



11333 N. Cedarburg Road
Mequon, WI 53092
Phone: 262-236-2913
Fax: 262-242-1580

www.ci.mequon.wi.us

Water Utility

MEQUON MUNICIPAL WATER UTILITY COMMISSION

Regular Meeting

**Tuesday, June 14, 2022 7:15 PM
or Immediately Following the
Committee of the Whole Meeting
Christine Nuernberg Hall**

Agenda

- 1) Call to Order, Roll Call
- 2) Approval of Meeting Minutes
Action requested: review and approve
 - a. May 10, 2022 Minutes
- 3) Discussion and Possible Action
 - a. Exemption Request from Water Connection Policy for 5000 West Mequon Road (Homestead High School)
 - b. Request from the Village of River Hills for Municipal Water Service
- 4) Adjourn

Dated: June 14, 2022

/s/ Andrew Nerbun, Chair

Notice is hereby given that a quorum of other governmental bodies may be present at this meeting to present, discuss and/or gather information about a subject over which they have decision-making responsibility, although they will not take formal action thereto at this meeting.

Persons with disabilities requiring accommodations for attendance at this meeting should contact the City Clerk's Office at 262-236-2914, twenty-four (24) hours in advance of the meeting.

Any questions regarding this agenda may be directed to the Public Works Office at 262-236-2913, Monday through Friday, 7:00 AM - 3:30 PM.



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Water Utility

MEQUON MUNICIPAL WATER UTILITY COMMISSION

Regular Meeting

Tuesday, May 10, 2022

7:30 PM

Christine Nuernberg Hall

Minutes

1) Call to Order, Roll Call

Commissioner Nerbun called the meeting to order at 7:33 PM.

Present:

Commissioner Andrew Nerbun
 Commissioner Glenn Bushee
 Commissioner Mark Gierl
 Commissioner Jeffrey Hansher
 Commissioner Dale Mayr
 Commissioner Brian Parrish
 Commissioner Kathleen Schneider
 Commissioner Robert Strzelczyk
 Vacant Seat

Also present were City Administrator Jones, City Attorney Sajdak, City Clerk Fochs, Finance Director Engroff, Director of Public Works/City Engineer Lundeen, Deputy Director of Public Works Weyker, Deputy Director of Utilities Driscoll, Water Utility/City Water LLC Director of Operations Voigt.

2) Approval of Meeting Minutes

a. April 12, 2022 Minutes

RESULT: **Approved [Unanimous]**

MOVED BY: Commissioner Mayr

SECONDED BY: Commissioner Parrish

Attachment: 05-10-22 Mins_Water Utility District Commission (7377 : May 10, 2022 Minutes)

AYES: Nerbun, Bushee, Gierl, Hansher, Mayr, Parrish, Schneider, Strzelczyk
DEEMED NO: Seat

3) Action Items

Discussion and Action

- a. Request for Second Connection to Milwaukee Water Works
- b. Motion to Approve a request for a second connection to Milwaukee Water Works.

Mequon Water Utility/City Water LLC Director of Operations Voigt stated that when We Energies originally negotiated the Contract with Milwaukee Water Works, 25 years ago, there was the initial connection point to MWW and that where MWU currently operates. The MWU connection point to MWW is located at County Line Road and 76th Street/Wauwatosa Road, but the agreement included the option for a second connection point at N. 107th Street/Granville Road due to proximity of industrial park and capacity. Currently, the Mequon Water Utility has facilities closer to N. 91st Street/Swan Road and County Line Road. Staff requested WUC to approve staff's request to send a letter to Milwaukee Water Works to ask MWW to update the agreement for a second connection from MWU at either N. 107th Street/Granville Road or N. 91st Street/Swan Road because it allows the MWU options and ability to pick either point as our second connection point.

Commissioner Mayr inquired without the additional 83 units for the proposed Swan Farm Fields subdivision development, and if the Utility would still be requesting this that location or just if we need it now.

Mequon Water Utility/City Water LLC Director of Operations Voigt responded yes, that the N. 91st Street/Swan Road connection at County Line Road is much closer, approximately one mile, to the existing MWU mains/facilities. In addition, he also added that the MWU is getting close to needing a second connection for required system pressures.

RESULT: **Approved by Voice Acclamation [Unanimous]**

MOVED BY: Commissioner Mayr

SECONDED BY: Commissioner Hansher

AYES: Nerbun, Bushee, Gierl, Hansher, Mayr, Parrish, Schneider, Strzelczyk
DEEMED NO: Seat

Attachment: 05-10-22 Mins_Water Utility District Commission (7377 : May 10, 2022 Minutes)

4) Adjourn

a. Motion to Adjourn at 7:37 PM.

RESULT: **Approved by Voice Acclamation [Unanimous]****MOVED BY:** Commissioner Bushee**SECONDED BY:** Commissioner Schneider**AYES:** Nerbun, Bushee, Gierl, Hansher, Mayr, Parrish, Schneider, Strzelczyk**DEEMED NO:** Seat

Respectfully Submitted,

*Casey Deuster**Administrative Assistant*

Attachment: 05-10-22 Mins_Water Utility District Commission (7377 : May 10, 2022 Minutes)



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www.ci.mequon.wi.us

Office of Mequon Municipal Water Utility Commission

TO: Mequon Municipal Water Utility Commission
FROM: Kevin Driscoll, Deputy Director of Utilities
DATE: June 6, 2022
SUBJECT: Exemption Request from Water Connection Policy for 5000 West Mequon Road (Homestead High School)

Background

The Mequon Thiensville School District (MTSD) has completed facility improvements and is planning additional work to connect Homestead High School to public water infrastructure. Service to the school requires a water main extension to Homestead High School at 5000 West Mequon Road. As stated in Section XI of the Water Connection Policy, the applicant is required to extend the water main along the entire parcel frontage.

On May 17, 2022, MTSD transmitted an application to be exempt from extending water main along the entire parcel frontage. See Exhibit B and reference this policy at <https://www.ci.mequon.wi.us/utilities/page/water-connection-policy>.

Analysis

The proposed water main connection point by the MTSD for Homestead High School is on the east side of their development. The MTSD plans to construct approximately 1400 feet from the existing water main in River Road to the Homestead High School parcel. See Exhibit C.

Section XI of the Water Connection Policy requires water main extension along the entire parcel frontage. In this case on Mequon Road, that would be an additional 1200 feet of water main. That water main would extend to Eastgate Drive, and dead-end near the Mequon Country Estates subdivision. MWU staff has not received any requests or interest to service the Mequon Country Estates subdivision or River Trail Estates to the south. Both subdivisions are served by private systems. Also, in the 2017 Mequon Water Utility Master Plan, no water main extension was identified along Mequon Road crossing the Milwaukee River.

In this case, without customers, the utility would need to flush that dead-end main to maintain water quality. That extension was not included in the system plan, a dead-end would not benefit the utility, and it is anticipated that segment would be an un-used asset and potential liability.

Fiscal Impact

Staff time to flush a dead-end main will be avoided. Water lost due to flushing what would be a dead-end main would also be avoided. There are no anticipated customers to the west, therefore no anticipated loss in revenue. Adding Homestead High School as a customer will bring additional revenue to the Utility.

Recommendation

Staff recommends the approval of this exemption to extend watermain along the entire frontage of the MTSD property on Mequon Road.

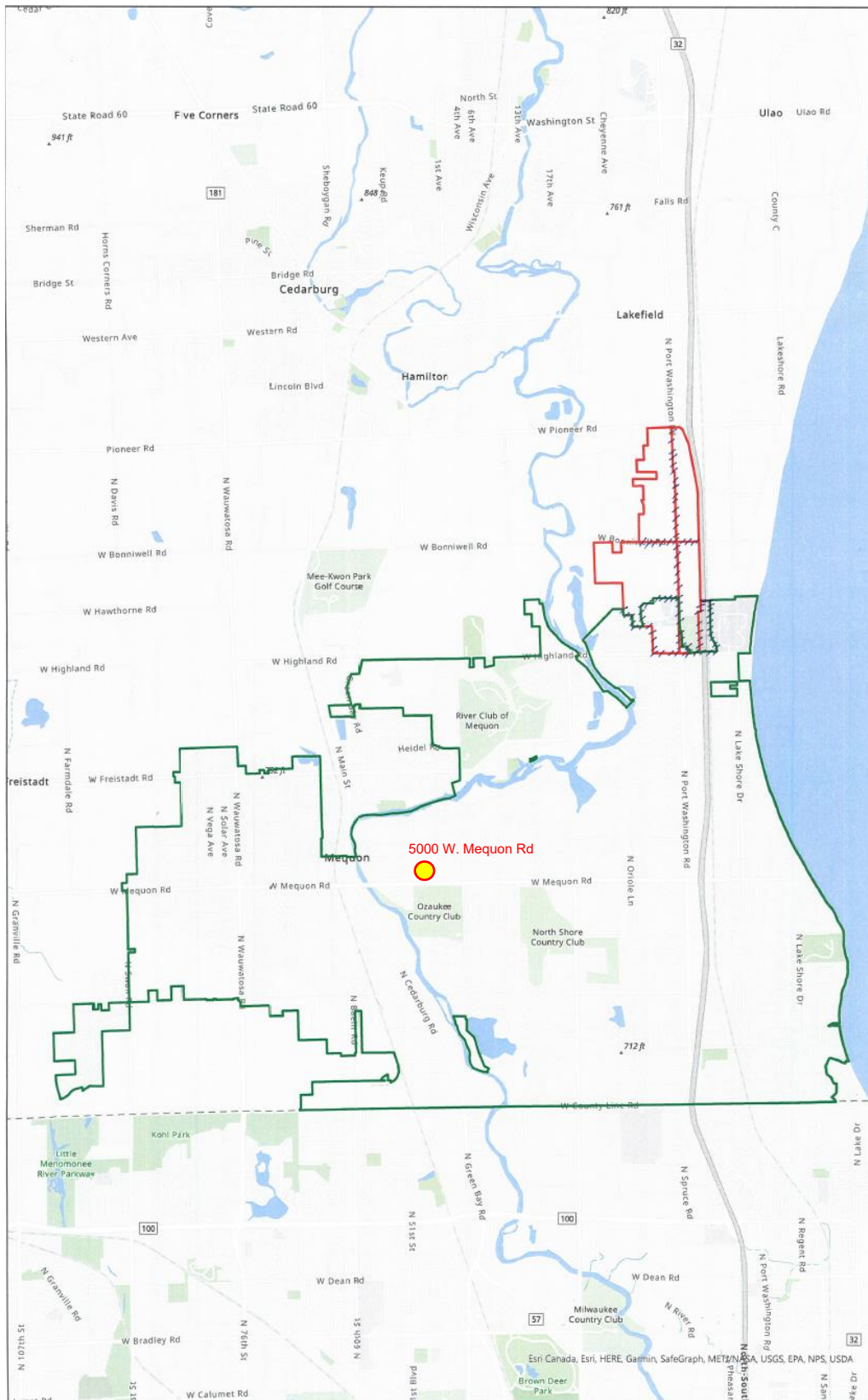
Attachments:

