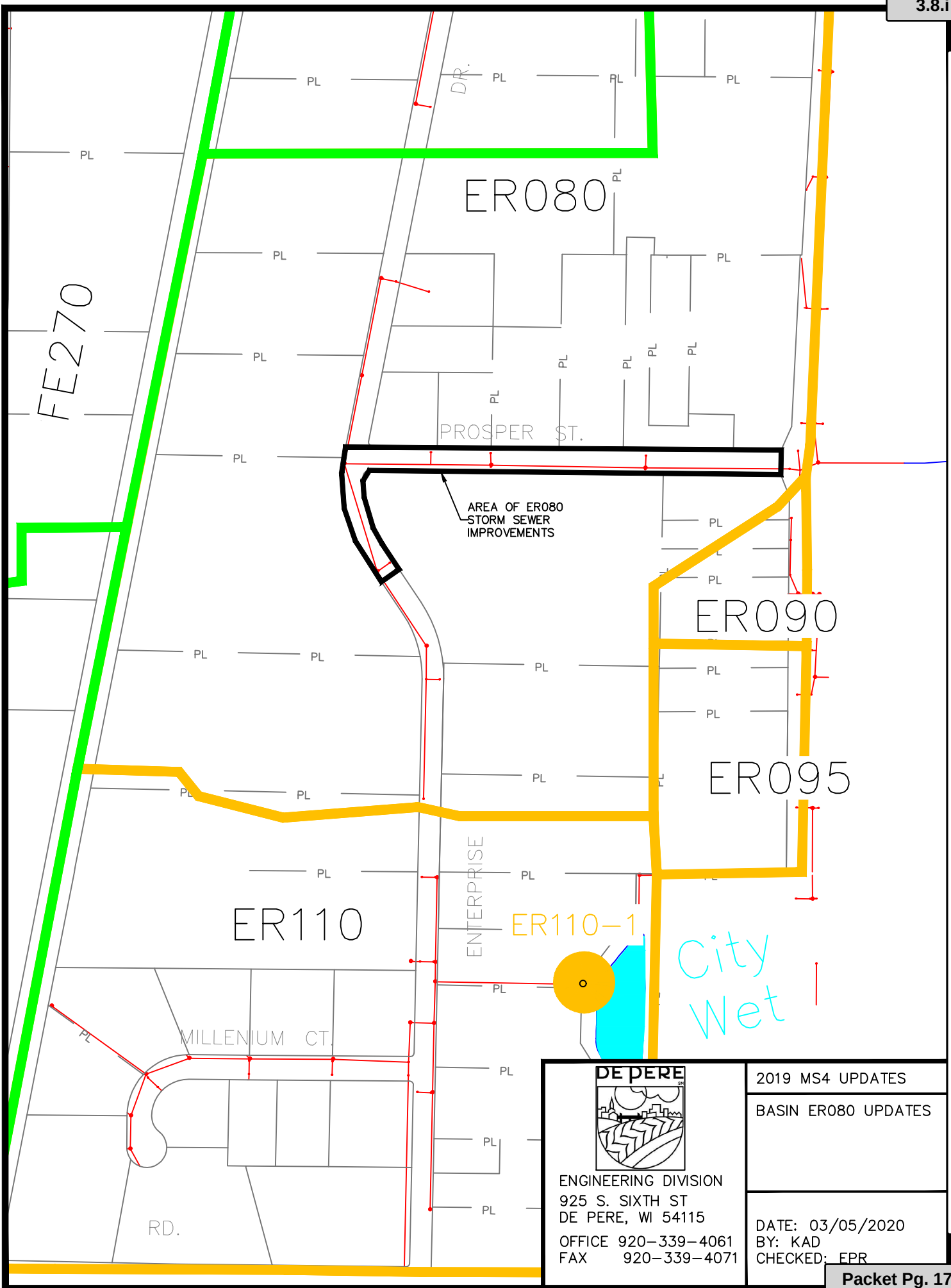
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Packet Pg. 173





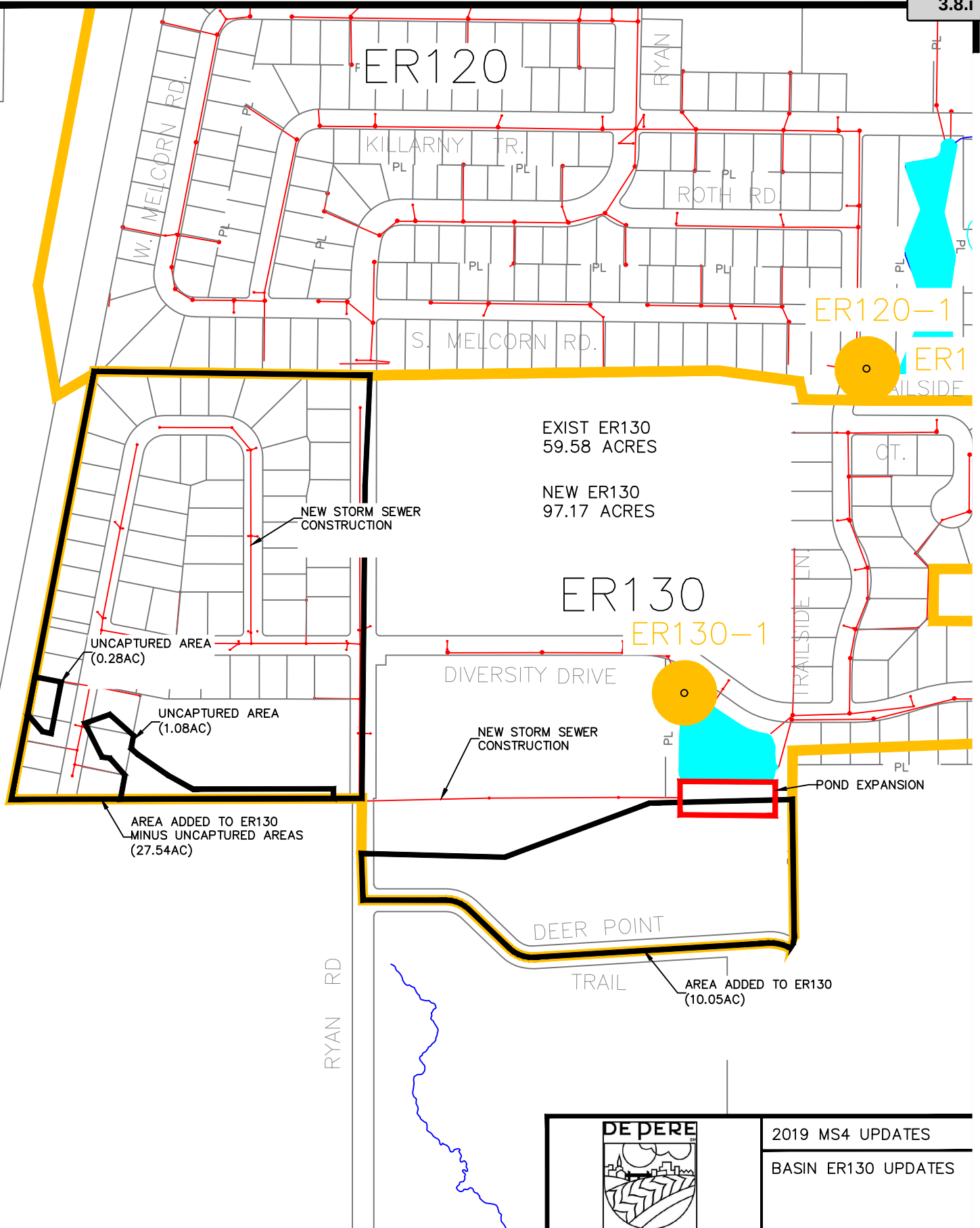




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2019 MS4 UPDATES
BASIN ER080 UPDATES

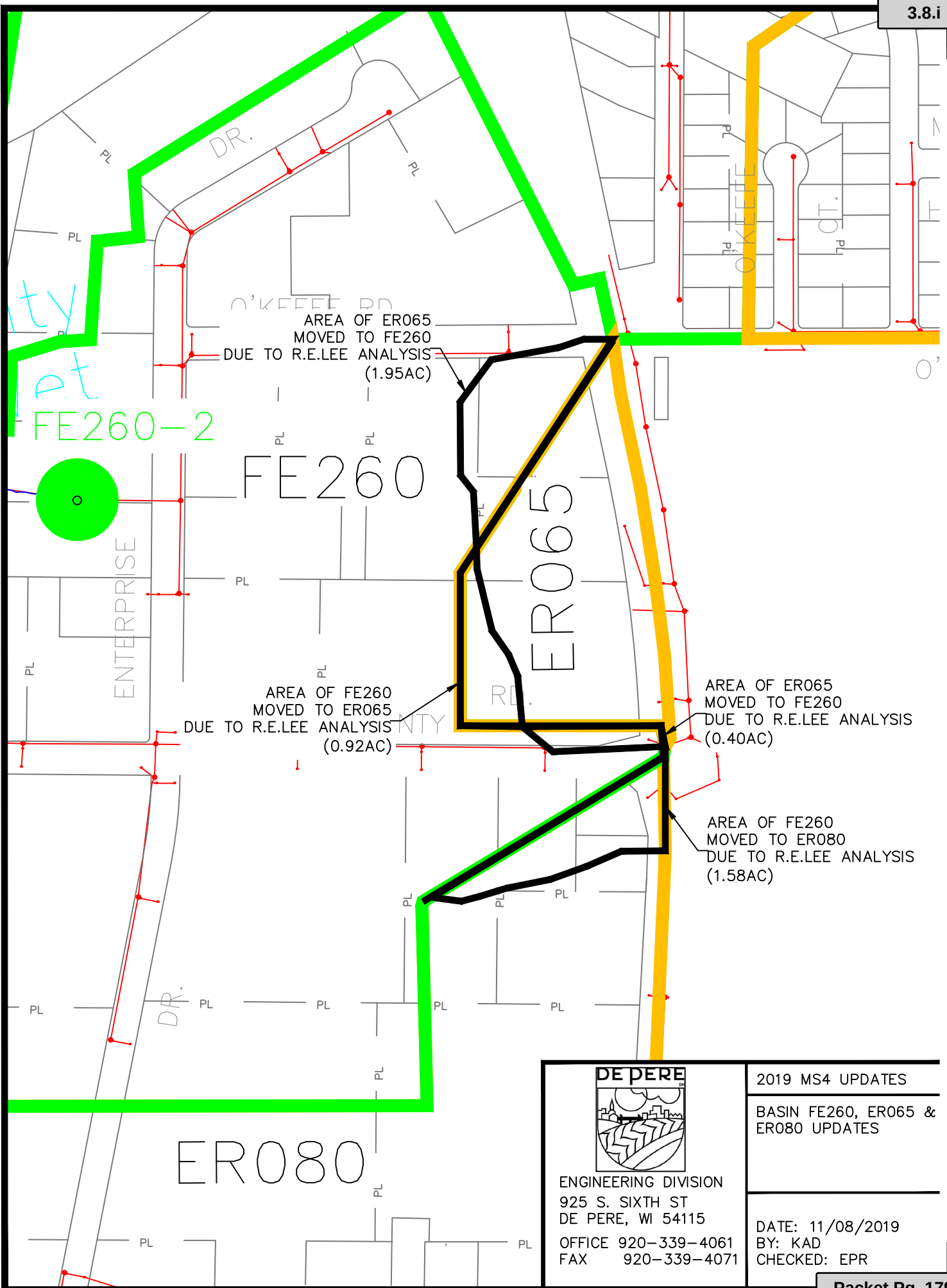
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2019 MS4 UPDATES
BASIN ER130 UPDATES

DATE: 03/05/2020
BY: KAD
CHECKED: EPR



ASHWAUBENON CREEK - CITY OF DE PERE, WI
Modifications/Upgrades for TSS Reduction
2019 MS4 Annual Report
Last Update - March 5, 2020

Modifications/Upgrades to Existing Basins

Beginning of Year Totals (Carry to Next Year) (See Note 2)							Calender Year 2019 Modifications					Comment - 2019 Changes	End of Year Totals (Carry to Next Year) (See Note 2)					Comment for Next Year
Basin	Area (acres)	Total Suspended Solids No Controls (lbs/acre/yr)	Total Suspended Solids No Controls (lbs/yr)	Total Suspended Solids With Controls (lbs/yr)	Percent TSS Reduction	TSS Reduction	Area Modifications (acres)	Total Suspended Solids No Controls - New Treatment Area (lbs/yr)	Modeled Percent TSS Reduction	Total Suspended Solids Reduction (lbs/year)	Additional Suspended Solids Reduction (lbs/year)		Area (acres)	Total Suspended Solids No Controls (lbs/yr)	Total Suspended Solids With Controls (lbs/yr)	Percent TSS Reduction	TSS Reduction	
AC005	16.119	477	7,694	7,559	1.8%	135							16.119	7,694	7,559	1.8%	135	
AC010	8.923	265	2,361	2,037	13.7%	324							8.923	2,361	2,037	13.7%	324	
AC020	10.718	326	3,495	3,022	13.5%	473							10.718	3,495	3,022	13.5%	473	
AC025		488										New basin added in 2019 due to WisDOT storm sewer construction on Parkview Road	3.4	1,659	1,445	12.9%	214	
AC030	4.6	488	2,247	1,956	12.9%	291							4.6	2,247	1,956	12.9%	291	
AC040	13.183	310	4,089	3,403	16.8%	686							13.183	4,089	3,403	16.8%	686	
AC050	298.768	288	86,045	54,036	37.2%	32,009	(7.65)	-2,203	37.2%	-820	-820	7.65 acres moved from Basein AC050 to AC060	291.118	83,842	52,653	37.2%	31,189	
AC051	5.13	288	1,477	241	80.6%	1,237							5.13	1,477	241	80.6%	1,237	
AC052	3.38	0				0							3.38	0			0	Show as 0 as this does not drain through the City's storm sewer system.
AC055	24.34	502	12,225	3,738	69.4%	8,487							24.34	12,225	3,738	69.4%	8,487	
AC060	42.856	489	20,975	6,898	67.1%	14,077	7.65	3,744	67.1%	2,512	2,512	7.65 acres moved from Basein AC050 to AC060	50.506	24,719	8,133	67.1%	16,587	
AC070	68.77	479	32,916	9,427	71.4%	23,489							68.77	32,916	9,427	71.4%	23,489	
AC080	3.999	502	2,009	701	65.1%	1,308							3.999	2,009	701	65.1%	1,308	
AC090	226.369	448	101,364	29,557	70.8%	71,807							226.369	101,364	29,557	70.8%	71,807	
AC100	620.065	263	163,073	32,615	80.0%	130,458							620.065	163,073	32,615	80.0%	130,458	
AC105	15.254	267	4,069	1,426	65.0%	2,643							15.254	4,069	1,426	65.0%	2,643	
AC110	6.497	203	1,320	254	80.7%	1,066							6.497	1,320	254	80.7%	1,066	
AC120	3.993	197	788	646	18.0%	142							3.993	788	646	18.0%	142	
AC130	23.238	235	5,466	3,112	43.1%	2,354							23.238	5,466	3,112	43.1%	2,354	
AC140	12.462	195	2,428	409	83.1%	2,019							12.462	2,428	409	83.1%	2,019	
AC150	41.82	160	6,681	1,278	80.9%	5,403							41.82	6,681	1,278	80.9%	5,403	
AC160	60.318	343	20,717	4,749	77.1%	15,968							60.318	20,717	4,749	77.1%	15,968	
AC170	68.77	479	32,916	5,946	81.9%	26,970							68.77	32,916	5,946	81.9%	26,970	
AC180	17.352	49	843	26	96.9%	817							17.352	843	26	96.9%	817	
Total	1,596.92		515,199	173,035	66.4%	342,163					1,693		1,600.32	518,399	174,332	66.4%	344,067	

Assumptions
(1) Agricultural lands in the Lower Fox River Mainstream HUC-12 are discharging 540lbs/acre of TSS. Assume a 5% TSS reduction.
(2) Move this End of Year Totals to Beginning of Year Totals for the next calendar year. Delete extra rows at the beginning of each year. These are the rows that summarize multiple actions within a basin.

EAST RIVER - CITY OF DE PERE, WI
Modifications/Upgrades for TSS Reduction
2019 MS4 Annual Report
Last Update - March 6, 2019

Modifications/Upgrades to Existing Basins

End of Year Totals 2018							Calender Year 2019 Modifications					Comment - 2019 Changes	End of Year Totals (Carry to Next Year) (See Note 2)					Comment for Next Year
Basin	Area (acres)	Total Suspended Solids No Controls (lbs/acre/yr)	Total Suspended Solids No Controls (lbs/yr)	Total Suspended Solids With Controls (lbs/yr)	Percent TSS Reduction	TSS Reduction	Additional Area Treated (acres)	Total Suspended Solids No Controls - New Treatment Area (lbs/yr)	Modeled Percent TSS Reduction	Total Suspended Solids Reduction (lbs/year)	Additional Suspended Solids Reduction (lbs/year)		Area (acres)	Total Suspended Solids No Controls (lbs/yr)	Total Suspended Solids With Controls (lbs/yr)	Percent TSS Reduction	TSS Reduction	
ER010	241.222	216	52,164	4,766	90.9%	47,398							241.222	52,164	4,766	90.9%	47,398	
ER020	288.859	207	59,775	18,741	68.6%	41,034							288.859	59,775	18,741	68.6%	41,034	
ER040	132.133	265	34,966	14,195	59.4%	20,771							132.133	34,966	14,195	59.4%	20,771	
ER050	208.635	209	43,577	9,412	78.4%	34,165							208.635	43,577	9,412	78.4%	34,165	
ER055	10.819	202	2,188	1,794	18.0%								10.819	2,188	1,794	18.0%		
ER060	22.444	192	4,308	1,054	75.5%	3,254							22.444	4,308	1,054	75.5%	3,254	
ER065	8.483	430	3,645	3,207	12.0%	438	(1.43)	-274	12.0%		-33	1.43 acres moved form Basin ER065 to FE260	7.053	3,031	2,667	12.0%	364	
ER080	103.708	470	48,713	6,105	87.5%	42,608	1.58	742	87.5%		649	1.58 acres moved from Basin FE260 to ER080	105.288	49,455	6,182	87.5%	43,273	
ER090	4.046	517	2,090	1,904	8.9%	186							4.046	2,090	1,904	8.9%	186	
ER095	8.325	421	3,503	3,220	8.1%	283							8.325	3,503	3,220	8.1%	283	
ER110	68.139	505	34,436	11,815	65.7%	22,621							68.139	34,436	11,815	65.7%	22,621	
ER120	96.469	234	22,578	7,534	66.6%	15,044							96.469	22,578	7,534	66.6%	15,044	
ER130	59.574	162	9,674	1,476	84.7%	8,198							59.574	9,674	1,476	84.7%	8,198	
		540					37.58	20,293	81.6%	16,553	16,553	Increased pond for new development. Added this acreage.	37.580	20,293	3,740	81.6%	16,553	Converted farm land to treated development in 2019.
Total	1,252.9		321,617	85,223	73.5%	236,000					17,170		1,290.6	342,038	88,500	74.1%	253,144	

Assumptions
(1) Agricultural lands in the Lower Fox River Mainstream HUC-12 are discharging 540lbs/acre of TSS. Assume a 5% TSS reduction.
(2) Move this End of Year Totals to Beginning of Year Totals for the next calendar year. Delete extra rows at the beginning of each year. These are the rows that summarize multiple actions within a basin.

LOWER FOX RIVER MAINSTREAM - CITY OF DE PERE, WI
Modifications/Upgrades for TSS Reduction
2019 MS4 Annual Report
Last Update - March 5, 2020

Modifications/Upgrades to Existing Basins

End of Year Totals 2018							Calender Year 2019 Modifications					Comment - 2019 Changes	End of Year Totals 2019					Comment for Next Year
Basin	Area (acres)	Total Suspended Solids No Controls (lbs/acre/yr)	Total Suspended Solids No Controls (lbs/yr)	Total Suspended Solids With Controls (lbs/yr)	Percent TSS Reduction	TSS Reduction	Area Modifications (Acres)	Total Suspended Solids No Controls - New Treatment Area (lbs/yr)	Modeled Percent TSS Reduction	Total Suspended Solids Reduction (lbs/year)	Additional Suspended Solids Reduction (lbs/year)		Area (acres)	Total Suspended Solids No Controls (lbs/yr)	Total Suspended Solids With Controls (lbs/yr)	Percent TSS Reduction	TSS Reduction	
FE010	64.606	273	17,624	15,498	12.10%	2,126							64.606	17,624	15,498	12.10%	2,126	
FE030	123.561	232	28,665	24,522	14.50%	4,143							123.561	28,665	24,522	14.50%	4,143	
FE050	160.776	214	34,377	28,170	18.10%	6,207							160.776	34,377	28,170	18.10%	6,207	
FE070	39.886	271	10,794	8,824	18.30%	1,970							39.886	10,794	8,824	18.30%	1,970	
FE110	137.342	242	33,209	27,647	16.70%	5,562							137.342	33,209	27,647	16.70%	5,562	
FE120	1.82	387	704	580	17.60%	124							1.82	704	580	17.60%	124	
FE130	32.459	284	9,228	7,637	17.20%	1,591							32.459	9,228	7,637	17.20%	1,591	
FE140	2.789	139	388	348	10.50%	40							2.789	388	348	10.50%	40	
FE150	127.611	268	34,173	28,877	15.50%	5,296							127.611	34,173	28,877	15.50%	5,296	
FE160	42.629	215	9,165	7,735	15.60%	1,430							42.629	9,165	7,735	15.60%	1,430	
FE170	6.249	166	1,040	878	15.60%	162							6.249	1,040	878	15.60%	162	
FE190	17.59	835	14,679	12,372	15.70%	2,307							17.59	14,679	12,372	15.70%	2,307	Untreated portion of basin
	51.87	250	12,968	1504	88.40%	11,463							51.87	12,968	1504	88.40%	11,463	
FE210	30.413	195	5,937	4,929	17.00%	1,008							30.413	5,937	4,929	17.00%	1,008	
FE230	13.221	214	2,830	2,353	16.80%	477							13.221	2,830	2,353	16.80%	477	
FE240	56.309	246	13,866	9,707	30.00%	4,159							56.309	13,866	9,707	30.00%	4,159	
FE250	4.965	201	997	816	18.10%	181							4.965	997	816	18.10%	181	
FE260	104.369	416	43,418	8,684	80.00%	34,734	(0.15)	-62	80.00%	-50	-50	1.43 acres moved from Basin ER065 to FE260. 1.58 acres moved from Basin FE260 to ER080.	104.219	43,355	8,671	80.00%	34,684	
FE270	42.165	457	19,269	19,268	8.20%	1							42.165	19,269	19,268	8.20%	1	
													0					
FE275	23.216	291	6,761	1,256	81.40%	5,505							23.216	6,761	1,256	81.40%	5,505	
FE280	127.272	257	32,694	19,865	39.20%	12,829							127.272	32,694	19,865	39.20%	12,829	
FE290	37.108	346	12,839	1618	87.40%	11,222							37.108	12,839	1618	87.40%	11,222	Leave this row in for future as it is agricultural land being treated that was not in the original model. The baseline TSS was not included until the area was treated.
	58.21	540	31,433	3961	87.40%	27,473							58.21	31,433	3961	87.40%	27,473	
FE310					5.00%									0		5.00%		
FW010	25.055	142	3,567	993	72.20%	2,574							25.055	3,567	993	72.20%	2,574	
FW015	8.853	182	1,615	1,360	15.80%	255							8.853	1,615	1,360	15.80%	255	
FW020	3.298	201	662	542	18.20%	120							3.298	662	542	18.20%	120	
FW040	10.493	426	4,468	4,217	5.60%	251							10.493	4,468	4,217	5.60%	251	
FW060	7.785	233	1,812	1,534	15.30%	278							7.785	1,812	1,534	15.30%	278	
FW070	333.921	264	88,312	76,072	13.90%	12,240							333.921	88,312	76,072	13.90%	12,240	
FW090	4.984	401	2,000	1,680	16.00%	320							4.984	2,000	1,680	16.00%	320	
FW100	11.052	376	4,156	3,439	17.20%	717							11.052	4,156	3,439	17.20%	717	
FW110	62.419	264	16,495	14,214	13.80%	2,281							62.419	16,495	14,214	13.80%	2,281	
FW120	13.135	332	4,366	3,890	10.90%	476							13.135	4,366	3,890	10.90%	476	
FW130	4.476	335	1,498	1,336	10.80%	162							4.476	1,498	1,336	10.80%	162	
FW140	3.62	335	1,211	1,080	10.80%	131							3.62	1,211	1,080	10.80%	131	
FW150	2.691	329	886	789	11.00%	97							2.691	886	789	11.00%	97	
FW155	1.111	201	223	183	18.10%	40							1.111	223	183	18.10%	40	
FW160	1.022	201	205	168	18.10%	37							1.022	205	168	18.10%	37	
FW170	5.628	218	1,226	1,008	17.80%	218							5.628	1,226	1,008	17.80%	218	
FW180	38.228	179	6,854	5,823	15.00%	1,031							38.228	6,854	5,823	15.00%	1,031	
FW190	3.672	201	737	604	18.10%	133							3.672	737	604	18.10%	133	
FW200	629.791	306	192,527	111,281	42.20%	81,246							629.791	192,527	111,281	42.20%	81,246	
FW210	3.561	201	715	585	18.10%	130							3.561	715	585	18.10%	130	
FW230	13.484	201	2,708	2,216	18.10%	492							13.484	2,708	2,216	18.10%	492	
FW270	22.826	200	4,565	3,743	18.00%	822							22.826	4,565	3,743	18.00%	822	
FW280	189.281	472	89,344	32,502	63.60%	56,842							189.281	89,344	32,502	63.60%	56,842	Area of FW 280 near Terry Lane that is not treated
	12.93	201	2,599	2,131	18.00%	468							12.93	2,599	2,131	18.00%	468	
FW290	321.329	312	100,255	38,698	61.40%	61,556							321.329	100,255	38,698	61.40%	61,556	
FW300	7.598	211	1,606	1,327	17.40%	279							7.598	1,606	1,327	17.40%	279	
FW310	92.9	0			5.00%								92.9	0		5.00%		New basin with new pond once area is developed. Area is currently agricultural. Waste generation based on agricultural use. Additional suspended solids based on residential land use.
Total	3,141.58		911,670	548,465	39.84%	363,206	0.15				-50		3,141.43	911,608	548,452	39.84%	363,156	

Assumptions
(1) Agricultural lands in the Lower Fox River Mainstream HUC-12 are discharging 540lbs/acre of TSS. Assume a 5% TSS reduction.
(2) Move this End of Year Totals to Beginning of Year Totals for the next calendar year. Delete extra rows at the beginning of each year. These are the rows that summarize multiple actions within a basin.

Storm Water Pollution Prevention Plan



City of De Pere Municipal Service Center

September 2019

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Site Map

General Facility Information

Name of Facility: City of De Pere Municipal Service Center
Facility Address: 925 S. Sixth St.
De Pere, WI 54115

Facility Contact:
Name: Eric Rakers, P.E.
Title: City Engineer
Phone: (920) 339-8304
Mailing Address: 925 S. Sixth Street
De Pere, WI 54115

Owner: City of De Pere

WPDES Permit Information:
Permit Number: WPDES Permit No. WI-S050075-3
Initial Date of Coverage: May 1, 2019
Permit Expiration Date: April 30, 2024
Number of Storm Water Outfalls: 1
Receiving Waters: Lower Fox River

Emergency Contact:
Name: Eric Rakers, P.E.
Title: City Engineer
Phone: (920) 339-8304

1.0 Overview

1.1 Introduction

This Storm Water Pollution Prevention Plan (SWPPP) covers the operations at the City of De Pere Municipal Service Center. This plan has been developed as required under Section 2.6 of the City's WPDES general permit. This SWPPP contains the following information:

- Describes the facility and its operations;
- Identifies potential sources of storm water pollution at the facility;
- Recommends appropriate best management practices (BMPs) and an implementation schedule to reduce the discharge of pollutants in storm water runoff; and
- Provides for periodic review of this SWPPP.

1.2 Objectives

The primary goal of the storm water permit program is to improve the quality of surface waters by reducing the amount of pollutants potentially contained in the storm water runoff. Facilities subject to the storm water WPDES permit must prepare and implement a SWPPP for their facility.

This SWPPP will:

- Identify sources of storm water and non-storm water contamination to the storm water drainage system;
- Identify and prescribe appropriate "source area control" type best management practices design to prevent storm water contamination from occurring;
- Identify and prescribe "storm water treatment" type best management practices to reduce pollutants in contaminated storm water prior to discharge;
- Prescribe actions needed either to bring non-storm water discharges under the WPDES permit or to remove these discharges from the storm drainage system; and
- Prescribe an implementation schedule so as to ensure the storm water management actions prescribed in the Storm Water Pollution Prevention Plan are carried out and evaluated on a regular basis.

2.0 Storm Water Pollution Prevention Team

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of this team are familiar with the management and operations of the De Pere Municipal Service Center.

The City Engineer is in charge of all aspects of SWPPP development and implementation. The member(s) of the team and their responsibilities (i.e. implementing, maintaining, record keeping, submitting reports, conducting inspections, employee training, conducting the annual compliance evaluation, testing for non-storm water discharges, signing the required certifications) are as follows:

Name & Title	Responsibility
Tony Fietzer, Street Superintendent	Implementing, Maintaining, Record keeping, Employee training, Inspections
Thomas Blohowiak, Maintenance Supervisor	Budgeting, Building and facility maintenance
Eric Rakers, City Engineer	Submitting reports, Annual compliance evaluation

3.0 Potential Sources of Pollutants

3.1 Site Map

Exhibit 1 (attached) presents a site map of the facility showing the following features as required by the permit:

- Facility property boundaries;
- Storm drainage collection and disposal system, including all known surface and subsurface conveyances, with the conveyances named;
- And secondary or other containment structures;
- Location of all outfalls, including outfalls recognized as permitted outfalls under another WPDES permit, numbered for reference, that discharge channelized flow to surface water, groundwater, or wetlands;
- Drainage area boundary for each storm water outfall;
- Surface area in acres draining to each outfall, including the percentage that is impervious such as paved, roofed, or highly compacted soil and the percentage that is pervious such as grassy areas and woods; existing structural storm water controls;
- Name and location of receiving waters and the locations of activities and materials that have the potential to contaminate storm water shall also be depicted on the drainage base map.

3.2 Summary of Sampling Data

No chemical outfall sampling data is available for the Municipal Service Center.

3.3 Inventory of Potential Sources of Contamination

The following have been identified as potential sources of storm water contamination:

- Vehicle fueling area;
- Waste oil storage area;
- Equipment washing area;
- Construction material and spoils (asphalt, sand, concrete, gravel, black dirt) storage areas;
- Salt storage and loading areas;
- Salt brine storage and loading area;
- Refuse (scrap metal, sweepings, chips) storage areas; and
- Vehicle storage areas;

4.0 Best Management Practices

Storm water management controls, or best management practices (BMPs), will be implemented to reduce the amount of pollutants is storm water discharged from the Municipal Service Center.