Exhibit A - Map of MWU User Service Area (PDF)

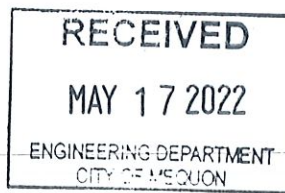
Exhibit B - Cover Letter & Exemption Application (PDF)

Exhibit C - HHS Water Main Extension and Exemption (PDF)

Mequon Water Utility User Service Area



Attachment: Exhibit A - Map of MWU User Service Area (7361 : Application for Exemption to Water Connection Policy for 5000 W. Mequon



3.a.b

7711 N. Port Washington Road
Milwaukee, WI 53217
T: 414.751.7200 • F: 414.351.4117

May 11th, 2022

Mequon Water Utility
1133 North Cedarburg Road
Mequon, WI 53092

Re: Homestead High School - Mequon Water Connection Policy Exemption Request

On behalf of Mequon-Thiensville School District, Kapur is writing this narrative to request exemption to the City of Mequon Water Connection Policy section XI.B adopted April 12th, 2022.

The district currently serves the existing Homestead High School site located at 5000 Mequon Road with the use of an on-site private water well. As part of the 2020 spring referendum, the district planned to abandon and remove the existing private water well and connect the on-site facilities to the City of Mequon public water system. The closest public transmission water main to the Homestead High School property is located at the intersection of West Mequon Road (STH 57) and North River Road. The existing transmission water main is a 12" and would be approximately 1,500 feet from the intended lateral location to serve Homestead High School. If the district were to follow the Water Connection Policy and extend the public transmission water main to the end of the subject property, it would require an additional 1,200 feet of main in addition to the 1,500 feet needed for lateral connection.

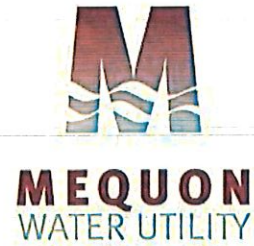
Therefore, the district is requesting exemption from the City of Mequon Water Connection Policy section XI.B requiring installation of public transmission water main to the properties end.

Sincerely,

Ryan Birschbach, P.E.



NO EXISTING CONNECTION
APPLICATION FOR DEFERRAL/EXEMPTION



Application Type:

☐ Deferral ☐ Exemption from: ☐ Connection ☐ Minimum Fire Flow ☒ Extension along property line

Name: Kyle Thompson Telephone: 262-238-5850

Property Address: 5000 West Mequon Road
Mequon, WI 53092

Email Address: kthompson@mtsd.k12.wi.us

Subdivision / Development: Homestead High School Lot #

Tax Key #: 14-023-14-000

Mailing Address: (if different than property address)

For Deferrals:

Check all items that apply:

- ☐ Properties where connection is required by the Water Connection Policy. If no connection is required, there is also not a deferral required.
- ☐ Property is located more than 200 feet from public water infrastructure, where infrastructure is intended in the future (additional information is required).
- ☐ Property or development does not qualify for a deferral under the Water Connection Policy, but the applicant seeks to request a deferral. Applications will be placed on a Water Utility Commission meeting agenda within 90 days of receipt (additional information is required).

For Exemptions to Connection:

Check all items that apply:

- ☐ Properties where connection is required by Water Connection Policy. If no connection is required, there is also not an exemption required for connection.
- ☐ Construction of residential or business structures on a lot located more than 200 feet from public water infrastructure, where infrastructure is not intended in the future.
- ☐ Water connection is not legally possible (additional information is required).
- ☐ Water connection is not practicable (additional information is required).
- ☐ If a property or development does not qualify for an exemption under the Water Connection Policy, but the applicant seeks to request an exemption. Applications will be placed on a Water Utility Commission meeting agenda within 90 days of receipt (additional information is required).

Attachment: Exhibit B - Cover Letter & Exemption Application (7361 : Application for Exemption to Water Connection Policy for 5000 W.

For Office Use Only

- ☐ Request meets the Terms of the Water Connection Policy and staff is authorized to issue a Deferral Agreement or Exemption Agreement for execution
- ☐ Request does not meet the Terms of the Water Connection Policy and requires Water Utility Commission consideration

Date: _____

Utility Manager Signature**Applicant to fill in Additional Information:****Deferral**

- ☐ Distance from nearest public water infrastructure
- ☐ Narrative with justification for a deferred connection; where the connection is not feasible or practical at this time, but would be in the future

Exemption***TO CONNECTION***

- ☐ Distance from nearest public water infrastructure
- ☐ Legal or physical obstructions to connection

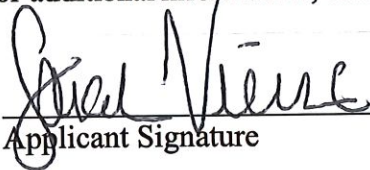
TO MINIMUM FIRE FLOW REQUIREMENTS

- ☐ Identification of limits to meeting minimum fire flow requirements
- ☐ Identification of any infrastructure improvements required to meet minimum fire flow requirements

TO EXTENSION ALONG THE PROPERTY LINE

- ☒ Narrative with justification for request for exemption to the requirement

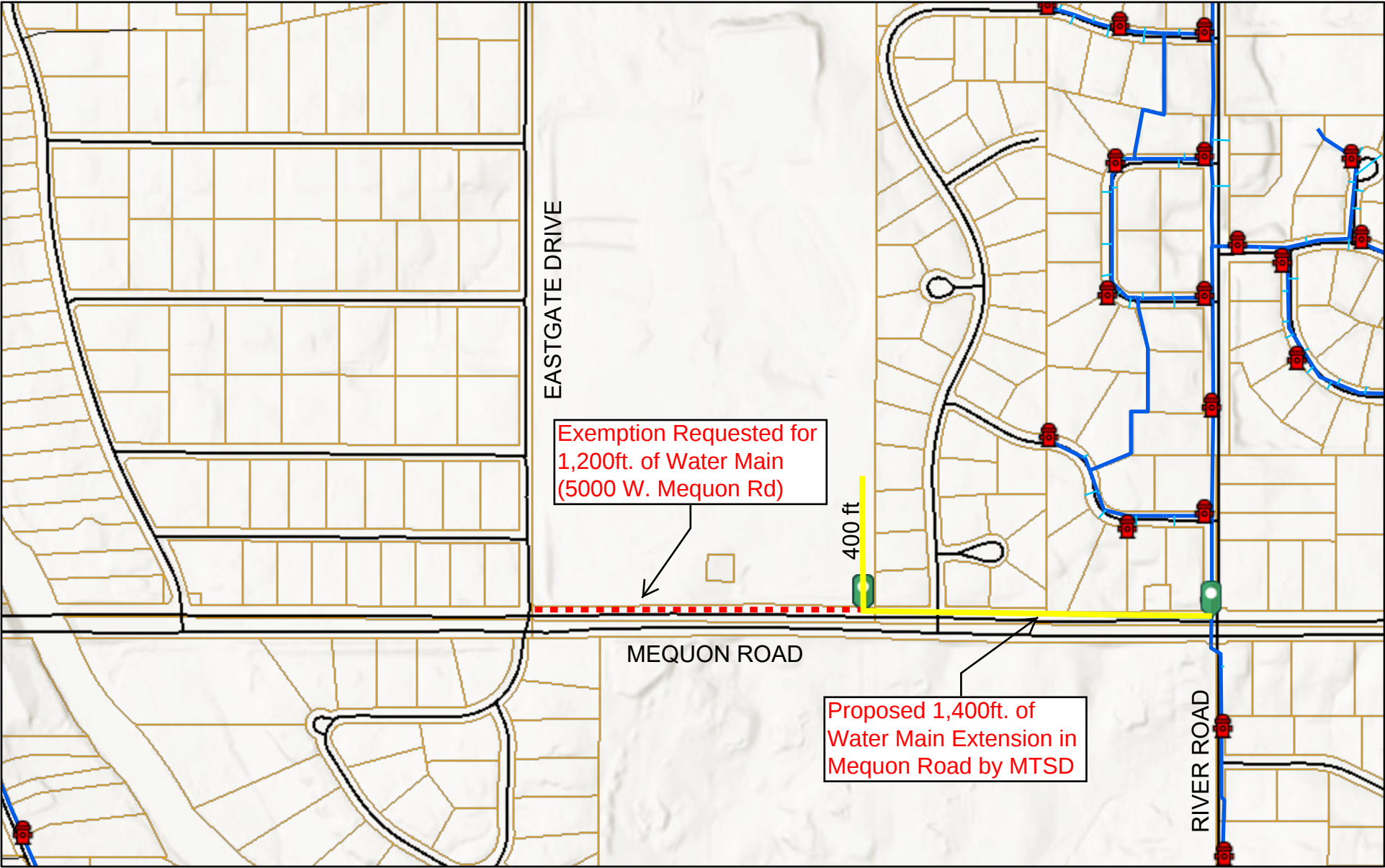
For additional information, call Mequon Water Utility at 262.236.8150