4.1 Source Area Control

To the maximum extent practicable, and to the extent it is cost effective, the use of source area control best management practices designed to prevent storm water from becoming contaminated will be used. Source area control best management practices that are either proposed or in place are indicated on the attached drainage base map described in subsection (3.1).

Good Housekeeping

Good housekeeping practices are designed to maintain a clean and orderly work environment. This will reduce the potential for significant materials to come in contact with storm water.

The following practices are included in our good housekeeping routine:

Area/Equipment	Tasks	Frequency
Paved areas adjacent to construction materials & spoils storage bins	Sweep and dispose of debris. Gravel/Rubbish Area	Twice per week during active season
	Mechanics/Spoils Area	Daily
Paved area at salt storage and loading area	Sweep and clean up spilled salt.	Daily
Entire site and particularly storm water inlets	Pick up litter and trash. Empty trash receptacles.	Twice per week
Waste oil collection area	Clean up spills. Empty used container receptacles.	Twice per week during active season
Fuel pump area	Provide and maintain spill kit. Pickup and dispose of absorbents after use	Daily
Vehicle storage area Stored vehicles kept inside garage	Check vehicles in use for leaks and correct to prevent ground contamination.	Daily
Outside Vehicles		Monthly
Outside wash area	Avoid use of detergents. Do not wash oil & grease laden equipment – use inside bay	Daily

Preventive Maintenance

Preventive maintenance involves the regular inspection, testing, and cleaning of facility equipment and operational systems. These inspections will help to uncover conditions that might lead to a release of materials. Thus, allowing for maintenance to prevent such a release.

The following equipment/activities will be included in the preventive maintenance program.

Equipment	Tasks	Frequency
Fuel pump area	Check for leaks during pumping. Check for spills and overfills due to operator error. All employees are Class C Operators.	Daily
Salt brine storage tanks	Inspect tanks and hoses for damage and leaks.	Monthly
Waste oil collection area	Inspect tank for damage and leaks.	Twice per week during active season

Spill Prevention and Response Procedures

Spills and leaks together are the largest industrial source of storm water pollution. Thus, this SWPPP specifies material handling procedures and storage requirements for significant materials. Equipment and procedures necessary for cleaning up spills and preventing the spilled materials from being discharged have also been identified. All employees have been made aware of the proper procedures.

The following procedures have been developed for spill response for our facility.

Area	Materials Present	Response Plan Location
Fuel pump area	Spill kit	Inside shop building
Fuel pump area	Spill kit	Outside at pump
Waste oil collection area	Spill kit	Inside shop building

Employee Training

The following is a description of the employee training programs to be implemented to inform appropriate personnel at all levels of responsibility of the components and goals of the SWPPP. (Examples: good housekeeping practices, spill prevention and response procedures, waste minimization practices, etc.)

Topic	Employees Included	Frequency
Storm water pollution prevention overview	New employees &	Within first 2 weeks of hire
	Seasonal/Summer Students	Beginning of season
Spill prevention and response – identify potential spill areas and drainage routes, how to report spills, proper material handling procedures, and how to implement the facility’s spill response procedures.	Public works employees	Quarterly
Good housekeeping – instruction on proper clean up frequencies of work areas to prevent storm water contamination, and location and proper usage of housekeeping equipment.		
Material management practices – instruction on maintaining materials in an organized manner, location, and markings of toxic and hazardous substances, and proper and safe handling procedures for toxic and hazardous substances.		

4.2 Storm Water Treatment Best Management Practices

Structural control measures may be necessary to control pollutants that are still present in the storm water after the non-structural controls have been implemented. These types of controls are physical features that control and prevent storm water pollution. They can range from preventive measures to collection structures to treatment systems. Structural controls will require construction of a physical feature or barrier.

Preventive Measures

Preventive measures are controls that are intended to prevent the exposure of storm water to contaminants.

The following preventive measures have been chosen for this facility.

Area	Material	Control Measure
Fuel pump area	Diesel fuel & gasoline	Spill cleanup kit
Fuel pump area	Diesel fuel & gasoline	Auto shutoff nozzles
Storage bin areas	Sweepings, asphalt, and waste piles	Haul material to landfill as soon as practicable
Loading and	Sand, soil, sweepings,	Clean at least annually. Monitor to

washing areas	concrete, asphalt	determine if more frequent cleaning is necessary.
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4.3 Implementation Schedule

This SWPPP becomes effective October 1, 2019.

5.0 Record Keeping and Reporting

The following pages contain blank forms for the record keeping and reporting associated with the SWPPP. All reports and records pertaining to the permit coverage under this general permit shall be retained for a minimum of three years. The forms are to be kept on site and shall be made available to the Department of Natural Resources upon request.

A current copy of the Storm Water Pollution Prevention Plan Summary must be sent to the Department of Natural Resources with the annual report requires under Section 2.9 of the WPDES permit beginning with the annual report due by March 31, 2019 and annually thereafter.

Municipal Service Center Road Salt Storage and Application Inspection Checklist

Item to Check	Problems Observed	Maintenance/Repairs Necessary		Action	
Storage sheds	Salt on ground	Yes	No	☐	Move salt into shed
Truck loading area	Salt on ground	Yes	No	☐	Pick up, load onto truck
				☐	Do not overfill truck
Roads – (sites of application)	Excessive salt on ground	Yes	No	☐	Remove by sweeping
Salt spreader	Excessive salt on ground	Yes	No	☐	Recalibrate salt spreader

Date of Inspection:

Name:

Frequency: Monthly

Municipal Service Center Public Waste Drop Off Inspection Checklist

Item to Check	Problems Observed	Maintenance/Repairs Necessary		Action	
Condition of general area	Possible runoff to/contamination of storm sewer	Yes	No	☐	Remove
				☐	Fix
Type of material/waste observed	Appropriate?	Yes	No	☐	Remove to appropriate container/location
Security	Regular policing of area Location properly secured/closed/locked?	Yes	No	☐	Secure waste area
Disposal	Past disposal date?	Yes	No	☐	Dispose timely

Date of Inspection:

Name:

Frequency: Monthly

Municipal Service Center Waste Materials Management Inspection Checklist

Item to Check	Problems Observed	Maintenance/Repairs Necessary		Action
Outside storage areas	Weathering	Yes	No	☐ Protect from weathering – store on pallets, cover
Soil staging areas	Silt runoff	Yes	No	☐ Cover with tarps
Inside storage areas	Potential for discharges	Yes	No	☐ Seal floor drains, install secondary containment
Drums, other containers	Deterioration Uncovered	Yes	No	☐ Repair/replace ☐ Cover/cap

Date of Inspection:
Frequency: Monthly

Name:

January 2017

• Attach monthly inventory worksheet(s) or printout(s) here •

Reminders—Permits, Insurance, Testing and Training

Are tank permits up to date?	Yes	No
Is tank insurance due this month?	Yes	No
Is equipment testing due this month? Are most recent test results on site?	Yes	No
Is all training up to date for current employees?	Yes	No

Monthly Gasoline Throughput Summary

Product type	Amount delivered	Amount dispensed	Within variance?
	+	+	Y N
	+	+	Y N
	+	+	Y N
	+	+	Y N
Monthly Totals	=	=	

Monthly Inspection, Condensed Record

(perform by end of each month or 30 days apart; see page 34 for expanded checklist)

Inspection area	Inspected?	Repaired?	Logged on maintenance record?	Inspected by? (initials)
-----------------	------------	-----------	-------------------------------	--------------------------

Underground storage tanks and gasoline dispensing equipment (includes Stage I vapor control system for facilities in Stage I areas)

Release detection system (tank monitor)	Y N	Y N	Y N	
Spill buckets	Y N	Y N	Y N	
Overfill alarm	Y N	Y N	Y N	
Impressed current system (if applicable)	Y N	Y N	Y N	
Fill and monitoring probe ports	Y N	Y N	Y N	
Spill and overfill response supplies	Y N	Y N	Y N	
Dispenser hoses, nozzles and breakaways	Y N	Y N	Y N	
Dispensers and dispenser sumps	Y N	Y N	Y N	
Piping sumps (submersible)	Y N	Y N	Y N	

Stage II vapor recovery systems for gasoline dispensing facilities retaining these systems (inspect the equipment below is optional but recommended - see page 43)

Vapor return line	Y N	Y N	Y N	
Nozzle bellows	Y N	Y N	Y N	
Nozzle faceplates/facecones	Y N	Y N	Y N	
Nozzles	Y N	Y N	Y N	
Vapor processing unit working properly	Y N	Y N	Y N	

System Maintenance and Repair Record

Inspection date	Name of inspector	Identify problem/defective part	Repair date	Replacement part manufacturer/part number

Weekly Inspection Record

Inspection date	Inspected by (initials)

Class C Underground Storage Tank Operator Site Specific Instructions

Emergency Response Procedures

- ☐ Procedures for overfill protection during delivery of regulated substances.
- ☐ Procedures for controlling or monitoring the dispensing or sale of regulated substances.
- ☐ Operation and location of emergency shut-off systems.
- ☐ Response to all tank monitor alarm messages.
- ☐ Response to emergencies including: fire, leaks, spills and releases.
- ☐ Reporting of leaks, spills and releases. (Call 920-639-1336)
- ☐ Other Site specific instructions: _____

Emergency Response Contacts

- ☐ Fire Department emergency telephone number: _____ 911
- ☐ Emergency Spill Reporting Hotline: (24 Hours) _____ 1-800-943-0003
- ☐ Class A Operator Name: _____ Thomas Blohowiak
Telephone Number: _____ 920-639-1336
- ☐ Class B Operator Name: _____ Thomas Blohowiak
Telephone Number: _____ 920-639-1336

Employee Name: _____

UST Facility Name: _____ City of De Pere Fuel Site 1

UST Facility Address: _____ 925 South Sixth St Depere, WI 54115

I have provided the above written instructions to the employee listed below who is trained and designated as a Class C operator for this facility.

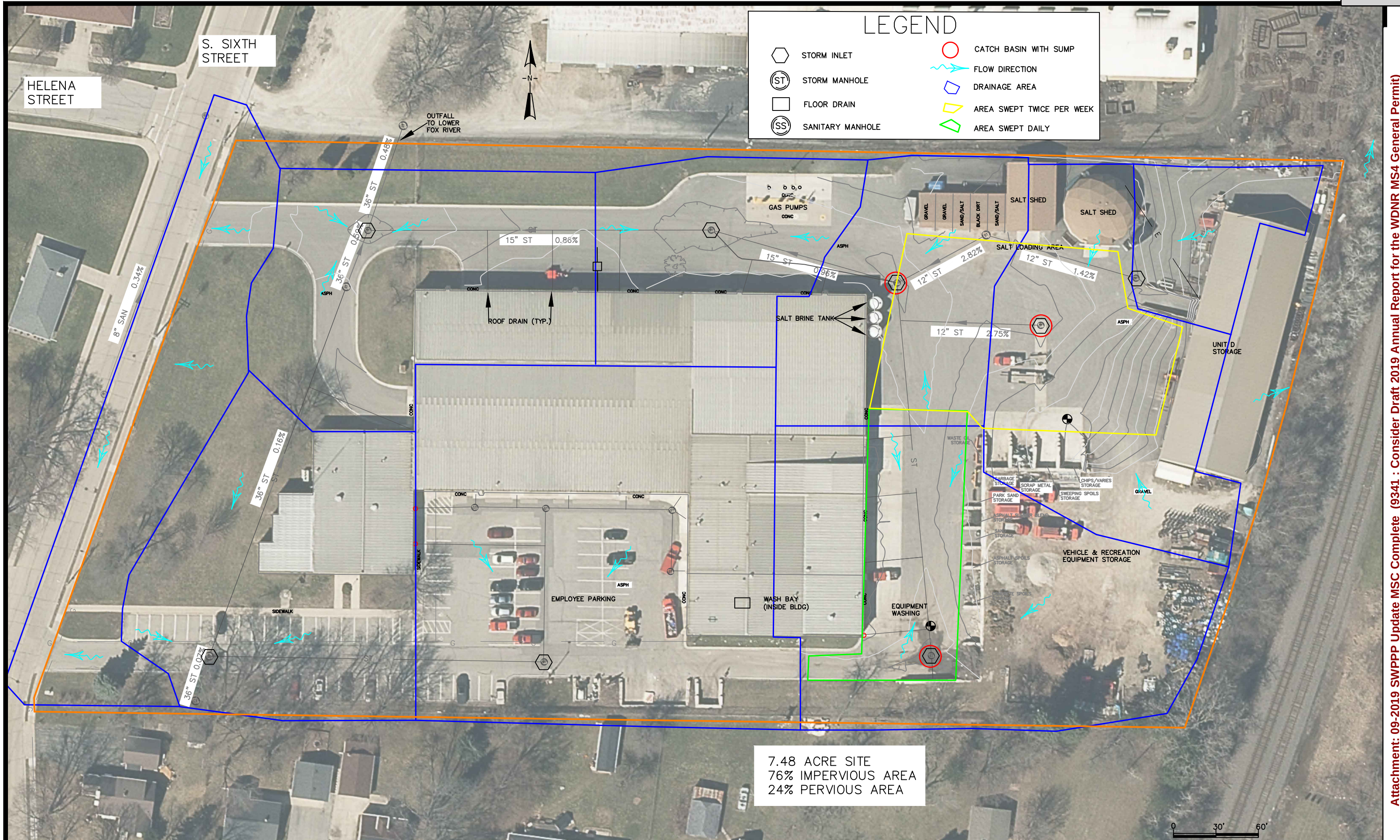
Class A or B Operator Signature: _____

Printed Name: _____ Thomas Blohowiak _____ Date: _____ / _____ / _____

I have received and reviewed the above written instructions and have been trained as a Class C operator:

Employee Signature: _____

Printed Name: _____ Date: _____ / _____ / _____



LEGEND

 STORM INLET

 STORM MANHOLE

 FLOOR DRAIN

 SANITARY MANHOLE

 CATCH BASIN WITH SUMP

 FLOW DIRECTION

 DRAINAGE AREA

 AREA SWEEPED TWICE PER WEEK

 AREA SWEEPED DAILY

7.48 ACRE SITE
76% IMPERVIOUS AREA
24% PERVIOUS AREA



**Northeast Wisconsin Stormwater Consortium****PO Box 1861
Appleton, WI 54912****2019 Annual Report****NEWSWC Mission:**

To facilitate efficient implementation of stormwater programs locally and regionally that will meet DNR and EPA regulatory requirements and maximize the benefit of stormwater activities to the watershed by:

- **Fostering**
- **Partnerships**
- **Sharing Information**
- **Seeking Administrative Efficiency**
- **Pooling Financial Resources**

The Northeast Wisconsin Stormwater Consortium was formed in 2005 as a subsidiary of the Fox-Wolf Watershed Alliance. The consortium is a collaborative of members with leadership elected annually from within its membership.

2019 NEWSWC Members:

[Brown County](#)
[Calumet County](#)
[Fond du Lac County](#)
[Outagamie County](#)
[Winnebago County](#)

[City of Appleton](#)
[City of DePere](#)
[City of Fond du Lac](#)
[City of Green Bay](#)
[City of Kaukauna](#)
[City of Manitowoc](#)
[City of Marinette](#)
[City of Menasha](#)
[City of Neenah](#)

[City of Oshkosh](#)
[City of Two Rivers](#)

[Town of Black Wolf](#)
[Town of Buchanan](#)
[Town of Clayton](#)
[Town of Fond du Lac](#)
[Town of Friendship](#)
[Town of Grand Chute](#)
[Town of Greenville](#)
[Town of Lawrence](#)
[Town of Ledgeview](#)
[Town of Neenah](#)
[Town of Scott](#)
[Town of Taycheedah](#)

[University of WI – Oshkosh](#)

[Village of Allouez](#)
[Village of Ashwaubenon](#)
[Village of Bellevue](#)
[Village of Combined Locks](#)
[Village of Eden](#)
[Village of Fox Crossing](#)
[Village of Harrison](#)
[Village of Hobart](#)
[Village of Howard](#)
[Village of Kimberly](#)
[Village of Little Chute](#)

[Village of N. Fond du Lac](#)
[Village of Sherwood](#)
[Village of Suamico](#)

Business Partners:

[AECOM](#)
[Ayres Associates](#)
[Brown & Caldwell](#)
[Cedar Corporation](#)
[Contech Construction](#)
[County Materials](#)
[Davel Engineering](#)
[Graef, USA](#)
[Mach IV Engineering & Surveying LLC](#)

[Martenson & Eisele](#)
[Mau & Associates](#)
[McMAHON Group](#)
[Mead & Hunt](#)
[MSA Professional Services](#)
[OMNNI Associates](#)
[raSmith](#)
[Robert E. Lee Associates](#)

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NEWSC Resources Available to Members:

*If Members utilized these resources to provide education to their residents, elected officials or staff, members should include details of how they were used in their individual annual reports.

*For outreach efforts conducted by NEWSC that members can enter directly into their individual annual report, look for your community name in each section.

MCM #2 Public Education & Outreach

Topic #1: Illicit Discharge Detection & Elimination

The resources below could have been used by printing and mailing out to local businesses, shared on social media or printed and made available at office. If used in the manner above: Delivery Mechanism would be passive.

Carpet Cleaning Flyer	http://www.renewourwaters.org/wp-content/uploads/2015/04/Professional-Carpet-Cleaning.pdf
Greenhouses, Garden Centers & Nurseries Flyer	http://www.renewourwaters.org/wp-content/uploads/2015/04/Garden-Centers.pdf
Professional Power Washing Flyer	http://www.renewourwaters.org/wp-content/uploads/2015/04/Power-washing-for-the-professional-washer.pdf
Concrete Washout Flyer	http://www.renewourwaters.org/wp-content/uploads/2015/04/Concrete-Washout.pdf
Construction Site Erosion & Sediment Control	http://www.renewourwaters.org/wp-content/uploads/2019/07/Construction-BMPs-Erosion-Sediment-Control.pdf
Dumpster Management Flyer	http://www.renewourwaters.org/wp-content/uploads/2015/04/Dumpster-Management-bilingual-pamphlet.pdf
Dumpster Management Poster	http://www.renewourwaters.org/wp-content/uploads/2015/04/Dumpster-Management-bilingual-pamphlet.pdf
Parking Lot Maintenance Flyer	http://www.renewourwaters.org/wp-content/uploads/2015/04/Parking-Lot-BMP.pdf
Winter Parking Lot Maintenance Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/11/Parking-Lot-Maintenance-Winter-BMPs.pdf

***Did you have inspectors in your community stop by businesses this year? Did they do illicit discharge inspections and meet with area businesses about illicit discharge? If so, you can record those interactions as active outreach.**

NEWSC Passive Delivery on Behalf of Members:

Direct mail of Winter Parking Lot Maintenance Flyer along with an invitation to the Winter Parking Lot Maintenance Workshop.

Mailing went out to 1180 property owners based on pervious surface coverage in NEWSC member coverage area.

Mailing list can be found here: https://drive.google.com/file/d/1bdr3-q9sKu7SWqAMC-Toxs-DBeAU_iM/view?usp=sharing

Mailing included: Parking Lot Maintenance Flyer - <http://www.renewourwaters.org/wp-content/uploads/2019/11/Parking-Lot-Maintenance-Winter-BMPs.pdf>

Invitation to Parking Lot Workshop - <https://drive.google.com/file/d/1nFHHnKozpPycP1hGxrMD4PoUy0RtsW1f/view?usp=sharing>

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NEWSC Active Delivery on Behalf of Members: Winter Parking Lot Maintenance Workshops

De Pere:

Thursday, October 10, 2019 / 9:00am-2:00pm / De Pere Community Center

Oshkosh

Friday, October 11, 2019 / 9:00am-2:00pm / UW Extension, Coughlin Center

DePere Workshop Attendees

First	Last	Organization	City
Michael	Sleeman	Ascension Lutheran Church	Green Bay
Jason	Leicht	City of appleton	Appleton
Jason	Van Rossum	City of Appleton	Kaukauna
Martin	Schingen	City of Appleton	Appleton
Justin	Klapa	City of Appleton	Appleton
Brian	Vervdort	City of Appleton	Appleton
James	Pedersen	City of Appleton	Oshkosh
James	Kinderman	City of Appleton- Parks	Oshkosh
Michael	Wilson	City of Appleton Parks Dept	Appleton
Curt	Cootway	St. Mary's Hospital Medical Center	Green Bay
Brad	Gajeski	University of Wisconsin- Green Bay	Green Bay
Peter	Falish	University of Wisconsin- Green Bay	Green Bay
Mike	Bielski	University of Wisconsin- Green Bay	Green Bay
Tyler	Schiesser	University of Wisconsin- Green Bay	Green Bay
Daniel	Koetz	University of Wisconsin- Green Bay	Green Bay
Lyle	Uitenbroek	University of Wisconsin- Green Bay	Green Bay
Toby	Froelich	University of Wisconsin- Green Bay	Green Bay
Kevin	Raab	Village of Howard	Green Bay
Tyler	Bauer	Village of Howard	Howard
Ryan	Thone	Village of Howard	Howard
Eric	Huss	Village of Howard	Green Bay
Justin	Lukes	Village of Howard	Green Bay
Zach	Nuthals	Village of Howard	Green Bay
Wade	Smith	Village of Howard	Green Bay
Robert	Bookster	Village of Howard	Green Bay

Oshkosh Workshop Attendees

First	Last	Organization	City
James	Rabe	City of Oshkosh	Oshkosh
Dan	Resop	City of Oshkosh	Oshkosh
Braden	Bodzislaw	City of oshkosh Street Dept	Oshkosh
Jormen	Walter	City of oshkosh Street Dept	Oshkosh
Eddie	Warczak	Kimberry School District	Combined Locks
Mike	Gorski	Piping Systems Inc	Hortonville
Jon	Henkel	Piping Systems Inc	Hortonville
Brian	Noe	Town of Omro	Oshkosh
Jacob	Pamperin	University of Wisconsin- Oshkosh	Oshkosh
Michael	Martin	University of Wisconsin- Oshkosh	Oshkosh
Andrew	Villaire	University of Wisconsin- Oshkosh	Oshkosh
David	McKinney	University of Wisconsin- Oshkosh	Oshkosh
Stacy	Behling	University of Wisconsin- Oshkosh	Oshkosh
Brady	Baldry	Winnebago Mental Health Institute	Winnebago
Bob	Stephenson	winnebago County Facilities Dept	Oshkosh
Pam	Markert	winnebago County Facilities Dept	Oshkosh
Bradley	Werth	winnebago County Facilities Dept	Oshkosh
Vickie	Edgell	winnebago County Facilities Dept	Oshkosh
Roberts	Mohr	Winnebago Mental Health	Winnebago

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The Winter Parking Lot and Sidewalk Maintenance Training Workshops were led by Fortin Consulting, and provided education on the following topics:

- **Material Application Rates**
- **Equipment Calibration**
- **Understanding Winter Weather Conditions**
- **Proper Storage of Materials**
- **De-Icing and Anti-Icing Techniques**

NEWSC Active Delivery on Behalf of Members: Community Education Event – The Impacts of Over-Salting

Fox River on Tap Event

Wednesday, October 10, 2019 / 6:00pm-7:30pm / Appleton Beer Factory

Advertisement for event:

<https://fwwa.org/2019/10/02/fox-river-on-tap-impacts-of-over-salting/>

More information on PAHs:

<https://fwwa.org/2019/01/11/local-groups-to-hold-public-meetings-on-toxic-coal-tar-pavement-sealants/>

Key messages of the event included:

- Once you put salt down, it doesn't go away. It alters the composition of soil, slows plant growth and weakens the concrete, brick and stone that make up our homes, garages, bridges, and roads. It travels into our lakes, rivers, streams and wetlands, putting our aquatic life at risk and endangering our freshwater resources.
- There are steps residents can take to reduce salt usage on their properties and its impact on the environment.

Media Coverage: <https://www.wbay.com/content/news/Concerns-raised-in-Appleton-over-de-icing-salt-usage--562776201.html>

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NEWSC Active Delivery on Behalf of Members: Community Education Event – Toxic PAHs

Green Bay on Tap Event

Tuesday, February 12, 2019 / 6:00pm-7:30pm / Copper State Brewing Company

Fox River on Tap Event

Wednesday, February 13, 2019 / 6:00pm-7:30pm / Appleton Beer Factory

Advertisement for event: <https://fwwa.org/2019/01/11/fox-river-on-tap-public-information-education-on-pah-pollution/>

More information on PAHs: <https://fwwa.org/2019/01/11/local-groups-to-hold-public-meetings-on-toxic-coal-tar-pavement-sealants/>

NEWSC Active Delivery on Behalf of Members: Volunteer Event - Annual Watershed Cleanup

Fox-Wolf Watershed Alliance continues to add sites every year. If your community would like a site added for 2021, contact Kelly (Kelly@fwwa.org) sites should have public access. Communities are asked to provide a site leader for the 1st year.

Location Name	# volunteers	# of trash Bgs	Recycle Bags	Tires	Elect	Plas bags	Balloons	Straws
Allouez								
Weise & Kiwanis Parks	3	3	2	0	0	15	0	3
Appleton								
Alicia Park	11	5	0.5	0	0	5	0	4
Telulah Park	21	7.5	3.5	0	3	35	0	12
Appleton North High School (trash pickup?)	28	16	2	0	0	45	0	10
Newberry Trail/North Island Trail	35	14	7	0	0	50	1	40
Memorial Park	44	37	9	1	0	130	13	130
Pierce Park/Lutz	30	21	8	0	0	50	1	7
Peabody Park	42	13	7	0	1	5	2	3
Calumet County								
Calumet County Park	25	15	4	0	1	61	0	9
Stockbridge Harbor	8	4	2	0	0	3	0	4
Combined Locks								
Memorial Park	59	20	2	0	0	75	0	0

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Location Name	# volunteers	# of trash Bgs	Recycle Bags	Tires	Elect	Plas bags	Balloons	Straws
De Pere								
Voyager Park & Fox River State Rec Trail	23	10	2	0	3	14	3	33
Bomier Pier--Fox River State Trail	1	5	0.5	1	0	20	1	6
Fond du Lac								
Lakeside Park	15	11	0.5			19	12	12
Lakeside Park - West	5	5	1	0	0	30	0	18
Grand Chute								
Prairie Hill Park	3	6	3	0	0	17	3	13
Green Bay								
Fox River State Recreational Trail: Fox Pt to Kayakers Pt	17	12	4	0	0	60	0	0
Fox River State Recreational Trail: Porlier Pier to Mason	3	4	1	1	0	15	0	5
Leicht Memorial Park	15	7	0	0	0	0	0	0
Pamperin Park	6	4				9	2	7
Joannes Park	10	3	1	0	3	25	3	16
Van Beaver Park & Meyer Park	16	13	3	0	1	50	0	1
East Lawn/Optimist Parks & Trail	6	2.5	1			1	3	
Bay Beach	27	19	0	2	0	50	0	500
Kaukauna								
Riverside Park	19	3	1	0	0	9	2	8
Grignon Park	21	6	1			21	2	18
Riverfront	6	8	0	0	0	0	12	40
1000 Islands	40	40	10	5	0	20	0	100
Kimberly								
Sunset Park	44	33	10	0	0	33	0	0
Town of Ledgeview								
Ledgeview Park	6	7	2	1	0	42	0	3
Little Chute								
Doyle Park	28	10	2	0	0	0	0	0
Heesaker Park & Trail System	20	2	1			15	4	18
Island Park	12	40	2	0	0	4	0	8

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Location Name	# volunteers	# of trash Bgs	Recycle Bags	Tires	Elect	Plas bags	Balloons	Straws
Menasha								
Trestle Trails/Boardwalk	16	12	3	0	0	45	5	87
Jefferson Park	30	16	1	0	0	0	12	25
Fritse Park	15	6	1	0	0	5	0	9
Neenah								
Riverside Park/Kimberly Point Parks	13	9	0.5	0	0	9	1	15
Arrowhead Park	35	14	1.5	0	0	0	0	0
Herb & Dolly Smith Park & Trail System	22	15	3	0	0	20	0	12
Doty Park/Island Parks	23	4	0.5	0	3	17	12	19
New London								
Pfeifer Park & Trails	27	15	3	0	1	80	10	60
Memorial Park	8	3	2	1	0	30	0	75
Oshkosh								
UW-Oshkosh Riverfront	18	12	3	0	1	25	0	40
Asylum Point	37	31	13	2	0	0	0	37
Red Arrow Park	20	9	1	0	0	20	0	20
Menominee Park	45	18	4	0	0	30	5	15
Fugleberg & 24th Street Boat Launches	7	6	1	0	0	0	0	0
Rainbow & Abe Rochlin Park	8	5	2	0	0	13	0	4
Wiowash Trail (behind Riverside Cemetery)	12	10	0	0	0	15	3	60
Wiouwash Trail (Lake Butte des Morts)	13	9	2	0	1	24	0	5
Shawano								
Kukuck Park	9	8	1.5	0	0	15	30	2
Huckleberry Harbor	10	4	1	0	0	11	0	4
Sherwood								
High Cliff State Park	34	17	6	1	0	100	10	212
Winneconne								
Terrell's Island	16	10	3	0	0	2	1	10
Marble Park	15	9	1.5	0	0	17	19	35
Lake Winneconne Park	5	5	1.5	0	0	11	0	14
Totals	734	460.5	95	13	10	843	136	1484

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2.1.1

Topic #2: Household Hazardous Waters Disposal/Pet Waste Management/Vehicle Washing

The resources below could have been used by printing and sharing in community newsletter, shared on social media or printed and made available at office. If used in the in the manner above: Delivery Mechanism would be passive.

Household Hazardous Waste Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Household-Hazardous-Waste.pdf
Carpet Cleaning Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/carpet-cleaning.pdf
Kids Can Help Too Flyer	http://www.renewourwaters.org/kids-can-help-too-3/
Good Dog, Good Owner Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Good-Dog-Good-Owner.pdf
Power Washing Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Power-Washing-Home.pdf
Fish Don't Swim in Chlorine Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Pool-Spa-Discharge.pdf
Vehicle Maintenance Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Vehicle-Maintenance.pdf
Vehicle Maintenance Webpage	http://www.renewourwaters.org/vehicle-maintenance-2/
Kids Can Help Too Webpage	http://www.renewourwaters.org/kids-can-help-too-3/
Household Hazardous Waste Webpage	http://www.renewourwaters.org/household-hazardous-waste-3/
Power Washing Webpage	http://www.renewourwaters.org/power-washing/
Fish Don't Swim in Chlorine Webpage	http://www.renewourwaters.org/pools-and-spas/
Carpet Cleaning Webpage	http://www.renewourwaters.org/carpet-cleaning-2/
Good Dog, Good Owner Webpage	http://www.renewourwaters.com/our-pets-our-waters/
Good Dog, Good Owner Infographic	http://www.renewourwaters.org/wp-content/uploads/2019/07/Good-Dog-Good-Owner-Web-Ready.png
Car Washing Infographic	http://www.renewourwaters.org/wp-content/uploads/2019/07/Car-on-GrassSM.jpg

***Did you exhibit or do any community presentations that hit on these topics? If so, you can record those interactions as active outreach.**

NEWSC Passive and Active Delivery for this topic can be found at the end of the report.