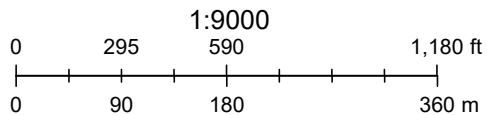
 Applicant Signature
Date 5/17/2022

Return the completed application via email, mail, or deliver in person to the Mequon Water Utility.
 Application is void if incomplete or altered.

Mequon Water Utility
 11333 N. Cedarburg Rd.
 Mequon, WI 53092
mequonwater@ci.mequon.wi.us



- Hydrants
- Water Pipes
- Hydrant Lead
- Lateral
- Main
- Parcels
- Road Reservation
- Road Right-of-Way
- Condominium
- Gap
- Overlap
- Tax Parcel
- Local Roads
- Private Road
- Town/Public Road
- Highways
- US Highway



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA,

Attachment: Exhibit C - HHS Water Main Extension and Exemption (7361 : Application for Exemption to



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www.ci.mequon.wi.us

Office of Public Works

TO: Mequon Municipal Water Utility Commission
FROM: Kristen Lundeen, Director of Public Works/City Engineer
DATE: June 14, 2022
SUBJECT: Request from the Village of River Hills for Municipal Water Service

Background

In December, the Mequon Water Utility (MWU) received a request from the Village of River Hills for municipal water service for a proposed residential development. At the January meeting, the Water Utility Commission (WUC) discussed and provided feedback requesting additional information provided alongside the Water Connection Policy. In mid-January, MWU staff sent a memo to River Hills outlining the additional information required for further consideration. Please see the attached information.

The Water Connection Policy was approved in April and provided to River Hills. Subsequently, River Hills submitted a letter of interest from University School Milwaukee, an alternatives analysis for connection and a letter of request per the Water Connection Policy. Please see the attached information.

The item is before the WUC for further consideration. If based upon the information provided, the WUC is interested in further considering extending municipal water services to River Hills, the meeting is the opportunity to generate a list of additional items required for consideration and identify a list of conditions that would be incorporated into an Intergovernmental Agreement and/or Water Services Agreement. A preliminary list is attached, based upon MWU staff and initial responses from Commissioners. At the meeting, the Commissioners may identify additional items to be added to the list.

If the WUC is not interested in further considering an extension of public water infrastructure, it should clearly indicate such to the Village of River Hills. Based upon the attached letter, River Hills is depending on the decision to move forward with the proposed development and needs to understand the parameters for water service.

Analysis

The Village of River Hills completed an analysis of the alternatives for connection, which is attached. MWU staff then completed a technical review of that analysis, which is also attached. Both parties agree that Alternate 3 is the viable alternative to consider moving forward. MWU staff included a number of items in the attached list that are required if the request is incorporated into an Intergovernmental Agreement or Water Services Agreement.

Fiscal Impact

The Village of River Hills provided a financial analysis, which is included in the attachments. In the list of further considerations, MWU staff identified additional information required. The goal of the analysis is to determine the net impact of the proposed connection on existing rate payers.

Recommendation

Staff recommends that the WUC decide whether the request should move forward for consideration and further identify any terms and conditions that should be included in the Intergovernmental Agreement and Water Services Agreement.

Attachments:

MWU Staff Memo to River Hills (1.18.22) (PDF)
River Hills Response Letter (3.15.22) (PDF)
MWU Connection Alternatives Analysis (5.9.22) (PDF)
River Hills Request (5.27.22) (PDF)
Letter of Interest - USM (5.23.22) (PDF)
City Water Technical Review Memo (PDF)
MWU List for IGA & WSA (PDF)



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ENGINEERING DIVISION

MEMORANDUM

TO: Mustafa Emir, Clark Dietz

FROM: Kristen Lundeen, Director of Public Works / City Engineer
 Jim Voigt, Director of Operations
 Kevin Driscoll, Deputy Director of Utilities

DATE: January 14, 2022

SUBJECT: River Hills Request for Connection to Mequon Water Utility

On January 11, 2022, the Mequon Municipal Water Utility Commission met to discuss the request from the Village of River Hills for extension of municipal water. The Commission agreed to consider the request, but requires additional data, information, and analysis prior to rendering a final decision. Please review the staff memo that was generated for the meeting and submit a memo addressing the concerns identified in the report. In addition to the concerns identified from staff, several Commissioners identified the need for additional submittals:

- Coordinate with the University School of Milwaukee (USM) to advocate for connection as a part of the proposed project. If USM determines it would connect, please revise the request for municipal water service to include both the proposed development and USM.
- Submit a pro-forma for the eventual replacement of the infrastructure, based upon the proposed connections, and utilize utility billing data to determine whether the system is self-funding, or whether it is ultimately subsidized by existing rate payers. You may contact Jim Voigt to coordinate for existing utility rates and billing information.
- Clarify whether the Village of River Hills intends to serve additional areas with municipal water in the future.
- Confirm the Village's commitment to connect to municipal water if approved, which would be ratified in an Intergovernmental Agreement.
- Acknowledge that the Mequon Water Utility is a build and contribute utility, where all initial infrastructure costs, including any required upgrades to the existing system required by this development, are paid for by the applicant. Confirm willingness as the applicant to fund those expenses, which would be ratified in an Intergovernmental Agreement.
- Agree that all parties connected to the system would become Mequon Water Utility customers, but that any unpaid utility bills would be added to the Village of River Hills tax

Attachment: MWU Staff Memo to River Hills (1.18.22) (7430 : River Hills Request for Service)

roll, with payment to the Mequon Water Utility upon collection, which would be ratified in an Intergovernmental Agreement.

While generating the data requested above, Jim Voigt from City Water will provide the water infrastructure modeling. Please begin to evaluate the infrastructure requirements to provide proper fire flow to the development. In general, recommended fire flows should be set at 1,000 gpm for residential developments and 2,500 gpm for commercial/industrial developments. Please note that accomplishing the required fire flow could require a booster station, looping the system back to a second Mequon Water Utility water main connection, or other infrastructure.

Please also provide the analysis for the turnover rate of the water in the system. If ultimately designed as a dead end main and not looped, the Utility may require an automatic flushing device if proper water turnover is not provided by the development itself.

While not intended to be full construction plans, both the Mequon Water Utility and the Village of River Hills should know and understand the infrastructure requirements before considering an agreement for design/construction.

Please provide the information no later than February 21. City staff is required to submit the information for packets, which would include a staff memo based upon the information provided, on February 28. The intent would be for the Water Utility Commission to review at its March 8 meeting.

As noted, Mequon Water Utility staff will concurrently draft the Water Connection Policy. As the policy has not yet been reviewed or approved, the process for approval may be impacted by the policy discussion. The Water Connection Policy was last discussed at the October 28 Water Utility Commission meeting. Please consider reviewing the meeting packet minutes and video, available on the City's website (<https://mequoncitywi.iqm2.com/Citizens/FileOpen.aspx>). That information should provide the context for this application.

If the Commission ultimately determines that it would approve the request for service, the process for implementation would be as follows:

- ☐ Milwaukee Water Works approval
- ☐ Public Service Commission approval
- ☐ Water Utility Commission approval of the Intergovernmental Agreement (IGA)

Examples of previous IGAs with the Village of Thiensville and the Village of Bayside will be provided as reference. Please note that the IGA will address both the Mequon Water Utility's willingness to serve, and any limits or conditions of service, as prescribed by the Water Utility Commission.

- ☐ Water Utility Commission approval of the Water Services Agreement (WSA)

The WSA outlines the requirements for construction. This would include evidence of all easements required to construct the infrastructure. As a build and contribute utility, all initial costs for easement acquisition and infrastructure construction are the responsibility of the applicant.