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2.1.1

Topic #3: Yard Waste Management/Pesticide and Fertilizer Application

The resources below could have been used by printing and sharing in community newsletter, shared on social media or printed and made available at office. If used in the manner above: Delivery Mechanism would be passive.

Leave Your Leaves on Land Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Leave-Your-Leaves-on-Land.pdf
The Perfect Lawn Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/The-Perfect-Lawn.pdf
Perfect Landscape Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/The-Perfect-Landscape-7.9.19.pdf
Ice & Snow Control flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/Leave-Your-Leaves-on-Land.pdf
Kids Can Help Too Flyer	http://www.renewourwaters.org/kids-can-help-too-3/
Leave Your Leaves on Land Webpage	http://www.renewourwaters.org/leave-your-leaves-on-land/
The Perfect Lawn Webpage	http://www.renewourwaters.org/the-perfect-lawn-3/
Perfect Landscape Webpage	http://www.renewourwaters.org/the-perfect-landscape/
Ice & Snow Control Webpage	http://www.renewourwaters.org/ice-and-snow-control-3/
Kids Can Help Too Webpage	http://www.renewourwaters.org/kids-can-help-too-3/
Ice & Snow Control Infographic	http://www.renewourwaters.org/wp-content/uploads/2019/07/Ice-and-snow-removal-photo.jpg
Leave Your Leaves on Land Infographic	http://www.renewourwaters.org/wp-content/uploads/2019/07/leaf-collection.jpg
Sweep Grass Clippings Infographic	http://www.renewourwaters.org/wp-content/uploads/2019/07/grassclippingsROW.jpg

***Did you exhibit or do any community presentations that hit on these topics? If so, you can record those interactions as active outreach.**

NEWSC Passive and Active Delivery for this topic can be found at the end of this report.

2.1.1

Topic #4: Stream and Shoreline Management

The resources below could have been used by printing and sharing in community newsletter, shared on social media or printed and made available at office. If used in the manner above: Delivery Mechanism would be passive.

Restore Your Shore Flyer	https://drive.google.com/file/d/1Iqu6TR_8_pEv6axAyxMWz2di_eOiR4Zo/view?usp=sharing
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***Did you meet with homeowners in 2019 to educate them on streambank erosion and BMPs to reduce erosion? You can record these discussions as active outreach.**

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**Northeast Wisconsin Stormwater Consortium****PO Box 1861
Appleton, WI 54912****2.1.1****Topic #5: Residential Infiltration**

The resources below could have been used by printing and sharing in community newsletter, shared on social media or printed and made available at office
If used in the in the manner above: Delivery Mechanism would be passive.

Rain Barrel Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/04/Rain-Barrels-Handout.pdf
The Perfect Landscape Flyer	http://www.renewourwaters.org/wp-content/uploads/2019/07/The-Pefect-Landscape-7.9.19.pdf
The Perfect Landscape Webpage	http://www.renewourwaters.org/the-perfect-landscape/
Rain Barrel Webpage	http://www.renewourwaters.org/rain-barrels/
Grass Clippings Infographic	http://www.renewourwaters.org/wp-content/uploads/2019/07/grassclippingsROW.jpg

***Did you host rain barrel workshop? If so, claim active outreach for this topic.**

2.1.1**Topic #6: Construction Sites/Post Construction Stormwater Management**

The resources below could have been used by printing and sharing in community newsletter, shared on social media or printed and made available at office
If used in the in the manner above: Delivery Mechanism would be passive.

Stormwater & the Construction Industry Poster	http://www.renewourwaters.org/wp-content/uploads/2019/07/Construction-BMPs-Erosion-Sediment-Control.pdf
Erosion & Sediment Control Pocket Field Guide	https://fwww.sharepoint.com/:b:/s/NEWSC2/EdPUndRD7MRKv0zfhlEnploBchXb5kenGX0HmZR5nlhwgA?e=vTY8kg

***Did you have active discussions regarding construction site erosion control? If you used these materials or other educational materials and had meetings/trainings (even 1 on 1 meetings with builders/contractors/inspectors) then you can record that interaction as an active outreach.**

NEWSC did not host 1 and 2 family home builder/contractor/inspector or Post Construction BMP trainings in 2019. Watch for the NEWSC 5 year training/workplan to come out in mid 2020.

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2.1.1

Topic #7: Pollution Prevention

The resources below could have been used by printing and posting by timeclock for training of municipal staff.

If used in the in the manner above: Delivery Mechanism would be passive.

Pollution Prevention Posters	
Parks and Ground Maintenance	https://drive.google.com/file/d/15HIPdDWvhg3-ga1BaJGR6TT8n7xUZisQ/view?usp=sharing
Fleet Maintenance	https://drive.google.com/file/d/1U0qAAG7lkddikf6t2L0yTpn14k2eLfer/view?usp=sharing
Land Disturbances 2	https://drive.google.com/file/d/1k8ErFLDOGsRnlnlHeEdgVFgkdx6cZ_tH/view?usp=sharing
Land Disturbances	https://drive.google.com/file/d/1x9fN37qCJ33Fxy_ru2UXJJyrfu3ERs_2/view?usp=sharing
Materials Storage and Spill Cleanup	https://drive.google.com/file/d/1fneDQ7wK50Nho1iRfU_VBTsh7WKSSmum/view?usp=sharing
Parks and Ground Maintenance 2	https://drive.google.com/file/d/1mFBUTGAs8RjgD6574Co2aTkADcagdWs4/view?usp=sharing
Soil Waste Operations	https://drive.google.com/file/d/1yhUACcUurRxISpvBmmyHJowjlmGTNAL9/view?usp=sharing
Solid Waste Operations	https://drive.google.com/file/d/1puPLqVT5PPoubNOrarNgS5QsFhwCj1oV/view?usp=sharing
Streets and Drainage Maintenance 2	https://drive.google.com/file/d/1vOR_S1O3O7ME4zDDbx8cVI0b4G_TYCba/view?usp=sharing
Streets and Drainage Maintenance	https://drive.google.com/file/d/1lvsgCzoqJDGG_2mmBCMBsAVmi3849o2X/view?usp=sharing

***Did you have active pollution prevention trainings? If you used these materials or other educational materials and had meetings/trainings then you can record that interaction as an active outreach. These training may have included the NEWSC Excal Videos.**

Excal Visual Videos available for member checkout in 2019:

"Rain Check" - Stormwater Pollution Prevention for MS4s Regulated municipalities and other municipal separate storm sewer system (MS4) operators must prevent pollutants from entering their storm drainage systems. One element of this requirement is preventing stormwater pollution by municipal facilities such as fleet maintenance shops, bus barns, sanitation facilities, parks and street sweeping operations. This program shows employees how to practice good housekeeping, spill response, materials management, vehicle fueling and washing and the other BMPs profiled in the "National Menu". (Program versions run between: 19 -and up to- 31 minutes) Click here to preview from Excal Visual's site: https://www.excalvisual.com/swrc-extended-preview	"Storm Warnings" - Stormwater Pollution Prevention This training kit is designed to provide general awareness training to employees and contractors about stormwater pollution prevention. It describes Best Management Practices (BMPs) that are useful and important at a wide range of regulated facilities. It covers good housekeeping and other BMPs that help protect stormwater run-off. The kit includes a template to guide the trainer through creating site specific training to use in addition to the general training in the video. (18 minutes) https://www.excalvisual.com/storm-warning-extended-preview
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**Northeast Wisconsin Stormwater Consortium****PO Box 1861****Appleton, WI 54912****2.1.1****Topic #8: Green Infrastructure/Low Impact Development**

NEWSC will be gathering resources for members to use going forward in 2020.

***Did you have active discussions with elected officials or developers about low impact residential design? If you had meetings/trainings or provided presentations on the topic then you can record that interaction as an active outreach.**

Northeast Wisconsin Stormwater Consortium

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**Northeast Wisconsin Stormwater Consortium****PO Box 1861
Appleton, WI 54912****2019 NEWSC SCHOOL OUTREACH**

The following presentations were provided in classrooms in NEWSC communities throughout the Fox-Wolf River Basin. These lessons covered watershed basics, how we use water, water quality, stormwater runoff pollution, floodplains, water quantity issues, green infrastructure, and tips for students and parents for reducing and preventing polluted stormwater runoff. Tools used for providing this education include: EnviroScape model, Ward's Floodplain model, stormwater find-it jars, stormwater runoff plinko, and templates for designing storm drain murals.

Stormwater Topic:	Discussed?	Stormwater Topic:	Discussed?
Illicit Discharge Detection & Elimination	YES	Residential Infiltration	YES
Household Hazardous Waste Disposal/Pet Waste Management/Vehicle Washing	YES	Construction sites and Post Construction Stormwater Management	NO
Yard Waste Management/Pesticide and Fertilizer Application	YES	Pollution Prevention	YES
Stream and Shoreline Management	YES	Green Infrastructure/Low Impact Development	NO

***If your community had school presentations in 2019, we recommend tying the school presentation in your annual report to a topic identified as discussed in the table above that you did not conduct outreach on in another way. These presentations are considered active outreach.**

NEWSC provides school presentation upon request by teachers. If your school district did not have presentations in 2019 and you would like NEWSC to present in your community, please reach out to your school district and share the School Presentation flyer:

<https://drive.google.com/file/d/1Jqr6xSyax72zXhYjAO5hrHd68guBKbkn/view?usp=sharing>

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Appleton:

- 1/10/2019 (3) classes at Fox River Academy in **Appleton**, approx. reach **80** students
- 1/11/2019 (3) classes at Fox River Academy in **Appleton**, approx. reach **65** students
- 1/16/2019 (3) 5-6 grade classes at Horizons Elementary in **Appleton**, approx. reach **77** students
- 2/6/2019 First English Lutheran Church classroom presentation in **Appleton**, approx. reach **24** students
- 4/11-12/2019 (8) classes of 7th graders at Kaleidoscope Academy in **Appleton**, approx. reach, **220** students
- 5/15/2019 (4) classes at Fox River Academy in **Appleton**, approx. reach **45** students

**Combined Locks**

- 11/12/2019 Cub Scouts presentation in **Combined Locks**, approx. reach **70** kids and adults

**De Pere**

- 5/20-24/2019 (14) 5th grade classes at Foxview Intermediate School in **De Pere**, approx. reach, **350** students

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Fond du Lac

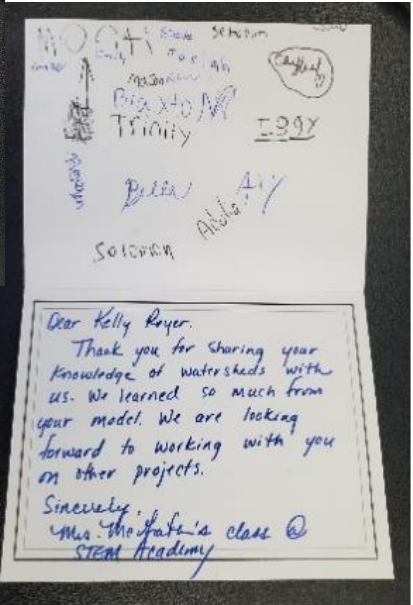
- 5/10/2018 (2) classes at St. Mary's Springs Academy in **Fond du Lac**, approx. reach, **50** students
- 8/27/2019 Sustain **Fond du Lac** presentation, approx. reach **22** adults
- 9/20/2019 St. Agnes Congregation, **Fond du Lac**, approx. reach **15** adults
- 12/12/2019 (1) class, grades 3-5, at Franklin STEM in **Fond du Lac**, approx. reach **28** students

Kimberly

- 2/4/2019 Girl Scouts at Westside Elementary School in **Kimberly**, approx. reach **25** students



- 3/09/2019 Super Science Saturday, **Kimberly** School District approx. reach **150** kids and adults



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Kaukauna

- 9/30/2019 (2) Environmental classes at **Kaukauna** High School, approx. reach **51** students

Menasha

- 4/15/2019 Geography students at UW-Oshkosh (Fox Valley Campus) in **Menasha** approx. reach, **30** students

Oshkosh

- 1/08/2019 (1) High School class at Oshkosh West High School in **Oshkosh**, approx. reach, **11** students
- 2/25/2019 Learning in Retirement presentation in **Oshkosh**, approx. reach **50** adults

Outagamie County

- 9/24-26/2019 Conservation Field Days, **Outagamie County**, approx. reach, **945** students



School Name	Tues Sept 24	Wed Sept 25	Thurs Sept 26
Black Creek Elementary		46	
New London Middle School			180
Freedom Middle School			115
Xavier Middle School		95	
Johnston Middle School (Canceled 9/10/19)	65		
St. Peter Lutheran School, Appleton	26		
Valley Homeschoolers		35	
Shiocton Elementary School	45		
Rock Ledge Intermediate School		125	
Mount Olive Lutheran School	36		
Franklin Elementary School		84	
Hortonville Middle School	115		
St. Mary of Immaculate Conception	25		
Emanuel Lutheran (New London)			18
TOTALS:	247	385	

**Northeast Wisconsin Stormwater Consortium**

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Winnebago County

- 5/8/2019 **Winnebago County** Field Days, Winneconne students, approx. reach, **150** students



- 11/14/2019 High School presentation at Omro High School in **Winnebago County**, approx. reach **32** students

COMMUNITY PRESENTATIONS**Grand Chute**

- 2/14/2019 Sierra Club, 14 attendees

Oshkosh

- 2/25/2019 Learning in Retirement presentation, Oshkosh, approx. reach 50

Darboy

- 3/09/2019 Super Science Saturday, approx. reach 150 kids and adults

Green Bay

- 5/14/2019 Izaak Walton League, 23 attendees

Fond du Lac

- 8/27/2019 Sustain Fond du Lac presentation, approx. reach 22 adults
- 9/20/2019 St. Agnes Congregation, Fond du Lac, approx. reach 15 adults

Northeast Wisconsin Stormwater Consortium

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**Northeast Wisconsin Stormwater Consortium****PO Box 1861****Appleton, WI 54912****2019 NEWSC EXHIBITING**

The following exhibits were coordinated at events in NEWSC communities throughout the Fox-Wolf River Basin. These educational exhibits provided information on watershed basics, water quality, stormwater runoff pollution, floodplains, water quantity issues, green infrastructure, and tips and advice for area residents for reducing and preventing polluted stormwater runoff. Tools used for providing this education include: Ward's Floodplain model, wheel of pollution, stormwater find-it jars, stormwater runoff plinko, the digital and paper watershed pledge, and educational flyers.

Stormwater Topic:	Discussed?	Stormwater Topic:	Discussed?
Illicit Discharge Detection & Elimination	YES	Residential Infiltration	YES
Household Hazardous Waste Disposal/Pet Waste Management/Vehicle Washing	YES	Construction sites and Post Construction Stormwater Management	NO
Yard Waste Management/Pesticide and Fertilizer Application	YES	Pollution Prevention	YES
Stream and Shoreline Management	YES	Green Infrastructure/Low Impact Development	NO

***If your community had exhibitions in 2019, we recommend tying the exhibiting event in your annual report to a topic identified as discussed in the table above that you did not conduct outreach on in another way. Exhibiting is considered active outreach.**

If you would like to make sure your community benefits from NEWSC exhibiting – make sure to check out the new Exhibiting Plan (following the 2019 exhibit locations).

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**Northeast Wisconsin Stormwater Consortium****PO Box 1861****Appleton, WI 54912****De Pere**

- 8/23/2019 SNC Into the Streets event, **De Pere**, approx. reach **40** kids and adults

Fond du Lac

- 6/7-9/2019 Walleye Weekend, **Fond du Lac**, approx. reach **550** kids and adults

**Manitowoc**

- 9/19/2019 Fall Safety Night in **Manitowoc**, approx. reach **75** kids and adults

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**Northeast Wisconsin Stormwater Consortium****PO Box 1861****Appleton, WI 54912****Menasha**

- 12/3/2019 VolunteerFEST in **Menasha**, approx. reach **200** kids and adults

**Neenah**

- 10/5/2019 **Neenah** Farmers Markers, approx. reach **75** kids and adults

**Outagamie County**

- 8/8/2019 Sunset on the Farm event, **Outagamie County**, approx. reach **200** kids and adults

**Two Rivers**

- 8/2/2019 Community Care Day, **Two Rivers**, approx. reach **250** kids and adults

Northeast Wisconsin Stormwater Consortium

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NEWSC 5 Year Exhibiting Plan

2019/2024	2020	2021	2022	2023
City of Fond du Lac City of Two Rivers Outagamie County City of De Pere City of Manitowoc City of Neenah	City of Green Bay City of Menasha Calumet County Village of Combined Locks Village of Hobart Village of Little Chute Town of Black Wolf Town of Fond du Lac UW Oshkosh	City of Appleton City of Oshkosh Fond du Lac County Village of Bellevue Village of Harrison Village of N. Fond du Lac Town of Neenah Town of Lawrence Town of Scott	City of Kaukauna Winnebago County Village of Allouez Village of Eden Village of Howard Village of Sherwood Town of Buchanan Town of Friendship Town of Greenville Town of Taycheedah	City of Marinette Brown County Village of Ashwaubenon Village of Fox Crossing Village of Kimberly Village of Suamico Town of Clayton Town of Grand Chute Town of Ledgeview

Each year NEWSC will commit to exhibiting at an event on behalf of 20% of our membership, ensuring we exhibit in each member community once during a 5 year permit cycle.

The communities assigned in a given year, will be guaranteed a NEWSC presence at a community event during that year given that the NEWSC member work with the Outreach Coordinator to get the event on the exhibiting calendar by March 30 and work to coordinate with the event host.

To ensure your space is reserved NEWSC members must:

1. **Contact the Outreach Coordinator by March 30** of the year you are scheduled with the name of event, date of the event and contact information for the event organizer that you would like the Outreach Coordinator to be a part of.
2. Work with the Outreach Coordinator and the event organizer to ensure acceptance of NEWSC participation at the event. Pay any exhibiting fees (if any) for the event. For most community events, NEWSC members are able to coordinate with event host free exhibit space, if the event chosen does not waive exhibit fees for the community, those fees are the responsibility of the NEWSC member.

If communities do not schedule the Outreach Coordinator to participate by March 30, invitations to the Outreach Coordinator from other communities for events will be entertained and all invites will be accepted as time is available on a first come first serve basis.

If the Outreach Coordinator is unable to exhibit in your community due to workload or date of event, NEWSC members may check out exhibiting materials from NEWSC. Promotional materials will be provided as part of the exhibiting display if NEWSC has promotional items to hand out.

**Northeast Wisconsin Stormwater Consortium****PO Box 1861
Appleton, WI 54912****Social Media:**

NEWSC utilizes the Fox-Wolf Watershed Alliance's Social Media presence to connect with area residents.

Social media is used to engage area residents in water related issues and events as well as a tool to provide education.

While social media posts are considered passive outreach, engaging users through social media can

increase their likelihood to participate in an active form of outreach/engagement.

****NEWSC members – if your community utilizes social media, encourage your social media guru to follow the Fox-Wolf Watershed Alliance and share the posts relevant to your community.***

**Social Media Posts 2019**

01/02/2019 (image) Dr. Eric's Skate Club is clearing snow off of Lake Winnebago for a skating rink, 539 reached

01/03/2019 (news link) Beavers Return to the Milwaukee River in the Heart of Downtown, 2,967 reached

01/05/2019 (image) Thank you to Green Bay Packers Give Back for their Guardian level sponsorship, 569 reached

01/06/2019 (image) A beautiful, wintery shot of the Fox River in Oshkosh, 516 reached

01/07/2019 (news link) Manitowoc Lighthouse Washed into Lake Michigan, 595 reached

01/07/2019 (images) Photos showing the Manitowoc lighthouse being washed away by large wave, 664 reached

01/08/2019 (FWWA blog) Shoreline Restoration and You, 1,245 reached

01/09/2019 (image) Thanks to the WPS Foundation for sponsoring the 2019 Fox-Wolf Watershed Cleanup, 436 reached

01/09/2019 (video) A look at how color changes underwater as depth increases, 686 reached

01/12/2019 (link) A Wisconsin lighthouse road trip, 3,240 reached

01/13/2019 (image) Where in the Watershed image showing Lutz Park in

Appleton, 544 reached

01/13/2019 (news link) Walk Across Winnebago Event on Thin Ice, 455 reached

01/14/2019 (FWWA link) Join us for the 4th Annual Farmers Roundtable Event, 303 reached

01/14/2019 (image) Introduction to the new Connecting Our Waters program, 738 reached

01/15/2019 (PBS news link) Freshwater is Getting Saltier, Threatening People and Wildlife, 1,714 reached

01/15/2019 (FWWA link) FWWA is hiring for an Aquatic Invasive Species Educator position, 288 reached

01/16/2019 (Appleton Post Crescent news link) Alliance Favors Lower Water Levels on Lake Winnebago, 2,431 reached

01/17/2019 (image) Thanks to Badger Sportsman Magazine for supporting the FWW Cleanup, 367 reached

01/18/2019 (image/link) What our states would look like if boundaries were determined by basins, 2,689 reached

01/21/2019 (image) Thanks to 91.1 The Avenue for supporting the 2019 Fox-Wolf Watershed Cleanup, 1,076 reached

01/22/2019 (video) Learn about Ice Rescue Training on Lake Winnebago,

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324 reached

01/22/2019 (image) FWWA is on the cover of this week's Oshkosh Herald newspaper (water levels), 352 reached

01/23/2019 (image) A reminder of what not to do on the ice this year (image showing garbage on ice), 39,780 reached

01/24/2019 (image) Where in the Watershed image (showing stone bridge over Wolf River near Shiocton), 480 reached

01/28/2019 (news video) "I'm from Wisconsin" video (winter weather), 872 reached

01/28/2019 (image) Thanks to Mercury Marine for sponsoring the 2019 Fox-Wolf Watershed Cleanup, 638 reached

01/29/2019 (news link) Colder Weather Could Reduce—But not Eliminate—Ash Borer's Spread, 966 reached

01/30/2019 (FWWA image/link) Join us for Fox River on Tap February 12th to learn about PAH pollution, 430 reached

01/31/2019 (FWWA link) the 2/12 Fox River on Tap event is cancelled due to weather—will be rescheduled, 1,200 reached

01/31/2019 (FWWA image/link) 2/13 Fox River on Tap event in Appleton for PAH pollution education, 160 reached

01/31/2019 (image) Thanks to Wolf River Community Bank for sponsoring the 2019 FWW Cleanup, 334 reached

02/01/2019 (image/link) Vote for your favorite 2019 Fox-Wolf Watershed Cleanup t-shirt, 750 reached

02/03/2019 (FWWA image/link) 2/13 Fox River on Tap even in Appleton for PAH pollution education, 459 reached

02/03/2019 (images) Kaukauna Police Dept. is looking for those responsible for dumping tires by the Fox River, 634 reached

02/05/2019 (image) Child drawing showing cleaning up the environment, 576 reached

02/05/2019 (news link) International Competition Brings Windsurfers to Lake Winnebago, 463 reached

02/06/2019 (image) Thanks to Outagamie Co. Recycling for supporting the

2019 FWW Cleanup, 621 reached

02/07/2019 (link) Vote for our Cleanup photo in the 2018 National Cleanup Photo Contest, 1,115 reached

02/08/2019 (image) Infographic showing success of the 2018 Clean Boats, Clean Waters Program, 328 reached

02/10/2019 (link) The many benefits of using native plants, 557 reached

02/11/2019 (news link) DNR investigates littering on Lake Winnebago, 695 reached

02/12/2019 (EPA link) Here are free watershed lesson plans from the EPA, 665 reached

02/12/2019 (images) Pictures from Kimberly Girl Scout stormwater presentation, 553 reached

02/13/2019 (FWWA link/image) Join us tonight! Fox River on Tap in Appleton (PAH education), 529 reached

02/14/2019 (image) A #travelingcleanupshirt image from a volunteer in Israel, 538 reached

02/14/2019 (image) Roses are red, violets are blue, we work to protect our waters, and so can you!, 1,194 reached

02/15/2019 (news link) Pipes along street for underground navigable stream in Grand Chute, 816 reached

02/18/2019 (link) A reminder to vote for FWWA cleanup volunteer photo in national contest, 362 reached

02/18/2019 (GIF) Registration is open for the 2018 Fox-Wolf Watershed Cleanup, 389 reached

02/20/2019 (FWWA link) AIS Spotlight: Curly-Leaf Pondweed, 308 reached

02/22/2019 (video) From the archives: stormwater rubber ducky video, 521 reached

02/24/2019 (image) A #travelingcleanupshirt image from Dublin, Ireland, 560 reached

02/26/2019 (link) Greener Childhood Associated with Happier Adulthood, 963 reached

02/27/2019 (image) #WatershedFactsWednesday post, the Fox-Wolf River

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basin drains > 6,300 sq. miles, 1,378 reached
02/27/2019 (FWWA link) Fox River on Tap event in Green Bay on March 20th (PAH pollution education), 208 reached
02/28/2019 (image) 311 volunteers are already registered for the 2019 Fox-Wolf Watershed Cleanup, 2,411 reached
02/28/2019 (news link) It'd take 693 years for a Zamboni driver to resurface Lake Superior, 810 reached
03/02/2019 (news link) Green Lake's Heidel House to close down on May 20th, 645 reached
03/04/2019 (FWWA video) FWWA's 2018 Year in Review Video, 639 reached
03/05/2019 (images) It's opening day of our 2019 Watershed Conference at Lambeau, 621 reached
03/05/2019 (images) Photos shared from Troy Streckenbach showing the signing of the Water Quality Pact, 457 reached
03/06/2019 (news links) News links sharing the story of the signing of the Water Quality Pact, 1,714 reached
03/06/2019 (image) #WatershedFactsWednesday stating the Fox River drops 164 ft. in elevation, 1,366 reached
03/07/2019 (image) A photo showing the winner of the 2019 Fox-Wolf Watershed Cleanup t-shirt, 561 reached
03/09/2019 (images) Pics show volunteers looking at our new floodplain model at Super Science Saturday, 736 reached
03/11/2019 (image) Flyer for the upcoming Winnebago on Tap events, 232 reached
03/12/2019 (video) Video showing an elderly snapping turtle moving underwater, 826 reached
03/12/2019 (Facebook event) Come to the Clean Boats, Clean Waters Open House in Winneconne, 157 reached
03/13/2019 (image) Our Cleanup posters are printed, and we could use some help putting them up, 1,044 reached
03/14/2019 (images) Photos show Lake Winnebago covered in fog, 3,607

03/15/2019 (image) #WatershedFactsWednesday posts states Lake Winnebago covers 159,097 acres, 420 reached
03/18/2019 (link) The article talks about the #trashtag challenge, 662 reached
03/18/2019 (link) A conservation scholarship will be given out in memory of John Pagel, 463 reached
03/19/2019 (image) Residents in Allouez need help moving items from flooding on the East River, 1,054 reached
03/19/2019 (images) Photos show ad for the Fox-Wolf Watershed Cleanup in the Badger Sportsman Magazine, 1,147 reached
03/19/2019 (video) Video shows why we see foam build up in our lakes and rivers, 393 reached
03/19/2019 (FWWA link/image) Join us tomorrow in Green Bay for our Fox River on Tap event (PAH education), 308 reached
03/20/2019 (image) #watershedFactswednesday post: the East River was once called the Devil's River, 671 reached
03/21/2019 (images) Photos show lots of garbage along the shoreline in Fond du Lac, volunteers needed 1,396 reached
03/22/2019 (images) Areal photos show the flooding along the Fox River in Princeton, WI, 483 reached
03/22/2019 (image) FWWA staff pose with Rep. Staush Gruszynski after a meeting at FWWA offices, 344 reached
03/23/2019 (video) Video shows a dock floating down the Wolf River, 738 reached
03/26/2019 (image) Photo shows a #travelingcleanupshirt photo taken on the Lake Superior National Lakeshore, 350 reached
03/27/2019 (image) #WatershedFactsWednesday post defines an Oxbow Lake, 929 reached
03/28/2019 (news link) UWGB now offering bachelors degree in water science, 1,119 reached
03/28/2019 (image) Ahlstrom Munksjo supports the Fox-Wolf Watershed Cleanup with large donation, 428 reached

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03/29/2019 (article/image) The world's 25 largest lakes side by side, 25,105 reached

03/29/2019 (news video) Swans are back in northeast Wisconsin, 440 reached

04/01/2019 (image) A #travelingcleanupshirt photo from Key West Florida, 439 reached

04/01/2019 (news link) Milwaukee enacts stiffer penalty for littering, 872 reached

04/02/2019 (image) Thank you to Firestone Complete Auto Care for recycling tires recovered from our cleanup, 575 reached

04/02/2019 (image/link) A reminder to register for the cleanup by April 8th to receive free cleanup t-shirt, 1,134 reached

04/03/2019 (image/link) We're looking for more Cleanup site leaders—those who sign up get a free travel bag, 1,003 reached

04/03/2019 (image) Watershed Fact Wednesday about Litteral Zone and importance of aquatic plants, 373 reached

04/04/2019 (images) Beautiful sunrise over Lake Winnebago, 356 reached

04/05/2019 (news link) The Green Bay Press Gazette and other local papers share Cleanup date and info, 2,041 reached

04/08/2019 (image/link) Register today to be guaranteed a cleanup t-shirt, 411 reached

04/08/2019 (news link) NRSC & 8 NE WI counties launch Upper Fox-Wolf Demonstration Farm Network, 367 reached

04/09/2019 (news link) Oshkosh high school students set-up life jacket kiosk for water users, 724 reached

04/16/2019 (video) The Fox-Wolf Watershed Cleanup would not be possible without our amazing sponsors, 492 reached

04/17/2019 (image) Watershed Facts Wednesday post about Green Lake being the deepest lake in our basin, 1,051 reached

04/18/2019 (images) #travelingcleanupshirt photos from volunteers vacationing in Disney World, 389 reached

04/18/2019 (image) Check us out on Fox-11's Good Day WI tomorrow

discussing rain barrels and the Cleanup, 559 reached

04/19/2019 (image) Photo showing before and after of a storm drain makeover, 840 reached

04/24/2019 (image/link) Saturday's Cleanup is still on, taking place rain or snow or shine, 429 reached

04/26/2019 (image) Cleanup volunteers receive 50% off comedy show tickets in Oshkosh, 737 reached

04/28/2019 (image) A huge thank you to cleanup volunteers for showing up yesterday and cleanup up garbage!, 828 reached

05/01/2019 (image) Watershed Facts Wednesday post about freshwater jellyfish found in 100 WI lakes, 8,603 reached

05/03/2019 (image) A beautiful sunrise over Green Lake, 371 reached

05/03/2019 (image) Infographic showing the total volunteers and garbage cleaned up during the 2019 cleanup, 6,543 reached

05/07/2019 (album) Photo album showing volunteer photos from the 2019 Fox-Wolf Watershed Cleanup, 507 reached

05/08/2019 (images) Photos from watershed lessons at Winnebago Co. Field Days, 525 reached

05/08/2019 (images) More Cleanup photos added to Cleanup album, 423 reached

05/09/2019 (image/link) Photo of a watershed pledge yard sign and link to take the watershed pledge, 354 reached

05/12/2019 (image) photo: we haven't posted in a while so here's a dam photo, 2,022 reached

05/12/2019 (images) More Cleanup photos added to cleanup photo album, 383 reached

05/14/2019 (images) More Cleanup photos added to cleanup photo album, 320 reached

05/15/2019 (images) Photos showing students from FRA in Appleton utilizing the Ward's Floodplain model, 372 reached

05/15/2019 (video) Video shows a snapping turtle filmed in the Fox River, 617 reached

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Appleton, WI 54912**

05/17/2019 (images) More Cleanup photos added to cleanup photo album, 251 reached
05/17/2019 (images) Please vote by liking your favorite photo in each category, 564 reached
05/19/2019 (images) More Cleanup photos added to cleanup photo album, 316 reached
05/21/2019 (video) Video shows Fonferek's Glen waterfall after recent rains, 320 reached
05/24/2019 (images) Winners shown for each category of volunteer cleanup photo contest, 974 reached
05/28/2019 (link) 10 things to do while you're winding down the Wolf River, 346 reached
05/29/2019 (news link) New Wisconsin Dells water attraction is modeled after nature/Devil's Lake, 660 reached
05/29/2019 (images) FWWA staff go to Appleton Waste Water Treatment Facility to learn about the process, 587 reached
05/30/2019 (image) #travelingcleanupshirt image from Munising, MI (U.P.) and ask for volunteer photo submittal, 223 reached
05/30/2019 (FWWA link) FWWA is hiring AIS positions, 344 reached
05/30/2019 (news link) Bay Beach Wildlife Sanctuary takes in 3 orphaned otter pups, 814 reached
05/31/2019 (image) you can hold-punch leafs to make eco-friendly confetti, 557 reached
06/03/2019 (image) Where in the watershed image showing east branch of the Fond du Lac River, 556 reached
06/03/2019 (image) Picture shows mural painted by water with reflection over water, 2,984 reached
06/05/2019 (news link) Significant artifacts found on the Grignon Mansion property along Fox River, 681 reached
06/06/2019 (image) Infographic shows that 85,500 lbs of carp were removed from Green Lake this month, 646 reached
06/10/2019 (image) Photo shows man holding his dog with sign reading, if

your dog poops, pick it up, 1,168 reached
06/10/2019 (images) Photos show our educational exhibit at Walleye Weekend in Fond du Lac, 355 reached
06/11/2019 (news link) Goats are back to graze and eat invasive plants at 1000 Islands Nature Center, 757 reached
06/12/2019 (image) Watershed Facts Wednesday: Garlic Island/Lake Winnebago was used during War of 1812, 18,907 reached
06/13/2019 (images) Summer Camp: Week 1: campers learned about stormwater runoff, 369 reached
06/13/2019 (news link) Parts of the Great Lakes will get pounded by 13-foot waves, 921 reached
06/15/2019 (link) Green Lake swimming beach is closed due to high bacteria levels, 527 reached
06/17/2019 (images) Fox-Wolf Staff learn about sustainable farming on Austin Pethan's farm, 789 reached
06/18/2019 (news link) Fox-11 covers our COW program's shoreline survey effort on Shawano Lake, 585 reached
06/19/2019 (image) a #travelingcleanupshirt photo from cleanup volunteers in Tulum, Mexico, 543 reached
06/21/2019 (news link) Asylum Point bridge to be replaced on Lake Winnebago, 1,041 reached
06/24/2019 (image) Where in the watershed image shows sunset over the Fox River in Neenah, WI, 573 reached
06/25/2019 (link) Bowl-shaped roofs collect rain water and keep houses cool, 1,003 reached
06/26/2019 (image) Watershed Facts Wednesday post about piranha found in Lake Winnebago, 3,126 reached
06/27/2019 (images) Brown County Parks is building a waterfall-viewing platform at Fonferek's Glen, 636 reached
06/28/2019 (video) Summer Camp: week 3 the campers learn about the importance of picking up dog poop, 316 reached
06/28/2019 (images) Photos from summer camp week three where campers

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learned about bacteria runoff, 346 reached

07/01/2019 (link) Igloo releases non-styrofoam cooler that is made out of biodegradable material, 1,115 reached

07/02/2019 (news link) Great Lakes Fishery Commission unveils project to combat invasive species, 657 reached

07/07/2019 (news link) Fox-Wolf staff are educating boaters over the holiday weekend about AIS, 592 reached

07/08/2019 (news video) A deer hung out with beachgoers along Lake Michigan for over 30 minutes, 762 reached

07/10/2019 (image) Watershed Facts Wednesday post about the Delhi ghost town along the Fox River, 1,100 reached

07/11/2019 (images/link) Vote for your favorite rain barrel design created by summer campers, 518 reached

07/15/2019 (link) Our COW program is hosting a shoreline restoration workshop and tour, 157 reached

07/15/2019 (link) Volunteer stream monitors needed in upper fox and Wolf watersheds, 817 reached

07/16/2019 (link) An innovative underpass keeps turtles off the highway, 1,078 reached

07/17/2019 (images/link) A reminder to vote for your favorite rain barrel design, 337 reached

07/18/2019 (link) This is how sand looks magnified up to 300 times, 1,038 reached

07/19/2019 (images) Summer camp: week 5 the campers learned about macroinvertebrates and stream health, 431 reached

07/21/2019 (image) Where in the Watershed image shows Waukau Creek leaving Rush Lake, 1,056 reached

07/22/2019 (link) We're excited to have an exhibit at the 2019 Sunset on the Farm event, 484 reached

07/22/2019 (news link) More interest in rain gardens after 2018 flooding event, 628 reached

07/25/2019 (images) Summer camp: week 6 campers learned about insects

and their environment, 375 reached

07/29/2019 (news link) Loons in N. WI are raising a mallard duckling after they lost their own chick, 969 reached

07/29/2019 (email link) View our upcoming Fox-Wolf volunteer events, 246 reached

07/30/2019 (link) A turtle's shell protects some of the strangest features in the animal kingdom, 861 reached

07/30/2019 (link) image shows Myron Cox: the first person to swim across Lake Winnebago, 518 reached

08/01/2019 (photos) Fox-Wolf participated in the River in Recovery tour highlighting our GLRI efforts, 473 reached

08/01/2019 (FB event) We're excited to have an educational exhibit at Two Rivers Community Care day, 89 reached

08/05/2019 (images) Summer campers learned about algae and made algae slime, 333 reached

08/06/2019 (video) Video from GLA talks about the importance of Green Lake and retention time, 357 reached

08/08/2019 (news link) Tornado with 85mph winds touched down in Green Bay, 890 reached

08/08/2019 (images) We had a great time talking with attendees at the Sunset on the Farm event, 305 reached

08/08/2019 (image) We're all set up and ready to talk with folk at the Sunset on the Farm event, 396 reached

08/12/2019 (images) At the last week of SC we discussed waterfowl conservation and painted bird houses, 327 reached

08/13/2019 (link) Lidar used to make dynamic map of river's 15,000 year history, 662 reached

08/13/2019 (link) When in Doubt, Stay Out: Blue-green algae can be toxic for dogs, 760 reached

08/14/2019 (news link) video shows cliff falling nearly on top of kayakers on Lake Superior, 873 reached

08/15/2019 (image) WDNR Lake Michigan Fisheries meetings to be held,

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576 reached

08/20/2019 (images) Trout Unlimited to hold Road/Streams Crossing Workshop, 353 reached

08/21/2019 (video) Boater discusses the fish featured on the interstate 41 bridge over Lake Butte des Morts, 414 reached

08/22/2019 (news link) Rare bee discovered in Oconto County, 914 reached

08/25/2019 (images) Photos of volunteers cleaning up and pulling invasives at Voyageur Park in De Pere, 982 reached

08/28/2019 (image) Where in the Watershed photo shows the Fox River just south of De Pere, 486 reached

08/29/2019 (link) The Clean Water Makes Better Beer event is canceled for the evening, 208 reached

08/29/2019 (news link) DNR Wardens Bust Walleye Poachers, 751 reached

09/03/2019 (FB event) Join us for our Mini Cleanup in Fond du Lac, 174 reached

09/03/2019 (news link) Johnson Controls to use \$140 million for PFAS Cleanup, 512 reached

09/05/2019 (FWWA link) Rush Lake: Public Outreach for Success, 488 reached

09/08/2019 (image) Pennywise stormwater images shows what to keep out of storm drains, 5,619 reached

09/10/2019 (FB event) Sign up for our Fox-Wolf Mini Cleanup today, 210 reached

09/11/2019 (news video) Video shows extent of flooding in Green Bay, 591 reached

09/13/2019 (image) Thanks to 96.9 The Fox for bringing Fox-Wolf staff lunch today!, 494 reached

09/16/2019 (images) Photos shows extreme foggy at Lake Winnebago in Oshkosh, 471 reached

09/17/2019 (news link) MKE station features Fox-Wolf staff discussing aquatic invasive plants, 435 reached

09/18/2019 (image) Fox-Wolf Mini Cleanup recruitment photo and link for

volunteers, 945 reached

09/20/2019 (image) Photo shows why camping on a river might not be a good idea, 850 reached

09/21/2019 (image) Infographic shows the results of the mini cleanup in Fond du Lac, 4,165 reached

09/22/2019 (images) Volunteer photos show people cleaning up at the mini cleanup event in FDL, 441 reached

09/23/2019 (link) Making paper from invasive plants, 890 reached

09/24/2019 (image) Fox-Wolf is honored to receive a River Champion award from the River Alliance, 706 reached

09/29/2019 (image) It's #SunsetSunday with image of sunset over Fox River in Oshkosh, 403 reached

10/01/2019 (images) Photos show the Fox River leaving its banks in the City of Green Bay, 692 reached

10/02/2019 (FB event) Facebook event advertisement for Fox River on Tap in Appleton discussing salt, 106 reached

10/03/2019 (images) Amcor employees and family cleaned up throughout our basin, 492 reached

10/04/2019 (FWWA link) Nearly 1,000 students educated at Conservation Field Days, 344 reached

10/04/2019 (news link) Turtle dies after consuming 104 pieces of plastic, 770 reached

10/06/2019 (image) Infographic shows how salt impacts our environment and infrastructure, 2,504 reached

10/08/2019 (link) DNR: 4th grade classrooms in WI can order free seedlings, 480 reached

10/09/2019 (link) Calumet County Park has new mountain bike trails open, 291 reached

10/09/2019 (video) Magnet fishing is a new hobby for those looking to find metal treasure in our waters, 654 reached

10/10/2019 (FB event) We look forward to seeing everyone tonight for our over-salting talk, 83 reached

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10/14/2019 (images) Photos show residents standing by their rain gardens and Watershed Pledge yard signs, 1,472 reached
10/15/2019 (link) Submit your nomination for Watershed Hero award, 234 reached
10/18/2019 (news link) Students research tracks balloon debris in the Great Lakes, 596 reached
10/20/2019 (image) A #SunsetSunday photo shows a beautiful sky over Lake Winnebago, 486 reached
10/21/2019 (image) Save the date for our 2020 Fox-Wolf Watershed Cleanup, 1,026 reached
10/22/2019 (news video) MKE show discusses leaves, phosphorus, and runoff, 479 reached
10/27/2019 (image) A #travelingcleanupshirt photo from Portland, ME, 362 reached
10/28/2019 (link) Your body's amazing reaction to water, 381 reached
10/29/2019 (images) Photos of Asylem Point after first major snow storm of the season, 967 reached
10/30/2019 (image) Watershed Facts Wednesday post: 1 acre wetland, 1 foot deep holds 330,000 gal of water, 391 reached
10/31/2019 (link) Monster fish lurking in our waterways, 294 reached
11/01/2019 (link) 16 amazing ways to design with stones—would work great in rain gardens, 942 reached
11/04/2019 (image) Thank you to Cellcom for supporting our 2020 Fox-Wolf Watershed Cleanup, 372 reached
11/04/2019 (news link) Wild rice seeding underway in Green Bay waters, 567 reached
11/06/2019 (image) Watershed Facts Wednesday: WI has approx. 13,175 miles of trout streams, 611 reached
11/10/2019 (news link) Green Bay school has plans for installing solar panels, 737 reached
11/12/2019 (news link) Survey of WI boaters gauges success of boater education about invasive species, 373 reached

11/14/2019 (link) Check out this cool storymap out of Winnebago County, 408 reached
11/16/2019 (news link) MN DOT' ice breaker vehicle de-ice roads and lessen salt use, 828 reached
11/17/2019 (image) We've reached 2,226 students in 2019 with classroom watershed/runoff education 326 reached
11/18/2019 (news link) Boil water advisory for those in St. Cloud in Fond du Lac County, 441 reached
11/20/2019 (images) We educated cub scouts in Combined Locks about floodplains, watersheds, and runoff, 696 reached
11/20/2019 (image) Announcement of our #WISweeptheSalt campaign to get people to sweep the salt, 753 reached
11/22/2019 (news link) Fish can hear boat noises and their ears are in trouble, 454 reached
11/25/2019 (image) Fox-Wolf has provided 54 educational exhibits throughout the basin in 2019, 464 reached
11/30/2019 (image) You can support Fox-Wolf while shopping on Amazon using Amazon Smile, 3,391 reached
12/01/2019 (image) Thank you to We Energies for supporting our 2020 Fox-Wolf Watershed Cleanup, 367 reached
12/02/2019 (news link) Eau Claire researchers find microplastics in Boundary Waters Wilderness Area, 932 reached
12/03/2019 (image/link) Make a Splash this Giving Tuesday and support all of our programs at Fox-Wolf, 861 reached
12/03/2019 (link) Support our fundraiser for Fox-Wolf, 479 reached
12/03/2019 (link) Hunters found dump sites (of trash) during this year's deer season, 419 reached
12/06/2019 (news link) Major fish stocking increases planned for Lake Michigan, 456 reached
12/06/2019 (news link) Storm surge on Lake Michigan uncovers shipwreck off of Muskegon coast, 704 reached
12/08/2019 (image) A reminder to sweep the salt when it's piled up after a

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storm #WISweeptheSalt, 1,528 reached
12/10/2019 (news link) Wrecked locomotive discovered after 106 years under Lake Superior, 764 reached
12/15/2019 (image) Thank you to the City of Oshkosh for supporting our 2020 Fox-Wolf Watershed Cleanup, 326 reached
12/16/2019 (images) Thanks to Hendrickson Chiropractic for sweeping the salt #WISweeptheSalt, 527 reached
12/17/2019 (images) Now entering Poygan South watershed sign and location on map featured, 575 reached
12/18/2019 (news video) Video showing Wequiock Falls with ice and flowing water, 494 reached
12/19/2019 (image) Happy holidays from all of us at Fox-Wolf, 855 reached
12/20/2019 (Fox-Wolf link) Purple Loosestrife Biocontrol Project Planned for

2020, 503 reached
12/26/2019 (news link) 3 Earthquakes under Lake Erie in the past week, 801 reached
12/27/2019 (image) Thank you to the WPS Foundation for sponsoring our 2020 Fox-Wolf Watershed Cleanup, 355 reached
12/28/2019 (news story) Families in Marinette Co. speak out about PFAS in their drinking water, 844 reached
12/29/2019 (Fox-Wolf link) Fox-Wolf offers watershed education in schools throughout northeast Wisconsin, 430 reached
12/30/2019 (news link) More homes are at risk for falling into Lake Michigan from cliff erosion, 615 reached
12/30/2019 (image) Fox-Wolf updates cover photo showing ice shoves on Lake Winnebago, 4 reached

2019 NEWSC TV MEDIA OUTREACH

- 4/19/2019: WLUX Fox 11 Good Day Wisconsin (discussing rain barrels and the Cleanup): <https://fox11online.com/good-day-wi/cleaning-up-our-waterways-with-fox-wolf-watershed-alliance>
- 4/22/2019: WFRV Channel 5 (discussing the Cleanup): <https://www.wearegreenbay.com/local-5-live/local-5-live-on-location/fox-wolf-watershed-cleanup-taking-place-this-saturday/1944904864>
- 8/5/2019: WFRV Channel 5 story on blue-green algae: <https://www.wearegreenbay.com/news/local-news/blue-green-algae-closes-high-cliff-beach-creates-health-concerns/>
- 9/21/2019: WBAY Channel 2 2019 Fox-Wolf Mini Cleanup in Fond du Lac: <https://www.wbay.com/content/news/More-than-30-volunteers-take-part-in-Fox-Wolf-Watershed-Mini-Cleanup-560998081.html>
- 9/21/2019: WLUX Fox 11 2019 Fox-Wolf Mini Cleanup in Fond du Lac: <https://fox11online.com/news/local/trash-picked-up-from-the-fox-wolf-river-basin>
- 10/10/2019: WBAY Channel 2 Reducing Salt Usage: <https://www.wbay.com/content/news/Concerns-raised-in-Appleton-over-de-icing-salt-usage--562776201.html>

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2019 NEWSC PRINT MEDIA OUTREACH

- 4/05/2019: (USA-Today Network): Ganett Media shared information on the 2019 Fox-Wolf Watershed Cleanup in Green Bay, Oshkosh, Appleton, and Fond du Lac newspapers and online <http://bit.ly/2ICKurX>
- 4/17/2019: (Oshkosh Herald): Article on 2019 Fox-Wolf Watershed Cleanup <https://oshkoshherald.com/wp-content/uploads/2019/04/April-17-2019-Oshkosh-Herald.pdf>
- 5/1/2019: (UW-Oshkosh Advanced Titan): Article discussing UWO's involvement in the 2019 Fox-Wolf Watershed Cleanup <https://advancetitan.com/news/2019/05/02/thousands-show-up-to-clean-for-earth-week>

MS4 Manager Workshop

Developed in partnership with WDNR, NEWSC hosted an MS4 Manager Workshop on December 10, 2019.

NEWSC members in attendance are included in the right side panel.

NEWSC Member Presenters and Panelists

Village of Little Chute - *Chris Murawski*
 OMNNI - *Brian Wayner*
 City of Kaukauna - *John Neumeier*
 Winnebago County - *Andy Maracini*
 Mead & Hunt - *Scott Brosteau*
 (Representing Town of Ledgeview)

Northeast Wisconsin Stormwater Consortium

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First Name	Last Name	organization/affili	3.8.n
Katie	Schwartz	Town of Grand C	
Joseph	Pingel	Cedar Corporation	
Dan	Teaters	Brown County	
Paul	Tollard	Fond du Lac County	
Karen	Heyrman	Town of Grand Chute	
Steve	Birr	village of ashwaubenon	
Justin	Keen	Cedar Corporation	
Martin	Holden	Town of Scott	
Tony	Brown	Town of Buchanan	
Abby	Maslanka	Martenson & Eisele, Inc.	
Andy	Maracini	Winnebago County	
Scott	Brosteau	Mead & Hunt	
Brian	Wayner	OMNNI Associates	
Michael	Wegner	Brown and Caldwell	
Nick	Uitenbroek	Brown County	
Zach	Cotter	Brown County	
Cornelius	Nilam	Brown County	
George	Dearborn	Village of Fox Crossing	
Eric	Rakers	City of De Pere	
Ashley	Leisgang	AECOM	
Josh	Jacak	AECOM	
MATT	SMITS	City of Manitowoc	
DAN	KOSKI	City of Manitowoc	
Greg	Minikel	City of Manitowoc	
Chuck	Boehm	Brown and Caldwell	
Christopher	Murawski	Village of Little Chute	
Eric	Thompson	MSA Professional Services	
Chad	VandenLangenberg	Outagamie County	
NICK	WALDSCHMIDT	City of Fond du Lac	
Brent	Jalonen	Calumet County	
Justin	Gierach	City of Oshkosh	
Steve	Gohde	City of Oshkosh	
Dan	Gabrilska	City of Oshkosh	
Brian	Miller	City of Marinette	
Matt	Rastall	City of Marinette	
Scott	Ahl	City of Two Rivers	
Chuck	Hermes	UW Oshkosh	
Laura	Braatz	Village of Little Chute	
Mike	McClone	Village of Little Chute	
Pete	Neuberger	City of Appleton - DPW	
Heath	Kummerow	City of Neenah	
Gerry	Kaiser	City of Neenah	
Sean	Gehin	Village of Allouez	
Allyn	Dannhoff	Village of Kimberly	
David	Strelcheck	Town of Ledgeview	
Laura	Jungwirth	Village of Harrison	
Ryan	Swick	Village of Combined Locks	
Andy	Rowell	Village of Bellevue	
Mike	Kaster	Village of Little Chute	
Steven	Swanson	Outagamie County	
Amy	Raboine	City of Two Rivers	



Northeast Wisconsin Stormwater Consortium

PO Box 1861
Appleton, WI 54912

Thank you 2019 Leadership Council Members!

Chair Danielle Santry (2018-2019) Calumet County Sentry.danielle@co.calumet.wi.us (920) 849-1493 x2402	Vice-Chair Eric Rakers (2018-2019) City of DePere erakers@mail.de-pere.org (920) 339-4061	Secretary/Treasurer Heath Kummerow (2018-2019) City of Neenah hkummerow@ci.neenah.wi.us (920) 886-6245	Past-Chair Nick Waldschmidt (2018-2019) City of Fond Du Lac nwaldschmidt@fdl.wi.gov (920) 322-3482
Municipal Committee James Rabe (2019 – 2021) City of Oshkosh jrabe@ci.oshkosh.wi.us (920) 236-5065	General Public Committee Chris Pagels (2019 – 2021) Town of Greenville cpagels@townofgreenville.com 920-841-2244	Building & Development Committee Brent Jalonen (2016 - 2019) Calumet County bjalonen@co.calumet.wi.us (920)849-1493 ext. 395	Stormwater Quality Management Committee George Dearborn (2016 - 2019) Town of Menasha gldjr@town-menasha.com (920)720-7105
Rules & Regulations Specialist Nick VandeHey (2016 - 2019) McMahon Associates, Inc. NVandehey@mcmgrp.com (920) 751-4200	Member-at-Large Hanna Moscho (2018 – 2021) Winnebago County hmoscho@co.winnebago.wi.us 920-232-3344	Member-at-Large Karen Heyrman (2018 – 2021) Town of Grand Chute Karen.heyрман@grandchute.net (920) 832-1581	

Thank you 2019 Committee Members!

Building & Development Committee

Kelli Mincheski – City of Green Bay
Pay Keuhl – Robert E Lee
Brent Jalonen – Calumet County
Brad Hartject – raSmith
Nick Waldschmidt –
City of Fond du Lac

Building & Development Committee

Kelli Mincheski – City of Green Bay
Pay Keuhl – Robert E Lee
Brent Jalonen – Calumet County
Brad Hartject – raSmith
Nick Waldschmidt – City of Fond du Lac

General Public Committee

Sue Olson – City of Appleton
Brian Wayner – OMNNI
George Dearborn – Village of Fox Crossing
Dani Santry – Calumet County
Andy Maracini – Winnebago County
Chris Pagels – Town of Greenville

Stormwater Quality Management Committee

Andy Maracini – Winnebago County
George Dearborn – Village of Fox Crossing
Abby Maslanka – Martenson & Eisele
Paul Willis – Mead & Hunt

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City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Public Works

FROM: Scott Thoresen

SUBJECT: Consider Ald. Hansen's Request for Volunteer Sidewalk Shoveling Program

At the February 10, 2020 BOPW meeting discussion was held regarding Alderperson Hansen's request for creating a program where volunteers can shovel snow for the elderly and disabled. As discussed, the Village of Bellevue recently started a similar program. The Village just started their program and it appears they have not had success with having two requests for shoveling and only one volunteer. The Village is hoping the program gets off the ground and more volunteers step forward so the program can be successful.

The BOPW referred this item back to staff to determine if there are other similar volunteer programs currently going on. In addition, the BOPW wanted staff to verify with the City Attorney regarding liability and screening of volunteers.

As far as other sidewalk volunteer shoveling programs, staff has been informed some area churches perform this for their members.

As far as screening volunteers, the City does not currently have a policy for screening. If this program would become a reality, the law department would need to be involved in working through developing a screening process.



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Discussion of Fox-Wolf Watershed Alliance letter of support for
GRLI Trash Free Waters Grant Proposal*

ATTACHMENTS:

- 2020 0309 GLRI Trash Free Waters Memo (PDF)
- 2020 0207 De Pere Support Letter (PDF)
- Fox Wolf watershed alliance - St. Norbert College Letter (PDF)
- NEW Water letter of support_Trash Free GLRI_01-28-2020 (PDF)
- GHS Letter of Support - FWWA EPA GLRI 2020 (PDF)
- FWWA Outline and Notes (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: Discussion of Fox-Wolf Watershed Alliance letter of support for GLRI Trash Free Waters Grant Proposal*

In early February, the City of De Pere Public Works was contacted by Fox-Wolf Watershed Alliance (FWWA) requesting a letter of support for a proposal they planned to submit for the Environmental Protection Agency Great Lakes Restoration Initiative Trash Free Waters Grant Program-Trash Removal in Great Lakes Communities. Letters of support were also obtained from St. Norbert College, NEW Water, and Green & Healthy Schools Wisconsin, with a few other requests still being processed. Staff prepared a letter of support (see attached) for the Trash Free Waters Grant proposal.

Typically grant applications are approved by the Board, however, the request to the City came in after the February BOPW packet was prepared. The purpose for this memo is to notify the Board. No action is required.

CITY OF DE PERE

Public Works - Engineering Department

925 S. Sixth Street, De Pere, WI 54115 | 920-339-4061 | www.de-pere.org



February 7, 2020

Re: Fox-Wolf Watershed Alliance's GLRI Trash Free Waters Grant

The City of De Pere supports the application being submitted by the Fox-Wolf Watershed Alliance to the U.S. EPA under the Trash Free Great Lakes Grant Program - Trash Removal in Great Lakes Communities.

The City of De Pere has already benefited from partnering with Fox-Wolf on the Annual Watershed Cleanup. This effort would help our community by developing an Adopt-a-Storm Drain program, engaging volunteers to provide ongoing cleanup through the Waterway Adoption efforts and get to the root of the trash pollution by installing additional trash and cigarette receptacles where they are needed within the community.

The City of De Pere is committed to supporting Fox-Wolf Watershed Alliance by providing a GIS layer of storm drain inlets and outlets to utilize in the development of the Adopt-a-Storm Drain program. We will provide trash pickup for the installed receptacles and promote these programs and initiatives.

Sincerely,
DEPARTMENT OF PUBLIC WORKS

Eric P. Rakers, P.E.
City Engineer



100 Grant Street • De Pere, WI 54115 • 920-403-3363

January 31, 2020

Dear Reader,

I am happy to provide this letter of support for the Fox Wolf Watershed Alliance's (Fox-Wolf) application for the GLRI Trash Free Waters grant.

The Fox-Wolf has partnered with St. Norbert College since 2016 to provide an educational service experience for our new students. As part of our Into the Streets program, Fox-Wolf has hosted a site close to campus and their efforts have had St. Norbert students learning about the Fox-Wolf River Basin and cleaning up garbage and debris from along the banks of the Fox River. Every August over 500 of our new students volunteer for a few hours at sites throughout the community as part of their orientation experience. One of my own students was actually assigned to the Fox-Wolf site and spoke very enthusiastically to the whole first-year student class about all she had learned from Fox-Wolf! We appreciate their good work.

St. Norbert College is co-educational and primarily residential, with 38 buildings on 93 acres on the west bank of the Fox River in De Pere, Wis. With over 2000 students and several environmental initiatives already underway, we are hopeful we can identify additional campus partners to support this important work. We are grateful for Fox-Wolf to count us among their partners and for providing opportunities for our students to learn more about their world.

Respectfully,

Nancy B. Mathias
Director, Sturzl Center for Community Service and Learning

January 28, 2020

Jessica Schultz
Executive Director
Fox-Wolf Watershed Alliance

Dear Mrs. Schultz:

On behalf of NEW Water, the brand of the Green Bay Metropolitan Sewerage District, I am writing this letter in support of your proposal to receive funding under the *GLRI Trash Free Waters FY2020* grant program for activities planned to remove trash from Green Bay area waterways and the collection areas of the storm drains that ultimately lead to Lake Michigan.

The urban waterways in the Green Bay area are negatively impacted by trash and annual cleanup efforts are typically not at a scale to fully address the issue. Additionally, access can sometimes be challenging for casual volunteers. A focused and funded effort to address trash in the waterways and shorelands in the Green Bay metro area is an important effort that is echoed in NEW Water's vision statement of "protecting our most valuable resource, water."

This project is a great way to get the community to recognize the cleanup effort that is needed in and near our waterways. Such an effort can start a sustained commitment to removing trash in and along Green Bay area waterways. Thank you for submitting this proposal.

Sincerely,



Thomas W. Sigmund, P.E.
Executive Director





*Nurturing
Healthy Kids,
Sustainable Communities*

GHSwisconsin.org

February 5, 2020

Dear EPA GLRI Trash-Free Waters Grant Reviewers:

I am writing this letter in support of the Fox Wolf Watershed Alliance application for a GLRI Trash-free Waters grant.

Fox Wolf Watershed Alliance (Fox-Wolf) and Green & Healthy Schools Wisconsin (GHS) both work with schools in the Fox-Wolf River Basin to increase environmental literacy and stewardship of our communities. Their goal of expanding the impact of the highly successful Fox-Wolf Watershed Cleanup efforts aligns perfectly with the GHS mission to empower, support, and recognize schools for nurturing healthy kids and sustainable communities.

In order to recognize schools achievements and share success stories, Green & Healthy Schools WI offers a self-paced, voluntary, web-based reporting tool that guides schools in documenting progress related to nine areas of achievement for sustainability and wellness. In Wisconsin, it is the path to national recognition by the US Department of Education's Green Ribbon Schools. The proposed activities of this grant that will expand clean-up of the waterways and tributaries of the Fox River in and around Brown County communities will create an expanded opportunity for schools to take part in protecting their watershed throughout the year and not just during the traditional clean-up days in April. Currently, 14 schools in Brown County (WI), totalling nearly 10, 000 students are registered in GHS. With support from this grant, Fox-Wolf would meet their objective to engage schools and other community groups in removing and keeping debris out of the Fox River waters and concurrently assist schools in progressing with their GHS goals of increasing environmental literacy and stewardship.