☐ Water Utility Approval of Infrastructure Plans

All of the following must be submitted/reviewed/approved prior to receipt of Water Utility Approval:

- ☐ Submittal of Water plans
- ☐ Water Utility Approval
- ☐ Owner Approval Letter
- ☐ Submittal to WDNR
- ☐ WDNR Approval
- ☐ Submittal of Water Easement
- ☐ City Attorney Approval of Water Easement
- ☐ Developer Executed Water Easement

☐ Final Punchlist

- ☐ Clean Water Test
- ☐ Completion of Staff Punchlist Items

☐ Record Drawings – Water

- ☐ Submittal of Record Drawings
- ☐ Engineering Approval of Record Drawings
- ☐ Upon Completion of Review Comments, Applicant Shall Provide:
 - ☐ .pdf of all Record Drawings
 - ☐ AutoCAD file of all Record Drawings
 - ☐ Signed, stamped Hard Copy of all Record Drawings

☐ Project Closeout

- ☐ Design Engineer Notice of Completion
- ☐ Submittal of Lien Waivers from all Contractors for Public Improvements
- ☐ Transfer of Title – Water
- ☐ Contributed Capital Form
- ☐ Payment of all invoicing
- ☐ City-issued Project Closeout Letter



March 15, 2022

Kristen Lundeen
Director of Public Works, City Engineer
City of Mequon
11333 N Cedarburg Rd.
Mequon, WI 53092

Re: River Hills Request for Connection to Mequon Water Utility

Dear : Ms. Lundeen

Clark Dietz and the Village of River Hills have reviewed the requested submittals and the memo from City staff dated January 14, 2022. Responses are provided below each bullet point.

- Coordinate with the University School of Milwaukee (USM) to advocate for connection as a part of the proposed project. If USM determines it would connect, please revise the request for municipal water service to include both the proposed development and USM.

Response: Clark Dietz and the Village met with USM's consultant engineer: Brent Pitcher, GRAEF. USM has confirmed interest in connecting into municipal water. The school would need understanding of connection costs, rates, etc.

- Submit a pro-forma for the eventual replacement of the infrastructure, based upon the proposed connections, and utilize utility billing data to determine whether the system is self-funding, or whether it is ultimately subsidized by existing rate payers. You may contact Jim Voigt to coordinate for existing utility rates and billing information.

Response: Clark Dietz has requested an example or a template pro-forma from the City. Jim Voigt has provided the MWU Rate Files.

- Clarify whether the Village of River Hills intends to serve additional areas with municipal water in the future.

Response: The Village does not intend to serve additional areas with municipal water, only the development. The option to connect will be provided to any property along the watermain route.

- Confirm the Village's commitment to connect to municipal water if approved, which would be ratified in an Intergovernmental Agreement.

Response: Confirmed



- Acknowledge that the Mequon Water Utility is a build and contribute utility, where all initial infrastructure costs, including any required upgrades to the existing system required by this development, are paid for by the applicant. Confirm willingness as the applicant to fund those expenses, which would be ratified in an Intergovernmental Agreement.

Response: The Village acknowledges that Mequon Water Utility is a build and contribute utility, where all initial infrastructure costs, including any required upgrades to the existing system required by this development, are paid for by the applicant. The Village confirms willingness as the applicant to fund those expenses, which would be ratified in an Intergovernmental Agreement.

- Agree that all parties connected to the system would become Mequon Water Utility customers, but that any unpaid utility bills would be added to the Village of River Hills tax roll, with payment to the Mequon Water Utility upon collection, which would be ratified in an Intergovernmental Agreement.

Response: The Village agrees that all parties connected to the system would become Mequon Water Utility customers, but that any unpaid utility bills would be added to the Village of River Hills tax roll, with payment to the Mequon Water Utility upon collection, which would be ratified in an Intergovernmental Agreement.

- While generating the data requested above, Jim Voigt from City Water will provide the water infrastructure modeling. Please begin to evaluate the infrastructure requirements to provide proper fire flow to the development. In general, recommended fire flows should be set at 1,000 gpm for residential developments and 2,500 gpm for commercial/industrial developments. Please note that accomplishing the required fire flow could require a booster station, looping the system back to a second Mequon Water Utility water main connection, or other infrastructure.

Response: Clark Dietz has begun to evaluate the infrastructure requirements to provide proper fire flows to the development. The attached Alternative Analysis discusses alternatives to providing the water needs to the development.

- Please also provide the analysis for the turnover rate of the water in the system. If ultimately designed as a dead end main and not looped, the Utility may require an automatic flushing device if proper water turnover is not provided by the development itself.

Response: Clark Dietz has begun to evaluate the infrastructure requirements to provide the appropriate water age to the development. The attached Alternative Analysis discusses alternatives to providing appropriately aged water.

- While not intended to be full construction plans, both the Mequon Water Utility and the Village of River Hills should know and understand the infrastructure requirements before considering an agreement for design/construction.

Response: Clark Dietz has begun to evaluate the infrastructure requirements to provide the appropriate water age, and fire flow to the development. The attached Alternative Analysis



Kristen Lundeen
March 15, 2022
Page 3

discusses the basic infrastructure requirements for each alternative. Both parties will know and understand the ultimate infrastructure requirements before considering the agreement for design/construction.

Sincerely,

Clark Dietz, Inc.

Brandon Flunker, PE, CFM
Project Engineer
E-mail: brandon.flunker@clarkdietz.com

Attachment: River Hills Response Letter (3.15.22) (7430 : River Hills Request for Service)

Memo

To: Kristen Lundeen, PE
From: Brandon Flunker, PE, CFM
Date: May 9, 2022
Subject: River Hills Connection Alternatives v3
Copies: Mustafa Emir, PE PhD; Tammy Laborde, ICMA-CM/WCMC

Background

In response to the memo from the Mequon Water Utility, Clark Dietz used the existing model from City Water to simulate several alternative scenarios.

Base Scenario

The first simulation was an 8-inch diameter pipe extension from the Mequon watermain on County Line Rd. The extension is approximately 5200 LF of municipal watermain to the proposed private development in River Hills called "The Grove."

The results of the simulation show that static pressure provided to the development was at 66psi and the fire flows in the pipe were 600 GPM at 20psi residual pressure. The base scenario is shown in exhibit 1.

- The static pressure meets the requirements of NR811.70(4) of Wis. Stats. 66psi is greater than 35psi and less than 100psi.
- The fire flow is less than the recommended 1000 GPM, though higher than the minimum required 500GPM per NR811.70(6) of Wis. Stats.

This base scenario does not meet Mequon Water Utility recommendations for fire flows. Additionally, the water age in this system will be greater than 72 hours based on the simulation which is considered "long".

Three other scenarios were simulated that DO meet the Mequon Water Utility recommended fire flows for the development. Alternate 3 meets the Mequon Water Utility recommended fire flows at BOTH the development and USM.

USM

University School of Milwaukee (USM) has officially shown interest in connecting into the watermain extension. The USM Engineer, GRAEF, has indicated that the school uses approximately 30,000 gpd or about 200gpm and needs 600gpm to supply their fire pump. Adding USM would be a significant benefit to the water age in a dead-end system. We simulated the connection in Alternates 1 and 2 and water age at the development was reduced to an acceptable 41 hours. Both alternates 1 and 2 allow USM potable water service and approximately 1000-1400gpm fire flow.

**MEMO**

Kristen Lundeen, PE

May 9, 2022

Page 2

As a condition of Mequon Municipal Water Utility policy, 2500 GPM fire flows are required for commercial/institutional developments. An additional alternative was simulated that can provide this as discussed in Alternative 3. While the school can continue to use their 50,000-gallon fire suppression tank and supplement with the nearby pond, it would be remiss if the Village did not consider options to provide the school sufficient fire protection and drinking water from a pipe that passes through the school property.

Alternate 1

Alternate 1 utilizes a booster pump to increase the fire flows to the development. The pump was placed just south of the connection to the Mequon system. This scenario requires a 12-inch diameter pipe to the development. The booster pump operating at 80psi will provide the development with 1000GPM. Exhibit 2 shows Alternate 1. The booster pump was the least attractive of the options as it would require routine maintenance.

Alternate 2

Exhibit 3 shows Alternate 2 which includes a loop upstream of the River Hills connection. The Alternate 2 loop proposes a connection at the existing 16-inch watermain on Port Washington Ln approximately 500ft north of El Rancho Dr. A 12-inch pipe would then run south to El Rancho Dr then head west on El Rancho through the cul de sac to the existing 8-inch watermain on Columbia Creek Ln. This loop would increase the flow on the Mequon system at the River Hills connection point. The fire flow at the connection would increase from 800GPM to 1400GPM. The extension to the development via USM property and Greenbrook Rd. would need to be a 10-inch diameter pipe to provide a fire flow of 1050GPM. Additionally, this loop would provide opportunity for 27 new customer connections on El Rancho, should Mequon wish to explore that. Additionally, the water age shortens at the connection point, and is a benefit to fire flows in the area for existing customers.

Alternate 3

Exhibit 4 shows Alternate 3 which includes a connection to the Mequon Water Utility system in Bayside on Port Washington Rd where there is a 16-inch watermain pipe. A 12-inch diameter pipe would connect to this 16-inch and travel west on Fairy Chasm Rd, bore beneath I-43, and continue west to USM where a stub would be provided to the school. An 8-inch pipe would connect into Fairy Chasm 12-inch at the Spruce Rd intersection and travel south to Greenbrook Rd and then west to the development. This alternative would require 3900 ft of 12-inch watermain and 2700 ft of 8-inch watermain. The fire flow at the University School would be 3200GPM and the fire flows at the development would be 1100GPM, meeting the Mequon Water Utility requirements.

Life Cycle Costs

The Mequon Water Utility is a build and contribute utility, where all initial infrastructure cost, including any required upgrades to the existing system required by the development are paid for by the applicant. If Alternate 2, the El Rancho looping option, is approved by the City of Mequon present day costs of the infrastructure are as follows:

**MEMO**

Kristen Lundeen, PE

May 9, 2022

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ALTERNATE 2	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
USM Easement and Greenbrook Rd - Watermain PVC, 10-Inch, Directionally Drilled. Includes Valves, Hydrants, Minor Restoration	LF	5200	\$ 180.00	\$ 936,000.00
Port Wash. Ln and El Rancho Dr - Watermain PVC, 12-Inch, Gravel Backfill. Includes Valves, Hydrants, Asphalt, Restoration	LF	2500	\$ 230.00	\$ 575,000.00
20% Contingency				\$ 302,200.00
CONSTRUCTION REPLACEMENT COST (PRESENT)				\$ 1,813,200.00

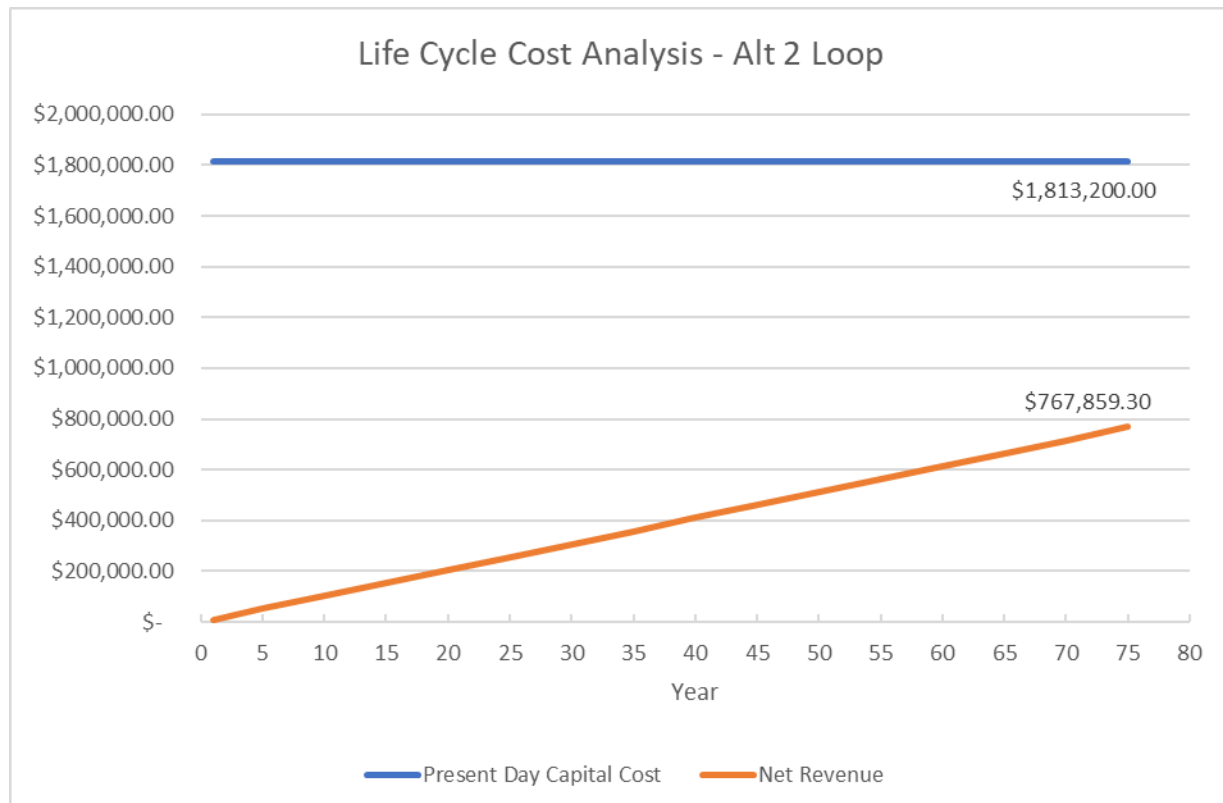
The water rates received from City Water indicate the following assuming 1-inch meter for each of the 52 residential connections from the River Hills Development:

Quarterly service charge = \$89.46 plus volume charges: \$5.17 per 1,000 gallons for the first 150,000 gallons used.

Average annual payment to the utility for an individual home using 140gpd = \$264.20 in volume charges and \$258.80 for service charges for a total of \$523.00 per rate payer per year.

The Operation and Maintenance costs on average between 2019 and 2020 were \$1,510,742. Distributed among the current 4581 users and the additional 52 users equals \$326.10 per rate payer per year. The total annual payment to the utility is **\$10,238.12 per year**.

A net contribution of the development over 75 years equals approximately \$770,000. The deficit over the life cycle would be nearly \$1 million.



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The life cycle cost analysis for Alternative 3 with USM connecting into the system is as follows:

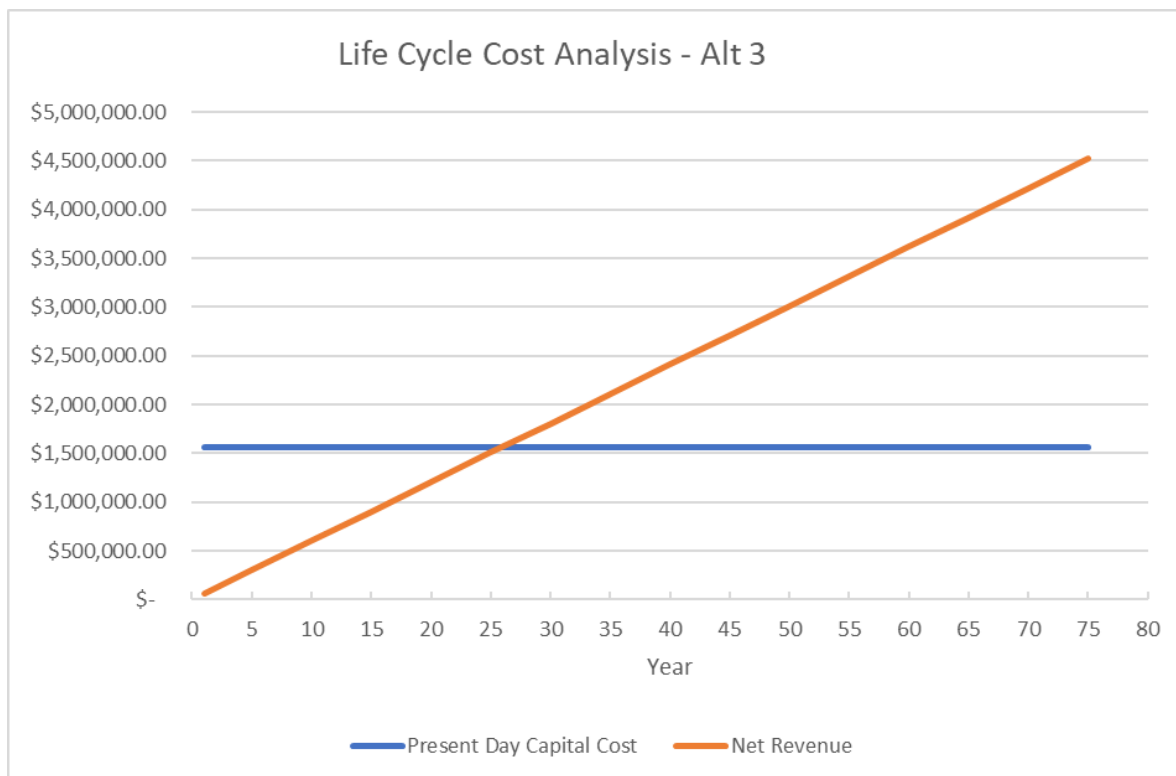
ALTERNATE 3	UNIT	QUANTITY	UNIT PRICE	TOTAL PRICE
Greenbrook Rd - Watermain PVC, 8-Inch, Directionally Drilled. Includes Valves, Hydrants, Minor Restoration	LF	2700	\$ 165.00	\$ 445,500.00
Fairy Chasm Rd - Watermain PVC, 12-Inch, Directionally Drilled. Includes Valves, Hydrants, Asphalt, Restoration	LF	3900	\$ 220.00	\$ 858,000.00
20% Contingency				\$ 260,700.00
CONSTRUCTION REPLACEMENT COST (PRESENT)				\$ 1,564,200.00

The USM average daily usage is 30,000 gallons per day. It was assumed that the school would connect with a 6-inch diameter pipe.

Quarterly service charge = \$629.14 plus volume charges: \$4.37 per 1,000 gallons for users of over 500,000 gallons per quarter.