As part of this proposal, we commit to supporting Fox Wolf Watershed Alliance as they strive to promote and engage schools with expanded waterway cleanup efforts, allowing schools to access supplies needed to safely remove and quantify debris eliminated from Lake Michigan tributaries. Based on data we already have, we can provide Fox-Wolf with liaisons within schools that are part of the GHS initiative in the targeted clean-up regions. Additionally, we will work directly with schools to integrate their participation in expanded Fox-Wolf clean-up efforts into their STEM curriculum and to share it statewide through the WI Department of Public Instruction's 5-year state inquiry experience that focuses on water.

Please feel free to contact me if you have any questions or require further details.

Sincerely,

Samara Hamzé, GHS Administrative Team Member

Outline for Trash-Free Great Lakes EPA GLRI grant

Support for annual Fox-Wolf Watershed Cleanup Sites in the Green Bay area/AOC

--coordination (estimated time over two years) [staff time]

--supplies (biodegradable bags, new trash grabbers, cleanup kits for schools and other groups)

--signs for adopt-a-drain (x 300)

--cleanup kits for drain adopters (x 300) ***allows for reporting amt***

Mini Cleanups (2 per year outside of annual Cleanup event) coordination time and supplies

Intern: Staff + admin time

Travel: Outreach Coordinator and intern

Coalitions:

Green & Healthy School Network

City of Green Bay

City of De Pere?

St. Norbert College

WNDR

NEW Water

Outreach:

--school education and community exhibits/presentations

--billboard ads

--news media

--print media

--~~storm drain murals, cost?~~

--publicity stunts (find prices??) Storm Drain defenders!

Technology:

--Funding to pay for launch and initial maintenance over the grant period

--Adopt-drain program

claim it, and name it

news feed

allow for mass messages from Fox-Wolf (Ex. It's going to rain tomorrow, clean your drains today)

highlight garbage removed—make it first on the list for reporting

login, create account, use location, claim drains, provide updates, upload pictures, auto reporting

allows for reporting amt

--Cleanup app

Login, then 3 options: Fox-Wolf Watershed Cleanup

- Site Leader? Yes or No?

Fox-Wolf Mini Cleanup

- Site Leader? Yes or No?

Cleanup on my Own

photo submission w/ auto hashtags

photo frames

mapping (use current location or location search)
 auto reporting
 trash tally
allows for reporting amt

City Partners:

--cigarette butt receptacles
 --trash can installation? ***allows for reporting amt***
~~---outlet nets (sub-awardee for installing and checking/maintaining them over 24 months)~~
~~---+ emptying trash cans ***allows for reporting amt***~~

Reporting:

--report to DNR related to AOC recovery
 --report on all cleanup activity, school presentations, media relations, adopt-a-storm drain program,
 and cleanup app to NEWSC members and other municipal staff/local elected officials

Narrative:

--303d list
 --AOC
 --largest drainage basin to Lake Michigan
 --history of manufacturing/development
 --Fox River dredging/cleanup
 --outreach efforts/volunteer cleanup efforts (past—present)

Need to do:

1. ~~Reach out to Green & Healthy School Network~~
2. ~~Reach of to City of Green Bay and De Pere (trash cans and netting)~~
3. ~~Check back in with GIS Inc.~~
4. ~~Discuss mapping needs with Emily~~
5. ~~Find prices for trash cans~~
6. Find prices for Drain Adopter signs

Letters of support:

City of Green Bay
 City of De Pere
 Village of Allouez
 NEW Water
 St. Norbert College
 Green & Healthy School Network
 WDNR





City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on award of Contract 20-01B East Sewer and Water Relay and Street Resurfacing*

ATTACHMENTS:

- 2020 0309 CI_BOPW_Award_20-01B(PDF)
- 2020 0220 Project 20-01B Bid Tab (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: **Consideration and possible action on award of Contract 20-01B East Sewer and Water Relay and Street Resurfacing***

The Engineering Department received bids for Project 20-01B East Sewer and Water Relay and Street Resurfacing on February 20, 2020. This project involves the relaying of water main at various locations around the City due to the deteriorated condition of the utility. Additionally, the streets will be milled and resurfaced.

The Bids received are as follows:

Contractor	Amount
Jossart Brothers, Inc.	\$1,994,814.50
Superior Sewer and Water, Inc.	\$2,052,897.00
Kruczek Construction, Inc.	\$2,097,645.00
Feaker & Sons Co., Inc.	\$2,144,445.50
Dorner, Inc.	\$2,156,798.00
Advance Construction, Inc.	\$2,176,807.50
De Groot, Inc.	\$2,201,617.33
PTS Contractors, Inc.	\$2,318,120.00

The allocated amount from the capital improvement budget is \$2,021,000.00. Funding will be \$425,000 from taxes, \$100,000 from bonding, \$255,000 from the sewage revenue fund, \$600,000 from the water utility fund, and \$641,000 from the storm water utility fund.

Staff's recommendation is to accept the bid from Jossart Brothers, Inc. in the amount of \$1,994,814.50.

Attachments:

2020 0220 Project 20-01B Bid Tab (PDF)



PROJECT 20-01B EAST SEWER & WATER RELAY & STREET RESURFACING
BID TAB

				BIDDER NO. 1		BIDDER NO. 2		BIDDER NO. 3		BIDDER NO. 4		BIDDER NO. 5		BIDDER NO. 6		BIDDER NO. 7		BIDDER NO. 8	
				Jossart Brothers, Inc.		Superior Sewer and Water, Inc.		Kruczek Construction, Inc.		Feaker & Sons Co. Inc.		Dorner, Inc.		Advance Construction, Inc.		De Groot, Inc.		PTS Contractors, Inc.	
ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID
SANITARY SEWER																			
SS-01	Remove and Relay 6" or 4" PVC Sanitary Lateral	LF	2,050	\$ 78.00	\$ 159,900.00	\$ 85.00	\$ 174,250.00	\$ 87.00	\$ 178,350.00	\$ 85.00	\$ 174,250.00	\$ 100.00	\$ 205,000.00	\$ 121.00	\$ 248,050.00	\$ 84.40	\$ 173,020.00	\$ 110.00	\$ 225,500.00
SS-02	Provide 4" PVC Sanitary Lateral	LF	35	\$ 77.00	\$ 2,695.00	\$ 85.00	\$ 2,975.00	\$ 97.00	\$ 3,395.00	\$ 85.00	\$ 2,975.00	\$ 95.00	\$ 3,325.00	\$ 117.50	\$ 4,112.50	\$ 80.80	\$ 2,828.00	\$ 104.00	\$ 3,640.00
SS-03	Provide 6" or 4" Saddle to Existing 18" Sanitary Sewer	EA	3	\$ 500.00	\$ 1,500.00	\$ 1,000.00	\$ 3,000.00	\$ 465.00	\$ 1,395.00	\$ 850.00	\$ 2,550.00	\$ 751.00	\$ 2,253.00	\$ 562.00	\$ 1,686.00	\$ 1,790.82	\$ 5,372.46	\$ 930.00	\$ 2,790.00
SS-04	Provide 6" or 4" Saddle to Existing 8" Sanitary Sewer	EA	60	\$ 250.00	\$ 15,000.00	\$ 300.00	\$ 18,000.00	\$ 450.00	\$ 27,000.00	\$ 500.00	\$ 30,000.00	\$ 631.00	\$ 37,860.00	\$ 462.00	\$ 27,720.00	\$ 1,894.84	\$ 113,690.40	\$ 640.00	\$ 38,400.00
SS-05	Remove and Replace 4' Diameter Sanitary Sewer Manhole	VF	12	\$ 330.00	\$ 3,960.00	\$ 326.00	\$ 3,912.00	\$ 360.00	\$ 4,320.00	\$ 500.00	\$ 6,000.00	\$ 527.00	\$ 6,324.00	\$ 425.00	\$ 5,100.00	\$ 498.57	\$ 5,982.84	\$ 510.00	\$ 6,120.00
SS-06	Provide 4' Diameter Sanitary Sewer Manhole (Morris Street & Adjacent Easement)	VF	20	\$ 435.00	\$ 8,700.00	\$ 330.00	\$ 6,600.00	\$ 335.00	\$ 6,700.00	\$ 600.00	\$ 12,000.00	\$ 1,138.00	\$ 22,760.00	\$ 487.00	\$ 9,740.00	\$ 463.61	\$ 9,272.20	\$ 400.00	\$ 8,000.00
SS-07	Remove and Relay 6" or 4" PVC Sanitary Lateral Riser	LF	10	\$ 100.00	\$ 1,000.00	\$ 200.00	\$ 2,000.00	\$ 135.00	\$ 1,350.00	\$ 95.00	\$ 950.00	\$ 149.00	\$ 1,490.00	\$ 151.00	\$ 1,510.00	\$ 151.50	\$ 1,515.00	\$ 105.00	\$ 1,050.00
STORM SEWER																			
ST-01	Remove and Relay 24" PVC, RCP (Class III) or PP Storm Sewer (Granular Backfill)	LF	1,420	\$ 110.00	\$ 156,200.00	\$ 114.00	\$ 161,880.00	\$ 95.00	\$ 134,900.00	\$ 91.00	\$ 129,220.00	\$ 90.00	\$ 127,800.00	\$ 94.00	\$ 133,480.00	\$ 90.64	\$ 128,708.80	\$ 114.00	\$ 161,880.00
ST-02	Remove and Relay 24" PVC, RCP (Class III) or PP Storm Sewer (Natural Backfill)	LF	300	\$ 80.00	\$ 24,000.00	\$ 160.00	\$ 48,000.00	\$ 79.00	\$ 23,700.00	\$ 90.00	\$ 27,000.00	\$ 100.00	\$ 30,000.00	\$ 75.60	\$ 22,680.00	\$ 87.00	\$ 26,100.00	\$ 95.00	\$ 28,500.00
ST-03	Remove and Relay 21" PVC, RCP (Class III) or PP Storm Sewer	LF	230	\$ 96.00	\$ 22,080.00	\$ 103.00	\$ 23,690.00	\$ 77.00	\$ 17,710.00	\$ 80.00	\$ 18,400.00	\$ 81.00	\$ 18,630.00	\$ 87.00	\$ 20,010.00	\$ 77.37	\$ 17,795.10	\$ 95.00	\$ 21,850.00
ST-04	Remove and Relay 15" PVC, RCP (Class III) or PP Storm Sewer	LF	450	\$ 70.00	\$ 31,500.00	\$ 86.00	\$ 38,700.00	\$ 73.00	\$ 32,850.00	\$ 75.00	\$ 33,750.00	\$ 73.00	\$ 32,850.00	\$ 76.00	\$ 34,200.00	\$ 65.49	\$ 29,470.50	\$ 81.00	\$ 36,450.00
ST-05	Remove and Relay 12" PVC or RCP (Class III) Storm Sewer	LF	50	\$ 100.00	\$ 5,000.00	\$ 75.00	\$ 3,750.00	\$ 76.00	\$ 3,800.00	\$ 68.00	\$ 3,400.00	\$ 74.00	\$ 3,700.00	\$ 76.00	\$ 3,800.00	\$ 59.00	\$ 2,950.00	\$ 78.00	\$ 3,900.00
ST-06	Provide 12" PVC or RCP (Class III) Storm Sewer	LF	280	\$ 66.00	\$ 18,480.00	\$ 73.00	\$ 20,440.00	\$ 77.00	\$ 21,560.00	\$ 64.00	\$ 17,920.00	\$ 71.00	\$ 19,880.00	\$ 76.00	\$ 21,280.00	\$ 55.67	\$ 15,587.60	\$ 75.00	\$ 21,000.00
ST-07	Provide 10" PVC Storm Sewer	LF	25	\$ 55.00	\$ 1,375.00	\$ 50.00	\$ 1,250.00	\$ 96.00	\$ 2,400.00	\$ 62.00	\$ 1,550.00	\$ 95.00	\$ 2,375.00	\$ 72.50	\$ 1,812.50	\$ 55.55	\$ 1,388.75	\$ 80.00	\$ 2,000.00
ST-08	Provide 8" PVC Storm Sewer	LF	1,720	\$ 50.00	\$ 86,000.00	\$ 62.00	\$ 106,640.00	\$ 60.00	\$ 103,200.00	\$ 57.00	\$ 98,040.00	\$ 49.00	\$ 84,280.00	\$ 50.00	\$ 86,000.00	\$ 55.27	\$ 95,064.40	\$ 58.00	\$ 99,760.00
ST-09	Remove and Relay 10" PVC Storm Sewer	LF	20	\$ 50.00	\$ 1,000.00	\$ 62.00	\$ 1,240.00	\$ 90.00	\$ 1,800.00	\$ 64.00	\$ 1,280.00	\$ 136.00	\$ 2,720.00	\$ 90.00	\$ 1,800.00	\$ 60.60	\$ 1,212.00	\$ 99.00	\$ 1,980.00
ST-10	Provide 6" PVC Storm Sewer Lateral	LF	2,300	\$ 48.00	\$ 110,400.00	\$ 50.00	\$ 115,000.00	\$ 50.00	\$ 115,000.00	\$ 52.00	\$ 119,600.00	\$ 50.00	\$ 115,000.00	\$ 50.00	\$ 115,000.00	\$ 42.71	\$ 98,233.00	\$ 57.00	\$ 131,100.00
ST-11	Remove and Relay 6" PVC Storm Sewer Lateral	LF	70	\$ 48.00	\$ 3,360.00	\$ 50.00	\$ 3,500.00	\$ 60.00	\$ 4,200.00	\$ 54.00	\$ 3,780.00	\$ 70.00	\$ 4,900.00	\$ 50.00	\$ 3,500.00	\$ 43.43	\$ 3,040.10	\$ 53.00	\$ 3,710.00
ST-12	Provide 30" x 10" Storm Branch or Inserta Tee	EA	1	\$ 500.00	\$ 500.00	\$ 320.00	\$ 320.00	\$ 470.00	\$ 470.00	\$ 500.00	\$ 500.00	\$ 743.00	\$ 743.00	\$ 562.00	\$ 562.00	\$ 1,072.62	\$ 1,072.62	\$ 600.00	\$ 600.00
ST-13	Provide 30" x 6" Storm Branch or Inserta Tee	EA	5	\$ 250.00	\$ 1,250.00	\$ 130.00	\$ 650.00	\$ 315.00	\$ 1,575.00	\$ 135.00	\$ 675.00	\$ 325.00	\$ 1,625.00	\$ 226.00	\$ 1,130.00	\$ 884.76	\$ 4,423.80	\$ 415.00	\$ 2,075.00
ST-14	Provide 24" x 6" Storm Branch or Inserta Tee	EA	15	\$ 200.00	\$ 3,000.00	\$ 130.00	\$ 1,950.00	\$ 315.00	\$ 4,725.00	\$ 135.00	\$ 2,025.00	\$ 325.00	\$ 4,875.00	\$ 226.00	\$ 3,390.00	\$ 278.76	\$ 4,181.40	\$ 185.00	\$ 2,775.00
ST-15	Provide 21" x 6" Storm Branch or Inserta Tee	EA	3	\$ 200.00	\$ 600.00	\$ 130.00	\$ 390.00	\$ 315.00	\$ 945.00	\$ 135.00	\$ 405.00	\$ 325.00	\$ 975.00	\$ 226.00	\$ 678.00	\$ 278.76	\$ 836.28	\$ 185.00	\$ 555.00
ST-16	Provide 15" x 6" Storm Branch or Inserta Tee	EA	5	\$ 200.00	\$ 1,000.00	\$ 400.00	\$ 2,000.00	\$ 230.00	\$ 1,150.00	\$ 135.00	\$ 675.00	\$ 253.00	\$ 1,265.00	\$ 226.00	\$ 1,130.00	\$ 278.76	\$ 1,393.80	\$ 156.00	\$ 780.00
ST-17	Provide 8" x 6" Storm Branch or Inserta Tee	EA	40	\$ 100.00	\$ 4,000.00	\$ 80.00	\$ 3,200.00	\$ 175.00	\$ 7,000.00	\$ 75.00	\$ 3,000.00	\$ 173.00	\$ 6,920.00	\$ 62.00	\$ 2,480.00	\$ 204.02	\$ 8,160.80	\$ 80.00	\$ 3,200.00
ST-18	Remove and Replace 6' Diameter Storm Manhole	VF	7	\$ 625.00	\$ 4,375.00	\$ 1,000.00	\$ 7,000.00	\$ 540.00	\$ 3,780.00	\$ 625.00	\$ 4,375.00	\$ 737.00	\$ 5,159.00	\$ 847.00	\$ 5,929.00	\$ 667.27	\$ 4,670.89	\$ 670.00	\$ 4,690.00
ST-19	Remove and Replace 5' Diameter Storm Manhole	VF	10	\$ 425.00	\$ 4,250.00	\$ 466.00	\$ 4,660.00	\$ 380.00	\$ 3,800.00	\$ 500.00	\$ 5,000.00	\$ 468.00	\$ 4,680.00	\$ 611.00	\$ 6,110.00	\$ 492.10	\$ 4,921.00	\$ 525.00	\$ 5,250.00
ST-20	Remove and Replace 4' Diameter Storm Manhole	VF	60	\$ 415.00	\$ 24,900.00	\$ 400.00	\$ 24,000.00	\$ 380.00	\$ 22,800.00	\$ 425.00	\$ 25,500.00	\$ 378.00	\$ 22,680.00	\$ 521.00	\$ 31,260.00	\$ 550.37	\$ 33,022.20	\$ 390.00	\$ 23,400.00
ST-21	Provide 4' Diameter Storm Manhole	VF	40	\$ 415.00	\$ 16,600.00	\$ 400.00	\$ 16,000.00	\$ 445.00	\$ 17,800.00	\$ 415.00	\$ 16,600.00	\$ 473.00	\$ 18,920.00	\$ 446.00	\$ 17,840.00	\$ 521.65	\$ 20,866.00	\$ 405.00	\$ 16,200.00
ST-22	Remove and Replace Type B Inlet	EA	12	\$ 2,200.00	\$ 26,400.00	\$ 1,725.00	\$ 20,700.00	\$ 1,990.00	\$ 23,880.00	\$ 2,500.00	\$ 30,000.00	\$ 1,970.00	\$ 23,640.00	\$ 2,339.00	\$ 28,068.00	\$ 1,902.67	\$ 22,832.04	\$ 1,600.00	\$ 19,200.00
ST-23	Provide Type B Inlet	EA	5	\$ 2,200.00	\$ 11,000.00	\$ 1,725.00	\$ 8,625.00	\$ 1,990.00	\$ 9,950.00	\$ 2,250.00	\$ 11,250.00	\$ 1,860.00	\$ 9,300.00	\$ 2,039.00	\$ 10,195.00	\$ 1,905.97	\$ 9,529.85	\$ 1,800.00	\$ 9,000.00
ST-24	Core Drill Existing Structure	EA	4	\$ 1,500.00	\$ 6,000.00	\$ 1,000.00	\$ 4,000.00	\$ 425.00	\$ 1,700.00	\$ 1,150.00	\$ 4,600.00	\$ 240.00	\$ 960.00	\$ 500.00	\$ 2,000.00	\$ 757.50	\$ 3,030.00	\$ 580.00	\$ 2,320.00
ST-25	Pour Bench into Existing Storm Manhole	EA	1	\$ 500.00	\$ 500.00	\$ 400.00	\$ 400.00	\$ 270.00	\$ 270.00	\$ 850.00	\$ 850.00	\$ 375.00	\$ 375.00	\$ 500.00	\$ 500.00				



PROJECT 20-01B EAST SEWER & WATER RELAY & STREET RESURFACING
BID TAB

				BIDDER NO. 1		BIDDER NO. 2		BIDDER NO. 3		BIDDER NO. 4		BIDDER NO. 5		BIDDER NO. 6		BIDDER NO. 7		BIDDER NO. 8	
				Jossart Brothers, Inc.		Superior Sewer and Water, Inc.		Kruczek Construction, Inc.		Feaker & Sons Co. Inc.		Dorner, Inc.		Advance Construction, Inc.		De Groot, Inc.		PTS Contractors, Inc.	
ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID
STREET AND DRAINAGE																			
SD-01	Mill Asphaltic Concrete Pavement	SY	15,350	\$ 2.95	\$ 45,282.50	\$ 3.10	\$ 47,585.00	\$ 3.00	\$ 46,050.00	\$ 2.95	\$ 45,282.50	\$ 3.00	\$ 46,050.00	\$ 2.80	\$ 42,980.00	\$ 2.97	\$ 45,589.50	\$ 3.90	\$ 59,865.00
SD-02	Provide Asphaltic Concrete Pavement Type 4 LT 58-28 S, 2" Overlay or Upper Layer	TON	900	\$ 67.75	\$ 60,975.00	\$ 66.00	\$ 59,400.00	\$ 64.00	\$ 57,600.00	\$ 67.75	\$ 60,975.00	\$ 68.00	\$ 61,200.00	\$ 64.50	\$ 58,050.00	\$ 68.41	\$ 61,569.00	\$ 70.00	\$ 63,000.00
SD-03	Provide Asphaltic Concrete Pavement Type 3 LT 58-28 S, 2 1/4" Lower Layer	TON	1,450	\$ 69.30	\$ 100,485.00	\$ 67.00	\$ 97,150.00	\$ 67.00	\$ 97,150.00	\$ 69.30	\$ 100,485.00	\$ 70.00	\$ 101,500.00	\$ 66.00	\$ 95,700.00	\$ 69.99	\$ 101,485.50	\$ 94.00	\$ 136,300.00
SD-04	Provide Full-Depth Asphaltic Concrete Pavement Patch (4")	SY	60	\$ 65.00	\$ 3,900.00	\$ 63.00	\$ 3,780.00	\$ 61.00	\$ 3,660.00	\$ 64.00	\$ 3,840.00	\$ 64.00	\$ 3,840.00	\$ 66.00	\$ 3,960.00	\$ 64.69	\$ 3,881.40	\$ 75.00	\$ 4,500.00
SD-05	Remove and Replace Doweled 8" Concrete Pavement with Integral Curb and Gutter	SY	500	\$ 100.00	\$ 50,000.00	\$ 88.00	\$ 44,000.00	\$ 95.00	\$ 47,500.00	\$ 87.00	\$ 43,500.00	\$ 91.00	\$ 45,500.00	\$ 90.00	\$ 45,000.00	\$ 90.14	\$ 45,070.00	\$ 93.00	\$ 46,500.00
SD-06	Remove and Replace 24" Concrete Curb and Gutter	LF	2,000	\$ 48.00	\$ 96,000.00	\$ 50.00	\$ 100,000.00	\$ 42.00	\$ 84,000.00	\$ 52.25	\$ 104,500.00	\$ 53.00	\$ 106,000.00	\$ 43.50	\$ 87,000.00	\$ 49.49	\$ 98,980.00	\$ 44.00	\$ 88,000.00
SD-07	Remove and Replace 24" Concrete Curb and Gutter (Integral)	LF	200	\$ 45.00	\$ 9,000.00	\$ 86.00	\$ 17,200.00	\$ 37.00	\$ 7,400.00	\$ 57.50	\$ 11,500.00	\$ 58.00	\$ 11,600.00	\$ 38.50	\$ 7,700.00	\$ 44.19	\$ 8,838.00	\$ 39.00	\$ 7,800.00
SD-08	Remove and Replace 6" Concrete Sidewalk, Ramp and Driveway	SY	350	\$ 80.00	\$ 28,000.00	\$ 85.00	\$ 29,750.00	\$ 73.00	\$ 25,550.00	\$ 77.00	\$ 26,950.00	\$ 85.00	\$ 29,750.00	\$ 77.00	\$ 26,950.00	\$ 90.50	\$ 31,675.00	\$ 77.00	\$ 26,950.00
SD-09	Remove and Replace 4" Concrete Sidewalk	SY	950	\$ 75.00	\$ 71,250.00	\$ 70.00	\$ 66,500.00	\$ 70.00	\$ 66,500.00	\$ 70.00	\$ 66,500.00	\$ 78.00	\$ 74,100.00	\$ 72.50	\$ 68,875.00	\$ 85.73	\$ 81,443.50	\$ 72.00	\$ 68,400.00
SD-10	Provide #4 Reinforcement Bars for Curb and Sidewalk	LF	6,200	\$ 1.60	\$ 9,920.00	\$ 1.60	\$ 9,920.00	\$ 1.50	\$ 9,300.00	\$ 1.60	\$ 9,920.00	\$ 2.00	\$ 12,400.00	\$ 1.50	\$ 9,300.00	\$ 1.60	\$ 9,920.00	\$ 1.50	\$ 9,300.00
SD-11	Drilled Tie Bars (Existing Sidewalk, Driveway, and Curb and Gutter)	EA	1,000	\$ 8.50	\$ 8,500.00	\$ 6.00	\$ 6,000.00	\$ 8.00	\$ 8,000.00	\$ 4.20	\$ 4,200.00	\$ 4.00	\$ 4,000.00	\$ 8.00	\$ 8,000.00	\$ 8.48	\$ 8,480.00	\$ 8.30	\$ 8,300.00
SD-12	Drilled Tie Bars (Pavement)	EA	50	\$ 10.50	\$ 525.00	\$ 11.00	\$ 550.00	\$ 10.00	\$ 500.00	\$ 10.50	\$ 525.00	\$ 11.00	\$ 550.00	\$ 10.00	\$ 500.00	\$ 10.61	\$ 530.50	\$ 10.30	\$ 515.00
SD-13	Drilled Dowel Bars	EA	200	\$ 14.00	\$ 2,800.00	\$ 18.00	\$ 3,600.00	\$ 13.00	\$ 2,600.00	\$ 16.80	\$ 3,360.00	\$ 17.00	\$ 3,400.00	\$ 13.00	\$ 2,600.00	\$ 13.79	\$ 2,758.00	\$ 13.40	\$ 2,680.00
SD-14	Provide Detectable Warning Field (Natural)	EA	2	\$ 325.00	\$ 650.00	\$ 300.00	\$ 600.00	\$ 300.00	\$ 600.00	\$ 265.00	\$ 530.00	\$ 264.00	\$ 528.00	\$ 300.00	\$ 600.00	\$ 318.15	\$ 636.30	\$ 308.00	\$ 616.00
SD-15	Provide 24" Epoxy Pavement Marking	LF	220	\$ 16.55	\$ 3,641.00	\$ 18.00	\$ 3,960.00	\$ 16.00	\$ 3,520.00	\$ 16.55	\$ 3,641.00	\$ 17.00	\$ 3,740.00	\$ 15.75	\$ 3,465.00	\$ 16.71	\$ 3,676.20	\$ 16.00	\$ 3,520.00
SD-16	Provide 12" Epoxy Pavement Marking	LF	60	\$ 8.15	\$ 489.00	\$ 9.00	\$ 540.00	\$ 8.50	\$ 510.00	\$ 8.15	\$ 489.00	\$ 8.00	\$ 480.00	\$ 7.75	\$ 465.00	\$ 8.22	\$ 493.20	\$ 8.00	\$ 480.00
SD-17	Provide 6" Epoxy Pavement Marking	LF	510	\$ 5.20	\$ 2,652.00	\$ 6.00	\$ 3,060.00	\$ 5.00	\$ 2,550.00	\$ 5.20	\$ 2,652.00	\$ 5.00	\$ 2,550.00	\$ 4.95	\$ 2,524.50	\$ 5.25	\$ 2,677.50	\$ 5.00	\$ 2,550.00
SPECIAL CONSTRUCTION																			
SC-01	Pipe Foundation Stabilization	CY	100	\$ 15.00	\$ 1,500.00	\$ 1.00	\$ 100.00	\$ 10.00	\$ 1,000.00	\$ 0.01	\$ 1.00	\$ 19.00	\$ 1,900.00	\$ 28.30	\$ 2,830.00	\$ 20.20	\$ 2,020.00	\$ 18.00	\$ 1,800.00
SC-02	Provide Polystyrene Insulation Board (4' wide)	LF	70	\$ 8.00	\$ 560.00	\$ 10.00	\$ 700.00	\$ 10.00	\$ 700.00	\$ 12.00	\$ 840.00	\$ 5.00	\$ 350.00	\$ 5.00	\$ 350.00	\$ 7.07	\$ 494.90	\$ 4.70	\$ 329.00
SC-03	Clearing and Grubbing (Easement Merrill Street to Quinnette Lane)	LS	1	\$ 3,200.00	\$ 3,200.00	\$ 2,500.00	\$ 2,500.00	\$ 3,000.00	\$ 3,000.00	\$ 6,150.00	\$ 6,150.00	\$ 3,167.00	\$ 3,167.00	\$ 3,000.00	\$ 3,000.00	\$ 9,247.56	\$ 9,247.56	\$ 9,000.00	\$ 9,000.00
SC-04	Tree and Stump Removal	ID	150	\$ 52.50	\$ 7,875.00	\$ 50.00	\$ 7,500.00	\$ 50.00	\$ 7,500.00	\$ 53.00	\$ 7,950.00	\$ 53.00	\$ 7,950.00	\$ 50.00	\$ 7,500.00	\$ 96.88	\$ 14,532.00	\$ 94.00	\$ 14,100.00
SC-05	Inlet Protection Type D	EA	50	\$ 100.00	\$ 5,000.00	\$ 125.00	\$ 6,250.00	\$ 115.00	\$ 5,750.00	\$ 125.00	\$ 6,250.00	\$ 120.00	\$ 6,000.00	\$ 125.00	\$ 6,250.00	\$ 151.50	\$ 7,575.00	\$ 128.00	\$ 6,400.00
SC-06	Adjust Inlet	EA	4	\$ 500.00	\$ 2,000.00	\$ 500.00	\$ 2,000.00	\$ 620.00	\$ 2,480.00	\$ 630.00	\$ 2,520.00	\$ 658.00	\$ 2,632.00	\$ 600.00	\$ 2,400.00	\$ 757.50	\$ 3,030.00	\$ 520.00	\$ 2,080.00
SC-07	Adjust Manhole	EA	4	\$ 400.00	\$ 1,600.00	\$ 500.00	\$ 2,000.00	\$ 620.00	\$ 2,480.00	\$ 1,225.00	\$ 4,900.00	\$ 716.00	\$ 2,864.00	\$ 500.00	\$ 2,000.00	\$ 934.25	\$ 3,737.00	\$ 520.00	\$ 2,080.00
SC-08	Adjust Manhole Plus 1 Foot	EA	3	\$ 1,200.00	\$ 3,600.00	\$ 800.00	\$ 2,400.00	\$ 775.00	\$ 2,325.00	\$ 1,425.00	\$ 4,275.00	\$ 1,028.00	\$ 3,084.00	\$ 1,500.00	\$ 4,500.00	\$ 1,111.00	\$ 3,333.00	\$ 750.00	\$ 2,250.00
SC-09	Reconstruct Manhole	VF	20	\$ 300.00	\$ 6,000.00	\$ 350.00	\$ 7,000.00	\$ 415.00	\$ 8,300.00	\$ 600.00	\$ 12,000.00	\$ 1,021.00	\$ 20,420.00	\$ 932.00	\$ 18,640.00	\$ 570.25	\$ 11,405.00	\$ 350.00	\$ 7,000.00
SC-10	Provide Traffic Control (Merrill Street)	LS	1	\$ 3,800.00	\$ 3,800.00	\$ 5,000.00	\$ 5,000.00	\$ 10,000.00	\$ 10,000.00	\$ 5,780.00	\$ 5,780.00	\$ 3,801.00	\$ 3,801.00	\$ 16,700.00	\$ 16,700.00	\$ 3,817.80	\$ 3,817.80	\$ 5,300.00	\$ 5,300.00
SC-11	Provide Traffic Control (Ridgeway Boulevard)	LS	1	\$ 4,000.00	\$ 4,000.00	\$ 9,000.00	\$ 9,000.00	\$ 15,000.00	\$ 15,000.00	\$ 6,100.00	\$ 6,100.00	\$ 4,117.00	\$ 4,117.00	\$ 14,000.00	\$ 14,000.00	\$ 7,423.50	\$ 7,423.50	\$ 5,600.00	\$ 5,600.00
SC-12	Remove and Reinstall Fence (Easement Merrill Street to Quinnette Lane)	LS	1	\$ 6,500.00	\$ 6,500.00	\$ 3,500.00	\$ 3,500.00	\$ 5,000.00	\$ 5,000.00	\$ 11,000.00	\$ 11,000.00	\$ 4,806.00	\$ 4,806.00	\$ 5,000.00	\$ 5,000.00	\$ 505.00	\$ 505.00	\$ 5,800.00	\$ 5,800.00
	TOTALS				\$ 1,994,814.50		\$ 2,052,897.00		\$ 2,097,645.00		\$ 2,144,445.50		\$ 2,156,798.00		\$ 2,176,807.50		\$ 2,201,617.33		\$ 2,318,120.00



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on award of Contract 20-02 Street Reconstruction and Utility Relay*

ATTACHMENTS:

- 2020 0309 CI_BOPW_Award_20-02 (PDF)
- 2020 0227 Project 20-02 Bid Tab (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works
From: Eric P. Rakers, P.E., City Engineer
Date: March 9, 2020

RE: **Consideration and possible action on award of Contract 20-02 Street Reconstruction and Utility Relay***

The Engineering Department received bids for Project 20-02 Street Reconstruction and Utility Relay on February 27, 2020. This project involves the street construction/reconstruction and utility relay at various locations around the City due to the deteriorated condition of the utility including the following locations:

- James Street Streetscape Project
- Front Street Parking Lot
- College Avenue Reconstruction
- Alley Reconstruction
- Huron and Superior Street Improvements
- Wisconsin Street Utility Vacation

The project included a base bid along with an alternate bid for the water wall construction on James Street.