Average annual payment to the utility by the school with operation and maintenance costs subtracted equals **\$50,041.96 per year**.

A net contribution of the development and the school over 75 years equals approximately \$4.5 million. This watermain extension that would serve the University School and The Grove would more than pay for itself over its lifecycle. Additionally, there would be option for 35 adjacent River Hills residents to connect into the new watermain.



**MEMO**

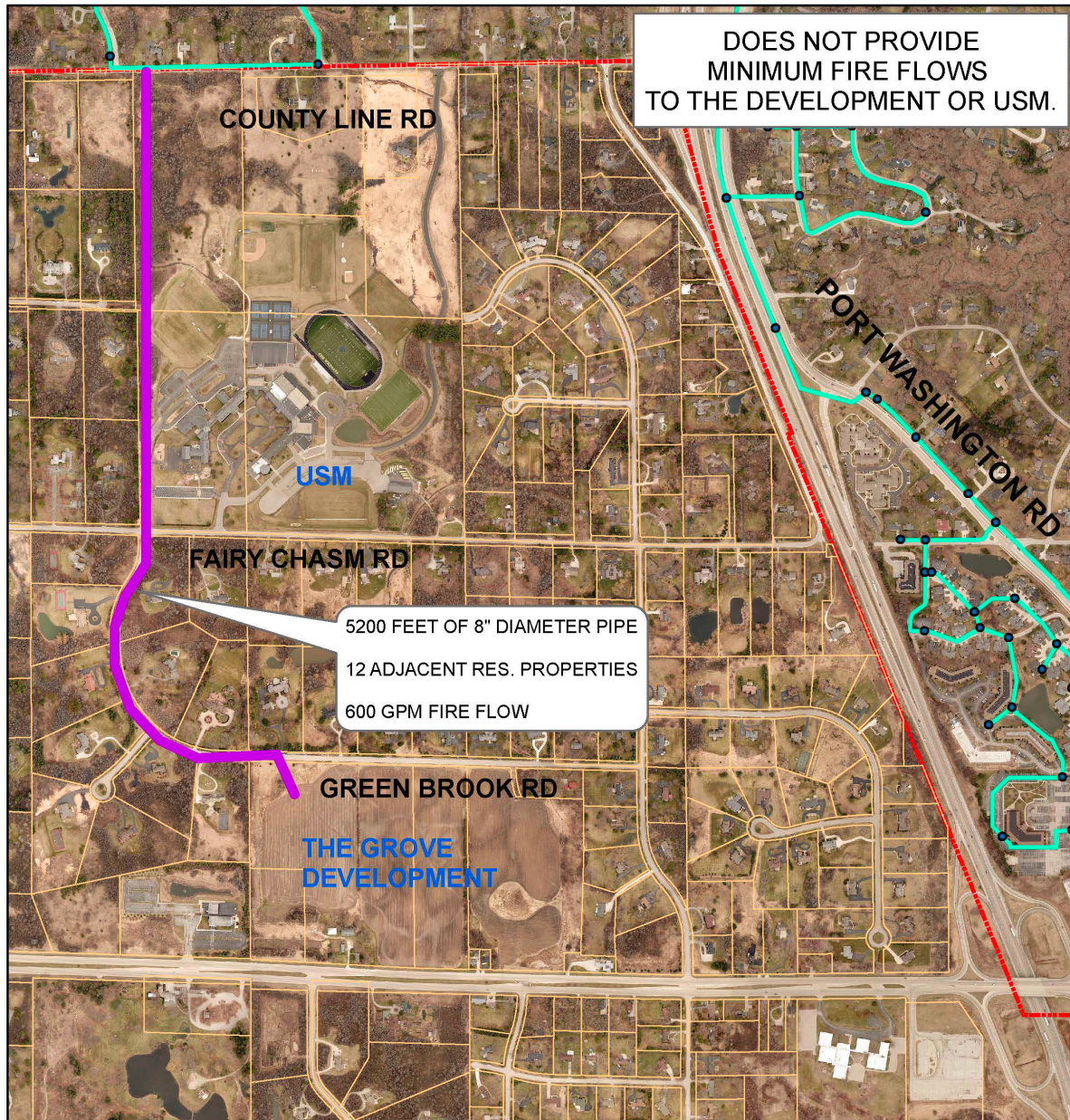
Kristen Lundeen, PE

May 9, 2022

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Recommendations

Multiple alternatives are available to bring water to the River Hills development, but only Alternative 3 is viable to provide both USM and the development the recommended MWU fire flows. Financially, Alternative 3 will provide revenues over double the initial capital cost. We recommend the Village propose this option to the Mequon Water Utility as the preferred connection route to serve the University School, the Grove Development, and any of the 35 adjacent residents.



BASE SCENARIO

Legend

- Existing Watermain
- River Hills Parcels
- Municipal Boundary



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 Engineering Quality of Life™

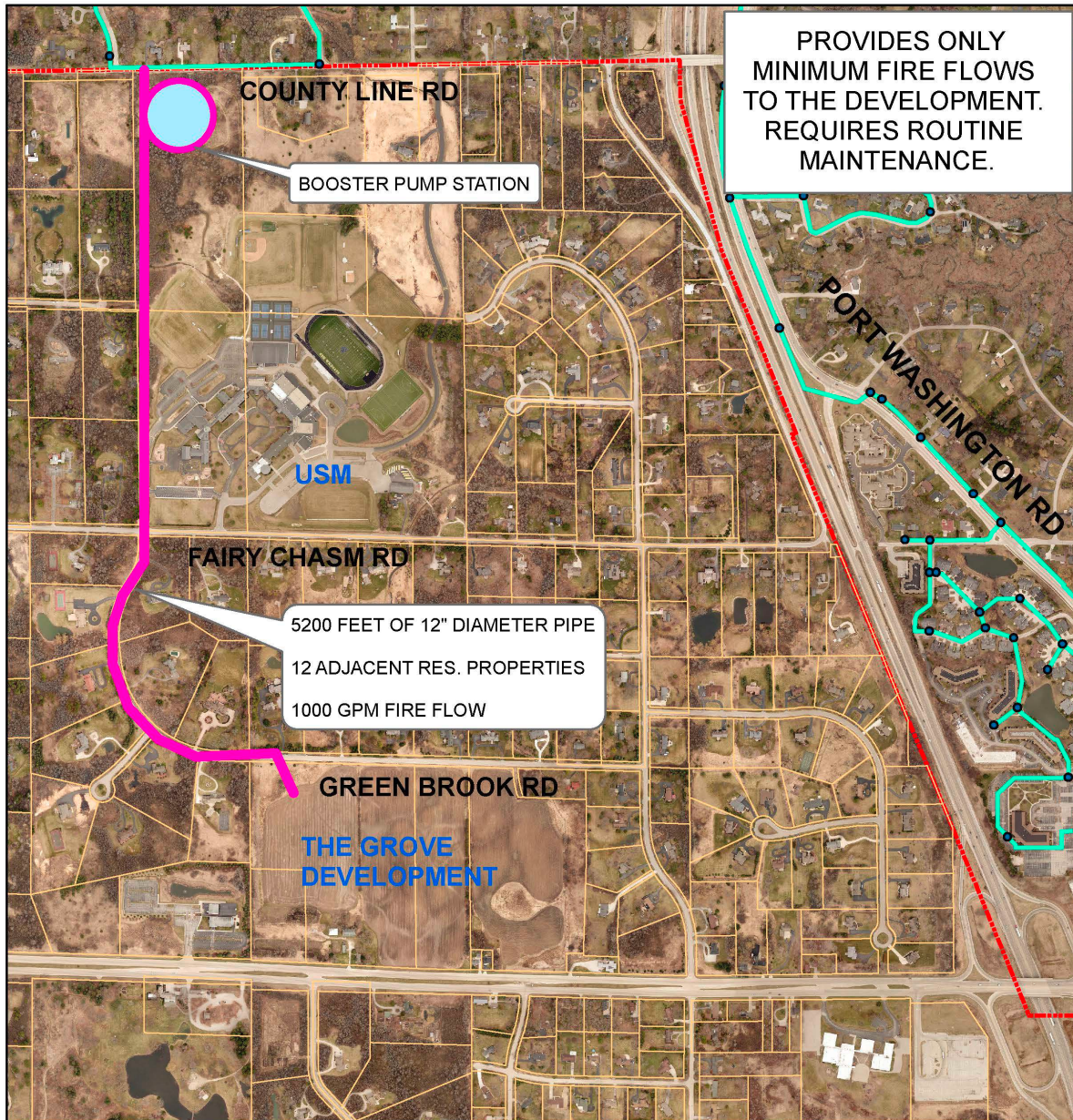
Exhibit 1 – Base Scenario

**MEMO**

Kristen Lundeen, PE

May 9, 2022

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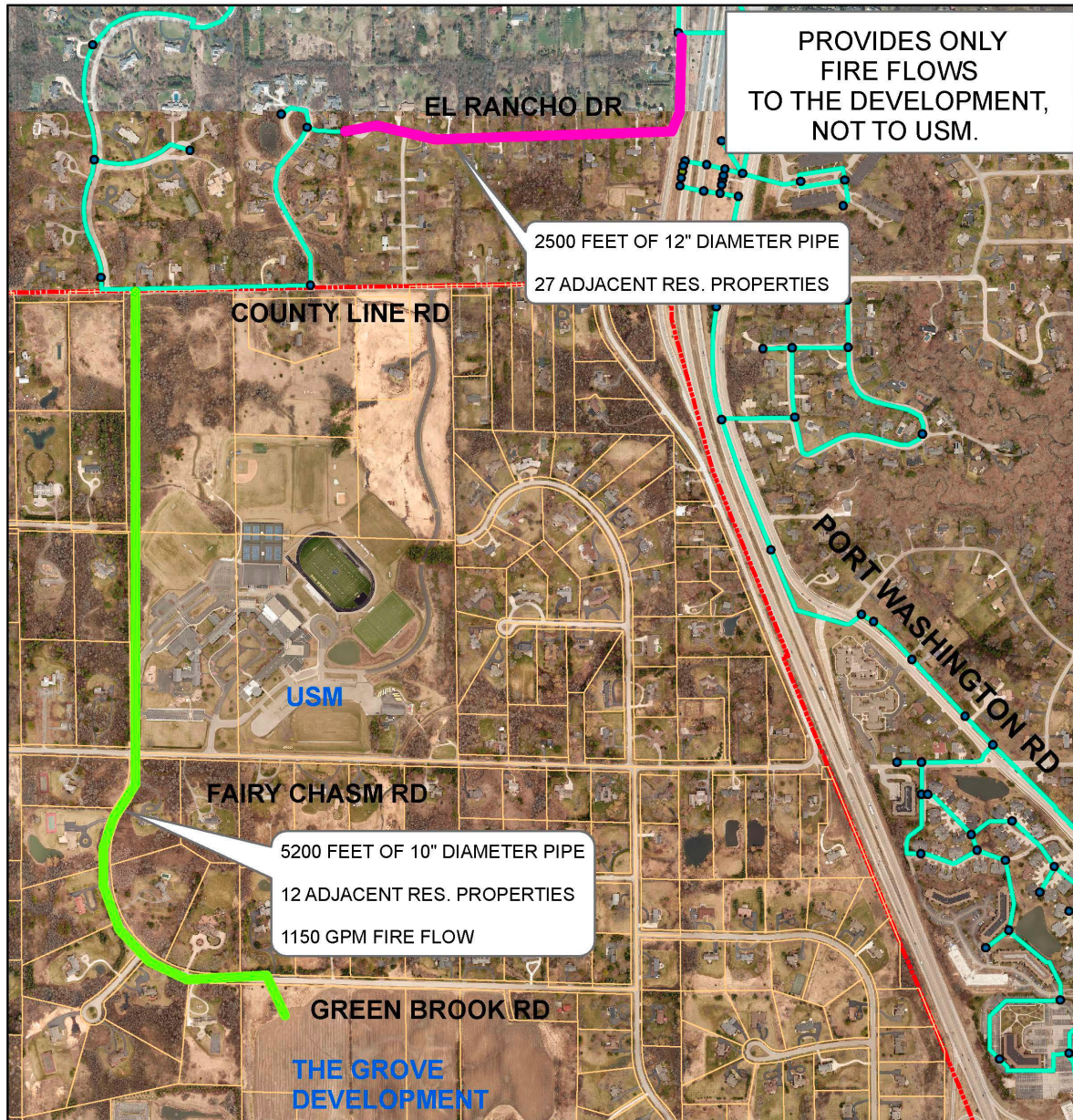
**ALTERNATIVE 1****Legend**

- Existing Watermain
- River Hills Parcels
- Municipal Boundary



ClarkDietz
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Exhibit 2 - Alternative 1



ALTERNATIVE 2

Legend

- Existing Watermain
- River Hills Parcels
- Municipal Boundary



ClarkDietz
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Exhibit 3 - Alternative 2

MEMO

Kristen Lundeen, PE

May 9, 2022

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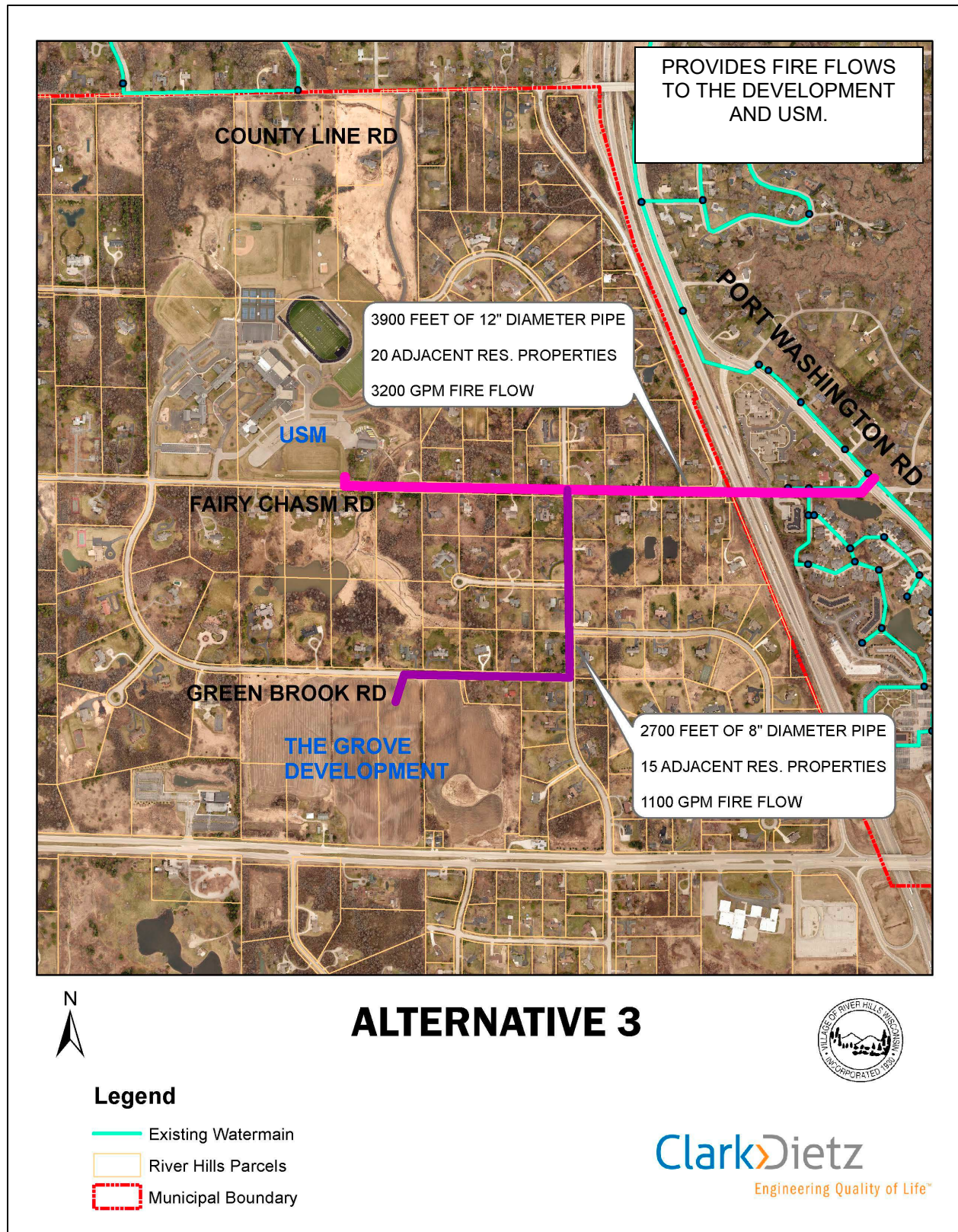


Exhibit 4 - Alternative 3



Village of River Hills
7650 N Pheasant Ln
River Hills, WI 53217

3.b.d

Village Hall: 352-8213
Public Works: 352-0080
Police: 352-8211

VIA E-MAIL (klundeen@ci.mequon.wi.us)

May 27, 2022

Ms. Kristen Lundeen
Director of Public Works, City Engineer
11333 N Cedarburg Rd.
Mequon WI 53092

RE: Municipal Water Service to River Hills Residents

Dear Ms. Lundeen,

This letter is a follow-up to the initial request letter to the Mequon Water Utility to consider and approve a watermain extension in the Village of River Hills that was initially intended to serve the Eder Farm Development.

The Village and their Engineer, Clark Dietz Inc, has worked with the Utility's staff to address requested data, information, and analysis for the Mequon Water Utilities decision to approve the extension.

As part of that request, the Village approached the University School of Milwaukee for interest in connection to municipal water. The University School of Milwaukee, a K-12 private school on a 120-acre campus just south of the City of Mequon's border, has provided a letter of interest the Mequon Water Utility.

A watermain distribution alternative analysis dated 5.9.2022 presents several alternates for connections into the MWU system. Alternate 3 stands out as the most economical and feasible option to serve both the school, the development, and any of the other 35 willing residential properties along the watermain route.

The Village requests that the Mequon Water Utility considers and approves the Alternate 3 connection route.

Implications to the denial of this request would include:

- The Village will have to halt the development and search for other means of safe water supply
- There will be a less than ideal fire suppression system at USM requiring more frequent maintenance than if it were connected to the MWU system.
- River Hills users will have to continue to maintain and treat less than ideal water from private wells that pump from the local water table.