The Bids received are as follows:

Contractor	Base Bid Amount	Alternate Bid	Total Bid
Jossart Brothers, Inc.	\$1,654,924.00	\$162,750.00	\$1,817,674.00
De Groot, Inc.	\$1,704,012.07	\$224,637.50	\$1,928,649.57
Dorner, Inc.	\$1,826,679.82	\$129,281.00	\$1,955,960.82
Advance Construction, Inc.	\$1,944,988.00	\$56,775.00	\$2,001,763.00

The allocated amount from the capital improvement budget is \$1,879,000. Funding will be \$1,108,000 from general obligation debt, \$278,000 from the sewage revenue fund, \$165,000 from the water utility fund, and \$135,000 from TID 7. Additional funding will come from new developments as follows:

- Notre Dame School (Huron and Superior): \$106,500
- Mulva Site (Wisconsin Street Vacation): \$86,500

Staff's recommendation is to accept the bid from Jossart Brothers, Inc. in the amount of \$1,817,674.00.

Attachments:

2020 0227 Project 20-02 Bid Tab (PDF)



PROJECT 20-02 STREET RECONSTRUCTION AND UTILITY RELAY
BID TAB

				BIDDER NO. 1		BIDDER NO. 2		BIDDER NO. 3		BIDDER NO. 4	
				Jossart Brothers, Inc.		De Groot, Inc.		Dorner, Inc.		Advance Construction	
ITEM	DESCRIPTION	UNIT	QTY	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID	UNIT PRICE	AMOUNT BID
SANITARY SEWER											
SS-01	Provide 12" PVC Sanitary Sewer	LF	285	\$ 155.00	\$ 44,175.00	\$ 93.38	\$ 26,613.30	\$ 153.00	\$ 43,605.00	\$ 225.00	\$ 64,125.00
SS-02	Remove 12" x 9" and Relay 10" Sanitary Sewer	LF	255	\$ 135.00	\$ 34,425.00	\$ 108.60	\$ 27,693.00	\$ 163.00	\$ 41,565.00	\$ 222.00	\$ 56,610.00
SS-03	Provide 8" PVC Sanitary Sewer	LF	220	\$ 107.00	\$ 23,540.00	\$ 75.15	\$ 16,533.00	\$ 129.00	\$ 28,380.00	\$ 215.00	\$ 47,300.00
SS-04	Remove and Relay 8" PVC Sanitary Sewer	LF	225	\$ 108.00	\$ 24,300.00	\$ 93.95	\$ 21,138.75	\$ 145.00	\$ 32,625.00	\$ 215.00	\$ 48,375.00
SS-05	Remove and Relay 8" PVC Sanitary Sewer (Alley)	LF	300	\$ 107.00	\$ 32,100.00	\$ 110.08	\$ 33,024.00	\$ 140.00	\$ 42,000.00	\$ 130.00	\$ 39,000.00
SS-06	Remove and Relay 6" or 4" PVC Sanitary Lateral	LF	560	\$ 97.00	\$ 54,320.00	\$ 80.47	\$ 45,063.20	\$ 114.00	\$ 63,840.00	\$ 207.00	\$ 115,920.00
SS-07	Provide 6" PVC Sanitary Sewer Lateral	LF	70	\$ 97.00	\$ 6,790.00	\$ 78.08	\$ 5,465.60	\$ 112.00	\$ 7,840.00	\$ 203.00	\$ 14,210.00
SS-08	Provide 4" PVC Sanitary Sewer Lateral	LF	40	\$ 95.00	\$ 3,800.00	\$ 76.43	\$ 3,057.20	\$ 109.00	\$ 4,360.00	\$ 202.00	\$ 8,080.00
SS-09	Provide 12" x 6" Sanitary Wye	EA	1	\$ 230.00	\$ 230.00	\$ 549.44	\$ 549.44	\$ 363.00	\$ 363.00	\$ 200.00	\$ 200.00
SS-10	Provide 12" x 4" Sanitary Wye	EA	1	\$ 200.00	\$ 200.00	\$ 1,531.57	\$ 1,531.57	\$ 337.00	\$ 337.00	\$ 180.00	\$ 180.00
SS-11	Provide 10" x 6" Sanitary Wye	EA	6	\$ 150.00	\$ 900.00	\$ 476.72	\$ 2,860.32	\$ 256.00	\$ 1,536.00	\$ 130.00	\$ 780.00
SS-12	Provide 8" x 6" Sanitary Wye	EA	12	\$ 50.00	\$ 600.00	\$ 395.92	\$ 4,751.04	\$ 141.00	\$ 1,692.00	\$ 50.00	\$ 600.00
SS-13	Provide 4' Diameter Sanitary Sewer Manhole	VF	24	\$ 545.00	\$ 13,080.00	\$ 558.09	\$ 13,394.16	\$ 556.00	\$ 13,344.00	\$ 400.00	\$ 9,600.00
SS-14	Remove and Replace 4' Diameter Sanitary Sewer Manhole	VF	11	\$ 600.00	\$ 6,600.00	\$ 501.36	\$ 5,514.96	\$ 472.00	\$ 5,192.00	\$ 400.00	\$ 4,400.00
SS-15	Remove and Replace 4' Diameter Sanitary Sewer Manhole (Alley)	VF	6	\$ 800.00	\$ 4,800.00	\$ 1,074.94	\$ 6,449.64	\$ 929.00	\$ 5,574.00	\$ 450.00	\$ 2,700.00
SS-16	Provide 4' Diameter Sanitary Sewer Manhole (Wisconsin)	VF	12	\$ 675.00	\$ 8,100.00	\$ 751.85	\$ 9,022.20	\$ 700.00	\$ 8,400.00	\$ 400.00	\$ 4,800.00
SS-17	Reconnect to Existing Sanitary Sewer Pipe	EA	3	\$ 1,000.00	\$ 3,000.00	\$ 2,624.31	\$ 7,872.93	\$ 1,829.00	\$ 5,487.00	\$ 1,100.00	\$ 3,300.00
SS-18	Connect to Existing Manhole (James Street)	EA	2	\$ 1,500.00	\$ 3,000.00	\$ 4,040.00	\$ 8,080.00	\$ 1,715.00	\$ 3,430.00	\$ 1,100.00	\$ 2,200.00
SS-19	Abandon/Remove Sanitary Sewer and Appurtenances (College Avenue)	LS	1	\$ 15,000.00	\$ 15,000.00	\$ 12,120.00	\$ 12,120.00	\$ 11,550.00	\$ 11,550.00	\$ 22,000.00	\$ 22,000.00
STORM SEWER											
ST-01	Remove 29" x 45" and Relay 24" x 38" RCP Class V Storm Sewer	LF	155	\$ 145.00	\$ 22,475.00	\$ 160.76	\$ 24,917.80	\$ 161.00	\$ 24,955.00	\$ 200.00	\$ 31,000.00
ST-02	Remove 24" and Relay 30" RCP Class IV Storm Sewer	LF	235	\$ 120.00	\$ 28,200.00	\$ 142.40	\$ 33,464.00	\$ 180.00	\$ 42,300.00	\$ 180.00	\$ 42,300.00
ST-03	Provide 18" PVC, RCP Class III, or PP Storm Sewer	LF	40	\$ 120.00	\$ 4,800.00	\$ 73.27	\$ 2,930.80	\$ 104.00	\$ 4,160.00	\$ 170.00	\$ 6,800.00
ST-04	Provide 12" PVC or RCP Class III Storm Sewer	LF	120	\$ 110.00	\$ 13,200.00	\$ 128.57	\$ 15,428.40	\$ 127.00	\$ 15,240.00	\$ 150.00	\$ 18,000.00
ST-05	Provide 8" PVC Storm Sewer	LF	50	\$ 135.00	\$ 6,750.00	\$ 143.48	\$ 7,174.00	\$ 134.00	\$ 6,700.00	\$ 140.00	\$ 7,000.00
ST-06	Provide 8" PVC Storm Sewer Lateral	LF	30	\$ 105.00	\$ 3,150.00	\$ 87.40	\$ 2,622.00	\$ 102.00	\$ 3,060.00	\$ 140.00	\$ 4,200.00
ST-07	Provide 6" PVC Storm Sewer Lateral	LF	90	\$ 85.00	\$ 7,650.00	\$ 84.56	\$ 7,610.40	\$ 99.00	\$ 8,910.00	\$ 137.00	\$ 12,330.00
ST-08	Provide 29" x 45" x 6" Tee or 6" Inserta Tee	EA	1	\$ 200.00	\$ 200.00	\$ 2,046.26	\$ 2,046.26	\$ 431.00	\$ 431.00	\$ 1,025.00	\$ 1,025.00
ST-09	Provide 24" x 38" x 6" Tee or 6" Inserta Tee	EA	2	\$ 200.00	\$ 400.00	\$ 985.76	\$ 1,971.52	\$ 431.00	\$ 862.00	\$ 1,025.00	\$ 2,050.00
ST-10	Remove and Replace 5' x 5' Box Storm Manhole	VF	3	\$ 2,270.00	\$ 6,810.00	\$ 1,537.32	\$ 4,611.96	\$ 2,058.00	\$ 6,174.00	\$ 3,900.00	\$ 11,700.00
ST-11	Provide 6' Diameter Storm Manhole	VF	4.5	\$ 1,050.00	\$ 4,725.00	\$ 1,144.42	\$ 5,149.89	\$ 1,500.00	\$ 6,750.00	\$ 988.00	\$ 4,446.00
ST-12	Provide 5' Diameter Storm Manhole	VF	21	\$ 650.00	\$ 13,650.00	\$ 749.94	\$ 15,748.74	\$ 757.00	\$ 15,897.00	\$ 737.00	\$ 15,477.00
ST-13	Provide 4' Diameter Storm Manhole	VF	5	\$ 600.00	\$ 3,000.00	\$ 746.66	\$ 3,733.30	\$ 718.00	\$ 3,590.00	\$ 637.00	\$ 3,185.00
ST-14	Remove and Replace Type B Inlet	EA	1	\$ 2,400.00	\$ 2,400.00	\$ 2,035.53	\$ 2,035.53	\$ 2,855.00	\$ 2,855.00	\$ 2,768.00	\$ 2,768.00
ST-15	Provide Type B Inlet	EA	2	\$ 2,200.00	\$ 4,400.00	\$ 2,035.52	\$ 4,071.04	\$ 2,327.00	\$ 4,654.00	\$ 2,700.00	\$ 5,400.00
ST-16	Provide Type A Inlet	EA	1	\$ 2,100.00	\$ 2,100.00	\$ 2,148.36	\$ 2,148.36	\$ 1,921.00	\$ 1,921.00	\$ 2,500.00	\$ 2,500.00
ST-17	Remove Type B Inlet (Superior Street)	EA	1	\$ 300.00	\$ 300.00	\$ 505.00	\$ 505.00	\$ 1,125.00	\$ 1,125.00	\$ 850.00	\$ 850.00
ST-18	Concrete Collar	EA	2	\$ 1,500.00	\$ 3,000.00	\$ 1,767.50	\$ 3,535.00	\$ 1,715.00	\$ 3,430.00	\$ 750.00	\$ 1,500.00
ST-19	Core Drill Storm Manhole (8" Opening)	EA	2	\$ 1,000.00	\$ 2,000.00	\$ 1,212.00	\$ 2,424.00	\$ 572.00	\$ 1,144.00	\$ 400.00	\$ 800.00
ST-20	Core Drill Storm Manhole (6" Opening)	EA	1	\$ 750.00	\$ 750.00	\$ 1,161.50	\$ 1,161.50	\$ 572.00	\$ 572.00	\$ 375.00	\$ 375.00
ST-21	Reconnect to Existing Storm Sewer Structure (College Ave)	EA	1	\$ 1,500.00	\$ 1,500.00	\$ 1,515.00	\$ 1,515.00	\$ 1,715.00	\$ 1,715.00	\$ 575.00	\$ 575.00
ST-22	Reconnect to Existing Storm Sewer Pipe w/ Bends (College Ave)	EA	1	\$ 1,000.00	\$ 1,000.00	\$ 2,525.00	\$ 2,525.00	\$ 2,268.00	\$ 2,268.00	\$ 1,000.00	\$ 1,000.00
WATER MAIN											
W-01	Provide 8" PVC Water Main	LF	755	\$ 125.00	\$ 94,375.00	\$ 99.87	\$ 75,401.85	\$ 205.00	\$ 154,775.00	\$ 160.00	\$ 120,800.00
W-02	Provide 8" PVC Water Main (Directional Drill)	LF	310	\$ 115.00	\$ 35,650.00	\$ 81.09	\$ 25,137.90	\$ 62.00	\$ 19,220.00	\$ 160.00	\$ 49,600.00
W-03	Provide 6" PVC Water Main and Hydrant Lead	LF	135	\$ 120.00	\$ 16,200.00	\$ 78.22	\$ 10,559.70	\$ 138.00	\$ 18,630.00	\$ 160.00	\$ 21,600.00
W-04	Provide 2" HDPE Water Service	LF	110	\$ 100.00	\$ 11,000.00	\$ 71.81	\$ 7,899.10	\$ 119.00	\$ 13,090.00	\$ 150.00	\$ 16,500.00
W-05	Provide 1" HDPE Water Service	LF	235	\$ 97.00	\$ 22,795.00	\$ 63.47	\$ 14,915.45	\$ 119.00	\$ 27,965.00	\$ 130.00	\$ 30,550.00
W-06	Provide 2" Corporation, Curb Stop and Box (Self Draining)	EA	1	\$ 1,200.00	\$ 1,200.00	\$ 2,008.48	\$ 2,008.48	\$ 1,649.00	\$ 1,649.00	\$ 1,500.00	\$ 1,500.00
W-07	Provide 2" Corporation with Plug/Saddle with 2" HDPE	EA	4	\$ 1,000.00	\$ 4,000.00	\$ 2,953.32	\$ 11,813.28	\$ 1,037.00	\$ 4,148.00	\$ 650.00	\$ 2,600.00
W-08	Provide 1" Corporation, Curb Stop and Box	EA	3	\$ 425.00	\$ 1,275.00	\$ 1,297.79	\$ 3,893.37	\$ 985.00	\$ 2,955.00	\$ 650.00	\$ 1,950.00
W-09	Provide Hydrant 6.5' Bury	EA	3	\$ 4,000.00	\$ 12,000.00	\$ 4,414.85	\$ 13,244.55	\$ 4,891.00	\$ 14,673.00	\$ 4,600.00	\$ 13,800.00
W-10	Provide 8" Gate Valve	EA	6	\$ 1,800.00	\$ 10,800.00	\$ 2,161.68	\$ 12,970.08	\$ 1,966.00	\$ 11,796.00	\$ 1,600.00	\$ 9,600.00
W-11	Provide 6" Gate Valve	EA	6	\$ 1,300.00	\$ 7,800.00	\$ 1,718.28	\$ 10,309.68	\$ 1,444.00	\$ 8,664.00	\$ 1,200.00	\$ 7,200.00
W-12	Provide										



PROJECT 20-02 STREET RECONSTRUCTION AND UTILITY RELAY
BID TAB

ITEM	DESCRIPTION	UNIT	QTY	BIDDER NO. 1		BIDDER NO. 2		BIDDER NO. 3		BIDDER NO. 4	
				Jossart Brothers, Inc.	AMOUNT BID	De Groot, Inc.	AMOUNT BID	Dorner, Inc.	AMOUNT BID	Advance Construction	AMOUNT BID
SC-09	Provide "End One Way" Sign R6-7	EA	1	\$ 230.00	\$ 230.00	\$ 404.00	\$ 404.00	\$ 347.00	\$ 347.00	\$ 300.00	\$ 300.00
SC-10	Provide "One Way with Right Arrow" Sign R6-2R	EA	1	\$ 230.00	\$ 230.00	\$ 404.00	\$ 404.00	\$ 318.00	\$ 318.00	\$ 275.00	\$ 275.00
SC-11	Provide "3 Hour Parking" Sign	EA	2	\$ 230.00	\$ 460.00	\$ 404.00	\$ 808.00	\$ 318.00	\$ 636.00	\$ 275.00	\$ 550.00
SC-12	Provide "No Stopping, Standing, or Parking" Sign	EA	2	\$ 230.00	\$ 460.00	\$ 404.00	\$ 808.00	\$ 404.00	\$ 808.00	\$ 350.00	\$ 700.00
SC-13	Provide "Loading Zone" Sign	EA	2	\$ 230.00	\$ 460.00	\$ 404.00	\$ 808.00	\$ 347.00	\$ 694.00	\$ 300.00	\$ 600.00
SC-14	Provide Wind Wall Foundation and Install Wind Wall	LS	1	\$ 25,000.00	\$ 25,000.00	\$ 31,310.00	\$ 31,310.00	\$ 22,574.00	\$ 22,574.00	\$ 9,545.00	\$ 9,545.00
SC-15	Provide Bench, 6' Long	EA	9	\$ 3,500.00	\$ 31,500.00	\$ 3,333.00	\$ 29,997.00	\$ 4,216.00	\$ 37,944.00	\$ 3,650.00	\$ 32,850.00
SC-16	Provide Bench, 6' Long with Internal LED Illumination (No Backs)	EA	3	\$ 4,200.00	\$ 12,600.00	\$ 3,131.00	\$ 9,393.00	\$ 4,793.00	\$ 14,379.00	\$ 4,150.00	\$ 12,450.00
SC-17	Provide 2-Top Table and Chairs	EA	3	\$ 3,000.00	\$ 9,000.00	\$ 3,383.50	\$ 10,150.50	\$ 3,927.00	\$ 11,781.00	\$ 3,400.00	\$ 10,200.00
SC-18	Provide Trash Receptacle	EA	2	\$ 3,000.00	\$ 6,000.00	\$ 3,030.00	\$ 6,060.00	\$ 3,465.00	\$ 6,930.00	\$ 3,000.00	\$ 6,000.00
SC-19	Provide Recycling Receptacle	EA	2	\$ 3,000.00	\$ 6,000.00	\$ 3,030.00	\$ 6,060.00	\$ 3,465.00	\$ 6,930.00	\$ 3,000.00	\$ 6,000.00
SC-20	Provide Bollard	EA	1	\$ 600.00	\$ 600.00	\$ 1,010.00	\$ 1,010.00	\$ 1,502.00	\$ 1,502.00	\$ 1,300.00	\$ 1,300.00
SC-21	Provide Decorative Tree Grate, 8' x 8' w/2 Flush-Mounted Uplights	EA	8	\$ 8,500.00	\$ 68,000.00	\$ 7,777.00	\$ 62,216.00	\$ 8,547.00	\$ 68,376.00	\$ 7,400.00	\$ 59,200.00
SC-22	Remove, Salvage, and Install Bicycle Rack	EA	3	\$ 800.00	\$ 2,400.00	\$ 1,010.00	\$ 3,030.00	\$ 866.00	\$ 2,598.00	\$ 750.00	\$ 2,250.00
SC-23	Remove, Salvage, and Install Historic Marker/Sign	EA	1	\$ 1,000.00	\$ 1,000.00	\$ 2,828.00	\$ 2,828.00	\$ 1,733.00	\$ 1,733.00	\$ 1,500.00	\$ 1,500.00
SC-24	Remove, Salvage, and Install Traffic Signs	EA	1	\$ 500.00	\$ 500.00	\$ 454.50	\$ 454.50	\$ 404.00	\$ 404.00	\$ 350.00	\$ 350.00
SC-25	Provide Traffic Control (George Street)	LS	1	\$ 10,000.00	\$ 10,000.00	\$ 6,565.00	\$ 6,565.00	\$ 10,000.00	\$ 10,000.00	\$ 22,500.00	\$ 22,500.00
SC-26	Provide Traffic Control and/or Detour (Fourth Street)	LS	1	\$ 10,000.00	\$ 10,000.00	\$ 6,868.00	\$ 6,868.00	\$ 10,000.00	\$ 10,000.00	\$ 22,600.00	\$ 22,600.00
SC-27	Pavement Marking Epoxy Handicap Symbol (White)	EA	1	\$ 370.00	\$ 370.00	\$ 249.98	\$ 249.98	\$ 404.00	\$ 404.00	\$ 350.00	\$ 350.00
SC-28	Pavement Marking Epoxy 18" Line (White)	LF	24	\$ 21.00	\$ 504.00	\$ 18.61	\$ 446.64	\$ 23.10	\$ 554.40	\$ 20.00	\$ 480.00
SC-29	Pavement Marking Epoxy 6" Line (White)	LF	90	\$ 9.00	\$ 810.00	\$ 11.39	\$ 1,025.10	\$ 9.24	\$ 831.60	\$ 8.00	\$ 720.00
SC-30	Pavement Marking Epoxy 4" Line (White)	LF	685	\$ 6.00	\$ 4,110.00	\$ 8.33	\$ 5,706.05	\$ 6.06	\$ 4,151.10	\$ 5.25	\$ 3,596.25
SC-31	Pavement Marking Epoxy 8" Channelizing Line (White)	LF	700	\$ 4.00	\$ 2,800.00	\$ 2.78	\$ 1,946.00	\$ 4.04	\$ 2,828.00	\$ 3.50	\$ 2,450.00
SC-32	Pavement Marking Epoxy 12" Line (White)	LF	280	\$ 13.00	\$ 3,640.00	\$ 15.00	\$ 4,200.00	\$ 13.86	\$ 3,880.80	\$ 12.00	\$ 3,360.00

LANDSCAPE PLANTINGS

L-01	Provide Backfill (Pulverized Topsoil) for Plant Bed, 24" Depth	CY	320	\$ 53.00	\$ 16,960.00	\$ 55.55	\$ 17,776.00	\$ 57.75	\$ 18,480.00	\$ 35.00	\$ 11,200.00
L-02	Provide Autumn Brilliance Serviceberry, 2 1/2" cal	EA	8	\$ 630.00	\$ 5,040.00	\$ 666.60	\$ 5,332.80	\$ 693.00	\$ 5,544.00	\$ 540.00	\$ 4,320.00
L-03	Provide China Snow Peking Lilac, 10' -12' Clump	EA	3	\$ 800.00	\$ 2,400.00	\$ 833.25	\$ 2,499.75	\$ 866.00	\$ 2,598.00	\$ 675.00	\$ 2,025.00
L-04	Provide Bergeson Compact Dogwood, 24" Ht	EA	8	\$ 63.00	\$ 504.00	\$ 66.66	\$ 533.28	\$ 69.00	\$ 552.00	\$ 54.00	\$ 432.00
L-05	Provide Dwarf Bush Honeysuckle, 24" Ht	EA	30	\$ 63.00	\$ 1,890.00	\$ 66.66	\$ 1,999.80	\$ 69.00	\$ 2,070.00	\$ 48.00	\$ 1,440.00
L-06	Provide Dwarf Limelight Hydrangea, 24" Ht	EA	19	\$ 63.00	\$ 1,197.00	\$ 66.66	\$ 1,266.54	\$ 69.00	\$ 1,311.00	\$ 60.00	\$ 1,140.00
L-07	Provide Dwarf Pavement Rugosa Rose, 18" Ht	EA	11	\$ 53.00	\$ 583.00	\$ 55.55	\$ 611.05	\$ 58.00	\$ 638.00	\$ 45.00	\$ 495.00
L-08	Provide Doublefile Viburnum, 36" Ht	EA	2	\$ 105.00	\$ 210.00	\$ 111.10	\$ 222.20	\$ 116.00	\$ 232.00	\$ 81.00	\$ 162.00
L-09	Provide Taunton Spreading Yew, 30" Ht	EA	7	\$ 80.00	\$ 560.00	\$ 83.33	\$ 583.31	\$ 87.00	\$ 609.00	\$ 105.00	\$ 735.00
L-10	Provide Lady's Mantle, Gal.	EA	10	\$ 21.00	\$ 210.00	\$ 22.22	\$ 222.20	\$ 23.00	\$ 230.00	\$ 18.00	\$ 180.00
L-11	Provide Summer Beauty Onion, 4" Pot	EA	52	\$ 9.00	\$ 468.00	\$ 8.89	\$ 462.28	\$ 9.24	\$ 480.48	\$ 12.00	\$ 624.00
L-12	Provide Blue False Indigo, 1 Gal.	EA	7	\$ 21.00	\$ 147.00	\$ 22.22	\$ 155.54	\$ 23.00	\$ 161.00	\$ 18.00	\$ 126.00
L-13	Provide Bolton's Aster, 1 Gal.	EA	8	\$ 21.00	\$ 168.00	\$ 22.22	\$ 177.76	\$ 23.00	\$ 184.00	\$ 18.00	\$ 144.00
L-14	Provide Montrose White Calamint, 1 Gal.	EA	73	\$ 21.00	\$ 1,533.00	\$ 22.22	\$ 1,622.06	\$ 23.00	\$ 1,679.00	\$ 18.00	\$ 1,314.00
L-15	Provide Old Fashioned Pink Bleeding Heart 1, Gal	EA	3	\$ 21.00	\$ 63.00	\$ 22.22	\$ 66.66	\$ 23.00	\$ 69.00	\$ 24.00	\$ 72.00
L-16	Provide Little Grapette Daylily, 1 Gal.	EA	31	\$ 21.00	\$ 651.00	\$ 22.22	\$ 688.82	\$ 23.00	\$ 713.00	\$ 18.00	\$ 558.00
L-17	Provide Strawberry Candy Daylily, 1 Gal.	EA	62	\$ 21.00	\$ 1,302.00	\$ 22.22	\$ 1,377.64	\$ 23.00	\$ 1,426.00	\$ 18.00	\$ 1,116.00
L-18	Provide Guacamole Hosta, 1 Gal.	EA	29	\$ 21.00	\$ 609.00	\$ 22.22	\$ 644.38	\$ 23.00	\$ 667.00	\$ 24.00	\$ 696.00
L-19	Provide Feedback Bearded Iris, 1 Gal	EA	7	\$ 21.00	\$ 147.00	\$ 22.22	\$ 155.54	\$ 23.00	\$ 161.00	\$ 24.00	\$ 168.00
L-20	Provide Walk's Low Catmint, 1 Gal.	EA	4	\$ 21.00	\$ 84.00	\$ 22.22	\$ 88.88	\$ 23.00	\$ 92.00	\$ 18.00	\$ 72.00
L-21	Provide Bartzella Itoh Peony, 1 Gal.	EA	4	\$ 21.00	\$ 84.00	\$ 22.22	\$ 88.88	\$ 23.00	\$ 92.00	\$ 18.00	\$ 72.00
L-22	Provide Fireworks Goldenrod, 1 Gal.	EA	19	\$ 32.00	\$ 608.00	\$ 33.33	\$ 633.27	\$ 35.00	\$ 665.00	\$ 18.00	\$ 342.00
L-23	Provide Woolly Thyme, 4" Pot	EA	54	\$ 16.00	\$ 864.00	\$ 16.67	\$ 900.18	\$ 17.00	\$ 918.00	\$ 12.00	\$ 648.00
L-24	Provide Feather Reed Grass, 1 Gal.	EA	23	\$ 32.00	\$ 736.00	\$ 33.33	\$ 766.59	\$ 35.00	\$ 805.00	\$ 24.00	\$ 552.00
L-25	Provide Copper Shouldered Oval Sedge, 4" Pot	EA	113	\$ 16.00	\$ 1,808.00	\$ 16.67	\$ 1,883.71	\$ 17.00	\$ 1,921.00	\$ 12.00	\$ 1,356.00
L-26	Provide Pennsylvania Sedge, 4" Pot	EA	96	\$ 16.00	\$ 1,536.00	\$ 16.67	\$ 1,600.32	\$ 17.00	\$ 1,632.00	\$ 12.00	\$ 1,152.00
L-27	Provide Tufted Hair Grass, 4" Pot	EA	38	\$ 16.00	\$ 608.00	\$ 16.67	\$ 633.46	\$ 17.00	\$ 646.00	\$ 12.00	\$ 456.00
L-28	Provide Shenandoah Switch Grass 1 Gal.	EA	21	\$ 32.00	\$ 672.00	\$ 33.33	\$ 699.93	\$ 35.00	\$ 735.00	\$ 24.00	\$ 504.00
L-29	Provide Carousel Little Bluestem, 1 Gal.	EA	35	\$ 32.00	\$ 1,120.00	\$ 33.33	\$ 1,166.55	\$ 35.00	\$ 1,225.00	\$ 24.00	\$ 840.00
L-30	Provide Indiangrass, 1 Gal.	EA	7	\$ 32.00	\$ 224.00	\$ 33.33	\$ 233.31	\$ 35.00	\$ 245.00	\$ 24.00	\$ 168.00
L-31	Provide Tara Dwarf Prairie Dropseed, 4" Pot	EA	84	\$ 16.00	\$ 1,344.00	\$ 16.67	\$ 1,400.28	\$ 17.00	\$ 1,428.00	\$ 12.00	\$ 1,008.00
L-32	Provide Purple Sensation Allium	EA	74	\$ 3.50	\$ 259.00	\$ 3.33	\$ 246.42	\$ 3.47	\$ 256.78	\$ 3.75	\$ 277.50
L-33	Provide Majestic Lavender Crocus Mixture	EA	189	\$ 3.50	\$ 661.50	\$ 3.33	\$ 629.37	\$ 3.47	\$ 655.83	\$ 3.75	\$ 708.75
L-34	Provide Dutch Master Daffodil	EA	343	\$ 3.50	\$ 1,200.50	\$ 3.33	\$ 1,142.19	\$ 3.47	\$ 1,190.21	\$ 3.75	\$ 1,286.25
L-35	Provide Ice Follies Large Cupped Daffodil	EA	221	\$ 3.50	\$ 773.50	\$ 3.33	\$ 735.93	\$ 3.47	\$ 766.87	\$ 3.75	\$ 828.75
L-36	Provide Tree Protection Fencing	LF	140	\$ 9.00	\$ 1,260.00	\$ 8.89	\$ 1,244.60	\$ 9.24	\$ 1,293.60	\$ 6.00	\$ 840.00
L-37	Provide Shredded Hardwood Bark Mulch, 3" Thick	SF	4,200	\$ 0.60	\$ 2,520.00	\$ 0.64	\$ 2,688.00	\$ 0.66	\$ 2,772.00	\$ 1.35	\$ 5,670.00
L-38	Provide 1 Year Landscape Maintenance	LS	1	\$ 3,000.00	\$ 3,000.00	\$ 2,777.50	\$ 2,777.50	\$ 2,888.00	\$ 2,888.00	\$ 15,000.00	\$ 15,000.00

ELECTRICAL

E-01	Provide 100Amp/3 Phase Breaker in Existing Panel at James and Michigan Street (Panel A)	LS	1	\$ 1,600.00	\$ 1,600.00	\$ 972.13	\$ 972.13	\$ 1,011.00	\$ 1,011.00	\$ 875.00	\$ 875.00
E-02	Remove, Salvage and Install Street Light with City Supplied Luminaire	EA	3	\$ 6,100.00	\$ 18,300.00	\$ 1,255.43	\$ 3,766.29	\$ 1,305.00	\$ 3,915.00	\$ 1,130.00	\$ 3,390.00
E-03	Provide Concrete Light Bases, Type 5 (James Street)	EA	3	\$ 1,100.00	\$ 3,300.00	\$ 3,127.47	\$ 9,382.41	\$ 3,251.00	\$ 9,753.00	\$ 2,815.00	\$ 8,445.00
E-04	Provide Light Fixture Type OB, Including Concrete Base	EA	4	\$ 1,900.00	\$ 7,600.00	\$ 836.58	\$ 3,346.32	\$ 870.00	\$ 3,480.00	\$ 753.00	\$ 3,012.00
E-05	Provide Wiring Connection at Light Fixture Type OA	EA	16	\$ 1,100.00	\$ 17,600.00	\$ 399.96	\$ 6,399.36	\$ 416.00	\$ 6,656.00	\$ 360.00	\$ 5,760.00
E-06	Provide Wiring Connection at Lighted Bench	EA	3	\$ 1,600.00	\$ 4,800.00	\$ 377.74	\$ 1,133.22	\$ 393.00	\$ 1,179.00	\$ 340.00	\$ 1,020.00
E-07	Provide Wiring Connection at Windwall	EA	2	\$ 6,900.00	\$ 13,800.00	\$ 572.17	\$ 1,144.34	\$ 595.00	\$ 1,190.00	\$ 515.00	\$ 1,030.00
E-08	Provide Conduit - Rigid Nonmetallic Schedule 40, 1 1/2-Inch	LF	215	\$ 6.30	\$ 1,354.50	\$ 14.22	\$ 3,057.30	\$ 14.78	\$ 3,177.70	\$ 12.80	\$ 2,752.00
E-09	Provide Conduit - Rigid Nonmetallic Schedule 40, 1-Inch	LF	525	\$ 5.30	\$ 2,782.50	\$ 14.00	\$ 7,350.00	\$ 14.55	\$ 7,638.75	\$ 12.60	\$ 6,615.00
E-10	Provide Electrical Wire Lighting, 12 AWG Copper	LF	1,650	\$ 0.65	\$ 1,072.50	\$ 0.70	\$ 1,155.00	\$ 0.73	\$ 1,204.50	\$ 0.63	\$ 1,039.50
E-11	Provide Electrical Wire Lighting, 10 AWG Copper	LF	580	\$ 0.90	\$ 522.00	\$ 0.89	\$ 516.20	\$ 0.92	\$ 533.60	\$ 0.80	\$ 464.00
E-12	Provide Electrical Wire Lighting, 3 AWG Copper	LF	650	\$ 2.10	\$ 1,365.00	\$ 2.78	\$ 1,807.00	\$ 2.89	\$ 1,878.50	\$ 2.50	\$ 1,625.00
E-13	Provide Electrical Wire Ground, 8 AWG Copper	LF	140	\$ 1.50	\$ 210.00	\$ 1.33	\$ 186.20	\$ 1.39	\$ 194.60	\$ 1.20	\$ 168.00
E-14	Provide Enclosure, NEMA 4 (Panel B)	EA	1	\$ 5,300.00	\$ 5,300.00	\$ 3,999.60	\$ 3,999.60	\$ 4,158.00	\$ 4,158.00	\$ 3,600.00	\$ 3,600.00
E-15	Provide Branch Panel, TYPE NQ Load Center, 22-Space, 100 Amp MCB	EA	1	\$ 1,600.00	\$ 1,600.00	\$ 268.66	\$ 268.66	\$ 3,072.00	\$ 3,072.00	\$ 2,660.00	\$ 2,660.00
E-16	Provide In-Ground Box with Duplex Receptacles	EA	6	\$ 1,900.00	\$ 11,400.00	\$ 1,627.62	\$ 9,765.72	\$ 1,692.00	\$ 10,152.00	\$ 1,465.00	\$ 8,790.00
E-17	Provide Lighting Control Panel, 8-Relay	EA	1	\$ 5,300.00	\$ 5,300.00	\$ 4,749.53	\$ 4,749.53	\$ 4,938.00	\$ 4,938.00	\$ 4,275.00	\$ 4,275.00

DEMOLITION

D-01	Remove Existing Light (Front Street)	EA	1	\$ 550.00	\$ 550.00	\$ 433.29	\$ 433.29	\$ 450.00	\$ 450.00	\$ 390.00	\$ 390.00
D-02	Remove Existing Fence (Front Street)	EA	1	\$ 1,200.00	\$ 1,200.00	\$ 757.50	\$ 757.50	\$ 2,500.00	\$ 2,500.00	\$ 1,500.00	\$ 1,500.00
D-03	Demolish Building Foundation	LS	1	\$ 20,000.00	\$ 20,000.00	\$ 18,180.00	\$ 18,180.00	\$ 5,000.00	\$ 5,000.00	\$ 24,000.00	\$ 24,000.00
D-04	Remove Fountain Structure	LS	1	\$ 30,000.00	\$ 30,000.00	\$ 32,320.00	\$ 32,320.00	\$ 5,000.00	\$ 5,000.00	\$ 16,000.00	\$ 16,000.00
D-05	Remove Brick Pavers	SY	435	\$ 10.00	\$ 4,350.00	\$ 13.13	\$ 5,711.55	\$ 15.00	\$ 6,525.00	\$ 8.00	\$ 3,480.00
D-06	Remove Metal Bollards	EA	8	\$ 220.00	\$ 1,760.00	\$ 303.00	\$ 2,424.00	\$ 231.00	\$ 1,848.00	\$ 300.00	\$ 2,400.00
D-07	Remove Tree Grates	EA	15	\$ 200.00	\$ 3,000.00	\$ 252.50	\$ 3,787.50	\$ 300.00	\$ 4,500.00	\$ 250.00	\$ 3,750.00
D-08	Remove Concrete Light Bases in Pedestrian Mall (North Side of James Street)	EA	9	\$ 220.00	\$ 1,980.00	\$ 722.15	\$ 6,499.35	\$ 751.00	\$ 6,759.00	\$ 650.00	\$ 5,850.00
D-09	Remove Concrete Light Bases along James Street	EA	3	\$ 220.00	\$ 660.00	\$ 344.41	\$ 1,033.23	\$ 352.00	\$ 1,056.00	\$ 305.00	\$ 915.00
D-10	Remove Electrical Cabinet	EA	1	\$ 550.00	\$ 550.00	\$ 911.02	\$ 911.02	\$ 947.00	\$ 947.00	\$ 820.00	\$ 820.00
D-11	Remove Asphaltic Concrete Pavement (Superior, Huron and Front Street)	SY	740	\$ 3.00	\$ 2,220.00	\$ 12.12	\$ 8,968.80	\$ 5.00	\$ 3,700.00	\$ 3.70	\$ 2,738.00
D-12	Remove Concrete Sidewalk and Driveway (Superior, Huron and James Street)	SY	435	\$ 5.00	\$ 2,175.00	\$ 6.06	\$ 2,636.10	\$ 5.00	\$ 2,175.00	\$ 4.50	\$ 1,957.50
D-13	Remove Concrete Curb and Gutter (Superior and Huron Street)	LF	515	\$ 4.00	\$ 2,060.00	\$ 5.05	\$ 2,600.75	\$ 5.00	\$ 2,575.00	\$ 5.50	\$ 2,832.50
D-14	Remove Existing Crosswalk (Wisconsin Street)	LF	80	\$ 6.00	\$ 480.00	\$ 15.15	\$ 1,212.00	\$ 3.41	\$ 272.80	\$ 25.00	\$ 2,000.00
BASE BID TOTAL					\$ 1,654,924.00		\$ 1,704,012.07		\$ 1,826,679.82		\$ 1,944,988.00



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on award of Contract 20-04
Honeysuckle Acres Fourth Addition Subdivision Construction*

ATTACHMENTS:

- 2020 0309 CI_BOPW_Award_20-04 (PDF)
- 2020 0303 Project 20-04 Bid Tab (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: **Consideration and possible action on award of Contract 20-04 Honeysuckle Acres Fourth Addition Subdivision Construction***

The Engineering Department received bids for Project 20-04 Honeysuckle Acres Fourth Addition Subdivision Construction on March 3, 2020. This project involves the construction of streets and corresponding utilities for the new Honeysuckle Acres Fourth Addition Subdivision on the City's west side. The bids received are as follows:

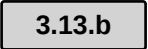
Contractor	Total Bid
Feaker & Sons Co., Inc.	\$870,664.20
David Tenor Corporation	\$959,129.50
Jossart Brothers, Inc.	\$992,962.00
Kruczek Construction, Inc.	\$997,997.97
Dorner Inc.	\$1,008,668.90
Carl Bowers & Sons Construction Co. Inc.	\$1,042,119.40
Robert J. Immel Excavating, Inc.	\$1,046,485.15
De Groot, Inc.	\$1,108,606.60
PTS Contractors, Inc.	\$1,127,184.00
Advance Construction, Inc.	\$1,150,323.50
Superior Sewer and Water, Inc.	\$1,539,249.75

The entirety of this project is developer funded.

Staff's recommendation is to accept the bid from Feaker & Sons Co., Inc. in the amount of \$870,664.20 contingent on the developer signing a Public Infrastructure Improvement Agreement to fund the requested improvements and the recording of the final plat.

Attachments:

2020 0303 Project 20-04 Bid Tab (PDF)



Attachment: 2020 0303 Project 20-04 Bid Tab (9344 : Consider award of Contract 20-04 Honeysuckle Acres Fourth Addition Subdivision

Packet Pg. 249



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on approval of the State
Municipal Finance Agreement with WisDOT for the Main Avenue
and Fourth Street Signal Retrofit*

ATTACHMENTS:

- 2020 0309 CI_BOPW-Main&Fourth_Signal (PDF)
- C OF DEPERE MAIN & 4TH STREET SMFA (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

RE: **Consideration and possible action on approval of the State Municipal Finance Agreement with WisDOT for the Main Avenue and Fourth Street Signal Retrofit***

The De Pere 2018 Traffic Signal Inspection Report recommended replacing the signals at the Main Avenue and Fourth Street intersection. The installation date of the signals is not known, although the majority of the components are old, with several signal bases being deteriorated.

In late 2019, the City applied for a grant from the Wisconsin Department of Transportation (WisDOT) for partial funding of the signal replacement. The City was successful in obtaining the grant. A summary of the grant is included below.

PHASE	ESTIMATED COST				
	Total Estimated Cost	Federal / State Funds	%	Municipal Funds	%
Preliminary Engineering: Plan Development	\$17,000	\$15,300	90	\$1,700	10
Real Estate Acquisition:	-	-		-	
Construction: Signal Items	\$176,000	\$158,400	90	\$17,600	10
TOTAL COST DISTRIBUTION:	\$193,000	\$173,700	90	\$19,300	10

The City will obtain consulting services to manage the project. The project will be constructed by a WisDOT contractor. This work is scheduled to occur in 2021. In order to proceed with WisDOT funding, the City needs to enter into a State Municipal Finance Agreement (SMFA). A copy of the SMFA is attached.

Staff recommends the BOPW approve the SMFA and forward to the Council for approval. Funding for the project will be included in the 2021 budget.



**Original
STATE/MUNICIPAL FINANCIAL
AGREEMENT FOR A STATE- LET
HIGHWAY PROJECT**

Date: February 28, 2020
 I.D.: 3700-30-33
 Road Name: City of De Pere
 Title: Main Avenue & 4th Street
 Limits: Signal Retrofit
 County: Brown
 Roadway Length: 0.01 mile

The signatory **city of De Pere**, hereinafter called the Municipality, through its undersigned duly authorized officers or officials, hereby requests the State of Wisconsin Department of Transportation, hereinafter called the State, to initiate and affect the highway or street improvement hereinafter described.

The authority for the Municipality to enter into this agreement with the State is provided by Section 86.25(1), (2), and (3) of the Statutes.

NEEDS AND ESTIMATE SUMMARY:

Existing Facility - Describe and give reason for request: The existing signal is outdated and obsolete.

Proposed Improvement - Nature of work: Update the existing traffic signals with a new signal cabinet, conduit, pull boxes, bases, and overhead for westbound/eastbound detection camera and new above ground at the Main Avenue and 4th Street intersection.

Describe non-participating work included in the project and other work necessary to finish the project completely which will be undertaken independently by the municipality:

TABLE 1: SUMMARY OF COSTS

Phase	Total Est. Cost	Federal/State Funds	%	Municipal Funds	%
Preliminary Engineering: Plan Development	\$ 17,000	\$ 15,300	90%	\$ 1,700	10%
Real Estate Acquisition: Acquisition	\$ -	\$ -		\$ -	
¹ Construction: Signal Items	\$ 176,000	\$ 158,400	90%	\$ 17,600	10%
Non-Participating	\$ -	\$ -		\$ -	
Total Cost Distribution	\$ 193,000	\$ 173,700	90%	\$ 19,300	10%

1. Estimates include construction engineering.

This request shall constitute agreement between the Municipality and the State; is subject to the terms and conditions that follow (pages 2 – 4); is made by the undersigned under proper authority to make such request for the designated Municipality, upon signature by the State, and delivery to the Municipality. The initiation and accomplishment of the improvement will be subject to the applicable federal and state regulations. No term or provision of neither the State/Municipal Financial Agreement nor any of its attachments may be changed, waived or terminated orally but only by an instrument in writing executed by both parties to the State/Municipal Financial Agreement.

Signed for and in behalf of the city of De Pere (please sign in blue ink)	
Name (print)	Title
Signature	Date
Signed for and in behalf of the State (please sign in blue ink)	
Name	Title
Signature	Date

TERMS AND CONDITIONS:

1. The Municipality shall pay to the State all costs incurred by the State in connection with the improvement which exceeds federal/state financing commitments or are ineligible for federal/state financing. Local participation shall be limited to the items and percentages set forth in the Summary of Costs table, which shows Municipal funding participation. In order to guarantee the Municipality's foregoing agreements to pay the State, the Municipality, through its above duly authorized officers or officials, agrees and authorizes the State to set off and withhold the required reimbursement amount as determined by the State from General Transportation Aids or any moneys otherwise due and payable by the State to the Municipality.
2. Funding of each project phase is subject to inclusion in an approved program and per the State's Facility Development Manual (FDM) standards. Federal aid and/or state transportation fund financing will be limited to participation in the costs of the following items as specified in the Summary of Costs:
 - (a) Design engineering and state review services.
 - (b) Real Estate necessitated for the improvement.
 - (c) Compensable utility adjustment and railroad force work necessitated for the project.
 - (d) The grading, base, pavement, curb and gutter, and structure costs to State standards, excluding the cost of parking areas.
 - (e) Storm sewer mains, culverts, laterals, manholes, inlets, catch basins, and connections for surface water drainage of the improvement; including replacement and/or adjustments of existing storm sewer manhole covers and inlet grates as needed.
 - (f) Construction engineering incidental to inspection and supervision of actual construction work, except for inspection, staking, and testing of sanitary sewer and water main.
 - (g) Signing and pavement marking necessitated for the safe and efficient flow of traffic, including detour routes.

- (h) Replacement of existing sidewalks necessitated by construction and construction of new sidewalk at the time of construction. Sidewalk is considered to be new if it's constructed in a location where it has not existed before.
 - (i) Replacement of existing driveways, in kind, necessitated by the project.
 - (j) New installations or alteration resulting from roadway construction of standard State street lighting and traffic signals or devices. Alteration may include salvaging and replacement of existing components.
3. Work necessary to complete the improvement to be financed entirely by the Municipality or other utility or facility owner includes the following items:
- (a) New installations of or alteration of sanitary sewers and connections, water, gas, electric, telephone, telegraph, fire or police alarm facilities, parking meters, and similar utilities.
 - (b) New installation or alteration of signs not necessary for the safe and efficient flow of traffic.
 - (c) Coordinate, clean up, and fund any hazardous materials encountered during construction. All hazardous material cleanup work shall be performed in accordance to state and federal regulations.
 - (d) Damages to abutting property due to change in street or sidewalk widths, grades, or drainage.
 - (e) Conditioning, if required, and maintenance of detour routes.
 - (f) Repair of damages to roads or streets caused by reason of their use in hauling materials incidental to the improvement.
 - (g) Maintain all portions of the project that lie within its jurisdiction for such maintenance through statutory requirements, in a manner satisfactory to the state and shall make ample provision for such maintenance each year.
 - (h) Use the WisDOT Utility Accommodation Policy unless the Municipality adopts a policy which has equal or more restrictive controls.
4. State Disbursements:
- (a) Payment by the State to the Municipality shall be made on a regular basis upon presentation of vouchers for expenditures incurred during prior periods of the project duration subject to the allowable maximum payment. Exceptions to this schedule will be made as appropriate. In general, State reimbursements will be made after sufficient proof of payment is sent to the State.
 - (b) A final adjustment of state payments will be made upon completion of the State's audit of the project. If the State's audit establishes that the State paid more than its share of the eligible project costs, the Municipality shall refund to the State upon demand a sum equal to the overpayment.
5. If the Municipality should withdraw the project, it shall reimburse the State for any costs incurred by the State in behalf of the project.
6. The Municipality shall assume general responsibility for all public information and public relations for the project and to make a fitting announcement to the press and such outlets as would generally alert the affected property owners and the community of the nature, extent, and timing of the project and arrangements for handling traffic within and around the projects.
7. Basis for local participation:
- (a) Design: Costs for design are 90% Federal/State and 10% Municipal up to a maximum of \$17,000. Any overages shall be funded by the Municipality.

- (b) Construction: Cost for construction are 90% Federal/State and 10% Municipal up to a maximum of \$176,000. Any overages shall be funded by the Municipality.

Comments and Clarification: This agreement is an active agreement that may need to be amended as the project is designed. It is understood that these amendments may be needed as some issues have not been fully evaluated or resolved. The purpose of this agreement is to specify the local and state involvement in funding the project. A signed agreement is required before the State will prepare or participate in the preparation of detailed designs, acquire right-of-way, or participate in construction of a project that merits local involvement.



City of De Pere, Wisconsin

Request For Board of Public Works Action

MEETING DATE: March 9, 2020

DEPARTMENT: Board of Public Works

FROM: Eric Rakers

SUBJECT: Consideration and possible action on Applying for Wisconsin Department of Natural Resources Urban Nonpoint Source and Storm Water Management Grant Program*

ATTACHMENTS:

- 2020 0309 CI_BOPW-WDNR Grant (PDF)
- Basin FW200 C&D Wet Pond (PDF)
- Basin FE070 Wet Pond (PDF)
- 2020 0305 8700-299 (PDF)

CITY OF DE PERE MEMO



To: Honorable Mayor Walsh
Members of the Board of Public Works

From: Eric P. Rakers, P.E., City Engineer

Date: March 9, 2020

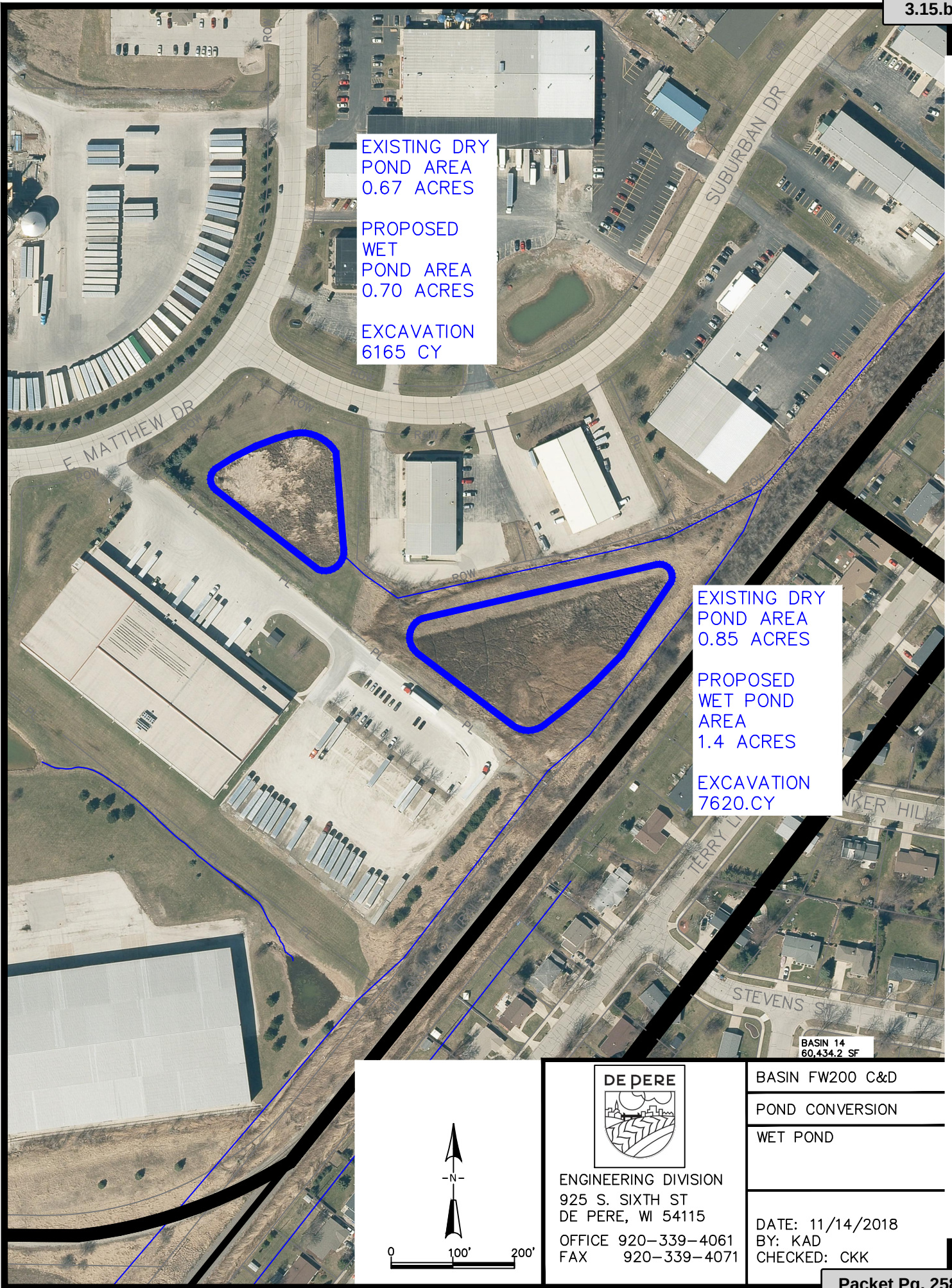
RE: **Consideration and possible action on applying for a Wisconsin Department of Natural Resources Urban Nonpoint Source and Storm Water Management Grant Program***

The Wisconsin Department of Natural Resources (WDNR) offers planning grants under the Urban Nonpoint Source and Storm Water Management Grant Program. This program is on a 2-year cycle. Grants for the upcoming cycle are due April 15, 2020. Grant funding may be up to \$150,000 for construction projects. The grant is a 50/50 match. Projects eligible for planning grants include:

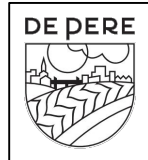
- Construction of structural urban best management practices (BMPs) including detention, wet, infiltration, or wetland basins, or infiltration trenches.
- Engineering design and construction services for BMPs installation.
- Land acquisition and easement purchase, including appraisal cost.
- Storm sewer rerouting and removal of structures.
- Streambank and shoreline stabilization.

The City received the revised WPDES Permit No WI-S0050075-3 for storm water runoff in 2019. Requirements of this permit are based on established pollutant allocations for Total Maximum Daily Loads (TMDL's) to the lower Fox River. The permit requires the City to continue to implement post construction storm water management practices to reduce pollutant loads to the Lower Fox River. Staff proposes to submit a grant application for the construction of the conversion of a dry detention pond to a wet detention pond off of Matthew and Suburban Drive and/or the construction of a wet detention pond off of Front and Franklin Street. Both of these locations were included in the City's 2018 Storm Water Management Plan.

Staff recommends approval for the preparation and submittal of an application to be signed by the City Engineer for the Urban Nonpoint Source and Storm Water Management Grant Program.



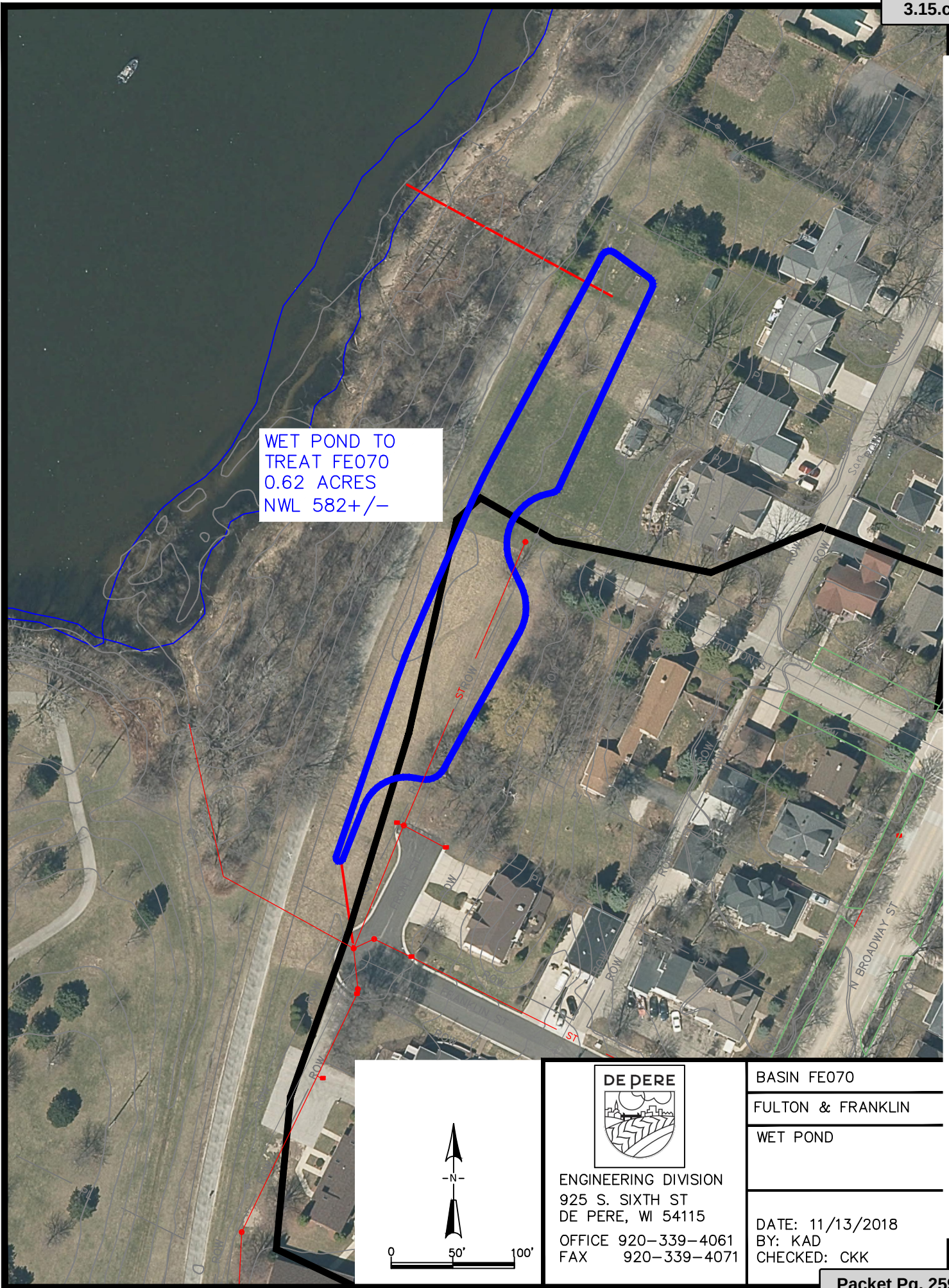
Attachment: Basin FW200 C&D Wet Pond (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)



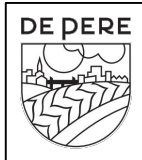
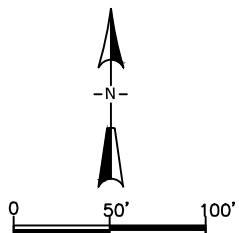
ENGINEERING DIVISION
925 S. SIXTH ST
DE PERE, WI 54115
OFFICE 920-339-4061
FAX 920-339-4071

BASIN FW200 C&D
POND CONVERSION
WET POND

DATE: 11/14/2018
BY: KAD
CHECKED: CKK



WET POND TO
TREAT FE070
0.62 ACRES
NWL 582+/-



ENGINEERING DIVISION
925 S. SIXTH ST
DE PERE, WI 54115
OFFICE 920-339-4061
FAX 920-339-4071

BASIN FE070
FULTON & FRANKLIN
WET POND

DATE: 11/13/2018
BY: KAD
CHECKED: CKK

State of Wisconsin
Runoff Management Section - WT/3
Department of Natural Resources
101 South Webster Street
Madison, WI 53703 or
P.O. Box 7921
Madison WI 53707-7921

Urban Nonpoint Source & Storm Water (UNPS&SW) Program Construction Grant Application

Form 8700-299 (R 02/20)

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Notice: This application form template was created by the Wisconsin Department of Natural Resources (DNR). Application is hereby made to the Wisconsin Department of Natural Resources, Bureau of Watershed Management, for grant assistance consistent with s. 281.66, Wis. Stats., and Chapters NR 151, 154 and 155, Wis. Adm. Code. Collection of this information is authorized under the authority of s. 281.66, Wis. Stats. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31 - 19.39, Wis. Stats.]. *Unless otherwise noted, all citations refer to Wisconsin Administrative Code.*

Please refer to the [instructions](#) to complete this form. Complete all sections as applicable. Tab to each section or click in answer spaces. All "Attachments" referenced are in the application instructions.