Please let me know if there is anything else the Village can do to assist the Utility Commission with making their decision. We are looking forward to working on the agreement.

Regards,

Tammy LaBorde, ICMA-CM/WCMC
Village Manager/Clerk/Treasurer

cc: River Hills Board of Trustees (via email)
Mustafa Emir (via email)
Brandon Flunker (via email)

Attachment: River Hills Request (5.27.22) (7430 : River Hills Request for Service)



275 W. Wisconsin Avenue, Suite 300
 Milwaukee, WI 53203
 414 / 259 1500
 414 / 259 0037 fax
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May 23, 2022

Ms. Kristen Lundeen
 Director of Public Works, City Engineer
 11333 N Cedarburg Road
 Mequon, WI 53092

SUBJECT: University School of Milwaukee
 Connection to Proposed Municipal Water Main

As you may know, in Fall 2020 Village of River Hills engineers approached University School of Milwaukee (USM) to discuss the possibility of putting in a watermain on the west side of campus. The School was asked about interest in connecting to the watermain if the project moved forward. After the initial inquiry USM has been working on a campus wide water distribution analysis to understand the ability to connect to the proposed Municipal Water Main that the Village of River Hills and Mequon Water Utility are in discussions with to serve a new residential development just south of USM's Campus on the Eder property. Through discussions with the Village's Engineer, Mustafa Emir, we understand that proposed routing of the watermain has been modified. The new plan is to bring the main from Port Washington Road and west on Fairy Chasm Road, resulting in a flow rate of 3200 GPM.

USM is very interested in connecting to the proposed water main. In order to meet USM's domestic and fire protection needs, the flow from the revised routing is preferred over the original water system routing.

USM will be an invaluable future customer to the Mequon Water Utility utilizing their service for years to come, which would certainly help make this project financially viable to the Utility. Due note, that the water main construction project is being driven by the new development at the Eder property. University School is not the party requesting the main to be constructed, but rather a local entity very interested in utilizing the system as it passes by their property. While USM is very interested in connecting there are financial issues to review before a final decision is made. The primary financial issue at this time is the cost involved to connect the main to the school building.

Please reach out to us with any questions as further discussion regarding this project continues.

Sincerely,

University School of Milwaukee

Gregg Bach
 Assistant Head of School
 414-540-3382

Graef-USA-Inc.

Ben Langemeier, P.E.
 Civil Engineer
 414-266-9141

File: X:\ML\2022\20220044\Correspondence\Letters

Attachment: Letter of Interest - USM (5.23.22) (7430 : River Hills Request for Service)

memo

To: Kristen Lundeen, Director of Public Works
 From: Eric Fulsaa – Engineer, City Water
 Date: June 3rd, 2022
 Re: Technical Review of River Hills Connection Alternatives v3 Memo

Background

The Village of River Hills hired Clark Dietz to perform a water service connection alternatives analysis to review what, if any, water main configurations would be sufficient to serve the proposed River Hills development. City Water and Mequon Engineering staff worked with Clark Dietz over the past several months to provide existing hydraulic model information, standard specifications, and water rate information to assist in completing the analysis. On May 9th, 2022, Clark Dietz submitted Version 3 of their alternative analysis to the City for review, along with a letter from the Village of River Hills asking for Alternative 3 to be considered and accepted. This memo provides a technical analysis and review of the Clark Dietz memo, listing pros and cons for each alternative and ultimately recommending the best scenario for the Water Utility.

Base Scenario

Clark Dietz's base scenario consisted of a sole 8-inch diameter pipe extension from County Line Rd south to the proposed River Hills development.

Pros	Cons
- Meets static pressure requirements of NR811 - Lowest cost alternative	- Does not meet Mequon Water Utility standards for residential fire flow (1000 gpm) - Water age in the system would be undesirable

The base scenario is not a viable option for the River Hills development.

Alternative 1

Alternative 1 consists of the base scenario with 2 major changes: Upsizing the pipe diameter to 12-inch and adding a booster pumping station.

Pros	Cons
- Meets static pressure requirements of NR811 - Booster pump and larger diameter mains provide 1000 gpm residential fire flow	- Booster pump station require ongoing operation and maintenance costs not benefiting existing Utility customers - Oversize main and booster pump station increase initial capital costs and future capital replacement costs

Alternative 1 is not a viable option. The Utility does not want to own or maintain a booster pump station that does not increase the level of service to existing customers.

Alternative 2

Alternative 2 attempts to solve the available fire flow issue by looping the existing watermain system along El Rancho Dr and extending a 10-inch main south from County Line Rd. The looping provides additional fire flow without needing to install and operate a booster station.

Pros	Cons
- Meets static pressure requirements of NR811 - System looping and larger diameter mains provides 1000 gpm residential fire flow - System looping provides opportunity for 27 new connections on El Rancho Dr - System looping provides increased fire flow and system reliability for existing customers in the Whitman Place and Columbia Reserve Subdivision	Life cycle cost analysis indicates the capital investment will not be matched by customer revenue over the 75-yr lifespan of the water mains. Existing customers will subsidize eventual capital infrastructure replacement for this project

Alternative 2 provides the first potentially viable option for the River Hills development. The system looping proposed eliminates one of the long-term looping projects on the Utility's Capital Infrastructure Plan. However, the deficit of over \$1 million at the end of the infrastructure's life cycle would be too large an impact on existing customers.

Alternative 3

Alternative 3 developed after discussion between the Utility and Clark Dietz indicated that the base scenario, Alternative 1, and Alternative 2 would not be acceptable design options. This alternative connects to the Mequon Water Utility mains in the Village of Bayside and runs a 12-inch diameter pipe west under the interstate to River Hills. This alternative would provide a water connection to the University School of Milwaukee (USM) and 8-inch main in the proposed development.

Pros	Cons
- Meets static pressure requirements of NR811 - Larger diameter main and Bayside connection provides 1000 gpm residential fire flow and 3200 gpm fire flow for USM - Adding USM as a customer would increase revenues over the life cycle – the capital costs are recouped in around 25 years - An additional 35 potential River Hills customers could be served by this routing - This alternative has no impacts on ability to provide domestic or fire flow to existing customers.	Interstate crossing involves substantial operational risk to the Utility. If the main underneath the interstate were to fail, USM and River Hills customers would be without water for potentially weeks while a new main was installed under the interstate.

Alternative 3 is by far the most appealing option from providing both domestic and fire flow to the proposed development without impacting existing customers. The largest concern is the future risk of the interstate crossing failing and the Utility being unable to provide water to River Hills and USM. Potential solutions to this issue include:

- Requiring a casing under the interstate for ease of replacement/repair. Currently the Clark Dietz analysis does not include casing in the estimated cost of Alternative 3. Mequon Water Utility currently has two interstate crossings, and both have casing pipes for safety and ease of repair/replacement.
- Requiring a small diameter (8-inch) looping main back to County Line Rd and a boundary valve. Even with a casing under the interstate, repairs/replacements of any damage or failure could take several days/weeks to fix. A small diameter looping main would allow the Utility to provide domestic flow to River Hills and USM during the interstate crossing repair.

Recommendation and Conclusion

A review of the Clark Dietz memo results in only one viable alternative – Alternative 3. However, the risk of serving not only a residential development but also USM based on a sole interstate crossing is substantial. City Water recommends proceeding forward with Alternative 3 with the requirements outlined above (casing pipe and looping main). These additions would greatly reduce the risk to the Utility for future service interruptions.

We would recommend that Clark Dietz rework Alternative 3 to include the requirements. This will increase the initial capital costs, however Clark Dietz did not include some of the fixed revenue costs in their life cycle calculations. The USM quarterly service charge would also include a private fire protection charge, increasing revenue. Given the current estimated revenues of around \$4.5 million over the life cycle, we are confident the addition of casing pipe and looping main only delay the break-even year, not cause the extension to reach a deficit.



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Office of Public Works

Preliminary List of Additional Information Required for Further Evaluation

1. Map of the proposed utility boundaries relative to University School Milwaukee and the proposed residential development that would be utilized to complete an amendment to the Mequon Water Utility User Service Area map.
2. Based upon the map above, identify the total number of proposed residential and commercial connections, as well as the total number of potential residential and commercial connections.
3. Update the financial pro forma based upon the data in Item 2.
4. The Mequon Water Utility is a voluntary utility. The Village of River Hills should identify whether the potential customers in Item 2 will be required to connect, provided the opportunity to connect, or prohibited to connect, based upon Village of River Hills policy.
5. University School Milwaukee should provide four quarters of water use based upon a three-year average. The information will be utilized to determine the connection fee and estimated annual billing.

Preliminary List of Terms and Conditions to be Included in the Intergovernmental Agreement (IGA) and/or Water Services Agreement (WSA) IF Connection is Granted

1. Execution of the IGA is conditioned upon University School Milwaukee connecting to the Mequon Water Utility with the construction of the initial project.
2. Casing required for the water infrastructure under the interstate crossing.
3. Loop 8-inch diameter main from development back to County Line Road with a boundary valve.
4. Mequon Water Utility approval of the design, technical specifications and construction plans prior to bidding.

Attachment: MWU List for IGA & WSA (7430 : River Hills Request for Service)