Part I. Applicant Information

Calendar Year of Application			Calendar Year of Grant Start		
Project Name					
Applicant (governmental unit applying name and type, e.g., Wausau City; Randall Town)					
Authorized Responsible Government Official			Grant Contact Person - if different than Responsible Government Official (contact cannot be a consultant)		
			Name (First, Last)		
Title			Title		
Area Code + Phone Number			Area Code + Phone Number		
Email Address			Email Address		
Mailing Address - Street or PO Box			Mailing Address - Street or PO Box		
City	State WI	ZIP Code	City	State WI	ZIP Code

Part II. Project Information

A. Location

Identify the project location(s) by filling in the table below. If the proposed project is to construct multiple BMPs located on non-contiguous sites, enter the latitude/longitude, county and senate/assembly district of each BMP location in individual rows. If the proposed project is to purchase a high-efficiency street sweeper that will serve areas in more than one HUC 12 watershed, enter the midpoint location for each HUC 12 in the table below.

See [Attachment A](#) and [Surface Water Data Viewer \(SWDV\)](#) for assistance in completing this question.

Location Name	Latitude North (4 to 7 decimal places)	Longitude West (4 to 7 decimal places)	County	State Senate District Number	State Assembly District Number
1.					

Method for Determining Latitude & Longitude (select one)

☐ GPS ☐ DNR Surface Water Data Viewer ☐ Other (specify): _____

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

Project Name: _____

UNPS&SW Program - Construction Grant Application

Form 8700-299 (R 02/20)

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B. Watershed and Waterbody

Enter the 12-digit hydrologic unit (HUC) code of the area served by each proposed BMP location on line a of the tables below. The name of the HUC 12 will automatically populate line b.

Determine the percent of the total area served by the project's proposed BMPs that is served by the BMP(s) in the first project location. Enter this percentage on line c of the tables. Identify the nearest water resources downstream of each proposed BMP location and enter on lined of the tables.

The name and number of the downstream HUC 12 will automatically populate lines e. and f., respectively.

See [Attachment A](#) and [Surface Water Data Viewer](#) for assistance in identifying the HUC 12s and nearest downstream water resources.

1. 12-Digit Hydrologic Unit Code (HUC 12)**Location:**

a. HUC 12 Watershed Code _____

b. HUC 12 Name _____

c. Percent of Project Area Located in HUC 12 _____

d. Nearest Water Resource _____

Name of the water resource nearest to, and downstream of, the project area in this HUC 12 _____

e. Downstream HUC 12 _____

f. Downstream HUC 12 Watershed Code Name _____

C. Endangered and Threatened Resources, Historic Properties, and Wetlands

Check the box(es) of true statements below, based on the conditions the applicant knows to be present at the location(s) where the project disturbs land.

- ☐ 1. There are endangered or threatened resources as identified in s. 29.604, Wis. Stats., and ch. NR 27 in the project area. (Refer to [NHI Portal](#) for assistance.)
- ☐ 2. There are archaeological sites, historical structures, burial sites, or other historic places as identified in s. 44.45, Wis. Stats., in the project area.
- ☐ 3. There are wetlands or potential wetlands in the project area, based on consulting the [Wetlands & Wetland Indicators Layer Theme](#) of the DNR's Surface Water Data Viewer.

D. Environmental Hazards Assessment

For each project location entered in Part II-A. 1, select the true statement (1 or 2) below and provide all additional information requested under the selected choice.

Location:**Yes**

- ☐ 1. At this location, the proposed project does **not** include any of the following:
- excavation;
 - purchase of land; or
 - purchase of easement.
- ☐ 2. At this location, the proposed project includes the purchase of land; the purchase of an easement; or excavation, and both of the statements below are true.
- ☐ a. A completed copy of the [Environmental Hazards Assessment](#) Form is attached to this application. See [Attachment H](#) of the application instructions for more information.
- ☐ b. The applicant has reviewed the Bureau of Remediation and Redevelopment [RR Site](#) map at a scale of 1:8529 or larger. Based on this map, the applicant has selected all of the statements below that are true.
- ☐ i. There is an open (ongoing cleanup) R&R site on the same property where the excavation is planned.
 - ☐ ii. There is a closed (completed cleanup) R&R site on the same property where the excavation is planned.
 - ☐ iii. There is an open (ongoing cleanup) R&R site on an adjacent property.
 - ☐ iv. There is a closed (completed cleanup) R&R site on an adjacent property.
 - ☐ v. There are no open or closed R&R sites on the property where the excavation is planned or on any adjacent properties.

E. Alternative Funding

- ☐ Check this box if applicant requests that the DNR also submit a copy of this application to the Clean Water Fund Program (CWFP). This submittal serves to waive the deadline for submitting an "Intent to Apply" form for CWFP funding; it is not a substitute for a CWFP loan application or interest rate subsidy application.

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

Project Name: _____

UNPS&SW Program - Construction Grant Application

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F. Pro-Rating for Existing versus New Development

For each project location entered in Part II-A.1, select the true statement (1 or 2) below and provide all additional information requested under the selected choice.

Location:**Yes**

- ☐ 1. The project will serve existing urban development only. Existing means urban development in existence on or before October 1, 2004.
- ☐ 2. The project will serve some areas of existing urban development and some areas of new development or other land use. Existing means in existence on or before October 1, 2004.

G. Best Management Practices (BMPs) and Associated Activities for Which Funding is Requested

For each project location entered in Part II-A.1, check all BMPs for which funding is requested and provide the requested information for each checked BMP. Eligible BMPs must be consistent with available storm water post-construction technical standards. The associated technical standard number is in parentheses. See Attachment C for additional BMP information.

Location:**Yes**

- ☐ 1. Wet Detention Pond (1001)
- ☐ 2. Infiltration Basin (1003)
- ☐ 3. Bioretention for Infiltration (1004)
- ☐ 4. Vegetated Infiltration Swale (1005)
- ☐ 5. Proprietary Storm Water Sedimentation Devices (1006)
- ☐ 6. Infiltration Trench (1007)
- ☐ 7. Non-Proprietary Storm Water Sedimentation Device
(e.g., catch basins, settling tanks or vaults with minimum 3.0-foot sump and modeled per tech. std. 1006)
- ☐ 8. Permeable Pavement (1008)
- ☐ 9. Shoreline Habitat Restoration for Developed Area (NR 154.04(29))
- ☐ 10. Streambank or Shoreline Protection (NR 154.04(31))
- ☐ 11 Accelerated or High-Efficiency Street Sweeper

Note: The cost of a high-efficiency street sweeper can be shared at 50% of the incremental difference between the cost of a new mechanical broom sweeper and the high-efficiency sweeper.

H. Project Description

Include a project narrative, site plan and conceptual drawings. Drawings are to include the project scope, key features and associated BMPs.

I. Project area photos (optional)

- ☐ 1. Labeled photographs of the proposed BMP location(s) are attached to this application.
- ☐ 2. Labeled photographs of the of pollution sources areas in the upstream watershed draining to the proposed BMP(s) are attached to this application.

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

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UNPS&SW Program - Construction Grant Application

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Part III. Screening Requirements**A. Maps and Photographs**

Attach the required maps and photographs and then check boxes 1 and 2 to indicate they are attached.

- ☐ 1. An 8.5" x 11" map of each proposed BMP location identified in Part II-A is attached. Each map shows the location of the proposed BMP(s) and its upstream drainage area; municipal limits; topographic contours; HUC 12 watershed boundaries; and major roads, including road names.
- ☐ 2. An 8.5" x 11" aerial photo of each proposed BMP location identified in Part II-A is attached. Each photo shows the location of the proposed BMP(s) and its upstream drainage area; municipal limits; HUC 12 watershed boundaries; and major roads, including road names.

B. Project Filters

The applicant must be able to check "Yes" to questions 1 through 12 below to be eligible for a grant. If any of these questions cannot be answered "Yes" and/or if required supporting documentation is omitted, the application will not be scored.

Yes

- ☐ 1. The project is in an urban area as identified in Attachment B.
- ☐ 2. The project will be completed within 24 months of the start of the grant period.
- ☐ 3. Staff and contractors designated (or selected) to work on this project have adequate training, knowledge and experience to implement the proposed project.
- ☐ 4. Staff or contractual services, in addition to those funded by this grant, will be provided if needed to complete all elements of the proposed project.
- ☐ 5. Best management practices constructed under this grant are consistent with non-agricultural performance standards under NR 151 (see Application Instructions - Attachments C&D).
- ☐ 6. The applicant will provide an operation and maintenance plan for the installed BMP with the final report.
- ☐ 7. The local DNR Nonpoint Source Coordinator has been contacted and all, of the topics in the below were discussed.

Name of DNR NPS Coordinator(s) Contacted	Date(s) Contacted	Subject(s) of Contact(s) (check all that apply)	
		☐ Project Eligibility	☐ Permits / Feasibility
		☐ Proposed BMPs	☐ Water Quality Need
		☐ Other	

Summarize your discussion(s) with your local DNR Nonpoint Source Coordinator(s) in the space below.

- ☐ 8. The applicant can declare that one of the two statements below (a or b) is TRUE.
- ☐ a. The applicant is not the University of Wisconsin Board of Regents.
- ☐ b. The applicant is the University of Wisconsin Board of Regents **and** the the grant is for practices, techniques or measures to control stormwater discharges on a University of Wisconsin System campus, located in a municipality that meets **both** of the following criteria:
- ☐ (i) the municipality is required to obtain a permit under subchapter I. of ch. NR 216;
AND
- ☐ (ii) the municipality is located either in a priority watershed or lake area identified under s. 281.65 Wis. Stats., or in an area of concern as identified by the International Joint Commission under the Great Lakes Water Quality Agreement.
- ☐ 9. Construction Site Erosion Control Ordinance: Local regulations are in place within the municipality or campus to administer and enforce construction erosion controls in the governmental unit consistent with the non-agricultural performance standards in s. NR 151.11.

Project Name: _____

UNPS&SW Program - Construction Grant Application

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- ☐ 10. Post-Construction Storm Water Management Ordinance: Local regulations are in place within the municipality or campus to administer and enforce post-construction runoff from areas of new development and re-development in the governmental unit consistent with the non-agricultural performance standards in s. NR 151.12.
- ☐ 11. The applicant can declare that one of the two statements below (a or b) is TRUE.
- ☐ a. This application is not a joint application among local units of government.
- ☐ b. This application is a joint application among local units of government and the required Inter-Governmental Agreement (IGA) is attached (see Attachment J).
- ☐ 12. The applicant can declare that one of the two statements below (a or b) is TRUE.
- ☐ a. The applicant does not currently have any existing Runoff Management Grants.
- ☐ b. The applicant currently has one or more existing, active Runoff Management Grants and the applicant hereby certifies that all such projects shall be completed within the applicable grant period for each.

**If the applicant is unable to answer "Yes" to any of the items in 1-12, above, stop here.
This project is ineligible.**

C. Location Filters

For each project location entered in Part II-A.1, answer the questions below for each location where the applicant intends to construct water quality BMPs under the proposed project. For each location, the applicant must be able to check "Yes" to questions 1 through 9 below to be eligible for a grant. If any of these questions cannot be answered "Yes" and/or if required supporting documentation is omitted, the application will not be scored.

Location**Yes**

- ☐ 1. Navigable Waters Determination: The applicant can declare that one of the two statements below (a or b) is TRUE.
- ☐ a. The proposed project will not install any urban storm water treatment practices.
- ☐ b. The proposed project will install one or more urban storm water treatment practice(s) and the applicant has determined that all such practices installed under this grant will not be located in any intermittent or perennial waterway, based on consulting the Surface Water Layer Theme of the DNR's Surface Water Data Viewer.
- ☐ 2. Wetlands Waters Determination: The applicant can declare that one of the five statements below (a, b, c, d or e) is TRUE. If checked, select the true statement below, and provide all information requested below for the selected choice.
- ☐ a. The proposed project will not install any urban storm water treatment practices.
- ☐ b. The proposed project will install urban storm water treatment practice(s) and the applicant has determined that all such practice(s) installed under this grant will not be located in any wetland, based on consulting the Wetlands & Wetland Indicators Layer Theme of the DNR's Surface Water Data Viewer.
- ☐ i. A map showing the location(s) of all urban storm water treatment practices that will be installed under propose project in relation to wetlands on the wetland indicators layer of the DNR's Surface Water Data Viewer is attached to this application.
- ☐ c. The proposed project will install urban storm water treatment practice(s) and the applicant has attached an approved wetland exemption for the proposed practices(s) at their proposed location(s) signed by a DNR Water Management Specialist or Wetland Identification Specialist.
- ☐ i. A copy of the wetland exemption is attached to this application.
- ☐ d. The proposed project will install urban storm water treatment practice(s) at a location where there is a potential for wetland presence. A wetland determination or delineation has been completed showing that none of the proposed treatment practices will encroach upon a wetland.
- ☐ i. Provide the name, e-mail and phone number of the wetland delineator.
- | | | |
|-------|--------|---------------|
| Name: | Email: | Phone Number: |
|-------|--------|---------------|
- ☐ ii. A copy of the wetland delineation is attached to this application

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

Project Name: _____

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- ☐ e. The proposed project will install one or more urban storm water treatment practice(s) at a location where there is a potential for wetland presence. A wetland determination or delineation will be completed and submitted to DNR by a qualified person in accordance with the DNR "Wetland Screening and Delineation Procedures Guidance", prior to commencing construction of treatment practices. The applicant hereby agrees not to begin construction on the proposed treatment practice(s) until after receiving DNR concurrence that the proposed practices will not be located in any wetland.
- ☐ i. A map showing the location(s) of all urban storm water treatment practices that will be installed under the proposed project in relation to the wetland indicators layer of the DNR's Surface Water Data Viewer is attached to this application.
- ☐ 3. Property Control: The applicant can declare that one of the five statements below (a, b, c, d or e) is TRUE. If checked, select the true statement below:
- ☐ a. The proposed project does not require that the applicant have control of any property.
- ☐ b. The proposed project requires that the applicant has control of the property, and the applicant currently owns the property.
- ☐ c. The proposed project requires that the applicant has control of the property, and the applicant currently has control of the property through an easement or a construction and maintenance agreement.
- ☐ i. Documentation of the easement or construction maintenance agreement is attached to this application.
- ☐ d. The proposed project requires that the applicant has control of the property, and the applicant has documentation stating that the current owner of the property is willing to enter into a construction and maintenance agreement with the grant applicant prior to the award of the grant.
- ☐ i. Documentation stating that the current owner of the property is willing to enter into a construction maintenance agreement prior to the award of grant is attached to this application.
- ☐ e. The proposed project requires that the applicant has control of the property, and the applicant proposes purchasing the property (fee title) or an interest in the property (easement), and the applicant has documentation that the sale will be completed prior to the award of the grant.
- ☐ i. Documentation that the applicant will acquire the proposed property prior to grant award such, as an option or offer to purchase, is attached to this application.

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

Project Name: _____

UNPS&SW Program - Construction Grant Application

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Part IV. Competitive Elements**Question 1. Fiscal Accountability****A. Timeline and Source of Staff**

For each applicable milestone listed below, fill in the appropriate data. Leave column 2 blank, and enter N/A in column 3 if the milestone is not applicable.

1 Milestone	2 Target Completion Date (month/year)	3 Source of Staff
Discuss project with DNR		
Get DNR approval of Professional Services Agreement		
Completion of design		
Get DNR approval of design		
Obtain required permits		
Bidding		
Contract signing		
BMP construction		
Site inspection and certification		
Project evaluation		
Purchase Street Sweeper		
Additional Milestones (list below)		

B. Financial Budget Table

Provide a detailed budget in this table for each proposed BMP and ancillary activity checked in Part II-G. Enter costs for associated Engineering Services (design, construction management and inspection) and Land Acquisition in rows ii and iv. The state share may not exceed 50% of eligible costs. The grant amount is capped at \$150,000 for the installation of eligible BMPs and at \$50,000 for land acquisition.

a. BMPs, ancillary and other eligible activities	b. Estimated Total Cost	c. Amount Eligible for DNR Cost Sharing (\$)		
i. Construction Subtotal				
ii. Engineering Services				
iii. Construction and Engineering Subtotal				
iv. Land Acquisition (Fee Title and Easement)				
v. Project Grand Total				
vi. Maximum Cost-Share Rate	a.	b.	c.	d.
	Eligible Costs	Max Cost-Share %	a x b	Maximum State Share
vii. Construction and Engineering	\$	50 %	\$	\$
viii. Land Acquisition (Fee Title and Easement)	\$	50 %	\$	\$
ix.	Total Maximum State Share			\$

C. State Share Request and Use of Additional Funding

1. Requested State Share (Grant Award) Amount	\$
2. Total Local Share Amount	\$
3. Local Share of Eligible Costs	\$
4. Effective State Cost-Share Rate	%

Check the boxes below if these conditions are met:

5. ☐ The requested state-share amount in row 1 is less than the total maximum state share (row ix.)
6. ☐ The requested state cost-share rate in row 4 is less than the cost-share rated in Part B, cells vi. and vii.
7. ☐ Points earned for additional funding
Up to a maximum of 10 points can be earned for 30% in row 4

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

Project Name: _____

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D. Method Used to Calculate Cost Estimates

Select the appropriate option and attached all required documentation.

- ☐ 1. Project costs are based on completed design and lowest competitive bid on the project.
- ☐ 2. Project costs are based on completed design with material unit costs and labor costs based on similar, recently bid projects.
- ☐ 3. Project costs are based on similar projects conducted locally (i.e., a nearby municipality in the same region of the state).
- ☐ 4. Project costs are based on similar projects conducted in a different region of the state.
- ☐ 5. Project costs are based on data less specific than the choices above.

E. Cost-Effectiveness

Provide answers to Parts E.1. and E.3. Answering Part E.2. and E.4. is optional.

1. TSS Removal Cost-Effectiveness

a. Describe the land use(s) comprising the BMP drainage area.

b. BMP drainage area size: _____ acres

c. Estimated percent impervious of BMP drainage area: _____ %

d. Estimated TSS pollutant load from impervious area within drainage area: _____ lbs/yr

e. Average annual TSS pollutant load removal efficiency of proposed project: _____ %

- ☐ i. TSS removal efficiency calculated based on modeling results attached to this application.
- ☐ ii. TSS removal efficiency estimated based on other methods described below.

f. Estimated construction cost of the project. _____

g. Estimate cost-effectiveness of project (cost per pound of pollutant removed per year).

Cost-effectiveness = $f / e \times d$

_____/lbs/yr

2. Describe factors other than cost-effectiveness, such as site feasibility, practicality and/or secondary environmental benefits that justify why the proposed management measure was selected for this site.

3. If one or more BMPs types or management measures were evaluated to address pollutant loads from the area served by the proposed BMP(s), describe why the current project was selected over the other alternatives.

Attachment: 2020 0305 8700-299 (9340 : Consider applying for WDNR Urban Nonpoint Source and SW Management Grant)

Project Name: _____

UNPS&SW Program - Construction Grant Application

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Question 2. Project Evaluation Strategy**A. Modeling and Measures of Change**

The applicant **must** agree to provide modeled results in the final project report submitted for the project and will provide their modeling and analysis to the storm water permit specialist responsible for their community. The project evaluation strategy will be based on comparing pre- and post-project changes in modeled pollutant loading to water resources or will be based on the quantity of units managed. Check all that apply in the table below.

	Priority for Developed Urban Area	Units of Measure	Recommended Measurement Method
☐	Reduction in Total Suspended Solids (TSS)	Pounds TSS reduced	SLAMM, P-8
		% TSS reduction	
☐	Reduction in Phosphorus	Pounds Phosphorus reduced	SLAMM, P-8
☐	Shoreline/Streambank Protection	Tons of shore/bank erosion reduced	NRCS bank erosion formula
		Feet of shore/bank protected	Sum
☐	Other (specify) _____		

B. Water Quality Monitoring (not eligible for cost sharing at this time)

If, in addition to modeling, the project evaluation strategy includes monitoring, select the statement 1, 2, or 3 that describes the intended monitoring strategy. If the project evaluation strategy does not include monitoring, select option 4 or 5. If 1, 2 or 3 is selected, answer questions 6 questions 7 (required to earn points for this question).

Yes

- ☐ 1. The project will monitor BMP pollution reduction effectiveness (e.g., inlet/outlet monitoring).
- ☐ 2. The project will monitor the in-stream physical habitat, fisheries, biological, or chemical conditions.
- ☐ 3. The project will monitor BOTH BMP effectiveness AND one or more of the following: in-stream physical habitat, fisheries, biological, or chemical conditions.
- ☐ 4. The applicant is willing to participate with the Department to do monitoring in the project area should funding become available.
- ☐ 5. None of the above.

Question 3. Water Quality Need & Drinking Water Bonus

For each HUC 12 served by a proposed BMP, the project must be consistent with at least one of the water quality need categories and the primary water resource addressed by the project. See the instructions for category definitions and scoring information. Identify the water quality need for each HUC12 included in the project area by answering the questions below.

1. Water Quality Need in the HUC 12:

- A. Primary water resource addressed by project in the above-listed HUC 12:**
- B. Select the one category which best identifies the water quality need which the project directly addresses.**
- C. Select the primary pollutant.**
- D. Select the primary pollutant(s) that the project will address.**

Question 4. Drinking Water Bonus

Columns (1), (2), and (3), of the table below are automatically populated with the name of each HUC 12 in the project area, the water resource type addressed in that HUC 12 (ground or surface water) and the percent of the project area in each HUC 12, respectively.

For each HUC 12 in the project area, determine whether the project's water quality goals relate to the reduction of nonpoint source contaminants in community or non-community public drinking water supplies. If so, select the applicable drinking water bonus category in column (4) of the table. Column (4) will automatically populate with appropriate answer options depending on the water resource type (ground or surface water) addressed by the project in each HUC 12.

This includes any of the following: Municipal water supplies governed by chs. NR 809 and 811; Other-Than-Municipal (OTM) water supplies governed by chs. 809 and 811; Non-Transient water supplies governed by chs. NR 809 and 812; Transient water supplies governed by chs. NR 809 and 812.

(1)	(2)	(3)
HUC 12 Name	Water Resource Type Addressed	Drinking Water Bonus Category

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Question 5. Extent of Pollution Control

Select category A., B., or C. to identify the pollutant control goal of the proposed project and provide all requested information for the selected category.

A. Ch. NR 151 Performance Standard for Total Suspended Solids

- ☐ The project will make progress toward achieving compliance with the 20 percent reduction in total suspended solids (TSS) performance standard in NR 151.13(2)(b)1. to reduce TSS carried in storm water runoff from existing developed urban areas to waters of the state, as required under municipal separate storm sewer system (MS4) permit issued pursuant to NR 216.

B. Total Maximum Daily Load Allocations

- ☐ The project will make progress toward achieving compliance with the storm water wasteload allocation or meeting the storm water load allocation in an EPA approved TMDL to reduce pollutant(s) of concern carried in storm water runoff from existing developed urban areas to waters of the state. (Note: Check only if reduction in storm water allocation is assigned in the TMDL. This category does not apply to streambank or shoreline restoration projects.)

C. Other Water Resources Management Priority

- ☐ The project addresses a water resources management priority other than the NR 151 performance standard in category A. or the TMDL requirements in category B.

D. Planning Data And Source Targeting

- ☐ Check this box if the applicant has local (non-state) quantitative planning information (such as a municipal storm water management plan) that ranks pollutant load generation from urban drainage areas from highest to lowest in severity and the proposed project will manage pollutant loading from an area in the top 50% of the ranked list. If checked, provide the information required in a, b, and c below.

Question 6. Evidence of Local Support**A. Budget**

Check the situation that exists at the time of application and attach and fill in the required supporting information. Check all that apply.

- ☐ 1. Adopted budget: Some or all of the local-share funds for this project are already specifically included within the municipal governing body's operating budget or within the utility board's utility district budget and the adopted budget covers the years of the grant period. A copy of the adopted budget document(s) is/are attached to this application, and the amount budgeted and date(s) of adoption are listed in the table below.

<u>Adopted Budget Document</u>	<u>Amount Budgeted</u>	<u>Date of Adoption</u>
_____	\$ _____	_____
_____	\$ _____	_____
_____	\$ _____	_____
Total	\$ _____	

- ☐ 2. The municipality or utility has included some or all of the local-share funds for this project within its adopted capital improvement plan (CIP). A copy of the adopted CIP budget(s) is/are attached to this application, and the amount(s) budgeted and date(s) of anticipated adoption are listed in the table below.

<u>Capital Budget Document</u>	<u>Amount Budgeted</u>	<u>Date of Adoption</u>
_____	\$ _____	_____
_____	\$ _____	_____
_____	\$ _____	_____
Total	\$ _____	

- ☐ 3. Some or all of the local-share funds for this project not specifically included in an adopted budget, are included in one or more proposed budget(s) attached to this application, and the amount(s) budgeted and date(s) of anticipated adoption are listed in the table below.

<u>Proposed Budget Document</u>	<u>Amount Budgeted</u>	<u>Date of Adoption</u>
_____	\$ _____	_____
_____	\$ _____	_____
_____	\$ _____	_____
Total	\$ _____	

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- ☐ 4. Some or all of the local-share funds for this project not specifically included in an adopted or proposed budget, will be provided by another non-state funding source. These other funding source(s), and their anticipated amounts are listed in the table below.

Funding Source	Amount
_____	\$ _____
_____	\$ _____
_____	\$ _____
Total	\$ _____

5. Total local share amount included in an adopted or proposed budget:

\$ _____

6. Local share amount entered in Question 6C.3:

\$ _____

The amounts shown on lines 5 and 6 (above) should be equal. If the full amount of local share will not be provided, the project is ineligible.

B. Public Information

Select the true statement below and attach the required supporting information.

- ☐ 1. The applicant has already conducted public outreach activities about the proposed project with property owners in the immediate project area and evidence of this public outreach is attached to this application.
- ☐ 2. This project has been discussed at a governmental meeting open to the public and the information about this meeting, including date/time, location, participant names, and discussion summary are attached to this application.

Question 7. Consistency with Local Resource Management Plans

Yes

- ☐ A. Check this box if the proposed project implements a water quality recommendation from a locally approved resource management plan less than ten years old, other than a TMDL report, TMDL implementation plan, or County Land and Water Resource Management Plan.

Question 8. Supporting Regulations

Check all that apply to this project and provide the required information for each checked item.

A. Developed Urban Area Ordinances

- ☐ The project is located within an area which has one or more regulations that implement the nonagricultural performance standards for existing developed urban areas under s. NR 151.13.

B. New Development Area Ordinances

- ☐ The project is located within an area which has other regulations designed to reduce the impact on water quality from new development other than a construction site erosion control or a post-construction storm water ordinance.

Question 9. City of Racine

Yes

- ☐ A. Check this box if this is an application from the City of Racine for a project that is necessary for the city to comply with state storm water permitting requirements.

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Part V. Eligibility for Local Enforcement Multiplier

Completion of this part of the application is optional. However, an applicant can increase the final project score by qualifying for a project multiplier. To qualify, an applicant must be able to answer "yes" to A, B, and C and provide all requested supporting information.

Select all of the activities that are in place and being implemented as of the application submittal date and provide the required documentation if A, B and/or C is checked.

Yes

- ☐ A. The governmental unit is implementing a pollution prevention information and education program targeted for property owners and other resident and electronic copies of items 1 and 2 below are attached to this application.
- ☐ 1. A summary of program activities and accomplishments during the past 2 years.
- ☐ 2. Examples of outreach materials utilized by the program during the last two years.
- ☐ B. The governmental unit is tracking storm water permitting activity (construction and post-construction) in the governmental unit and an electronic copy of summary information from the last two years is attached to this application.
- ☐ C. The governmental unit is implementing a nutrient management plan for municipally-owned pervious areas of pervious area where nutrients are applied and electronic copies of items 1 and 2 below are attached to this application.
- ☐ 1. Labeled map of all municipally owned pervious areas located in the project area.
- ☐ 2. Nutrient management plan for each municipally-owned pervious area.

Optional Consultant Contact

If the applicant would like a consultant to be copied on correspondence regarding this grant application, enter consultant contact information in the space below.

Consultant Name	Consultant Firm Name
E-Mail Address	Area Code + Phone Number

Optional Additional Information

Carefully review your answers to all of the questions above. Is there additional information that will add to the department's understanding of this project? If so, describe here.

Applicant Certification

A Responsible Government Official (authorized signatory) must sign and date the application form prior to submittal to the DNR. The governmental official with signatory authority must be the person authorized by the Governmental Responsibility Resolution. I certify that, to the best of my knowledge, the information contained in this application and attachments is correct and true.

Signature of Responsible Government Official	Date Signed
Name (please print)	Title

- ☐ The required, completed Governmental Responsibility Resolution (GRR) signed in blue ink (see Attachment I) is attached. Authorized signatory must be approved in the GRR.

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Please use this page to write any constructive comment(s) you might have to improve this application.

Thank you.

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Submittal Directions

To be considered for funding, provide the following for each application submitted:

- One copy of the completed application form (DNR Form 8700-299) with **original signature**, and all attachments.
- Electronic copies of each of the following on CD or flash drive: completed application form (this saved application form) in live PDF format; scanned PDFs of application with signature in blue ink; and PDFs of all maps and attachments.

All application materials must be postmarked and mailed by midnight **April 15 of the calendar year prior to the grant start year**.
(April 16, if the 15th falls on Sunday or April 17 if the 15th falls on a Saturday).

Send to: USPS

Department of Natural Resources
Attn: Runoff Management Grant Coordinator WT/3
P.O. Box 7921
Madison, WI 53707-7921

or**Other delivery service**

Department of Natural Resources
Attn: Runoff Management Grant Coordinator WT/3
101 South Webster Street
Madison, WI 53703

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